U.S. Department of Homeland Security

United States Coast Guard

Reevaluation – Environmental Assessment

Ambassador Bridge Enhancement Project

December 29, 2015

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SECTION 1 INTRODUCTION

This reevaluation has been prepared to update the information provided in the Coast Guard's 2009 Final Environmental Assessment (EA). The Coast Guard has determined that there are no substantial changes in the proposed action that are relevant to environmental concerns; nor are there any significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts which would give rise to a demand for a supplemental EA as prescribed by 40 C.F.R. § 1502.9. However, in order to inform the public of all relevant information, the Coast Guard offers this update.

On July 13, 2006 the Detroit International Bridge Company (DIBC) submitted an application to the U.S. Coast Guard (USCG) for a bridge permit to construct a new bridge adjacent to the existing Ambassador Bridge due to the age of the existing structure and the demands of modern traffic and security. The new bridge proposal is referred to as the Ambassador Bridge Enhancement Project (ABEP). The DIBC plans to construct the new bridge in coordination with its commonly-owned Canadian counterpart, the Canadian Transit Company (CTC), an Ontario corporation. Both the DIBC and CTC are owned by Centra, Inc., a Michigan corporation.

On April 24, 2007, as lead federal agency for the purposes of the National Environmental Policy Act (NEPA), the Coast Guard issued a Draft Environmental Assessment (EA). Availability of the Draft EA was advertised in all local media in Detroit for public comment on May 1, and by Coast Guard public notice released on May 10. On February 27, 2009 the Coast Guard published the Final Environmental Assessment (EA) and a Draft Finding of No Significant Impact (FONSI) for public comment. Written public comments were accepted during this comment period from February 27 through April 30, 2009. Additionally, a public meeting was held on March 17, 2009 at which public comments were also received. The majority of the public comments received related to potential traffic impacts on neighborhood streets, property ownership required for the bridge, air quality impacts, closure of the existing bridge, and the relationship of this bridge to the Gateway Plaza Project. These comments are summarized and responses to substantive comments are contained within **Attachment E**.

During the Final EA public comment period, certain Michigan litigation and actions by the Detroit City Council led the Coast Guard to conclude that DIBC was not likely to obtain the necessary property rights in the near future. On June 15, 2009, the Coast Guard issued an Abeyance Letter which halted the processing of the bridge permit application for the ABEP. Despite several meetings between the Coast Guard and DIBC, there had been no movement by DIBC or other involved entities on the issues outlined in the Abeyance Letter. On March 2, 2010, the Coast Guard issued a letter to DIBC stating the ABEP permit application was incomplete, after 3.5 years, and returned the application to DIBC. The Coast Guard also stated in that letter that to continue processing the bridge permit application, DIBC should demonstrate that sufficient legal authority to build the proposed

bridge existed, which would need to include definitive proof of resolution of the property rights issue.

On March 22, 2010, the DIBC initiated litigation against the Coast Guard in an attempt to obtain a final FONSI and Coast Guard bridge permit. During the course of litigation, DIBC provided the Coast Guard in 2012 with an updated bridge permit application for the proposed project. That application included an addendum that studied a tower pier to be constructed on property owned by CSX Railroad, and not on Riverside Park property owned by the City of Detroit. On July 11, 2012, DIBC provided a revised air quality analysis as an update to the air quality modeling analyses included in the 2009 Final EA. This air quality analysis reflected the MDOT-approved final design for the Ambassador Bridge Gateway Project, a separate but related transportation project that enhanced freeway connections between Mexicantown and the Ambassador Bridge and removed truck traffic from Fort Street. The Coast Guard sent the air quality analysis to the United States Environmental Protection Agency (USEPA) and the Michigan State Historic Preservation Officer (MI-SHPO) for review and comment.

On August 23, 2012, the USEPA wrote to the Coast Guard stating USEPA's outstanding regulatory issues with the ABEP had been resolved based on the 2012 updated air quality analysis. In its letter, the USEPA also continued to recommend voluntary mitigation measures first recommended in their July 17, 2007 letter and reiterated in their April 29, 2009 letter. More detailed information regarding the air quality analysis can be found in Section 3.15 of this report. The MI-SHPO also responded stating the existing MOA was adequate for the proposed modification, and therefore it was not necessary to reopen the Section 106 consultation process.

This reevaluation has been prepared to update the information provided in the 2009 Final EA. In July of 2015, DIBC and the City of Detroit reached an agreement that will allow DIBC to build the bridge as originally proposed. Although the agreement requires further approvals by the State of Michigan Department of Natural Resources and the National Park Service, the Coast Guard finds that agreement provides DIBC with sufficient legal interest in the subject property to move forward with the bridge permit process. As a result, the bridge design has reverted to the original design described in the 2009 Final EA. Therefore, the existing MOA continues to remain adequate for the project as originally proposed. A copy of these design plans can be found in **Attachment A**. Based on these developments, the Coast Guard contacted the USEPA on September 29, 2015 to determine which, if any, parts of the 2012 air quality analysis had to be updated. In response, the EPA made a number of project-related recommendations, but did not require additional air quality analysis as part of this reevaluation. The 2015 air quality correspondence can be found in Section 3.10 and **Attachment F**. Updates related to all other applicable environmental control laws can be found in Section 3.

SECTION 2 PROJECT DESCRIPTION

The ABEP involves the construction of a new six lane cable-stayed bridge located in the same corridor and adjacent to the existing Ambassador Bridge, connecting to the Ambassador Bridge Gateway Plaza without the need for modification to its currently constructed configuration. The proposed bridge will run roughly parallel to the existing Ambassador Bridge. The width of the proposed bridge is set to allow transition directly into the connection points in both the United States and Canadian plazas and to provide the necessary safety shoulders that are not present on the existing bridge.

The proposed bridge will provide six lanes of travel, three in each direction. One lane in each direction will be dedicated to low-risk commercial traffic participating in the FAST program operated by customs authorities of the United States and Canada. The other lanes will be open to general automobile and commercial traffic. Although the proposed new bridge is immediately adjacent to the existing Ambassador Bridge, it is not intended to expand the current capacity of the Ambassador Bridge. Rather, the new bridge will more efficiently and safely service the traffic now being handled at the existing Ambassador Bridge. Once the proposed companion bridge is operational, the existing Ambassador Bridge will be taken out of service, rehabilitated, maintained and used for redundancy, emergency traffic, and approved public events.

SECTION 3 EXISTING CONDITIONS AND AFFECTED ENVIRONMENT

3.1 SOCIOECONOMICS

The impacts identified in the Final EA indicated that the project would not have significant adverse impacts to the sociocultural environment. There is no change in the nature or level of impact from the 2009 environmental assessment.

3.2 LAND USE

On July 28, 2015 the Detroit City Council voted to approve an agreement to allow for the transfer of 3 acres of the eastern portion of Riverside Park to the bridge company in exchange for 4.8 acres of riverfront land to the west. Because Riverside Park was created with federal and state grant money, the transfer and conversion of land necessary for the new bridge must still be approved by the Michigan Department of Natural resources and the National Park Service in accordance with the Land and Water Conservation Fund conversion requirements before construction of the new bridge may commence. As the project footprint is the same as that proposed and evaluated in the 2009 Final EA, no adverse impacts to land use or additional zoning changes are anticipated from the construction or operation of the Proposed Project.

3.3 WATER USE AND NAVIGATION

No adverse impacts to commercial or recreational navigation or potable water are anticipated from the Proposed Project. There is no change in the nature or level of impact from the 2009 environmental assessment.

3.4 VISUAL QUALITY AND AESTHETICS

In a letter dated March 26, 2007 the Michigan SHPO determined that the Proposed Project would have an adverse effect on the existing Ambassador Bridge. The adverse effect finding specifically referenced potential visual effects that would introduce a visual element that diminished the integrity of the Ambassador Bridge's significant historic features. Mitigation has been incorporated in a Memorandum of Agreement (MOA), executed on January 14, 2009 and the Preservation Agreement, signed on December 8, 2008 to reduce impacts to the historic character of the existing Ambassador Bridge. The MOA and Preservation Agreement remain valid. There is no change in the nature or level of impact from the 2009 environmental assessment.

3.5 CULTURAL AND ARCHEOLOGICAL RESOURCES

During the Section 106 consultation process Native American tribal governments were contacted and offered opportunities to comment on the project. No tribal interests were identified. In a letter dated January 18, 2008 the SHPO concurred with the conclusions of the archaeology study. There is no change in status.

3.6 TOPOGRAPHY, GEOLOGY AND SOILS

The studies documented in Final EA indicated that the project would not have adverse impacts to topography, geology, soils, prime farmland, or natural landmarks. There is no change in status.

3.7 SURFACE WATER RESOURCES

The impacts identified in Final EA indicated that the project would not have adverse impacts to surface water resources including hydrology, floodplains, water quality, stormwater, wetlands, and wild and scenic rivers. After the initial Part 301 Inland Lakes and Streams permit expired, DIBC received a new Part 301 permit from the Michigan Department of Environmental Quality (MDEQ) Water Resources Division in April 2013. This permit, which remains valid until April 2018, can be found in **Attachment B.** There is no change in status.

3.8 AQUATIC ECOLOGY AND ESSENTIAL FISH HABITAT

The impacts identified in Final EA indicated that the project would not have adverse impacts to aquatic resources or essential fish habitat. There is no change in status.

3.9 TERRESTRIAL ECOSYSTEMS

Since the 2009 environmental assessment, the Northern Long-eared Bat has been listed as threatened under the Endangered Species Act. The project is not located within or adjacent to wooded areas that would constitute suitable foraging locations for the Northern Long-eared Bat. As a result, the proposed project would have no effects on the Northern Long-eared Bat or identified or potential habitat.

Analysis conducted in 2009 indicated that there would be no significant adverse impact to terrestrial vegetation or wildlife anticipated from the construction or operation of the Proposed Project. There is no change in the nature or level of impact from the 2009 environmental assessment.

3.10 AIR QUALITY

The Final EA included an analysis of air quality impacts from the proposed project. When the air quality analyses were conducted in 2012, Wayne County was designated as a non-attainment area for ozone (O3) and for particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter (PM2.5). A portion of Wayne County was designated a maintenance area for carbon monoxide (CO), which included the area of the proposed bridge. All of Wayne County was designated a maintenance area for particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM10). The County was an attainment area for the remaining criteria pollutants including lead, nitrogen oxides and sulfur dioxide.

The project was determined to be a project of air quality concern for purposes of transportation conformity due to its size and significant levels of diesel vehicle traffic. USEPA determined that the project was considered to be regionally significant, as reflected in e-mail correspondence on

September 28, 2007. The "regional significance" determination made by USEPA under 40 CFR Part 93.101 required the project be evaluated under Transportation Conformity Rule requirements and be included in the regional transportation plan implemented through the Southeast Michigan Council of Governments (SEMCOG), and therefore required air dispersion modeling, or "hot-spot" analysis.

The air quality analysis performed for this project was derived from the same projected overall traffic counts, including truck traffic, used in the Gateway Project and DRIC studies. For purposes of this analysis, it was assumed that for operation of the new bridge in year 2030, that all U.S. Customs booths were open and that with the use of the FAST lanes each truck booth processed one truck every 1.5 minutes and each car booth processed one car every minute. This very conservative assumption was held constant for all 8,760 hours of the modeled year and indicated that the northbound cars and trucks entering the U.S. would be backed-up across the entire bridge span to the Canadian Plaza, with the southbound traffic entering Canada experiencing only a short back-up. Thus, the volumes that were used in the Air Quality Analysis for the project exceed those obtained from the DRIC Level 3 Report. This analysis did not consider the fact that once constructed the DRIC bridge would carry some portion of this traffic assumed to be carried by the ABEP in 2030.

For the assessment of regional impacts, the 2010 and 2030 annual air emissions of all criteria pollutants from vehicle traffic on the new bridge consisted of only 0.0144% and 0.0097% of the annual emissions of criteria pollutants for Wayne County, Michigan. Based on these estimates, vehicle emissions on the new bridge will not involve significant air quality impacts.

The dispersion modeling analysis demonstrates that the maximum predicted impacts combined with the current background concentrations are less than NAAQS, and that the maximum predicted concentrations of air toxics are less than MDEQ health based screening levels. Thus, the Project is not expected to have significant local air quality impacts. The analysis also shows that the potential transboundary air quality impacts of the Project are insignificant. The maximum predicted ambient air concentration was then added to the ambient air background concentration and the combined impacts were compared to the NAAQS. The combined impacts were compared to the NAAQS. The combined maximum predicted ambient air impacts for 2010 and 2030 are presented in Tables 3-1 and 3-2. As shown in Tables 3-1 and 3-2, the combined maximum impacts for all pollutants are less than the appropriate NAAQS.

The analysis of predicted emissions demonstrated that the project will not exceed de minimus levels for any criteria pollutant during construction or operation. In addition, the maximum annual air emissions of any individual criteria pollutant from the operation and construction of the proposed bridge is less than 10% of the annual emissions for Wayne County, Michigan for that pollutant. Therefore, under the General Conformity Rule, no further analysis was required.

Table 3-1 Year 2010 Existing Bridge NAAQS Modeling Results

	POLLUTANTS								
	PM_{10}	$PM_{2.5}$[b]		NO_x	SO_2			CO	
	24-hr	Annual	24-hr	Annual	Annual	24-hr	3-hr[c]	8-hr	1-hr
	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	(ppm)	(ppm)
Maximum Modeled Impacts[a]	2.5	0.60	1.8	30.0	0.38	1.13	3.2	0.75	1.0
Background	69.0	13.4	32.0	37.6	18.3	128	286	1.1	2.8
Total	71.5	14.0	33.8	67.6	18.7	130	289	1.9	3.8
NAAQS	150	15	35	100	80	365	1,300	9	35

Source: Air Conformity Determination Report, Weston 2007.

Table 3-2 Year 2030 New Bridge NAAQS Modeling Results

	POLLUTANTS								
	PM_{10}	$PM_{2.5}$ [b]		NO_x	SO_2			CO	
	24-hr	Annual	24-hr	Annual	Annual	24-hr	3-hr [c]	8-hr	1-hr
	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	(ppm)	(ppm)
Maximum Modeled Impacts [a]	1.7	0.33	0.85	23.3	0.36	0.82	1.5	1.9	2.4
Background	69.0	13.4	32.0	37.6	18.3	128	286	1.1	2.8
Total	70.7	13.7	32.9	60.9	18.7	129	287	3.0	5.2
NAAQS	150	15	35	100	80	365	1,300	9	35

Source: Air Conformity Determination Report, Weston 2007.
CO = carbon monoxide
$\mu g/m^3$ = micrograms/cubic meter
NAAQS = National Ambient Air Quality Standards
NOx = oxides of nitrogen
PM2.5 = particulate matter with an aerodynamic diameter less than 2.5 microns (PM2.5)
PM10 = particulate matter with an aerodynamic diameter less than 10 microns (PM10)
ppm = parts per million
SO2 = Sulfur dioxide

Notes:
a Maximum predicted concentrations occur in the area within 100 m south of the southbound Gateway Loop and U.S. Truck Plaza.
b Maximum predicted 24-hour $PM_{2.5}$ model impact at the monitor location = 0.049 □g/m^3
c CAL3QHCR does not predict 3-hour concentrations; therefore the maximum predicted 1-hour concentration was multiplied by the 0.9 conversion factor

The USEPA reviewed the General Conformity and air dispersion modeling performed by DIBC in 2007 and confirmed the applicability of General Conformity Rule requirements for the project in the Coast Guard's NEPA review. The air dispersion modeling was also reviewed and determined to be adequate for submission to SEMCOG for their consideration of the project in the regional transportation plan and Transportation Conformity Rule requirements. On June 26, 2008, SEMCOG's General Assembly amended the Ambassador Bridge Enhancement Project (ABEP) to the *2030 Regional Transportation Plan for Southeast Michigan*, conditioned upon identification of the preferred alternative on the Canadian side by the appropriate Canadian officials.

In order to address concerns expressed by the USEPA and USCG, an addendum to the 2007 Air Quality Dispersion Modeling Analysis was performed in 2012 **(See Attachment D)** to combine the original traffic pattern of the Ambassador Bridge Gateway Project (Gateway) with the previously modeled ABEP and plaza operations. This includes the dedicated truck exit from the United States (US) Customs Plaza to Interstate Highway 75 (I-75) as well as the Canadian bound plaza operations connecting to (from?) I-75, as designed by the Detroit International Bridge Company (DIBC). The revised modeling was conducted only for the year 2030. The revised modeling in this addendum followed the same modeling methodology as the 2007 Air Quality Dispersion Modeling Analysis and

2009 Air Quality Dispersion Modeling Analysis, which considered the "As Built" Gateway Project configuration. An air quality dispersion modeling analysis was performed to assess the ambient air impacts from the operation of the new Gateway Project using the originally planned configuration and new Ambassador Bridge span that would relocate traffic from the existing span. The modeling analysis showed that:

- The maximum predicted impacts combined with the current background concentrations are less than NAAQS,
- The maximum predicted concentrations of air toxics are less than the MDEQ health based screening levels; and
- The transboundary effects from the Gateway, US Customs Plazas, and new bridge are insignificant.

On August 22, 2012, the USEPA confirmed that the modeling for the full project (Gateway Plaza, New Span and expanded Canadian Plaza) met the requirement for a qualitative hot spot analysis and demonstrates conformity.

Since the final approval of the air quality studies in 2012, overall air quality for the entire State of Michigan has improved to attainment status with the National Ambient Air Quality Standards (NAAQS) for CO, NO2, O3, PM10 and annual and 24-hour PM2.5. The project area is also in attainment for lead. However, a small area of Wayne County that includes the project area is now in nonattainment for SO2. Though at the time of the 2007 and 2009 studies the project limits were in attainment for SO2, this pollutant was analyzed in the project air quality study. As demonstrated from the results shown in Tables 3-1 and 3-2 above taken from the air quality study in the EA, the project contributes a small fraction of the NAAQS; 0.45%, 0.22% and 0.10% for annual, 24-hour and 3-hour SO2 respectively in the 2030 modeling results, even when assuming that the projected traffic volumes DRIC-NITC would be carried by the ABEP. This is due to the fact that vehicles effectively no longer emit measurable SO2. In 2006, diesel technology was upgraded to utilize ultra-low sulfur diesel fuel that reduced the fuel's sulfur content by 97 percent. Currently, the largest sources of SO2 emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of SO2 emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. Vehicles are not a significant source for SO2 emissions. Clearly these minimal percentages have no measurable effect on the surrounding air quality for SO2.

The DRIC-NITC projected traffic volumes from their 2005 study were used in the ABEP air quality analysis in both 2007 and 2009 as well as the 2012 addendum. This 2005 study presented the full demand based truck and auto projections at the Ambassador Bridge thru 2035. As can be seen in Table 3-3 below, the DRIC-NITC projected traffic volumes from 2006 thru 2014 at the Ambassador Bridge are far greater than the volumes that actually occurred. In 2014, trucks were only 51.5% of

projected and autos only 58.8% of projected. Since the full projected traffic volumes were used in the ABEP air quality studies, the results are highly conservative and significantly over estimate the actual emissions given this dramatic reduction in traffic volumes versus the projections used in the study.

Table 3-3 DRIC/NITC Projected vs Actual Traffic Volumes at Ambassador Bridge

	DRIC-NITC Projection			Actual			Actual/DRIC Projection		
Year	Cars	Trucks	Total	Cars	Trucks	Total	Cars	Trucks	Total
2006	6,495,011	3,617,008	10,112,018	6,113,114	3,567,118	9,680,232	94.1%	98.6%	95.7%
2007	6,663,881	3,747,220	10,411,101	5,649,619	3,432,816	9,082,435	84.8%	91.6%	87.2%
2008	6,837,142	3,882,120	10,719,262	4,447,793	2,901,512	7,349,305	65.1%	74.7%	68.6%
2009	7,014,908	4,021,876	11,036,784	4,187,568	2,307,052	6,494,620	59.7%	57.4%	58.8%
2010	7,197,295	4,166,664	11,363,959	4,536,678	2,695,688	7,232,366	63.0%	64.7%	63.6%
2011	7,384,425	4,316,663	11,701,089	4,625,799	2,627,117	7,252,916	62.6%	60.9%	62.0%
2012	7,576,420	4,472,063	12,048,483	4,800,491	2,509,811	7,310,302	63.4%	56.1%	60.7%
2013	7,773,407	4,633,058	12,406,465	4,895,535	2,351,069	7,246,604	63.0%	50.7%	58.4%
2014	7,975,516	4,799,848	12,775,363	4,691,983	2,470,179	7,162,162	58.8%	51.5%	56.1%

At the time the ABEP air quality analyses were initially completed in 2007, the USEPA mandated that heavy duty vehicles had to reduce harmful pollution by more than 90 percent. Additionally, starting in 2010, manufacturers had to further reduce nitrogen oxide emissions. In response, the diesel industry developed a combination of advanced-technology compression-ignition engines, exhaust control systems, and reformulated fuels to meet these standards. These measures were expected to result in substantially reduced emissions of other exhaust constituents as well. The USEPA projected that the targeted emissions reductions of about 90% (compared with emissions from pre-2007 heavy duty diesel engine systems) would have substantial public health benefits.

The Health Effects Institute (HEI) undertook an independent study of new technology diesel engines to determine whether the engines achieved the expected emissions reductions, thereby improving air quality for public health, as well as whether the new technologies resulted in any unintended increases in emission components. In January 2015, HEI published its findings in the Advanced Collaborative Emissions Study, which confirmed that the concentrations of particulate matter and toxic air pollutants emitted from "new-technology diesel exhaust" (NTDE) are more than 90% lower than emissions from pre-2007 traditional older diesel engines (TDE). The ACES also concluded that exposure to new technology diesel exhaust does not cause any increase in the risk of lung cancer or

other significant adverse health effects in study animals. Further, according to research commissioned by the Diesel Technology Forum, heavy-duty diesel commercial vehicles powered by an engine that meets or exceeds the model year 2010 standard has resulted in a reduction of 1.5 million tons of NOx between 2010 and 2014, while vehicles powered by engines that meet or exceed the 2007 standard have reduce emissions of particulate matter by 40,000 tons since 2007.

Today, more than one-third of all commercial trucks on the road are powered with 2007 generation or newer engines that have reduced particulate matter and NOx emissions by 98 percent compared to 1988 vehicles. In some states, the percentage of new technology diesel engine-equipped trucks exceeds 50 percent. The results of ACES verify the environmental benefits of the new clean diesel technology, which have near-zero emissions for nitrogen oxides (NOx), hydrocarbons (HC) and particulate matter (PM). The new clean diesel technology has the potential for reducing emissions for all transportation sectors, including passenger cars, agriculture, construction, maritime and transportation.

On September 29, 2015, the Coast Guard asked the USEPA to again consider the 2012 analysis to determine whether the methodology and results remain valid in light of changing attainment standards. The USEPA responded to the Coast Guard's request to review the by letter dated October 27 with four recommendations, but no additional requirements. They recommended the air quality and travel forecasts be updated with more recent data and that DIBC use the MOVES2014 mobile source emissions model to develop updated mobile source emissions projections. They also recommended a new mobile hot-spot analysis for $PM_{2.5}$ and that DIBC work with the SEMCOG to include the ABEP on the 2040 Regional Transportation Plan, as it was previously included in the 2030 RTP. These recommendations have been forwarded to DIBC.

In conclusion, no additional air quality studies are required as part of the Coast Guard permitting process for the following reasons:

- The project was shown to be well below the de minimis thresholds using the worst case traffic scenarios in the 2007, 2009 and 2012 studies;
- There are no changes to the project scope and footprint since the 2012 study that included the combined Gateway and ABEP;
- The actual 2014 traffic volumes are only about 56% (51.5% for trucks and 58.8% for autos) of those projected and used in the air quality studies; and
- The vehicle fleet is reported to produce 90% fewer emissions than those utilized in the 2007 study.

This conclusion is consistent with the approved reevaluation for the DRIC-NITC project, which also recognized that the traffic numbers used in their analysis were higher than those actually measured

and thus, an updated air quality study was not required. There is no change in status for the analysis of air quality impacts.

3.11 NOISE

A detailed traffic noise analysis was performed in August 2008 for the project as part of the Final EA. This noise study was performed in accordance with Title 23 Code of Federal Regulations (CFR), Part 772 (*Procedures for Abatement of Highway Traffic Noise and Construction Noise*) and the *Michigan Department of Transportation Procedures and Rules for Implementation of State Transportation Commission Policy 10136 Noise Abatement*.

No design changes are proposed from the conceptual design plans included in the Final EA. As discussed in Section 3.10, traffic used in the traffic noise study indicated a worst case scenario, however, actual volumes using the crossing are much less than predicted. In 2014, trucks were only 51.5% of the number projected and autos only 58.8% of the number projected. Since the full projected traffic volumes were used in the ABEP noise study, the results of the noise study were highly conservative.

As part of the updated 23 CFR 772: *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (effective July 13, 2011), the Noise Abatement Criteria (NAC) for land uses have changed. The criteria vary according to a property's activity category. A current review of noise-sensitive sites indicates that there are no new noise sensitive sites that require modeling. One noise-sensitive site modeled as a business (referred to as B11 in the 2008 study) in the August 2008 noise study, has since been converted to a multi-family residence. The NAC for this facility under the new regulations is 67 dB(A), whereas a business under the old regulations had a NAC of 72 dB(A). The predicted noise level in 2030 with the proposed project was 59.5 dB(A) at this location. The predicted future noise level in 2030 in the No-Build condition was also 59.5 dB(A), indicating that traffic from the proposed project does not affect the noise levels at the facility. With a NAC of 57 dB(A), this property is not adversely impacted by the project, consistent with the original findings in the 2008 study. A noise barrier or other noise abatement measures are not warranted at this location. The change in land use does not affect the results of the 2008 analysis.

In conclusion, additional noise modeling for the project is not warranted for the following reasons:

- There are no changes to the project scope and footprint since the 2008 study that included the combined Gateway and ABEP;
- The actual 2014 traffic volumes are only about 56% (51.5% for trucks and 58.8% for autos) of those projected and used in the noise study;
- Though changes in the NAC have occurred, these changes do not alter the results of the study and the abatement level for the facilities modeled are the same or higher;

- Of the five impacted noise-sensitive sites, three no longer require consideration for traffic noise under the new regulations; and
- A noise barrier was previously evaluated for the two remaining impacted noise-sensitive sites, but the study determined it would not provide the minimum reduction in noise to be considered reasonable under 23 CFR 772.

The results of the August 2008 traffic noise study remain valid. There is no change in status.

3.12 HAZARDOUS WASTE AND BROWNFIELD SITES

The proposed project footprint is the same as that proposed in the 2009 Final EA. Riverside Park, owned by the City of Detroit, is divided into two separate areas (north and south) by railroad tracks running west and east. The historical use of the Riverside Park area as a manufactured gas plant (MGP) may have resulted in environmental contamination of the property. During its operation between 1884 and 1950, the MGP utilized several underground and aboveground storage tanks (USTs and ASTs). Weston Solutions of Michigan, Inc. (Weston) conducted a subsurface investigation in April 2006 and identified contamination that is characteristic of hazardous waste material consistent with the MGP operations.

Riverside Park was the location of Detroit Gas Company – Station A, operational from 1866 to 1940 under the name Michigan Consolidated Gas Company (MichCon). All three methods of gas production (coal carbonization, carbureted water gas, and oil gas) were used at different stages of plant operations. The operations at the MichCon facility included a retort house (gas house), condenser, above ground tar tanks, a large coke shed, a coke pile, oil tanks, gas holding tanks, a gas house, industrial buildings and tar wells. Other historical uses of adjacent properties to Riverside Park included a tannery, an automotive manufacturing plant, and a sash door and blind factory. Solvents, petroleum products and other hazardous materials and waste products are associated with these operations.

Weston concluded that soil contamination at Riverside Park were above several of the MDEQ Part 201 Commercial/Industrial Cleanup Criteria, including Industrial / Commercial Soil Volatilization to Indoor Air and Direct Contact. Groundwater contamination was also identified as exceeding several of the applicable Part 201 criteria. The contaminants identified as exceeding the applicable criteria at the Riverside Park site include metals, cyanide, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylene (collectively, BTEX), and trimethylbenzenes (TMBs). These identified contaminants are consistent with MGP operations. The sheens observed in the soil and groundwater along with the noticeable presence of tar is also consistent with MGP operations.

All construction for the Proposed Project will take place on land immediately adjacent to the existing Ambassador Bridge and its plaza. Due to the historic industrial and commercial use of the Detroit River shoreline, the ground disturbance areas during construction, up to 20 ft (6.1 m) below grade, will likely encounter manmade materials of varying classification. If contaminated soil is

encountered during construction, MDEQ will be notified and appropriate control measures implemented. Based on classification and regulatory applicability, DIBC will take all appropriate measures required by MDEQ to properly manage these materials. Management of any solid waste generated during construction will be in accordance with MDEQ and local regulations. Materials excavated for the construction of the support tower and piers will be disposed off site, with the method and location of disposal determined in accordance with the hazardous classification of the materials. All such excavation, testing and disposal will be done in accordance with applicable MDEQ regulations.

3.13 SECONDARY AND CUMULATIVE IMPACTS

A detailed secondary and cumulative impact analysis was conducted as part of the Final EA. Cumulative impacts are not expected to be significant as the proposed project is enhancing an existing transportation facility rather than adding any new capacity or changes to traffic flow. There are no changes to the project scope or limits. There is no change in status.

3.14 TRANSBOUNDARY IMPACTS

Transboundary impacts are effects from projects within the U.S. that "extend across the border and affect another country's environment," per the Council on Environmental Quality (CEQ) Guidance on NEPA Analyses for Transboundary Impacts (July 1, 1997). CEQ Guidance on NEPA requires assessment of transboundary impacts.

The Proposed Project is an international border crossing and thus is not entirely located in the United States. Further, the source of air emissions for the Proposed Project are mobile (motor vehicles) where all sources either came from or are going to Canada. In order to assess the transboundary impacts, environmental studies undertaken in both countries included the entire bridge, and not just the portion of the project within one country. Following is a synopsis for studies conducted in both countries on air quality and noise, which are the only factors determined to have potential transboundary impacts. .

The air analysis conducted in the U.S. evaluated the entire length of the bridge from the US into Canada and concluded that the Proposed Project will not create any significant adverse air quality impacts or violate any of the National Ambient Air Quality Standards in effect for the area. The noise analysis in the US extends approximately halfway across the bridge from the US Ambassador Bridge Gateway Project to the international border. Similarly, the noise and air quality analyses in Canada extended approximately halfway across the bridge to the international border. As described below, there are both air quality and noise impacts that may result from the proposed project. In both cases the transboundary effects of air quality and noise impacts would not violate established standards.

3.14.1 Transboundary Air Quality Impacts

The International Boundary between the United States and Canada is located approximately midway across the Ambassador Bridge span. Transboundary impacts related to air quality were studied in both countries. Weston Solutions, Inc. completed the air quality study in the U.S. in 2007 that was approved by the USEPA in 2008. At the request of the USEPA and USCG, an air quality addendum was completed in July of 2012 to include the dispersion modeling of the combined ABEP and original configuration of the Gateway project. This addendum was approved by USEPA on August 22, 2012, and again reviewed in the Fall of 2015.

The air quality report in Windsor, completed by Ortech Environmental in November, 2007, and updated in April 2011, was based on factors for air quality and climate change outlined in the Environmental Assessment Guidelines Prepared by the Responsible Authorities with jurisdiction and approval authority for the project in Canada. Air dispersion modeling analysis was performed to assess the impact of vehicular emissions, road dust and emissions from the construction activities, on the air quality for various emission scenarios. The US EPA CAL3QHCR model was employed to assess the impact of vehicular emissions and road dust on air quality. The US EPA AERMOD model was used to assess the impact of emissions resulting from the construction activities. The air dispersion modeling analysis was based on the Air Dispersion Modeling Guideline for Ontario (ADMGO), version 1, July 2005.

The existing conditions indicate that the greatest air quality impacts do not occur at the bridge or the customs plaza, but instead occur around key intersection locations along Huron Church Road. Under the future scenario, the impacts from construction activities related to the replacement span will result in air quality in close proximity to the bridge being impacted due to emissions from construction equipment. There is a potential for concentrations of PM10 and PM2.5 to exceed air quality criteria. During construction, however, numerous mitigation measures will be implemented to ensure that there is no significant adverse effect from the Proposed Project. Under the future scenario in 2025, referred to as “Future Do Nothing” or 2025 (FDN), the greatest air quality impacts are still predicted to occur along Huron Church Road, but are reduced in magnitude and aerial extent relative to the present (baseline) as more stringent fuel and vehicle emission standards take effect. For most pollutants of interest, the model suggests that the effect of more stringent standards outweighs the projected increase in traffic volumes. Again, there is no impact on transboundary air quality as these effects are all localized.

Under the future scenario referred to as 2025 (A), which considers 10 years after construction and operation of the replacement span, the greatest air quality impacts are still predicted to occur along Huron Church Road, but are reduced in magnitude and aerial extent relative to the present (baseline), as more stringent fuel and vehicle emission standards take effect as described above. The air quality in the area near the customs plaza and on the bridge is predicted to benefit from improved traffic flow due to the higher capacity of the expanded customs plaza and the operation of

the new bridge span. The reduced vehicle emissions appear to outweigh the projected increase in traffic volumes for most pollutants of interest.

The reduced magnitude and aerial extent is most apparent for substances that are closely tied to the standards, such as NOx. Under this scenario, NOx concentrations are predicted to be below the air quality criteria. A comparison of the future 2025 "do nothing" and replacement span only scenarios, indicate that the replacement span and customs plaza will result in an improvement in air quality, notably in the area close to the bridge and the customs plaza. Because the studied impacts are local, there is no impact on transboundary air quality.

The results of the assessment concluded that the greatest air quality impacts currently do not occur at the bridge or the customs plaza, but around key intersection locations around Huron Church Road. The assessment also indicated that air quality in close proximity to the bridge will be temporarily impacted due to emissions from construction equipment during construction of the companion bridge.

The potential for transboundary air quality impacts is deemed insignificant and the studies conclude that there are no significant adverse effects arising from the Proposed Project. Further, the contribution from the Project Area is not a significant source of regional air pollution in itself. The main purpose of the project is to improve the flow of traffic across the international border through the construction of a companion bridge. This improvement in traffic flow will reduce emissions originating from the Project Area compared to the No-Build, or FDN, scenario. Construction impacts will be mitigated on both sides of the bridge in accordance with construction industry best management practices.

3.14.2 Transboundary Noise Impacts

A noise impact assessment was conducted in the U.S. by Avalon Consulting Professionals, LLC in August 2008 to determine the scope and magnitude of project related effects. The noise analysis in the U.S. extends approximately halfway across the bridge from the U.S. Ambassador Bridge Gateway Plaza to the international border. This noise study was approved by the USCG prior to issuing the Draft FONSI and Final EA for public comment.

In addition, a noise study was completed in Windsor by HCG Engineering in November 2007 and updated in April 2011, to consider noise from the construction and ongoing operations of the companion bridge in Canada as set out in the environmental assessment guidelines provided by Transport Canada, dated August 2007, in consultation with the Federal EA Review Team. The assessment also considers the possibility of simultaneous traffic operations on both structures (Ambassador Bridge and Enhancement Project) as well the comments received from Health Canada relating to the assessment of noise impacts and cumulative effects.

All noise sensitive receptors in the neighborhood around the Enhancement Project were identified. Heritage Buildings were considered as sensitive points of reception. Existing and future sound levels were determined at representative receptor locations under several different operating scenarios. Sound levels will either decrease due to the beneficial features of the replacement span and increased distance for the receptors to the east, or increase by less than 5 dB(A) from the future no build to the future build scenario. At a number of residences located along Indian Road and Rosedale Avenue (west of the bridge), sound levels are predicted to increase by a minor amount (between 1 and 3 decibels). Generally the majority of the vacant structures on the east side of Indian Road will be removed and replaced with a green area. At all other receptors sound levels will increase by less than 1 decibel, an insignificant amount. Generally increases in sound level of less than three decibels are not perceptible to most individuals. With the proposed mitigation measures, traffic noise levels for all residences are predicted to decrease or remain the same when compared to the No-Build scenario. Therefore, there are no significant adverse environmental effects either local receptors. As such, there will be no noise effects on transboundary receptors.

3.14.3 Canadian Environmental Assessment Act Decision

The environmental assessment screening report prepared under the Canadian Environmental Assessment Act has been completed. The required environmental study undertaken in Canada as scoped by the Responsible Authorities (RA's) for the ABEP, using the same DRIC-NITC projected traffic volumes, was finalized on February 12, 2014. Since the RA's in Canada have indicated that the results of the screening process do not indicate a significant impact, transboundary effects have been fully addressed and the project was determined to not likely cause significant adverse environmental effect in Canada.

The environmental assessment decision will be used to inform future Canadian federal approval requirements under the Navigable Waters Protection Act, the Port Authority Regulations, and the International Bridges and Tunnels Act. Correspondence from Transport Canada can be found in **Attachment C.** Additional information on the Canadian environmental assessment screening report is available online at http://www.ceaa.gc.ca/050/details-eng.cfm?evaluation=21100.

Attachment A

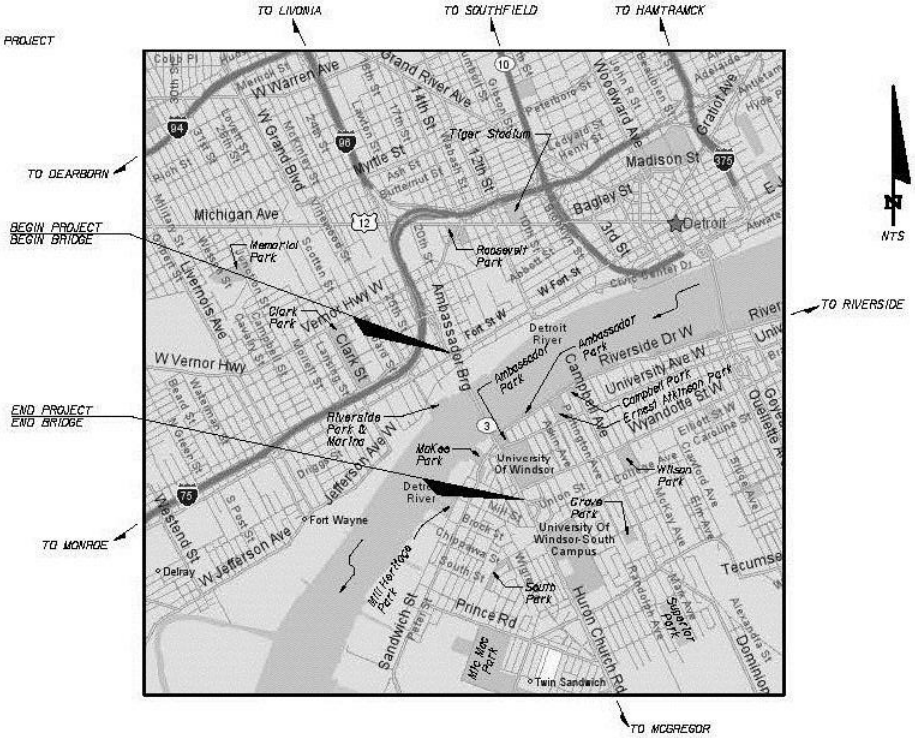
Design Plans for Preferred Alternative

CITY OF DETROIT, MICHIGAN, UNITED STATES
CITY OF WINDSOR, ONTARIO, CANADA

CONTRACT PLANS

DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY

INDEX OF PLANS



PROJECT LENGTH IS BASED ON ℄ CONSTRUCTION

LENGTH OF PROJECT		
	METERS	KILOMETER
ROADWAY		
BRIDGES	1891.0	2.0
NET LENGTH OF PROJECT	1891.0	2.0
EXCEPTIONS		
GROSS LENGTH OF PROJECT	1891.0	2.0

PLANS PREPARED BY:

American Consulting Professionals of Michigan

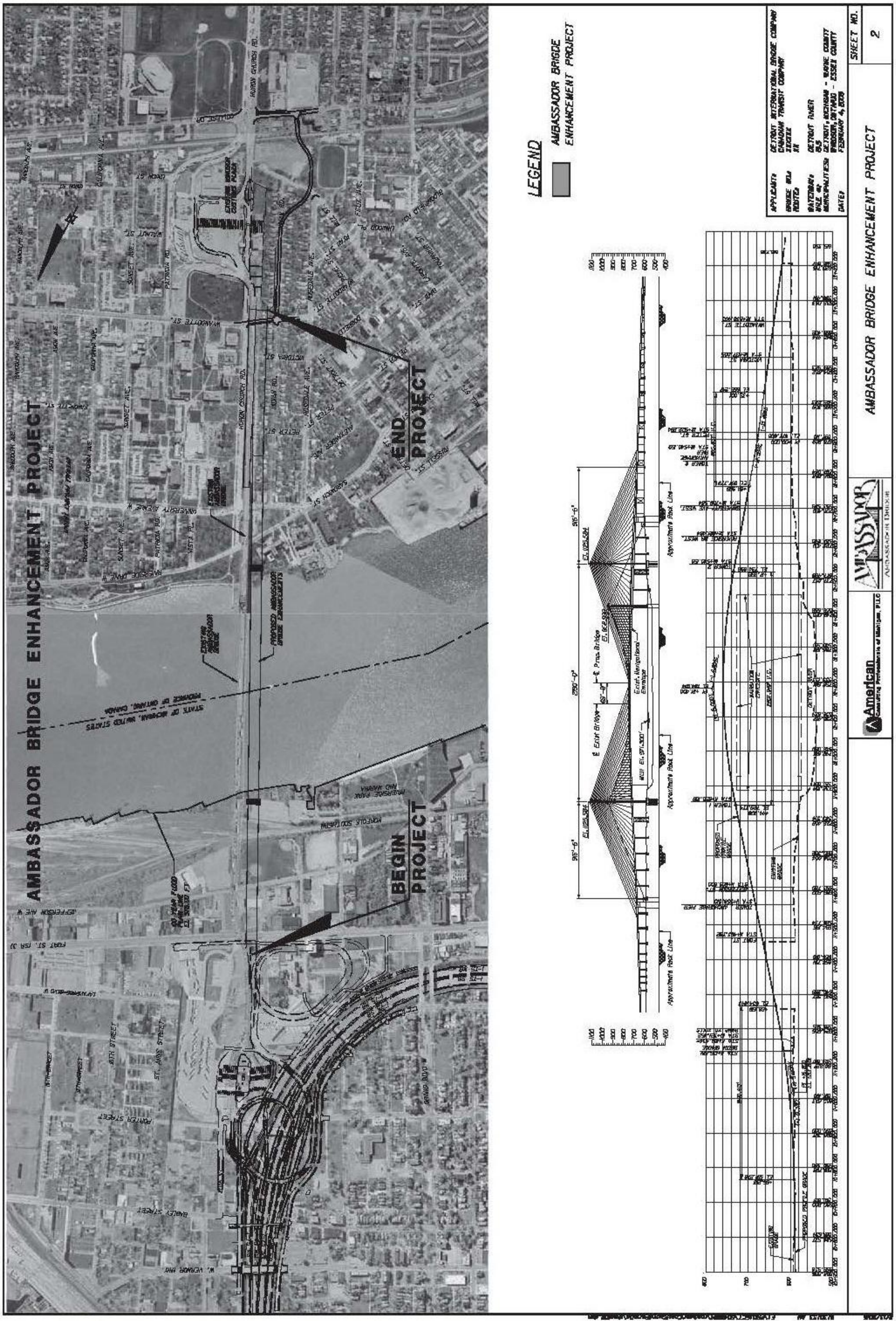
NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

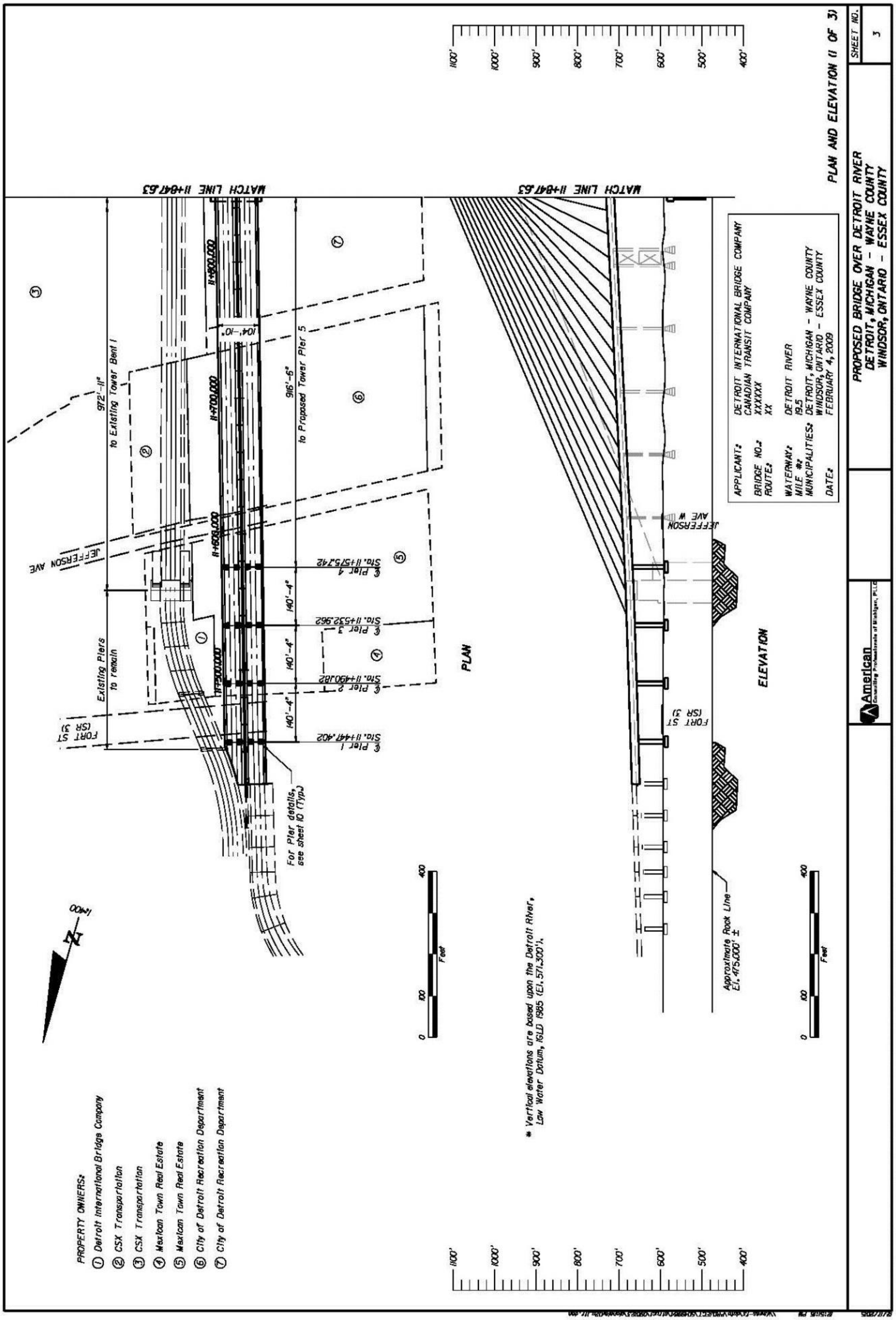
ENGINEER OF RECORD: _____

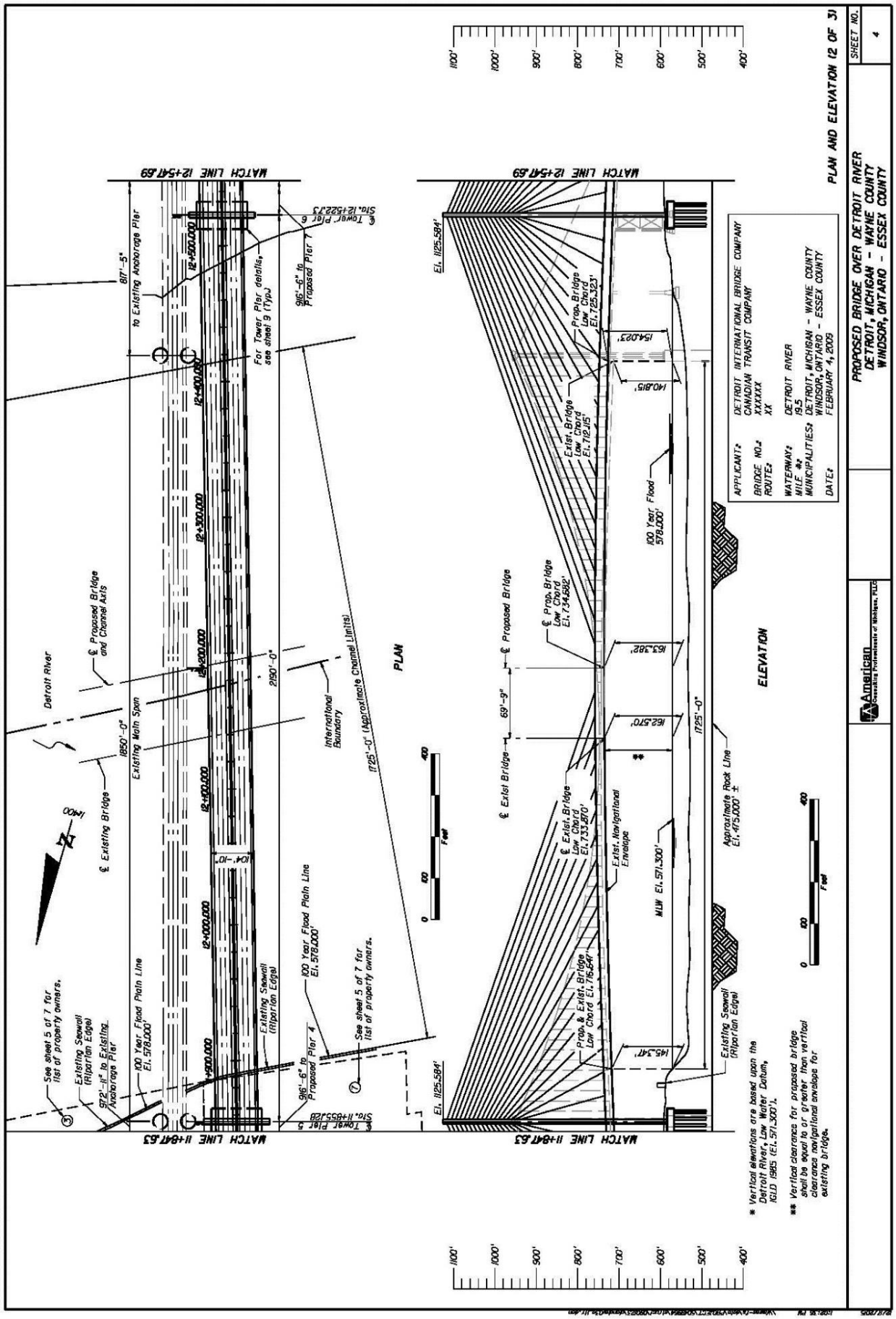
P.E. NO.: _____

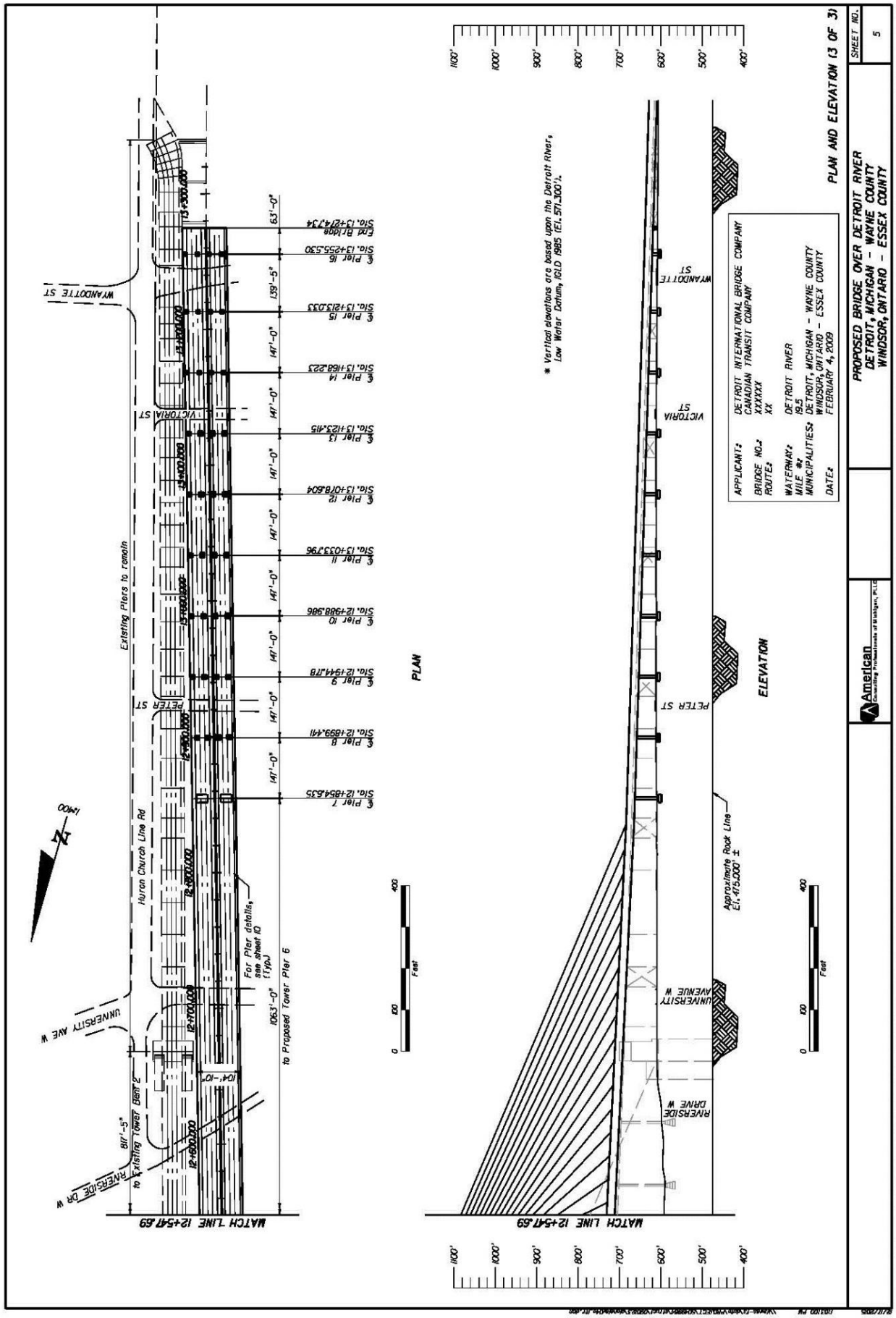
APPLICANT:	DETROIT INTERNATIONAL BRIDGE COMPANY CANADIAN TRANSIT COMPANY
BRIDGE NO.:	XXXXXX
ROUTE:	XX
WATERWAY:	DETROIT RIVER
MILE #:	19.5
MUNICIPALITIES:	DETROIT, MICHIGAN - WAYNE COUNTY WINDSOR, ONTARIO - ESSEX COUNTY
DATE:	FEBRUARY 4, 2009

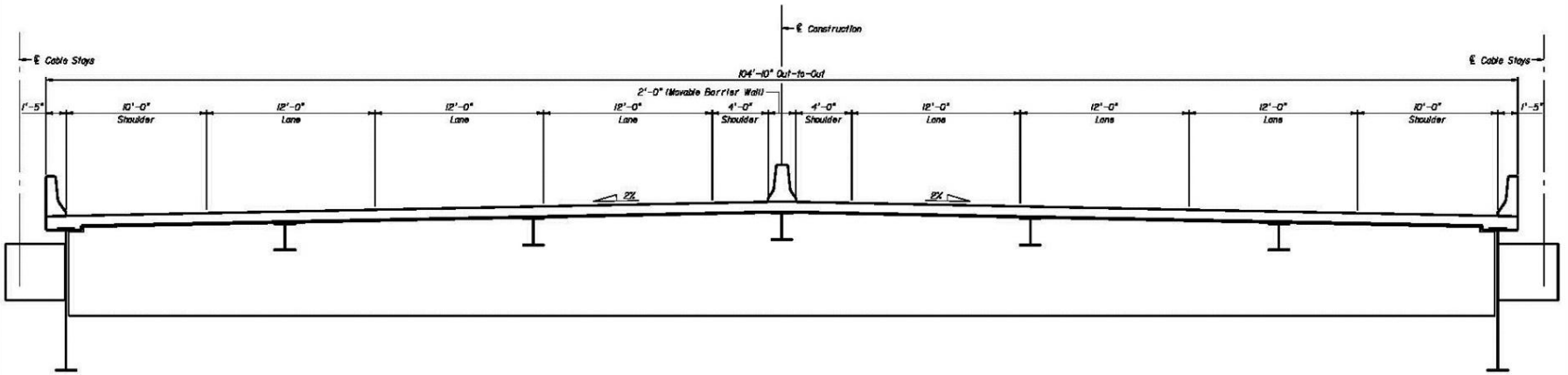
SHEET NO. 1


AMBASSADOR BRIDGE ENHANCEMENT PROJECT
BEGIN PROJECT
END PROJECT
LEGEND
AMBASSADOR BRIDGE ENHANCEMENT PROJECT
SHEET NO.
2


PLAN AND ELEVATION (1 OF 3)
SHEET NO.
3
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY
BRIDGE NO.: XXXXXX
ROUTE: XX
WATERWAY: DETROIT RIVER
MILE #: 19.5
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
DATE: FEBRUARY 4, 2009
MATCH LINE 11+847.63
972'-11" to Existing Tower Bent 1
916'-6" to Proposed Tower Pier 5
104'-10"
11+800.000
11+700.000
11+600.000
11+500.000
JEFFERSON AVE
FORT ST (SR 3)
Existing Piers to remain
Sta. 11+575.242 ℄ Pier 4
Sta. 11+532.962 ℄ Pier 3
Sta. 11+490.682 ℄ Pier 2
Sta. 11+447.402 ℄ Pier 1
140'-4"
140'-4"
140'-4"
For Pier details, see sheet 10 (Typ.)
PLAN
ELEVATION
JEFFERSON AVE W
FORT ST (SR 3)
Approximate Rock Line El. 475.000' ±
N
1=400
0 100 400 Feet
1100' 1000' 900' 800' 700' 600' 500' 400'
* Vertical elevations are based upon the Detroit River, Low Water Datum, IGLD 1985 (El. 571.300').
PROPERTY OWNERS:
① Detroit International Bridge Company
② CSX Transportation
③ CSX Transportation
④ Mexican Town Real Estate
⑤ Mexican Town Real Estate
⑥ City of Detroit Recreation Department
⑦ City of Detroit Recreation Department
American Consulting Professionals of Michigan, PLLC


PLAN AND ELEVATION 12 OF 31
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
SHEET NO. 4
PLAN
ELEVATION
MATCH LINE 12+547.69
MATCH LINE 11+847.63
Detroit River
Existing Main Span
1850'-0"
2150'-0"
1725'-0" (Approximate Channel Limits)
International Boundary
Existing Bridge
Proposed Bridge and Channel Axis
Existing Anchorage Pier
817'-5"
972'-11" to Existing Anchorage Pier
100 Year Flood Plain Line El. 578.000'
Existing Seawall (Riparian Edge)
Existing Seawall (Riparian Edge)
100 Year Flood Plain Line El. 578.000'
Tower Pier 6 Sta. 12+522.73
Tower Pier 5 Sta. 11+855.28
916'-6" to Proposed Pier 7
916'-6" to Proposed Pier 4
For Tower Pier details, see sheet 9 (Typ.)
See sheet 5 of 7 for list of property owners.
See sheet 5 of 7 for list of property owners.
Proposed Bridge
Prop. Bridge Low Chord El. 734.832'
Exist. Bridge Low Chord El. 733.870'
Exist. Navigational Envelope
Prop. & Exist. Bridge Low Chord El. 716.84'
Exist. Bridge Low Chord El. 712.415'
Prop. Bridge Low Chord El. 725.323'
El. 1125.584'
MLW El. 571.300'
Approximate Rock Line El. 475.000' ±
100 Year Flood 578.000'
154.083'
140.815'
163.382'
162.570'
1725'-0"
145.347'
69'-9"
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
BRIDGE NO.: CANADIAN TRANSIT COMPANY
ROUTE: XXXXXX
XX
WATERWAY: DETROIT RIVER
M.I.F. #: 19.5
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
DATE: FEBRUARY 4, 2005
American
Consulting Professionals of Michigan, PLLC
* Vertical elevations are based upon the Detroit River, Low Water Datum, IGLD 1985 (El. 571.300').
** Vertical clearance for proposed bridge shall be equal to or greater than vertical clearance navigational envelope for existing bridge.
0 100 400 Feet
1100' 1000' 900' 800' 700' 600' 500' 400'


PLAN AND ELEVATION (3 OF 3)
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
SHEET NO. 5
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY
BRIDGE NO.: XXXXXX
ROUTE: XX
WATERWAY: DETROIT RIVER
MILE #: 19.5
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
DATE: FEBRUARY 4, 2009
* Vertical elevations are based upon the Detroit River, Low Water Datum, IGLD 1985 (IGLD 1985 571.300')
PLAN
ELEVATION
WRANDOTTE ST
VICTORIA ST
PETER ST
UNIVERSITY AVENUE W
RIVERSIDE DRIVE W
Existing Piers to remain
Huron Church Line Rd
to Existing Tower Base
to Proposed Tower Pier 6
For Pier details, see sheet 10 (Typ.)
MATCH LINE 12+547.59
Approximate Rock Line El. 415.000' ±
American



TYPICAL SECTION

APPLICANT:	DETROIT INTERNATIONAL BRIDGE COMPANY CANADIAN TRANSIT COMPANY
BRIDGE NO.:	XXXXXX
ROUTE:	XX
WATERWAY:	DETROIT RIVER
MILE #:	19.5
MUNICIPALITIES:	DETROIT, MICHIGAN - WAYNE COUNTY WINDSOR, ONTARIO - ESSEX COUNTY
DATE:	FEBRUARY 4, 2009

TYPICAL SECTION

American Consulting Professionals of Michigan, PLLC

PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY

SHEET NO. 6

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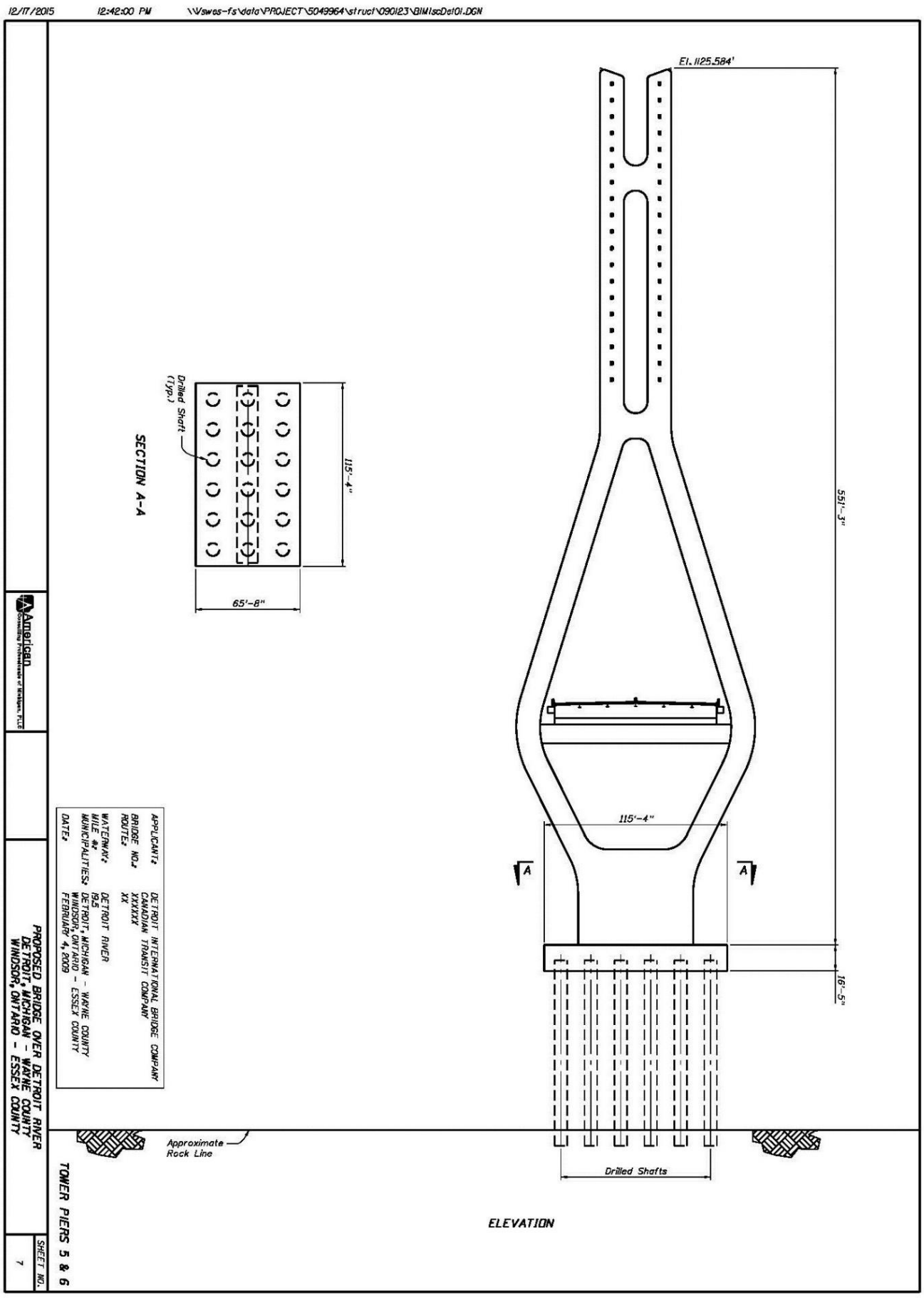
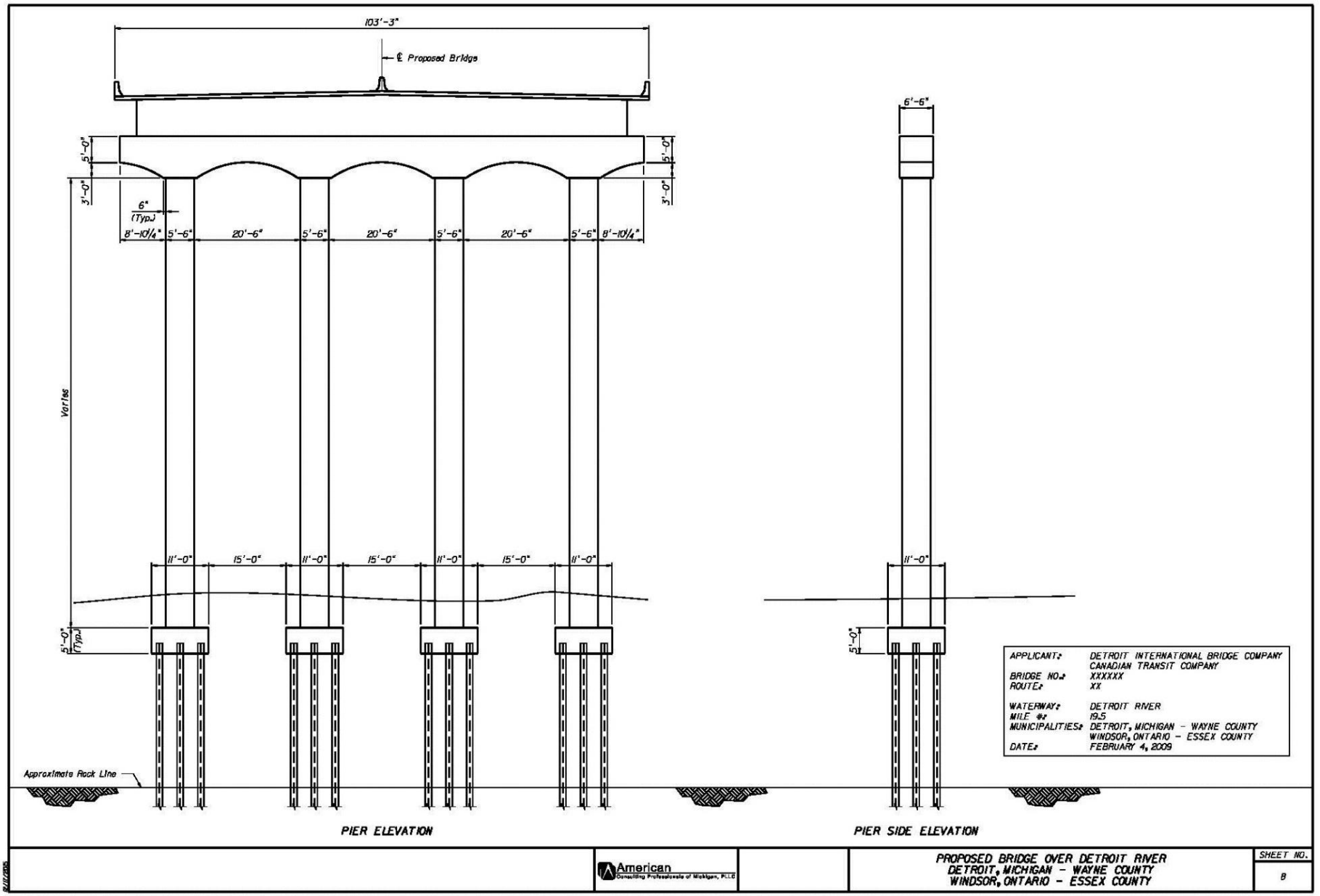

12/17/2015 12:42:00 PM \\Vswes-fs\data\PROJECT\5049964\struct\090123\GIMIscDet01.DGN
El. 1125.584'
551'-3"
115'-4"
16'-5"
A
A
Drilled Shafts
Approximate Rock Line
ELEVATION
Drilled Shaft (Typ.)
115'-4"
65'-8"
SECTION A-A
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
BRIDGE NO.: CANADIAN TRANSIT COMPANY
ROUTE: XXXXXX
WATERWAY: XX
MILE #: DETROIT RIVER
MUNICIPALITIES: 19.5
DATE: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
FEBRUARY 4, 2009
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
TOWER PIERS 5 & 6
SHEET NO.
7


103'-3"
℄ Proposed Bridge
5'-0"
3'-0"
6" (Typ.)
8'-10¼"
5'-6"
20'-6"
Varies
11'-0"
15'-0"
5'-0" (Typ.)
Approximate Rock Line
PIER ELEVATION
6'-6"
PIER SIDE ELEVATION
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY
BRIDGE NO.: XXXXXX
ROUTE: XX
WATERWAY: DETROIT RIVER
MILE #: 19.5
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
DATE: FEBRUARY 4, 2009
American
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
SHEET NO.
8

Attachment B

ABEP MDEQ Permit

DEQ

Notice of Authorization

Permit Number 12-82-0075-P

Issued: 04/26/2013
Expiration Date: 04/26/2018

The Michigan Department of Environmental Quality, Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and specifically:

- ☐ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☐ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.

Authorized activity:

Construct six additional lanes over the Detroit River adjacent to the west side of the Ambassador Bridge and connect directly into the existing plazas. All work shall be completed in accordance with DEQ approved plans and specific conditions of this permit.

To be conducted at property located in: Wayne County, Waterbody: Detroit River
Section 18 19, Town 2S, Range 12E, City of Detroit.

Permittee: Detroit International Bridge Co
12225 Stephens Road
Warren, MI 48089

Jeremy Richardson
Water Resources Division
586-753-3700

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.

Please refer to the above Permit Number with any questions or concerns.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT

ISSUED TO:

Detroit International Bridge Co
12225 Stephens Road
Warren, MI 48089

Permit No.	12-82-0075-P
Issued	April 26, 2013
Extended	
Revised	
Expires	April 26, 2018

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and specifically:

- ☒ **Part 301, Inland Lakes and Streams**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 303, Wetlands Protection**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☐ **Part 31, Floodplain/Water Resources Protection**

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Permitted Activity: Construct six additional lanes over the Detroit River adjacent to the west side of the Ambassador Bridge and connect directly into the existing plazas. All work shall be completed in accordance with DEQ approved plans and specific conditions of this permit.

Water Course Affected: Detroit River
Property Location: Wayne **County,** City of Detroit, **Section** 18 19
Subdivision, Lot **Town/Range** 2S, 12E **Property Tax No.**

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that Act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached preaddressed postcard to the office addressed thereon.

J. This permit shall not be assigned or transferred without the written approval of the MDEQ.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31, and wetland).
M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents and representatives for any and all claims or causes of action arising from acts or omissions of the permittee or employees, agents, or representatives of the permittee undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties which includes all the above information may be provided to the MDEQ. The MDEQ will review the request and if approved, will provide written notification to the new owner.
R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent.
U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the waterbody are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the MDNR, Fisheries Division.
Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. This permit is being issued for the maximum time allowed under Part 301, Inland Lakes and Streams and Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, PA 451 of 1994, as amended, including all permit extensions allowed under the administrative rules R 281.813 and R 281.923. Therefore, no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning at the date of issuance.

2. Authority granted by this permit does not waive any jurisdiction of the United States Coast Guard or the need for a federal permit.

3. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state or federal approval or authorization, necessary to conduct the activity.

4. The permittee is responsible for acquiring all necessary easements or rights of way before commencing any work authorized by this permit. All construction operations relating to or part of this project shall be confined to the existing right-of-way limits or other acquired easements.

5. A storm water discharge permit may be required under the Federal Clean Water Act for construction activities that disturb one or more acres of land and discharge to surface waters.
For sites over five (5) acres, the permit coverage may be obtained by a Part 91, Soil Erosion and Sedimentation Control (SESC), permit and filing a "Notice of Coverage" form to the MDEQ's Water Resource Division. For sites with disturbance from one acre up to five acres, storm water coverage is automatic once the SESC permit is obtained. These one to five acre sites are not required to apply for coverage, but are required to comply with storm water discharge permit requirements. Information on the storm water discharge permit is available from the Water Resource Division Storm Water Permit Program by calling 517-373-8088 or at www.michigan.gov/deqwater. Select "surface water" and then select "storm water."

6. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.

7. IDENTIFICATION OF NON-WORK AREAS
Prior to the start of construction, all non-work areas shall be bounded by properly trenched filter fabric fence and orange construction fencing to prevent sediment from entering the wetland and to prohibit construction personnel from entering or performing work in these areas. Fence shall be maintained daily throughout the construction process. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site. The erosion barrier shall then be removed in its entirety and the area restored to its original configuration and cover.

8. Prior to the initiation of any permitted construction activities, a siltation barrier shall be constructed immediately down gradient of the construction site. Siltation barriers shall be specifically designed to handle the sediment type, load, water depth, and flow conditions of each construction site throughout the anticipated time of construction and unstable site conditions. The siltation barrier shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland (non-wetland, non-floodplain) site. The siltation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.

9. All raw areas resulting from the permitted construction activity shall be promptly and effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands.

By: _____
Jeremy Richardson
Water Resources Division
586-753-3860

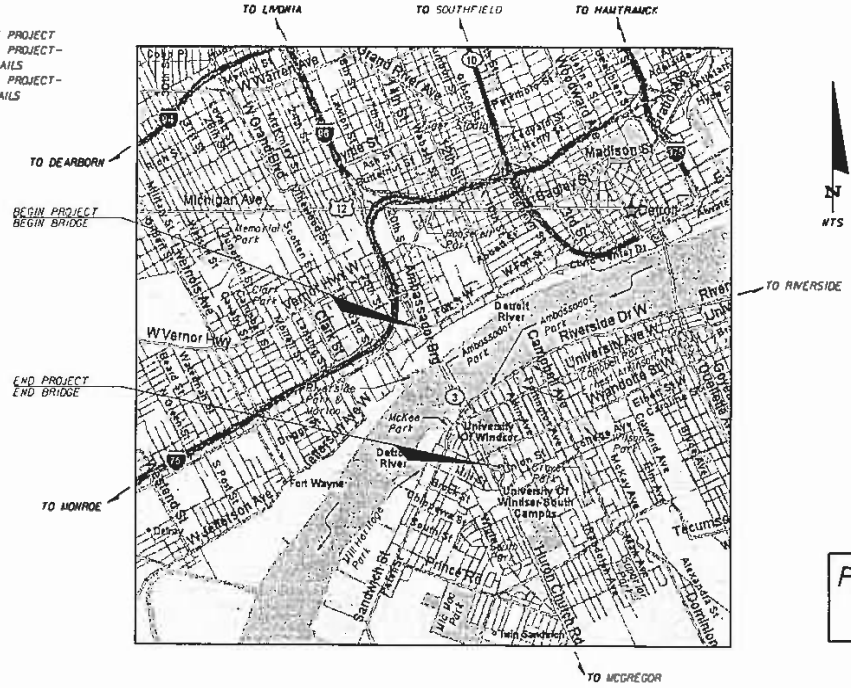
cc: City of Detroit Clerk
City of Detroit Department of Environmental Affairs
Mr. Eric Gaabo, City of Detroit Law Department
Wayne County DPS
Wayne County CEA
Mr. Scott Korpi, American Consulting Professionals, LLC
US Coast Guard, Washington DC
US Army Corp of Engineers, Detroit District
Mr. David Wresinski, MDOT Lansing
State Historic Preservation Office, Lansing

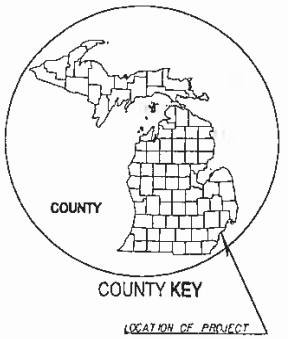
CITY OF DETROIT, MICHIGAN, UNITED STATES
CITY OF WINDSOR, ONTARIO, CANADA

CONTRACT PLANS

DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY

INDEX OF PLANS





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NTS

PLANS PREPARED BY:
American
Consulting Professionals of Michigan, PLLC

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

PREFERRED ALTERNATIVE
REVISED VERSION
US Tower located in RR Easement

PROJECT LENGTH IS BASED ON ℄ CONSTRUCTION

LENGTH OF PROJECT	METERS (FT)	KM (MILES)
ROADWAY		
BRIDGES	1891m (6204')	2.0km (1.2mi)
NET LENGTH OF PROJECT	1891m (6204')	2.0km (1.2mi)
EXCEPTIONS		
GROSS LENGTH OF PROJECT	1891m (6204')	2.0km (1.2mi)

APPLICANT:	DETROIT INTERNATIONAL BRIDGE COMPANY CANADIAN TRANSIT COMPANY
BRIDGE NO.:	XXXXXX
ROUTE:	XX
WATERWAY:	DETROIT RIVER
MILE #:	19.5
MUNICIPALITIES:	DETROIT, MICHIGAN – WAYNE COUNTY WINDSOR, ONTARIO – ESSEX COUNTY
DATE:	REVISED JUNE 19, 2012
SHEET:	1 OF 11

SHEET NO. 1

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APPROVED PLANS
1 OF 10
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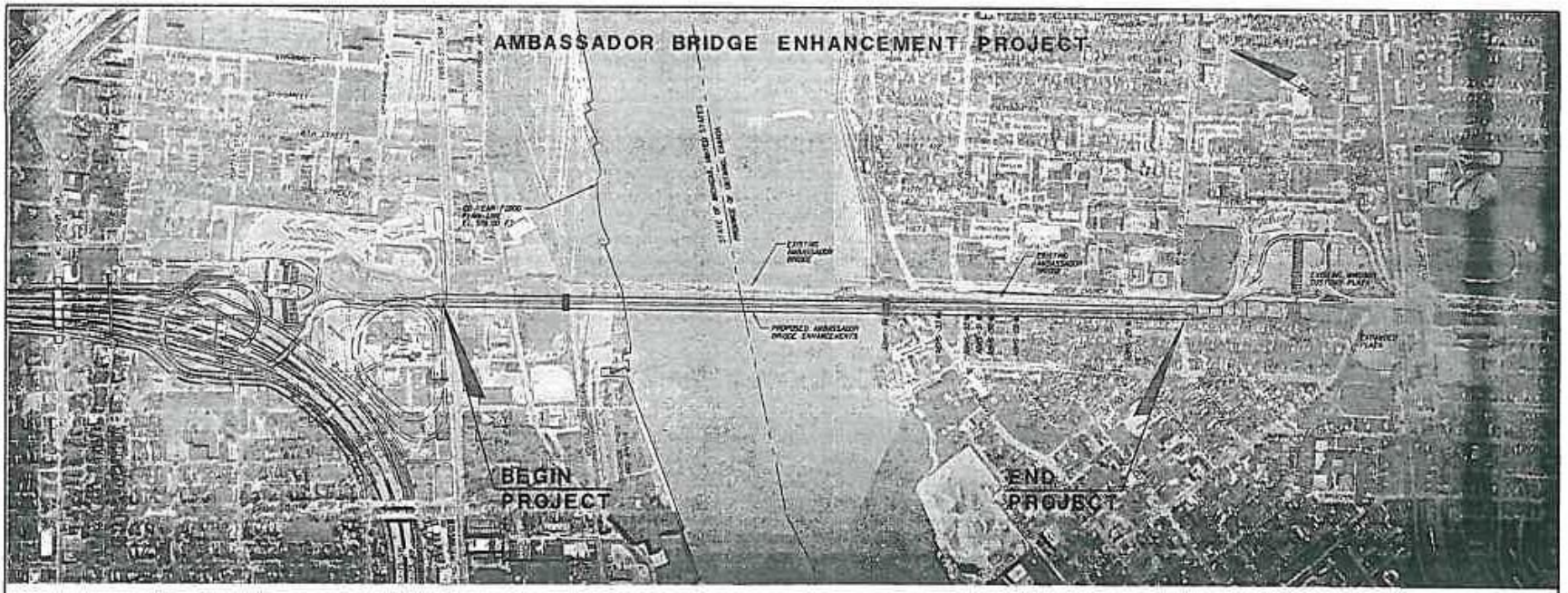
MDEQ Permit
Attachment B
Ambassador Bridge
Enhancement Project



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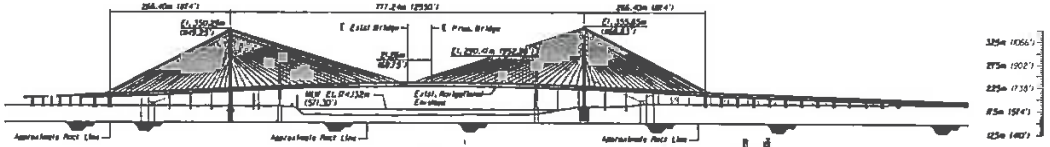
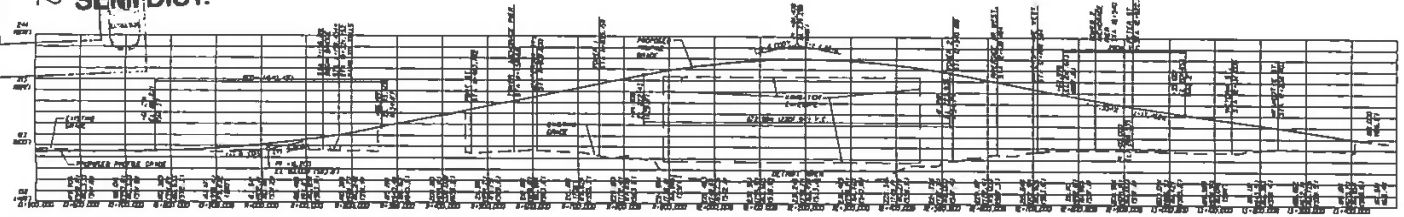
AMBASSADOR BRIGDE ENHANCEMENT PROJECT





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MUNICIPALITIES:	DETROIT, MICHIGAN - WAYNE COUNTY WINDSOR, ONTARIO - ESSEX COUNTY
DATE:	REVISED JUNE 05, 2012
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American Consulting Professionals of Michigan PLLC

AMBASSADOR

AMBASSADOR BRIDGE ENHANCEMENT PROJECT

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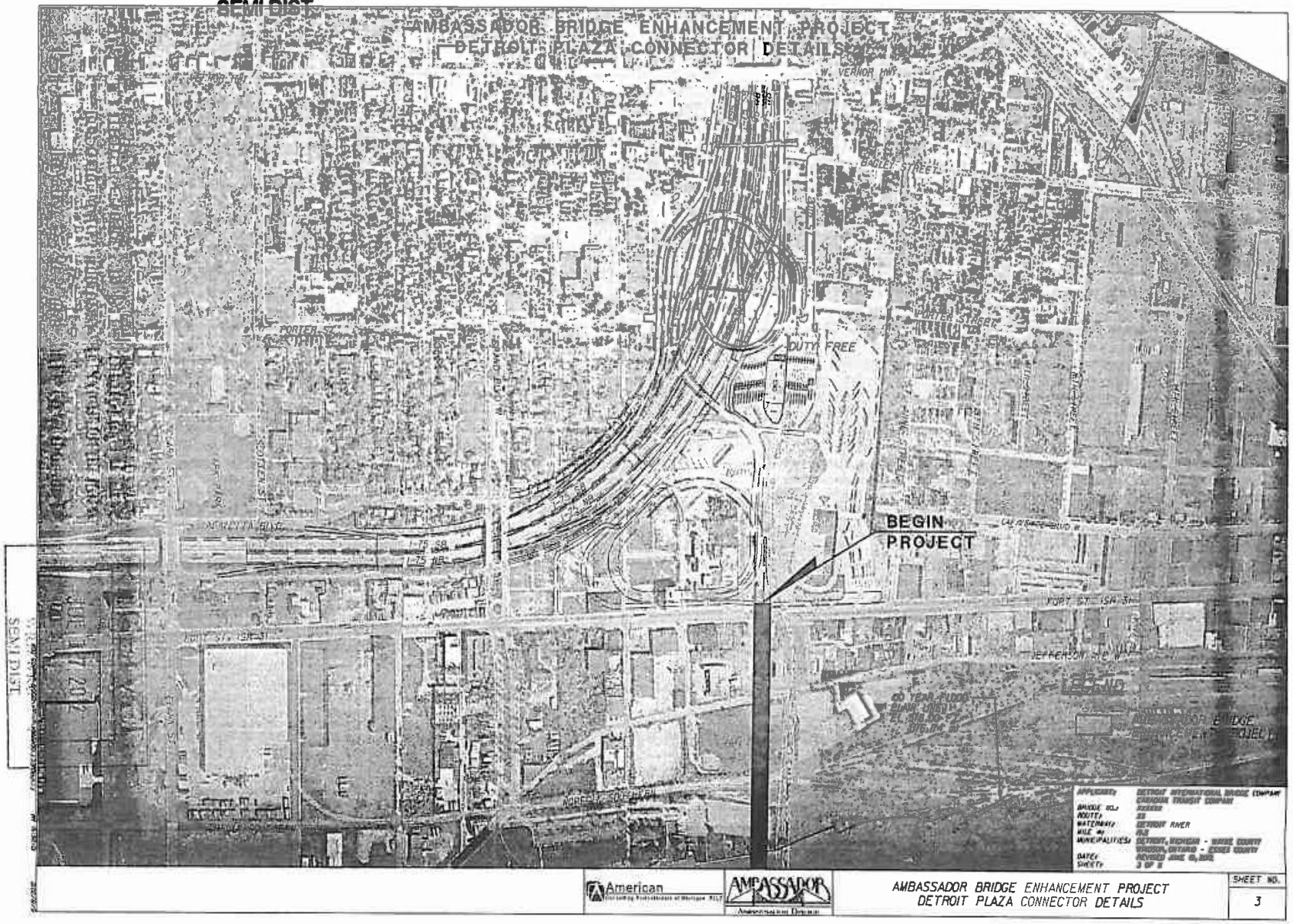

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MDEQ Permit

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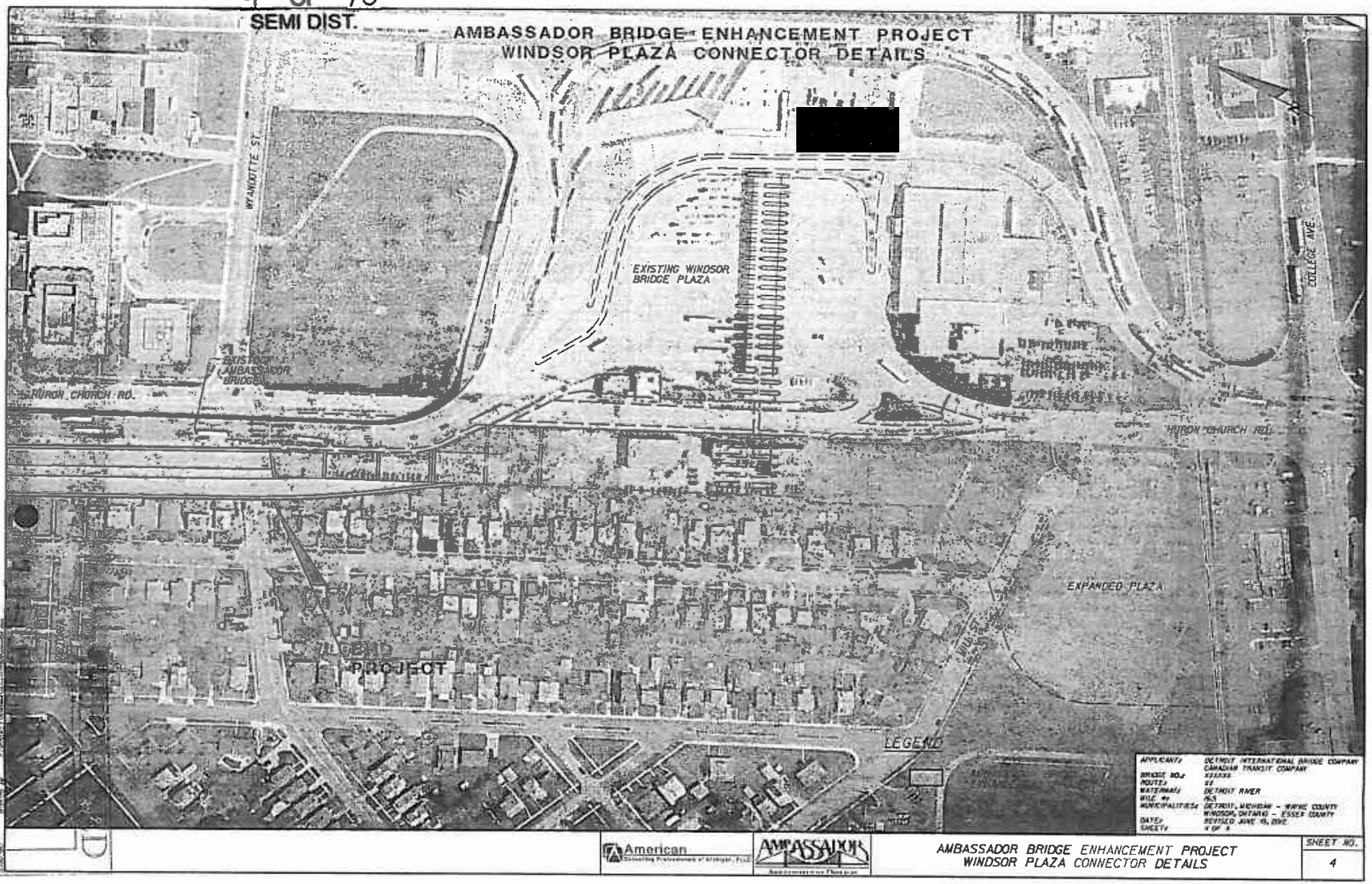

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Ambassador Bridge Enhancement Project

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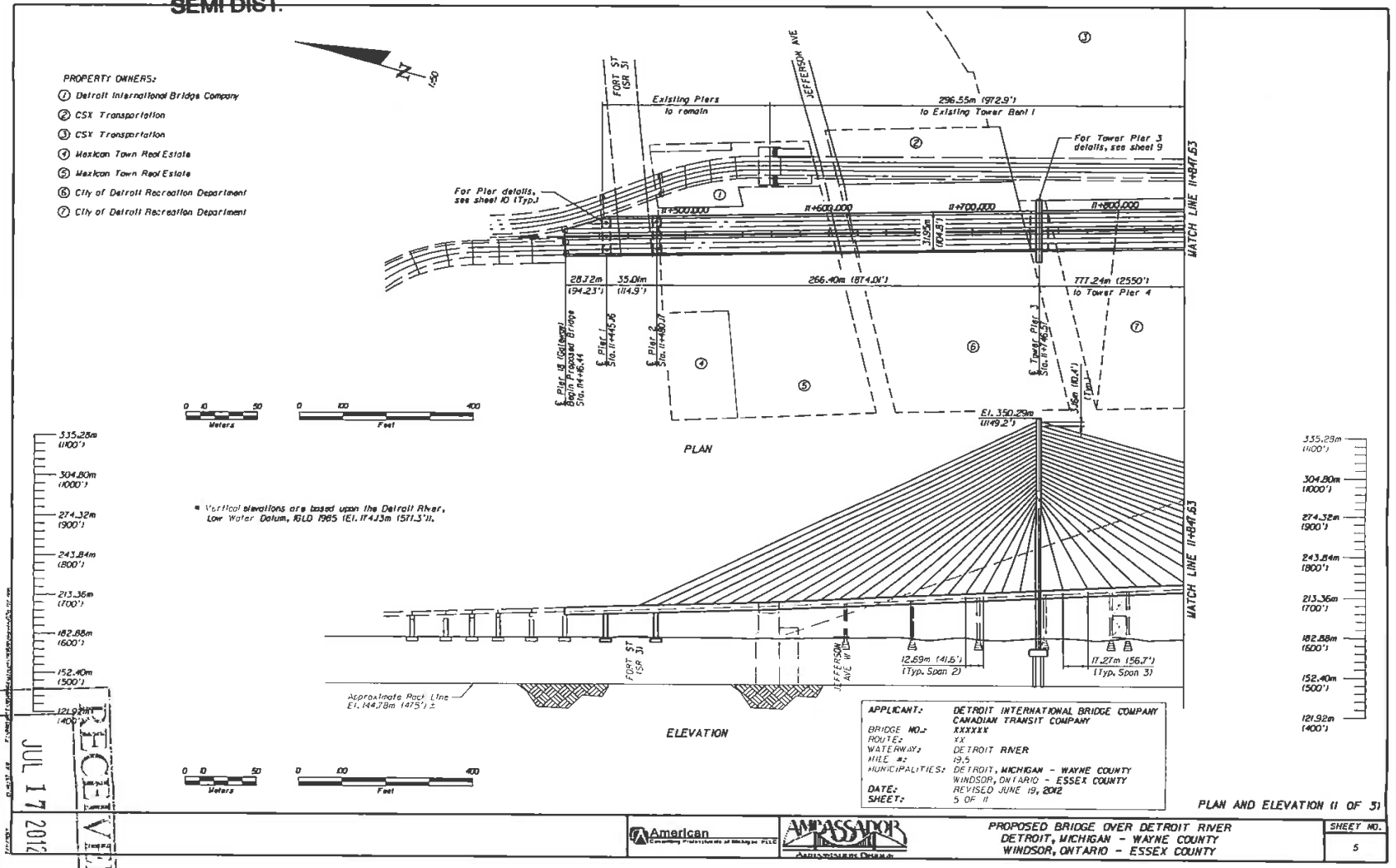

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MDEQ Permit
Attachment B
Ambassador Bridge
Enhancement Project

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6 OF 10

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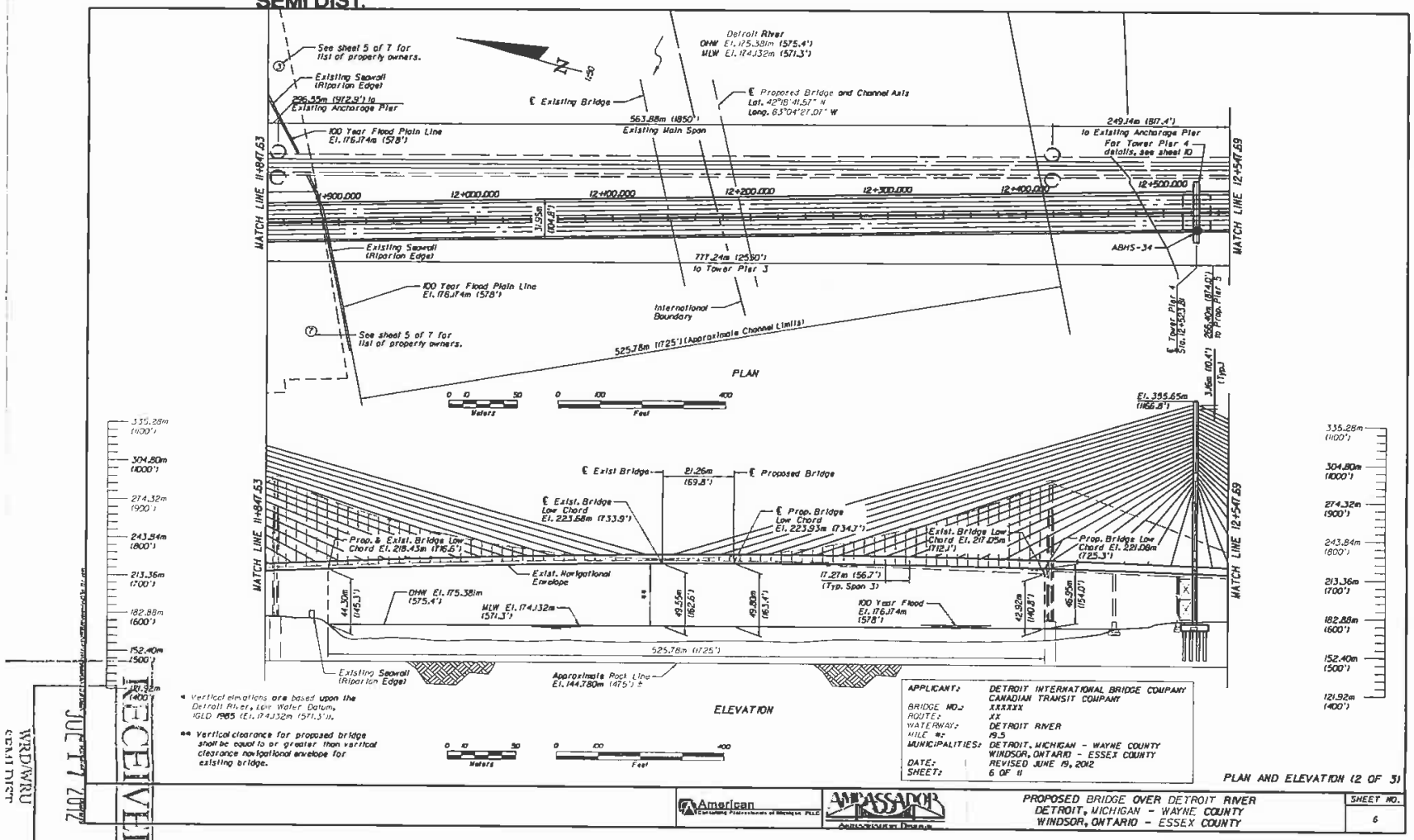

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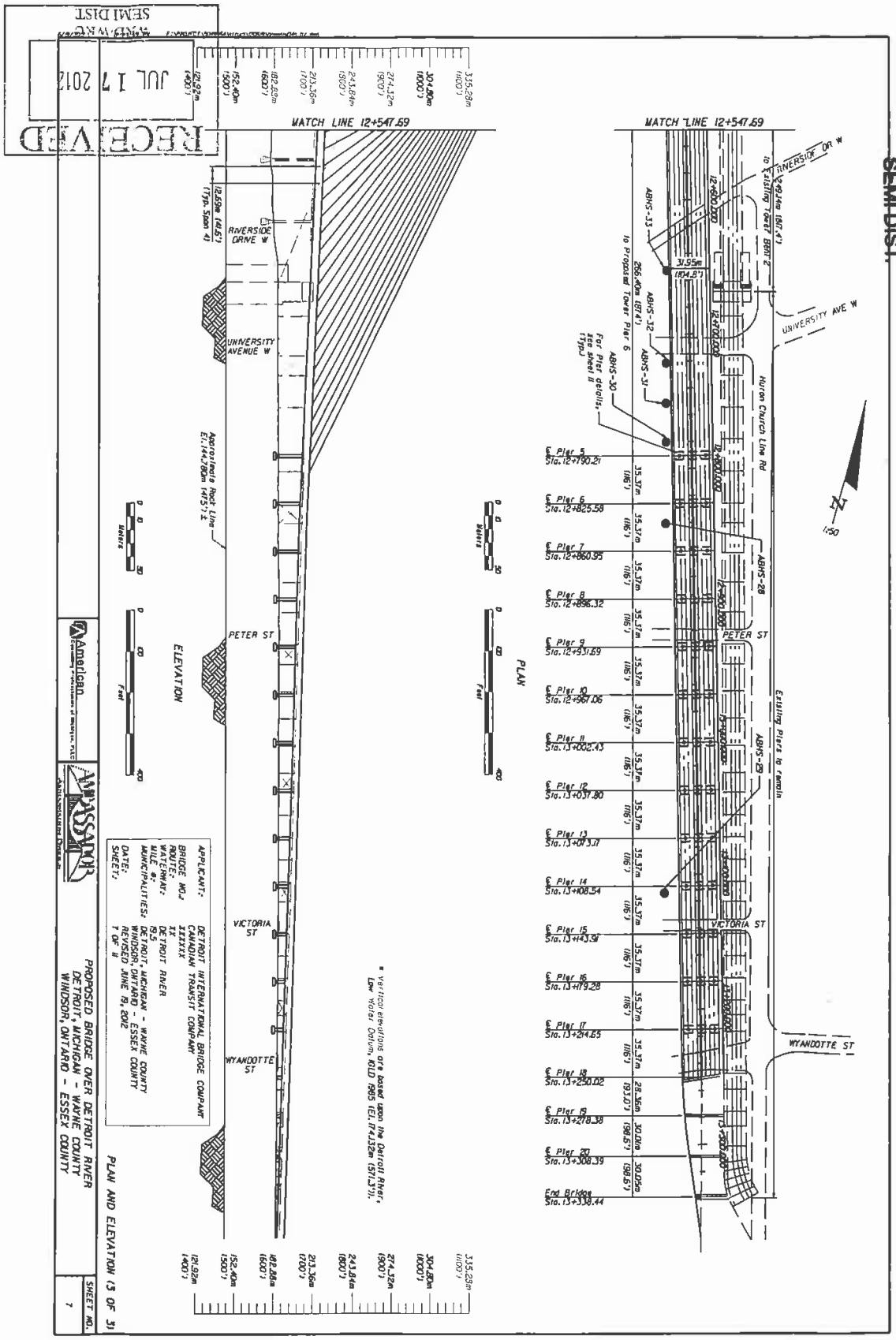
Ambassador Bridge Enhancement Project

Attachment B

MDEQ Permit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7 OF 10
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MATCH LINE 12+547.69
MATCH LINE 12+547.69
RIVERSIDE DRIVE W
UNIVERSITY AVENUE W
PETER ST
VICTORIA ST
WYANDOTTE ST
Huron Church Line Rd
Existing Piers to remain
ELEVATION
PLAN
APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY
BRIDGE NO.: XXXXIX
ROUTE: XX
WATERWAY: DETROIT RIVER
MILE: 25
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
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PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
PLAN AND ELEVATION (3 OF 3)
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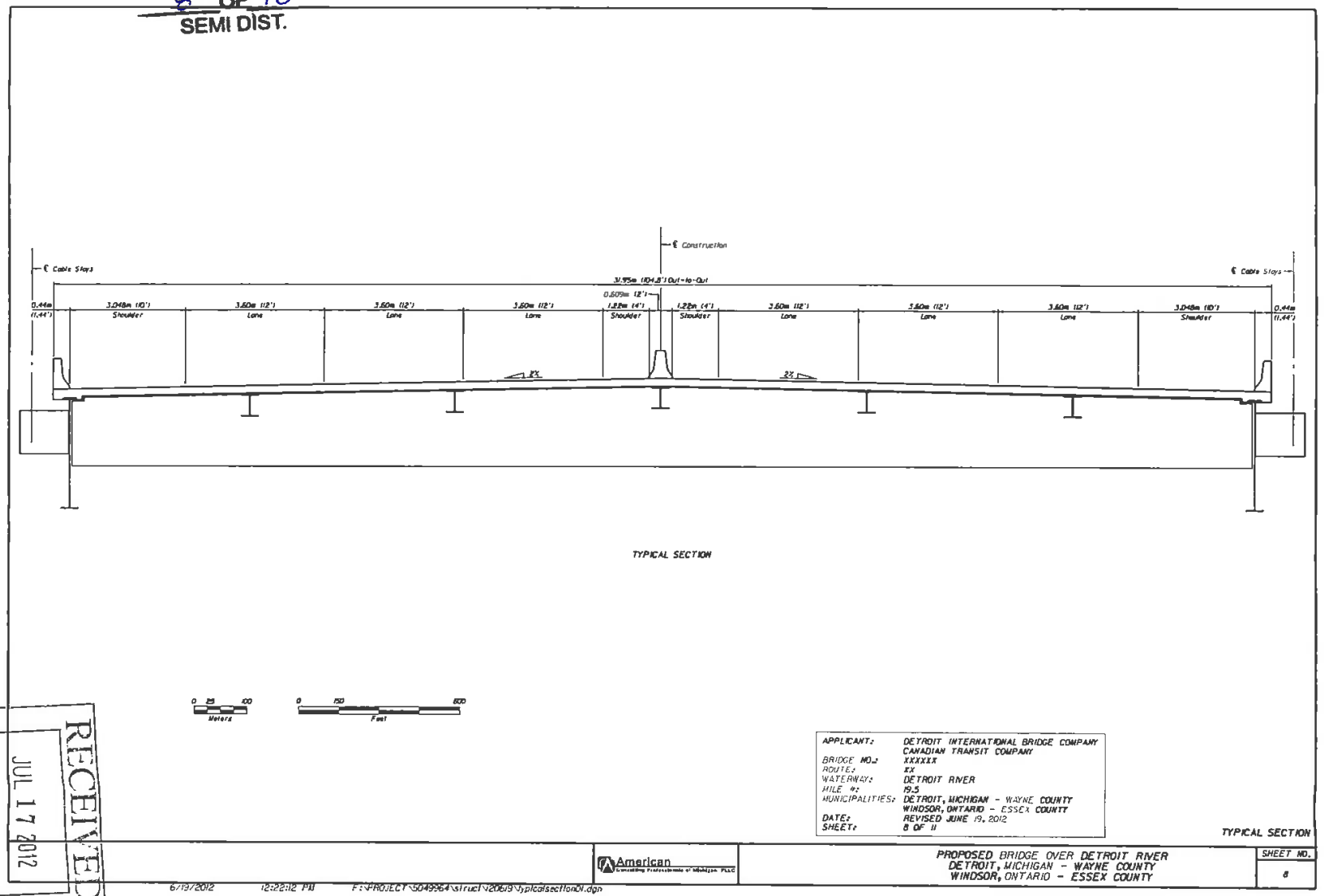

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ROUTE:	XX
WATERWAY:	DETROIT RIVER
MILE #:	19.5
MUNICIPALITIES:	DETROIT, MICHIGAN - WAYNE COUNTY WINDSOR, ONTARIO - ESSEX COUNTY
DATE:	REVISED JUNE 19, 2012
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TYPICAL SECTION

American

PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY

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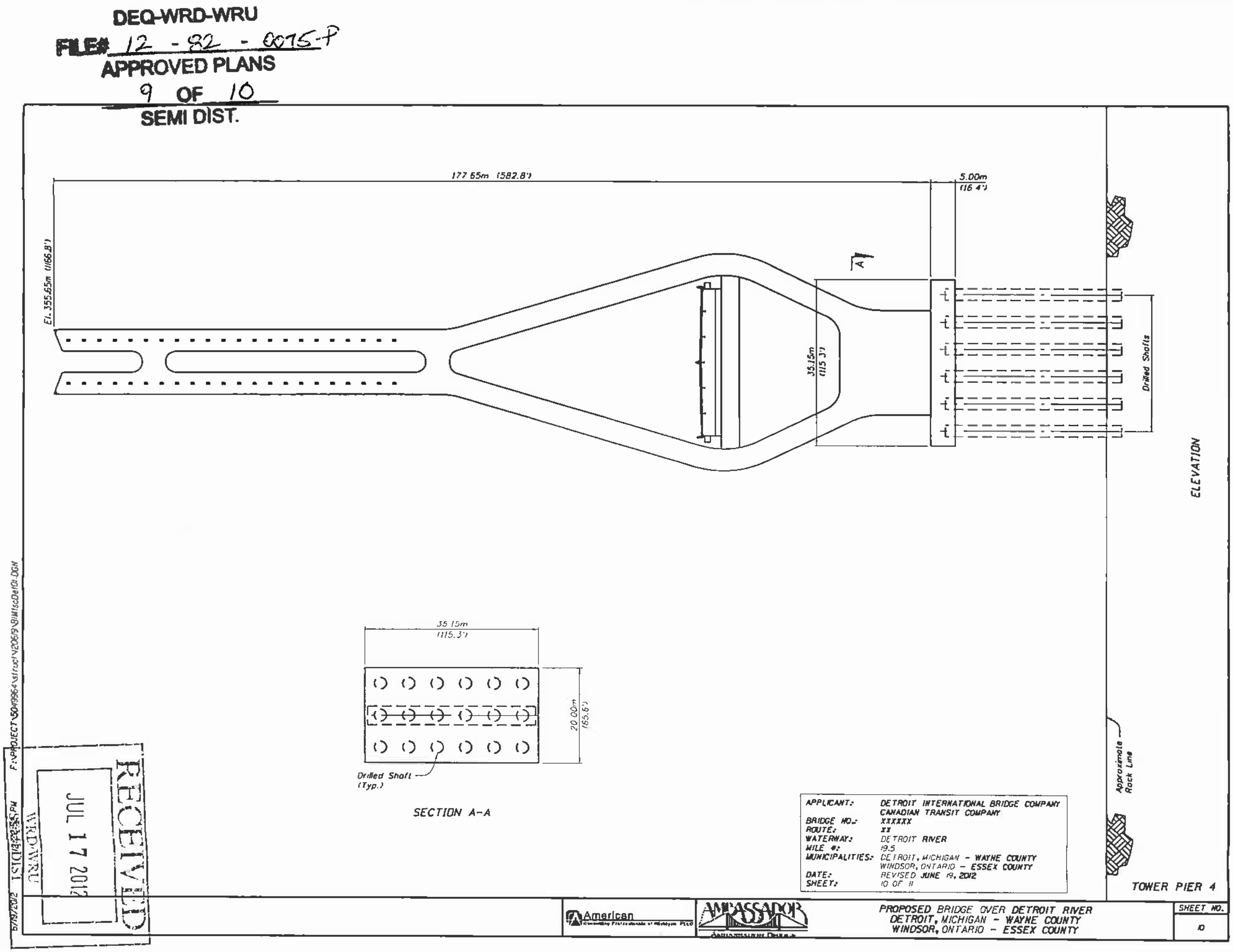
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177.65m (582.8')
5.00m
(16.4')
El. 355.65m (1166.8')
A
35.15m
(115.3')
Drilled Shafts
ELEVATION
35.15m
(115.3')
20.00m
(65.6')
Drilled Shaft
(Typ.)
SECTION A-A
Approximate
Rock Line
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APPLICANT: DETROIT INTERNATIONAL BRIDGE COMPANY
CANADIAN TRANSIT COMPANY
BRIDGE NO.: XXXXXX
ROUTE: XX
WATERWAY: DETROIT RIVER
MILE #: 19.5
MUNICIPALITIES: DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
DATE: REVISED JUNE 19, 2012
SHEET: 10 OF 11
TOWER PIER 4
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AMBASSADOR
PROPOSED BRIDGE OVER DETROIT RIVER
DETROIT, MICHIGAN - WAYNE COUNTY
WINDSOR, ONTARIO - ESSEX COUNTY
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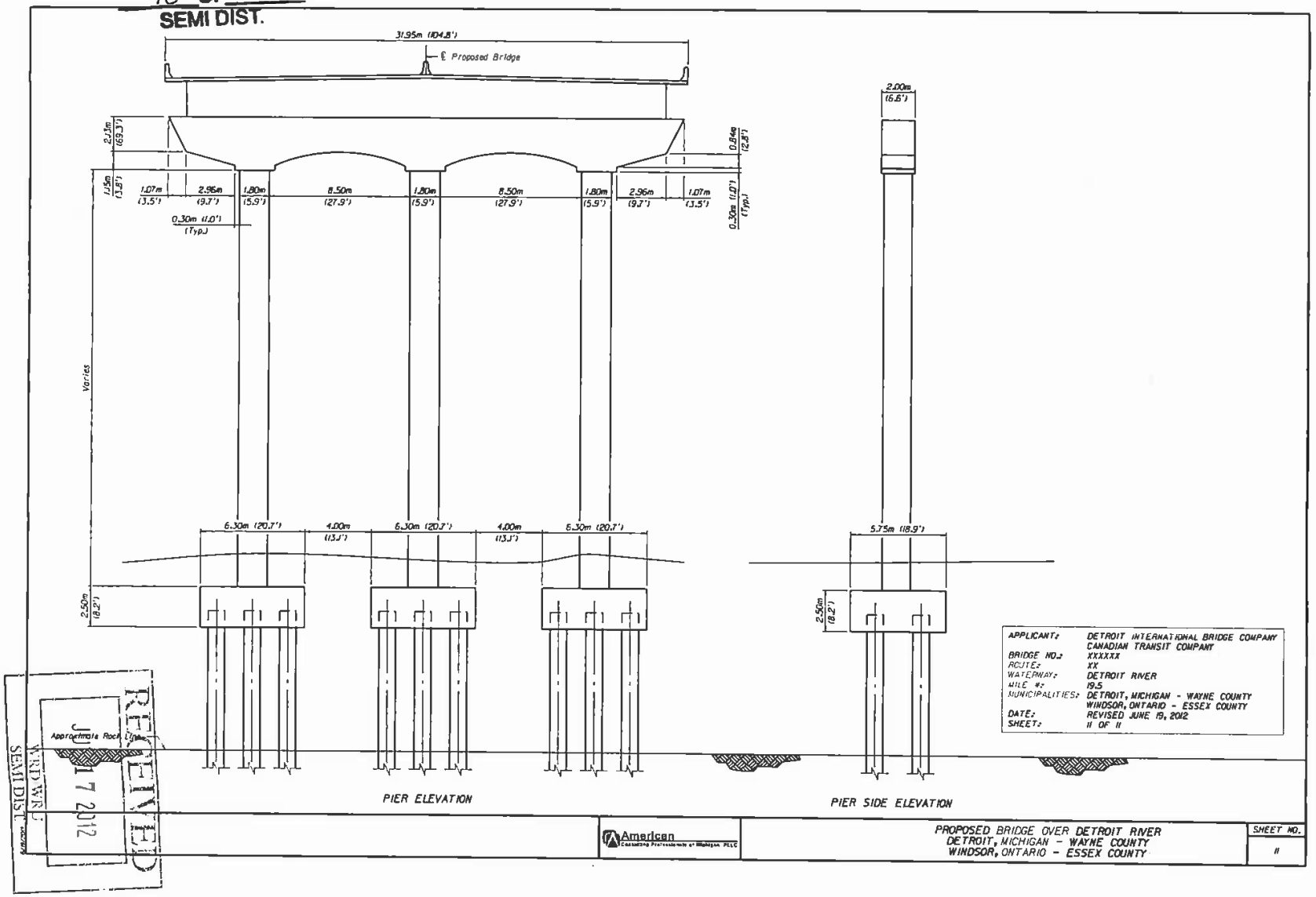

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JUL 17 2012
WRD/WRU
SEMI DIST.

Ambassador Bridge Enhancement Project
Attachment B
MDEQ Permit

Attachment C

Canadian Environmental Assessment Screening Report Decision

Transport Canada / Transports Canada

Place de Ville
Ottawa
K1A 0N5

Fax (613) 990-9639 Télécopieur (613) 990-9639

Your file Votre référence

Our file Notre référence
RDIMS #9082809

February 12, 2014

Dan Stamper, President
Canadian Transit Company
780 Huron Church Road, Suite 202
Windsor, ON N9C 2K2

Dear Mr. Stamper:

Transport Canada and the Windsor Port Authority have completed the environmental assessment screening report for the Canadian Transit Company's proposed Ambassador Bridge Enhancement Project and have made their environmental assessment decisions in accordance with the *Canadian Environmental Assessment Act*.

With the implementation of the mitigation, monitoring, and follow-up measures described in the report, Transport Canada and the Windsor Port Authority have determined that the project is not likely to cause a significant adverse environmental effect. This environmental assessment decision is based on the information provided by the Canadian Transit Company in its revised Environmental Impact Statement (2013) and subsequent documentation.

As you are aware, the environmental assessment decision does not constitute approval for the project to proceed, but rather will inform future federal approval requirements under the *Navigable Waters Protection Act*; the *Port Authority Regulations*; and the *International Bridges and Tunnels Act.*

.../2

We look forward to continuing to work with the Canadian Transit Company throughout the planning, construction, and operational phases of the project to ensure the implementation of the environmental assessment commitments. If you have any questions, please do not hesitate to contact Cathy Hainsworth at (613) 991-3476, or Sarah O'Keefe at (613) 991-1187.

Sincerely,

Alec Simpson

Alec Simpson, Senior Director
Environmental Management Branch
Transport Canada

cc: FRT, NWPP, TC Surface policy

Encl. *Final Environmental Assessment Screening Report*

Attachment D

2012 Air Quality Addendum

3.15 ADDENDUM TO THE DECEMBER 2007 AND JUNE 2009 AIR QUALITY MODELING ANALYSES

FOR
AMBASSADOR BRIDGE ENHANCEMENT PROJECT
DETROIT, MICHIGAN

Submitted For:

3.15.1 DETROIT INTERNATIONAL BRIDGE COMPANY

P.O. BOX 32666 DETROIT,
MICHIGAN 48232

Submitted By:

3.15.2 WESTON SOLUTIONS, INC.

4917 Waters Edge Drive, Suite 235
Raleigh, North Carolina 27606

3.15.3 ***July 2012***

Work Order No. 13814.003.003

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3.15.4 LIST OF FIGURES

3.15.5 APPENDIX A

3.15.6 ***APPENDIX B***

Ambassador Bridge Gateway Project Figure JN 116071A

I. INTRODUCTION

This addendum to the December 2007 and June 2009 Air Quality Dispersion Modeling Analyses was performed to include the revised traffic pattern of the Ambassador Bridge Gateway Project (Gateway) with the previously modeled Ambassador Bridge Enhancement Project (ABEP) and plaza operations. This includes the dedicated truck exit from the United States (US) Customs Plaza to Interstate Highway 75 (I-75) as well as the Canadian bound plaza operations, as currently being constructed by the Michigan Department of Transportation (MDOT), connecting to I-75. The revised modeling was conducted for the years 2015 and 2030.

The revised modeling in this addendum followed the same modeling approach as the December 2007 and the June 2009 Air Quality Dispersion Modeling Analyses.

As in the 2007 and the 2009 modeling analyses, this revised modeling analysis shows that the Gateway Project maximum predicted impacts combined with the current background concentrations are less than National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), particulate matter with and aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), and particulate matter with and aerodynamic diameter less than or equal to

2.5 micrometers ($PM_{2.5}$). In addition, the transboundary effects from Gateway Project, US Customs Plazas, and the new bridge are insignificant.

II. LOCATION

The location of the ABEP and Gateway are the same as in the original modeling analysis. The Canadian bound traffic pattern through the Gateway has been revised to the configuration agreed to between the MDOT and the DIBC. The revised Canadian bound traffic pattern is based upon the final JN 116071A (Dated 6-13-12) of the Ambassador Bridge Plaza - Gateway Project. Figure JN 116071A is included in Appendix B.

III. TRAFFIC VOLUME AND EMISSION CHARACTERISTICS

Traffic volumes are based upon the Detroit River International Crossing (DRIC) study. The design hourly 2015 and 2030 traffic volumes used in this modeling analysis are shown in Table 1.

The emission factors for CO, PM_{10} and $PM_{2.5}$ were calculated using the United States Environmental Protection Agency's (USEPA) Mobile Source Emission Factor Model[1] (MOBILE6.2, version 24 September 2003).

MOBILE6.2 files used in this revised modeling are the same MOBILE6.2 input files containing local input parameters that were supplied by the Southeast Michigan Council of Governments (SEMCOG) for the original modeling. The SEMCOG input files were used to calculate the emission factors used in this modeling analysis. The speed input parameters were as follows:

- Emissions from idling when passing through the U.S. and Canadian inspection stations were estimated using 2.5 miles per hour (mph). The 2.5 mph emission factor and distance traveled is equal to the queuing (idling emissions).
- Free flow traffic speed of 20 mph in the southbound Gateway loop as cars and trucks exit the interstate and enter the Gateway.
- Assumed that 5% of the total design hour volume of trucks travel through duty free area and 20% of the total design hour volume of cars travel through duty free area.
- Assumed gradual increase in speed from 20 mph to 45 mph as trucks and cars leave the US toll booths and travel on the Gateway loop to the elevated section of the bridge (to Canada).
- Assumed average of 2.5 mph to 15 mph for trucks and cars traveling through duty free areas of Southbound Gateway loop.
- Average speed of 20 mph (dedicate truck lane) as trucks exit the US Customs Plaza to access I-75.
- Assumed Southbound and Northbound free flow traffic speed of 45 mph across the elevated section of the bridge.

- Assumed Northbound free flow traffic speed of 35 mph around Canadian Customs plaza as cars approach the northbound elevated bridge section.

- Assumed decrease in speed from 45 mph to 15 mph as trucks and cars leave elevated section of the bridge (to US) approaching the US inspection stations.

The individual car (light duty gasoline vehicle-LDGV) and truck (heavy duty diesel vehicle-HDDV) MOBILE6.2 emission factors were used instead of the composite emission factor for all vehicle types. The average of the calculated winter and summer emission factors were used in this analysis. The year 2015 and 2030 emission factors for the modeled pollutants are shown in Tables 2 and 3.

IV. MODELING OVERVIEW

CAL3QHC is a CALINE3 based model for assessing queuing and free flow traffic emissions. It is one of the preferred / recommended models by the USEPA.[2] Accordingly, the CAL3QHCR model was used to assess the impact of emissions on air quality during the operation of the bridge and customs plazas. CAL3QHCR is an enhanced version of CAL3QHC that allows local meteorological data input and variable emission rates.[3]

CAL3QHCR allows a two tiered approach. The first approach, called Tier I, is a conservative estimate that uses a full year of meteorology and a constant one hour emission rate over that year. The second approach, called Tier II, is a more refined analysis that utilizes variable hourly emission rates for a maximum of one week and one year of meteorological data. The maximum predicted ambient air impacts using the Tier 1 approach did not exceed the appropriate NAAQS, therefore Tier 2 was not utilized. The inputs that were used in the CAL3QHCR model are summarized below:

- MOBILE6.2 vehicle exhaust emission factors (i.e., gram/vehicle mile traveled (vmt)) for the road segments;

- Tier 1, the overall peak hourly traffic flow in each area for all hours of the day (i.e., the overall peak flow is assumed for all hours of the day);

- 60 minute run averaging time (minutes);

- surface roughness length (centimeter (cm)) – 400 cm, based upon the urban area surrounding the ABEP (see discussion below);

- default deposition velocity (cm/s) –0.0 centimeter/second was used;

- rural (R)/urban (U) switch – urban was used, based upon land use in the area surrounding the ABEP[4]; and

- pollutant type (PM or CO) – the appropriate mode was used for PM_{10}, $PM_{2.5}$ and CO.

The December 2007 and June 2009 modeling analyses maximum predicted concentration for PM_{10} and $PM_{2.5}$ occurred using the 2003 meteorological data and 2005 meteorological data produced the maximum predicted CO concentrations. Therefore, the 2003 meteorological data was used in this analysis to predict the maximum concentrations for PM_{10} and $PM_{2.5}$, and the 2005 meteorological data was used to predict the maximum concentrations of CO.

IV.1 Link Parameters

A free flow link is defined as a straight segment of roadway having a constant width, height, traffic flow, travel speed, and vehicle emission factor. The location of the link is specified by its end point coordinates, XL1, YL1, and XL2, YL2. Link width or mixing zone width (WL) is defined as the width of the traveled roadway (lanes of moving traffic only) plus 3 meters on each side to account for the dispersion of the plume generated by the wake of moving vehicles. All lane widths were set at 3.5 meters. Link height (HL) was set to 10 meters for the bridge span across the Detroit River. Ten meters is the maximum link height allowed by the CAL3QHC model. On each side of the bridge, the link height on a sloping up section was set at 5 meters above grade. The southbound Gateway loop bridge access was incrementally increased by 2.5 meters until it reached the 10 meter height for the span across the river. The custom plazas were modeled at grade (0 meters). Figures 1 and 2 show the northbound and southbound link configurations used in the revised modeling analysis of the Gateway, US Customs and the new bridge span.

The input for free flow links are the emission factor (g/mile) and traffic flow (vehicles/hour). The emission factor depends on the traffic speed (miles per hour (mph)). The traffic speed for

back-up links was 2.5 mph, other free flow links ranged from 15 to 45 mph. All link parameters for each pollutant are shown in the tables included in Appendix A. Figure 3 shows the traffic speeds for the Gateway, new bridge and US Customs Plaza links. Figure 4 shows the number of lanes and link speeds of the Gateway.

IV.2 Land Use Determination and Dispersion Coefficients

The urban land use classification and the surface roughness of 400 centimeters (cm) are the same as used in the original 2007 and 2009 Addendum modeling analyses.

IV.3 Receptor Grid Selection

The receptor grid remained the same as in the 2009 Addendum. Receptors were assigned a breathing height of 1.8 meters above grade. The receptor grid used in the modeling is shown in Figure 5.

Because of the limitation of 60 receptors per input file, the CAL3QHCR model with all links was run for groups of 60 receptors or less. To determine the receptor with the maximum predicted concentration, the results were merged together for all the receptors.

IV.4 Meteorological Data

The same meteorological database was used for this revised modeling. The meteorological database for this air quality modeling analysis consisted of five years (2001-2005) of surface data collected at Detroit City Airport, Detroit, Michigan. Coincident mixing heights were derived by merging surface temperatures with concurrent twice-daily rawinsonde data obtained from Flint, Michigan. The pre-processed meteorological files were obtained directly from MDEQ. As previously discussed the meteorological data for the year 2003 produced the maximum 24-hour, and annual concentrations

in PM mode and the year 2005 produced the maximum 1-hour and 8-hour concentrations in CO mode. Therefore, the year 2005 was used to predict the maximum CO concentration and the year 2003 was used for PM_{10} and $PM_{2.5}$.

V. MODELING RESULTS

V.1 Background Concentrations

The closest Michigan Department of Environmental Quality (MDEQ) monitor is located approximately 800 meters east of the U.S. Customs Truck Plaza, at 2000 West Lafayette Street. This monitor is the best choice for providing representative ambient air background concentrations in the area directly surrounding the U.S. side of the existing and new bridge. The next closest monitor is located 3,150 meters southwest of the U.S Customs Plaza, at 6921 West Fort Street. The 2000 West Lafayette monitor only measures $PM_{2.5}$. The 6921 West Fort Street monitor measures PM_{10}. The closest monitor that measures CO is in Allen Park. These monitors were used for the background values for the pollutant measured at each site. Figure 5 shows the location of the West Lafayette and West Fort Street monitors.

The monitor data was obtained from the 2011 MDEQ Annual Air Quality Report. The measured monitor values and the representative ambient air background levels of the CO, PM_{10} and $PM_{2.5}$ are shown in Table 4.

V.2 Maximum Predicted Ambient Air Impacts

The CAL3QHCR Tier I analysis was conducted using the DRIC design hourly traffic volume and speeds described in Section III to predict the maximum ambient air concentrations for the Gateway Project and the new bridge in 2015 and 2030. The CAL3QHCR Tier I maximum predicted ambient air concentrations were added to the ambient air background concentration. The combined impacts were compared to the NAAQS. The combined maximum predicted ambient air impacts for 2015 and 2030 are presented in Tables 5 and 6. As shown in Tables 5 and 6 the combined maximum impacts of PM_{10}, $PM_{2.5}$ and CO are less than the appropriate NAAQS. The 24-hour and annual PM_{10} and $PM_{2.5}$ predicted concentrations are predicted within 50 meters in the area just south of the US Truck Plaza and the southbound Gateway loop. The 1- hour and 8-hour CO maximums occurred at the US

inspections car exit at I-75. The CAL3QHCR Tier I CO, PM_{10}, and $PM_{2.5}$ maximum impact analysis showed no significant impacts, therefore a

Tier II analysis was not required. Figure 6 shows the area where the maximum ambient impacts occur.

V.3 Transboundary Effects

The International Boundary between the United States and Canada is located approximately midway across the Ambassador Bridge span. The CAL3QHCR maximum predicted impacts from the new Gateway, US Customs Plazas and the proposed new bridge span have been shown to be less than all applicable standards. Therefore, the transboundary effects from Gateway, US Customs Plazas, and new bridge are not significant.

VI. CONCLUSIONS

An air quality dispersion modeling analysis was performed to assess the ambient air impacts from the operation of the new Gateway and new Ambassador Bridge span that would relocate traffic from the existing span. The modeling analysis shows that:

- the maximum predicted impacts combined with the current background concentrations are less than PM_{10}, $PM_{2.5}$ and CO NAAQS (see Tables 5 and 6);
- the transboundary effects from the Gateway, US Customs Plazas, and new bridge are insignificant (see Section V.3).

VII. REFERENCES

1. User's Guide to MOBILE6.1 and MOBILE6.2, Mobile Source Emissions Model. Assessment and Standards Division, Office of Transportation and Air Quality, EPA420- R-03-010, August 2003.

2. User's Guide and Addendum to the CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections (Revised). U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. EPA-454/R-92-006, September 1995.

3. Guideline on Air Quality Models (Revised). U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC. Appendix W of 40 CFR Part 51, 2005.

4. Auer, Jr., A.H., "Correlation of Land Use and Cover with Meteorological Anomalies," Journal of Applied Meteorology, 17: 636-643, 1978.

SECTION 4 TABLES

4.1.1 *Table 1*

Year 2015 and 2030 New Bridge
Design Hour Traffic Volumes

Vehicle Type	Year	Modeled Traffic Volume	
		Design Hourly Southbound Entering Canada	Design Hourly Northbound Entering US
Trucks	2015	846	880
Cars	2015	867	832
Trucks	2030	941	979
Cars	2030	1,235	1,186

DRIC = Detroit River International Crossing (DRIC) Study Travel Demand Forecasts.

4.1.2 *Table 2*

Year 2015 Gateway and New Bridge
MOBILE6.2 Emission Factors

Vehicle Type	Emission Factor (gram/mile)		
	PM_{10}	$PM_{2.5}$	CO
Cars 2.5 mph	0.0043	0.0040	24.740
Commercial Vehicles 2.5 mph	0.0598	0.0551	3.4080
Cars 15 mph	0.0248	0.0113	10.180
Commercial Vehicles 15 mph	0.0984	0.0669	1.3840
Cars 20 mph	0.0248	0.0113	9.4450
Commercial Vehicles 20 mph	0.0984	0.0669	1.0455
Cars 35 mph	0.0248	0.0113	8.9900
Commercial Vehicles 35 mph	0.0984	0.0669	0.5915
Cars 45 mph	0.0248	0.0113	9.6100
Commercial Vehicles 45 mph	0.0984	0.0669	0.5080

CO = carbon monoxide
mph = miles per hour
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10} = particulate matter with an aerodynamic diameter less than 10 microns

*4.1.3 **Table 3***

Year 2030 Gateway and New Bridge
MOBILE6.2 Emission Factors

Vehicle Type	Emission Factor (gram/mile)		
	PM_{10}	$PM_{2.5}$	CO
Cars 2.5 mph	0.0042	0.0039	20.695
Commercial Vehicles 2.5 mph	0.0150	0.0138	1.0705
Cars 15 mph	0.0247	0.0112	8.8500
Commercial Vehicles 15 mph	0.0536	0.0257	0.4350
Cars 20 mph	0.0247	0.0112	8.2200
Commercial Vehicles 20 mph	0.0536	0.0257	0.3280
Cars 35 mph	0.0247	0.0112	7.8200
Commercial Vehicles 35 mph	0.0536	0.0257	0.1855
Cars 45 mph	0.0247	0.0112	8.3350
Commercial Vehicles 45 mph	0.0536	0.0257	0.1595

CO = carbon monoxide
mph = miles per hour
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10} = particulate matter with an aerodynamic diameter less than 10 microns

*4.1.4 **Table 4***

Ambient Air Background Concentrations

Pollutant	Monitor Concentrations			
	1- hour[a] (ppm)	8-hour[a] (ppm)	24-hour[b] ($\mu g/m^3$)	Annual[c] ($\mu g/m^3$)
PM_{10}	-	-	50.0	-
$PM_{2.5}$	-	-	28.2	10.4
CO	2.0	1.6	-	-

CO = carbon monoxide
$\mu g/m^3$ = micrograms/cubic meter
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10} = particulate matter with an aerodynamic diameter less than 10 microns
ppm = parts per million
Notes:
a 2011 highest measured value of CO at Allen Park monitor.
b $PM_{2.5}$ is the three year average (2009-2001) of 98th percentile at W. Lafayette monitor.
PM_{10} is the three year average (2009-2011) of 4th highest value at W. Fort St. monitor.
c Three year average (2009-2011) of the annual mean value at W. Lafayette monitor.

*4.1.5 **Table 5***

Year 2015 Gateway and New Bridge Modeling Results

	Pollutants				
	PM_{10}	$PM_{2.5}$ [b]		CO	
	24-hr	Annual	24-hr	8-hr	1-hr
	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ppm)	(ppm)
Maximum Modeled Impacts[a]	3.2	0.79	2.1	0.27	0.40
Background	50.0	10.4	28.2	1.6	2.0
Total	53.2	11.3	30.3	1.9	2.4
NAAQS	150	15	35	9	35

CO = carbon monoxide
$\mu g/m^3$ = micrograms/cubic meter
NAAQS = National Ambient Air Quality Standards
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10} = particulate matter with an aerodynamic diameter less than 10 microns
ppm = parts per million
Notes:

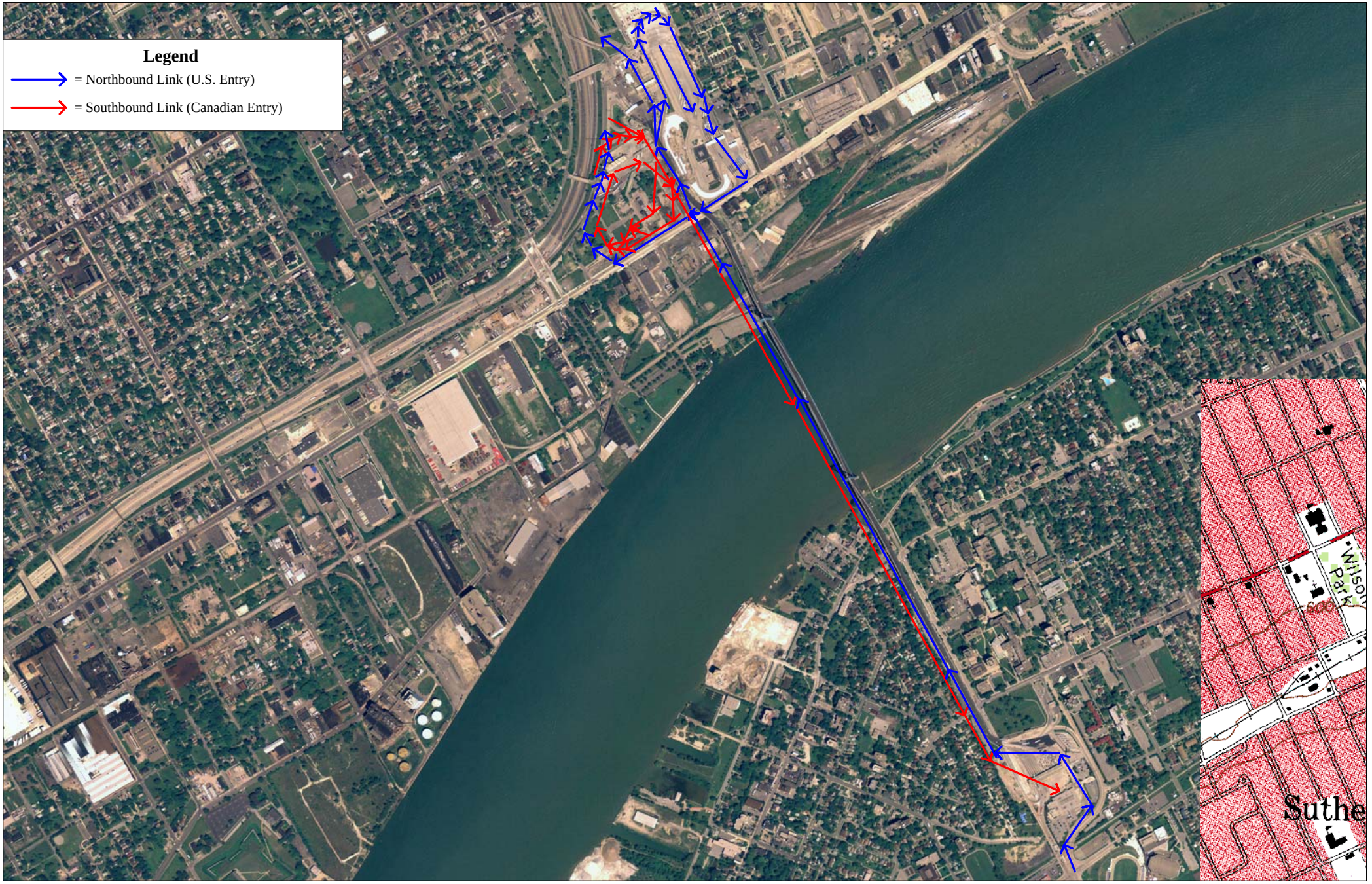
*4.1.6 **Table 6***

Year 2030 Gateway and New Bridge Modeling Results

	Pollutants				
	PM_{10}	$PM_{2.5}$ [b]		CO	
	24-hr	Annual	24-hr	8-hr	1-hr
	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ppm)	(ppm)
Maximum Modeled Impacts[a]	2.2	0.39	1.1	0.30	0.40
Background	50.0	10.4	28.2	1.6	2.0
Total	52.2	10.8	29.3	1.9	2.4
NAAQS	150	15	35	9	35

CO = carbon monoxide
$\mu g/m^3$ = micrograms/cubic meter
NAAQS = National Ambient Air Quality Standards
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 microns
PM_{10} = particulate matter with an aerodynamic diameter less than 10 microns
ppm = parts per million

SECTION 5 FIGURES



Scale in Meters

0 750 1,500

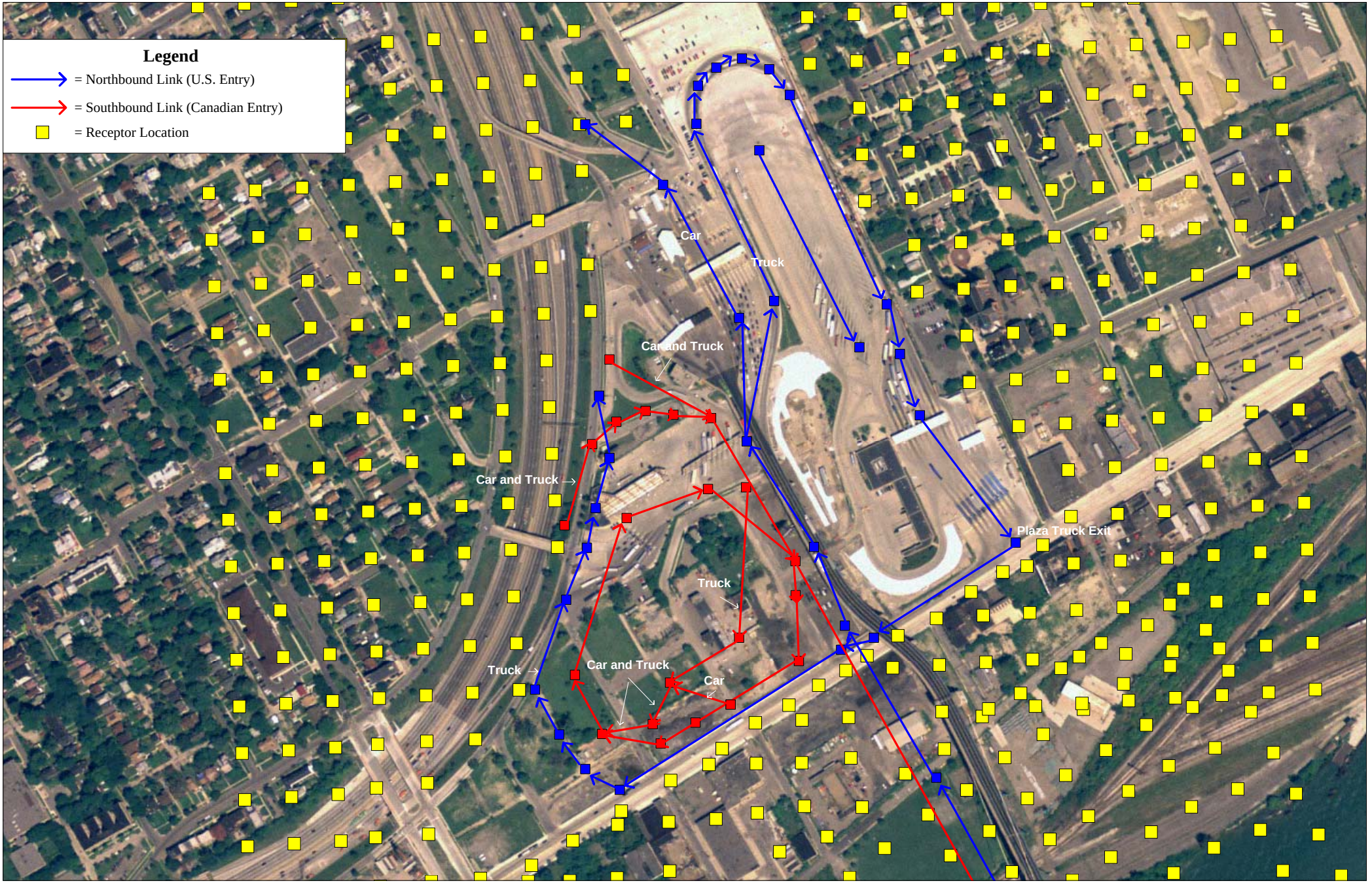
N
W E
S

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.

WESTON SOLUTIONS

Figure 1
Revised Gateway and ABEP Links

Ambassador Bridge Gateway Project
Wayne County
Detroit, Michigan



Scale in Meters

0 300 600

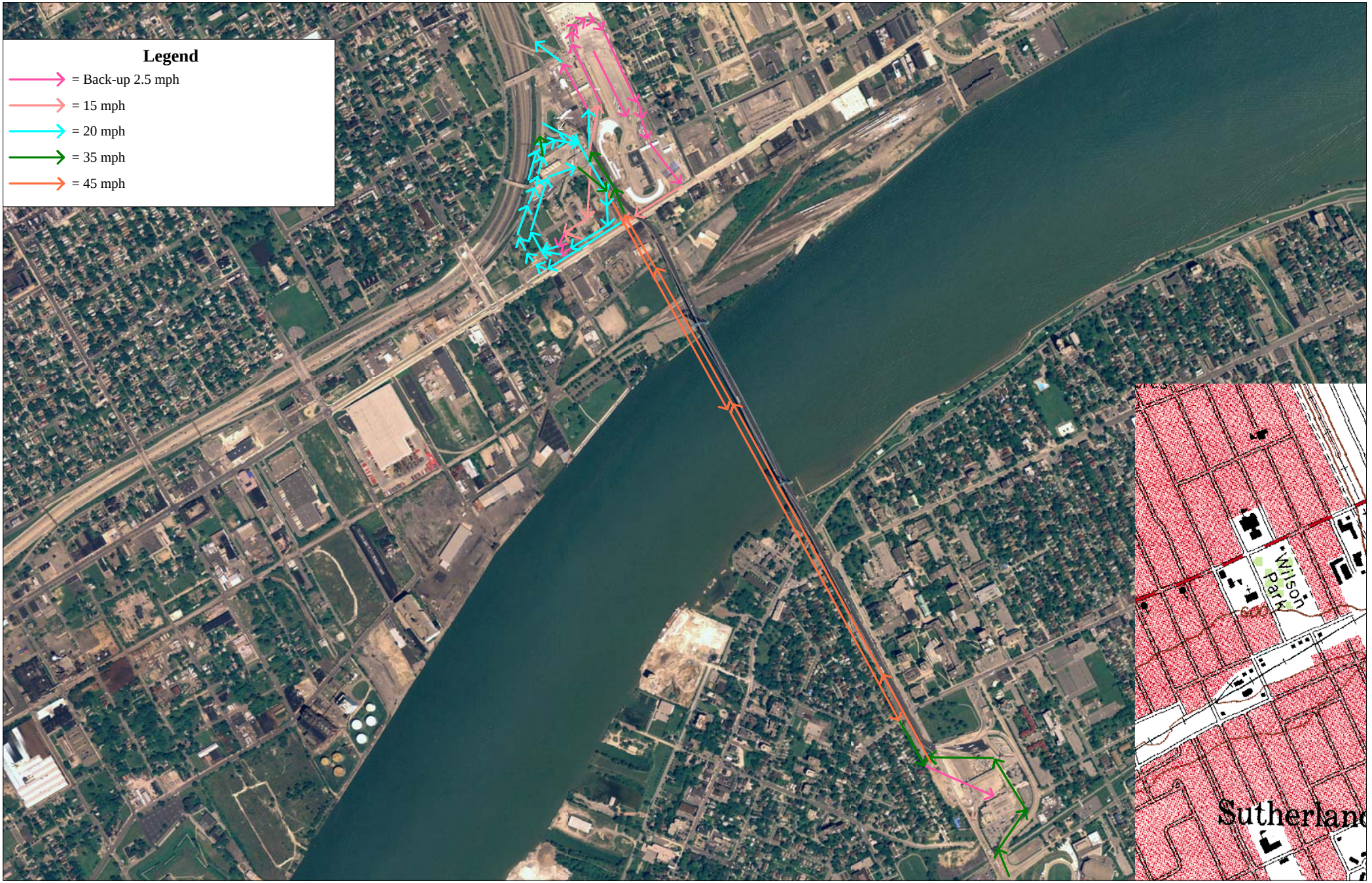
N W E S

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.

WESTON SOLUTIONS

Figure 2
Gateway and US Customs Plaza Links

Ambassador Bridge Gateway Project
Wayne County
Detroit, Michigan



Scale in Meters

0 750 1,500

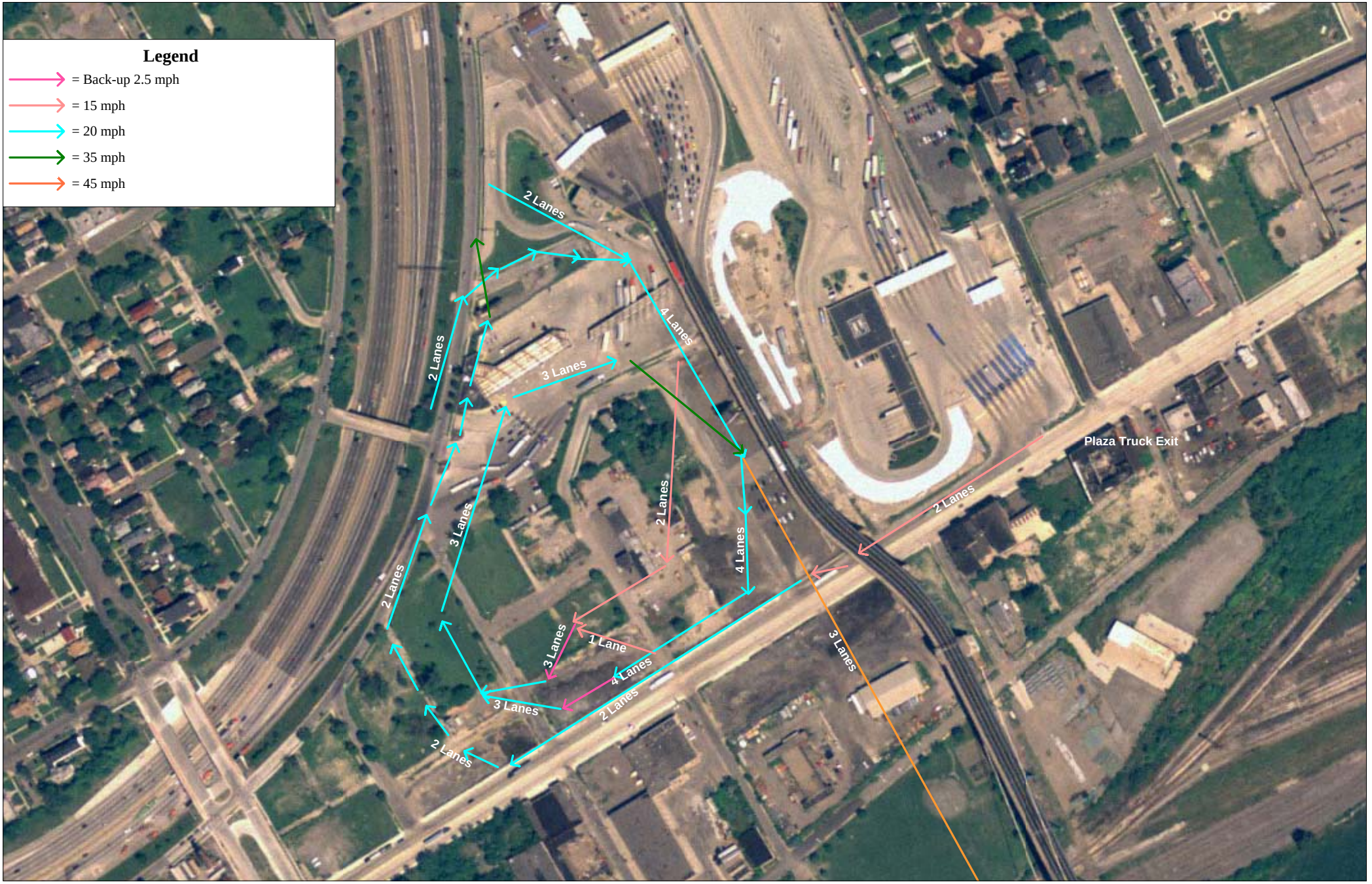
N
W E
S

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.

WESTON SOLUTIONS

Figure 3
Modeled Gateway and ABEP Link Speeds

Ambassador Bridge Gateway Project
Wayne County
Detroit, Michigan



Scale in Meters

0 200 400

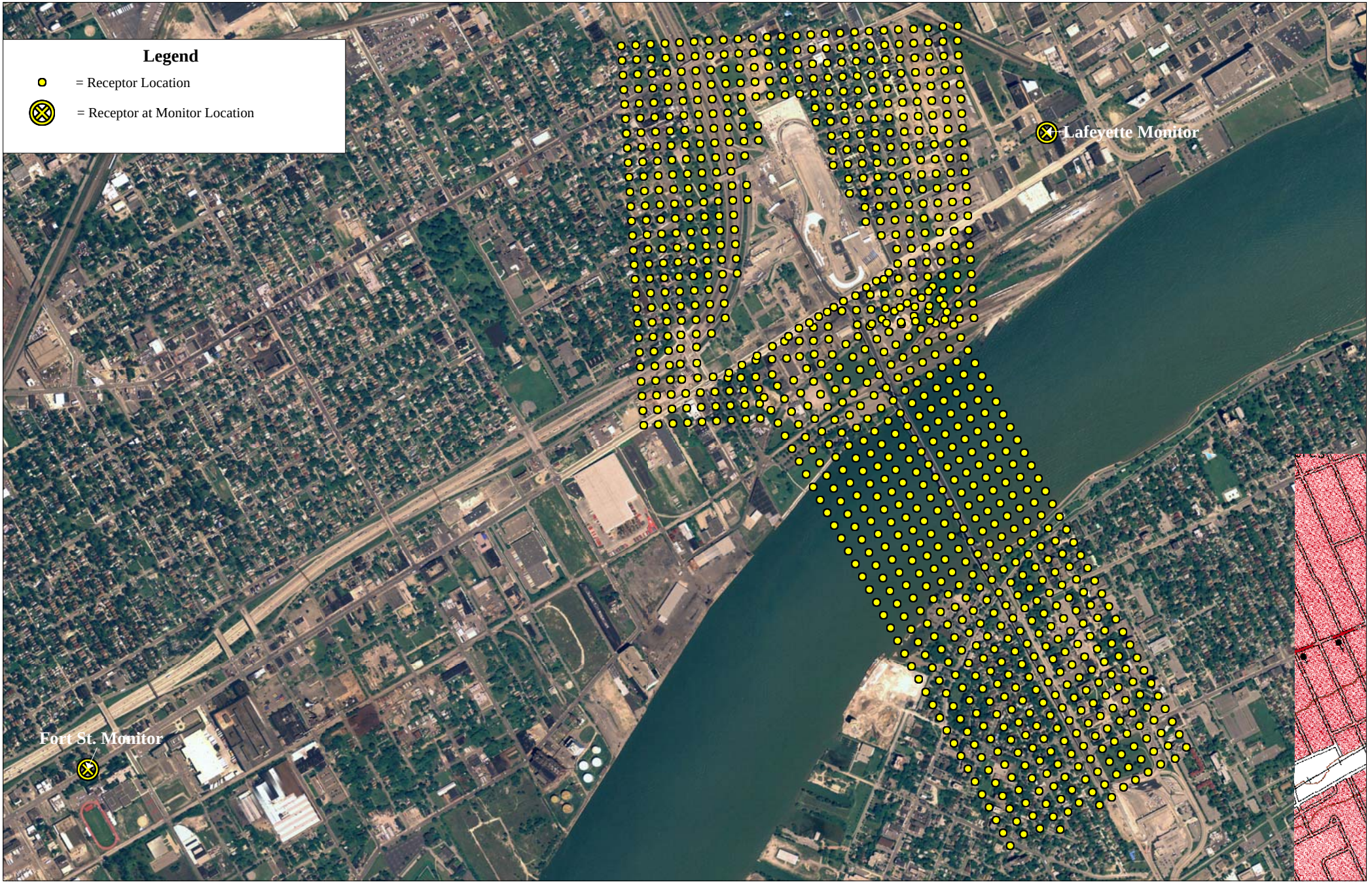
N W E S

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.

WESTON SOLUTIONS

Figure 4
Modeled Gateway Lanes and Link Speeds

Ambassador Bridge Gateway Project
Wayne County
Detroit, Michigan



Scale in Meters

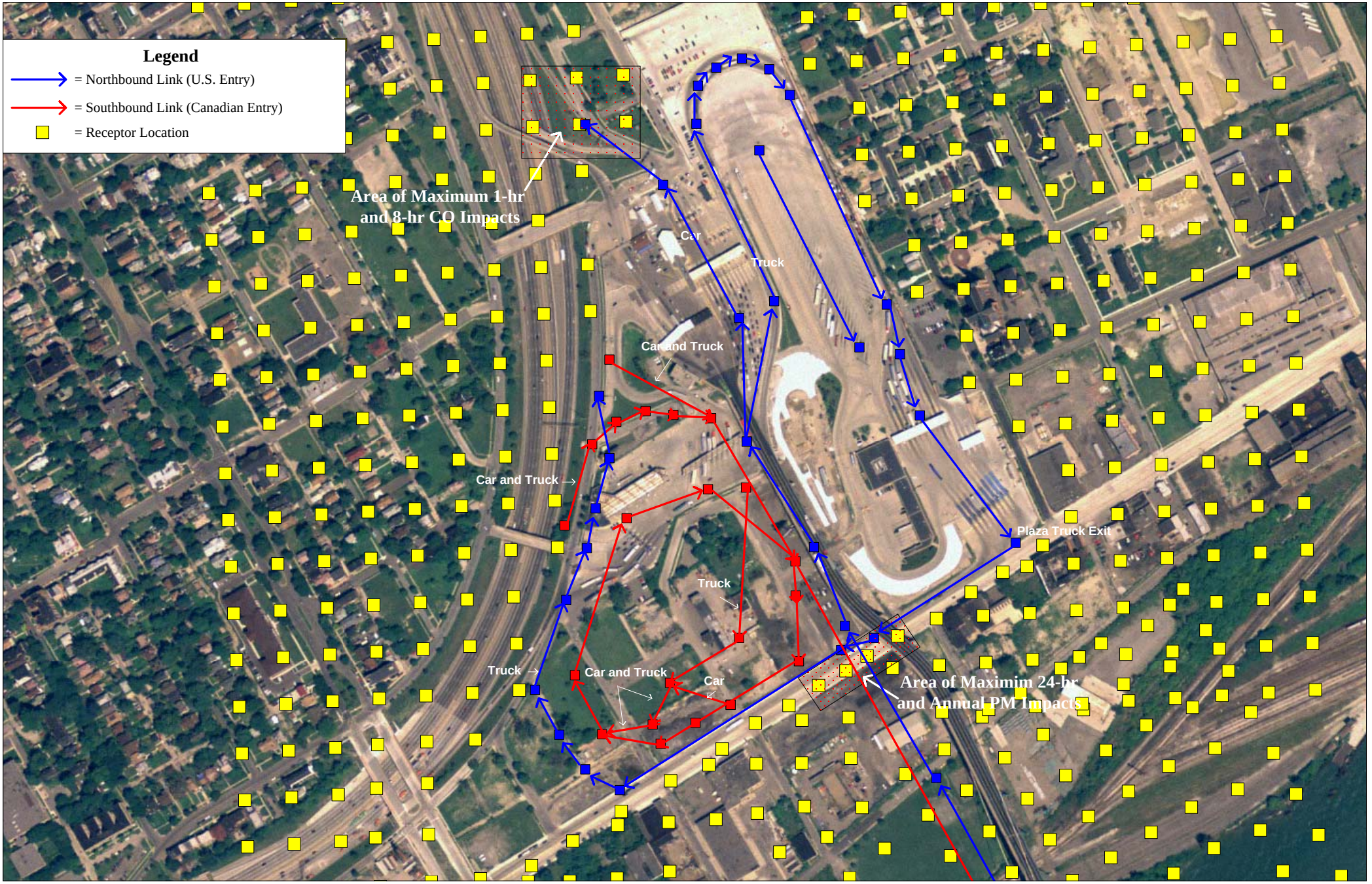
0 750 1,500

N W E S

Figure 5
Receptor Grid

Ambassador Bridge Enhancement Project
Wayne County
Detroit, Michigan

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.



Scale in Meters

0 300 600

N W E S

Source: Base map Remote Sensing & GIS Research and Outreach Services (RS&GIS), Michigan Georef NAIP Digital Ortho Photo Image, Detroit NE, NW, and SW, Dated 2005.

Figure 6
Location of Maximum Impacts

Ambassador Bridge Gateway Project
Wayne County
Detroit, Michigan

SECTION 12 APPENDIX A

12.1 REVISED MODELED LINK PARAMETER TABLES

CAL3QHCR - 2015 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **PM10**

Bridge

Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	0.0043	
15	0.0248	
20	0.0248	
30		
35	0.0248	
40		
45	0.0248	

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	832.0	880.0	1712.0	0.0626	62.632								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	832.0	880.0	1712.0	0.0626	62.632								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	832.0	880.0	1712.0	0.0626	62.632								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	832.0	880.0	1712.0	0.0626	62.632								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	832.0	880.0	1712.0	0.0626	62.632								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	832.0		832.0	0.0248	24.800								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	832.0		832.0	0.0043	4.3000								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	832.0		832.0	0.0248	24.800								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		42.0	42.0	0.0984	98.400								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		42.0	42.0	0.0984	98.400								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	173.0		173.0	0.0248	24.800								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	173.0	42.0	215.0	0.0151	15.132								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	173.0	42.0	215.0	0.0392	39.178								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	867.0	846.0	1713.0	0.0317	31.685								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	867.0	846.0	1713.0	0.0611	61.149								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	867.0	846.0	1713.0	0.0611	61.149								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	867.0	846.0	1713.0	0.0611	61.149								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	867.0	846.0	1713.0	0.0611	61.149								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	867.0	846.0	1713.0	0.0611	61.149								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	867.0	846.0	1713.0	0.0317	31.685								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		880.0	880.0	0.0984	98.400								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		880.0	880.0	0.0598	59.750								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		880.0	880.0	0.0984	98.400								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	0.0598	59.750								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

CAL3QHCR - 2030 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
VPHL=	Real	vehicle/hour	Traffic volume for free flow links and approach traffic volume for queue links
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **PM10**

Bridge

Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	0.0042	0.0150
15	0.0247	0.0536
20	0.0247	0.0536
30		
35	0.0247	0.0536
40		
45	0.0247	0.0536

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	1186.0	979.0	2165.0	0.0377	37.746								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	1186.0		1186.0	0.0247	24.700								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	1186.0		1186.0	0.0042	4.200								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	1186.0		1186.0	0.0247	24.700								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		47.0	47.0	0.0536	53.600								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		47.0	47.0	0.0536	53.600								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	247.0		247.0	0.0247	24.700								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	247.0	47.0	294.0	0.0059	5.9185								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	247.0	47.0	294.0	0.0293	29.320								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	1235.0	941.0	2176.0	0.0088	8.8488								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	1235.0	941.0	2176.0	0.0372	37.176								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	1235.0	941.0	2176.0	0.0372	37.176								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	1235.0	941.0	2176.0	0.0088	8.8488								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		979.0	979.0	0.0536	53.600								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		979.0	979.0	0.0150	14.950								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		979.0	979.0	0.0536	53.600								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		979.0	979.0	0.0536	53.600								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		979.0	979.0	0.0536	53.550								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	0.0150	14.950								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

CAL3QHCR - 2015 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
VPHL=	Real	vehicle/hour	Traffic volume for free flow links and approach traffic volume for queue links
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **PM2.5**

Bridge

Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	0.0040	0.0551
15	0.0113	0.0669
20	0.0113	0.0669
30		
35	0.0113	0.0669
40		
45	0.0113	0.0669

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	832.0	880.0	1712.0	0.0399	39.879								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	832.0	880.0	1712.0	0.0399	39.879								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	832.0	880.0	1712.0	0.0399	39.879								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	832.0	880.0	1712.0	0.0399	39.879								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	832.0	880.0	1712.0	0.0399	39.879								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	832.0		832.0	0.0113	11.300								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	832.0		832.0	0.0040	4.000								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	832.0		832.0	0.0113	11.300								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		42.0	42.0	0.0669	66.900								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		42.0	42.0	0.0669	66.900								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	173.0		173.0	0.0113	11.300								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	173.0	42.0	215.0	0.0140	13.973								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	173.0	42.0	215.0	0.0222	22.161								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	867.0	846.0	1713.0	0.0292	29.212								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	867.0	846.0	1713.0	0.0388	38.759								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	867.0	846.0	1713.0	0.0388	38.759								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	867.0	846.0	1713.0	0.0388	38.759								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	867.0	846.0	1713.0	0.0388	38.759								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	867.0	846.0	1713.0	0.0388	38.759								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	867.0	846.0	1713.0	0.0292	29.212								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		880.0	880.0	0.0669	66.900								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		880.0	880.0	0.0551	55.050								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		880.0	880.0	0.0669	66.900								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	0.0551	55.050								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

CAL3QHCR - 2030 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **PM2.5**

Bridge

Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	0.0039	
15	0.0112	
20	0.0112	
30		
35	0.0112	
40		
45	0.0112	

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	1186.0	979.0	2165.0	0.0177	17.734								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	1186.0		1186.0	0.0112	11.200								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	1186.0		1186.0	0.0039	3.9000								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	1186.0		1186.0	0.0112	11.200								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		47.0	47.0	0.0257	25.650								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		47.0	47.0	0.0257	25.650								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	247.0		247.0	0.0112	11.200								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	247.0	47.0	294.0	0.0055	5.4827								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	247.0	47.0	294.0	0.0135	13.510								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	1235.0	941.0	2176.0	0.0082	8.1812								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	1235.0	941.0	2176.0	0.0174	17.449								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	1235.0	941.0	2176.0	0.0174	17.449								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	1235.0	941.0	2176.0	0.0082	8.1812								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		979.0	979.0	0.0257	25.650								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		979.0	979.0	0.0138	13.800								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		979.0	979.0	0.0257	25.650								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	0.0138	13.800								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

CAL3QHCR - 2015 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
VPHL=	Real	vehicle/hour	Traffic volume for free flow links and approach traffic volume for queue links
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **CO**
Bridge

Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	24.740	3.4080
15	10.1800	1.3840
20	9.4450	1.0455
30		
35	8.9900	0.5915
40		
45	9.6100	0.5080

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	832.0	880.0	1712.0	4.6730	4673.014								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	832.0	880.0	1712.0	4.6730	4673.014								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	832.0	880.0	1712.0	4.6730	4673.014								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	832.0	880.0	1712.0	4.6730	4673.014								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	832.0	880.0	1712.0	4.9314	4931.402								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	832.0		832.0	9.4450	9445.000								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	832.0		832.0	24.740	24740.000								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	832.0		832.0	9.4450	9445.000								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		42.0	42.0	1.3840	1384.000								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		42.0	42.0	1.3840	1384.000								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	173.0		173.0	10.1800	10180.000								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	173.0	42.0	215.0	20.573	20572.819								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	173.0	42.0	215.0	8.4617	8461.712								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	867.0	846.0	1713.0	14.205	14204.757								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	867.0	846.0	1713.0	5.2967	5296.736								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	867.0	846.0	1713.0	4.8422	4842.229								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	867.0	846.0	1713.0	5.1148	5114.792								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	867.0	846.0	1713.0	5.1148	5114.792								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	867.0	846.0	1713.0	4.8422	4842.229								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	867.0	846.0	1713.0	14.205	14204.757								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		880.0	880.0	1.3840	1384.000								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		880.0	880.0	3.4080	3408.000								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		880.0	880.0	1.3840	1384.000								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		880.0	880.0	1.3840	1384.000								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		880.0	880.0	1.0455	1045.500								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		880.0	880.0	0.5915	591.500								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	3.4080	3408.000								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

CAL3QHCR - 2030 Link Parameters (METERS)

Variabl	Type	Unit	Description
LNK=	Character	na	Link ID (up to 20 characters)
TYP=	Character	na	Link Type: AG = at grade, FL = fill, BR = bridge, DP = depressed
XL1=	Real	Meters	X coordinate for Endpoint 1 at intersection stopping line
YL1=	Real	Meters	Y coordinate for Endpoint 1 at intersection stopping line
XL2=	Real	Meters	X coordinate for Endpoint 2
YL2=	Real	Meters	Y coordinate for Endpoint 2
HL=	Real	Meters	Source height
WL=	Real	Meters	Mixing zone width
EFL=	Real	gram/vehicle-mile	Free flow emission factor
EFL_Q	Real	grams/vehicle-hour	Idle emission factor for queue links
NLANE	Integer	na	Number of travel lanes in queue link
CAVG	Integer	Seconds	Average total signal cycle length
RAVG	Integer	Seconds	Average red total signal cycle length
YFAC	Real	Seconds	Clearance lost time (portion of the yellow phase that is not used by motorist)
SFR=	Interger	vehicle/hour-lane	Saturation flow rate [vehicles per hour of effective green time]
ST=	Integer	na	Traffic signal type [pretimed (=1), actuated (=2), or semiactuated (=3)]
AT=	Integer	na	Arrival type of vehicle platoon [worst (=1) through most favorable (=5)]
DESCR	Character	na	Link description

Variable for Free Flow and Queue Links
Variable for Free Flow Links Only
Variables for Queue Links Only

Mobile 6.2 Emission Factor for: **CO**

Bridge

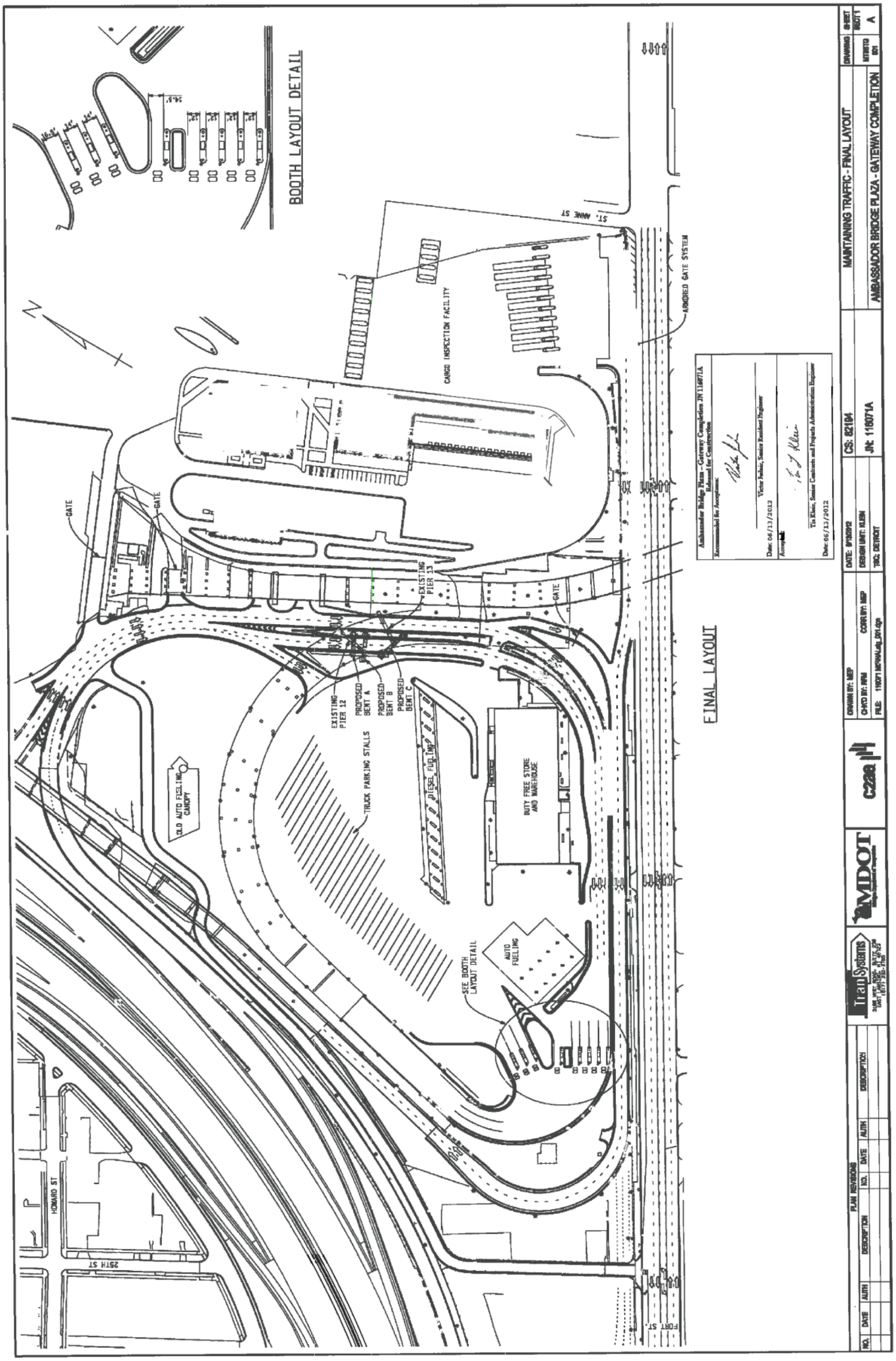
Average Speed (mph)	Emission Factor (g/mile) -> car	truck
2.5	20.6950	
15	8.8500	
20	8.2200	
30		
35	7.8200	
40		
45	8.3350	

LNK	TYP	XL1	YL1	XL2	YL2	HL	WL	VPHL (car)	VPHL (truck)	VPHL (all)	EFL (all)	EFL*1000	NLANES	CAVG	RAVG	YFAC	SFR	ST	AT	DESCRIP
1	AG	329780	4684776	329756	4684859	0.0	16.5	1186.0	979.0	2165.0	4.3677	4367.725								passing canadian plaza (NB) no stop 1
2	AG	329756	4684859	329848	4684975	0.0	16.5	1186.0	979.0	2165.0	4.3677	4367.725								passing canadian plaza (NB) no stop 2
3	AG	329848	4684975	329758	4685143	0.0	16.5	1186.0	979.0	2165.0	4.3677	4367.725								passing canadian plaza (NB) no stop 3
4	AG	329758	4685143	329555	4685158	0.0	16.5	1186.0	979.0	2165.0	4.3677	4367.725								passing canadian plaza (NB) no stop 4
5	BR	329555	4685158	329426	4685426	5.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB (sloping up)
6	BR	329426	4685426	329007	4686297	10.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB elevated section (canada)
7	BR	329007	4686297	328789	4686747	10.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB elevated section (US)
8	BR	328789	4686747	328701	4686915	10.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB slopdown 1
9	BR	328701	4686915	328673	4687001	10.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB slopdown 2
10	BR	328673	4687001	328608	4687118	10.0	16.5	1186.0	979.0	2165.0	4.6381	4638.088								bridge NB slopdown 3
11	BR	328608	4687118	328607	4687250	5.0	16.5	1186.0		1186.0	8.2200	8220.000								bridge NB sloping down 4
12	BR	328607	4687250	328535	4687397	2.5	16.5	1186.0		1186.0	20.6950	20695.000								US plaza for NB inspection
13	AG	328535	4687397	328455	4687467	0.0	16.5	1186.0		1186.0	8.2200	8220.000								US plaza for NB inspection Exit
14	AG	328408	4687040	328442	4687125	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop starts exit highway
15	AG	328442	4687125	328470	4687147	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
16	AG	328470	4687147	328501	4687157	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
17	AG	328501	4687157	328531	4687151	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
18	AG	328531	4687151	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
19	AG	328466	4687214	328571	4687145	0.0	13.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop starts exit highway
20	AG	328571	4687145	328650	4686951	0.0	20.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
21	AG	328604	4687069	328587	4686909	0.0	13.0		47.0	47.0	0.4350	435.000								SB Gateway Duty Free Truck
22	AG	328587	4686909	328510	4686865	0.0	13.0		47.0	47.0	0.4350	435.000								SB Gateway Duty Free Truck
23	AG	328574	4686838	328510	4686865	0.0	9.5	247.0		247.0	8.8500	8850.000								SB Gateway Duty Free Car
24	AG	328510	4686865	328489	4686822	0.0	16.5	247.0	47.0	294.0	17.5578	17557.750								SB Gateway Duty Free Truck & Car
25	AG	328489	4686822	328435	4686815	0.0	16.5	247.0	47.0	294.0	7.5047	7504.745								SB Gateway Duty Free Truck & Car
26	AG	328650	4686951	328649	4686880	0.0	20.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
27	AG	328649	4686880	328535	4686821	0.0	20.0	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
28	AG	328535	4686821	328497	4686801	0.0	20.0	1235.0	941.0	2176.0	12.2085	12208.486								SB Gateway loop
29	AG	328497	4686801	328435	4686815	0.0	16.5	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
30	BR	328435	4686815	328409	4686880	2.5	16.5	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
31	BR	328409	4686880	328475	4687044	5.0	16.5	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
32	BR	328475	4687044	328563	4687070	7.5	16.5	1235.0	941.0	2176.0	4.8071	4807.145								SB Gateway loop
33	BR	328563	4687070	328652	4686987	10.0	16.5	1235.0	941.0	2176.0	4.5185	4518.500								bridge SB elevated section 1
34	BR	328652	4686987	328998	4686277	10.0	16.5	1235.0	941.0	2176.0	4.7995	4799.547								bridge SB elevated section (end of US)
35	BR	328998	4686277	329469	4685283	10.0	16.5	1235.0	941.0	2176.0	4.7995	4799.547								bridge SB elevated (Canada)
36	BR	329469	4685283	329539	4685136	5.0	16.5	1235.0	941.0	2176.0	4.5185	4518.500								bridge SB sloping down
37	AG	329539	4685136	329745	4685030	0.0	30	1235.0	941.0	2176.0	12.2085	12208.486								Canadian plaza for SB inspection
38	AG	328608	4687118	328646	4687266	0.0	9.5		979.0	979.0	0.4350	435.000								US truck plaza for NB inspection
39	AG	328646	4687266	328574	4687460	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
40	AG	328574	4687460	328578	4687501	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
41	AG	328578	4687501	328599	4687519	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
42	AG	328599	4687519	328627	4687527	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
43	AG	328627	4687527	328655	4687514	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
44	AG	328655	4687514	328676	4687485	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
45	AG	328676	4687485	328766	4687255	0.0	9.5		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
46	AG	328766	4687255	328777	4687202	0.0	31.0		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
47	AG	328777	4687202	328794	4687135	0.0	62.0		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
48	AG	328794	4687135	328888	4686993	0.0	13.0		979.0	979.0	1.0705	1070.500								US truck plaza for NB inspection
49	AG	328888	4686993	328731	4686900	0.0	13.0		979.0	979.0	0.4350	435.000								US truck Fort Street Exit
50	AG	328731	4686900	328695	4686889	0.0	13.0		979.0	979.0	0.4350	435.000								US truck Fort Street Exit
51	AG	328695	4686889	328450	4686754	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
52	AG	328450	4686754	328414	4686778	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
53	AG	328414	4686778	328389	4686817	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
54	AG	328389	4686817	328366	4686866	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
55	AG	328366	4686866	328405	4686960	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
56	AG	328405	4686960	328430	4687014	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
57	AG	328430	4687014	328442	4687056	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
58	AG	328442	4687056	328460	4687109	0.0	13.0		979.0	979.0	0.3280	328.000								US truck Fort Street Exit
59	AG	328460	4687109	328453	4687176	0.0	13.0		979.0	979.0	0.1855	185.500								US truck Fort Street Exit
60	AG	328639	4687428	328734	4687211	0.0	31.0		80.0	80.0	1.0705	1070.500								US truck plaza physical inspection

Note coordinates are NAD27
WL = Each lane width equal to 3.5 meters plus 3 meters mixing zone on each side.

SECTION 13 APPENDIX B

13.1 AMBASSADOR BRIDGE GATEWAY PROJECT FIGURE JN 116071A


BOOTH LAYOUT DETAIL
CARGO INSPECTION FACILITY
ARMORED GATE SYSTEM
GATE
EXISTING PIER 13
EXISTING PIER 12
PROPOSED BENT A
PROPOSED BENT B
PROPOSED BENT C
TRUCK PARKING STALLS
DIESEL FUELING
DUTY FREE STORE AND WAREHOUSE
OLD AUTO FUELING CANOPY
AUTO FUELING
SEE BOOTH LAYOUT DETAIL
FINAL LAYOUT
ST. ANNE ST
FORT ST
25TH ST
HOWARD ST
MAINTAINING TRAFFIC - FINAL LAYOUT
AMBASSADOR BRIDGE PLAZA - GATEWAY COMPLETION
CS: 82194
JN: 116071A
MDOT
C2AE

Attachment E

Public Comment Responses

The Final Environmental Assessment (EA) was made available for agency and public review on February 27, 2009. One public meeting was held on March 17, 2009 at which 41 persons presented comments. Approximately 80 written comments were submitted during the review period.
The USCG has reviewed all of the comments received and found that the impacts of the proposed project were appropriately identified and addressed. The comments are summarized by topic and discussed below.

13.2 NEPA PROCESS

Comment: *The EA should include the Gateway project as a component of the new bridge construction.*

Response: The EA evaluates the appropriate scope of the impacts resulting from the issuance of the bridge permit. The now completed Gateway project was evaluated separately and has an independent utility from the bridge permitting action under consideration.

Comment: *The EA is a lower tier process and an EIS should be prepared.*

Response: One of the purposes of an EA is to provide sufficient evidence and analysis for determining whether to prepare an EIS. Preparation of an EA requires that the federal agency take a "hard look" at the environmental impacts of an action, just as is required for the EIS process. The environmental effects of the project have been evaluated at the appropriate level.

Comment: *A bi-national study rejected the need for an additional span at the Ambassador Bridge location.*

Response: The planning need and feasibility study referred to was focused on addressing region wide transportation needs with an entirely new crossing, plaza, and connections to the highway system. The purpose of the ABEP proposal is different and more narrowly focused on moving traffic off the existing span and onto a new span within the existing approved corridor and infrastructure of inspection plazas and road networks.

Comment: *DIBC has been in charge of the project and the USCG has not done its duty in regards to project involvement.*

Response: The USCG has fully participated in the preparation of the document as required under the policies and practices for implementation of NEPA by the USCG and the regulations of the Council on Environmental Quality.

13.3 AIR QUALITY

Comment: *Air quality impacts and health effects from operation of diesel vehicles will be increased.*

Response: Air quality impacts resulting from project implementation have been evaluated as part of the NEPA process. In addition to the impacts contained within the 2009 EA, additional air quality impact studies have been prepared as described in the reevaluation. The impacts to air quality and particularly those resulting from the operation of diesel vehicles using the bridge will result in impacts well below the de minimis thresholds for air quality. This is due to a number of factors including a decline in truck operations on the bridge as well as more stringent requirements concerning emissions from diesel truck engines.

13.4 TRAFFIC

Comment: *Traffic impacts from the new bridge project will increase on surrounding surface streets.*

Response: With the completion of the Gateway project traffic no longer is diverted to Fort Street. Traffic on the new bridge would use the existing traffic lanes and no change would be required to the existing traffic flow through the plaza.

Comment: *The proposed bridge adds 6 more lanes and it is uncertain that the current Ambassador Bridge will not be reopened.*

Response: The proposed new bridge is not intended to expand the current capacity of the existing Ambassador Bridge. Once the proposed companion bridge is operational, the existing Ambassador Bridge will be taken out of service, rehabilitated, maintained, and used for redundancy, emergency traffic, and approved public events.

13.5 LAND USE AND OWNERSHIP

Comment: *Necessary land ownership has not been obtained.*

Response: As described in this reevaluation, since the release of the 2009 environmental assessment the Detroit City Council voted to approve an agreement to allow for transfer of 3 acres of the eastern portion of Riverside Park to the bridge company in exchange for 4.8 acres of riverfront land to the west to be then developed as parklands. The transfer and conversion must still be approved by the Michigan Department of Natural Resources and the National Park Service in accordance with federal and state requirements.

Comment: *Necessary approvals from Canada have not been obtained.*

Response: As described in this reevaluation, since the 2009 environmental assessment, the Canadian approval process has moved forward and the approval process is continuing.

13.6 SOCIO-ECONOMIC IMPACTS AND ENVIRONMENTAL JUSTICE

Comment: *There are impacts to local communities that must be considered and effects under the environmental justice Executive Order.*

Response: As described in the document, impacts to human health and the environment have been analyzed and the potential disproportionate effects on economically disadvantaged and/or minority populations evaluated. Issuance of a permit for the operation of a new span will not constitute a net increase in environmental effects on the surrounding community. Air quality analysis carried out as part of the environmental assessment process, as well as subsequent to the release of the environmental assessment, indicate that traffic generated air pollution generated by use of the bridge will be in conformance with the provisions and implementing regulations of the Clean Air Act and requirements of the State of Michigan. Throughout the process neighborhood community members have been provided with opportunity to comment on aspects of the project and used outreach opportunities to communicate their issues and concerns to the USCG. These, in turn, have been incorporated into project considerations and included in overall project evaluation.

Comment: *The Coast Guard should not take any action because under the Civil Rights Act of 1962 in determining the site or location of facilities, a recipient of funding or*

applicant may not make selections with the purpose or effect of subjugating residents to discrimination.

Response: The USCG is not granting or issuing funding for the bridge construction. The actions of the USCG are limited to the approval or denial of a bridge permit and focused on the potential impacts to navigation.

Attachment F

USEPA Response Letter to Coast Guard

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

OCT 2 7 2015

Shelly Sugarman
Chief – Permits Division (CG-BRG-2)
United States Coast Guard
2100 2ND Street SW, Stop 7580
Washington, DC 20593-7580

Dear Ms. Sugarman:

This letter provides to you the U.S. Environmental Protection Agency's (EPA) assessment of the need for the Detroit International Bridge Company (DIBC) to update the air quality information for the Ambassador Bridge Enhancement Project (ABEP). Our comments on the ABEP are as follows:

1. The air quality information and travel forecasts in the ABEP was assessed using information from 2007, 2009, supplemented in 2012, and included a qualitative $PM_{2.5}$ hot-spot analysis. EPA recommends the air quality information and travel forecasts be updated with more recent data to accurately determine impacts from the project.

2. The DIBC used EPA's MOBILE6.2 model to develop mobile source emissions factors for the air quality analysis. MOVES2014, EPA's current approved mobile source emissions model, should be used to develop mobile source emissions projections.

3. The Detroit-Ann Arbor metropolitan area is currently designated maintenance for the 1997 annual and 2006 daily $PM_{2.5}$ standard. The project was determined to be a project of air quality concern, for purposes of transportation conformity, due to its size and significant levels of diesel vehicle traffic resulting from the project. For this reason, EPA recommends the need to perform a quantitative assessment of local impacts from the project. More information on $PM_{2.5}$ hot-spot analyses can be found at: http://www3.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#pm-hotspot

4. The ABEP was not included in the development of the South East Metropolitan Council of Governments (SEMCOG) 2040 Regional Transportation Plan (Plan). The DIBC is encouraged to work with SEMCOG and incorporate the project in the Plan, so as the environmental process moves forward the national ambient air quality standards are protected and future travel forecasts are accurately reflected.

If you have any questions, please contact Michael Leslie, of my staff, at (312) 353-6680.

Sincerely,

Pamela Blakley

Pamela Blakley
Chief
Control Strategies Section

cc: Kenneth Westlake, Chief
NEPA Implementation Section
Office of Enforcement & Compliance Assurance – Region 5