Quantitative MSAT
Technical Report

I-35E/US 67 Project
Dallas District
I-35E from US 67 to I-30 and
US 67 from I-20 to I-35E
CSJ: 0442-02-088, 0196-03-269, 0261-03-030
Dallas County, Texas
Prepared by: HNTB Corporation
June 2016

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.
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1. Introduction

The Texas Department of Transportation (TxDOT) proposes improvements to Interstate Highway 35 East (I-35E) from U.S. Highway (US 67) to I-30 and along US 67 from Interstate Highway 20 (I-20) to I-35E a total of approximately 11 miles in Dallas County, Texas. The I-35E/US 67 project (proposed project) has been referred to in the past as the “Southern Gateway Manage Lanes Project” (see Attachment A, Exhibit 1: Project Location Map).

1.1. Existing Facility

I-35E between Colorado Blvd. and Reunion Blvd. consists of 5 northbound and 4 southbound mainlanes that include an 11-foot (ft) wide reversible high occupancy vehicle (HOV) lane. This section is currently under construction and was approved as part of the Dallas Horseshoe Project (CSJ. 0196-03-205, etc.) which received A Finding of No Significant Impact on September 18, 2012. Once construction is complete (anticipated 2017), the I-35E northbound bridge will consist of 3 mainlanes; 2 reversible HOV lanes, and 5 Collector-Distributor (CD) lanes. The I-35E southbound bridge would consist of 4 mainlanes, 4 CD lanes; and 6-ft sidewalks along the outside of each CD road. The right-of-way (ROW) at the Dallas Floodway crossing is approximately 848 ft. wide.

Along I-35E, the existing lane configuration from US 67 to Colorado Blvd. is 8 mainlanes, 4 in each direction; with one reversible HOV lane. I-35E between Fairshop Dr. (southern limits of construction along I-35E) and US 67 is 6 mainlanes (3 in each direction). South of Colorado Blvd., the existing ROW along I-35E varies from approximately 244 ft to 435 ft.

Along US 67 the existing lane configuration from I-20 to I-35E is 4 mainlanes, 2 in each direction, with 1 concurrent HOV lane. The existing ROW along US 67 varies from approximately 305 ft to 469 ft.

Except for the bicycle accommodations within the section of I-35E between Colorado Blvd. and Reunion Blvd., currently under construction as part of the Dallas Horseshoe Project, no bicycle accommodations exist within the I-35E/US 67 Project limits. Similarly, sidewalks are currently being implemented as part of the Dallas Horseshoe Project. Discontinuous pedestrian accommodations (sidewalks) currently exist within the project limits.

1.2. Proposed Facility

The proposed project would consist of improvements to I-35E between US 67 and I-30 and to US 67 between I-20 and I-35E. The improvements would consist of converting the existing HOV lanes to reversible non-toll express lanes, adding reversible non-tolled express lanes and general purpose lanes (mainlanes), along with bicycle and pedestrian accommodations. TxDOT is also planning local enhancements consisting of
a deck plaza along I-35E, near Ewing Avenue (Ave.). The enhancements would be funded by and maintained by the City of Dallas and constructed under a separate project. I-35E improvements from US 67 to Fairshop Drive (Dr.) consist of a tie in/transition into the existing facility. The proposed project is shown in Exhibit 1 and described below.

a) I-35E between Colorado Blvd. and Reunion Blvd.: Convert 2 existing reversible HOV lanes to 2 reversible non-tolled express lanes.

b) I-35E between the US 67 and Colorado Blvd.: Full reconstruction to include two reversible non-tolled express lanes, increasing the number of the mainlanes from 8 to 10, and increasing the number of frontage road lanes from 4 to 4/6.

c) US 67 from I-20 to I-35E: Partial reconstruction to change the existing concurrent HOV lane to one reversible non-tolled express lane within the existing median and increasing the number of mainlanes from 4 to 6 along with slip ramp modifications.

Sidewalks and 14-ft shared-use lanes to accommodate vehicles and bicyclists would be implemented along those frontage roads and cross-streets where reconstruction is proposed within the project limits.

2. Mobile Source Air Toxics (MSAT)

If a roadway project has Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) involvement, is adding capacity, has an average annual daily (AADT) traffic greater than 140,000, or if it is considered to be a project of mobile source air toxics (MSAT) concern, the project would represent high potential for meaningful MSAT impacts and a quantitative MSAT analysis is required. Because the proposed project involves FHWA funding, would increase capacity, and the AADT for the base scenario (2017) and design year (2037) are above 140,000, a quantitative MSAT analysis is required. A consultative call between TxDOT and the North Central Texas Council of Governments (NCTCOG) to discuss the methodology and assumptions was held on January 26, 2016. Notes from the coordination call are available in Attachment B.

This MSAT technical report was prepared in accordance to the TxDOT’s MSAT Standards Operating Procedures and Documentation Standard for a Quantitative MSAT Technical Report. This report documents results of the quantitative MSAT analysis (including qualitative language), and supports the environmental document that evaluates the social, economic, and environmental impacts resulting from the proposed project. Two alternatives, a Build and A No-Build Alternative are evaluated in the qualitatively analysis section, while three scenarios: Base 2017, No-Build 2037 and Build 2037 are evaluated in the quantitative MSAT analysis.
2.1. Qualitative Analysis

2.1.1. Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA MSAT rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. Based on an FHWA analysis using EPA MOVES2010b model, as shown in Graph 2-1 and Table 2-1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.
Graph 2-1: Projected National MSAT Emission Trends 2010-2050 for Vehicles Operating on Roadways Using EPA’s MOVES2010b Model

Table 2-1: Projected National MSAT Emission Trends 2010-2050 for Vehicles Operating on Roadways Using EPA’s MOVES2010b Model

<table>
<thead>
<tr>
<th>Pollutant / VMT</th>
<th>Pollutant Emissions (tons) and Vehicle-Miles Traveled (VMT) by Calendar Year</th>
<th>Percent Change 2010 to 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein</td>
<td>1,244 805 476 318 258 247 264 292 322</td>
<td>-74%</td>
</tr>
<tr>
<td>Benzene</td>
<td>18,995 10,195 6,765 5,669 5,386 5,696 6,216 6,840 7,525</td>
<td>-60%</td>
</tr>
<tr>
<td>Butadiene</td>
<td>3,157 1,783 1,163 951 890 934 1,017 1,119 1,231</td>
<td>-61%</td>
</tr>
<tr>
<td>Diesel PM</td>
<td>128,847 79,158 40,694 21,155 12,667 10,027 9,978 10,942 11,992</td>
<td>-91%</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>17,848 11,943 7,778 5,938 5,329 5,407 5,847 6,463 7,141</td>
<td>-60%</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>2,366 1,502 939 693 607 611 659 727 802</td>
<td>-66%</td>
</tr>
<tr>
<td>Polycyclics</td>
<td>1,102 705 414 274 218 207 219 240 262</td>
<td>-76%</td>
</tr>
<tr>
<td>Trillions VMT</td>
<td>2.96 3.19 3.5 3.85 4.16 4.58 5.01 5.49 6</td>
<td>102%</td>
</tr>
</tbody>
</table>

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to
evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA. The FHWA, EPA, Health Effects Institute (HEI), and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

2.1.2. Project Specific MSAT Information

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.pdf.

For each alternative in this document, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project Build Alternative will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under the Build Alternative there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built along I-35E between US 67 and Colorado Blvd., where the highway would be fully reconstructed. However, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a
highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

2.1.3. Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, http://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the HEI. Two HEI studies are summarized in Appendix D of FHWA’s Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments,
particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework.

Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable. Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.
In this document, a quantitative MSAT assessment is provided relative to the various alternatives of MSAT emissions and has acknowledged that the Build alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

### 2.2. Quantitative Analysis

The EPA’s Office of Transportation and Air Quality has developed MOVES. This emission modeling system estimates emissions for mobile sources covering a broad range of pollutants and allows multiple scale analysis. MOVES currently estimates emissions from cars, trucks and motorcycles. The latest version of MOVES is MOVES2014a. The quantitative analysis of the mass of air toxic emissions for the proposed project was completed using emission factors generated with MOVES2010b because the analysis was completed before the grace period of model transition ending on October 7, 2016. After October 7, 2016, MOVES 2014a is required to be used for all new analyses. The MOVES2010b emission rate tables used in this analysis were provided by TxDOT-ENV.

The MSAT study area for the quantitative analysis is composed of the model area located within the NCTCOG Metropolitan Planning Area (MPA). The MSAT model area is composed of the affected transportation network determined by the plus or minus 5 percent change in traffic between the Build and No-Build scenarios for the proposed project. The plus or minus 5 percent threshold and other modeling parameters (i.e., scenario years) were determined per coordination between TxDOT and NCTCOG on January 26, 2016. NCTCOG determined the plus or minus 5 percent affected transportation network from the Mobility 2040 Metropolitan Transportation Plan (MTP) Regional Transportation Model and MSAT emissions for each modeling scenario.

For the purpose of this MSAT analysis the following scenarios were modeled:

- “Base” or existing condition (2017);
- “Build 2037” scenario; and
- “No-Build 2037” scenario

Because the 2017 base year scenario represents the existing condition (per Mobility 2040), the model area for 2017 is composed of those links determined to change plus or minus 5 percent or greater in 2037 and which currently exist in the 2017 network. The resulting model area for both scenarios (Build and No-Build) includes those links determined to change plus or minus 5 percent or greater in 2037. The MSAT affected transportation networks for 2017 and 2037 are depicted in Exhibit 2: Mobile Source Air Toxics (MSAT) Affected Transportation Network included in Attachment A.
2.2.1. Analysis Results

Specific data from the MSAT study area of the NCTCOG Regional Transportation Model were used to estimate the mass of MSAT emissions associated with the Build (proposed project), and No-Build alternatives. In addition, the base or existing conditions mass of MSATs was also estimated. The total mass of MSAT emissions in the year 2017 (base) was higher than either the Build or No-Build alternatives in the year 2037. This is reflective of the overall national trend in MSATs as previously described. The mass of emissions associated with the base scenario and Build year are shown in Table 2-2 and graphically represented in Graph 2-2.

Table 2-2: Mass of MSAT Emissions in Tons/Year and Percent Change Compared to the 2017 Base Scenario

<table>
<thead>
<tr>
<th>Pollutant/VMT/ADT</th>
<th>Base 2017</th>
<th>Build 2037</th>
<th>Percent Change of Build 2037 Compared to 2017</th>
<th>No-Build 2037</th>
<th>Percent Change of No-Build 2037 Compared to 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein</td>
<td>0.021</td>
<td>0.019</td>
<td>-10%</td>
<td>0.012</td>
<td>-42%</td>
</tr>
<tr>
<td>Benzene</td>
<td>0.317</td>
<td>0.453</td>
<td>43%</td>
<td>0.298</td>
<td>-6%</td>
</tr>
<tr>
<td>Butadiene</td>
<td>0.069</td>
<td>0.096</td>
<td>40%</td>
<td>0.063</td>
<td>-9%</td>
</tr>
<tr>
<td>Diesel PM</td>
<td>1.693</td>
<td>0.696</td>
<td>-59%</td>
<td>0.399</td>
<td>-76%</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.356</td>
<td>0.440</td>
<td>24%</td>
<td>0.281</td>
<td>-21%</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>0.045</td>
<td>0.052</td>
<td>16%</td>
<td>0.034</td>
<td>-25%</td>
</tr>
<tr>
<td>Polycyclics</td>
<td>0.0168</td>
<td>0.0170</td>
<td>1%</td>
<td>0.010</td>
<td>-38%</td>
</tr>
<tr>
<td>Millions VMT</td>
<td>824</td>
<td>2,087</td>
<td>---</td>
<td>1,358</td>
<td>---</td>
</tr>
<tr>
<td>Millions ADT</td>
<td>9.8</td>
<td>21.3</td>
<td>---</td>
<td>15.3</td>
<td>---</td>
</tr>
<tr>
<td>Total MSAT</td>
<td>2.517</td>
<td>1.772</td>
<td>-30%</td>
<td>1.097</td>
<td>-56%</td>
</tr>
</tbody>
</table>

Source: Study Team (May 2016).

Note: EPA MOVES2010b Model, affected transportation network and mass of emissions data provided by NCTCOG.

As shown in Table 2-2 MSAT concentrations for all the priority MSATs except for acrolein and DPM, would be higher for the Build scenario when compared to the base scenario. This can be attributed to the higher VMT of the Build scenario (2,087 million vehicle-miles traveled) compared to the base scenario VMT (824 million vehicle-miles traveled). Nevertheless, total MSATs under the Build scenario, are anticipated to decrease by 0.745 tons/yr or 30 percent when compared to the base scenario. Of the seven priority MSAT compounds, benzene, formaldehyde, and DPM contribute the most to the emissions total (Table 2-2 and Graph 2-2). In future years a decline in DPM and acrolein are anticipated (59 and 10 percent reduction, respectively) from 2017 to 2037, under the Build alternative scenario.
The MSAT analysis indicates that a decrease in total emissions can be expected for both the Build and No-Build alternative scenarios for the year 2037 versus the 2017 base year. Emissions of total MSAT are predicted to decrease by 30 percent in 2037 for the Build scenario when compared with 2017 levels. If emissions are plotted over time, a decreasing level of MSAT emissions can be seen on **Graph 2-3**; however, overall VMT continues to rise.
2.2.2. Conclusion

The VMT for the proposed project Build alternative scenario would increase approximately 153 percent by 2037 when compared to 2017. This increase far exceeds the national MSAT estimates shown in Table 2-1 included in the qualitative section of this report. However, Table 2-1 represents national trends of vehicles operating on the entire network of roadways not project specific over time. In addition, as disclosed in the same section, the emission trends for specific locations may be different, depending on locally derived information representing VMT, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors. In the case of the proposed project, the 153 percent estimate represents the network links affected by traffic changes resulting from implementation of the proposed project specifically.

The total MSAT emissions for the Build scenario would decrease an estimated 30 percent by 2037. Under the No-Build scenario, the VMT would increase 65 percent by 2017 and the total MSAT emissions for the same scenario would decrease an estimated 56 percent by 2037. Therefore, total MSAT emissions are expected to decrease by 2037 regardless of whether the Build or the No-Build Alternative is implemented.

On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide
MSAT levels to be lower in the future. Furthermore, the Corporate Average Fuel Economy (CAFE) law, enacted by Congress in 1975, was designed to reduce energy consumption by increasing the fuel economy of cars and light trucks. The CAFE standards are fleet-wide averages that must be achieved by each automaker for its car and truck fleet, each year, since 1978. The CAFE federal controls are not reflected in the MOVES2010b emission rates used in this analysis. It is anticipated that these controls, already being implemented, would further reduce emissions from what was estimated in this report.
ATTACHMENT A
I-35E from Colorado Blvd. to Reunion Blvd.:
Change 2 Rever. HOV Lanes to 2 Rever. non-tolled express lanes
(No added capacity)
CSJs. 0196-03-269 & 0442-02-088

I-35E from US 67 and Colorado Blvd.:
Full reconstruction including change of 1 exist. Rever. HOV lane to 2 Rever. non-tolled express lanes, and widening of GPs from 8 to 10 lanes and FRs from 4 to 4/6 lanes.
CSJ. 0442-02-088

US 67 from I-20 to I-35E:
Reconstruction to change 1 exist. Concur. HOV lane to 1 Rever. non-tolled express lane within the median and widening of GPs from 4 to 6 lanes.
CSJ. 0261-03-030

Sources: NCTCOG GIS Data - counties, cities, streets, rivers, and lakes

EXHIBIT 1
PROJECT LOCATION MAP

I-35E/ US 67 Project
I-35E from US 67 to I-30
and
US 67 from I-20 to I-35E
Quantitative MSAT Technical Report
Dallas County, Texas

LEGEND

Proposed Project Limits
EXHIBIT 2
MOBILE SOURCE AIR TOXICS (MSAT) AFFECTED TRANSPORTATION NETWORK (YR 2017 SCENARIO)
SHEET 1 OF 3
I-35E/US 67 Project
I-35E from US 67 to I-30 and
US 67 from I-20 to I-35E
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Source: NCTCOG GIS Data
EXHIBIT 2
MOBILE SOURCE AIR TOXICS (MSAT) AFFECTED TRANSPORTATION NETWORK (YR 2037 NO-BUILD SCENARIO)
SHEET 3 OF 3
I-35E/US 67 Project
I-35E from US 67 to I-30
and
US 67 from I-20 to I-35E
Quantitative MSAT Technical Report
Dallas County, Texas
ATTACHMENT B
I-35E/US 67 PROJECT
Air Quality Consultative Call
Date: January 26, 2016, 1:30pm

MEETING NOTES

Attendees: Ashton Strong (TxDOT), John Nguyen (TxDOT), Sandra Williams (TxDOT), Tim Wood (TxDOT), Sandy Wesch (NCTCOG), Berrien Barks (NCTCOG), Rusty Ozmer (HNTB), Lupe Pettit (HNTB).

The participants were provided with the following project information and proposed modeling methodology for MSAT and CO. The group was also provided with a project location map and 2003 approved traffic showing ADT above 140,000 ADT. A summary of the items discussed and decisions made are included on pp.2 and 3.

1. **Background:** Since the last air quality consultative call held on August 14, 2015, the project limits and scope have changed. The project will require a quantitative MSAT analysis because it is an increase capacity project with over 140,000 ADT and is federally funded. The following describes the proposed project as of January 2016.

1.1. **Limits:** I-35E from US 67 to Reunion Blvd. and US 67 from I-20 to I-35E for a project length of approx. 11 miles (see Exhibit 1: Project Location Map);

1.2. **Proposed improvements:** The improvements would consist of conversion of existing HOV lanes to reversible non-toll express/managed lanes, addition of reversible non-tolled express/managed lanes, and addition of general purpose lanes, along with bicycle and pedestrian accommodations as follows:
   a) I-35E between Colorado Blvd. and Reunion Blvd.: Convert two reversible HOV lanes to two reversible non-toll express/managed lanes.
   b) I-35E between the US 67 and Colorado Blvd.: Full reconstruction to include two reversible non-tolled express/managed lanes, widening of the mainlanes from 8 to 10, and increasing the number of frontage road lanes.
   c) US 67 from I-20 to I-35E: Partial reconstruction to change the existing concurrent HOV lane to one reversible non-tolled express/managed lane within the existing median and widening the mainlanes from 4 to 6 along with slip ramp modifications.

1.3. **Planning:** The project will be consistent with the 2040 MTP and STIP currently under development.

1.4. **Environmental document:** EA per workshop held With FHWA and ENV on June 13, 2014.

1.5. **Construction Begin:** 2017

1.6. **ETC:** 2021

1.7. **MTP Horizon Yr:** 2040

1.8. **Anticipated FONSI:** December 2016

1.9. **Traffic:** Per attached TP&P traffic from 2003 that traffic within project limits is over 140,000 ADT in year 2030. Traffic updates are in progress and are anticipated to be above 140,000 ADT.

2. **Proposed methodology for MSAT**

2.1. **MSAT methodology:** link-by-link/Quantitative MSAT

2.2. **Affected transportation network threshold:** links with traffic changes between Build and No-build scenarios of +/- 5%
2.3. **MSAT study area**: NCTCOG MPA affected transportation network

2.4. **Analysis years/scenarios**: Base year (2017), 2040 Build, and 2040 No-Build with no interim year.

2.5. **Traffic data**: Mobility 2040 MTP 2017 and 2040 networks

2.6. **Pollutants**: acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (DPM), formaldehyde, naphthalene, and polycyclic organic matter.

2.7. **Data Needs**: +/-5% affected network and MSAT emissions factors processed with MOVES2010b (if generated before Oct. 7, 2016) or with MOVES2014 (if generated after Oct. 7, 2016). To be provided NCTCOG by 4/29/16.

3. **Proposed methodology for TAQA (CO analysis)**

   3.1. **Analysis years/scenarios**: 2021 (ETC year) and 2040 (MTP horizon year)

   3.2. **Data Needs**: MOVES emission factor look up tables from ENV, traffic data (TP&P approved traffic numbers). The scenario traffic numbers will be derived from the TP&P approved numbers.

   3.3. **CO Model**: CALINE3/CAL2001 (TxDOT’s software)

4. **Additional Items of discussion:**

   4.1. **Project level toll analysis**: Not needed because no tolling component.

   4.2. **Conformity report** would be submitted to FHWA as early as possible for FHWA review and approval once the 2016 conformity is approved by FHWA.

Summary of discussion/decisions:

- Ashton inquired about an additional reversible managed lane along US 67 in 2040 that had been mentioned in Sandy’s email but was not shown in the draft MTP tables. Sandy said that the MTP tables are incorrect for US 67 (year 2040). They currently show 1R but should be 2R and will be revised.

- MSAT: Tim and Sandy discussed the proposed MSAT out-year scenario year. Sandy disagrees with the proposed year of 2040 because that network would not reflect the proposed project (3-1R-3), but the ultimate configuration for US 67 (3-2R-3). Sandy was concerned about inconsistency in the EA, which would clear the interim configuration, not the ultimate configuration and from the conformity point of view. Tim clarified that conformity would not apply to MSAT and explained that the purpose of the 2040 scenario is to show the trend of MSAT emissions mainly for comparison purposes, and that it is common for environmental documents to have different analysis years for different resources. It was mentioned that the schematic will use 2017 and 2037 traffic. Traffic noise would be modeled for these same years.

- Tim stated that for MSAT TxDOT uses the MTP horizon year for the out year. He also explained the difference between the “project” and the “corridor”. Tim added that the no-build 2040 scenario would consist of removal of the proposed project and would leave all other projects as proposed in 2040. The group discussed what is involved in coding of the no-build scenario.

- Although atypical, and to avoid confusion, TxDOT agreed to complete the MSAT for 2037 instead of 2040 (MTP horizon year) because the project is environmentally being cleared as an interim project. In summary:
  - MSAT scenario years are 2017 (base), 2037 no-build, and 2037 build
  - The affected network would be based on the +/-5% threshold and will be provided by NCTCOG.
NCTCOG will provide emissions for the MSAT analysis. For this purpose, NCTCOG will use the MSAT emission factors provided by Tim, which were determined using MOVES2010b. Tim advised that once MOVES2014 is required, TxDOT will provide updated emission tables. This requirement will come into effect on Oct. 7, 2016.

- CO: The group agreed that the proposed scenarios for the CO analysis should be 2021 (ETC) and 2037 (design year) using the CALINE3/Cal2001. TPP approved traffic numbers will be used of the CO analysis. TxDOT emission lookup tables available in the air quality toolkit online shall be used in the analysis.
- Schedule: Sandy said that the MSAT data would be provided in April of 2016. It is anticipated that the RTC will approve the MTP in March of 2016. Conformity is anticipated to be approved by FHWA in June/July 2016.