Air Quality Impacts Assessment Technical Report

OAK HILL PARKWAY

U.S. Highway 290 (US 290) / State Highway (SH) 71 West from State Loop 1 (Mopac) to Ranch-to-Market (RM) 1826 and SH 71 to Silvermine Drive
Travis County, Texas
CSJ # 0113-08-060 and 0700-03-077
September 2017

CENTRAL TEXAS Regional Mobility Authority

Texas Department of Transportation

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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1.0 Project Description

1.1 Introduction

The Texas Department of Transportation (TxDOT) and the Central Texas Regional Mobility Authority (Mobility Authority) are considering implementing mobility improvements to U.S. Highway 290 (US 290) / State Highway (SH) 71 West through Oak Hill (the Oak Hill Parkway). The project corridor extends along US 290 from State Loop 1 (Loop 1 or Mopac) to Ranch-to-Market Road (RM) 1826 for a distance of approximately 6.15 miles with a transition west to Circle Drive. The project also includes the interchange on SH 71 from US 290 to Silvermine Drive, a distance of approximately 1.31 miles. The proposed project corridor occurs within an area that includes the City of Austin (COA), Texas, and its 2-mile extra-territorial jurisdiction (ETJ). The project location is shown on Figure 1.1-1.

In October of 2012, Notices of Intent were published in both the Federal Register and the Texas Register indicating TxDOT's intent to prepare a new Environmental Impact Statement (EIS) for the proposed project. Steady population growth in the Austin metropolitan area has caused congestion within the Oak Hill Parkway corridor. This congestion is causing unreliable traffic operations, travel time delays, and a poor level of service along the roadway. It may also affect emergency response and transit times, and connectivity of the project corridor to other Austin metropolitan area roadways and areas west and south of the project area. The purpose of the Oak Hill Parkway project is to improve mobility and operational efficiency; facilitate long-term congestion management in the corridor; and improve safety, emergency response, and transit times.

Following several project team meetings and public involvement activities, several preliminary project design concepts were developed. These concepts were screened against the project's purpose and need and additional measureable elements, including displacements and traffic model peak-period travel times. Following screening and evaluation, two project design concepts showing the greatest benefits and the lowest impacts were selected for development as project Build Alternatives. Alternatives A and C, in addition to the No Build Alternative, will be carried forward for analysis in the Draft EIS. Plan view of the proposed build alternatives will be included once available.

1.2 Existing Facility

The existing facility is comprised of several functional classifications of roadways. SH 71 from the northwest and US 290 from the west converge at a junction, locally known as the "Y," and continue concurrently to Mopac and further east. The portion of US 290/SH 71 from just west of Old Fredericksburg Road to Mopac is a six-lane urban freeway section (three lanes in each direction) with grade-separated interchanges. Frontage roads in this section consist of four to eight lanes (two to four lanes in each direction). There are direct connector ramps connecting

Figure 1.1-1 Project Location

US 290/SH 71 mainlanes to the Mopac mainlanes. The US 290/71 mainlanes are 12 feet wide with 10-foot-wide shoulders, and the frontage road lane widths vary from 12 to 14 feet wide.

Between Old Fredericksburg Road and Joe Tanner Lane, US 290/SH 71 transitions from a freeway/frontage road facility to a four- and five-lane urban highway with a mix of curb-and-gutter and roadside ditch drainage features. These lanes are 11 to 12 feet wide and include an intermittent 12-foot center left-turn lane. The existing US 290 roadway section between SH 71 and RM 1826 consists of four 12-foot-wide lanes with turn lanes and 2-foot-wide shoulders.

The existing SH 71 facility is a four-lane rural highway section with two signalized intersections and left-turn lanes which provide access to shopping centers on both sides of the roadway. Lane widths are 12 feet with 2- to 4-foot shoulders within this area. A 12-foot-wide center turn lane occurs from the shopping center drive to south of Scenic Brook Drive.

Pedestrian facilities along this corridor occur intermittently and are absent in some areas. Drainage facilities vary from curb-and-gutter storm sewer systems to roadside ditches and culverts.

1.3 Proposed Facility

The proposed alternatives have been guided by the Capital Area Metropolitan Planning Organization (CAMPO) 2040 Regional Transportation Plan (RTP), the regional transportation plan covering the corridor (CAMPO 2015). The CAMPO 2040 Plan shows the corridor as a principal arterial / tolled facility with non-tolled access roads. The proposed project is being developed in conjunction with the Mobility Authority. The two build alternatives would be expected to have tolled mainlanes, unless funding from another source becomes available to construct the proposed project. While the facility would be expected to have set toll pricing, and use electronic toll collection methods, the toll rate has yet to be determined for the proposed project. A financial analysis will be prepared to set toll rates before the project is opened. Current typical toll rates range from $0.20 to $0.30 per mile. Furthermore, the location of toll gantries for each alternative would be determined as the project design progresses. A Project-Level Toll Analysis is being developed for this project and will be included in the Draft EIS.

1.3.1 Alternative A

Alternative A is a conventional controlled-access highway with frontage roads. New construction on roadway improvements would begin just east of Joe Tanner Lane where the existing mainlanes transition to an urban highway. With Alternative A, the mainlanes would be elevated over William Cannon Drive, and the westbound mainlanes and frontage road would be located north of Williamson Creek. The mainlanes would be depressed under SH 71 and direct connectors would be provided, connecting eastbound SH 71 with US 290, and westbound US 290 to SH 71. The number of mainlanes would vary from four near William Cannon Drive to two near the western project extent. Grade-separated intersections would be constructed at Convict

Hill Road, RM 1826, Scenic Brook Drive, and Circle Drive (Southview Road). Mainlanes would generally be 12 feet wide with 10-foot shoulders. Texas turnarounds, which allow vehicles traveling on a frontage road to U-turn onto the opposite frontage road, would be constructed on US 290 frontage roads at Scenic Brook Drive, RM 1826, Convict Hill Drive, and William Cannon Drive.

Along SH 71, the direct connector ramps would extend past Scenic Brook Drive where the mainlanes would then transition to a five-lane (three lanes northbound, two lanes southbound) rural highway with Texas turnarounds at the Shopping Center driveway, Scenic Brook Drive, and at two locations between Scenic Brook Drive and Silvermine Drive (the turnaround closest to Silvermine Drive would be one direction only, the northbound to southbound lanes).

Bicycle and pedestrian facilities would be provided via a shared use path (SUP) and/or sidewalks along the entire project length. Two upstream detention ponds would be constructed with Alternative A. One would be south of SH 71 and west of Covered Bridge Drive; the other would be northeast of SH 71, west of the intersection of Old Bee Caves Road and Sunset Ridge.

Approximately 74.58 acres of new right-of-way would be required to construct Alternative A.

1.3.2 Alternative C

Alternative C is a controlled-access highway with frontage roads. Construction of roadway improvements would begin just east of Joe Tanner Lane where the existing mainlanes transition to an urban highway. With Alternative C, the mainlanes would be elevated over William Cannon Drive, with eastbound and westbound mainlanes located north of Williamson Creek. The frontage roads would be along the existing highway and the mainlanes would remain elevated over the intersection with SH 71. In the area west of SH 71 on US 290, Alternatives A and C share the same design, and grade-separated intersections would be constructed at Convict Hill Road, RM 1826, Scenic Brook Drive, and Circle Drive (Southview Road). Direct Connectors would allow drivers to access westbound SH 71 and eastbound US 290. US 290 would generally consist of two to four 12-foot lanes with 10-foot shoulders. Texas turnarounds would be constructed on US 290 at Scenic Brook Drive, RM 1826, Convict Hill Road, and US 71.

Along SH 71, the direct connector ramps would extend past Scenic Brook Drive where the mainlanes would transition to a five-lane (three lanes northbound, two lanes southbound) rural highway. Texas turnarounds would be present on SH 71 at US 290 (southbound to northbound lanes only), Scenic Brook Drive (southbound to northbound lanes only), and at two locations between Scenic Brook Drive and Silvermine Drive (the turnaround closest to Silvermine Drive would be one direction only: northbound to southbound lanes).

The bicycle and pedestrian facilities and two upstream detention ponds previously described in Alternative A would also be constructed with Alternative C. Approximately 75.19 acres of new right-of-way would be required for construction of Alternative C.

1.4 Summary of Purpose and Need

The purpose of the proposed project is to improve mobility and operational efficiency, facilitate long-term congestion management in the corridor by accommodating the movement of people and goods for multiple modes of travel, and to improve safety and emergency response within the corridor. The need for the proposed project stems from congestion within the corridor brought on by steady population growth in the Austin metropolitan area. This congestion is creating unreliable travel and emergency response times.

1.5 Objectives of this Report

The purpose of this technical report is to present the findings of the air quality assessment that was performed for the proposed project. This analysis follows the TxDOT Air Quality Compliance Flowchart for Federal Highway Administration/Federal Transit Authority (FHWA/FTA) and State-only Projects (TxDOT, 2017).

2.0 Air Quality Assessment

2.1 Conformity to Transportation Plans

The proposed Oak Hill Parkway project is located in the southwest portion of the COA in the area known as Oak Hill. The proposed project is located within Travis County, which is designated as attainment or unclassified for all National Ambient Air Quality Standards (NAAQS). Therefore, the project is not subject to transportation conformity.

The proposed project is consistent with the CAMPO 2040 RTP and the 2017-2020 Transportation Improvement Program (TIP) (CAMPO 2015, 2016).

2.2 Carbon Monoxide Traffic Air Quality Analysis

As discussed in Section 1.0, the proposed project would add capacity to the facility. In addition, as shown in Table 2.2-1, the design-year average annual daily traffic (AADT) volumes would exceed 140,000 trips. Traffic for the estimated time of completion year 2024 and design year 2040 is estimated to be 141,000 vehicles per day and 177,000 vehicles per day, respectively; therefore triggering the need for a Carbon Monoxide Traffic Air Quality Analysis (CO TAQA). The traffic volumes included in Table 2.2-1, and those used in the CO TAQA modeling, were developed by Rodriguez Transportation Group (RTG) using the TxDOT Transportation Planning and Programming (TPP) Division approved 2040 CAMPO model.

To verify that the proposed project would not result in an exceedance of the 1-hr or 8-hr CO NAAQS, CO TAQA modeling was conducted for the No Build, Alternative A, and Alternative C for both the opening-year-to-traffic (2024) and design-year (2040) conditions. The CO concentrations were modeled at two different locations to capture the peak traffic volumes in the project area (Loop1/US290 Interchange) and the largest project related increase in traffic volumes (SH71/US290 Interchange). CO concentrations for the proposed action were modeled using CALINE3 and the TxDOT MOVES2014 emission rate lookup tables and factored in adverse meteorological conditions and sensitive receptors at the right-of-way line in accordance with the Standard Operating Procedure for Complying with CO TAQA Requirements (TxDOT, 2015). Local concentrations of carbon monoxide are not expected to exceed national standards at any time.

Table 2.2-1 2040 Daily Traffic Volumes

	Roadway Link	No Build	Alternative A	Alternative C
	US290			
	West of Circle	41,850	70,320	70,030
	Circle to Scenic Brook	43,700	70,000	69,760
	Scenic Brook to RM1826	46,145	74,410	74,000
	RM1826 to Convict Hill	45,110	97,800	97,330
	Convict Hill to SH71	39,460	96,410	96,850
	SH71 to William Canyon	58,270	141,430	140,770
	William Canyon to Old Fredericksburg	78,100	152,040	152,390
	Old Fredericksburg to Monterey Oaks	80,370	154,860	154,590
	Monterey Oaks to Loop 1	86,850	156,910	156,510
	Loop 1 to Brodie	91,140	140,800	139,050
	East of Brodie	147,670	156,190	156,130
	SH71			
	US290 to Scenic Brook	41,750	59,990	62,040
	North of Scenic Brook	27,390	44,850	46,680
	Loop 1			

North of US290	168,490	177,140	177,240

Source: RTG, 2016.

Table 2.2-2 lists the peak 1-hr and 8-hr CO concentrations expected within the project area. As shown, the no build and build condition CO concentrations are far below the NAAQS of 35 parts per million (ppm) and 9 ppm, respectively. The modeling outputs, traffic volumes used in the modeling, and a figure showing the receptor locations are included in Appendix B.

Table 2.2-2 CO Concentrations (ppm)

Alternative	1-hr	8-hr	Exceed NAAQS?	% of 1-hr NAAQS	% of 8-hr NAAQS
Opening Year (2024)					
No Build	2.0	0.9	No	5.7	10
Alternative A	2.1	0.9	No	6.0	10
Alternative C	2.1	0.9	No	6.0	10
Design Year (2040)					
No Build	1.4	0.5	No	4.0	5.6
Alternative A	1.5	0.6	No	4.3	6.7
Alternative C	1.5	0.6	No	4.3	6.7

Note: CO concentrations include the background concentrations of 1.2 ppm and 0.4 ppm for the 1-hr and 8-hr conditions, respectively.

2.3 Mobile Source Air Toxics

As discussed in Section 1.0, the proposed project would add capacity to the facility. In addition, as shown in Table 2.2-1, the design year AADT volumes would exceed 140,000 trips. Therefore, a mobile source air toxics (MSAT) conference call was initiated on April 13, 2017. It was determined at this meeting that a quantitative MSAT analysis would be required for the proposed project.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that the 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 nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, 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.

According to EPA, MOVES2014 is a major revision to MOVES2010 and improves upon it in many respects. MOVES2014 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activities developed since the release of MOVES2010. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES2014 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. MOVES2014 incorporates the effects of three new federal emissions standard rules not included in MOVES2010. These new standards are all expected to impact MSAT emissions and include Tier 3 emissions and fuel standards starting in 2017 (79 FR 60344), heavy-duty greenhouse-gas regulations that phase in during model years 2014-2018 (79 FR 60344), and the second phase of light-duty greenhouse-gas regulations that phase in during model years 2017-2025 (79 FR 60344). Since the release of MOVES2014, EPA has released MOVES2014a. In the November 2015 MOVES2014a Questions and Answers Guide (EPA, 2015), EPA states that for on-road emissions, MOVES2014a adds new options requested by users for the input of local VMT, includes minor updates to the default fuel tables, and corrects an error in MOVES2014 brake wear emissions. The change in brake wear emissions results in small decreases in PM emissions, while emissions for other criteria pollutants remain essentially the same as MOVES2014.

Using EPA's MOVES2014a model, as shown in Figure 2.3-1, FHWA estimates that even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSATs is projected for the same time period. Diesel PM is the dominant component of MSAT emissions, making up 50 to 70 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES2014a will notice some differences in emissions compared with MOVES2010b. MOVES2014a is based on updated data on some emissions and pollutant processes compared to MOVES2010b, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES2014a emissions forecasts are based on lower VMT projections than MOVES2010b, consistent with recent trends suggesting reduced nationwide VMT growth compared to historical trends.

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 potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

The FHWA, the EPA, the 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 field.

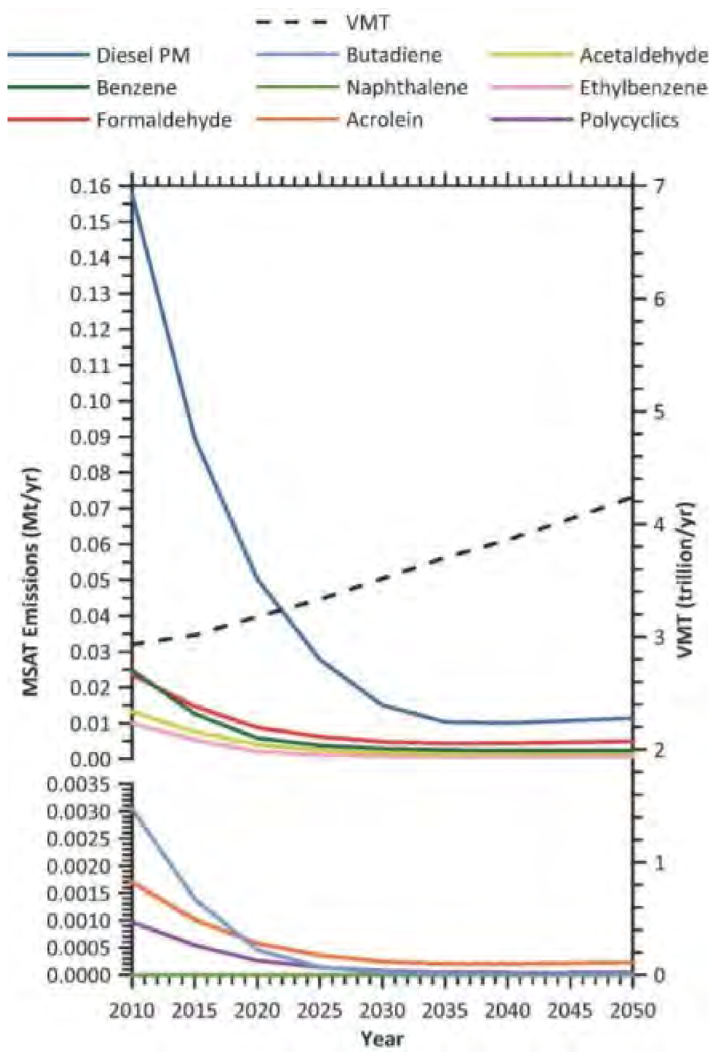

Figure 2.3-1 National MSAT Emissions Trends

Source: EPA MOVES2014a model runs conducted by FHWA, September 2016.
Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorological, and other factors.

2.3.1 Project-Specific MSAT Information

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 each of the Build Alternatives 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 MOVES2014 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 90 percent between 2010 and 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016 – https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/index.cfm). 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 alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives 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 Oak Hill Parkway.

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.

2.3.2 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 Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSATs. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, 2017). 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 MSATs, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents (FHWA, 2016). 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 or in the future as vehicle emissions substantially decrease (HEI, 2007).

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts; in this approach, each step in the process builds 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 MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (HEI, 2007). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk.” (EPA, 2017)

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 Clean Air Act 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 (US Court, 2008).

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 improving access for emergency response, that are better suited for quantitative analysis.

2.3.3 Consideration of MSAT in NEPA Documents

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects
2. Qualitative analysis for projects with low potential MSAT effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects

As indicated in Table 2.2-1, the traffic volumes along US290 and Loop 1 within the project area have AADT trips exceeding 150,000. In addition, the project would substantially increase the capacity of the US290 freeway in close proximity to populated areas. Consequently, this project is considered to have higher potential MSAT effects, and a quantitative analysis of MSAT emissions is required. The results of this analysis are summarized below.

2.3.4 Quantitative MSAT Analysis Methodology

The analysis of MSATs within the project study area considers the on- road sources for the nine priority MSATs: 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel PM, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. This analysis is based on the approved CAMPO models for each of the analyzed years of 2015 and 2040. These models take into account all future projects expected to be completed by each year, as well as projected traffic for the build alternatives. For the No Build Alternative, the proposed project was removed from the model to generate new projected traffic volumes. An affected transportation network was derived for each build alternative for the design year 2040 by comparing the No Build to Build Alternative road link ADTs to determine which roadway links in the model achieve a ±5 percent volume change due to the Build Alternative. The same roadway links identified through this process were used as the affected network links for the existing year of 2015 and design year of 2040. VMT was calculated by using the affected network links and the ADTs of those links for each modeled year. Speeds were modeled as average speeds for each link and type of roadway. The analysis used the TxDOT MOVES2014 emission rate lookup tables for each of the priority MSATs.

2.3.5 Quantitative MSAT Analysis Results

The resulting emission inventory compiled for the seven priority MSATs for the proposed project are summarized in Table 2.3-1 and Figure 2.3-2 for Alternatives A and Table 2.3-2 and Figure 2.3-3 for Alternative C.

Table 2.3-1 MSAT Emissions – Alternative A (tons/year)

	Toxin	2015 Baseline	2040 No Build	2040 Build	Increase from 2015 Baseline	Increase from 2040 No Build
	Benzene	3.09	1.03	0.93	-2.16	-0.10
	Naphthalene	0.48	0.26	0.24	-0.24	-0.02
	Butadiene	0.41	0.01	0.01	-0.40	0.00
	Formaldehyde	4.22	3.26	3.03	-1.19	-0.24
	Acrolein	0.29	0.15	0.14	-0.15	-0.01
	DPM	25.94	6.35	5.14	-20.81	-1.21
	POM	0.19	0.05	0.05	-0.15	0.00
	Acetaldehyde	2.08	1.06	0.98	-1.09	-0.08
	Ethylbenzene	1.52	0.86	0.77	-0.75	-0.09
	Total MSAT	38.23	13.03	11.28	-26.94	-1.75
	Affected Network Daily VMT	2,607,602	6,448,070	6,604,710	3,997,108	156,640

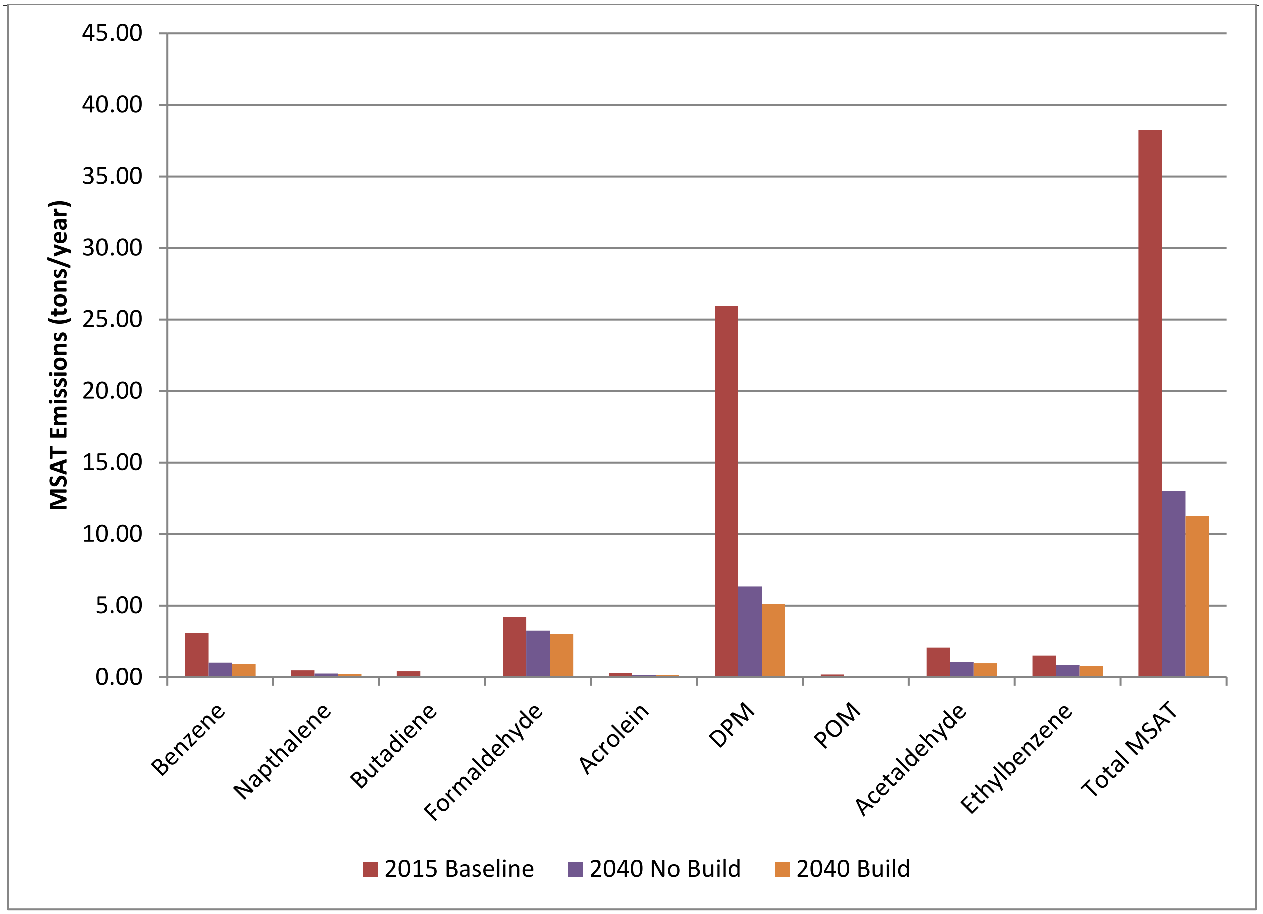

Figure 2.3-2 Projected Changes in MSAT Emissions over Time – Alternative A

Table 2.3-2 MSAT Emissions – Alternative C (tons/year)

Toxin	2015 Baseline	2040 No Build	2040 Build	Increase from 2015 Baseline	Increase from 2040 No Build
Benzene	3.05	1.03	0.93	-2.11	-0.10
Naphthalene	0.47	0.26	0.24	-0.23	-0.02
Butadiene	0.40	0.01	0.01	-0.39	0.00
Formaldehyde	4.15	3.27	3.03	-1.12	-0.24
Acrolein	0.28	0.15	0.14	-0.14	-0.01
DPM	25.53	6.36	5.15	-20.39	-1.21
POM	0.19	0.05	0.05	-0.14	0.00
Acetaldehyde	2.04	1.07	0.98	-1.06	-0.08
Ethylbenzene	1.50	0.86	0.77	-0.73	-0.09
Total MSAT	37.62	13.06	11.30	-26.32	-1.76
Affected Network Daily VMT	2,566,189	6,462,235	6,614,696	4,048,507	152,461

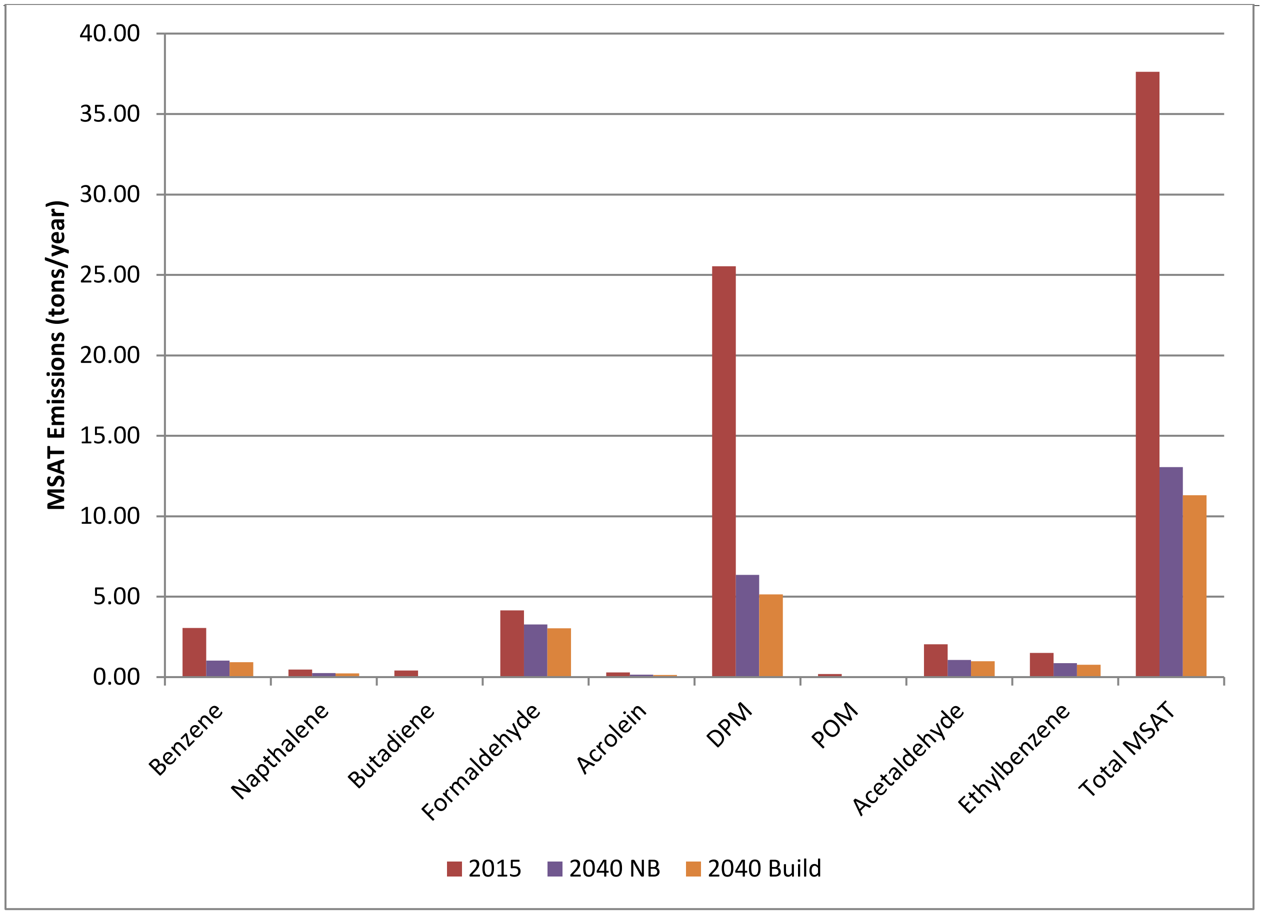

Figure 2.3-3 Projected Changes in MSAT Emissions over Time – Alternative C

The analysis indicates that a decrease in MSAT emissions can be expected for both the Build and No Build Alternatives in 2040 when compared with the existing year of 2015. Under Build Alternatives A and C, emissions of total MSAT are predicted to decrease by 70 percent from 2015 to 2040. This decrease is prevalent throughout the highest priority MSATs and the analyzed alternatives. This decrease is also consistent with the aforementioned EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. In addition, as shown in Tables 2.3-1 and 2.3-2, although the build alternatives would increase the VMT by more than 150,000, when compared to the no build conditions, the total MSAT emissions decrease by 13 percent. As shown in Figures 2.3-4 and 2.3-5, if emissions are plotted over time, a decreasing level of MSAT emissions can be seen from the base year (2015), although overall VMT continues to rise.

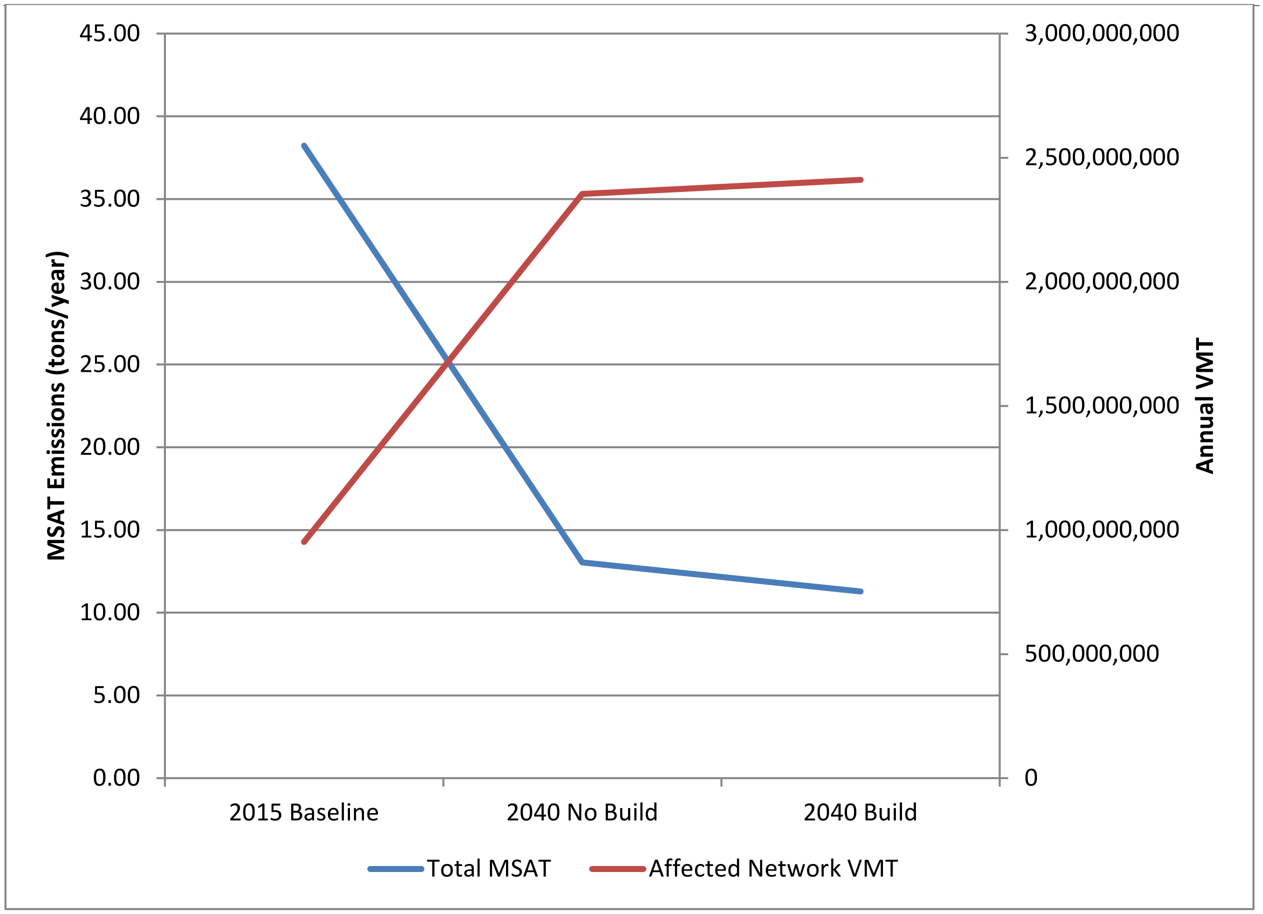

Figure 2.3-4 Comparison of MSAT Emissions vs. VMT – Alternative A

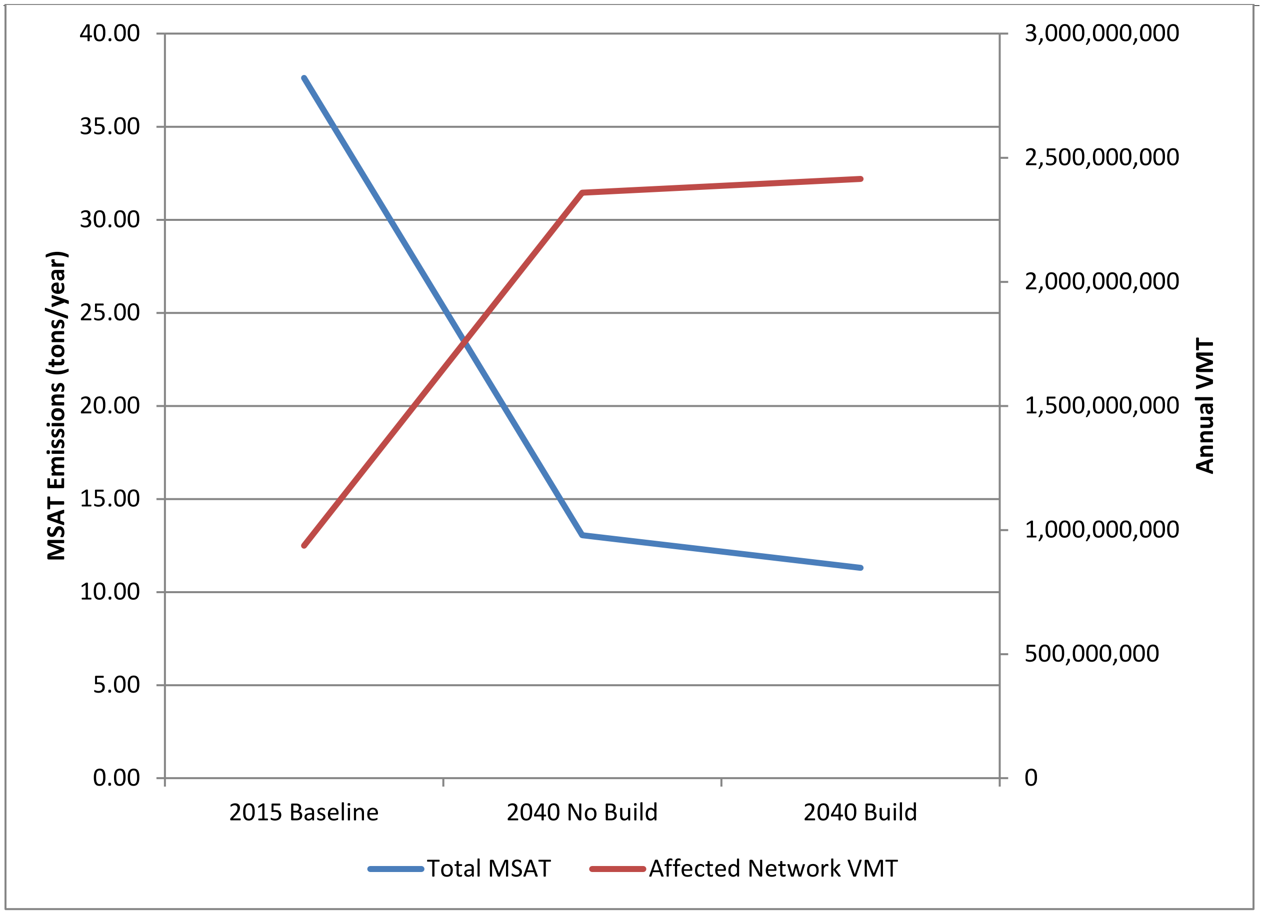

Figure 2.3-5 Comparison of MSAT Emissions vs. VMT – Alternative C

2.4 Construction Emissions

During the construction phase of this project, temporary increases in PM and MSAT emissions may occur from construction activities. The primary construction-related emissions of PM are fugitive dust from site preparation, and the primary construction-related emissions of MSAT are diesel particulate matter from diesel powered construction equipment and vehicles.

The potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures contained in standard specifications, as appropriate. The Texas Emissions Reduction Plan (TERP) provides financial incentives to reduce emissions from vehicles and equipment. TxDOT encourages construction contractors to use this and other local and federal incentive programs to the fullest extent possible to minimize diesel emissions. Information about the TERP program can be found at: http://www.tceq.texas.gov/airquality/terp/ .

However, considering the temporary and transient nature of construction-related emissions, the use of fugitive dust control measures, the encouragement of the use of TERP, and compliance with applicable regulatory requirements; it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

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_______EPA, 2016. MOVES2014a model runs conducted by FHWA, September 2016.

Appendix A
CAMPO RTP and TIP Listings

Table 32: Road Projects

This is the list of road projects in the fiscally constrained portion of the *CAMPO 2040 Regional Transportation Plan*. These projects are expected to be funded between 2015 and 2040, with local and regional (state and federal) funds, as noted.

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
81	TxDOT		Hays	IH 35 - Hays County	SH 45 SE - Posey Road	IH 35 Improvement Projects	2020	$1,500.0	Regional
82	TxDOT		Travis	IH 35 - Travis County	SH 45 N - SH 45 SE	IH 35 Improvement Projects	2020	$1,940.0	Regional
83	TxDOT		Williamson	IH 35 - Williamson County	SH 45 N - SH 195 N	IH 35 Improvement Projects	2020	$815.0	Regional
84	Buda		Hays	IH 35 / OSR Connector	Old San Antonio Rd - IH 35	New 2-lane undivided	2018	$0.1	Local
89	Round Rock		Williamson	US 79	IH 35 - A. W. Grimes Boulevard	Reconstruct to a 6 lane divided roadway with sidewalks	2030	$14.4	Regional
90	Williamson		Williamson	US 183 N	FM 970 - FM 3405	Widen from 4 lanes to 4 lanes with median (future frontage roads)	2018	$17.1	Local
91	Williamson		Williamson	US 183 N	FM 3405 - SH 29	Widen from 4 lanes to 4 lanes with median (future frontage roads)	2018	$40.9	Local
92	CTRMA		Travis	US 183 N	Loop 1 N - RM 620	2 Express Lanes in each direction	2019	$225.7	Regional
93	CTRMA	TxDOT	Travis	US 183 S	US 290 - Boggy Creek	Completion of environmental document, traffic and revenue studies, final engineering, ROW acquisition, utility relocation and construction for 6 tolled mainlanes and 4 to 6 continuous, non-tolled access road lanes, project may be phased.	2016	$332.3	Regional
94	CTRMA	TxDOT	Travis	US 183 S	Boggy Creek - SH 71	Completion of environmental document, traffic and revenue studies, final engineering, ROW acquisition, utility relocation and construction for 6 tolled mainlanes and 4 to 6 continuous, non-tolled access road lanes and operational improvements on SH 71.	2018	$319.7	Regional
95	TxDOT		Bastrop	US 290 E Hurricane Evacuation Route	1 mile east of FM 696 - Lee County Line	Reconstruct existing 4-lane undivided rural principal arterial to a 4 lane divided rural principal arterial.	2018	$57.1	Regional
96	CTRMA	TxDOT	Travis	US 290 W	West of RM 1826 - Loop 1	Construct 6-lane tolled turnpike with frontage roads	2018	$529.0	Regional
97	Hays		Hays	US 290 W	Blanco County Line - RM 165	MAD-4	2030	$25.9	Local
98	Hays		Hays	US 290 W	RM 165 - NF 2	MAD-4	2030	$25.9	Local
99	Hays		Hays	US 290 W	RM 12 - Nutty Brown Rd	MAD-6	2035	$21.8	Local
100	Travis		Travis	US 290 W	RM 1826 - Nutty Brown Rd	Widen to MAD-6	2040	$17.5	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
102	CTRMA		Travis	Loop 1	Cesar Chavez - Slaughter	2 Express Lanes in each direction - MoPac South*	2020	$352.8	Regional
103	San Marcos		Hays	Loop 82	LBJ Dr - IH 35 (Two way)	MAD-4	2035	$1.2	Local
104	San Marcos		Hays	Loop 82 (Phase 1)	Guadalupe St/Grove St - LBJ Dr (One way)	MAD-4	2035	$0.2	Local
105	San Marcos		Hays	Loop 82 / Aquarena Springs Dr	IH 35 - Sessom Dr	MAD-4	2035	$5.1	Local
106	San Marcos		Hays	Loop 82 / Guadalupe	University Dr - Grove St (One way SB)	MAD-4	2035	$3.8	Local
107	San Marcos		Hays	Loop 82 / LBJ	University Dr - Grove St (One way NB)	MAD-4	2035	$2.4	Local
108	San Marcos		Hays	Loop 82 / University Dr	Sessom Dr - Guadalupe St	MAD-4	2035	$2.0	Local
109	Bastrop County		Bastrop	SH 21	SH 71 - Caldwell County Line	Construct MAD-4 or Super 2	2023	$185.9	Local
110	Caldwell		Caldwell	SH 21	Hays County Line - SH 130	Widen to 4 lanes	2025	$14.9	Local
111	Hays		Hays	SH 21	Caldwell County Line - CR 159 (Yarrington)	MAD-6	2030	$32.2	Local
112	Hays		Hays	SH 21	CR 159 (Yarrington) - SH 80	MAD-6	2030	$12.5	Local
113	San Marcos		Hays	SH 21 Extension	SH 80 - IH 35 at Posey Rd	MAD-4	2035	$24.4	Local
114	CTRMA	TxDOT	Hays / Travis	SH 45 SW	Loop 1 S - FM 1626	Construction of a 4-lane tolled freeway (Project may be phased); shared use path where feasible	2015	$108.1	Regional
115	Hays	Buda	Travis / Hays	SH 45 SW-E	FM 1626 - IH 35 S	Environmental and preliminary engineering analysis for a new freeway (Design only)	2025	$2.9	Local
116	TxDOT		Bastrop	SH 71	west of Colorado River - east of Loop 150 E	Construct 4-lane freeway with 3-lane frontage roads	2015	$45.4	Regional
120	CTRMA	TxDOT	Travis	SH 71 W	Silvermine Dr. to US 290	Construct tolled lanes and frontage road	2018	$200.0	Regional
122	Caldwell		Caldwell	SH 80	FM 1979 - SH 130	Widen to 4 lanes	2025	$55.9	Local
123	Hays		Hays	SH 80	SH 21 - Caldwell County Line	MAD-6	2030	$2.1	Local
124	Caldwell		Caldwell	SH 80	County Line Road - FM 1979	Widen to 6 lanes with raised median	2035	$100.4	Regional
125	San Marcos		Hays	SH 80	IH 35 - SH 21	MAD-4	2035	$3.6	Local
126	San Marcos		Hays	SH 80 / E Hopkins	Moore St - Loop 82	MAD-4	2035	$1.2	Local
127	San Marcos		Hays	SH 80 / E Hopkins	Loop 82 - CM Allen	MAD-4	2035	$0.5	Local
128	San Marcos		Hays	SH 80 / E Hopkins	CM Allen - IH 35	MAD-4	2035	$3.8	Local

*Study all options for the proposed MoPac South expansion including both 1 and 2 Express Lanes in each direction, as well as no-build.

FY 2017-2020 Transportation Improvement Program (TIP)
Appendix E - Projects Undergoing Environmental Assessment

District	Project Sponsor	Project Name	Project County	Project City	Limits		Project Description
					From	To	
Austin	TxDOT	IH 35	Williamson, Travis, Hays	Various	SH 130	Posey Road	Study for various operational improvements on mainlanes and frontage roads, plus potential future transportation corridor (added capacity)
Austin	CTRMA/ TxDOT	US 183 N	Williamson, Travis	Austin	Loop 1 N	SH 45/ RM 620	2 Express Lanes in each direction; an additional fourth general purpose lane
Austin	CTRMA/ TxDOT	Loop 1 S	Travis	Austin	Cesar Chavez	Slaughter Ln	2 Express Lanes in each direction*
Austin	TxDOT	FM 2304	Travis	Austin	RAVENSCROFT	FM 1626	RECONSTRUCT 5 LANE URBAN ROADWAY
Austin	CTRMA/ TxDOT	US 290 W	Travis	Austin	Loop 1 S	W of FM 1826	Tollway with frontage roads
		SH 71			US 290 W	Silvermine Drive	
Austin/San Antonio	Lone Star Rail District	Lone Star Regional Rail Project	Williamson, Travis, Hays, Bastrop, Caldwell	Various	Georgetown	Guadalupe County Line	Regional passenger rail

Appendix B
CO TAQA

71/290 Peak Hour Volumes

	2024			2040		
	NB	Build A	Build C	NB	Build A	Build C
EB290-1	1183	2921	2849	1490	3680	3590
EB290-2	1730	3849	4040	2180	4850	5090
WB290-1	992	722	754	1250	910	950
WB290-2	595	381	381	750	480	480
SB71	1048	508	532	1320	640	670
NB71	897	397	405	1130	500	510
EB290FR1		1341	1397		1690	1760
EB290FR2		1643	1452		2070	1830
WB290FR1		1063	1008		1340	1270
WB290FR2		460	452		580	570
SB71FR		802	778		1010	980
NB71FR		817	873		1030	1100

Loop1/290 Peak Hour Volumes

	2024			2040		
	NB	Build A	Build C	NB	Build A	Build C
NB Loop1-1	2913	2294	2294	3670	2890	2890
NB Loop1-2	3000	3143	3135	3780	3960	3950
SB Loop1-1	3230	4167	4167	4070	5250	5250
SB Loop1-2	4016	2484	2492	5060	3130	3140
EB290-1	1817	3040	3008	2290	3830	3790
EB290-2	2246	2611	2571	2830	3290	3240
WB290-1	2159	4175	4190	2720	5260	5280
WB290-2	2024	5508	5508	2550	6940	6940
NBFR-1	698	667	667	880	840	840
NBFR-2	1659	1421	1421	2090	1790	1790
SBFR-1	1738	1373	1373	2190	1730	1730
SBFR-2	675	651	659	850	820	830
EBFR-1	492	452	460	620	570	580
EBFR-2	1635	1357	1397	2060	1710	1760
WBFR-1	2159	1905	1897	2720	2400	2390
WBFR-2	810	802	794	1020	1010	1000
N2E	905	603	603	1140	760	760
W2S	1770	1135	1135	2230	1430	1430
E2N	984	1452	1452	1240	1830	1830
S2W	984	2825	2802	1240	3560	3530

Figure B-1: SH71/US290 Receptor Locations

Figure B-2: SH71/Loop 1 Receptor Locations

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1                     CALINE3              (DATED 12317)
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  1

      JOB: OHP                                                 RUN: 2024NB



        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM



       II.  LINK VARIABLES


        LINK DESCRIPTION     *      LINK COORDINATES (M)      * LINK LENGTH  LINK
BRG   TYPE  VPH     EF     H    W
                             *   X1      Y1      X2      Y2   *     (M)       (DEG)
               (G/MI)  (M)  (M)

-------------------------*---------------------------------*-------------------------
-----------------------------
    A. EB290 1               *     0.    144.    550.    144. *      550.       90.
    AG   1183.   1.5   0.0  18.0
    B. EB290 2               *   550.    144.   1450.    144. *      900.       90.
    AG   1730.   1.5   0.0  18.0
    C. WB290 1               *  1450.    156.    550.    156. *      900.      270.
    AG    992.   1.5   0.0  18.0
    D. WB290 2               *   550.    156.      0.    156. *      550.      270.
    AG    595.   1.5   0.0  18.0
    E. SB71                  *   544.    750.    544.    150. *      600.      180.
    AG   1048.   1.5   0.0  18.0
    F. NB71                  *   556.    150.    556.    750. *      600.      360.
    AG    897.   1.5   0.0  18.0

      III.  RECEPTOR LOCATIONS AND MODEL RESULTS


                             *                               * TOTAL *
+
CO/LINK
                             *        COORDINATES (M)        * + AMB *
(PPM)
        RECEPTOR             *      X         Y         Z      * (PPM) *   A    B    C
   D    E    F
    -------------------------*-------------------------------*-------*
+
--------------------------------
     1. RECP. 1              *      150.      55.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     2. RECP. 2              *      550.      80.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     3. RECP. 3              *      980.      65.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
```

```
      4. RECP. 4           *     1260.      75.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
      5. RECP. 5           *       95.     210.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
      6. RECP. 6           *      360.     195.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
      7. RECP. 7           *      815.     180.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
      8. RECP. 8           *     1030.     180.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
      9. RECP. 9           *      510.     650.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     10. RECP.10           *      505.     400.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     11. RECP.11           *      585.     650.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     12. RECP.12           *      575.     400.      1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
```

```
1                     CALINE3              (DATED 12317)
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  1

      JOB: OHP                                                   RUN: 2024 ALT C


        I.  SITE VARIABLES

       U =  1.0 M/S           CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                  MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM


       II.  LINK VARIABLES

        LINK DESCRIPTION     *      LINK COORDINATES (M)      * LINK LENGTH  LINK
BRG   TYPE  VPH     EF     H    W
                             *   X1      Y1      X2      Y2   *     (M)       (DEG)
               (G/MI)  (M)  (M)
-------------------------*--------------------------------*-------------------------
------------------------------
    A. EB290 1               *     0.    144.    550.    144. *      550.        90.
    AG   2849.   1.5   0.0  18.0
    B. EB290 2               *   550.    144.   1450.    180. *      901.        88.
    AG   4040.   1.5   0.0  18.0
    C. WB290 1               *  1450.    200.    550.    156. *      901.       267.
    AG    754.   1.5   0.0  18.0
    D. WB290 2               *   550.    156.      0.    156. *      550.       270.
    AG    381.   1.5   0.0  18.0
    E. SB71                  *   544.    750.    544.    150. *      600.       180.
    AG    532.   1.5   0.0  18.0
    F. NB71                  *   556.    150.    556.    750. *      600.       360.
    AG    405.   1.5   0.0  18.0
    G. EB290FR 1             *     0.    100.    550.    100. *      550.        90.
    AG   1397.   1.5   0.0  18.0
    H. EB290FR 2             *   550.    100.   1450.    100. *      900.        90.
    AG   1452.   1.5   0.0  18.0
    I. WB290FR 1             *  1450.    120.    550.    200. *      904.       275.
    AG   1008.   1.5   0.0  18.0
    J. WB290FR 2             *   550.    200.      0.    200. *      550.       270.
    AG    452.   1.5   0.0  18.0
    K. SB71 FR               *   524.    750.    524.    150. *      600.       180.
    AG    778.   1.5   0.0  18.0
    L. NB71 FR               *   576.    150.    576.    750. *      600.       360.
    AG    873.   1.5   0.0  18.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  2

      JOB: OHP                                                   RUN: 2024 ALT C
```

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	COORDINATES (M) X	Y	Z	TOTAL + AMB (PPM)
1. RECP. 1	150.	55.	1.8	0.0
2. RECP. 2	550.	80.	1.8	0.1
3. RECP. 3	980.	65.	1.8	0.0
4. RECP. 4	1260.	75.	1.8	0.1
5. RECP. 5	95.	210.	1.8	0.0
6. RECP. 6	360.	195.	1.8	0.1
7. RECP. 7	815.	180.	1.8	0.3
8. RECP. 8	1030.	180.	1.8	0.4
9. RECP. 9	510.	650.	1.8	0.0
10. RECP.10	505.	400.	1.8	0.0
11. RECP.11	585.	650.	1.8	0.0
12. RECP.12	575.	400.	1.8	0.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 3

JOB: OHP RUN: 2024 ALT C

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

RECEPTOR	CO/LINK (PPM) A	B	C	D	E	F	G	H	I	J	K	L

```
     1. RECP. 1             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     2. RECP. 2             *  0.0  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0  0.0
0.0  0.0
     3. RECP. 3             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     4. RECP. 4             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0
0.0  0.0
     5. RECP. 5             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     6. RECP. 6             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.1
0.0  0.0
     7. RECP. 7             *  0.1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.2  0.0
0.0  0.0
     8. RECP. 8             *  0.1  0.1  0.1  0.0  0.0  0.0  0.0  0.0  0.1  0.0
0.0  0.0
     9. RECP. 9             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    10. RECP.10             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    11. RECP.11             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    12. RECP.12             *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
```

1 CALINE3 (DATED 12317)
0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2024 ALT A

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB290 1	*	0.	144.	550.	144.	*	550.	90.	AG	2921.	1.5	0.0	18.0
B. EB290 2	*	550.	144.	1450.	100.	*	901.	93.	AG	3849.	1.5	0.0	18.0
C. WB290 1	*	1450.	200.	550.	156.	*	901.	267.	AG	722.	1.5	0.0	18.0
D. WB290 2	*	550.	156.	0.	156.	*	550.	270.	AG	381.	1.5	0.0	18.0
E. SB71	*	544.	750.	544.	150.	*	600.	180.	AG	508.	1.5	0.0	18.0
F. NB71	*	556.	150.	556.	750.	*	600.	360.	AG	397.	1.5	0.0	18.0
G. EB290FR 1	*	0.	100.	550.	100.	*	550.	90.	AG	1341.	1.5	0.0	18.0
H. EB290FR 2	*	550.	100.	1450.	100.	*	900.	90.	AG	1643.	1.5	0.0	18.0
I. WB290FR 1	*	1450.	200.	550.	200.	*	900.	270.	AG	1063.	1.5	0.0	18.0
J. WB290FR 2	*	550.	200.	0.	200.	*	550.	270.	AG	460.	1.5	0.0	18.0
K. SB71 FR	*	524.	750.	524.	150.	*	600.	180.	AG	802.	1.5	0.0	18.0
L. NB71 FR	*	576.	150.	576.	750.	*	600.	360.	AG	817.	1.5	0.0	18.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 2

JOB: OHP RUN: 2024 ALT A

I. SITE VARIABLES

```
      U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                 MIXH =  1000. M
    BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM
```

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	X (M)	Y (M)	Z (M)	TOTAL + AMB (PPM)
1. RECP. 1	150.	55.	1.8	0.0
2. RECP. 2	550.	80.	1.8	0.1
3. RECP. 3	980.	65.	1.8	0.0
4. RECP. 4	1260.	75.	1.8	0.2
5. RECP. 5	95.	210.	1.8	0.0
6. RECP. 6	360.	195.	1.8	0.1
7. RECP. 7	815.	180.	1.8	0.1
8. RECP. 8	1030.	180.	1.8	0.2
9. RECP. 9	510.	650.	1.8	0.0
10. RECP.10	505.	400.	1.8	0.0
11. RECP.11	585.	650.	1.8	0.0
12. RECP.12	575.	400.	1.8	0.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 3

JOB: OHP RUN: 2024 ALT A

I. SITE VARIABLES

```
      U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                 MIXH =  1000. M
    BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM
```

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

```
                             *
+                                                      CO/LINK
                             *                          (PPM)
        RECEPTOR             *   A    B    C    D    E    F    G    H    I    J    K
   L
    -------------------------*
+
--------------------------------------------------------------
```

```
     1. RECP. 1              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     2. RECP. 2              *  0.0  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0  0.0
0.0  0.0
     3. RECP. 3              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     4. RECP. 4              *  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0
0.0  0.0
     5. RECP. 5              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     6. RECP. 6              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.1
0.0  0.0
     7. RECP. 7              *  0.1  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     8. RECP. 8              *  0.1  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
     9. RECP. 9              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    10. RECP.10              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    11. RECP.11              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    12. RECP.12              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
```

1 CALINE3 (DATED 12317)
0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2040NB

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB290 1	0.	144.	550.	144.	550.	90.	AG	1490.	0.5	0.0	18.0
B. EB290 2	550.	144.	1450.	144.	900.	90.	AG	2180.	0.5	0.0	18.0
C. WB290 1	1450.	156.	550.	156.	900.	270.	AG	1250.	0.5	0.0	18.0
D. WB290 2	550.	156.	0.	156.	550.	270.	AG	750.	0.5	0.0	18.0
E. SB71	544.	750.	544.	150.	600.	180.	AG	1320.	0.5	0.0	18.0
F. NB71	556.	150.	556.	750.	600.	360.	AG	1130.	0.5	0.0	18.0

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	X (M)	Y (M)	Z (M)	TOTAL + AMB (PPM)	CO/LINK (PPM) A	B	C	D	E	F
1. RECP. 1	150.	55.	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	550.	80.	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	980.	65.	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
     4. RECP. 4            *     1260.       75.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     5. RECP. 5            *       95.      210.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     6. RECP. 6            *      360.      195.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     7. RECP. 7            *      815.      180.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     8. RECP. 8            *     1030.      180.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
     9. RECP. 9            *      510.      650.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
    10. RECP.10            *      505.      400.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
    11. RECP.11            *      585.      650.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
    12. RECP.12            *      575.      400.       1.8   *  0.0  *  0.0  0.0
0.0  0.0  0.0  0.0
```

1 CALINE3 (DATED 12317)
0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2040 ALT C

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB290 1	*	0.	144.	550.	144.	*	550.	90.	AG	3590.	0.5	0.0	18.0
B. EB290 2	*	550.	144.	1450.	180.	*	901.	88.	AG	5090.	0.5	0.0	18.0
C. WB290 1	*	1450.	200.	550.	156.	*	901.	267.	AG	960.	0.5	0.0	18.0
D. WB290 2	*	550.	156.	0.	156.	*	550.	270.	AG	480.	0.5	0.0	18.0
E. SB71	*	544.	750.	544.	150.	*	600.	180.	AG	670.	0.5	0.0	18.0
F. NB71	*	556.	150.	556.	750.	*	600.	360.	AG	510.	0.5	0.0	18.0
G. EB290FR 1	*	0.	100.	550.	100.	*	550.	90.	AG	1760.	0.5	0.0	18.0
H. EB290FR 2	*	550.	100.	1450.	100.	*	900.	90.	AG	1830.	0.5	0.0	18.0
I. WB290FR 1	*	1450.	120.	550.	200.	*	904.	275.	AG	1270.	0.5	0.0	18.0
J. WB290FR 2	*	550.	200.	0.	200.	*	550.	270.	AG	570.	0.5	0.0	18.0
K. SB71 FR	*	524.	750.	524.	150.	*	600.	180.	AG	980.	0.5	0.0	18.0
L. NB71 FR	*	576.	150.	576.	750.	*	600.	360.	AG	1100.	0.5	0.0	18.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 2

JOB: OHP RUN: 2040 ALT C

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	COORDINATES (M) X	Y	Z	TOTAL + AMB (PPM)
1. RECP. 1	150.	55.	1.8	0.0
2. RECP. 2	550.	80.	1.8	0.0
3. RECP. 3	980.	65.	1.8	0.0
4. RECP. 4	1260.	75.	1.8	0.0
5. RECP. 5	95.	210.	1.8	0.0
6. RECP. 6	360.	195.	1.8	0.0
7. RECP. 7	815.	180.	1.8	0.1
8. RECP. 8	1030.	180.	1.8	0.2
9. RECP. 9	510.	650.	1.8	0.0
10. RECP.10	505.	400.	1.8	0.0
11. RECP.11	585.	650.	1.8	0.0
12. RECP.12	575.	400.	1.8	0.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 3

JOB: OHP RUN: 2040 ALT C

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

*
\+ CO/LINK
* (PPM)
RECEPTOR * A B C D E F G H I J K L
-------------------------*
\+ ---

1. RECP. 1	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
2. RECP. 2	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
3. RECP. 3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
4. RECP. 4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
5. RECP. 5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
6. RECP. 6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
7. RECP. 7	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0 0.0
8. RECP. 8	*	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
9. RECP. 9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
10. RECP.10	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
11. RECP.11	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
12. RECP.12	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0

1 CALINE3 (DATED 12317)

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2040 ALT A

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB290 1	0.	144.	550.	144.	550.	90.	AG	3680.	0.5	0.0	18.0
B. EB290 2	550.	144.	1450.	100.	901.	93.	AG	4850.	0.5	0.0	18.0
C. WB290 1	1450.	200.	550.	156.	901.	267.	AG	910.	0.5	0.0	18.0
D. WB290 2	550.	156.	0.	156.	550.	270.	AG	480.	0.5	0.0	18.0
E. SB71	544.	750.	544.	150.	600.	180.	AG	640.	0.5	0.0	18.0
F. NB71	556.	150.	556.	750.	600.	360.	AG	500.	0.5	0.0	18.0
G. EB290FR 1	0.	100.	550.	100.	550.	90.	AG	1690.	0.5	0.0	18.0
H. EB290FR 2	550.	100.	1450.	100.	900.	90.	AG	2070.	0.5	0.0	18.0
I. WB290FR 1	1450.	200.	550.	200.	900.	270.	AG	1340.	0.5	0.0	18.0
J. WB290FR 2	550.	200.	0.	200.	550.	270.	AG	580.	0.5	0.0	18.0
K. SB71 FR	524.	750.	524.	150.	600.	180.	AG	1010.	0.5	0.0	18.0
L. NB71 FR	576.	150.	576.	750.	600.	360.	AG	1030.	0.5	0.0	18.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 2

JOB: OHP RUN: 2040 ALT A

I. SITE VARIABLES

```
       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM
```

III. RECEPTOR LOCATIONS AND MODEL RESULTS

RECEPTOR	COORDINATES (M) X	Y	Z	TOTAL + AMB (PPM)
1. RECP. 1	150.	55.	1.8	0.0
2. RECP. 2	550.	80.	1.8	0.0
3. RECP. 3	980.	65.	1.8	0.0
4. RECP. 4	1260.	75.	1.8	0.0
5. RECP. 5	95.	210.	1.8	0.0
6. RECP. 6	360.	195.	1.8	0.0
7. RECP. 7	815.	180.	1.8	0.0
8. RECP. 8	1030.	180.	1.8	0.1
9. RECP. 9	510.	650.	1.8	0.0
10. RECP.10	505.	400.	1.8	0.0
11. RECP.11	585.	650.	1.8	0.0
12. RECP.12	575.	400.	1.8	0.0

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION PAGE 3

JOB: OHP RUN: 2040 ALT A

I. SITE VARIABLES

```
       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM
```

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

```
                              *
+                                                           CO/LINK
                              *                              (PPM)
       RECEPTOR               *   A    B    C    D    E    F    G    H    I    J    K
   L
    -------------------------*
+
--------------------------------------------------------------
```

```
    1. RECP. 1           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    2. RECP. 2           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    3. RECP. 3           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    4. RECP. 4           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    5. RECP. 5           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    6. RECP. 6           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    7. RECP. 7           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    8. RECP. 8           *  0.0  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
    9. RECP. 9           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
   10. RECP.10           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
   11. RECP.11           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
   12. RECP.12           *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0
```

1 CALINE3 (DATED 12317)

0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2024NB

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB Loop 1	1475.	0.	1475.	1097.	1097.	360.	AG	2913.	1.5	0.0	18.0
B. NB Loop 1	1475.	1097.	1475.	2194.	1097.	360.	AG	3000.	1.5	0.0	18.0
C. SB Loop 1	1451.	2194.	1451.	1097.	1097.	180.	AG	3230.	1.5	0.0	18.0
D. SB Loop 1	1451.	1097.	1451.	0.	1097.	180.	AG	4016.	1.5	0.0	18.0
E. EB290	0.	1082.	1463.	1082.	1463.	90.	AG	1817.	1.5	0.0	18.0
F. EB290	1463.	1082.	2682.	1082.	1219.	90.	AG	2246.	1.5	0.0	18.0
G. WB290	2682.	1112.	1463.	1112.	1219.	270.	AG	2159.	1.5	0.0	18.0
H. WB290	1463.	1112.	0.	1112.	1463.	270.	AG	2024.	1.5	0.0	18.0
I. NBFR	1527.	0.	1527.	1097.	1097.	360.	AG	698.	1.7	0.0	18.0
J. NBFR	1527.	1097.	1527.	2194.	1097.	360.	AG	1659.	1.7	0.0	18.0
K. SBFR	1399.	0.	1399.	1097.	1097.	360.	AG	1738.	1.7	0.0	18.0
L. SBFR	1399.	1097.	1399.	2194.	1097.	360.	AG	675.	1.7	0.0	18.0
M. EBFR	0.	1042.	1463.	1042.	1463.	90.	AG	492.	1.7	0.0	18.0
N. EBFR	1463.	1042.	2682.	1042.	1219.	90.	AG	1635.	1.7	0.0	18.0
O. WBFR	2682.	1152.	1463.	1152.	1219.	270.	AG	2159.	1.7	0.0	18.0
P. WBFR	1463.	1152.	0.	1152.	1463.	270.	AG	810.	1.7	0.0	18.0
Q. N2E	1475.	837.	1818.	1082.	422.	54.					

```
    AG    905.   1.6   0.0  13.0
    R. W2S                  *  1793.   1112.   1451.    862. *      424.      234.
    AG   1770.   1.6   0.0  13.0
    S. E2N                  *  1133.   1082.   1475.   1327. *      421.       54.
    AG    984.   1.6   0.0  13.0
    T. S2W                  *  1451.   1357.   1113.   1112. *      417.      234.
    AG    984.   1.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                       PAGE  2

      JOB: OHP                                                 RUN: 2022NB


        I.  SITE VARIABLES

       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM


      III.  RECEPTOR LOCATIONS AND MODEL RESULTS

                             *                                *  TOTAL
                             *        COORDINATES (M)         *  + AMB
        RECEPTOR             *      X        Y        Z       *  (PPM)
    -------------------------*--------------------------------*--------
     1. RECP. 1              *     500.    1039.      1.8     *   0.1
     2. RECP. 2              *     948.    1039.      1.8     *   0.1
     3. RECP. 3              *    1396.    1039.      1.8     *   0.2
     4. RECP. 4              *    1396.     770.      1.8     *   0.0
     5. RECP. 5              *    1396.     500.      1.8     *   0.0
     6. RECP. 6              *    1530.     500.      1.8     *   0.2
     7. RECP. 7              *    1530.     770.      1.8     *   0.2
     8. RECP. 8              *    1680.     970.      1.8     *   0.2
     9. RECP. 9              *    1856.    1039.      1.8     *   0.5
    10. RECP.10              *    2182.    1039.      1.8     *   0.4
    11. RECP.11              *    1530.    1694.      1.8     *   0.3
    12. RECP.12              *    1530.    1425.      1.8     *   0.3
    13. RECP.13              *    1530.    1155.      1.8     *   0.8
    14. RECP.14              *    1856.    1155.      1.8     *   0.6
    15. RECP.15              *    2182.    1155.      1.8     *   0.5
    16. RECP.16              *     500.    1155.      1.8     *   0.2
    17. RECP.17              *     948.    1155.      1.8     *   0.3
    18. RECP.18              *    1280.    1260.      1.8     *   0.0
    19. RECP.19              *    1396.    1425.      1.8     *   0.0
    20. RECP.20              *    1396.    1694.      1.8     *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                       PAGE  3

      JOB: OHP                                                 RUN: 2022NB
```

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

CO/LINK (PPM)

RECEPTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1. RECP. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. RECP. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. RECP. 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. RECP. 6	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. RECP. 7	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. RECP. 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
9. RECP. 9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
10. RECP.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
11. RECP.11	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. RECP.12	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. RECP.13	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0
14. RECP.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
15. RECP.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
16. RECP.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
17. RECP.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
18. RECP.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19. RECP.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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    20. RECP.20                * 0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

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1                     CALINE3               (DATED 12317)
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  1

      JOB: OHP                                                    RUN: 2024 A


        I.  SITE VARIABLES

       U =  1.0 M/S             CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                    MIXH =  1000. M
     BRG = 270. DEGREES           Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM


       II.  LINK VARIABLES

        LINK DESCRIPTION     *      LINK COORDINATES (M)      * LINK LENGTH  LINK
BRG   TYPE  VPH     EF     H    W
                             *   X1      Y1      X2      Y2   *     (M)       (DEG)
               (G/MI)  (M)  (M)

-------------------------*--------------------------------*-------------------------
------------------------------
    A. NB Loop 1             *  1475.      0.   1475.   1097. *     1097.      360.
    AG   2294.   1.5   0.0  18.0
    B. NB Loop 1             *  1475.   1097.   1475.   2194. *     1097.      360.
    AG   3143.   1.5   0.0  18.0
    C. SB Loop 1             *  1451.   2194.   1451.   1097. *     1097.      180.
    AG   4167.   1.5   0.0  18.0
    D. SB Loop 1             *  1451.   1097.   1451.      0. *     1097.      180.
    AG   2484.   1.5   0.0  18.0
    E. EB290                 *     0.   1082.   1463.   1082. *     1463.       90.
    AG   3040.   1.5   0.0  18.0
    F. EB290                 *  1463.   1082.   2682.   1082. *     1219.       90.
    AG   2611.   1.5   0.0  18.0
    G. WB290                 *  2682.   1112.   1463.   1112. *     1219.      270.
    AG   4175.   1.5   0.0  18.0
    H. WB290                 *  1463.   1112.      0.   1112. *     1463.      270.
    AG   5508.   1.5   0.0  18.0
    I. NBFR                  *  1527.      0.   1527.   1097. *     1097.      360.
    AG    667.   1.7   0.0  18.0
    J. NBFR                  *  1527.   1097.   1527.   2194. *     1097.      360.
    AG   1421.   1.7   0.0  18.0
    K. SBFR                  *  1399.      0.   1399.   1097. *     1097.      360.
    AG   1373.   1.7   0.0  18.0
    L. SBFR                  *  1399.   1097.   1399.   2194. *     1097.      360.
    AG    651.   1.7   0.0  18.0
    M. EBFR                  *     0.   1042.   1463.   1042. *     1463.       90.
    AG    452.   1.7   0.0  18.0
    N. EBFR                  *  1463.   1042.   2682.   1042. *     1219.       90.
    AG   1357.   1.7   0.0  18.0
    O. WBFR                  *  2682.   1152.   1463.   1152. *     1219.      270.
    AG   1905.   1.7   0.0  18.0
    P. WBFR                  *  1463.   1152.      0.   1152. *     1463.      270.
    AG    802.   1.7   0.0  18.0
    Q. N2E                   *  1475.    837.   1818.   1082. *      422.       54.
```

```
    AG    603.   1.6   0.0  13.0
    R. W2S                  *  1793.   1112.   1451.    862. *      424.      234.
    AG   1135.   1.6   0.0  13.0
    S. E2N                  *  1133.   1082.   1475.   1327. *      421.       54.
    AG   1452.   1.6   0.0  13.0
    T. S2W                  *  1451.   1357.   1113.   1112. *      417.      234.
    AG   2825.   1.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  2

      JOB: OHP                                                  RUN: 2022 A



        I.  SITE VARIABLES


       U =  1.0 M/S             CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                    MIXH =  1000. M
     BRG = 270. DEGREES           Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM




      III.  RECEPTOR LOCATIONS AND MODEL RESULTS


                            *                                *  TOTAL
                            *        COORDINATES (M)         *  + AMB
        RECEPTOR            *      X        Y        Z       *  (PPM)
    ------------------------*--------------------------------*--------
     1. RECP. 1             *      500.    1039.      1.8    *   0.1
     2. RECP. 2             *      948.    1039.      1.8    *   0.3
     3. RECP. 3             *     1396.    1039.      1.8    *   0.3
     4. RECP. 4             *     1396.     770.      1.8    *   0.0
     5. RECP. 5             *     1396.     500.      1.8    *   0.0
     6. RECP. 6             *     1530.     500.      1.8    *   0.0
     7. RECP. 7             *     1530.     770.      1.8    *   0.0
     8. RECP. 8             *     1680.     970.      1.8    *   0.0
     9. RECP. 9             *     1856.    1039.      1.8    *   0.5
    10. RECP.10             *     2182.    1039.      1.8    *   0.6
    11. RECP.11             *     1530.    1694.      1.8    *   0.3
    12. RECP.12             *     1530.    1425.      1.8    *   0.3
    13. RECP.13             *     1530.    1155.      1.8    *   0.9
    14. RECP.14             *     1856.    1155.      1.8    *   0.7
    15. RECP.15             *     2182.    1155.      1.8    *   0.8
    16. RECP.16             *      500.    1155.      1.8    *   0.3
    17. RECP.17             *      948.    1155.      1.8    *   0.3
    18. RECP.18             *     1280.    1260.      1.8    *   0.0
    19. RECP.19             *     1396.    1425.      1.8    *   0.0
    20. RECP.20             *     1396.    1694.      1.8    *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  3

      JOB: OHP                                                  RUN: 2022 A
```

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

CO/LINK (PPM)

RECEPTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1. RECP. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. RECP. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. RECP. 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. RECP. 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. RECP. 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. RECP. 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9. RECP. 9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
10. RECP.10	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
11. RECP.11	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. RECP.12	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. RECP.13	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
14. RECP.14	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
15. RECP.15	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
16. RECP.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
17. RECP.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
18. RECP.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19. RECP.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
    20. RECP.20                  *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

```
1                     CALINE3              (DATED 12317)
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  1


      JOB: OHP                                                RUN: 2024 C



        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM


       II.  LINK VARIABLES


        LINK DESCRIPTION     *      LINK COORDINATES (M)      * LINK LENGTH  LINK
BRG   TYPE  VPH     EF     H    W
                             *   X1      Y1      X2      Y2   *     (M)       (DEG)
               (G/MI)  (M)  (M)

-------------------------*--------------------------------*-------------------------
------------------------------
    A. NB Loop 1             *  1475.      0.   1475.   1097. *     1097.      360.
    AG   2294.   1.5   0.0  18.0
    B. NB Loop 1             *  1475.   1097.   1475.   2194. *     1097.      360.
    AG   3135.   1.5   0.0  18.0
    C. SB Loop 1             *  1451.   2194.   1451.   1097. *     1097.      180.
    AG   4167.   1.5   0.0  18.0
    D. SB Loop 1             *  1451.   1097.   1451.      0. *     1097.      180.
    AG   2492.   1.5   0.0  18.0
    E. EB290                 *     0.   1082.   1463.   1082. *     1463.       90.
    AG   3008.   1.5   0.0  18.0
    F. EB290                 *  1463.   1082.   2682.   1082. *     1219.       90.
    AG   2571.   1.5   0.0  18.0
    G. WB290                 *  2682.   1112.   1463.   1112. *     1219.      270.
    AG   4190.   1.5   0.0  18.0
    H. WB290                 *  1463.   1112.      0.   1112. *     1463.      270.
    AG   5508.   1.5   0.0  18.0
    I. NBFR                  *  1527.      0.   1527.   1097. *     1097.      360.
    AG    667.   1.7   0.0  18.0
    J. NBFR                  *  1527.   1097.   1527.   2194. *     1097.      360.
    AG   1421.   1.7   0.0  18.0
    K. SBFR                  *  1399.      0.   1399.   1097. *     1097.      360.
    AG   1373.   1.7   0.0  18.0
    L. SBFR                  *  1399.   1097.   1399.   2194. *     1097.      360.
    AG    659.   1.7   0.0  18.0
    M. EBFR                  *     0.   1042.   1463.   1042. *     1463.       90.
    AG    460.   1.7   0.0  18.0
    N. EBFR                  *  1463.   1042.   2682.   1042. *     1219.       90.
    AG   1397.   1.7   0.0  18.0
    O. WBFR                  *  2682.   1152.   1463.   1152. *     1219.      270.
    AG   1897.   1.7   0.0  18.0
    P. WBFR                  *  1463.   1152.      0.   1152. *     1463.      270.
    AG    794.   1.7   0.0  18.0
    Q. N2E                   *  1475.    837.   1818.   1082. *      422.       54.
```

```
    AG    603.   1.6   0.0  13.0
    R. W2S                  *  1793.   1112.   1451.    862. *      424.      234.
    AG   1135.   1.6   0.0  13.0
    S. E2N                  *  1133.   1082.   1475.   1327. *      421.       54.
    AG   1452.   1.6   0.0  13.0
    T. S2W                  *  1451.   1357.   1113.   1112. *      417.      234.
    AG   2802.   1.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  2

      JOB: OHP                                                RUN: 2022 C



        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM




      III.  RECEPTOR LOCATIONS AND MODEL RESULTS


                            *                                *  TOTAL
                            *       COORDINATES (M)          *  + AMB
        RECEPTOR            *      X        Y        Z       *  (PPM)
    -------------------------*-------------------------------*---------
     1. RECP. 1             *     500.    1039.      1.8    *   0.1
     2. RECP. 2             *     948.    1039.      1.8    *   0.3
     3. RECP. 3             *    1396.    1039.      1.8    *   0.3
     4. RECP. 4             *    1396.     770.      1.8    *   0.0
     5. RECP. 5             *    1396.     500.      1.8    *   0.0
     6. RECP. 6             *    1530.     500.      1.8    *   0.0
     7. RECP. 7             *    1530.     770.      1.8    *   0.0
     8. RECP. 8             *    1680.     970.      1.8    *   0.0
     9. RECP. 9             *    1856.    1039.      1.8    *   0.5
    10. RECP.10             *    2182.    1039.      1.8    *   0.6
    11. RECP.11             *    1530.    1694.      1.8    *   0.3
    12. RECP.12             *    1530.    1425.      1.8    *   0.3
    13. RECP.13             *    1530.    1155.      1.8    *   0.9
    14. RECP.14             *    1856.    1155.      1.8    *   0.7
    15. RECP.15             *    2182.    1155.      1.8    *   0.8
    16. RECP.16             *     500.    1155.      1.8    *   0.3
    17. RECP.17             *     948.    1155.      1.8    *   0.3
    18. RECP.18             *    1280.    1260.      1.8    *   0.0
    19. RECP.19             *    1396.    1425.      1.8    *   0.0
    20. RECP.20             *    1396.    1694.      1.8    *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  3

      JOB: OHP                                                RUN: 2022 C
```

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

CO/LINK (PPM)

RECEPTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1. RECP. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. RECP. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. RECP. 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. RECP. 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. RECP. 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. RECP. 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9. RECP. 9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
10. RECP.10	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
11. RECP.11	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. RECP.12	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. RECP.13	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0
14. RECP.14	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
15. RECP.15	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
16. RECP.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
17. RECP.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
18. RECP.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19. RECP.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
    20. RECP.20               *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

```
1                    CALINE3              (DATED 12317)
0                              CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                       PAGE  1

      JOB: OHP                                                      RUN: 2040NB

        I.  SITE VARIABLES

       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM

       II.  LINK VARIABLES

        LINK DESCRIPTION     *      LINK COORDINATES (M)      * LINK LENGTH  LINK
BRG   TYPE  VPH     EF     H    W
                             *   X1      Y1      X2      Y2   *     (M)       (DEG)
               (G/MI)  (M)  (M)

-------------------------*--------------------------------*-------------------------
------------------------------
    A. NB Loop 1             *  1475.      0.   1475.   1097. *     1097.      360.
    AG   3670.   0.5   0.0  18.0
    B. NB Loop 1             *  1475.   1097.   1475.   2194. *     1097.      360.
    AG   3780.   0.5   0.0  18.0
    C. SB Loop 1             *  1451.   2194.   1451.   1097. *     1097.      180.
    AG   4070.   0.5   0.0  18.0
    D. SB Loop 1             *  1451.   1097.   1451.      0. *     1097.      180.
    AG   5060.   0.5   0.0  18.0
    E. EB290                 *     0.   1082.   1463.   1082. *     1463.       90.
    AG   2290.   0.5   0.0  18.0
    F. EB290                 *  1463.   1082.   2682.   1082. *     1219.       90.
    AG   2830.   0.5   0.0  18.0
    G. WB290                 *  2682.   1112.   1463.   1112. *     1219.      270.
    AG   2720.   0.5   0.0  18.0
    H. WB290                 *  1463.   1112.      0.   1112. *     1463.      270.
    AG   2550.   0.5   0.0  18.0
    I. NBFR                  *  1527.      0.   1527.   1097. *     1097.      360.
    AG    880.   0.5   0.0  18.0
    J. NBFR                  *  1527.   1097.   1527.   2194. *     1097.      360.
    AG   2090.   0.5   0.0  18.0
    K. SBFR                  *  1399.      0.   1399.   1097. *     1097.      360.
    AG   2190.   0.5   0.0  18.0
    L. SBFR                  *  1399.   1097.   1399.   2194. *     1097.      360.
    AG    850.   0.5   0.0  18.0
    M. EBFR                  *     0.   1042.   1463.   1042. *     1463.       90.
    AG    620.   0.5   0.0  18.0
    N. EBFR                  *  1463.   1042.   2682.   1042. *     1219.       90.
    AG   2060.   0.5   0.0  18.0
    O. WBFR                  *  2682.   1152.   1463.   1152. *     1219.      270.
    AG   2720.   0.5   0.0  18.0
    P. WBFR                  *  1463.   1152.      0.   1152. *     1463.      270.
    AG   1020.   0.5   0.0  18.0
    Q. N2E                   *  1475.    837.   1818.   1082. *      422.       54.
```

```
    AG   1140.   0.6   0.0  13.0
    R. W2S                  *  1793.   1112.   1451.    862. *      424.      234.
    AG   2230.   0.6   0.0  13.0
    S. E2N                  *  1133.   1082.   1475.   1327. *      421.       54.
    AG   1240.   0.6   0.0  13.0
    T. S2W                  *  1451.   1357.   1113.   1112. *      417.      234.
    AG   1240.   0.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  2

      JOB: OHP                                                 RUN: 2040NB


        I.  SITE VARIABLES

       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM


      III.  RECEPTOR LOCATIONS AND MODEL RESULTS

                            *                                *  TOTAL
                            *        COORDINATES (M)         *  + AMB
        RECEPTOR            *      X        Y        Z       *  (PPM)
    ------------------------*--------------------------------*---------
     1. RECP. 1             *      500.    1039.      1.8    *   0.0
     2. RECP. 2             *      948.    1039.      1.8    *   0.0
     3. RECP. 3             *     1396.    1039.      1.8    *   0.0
     4. RECP. 4             *     1396.     770.      1.8    *   0.0
     5. RECP. 5             *     1396.     500.      1.8    *   0.0
     6. RECP. 6             *     1530.     500.      1.8    *   0.0
     7. RECP. 7             *     1530.     770.      1.8    *   0.0
     8. RECP. 8             *     1680.     970.      1.8    *   0.0
     9. RECP. 9             *     1856.    1039.      1.8    *   0.1
    10. RECP.10             *     2182.    1039.      1.8    *   0.1
    11. RECP.11             *     1530.    1694.      1.8    *   0.0
    12. RECP.12             *     1530.    1425.      1.8    *   0.0
    13. RECP.13             *     1530.    1155.      1.8    *   0.1
    14. RECP.14             *     1856.    1155.      1.8    *   0.2
    15. RECP.15             *     2182.    1155.      1.8    *   0.2
    16. RECP.16             *      500.    1155.      1.8    *   0.1
    17. RECP.17             *      948.    1155.      1.8    *   0.1
    18. RECP.18             *     1280.    1260.      1.8    *   0.0
    19. RECP.19             *     1396.    1425.      1.8    *   0.0
    20. RECP.20             *     1396.    1694.      1.8    *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  3

      JOB: OHP                                                 RUN: 2040NB
```

```
        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM




       IV.  MODEL RESULTS (RECEPTOR-LINK MATRIX)


                             *
+                                                                            CO/LINK
                             *                                                (PPM)
        RECEPTOR             *   A    B    C    D    E    F    G    H    I    J    K
   L    M    N    O    P    Q    R    S    T
    -------------------------*
+
-------------------------------------------------------------------------------------
------------------
     1. RECP. 1              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     2. RECP. 2              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     3. RECP. 3              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     4. RECP. 4              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     5. RECP. 5              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     6. RECP. 6              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     7. RECP. 7              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     8. RECP. 8              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
     9. RECP. 9              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.0
    10. RECP.10              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.0  0.0  0.0
    11. RECP.11              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
    12. RECP.12              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
    13. RECP.13              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.0  0.0
    14. RECP.14              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.2  0.0  0.0  0.0  0.0  0.0
    15. RECP.15              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.2  0.0  0.0  0.0  0.0  0.0
    16. RECP.16              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.0
    17. RECP.17              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.1  0.0  0.0  0.0  0.0
    18. RECP.18              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
    19. RECP.19              *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

```
    20. RECP.20               *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

1   CALINE3   (DATED 12317)
0   CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION   PAGE 1

JOB: OHP   RUN: 2040 A

I. SITE VARIABLES

U = 1.0 M/S   CLAS =   6 (F)   VS =   0.0 CM/S   ATIM = 60. MINUTES   MIXH = 1000. M
BRG = 270. DEGREES   Z0 = 100. CM   VD =   0.0 CM/S   AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB Loop 1	1475.	0.	1475.	1097.	1097.	360.	AG	2890.	0.5	0.0	18.0
B. NB Loop 1	1475.	1097.	1475.	2194.	1097.	360.	AG	3960.	0.5	0.0	18.0
C. SB Loop 1	1451.	2194.	1451.	1097.	1097.	180.	AG	5250.	0.5	0.0	18.0
D. SB Loop 1	1451.	1097.	1451.	0.	1097.	180.	AG	3130.	0.5	0.0	18.0
E. EB290	0.	1082.	1463.	1082.	1463.	90.	AG	3830.	0.5	0.0	18.0
F. EB290	1463.	1082.	2682.	1082.	1219.	90.	AG	3290.	0.5	0.0	18.0
G. WB290	2682.	1112.	1463.	1112.	1219.	270.	AG	5260.	0.5	0.0	18.0
H. WB290	1463.	1112.	0.	1112.	1463.	270.	AG	6940.	0.5	0.0	18.0
I. NBFR	1527.	0.	1527.	1097.	1097.	360.	AG	840.	0.5	0.0	18.0
J. NBFR	1527.	1097.	1527.	2194.	1097.	360.	AG	1790.	0.5	0.0	18.0
K. SBFR	1399.	0.	1399.	1097.	1097.	360.	AG	1730.	0.5	0.0	18.0
L. SBFR	1399.	1097.	1399.	2194.	1097.	360.	AG	820.	0.5	0.0	18.0
M. EBFR	0.	1042.	1463.	1042.	1463.	90.	AG	570.	0.5	0.0	18.0
N. EBFR	1463.	1042.	2682.	1042.	1219.	90.	AG	1710.	0.5	0.0	18.0
O. WBFR	2682.	1152.	1463.	1152.	1219.	270.	AG	2400.	0.5	0.0	18.0
P. WBFR	1463.	1152.	0.	1152.	1463.	270.	AG	1010.	0.5	0.0	18.0
Q. N2E	1475.	837.	1818.	1082.	422.	54.					

```
    AG    760.   0.6   0.0  13.0
    R. W2S                  *  1793.   1112.   1451.    862. *      424.      234.
    AG   1430.   0.6   0.0  13.0
    S. E2N                  *  1133.   1082.   1475.   1327. *      421.       54.
    AG   1830.   0.6   0.0  13.0
    T. S2W                  *  1451.   1357.   1113.   1112. *      417.      234.
    AG   3560.   0.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  2

      JOB: OHP                                                RUN: 2040 A



        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM




      III.  RECEPTOR LOCATIONS AND MODEL RESULTS


                             *                               *  TOTAL
                             *       COORDINATES (M)         *  + AMB
        RECEPTOR             *      X        Y        Z      *  (PPM)
    -------------------------*-------------------------------*--------
     1. RECP. 1              *     500.    1039.      1.8    *   0.0
     2. RECP. 2              *     948.    1039.      1.8    *   0.0
     3. RECP. 3              *    1396.    1039.      1.8    *   0.0
     4. RECP. 4              *    1396.     770.      1.8    *   0.0
     5. RECP. 5              *    1396.     500.      1.8    *   0.0
     6. RECP. 6              *    1530.     500.      1.8    *   0.0
     7. RECP. 7              *    1530.     770.      1.8    *   0.0
     8. RECP. 8              *    1680.     970.      1.8    *   0.0
     9. RECP. 9              *    1856.    1039.      1.8    *   0.1
    10. RECP.10              *    2182.    1039.      1.8    *   0.1
    11. RECP.11              *    1530.    1694.      1.8    *   0.0
    12. RECP.12              *    1530.    1425.      1.8    *   0.0
    13. RECP.13              *    1530.    1155.      1.8    *   0.2
    14. RECP.14              *    1856.    1155.      1.8    *   0.3
    15. RECP.15              *    2182.    1155.      1.8    *   0.3
    16. RECP.16              *     500.    1155.      1.8    *   0.1
    17. RECP.17              *     948.    1155.      1.8    *   0.2
    18. RECP.18              *    1280.    1260.      1.8    *   0.0
    19. RECP.19              *    1396.    1425.      1.8    *   0.0
    20. RECP.20              *    1396.    1694.      1.8    *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                    PAGE  3

      JOB: OHP                                                RUN: 2040 A
```

I. SITE VARIABLES

U = 1.0 M/S   CLAS = 6 (F)   VS = 0.0 CM/S   ATIM = 60. MINUTES   MIXH = 1000. M
BRG = 270. DEGREES   Z0 = 100. CM   VD = 0.0 CM/S   AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

CO/LINK (PPM)

RECEPTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1. RECP. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. RECP. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. RECP. 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. RECP. 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. RECP. 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. RECP. 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9. RECP. 9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10. RECP.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
11. RECP.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. RECP.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. RECP.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
14. RECP.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
15. RECP.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
16. RECP.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
17. RECP.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
18. RECP.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19. RECP.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
    20. RECP.20                 *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

1 CALINE3 (DATED 12317)
0 CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL - SEPTEMBER, 1979 VERSION PAGE 1

JOB: OHP RUN: 2040 C

I. SITE VARIABLES

U = 1.0 M/S CLAS = 6 (F) VS = 0.0 CM/S ATIM = 60. MINUTES MIXH = 1000. M
BRG = 270. DEGREES Z0 = 100. CM VD = 0.0 CM/S AMB = 0.0 PPM

II. LINK VARIABLES

LINK DESCRIPTION	*	X1	Y1	X2	Y2	*	LINK LENGTH (M)	LINK BRG (DEG)	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB Loop 1	*	1475.	0.	1475.	1097.	*	1097.	360.	AG	2890.	0.5	0.0	18.0
B. NB Loop 1	*	1475.	1097.	1475.	2194.	*	1097.	360.	AG	3950.	0.5	0.0	18.0
C. SB Loop 1	*	1451.	2194.	1451.	1097.	*	1097.	180.	AG	5250.	0.5	0.0	18.0
D. SB Loop 1	*	1451.	1097.	1451.	0.	*	1097.	180.	AG	3140.	0.5	0.0	18.0
E. EB290	*	0.	1082.	1463.	1082.	*	1463.	90.	AG	3790.	0.5	0.0	18.0
F. EB290	*	1463.	1082.	2682.	1082.	*	1219.	90.	AG	3240.	0.5	0.0	18.0
G. WB290	*	2682.	1112.	1463.	1112.	*	1219.	270.	AG	5280.	0.5	0.0	18.0
H. WB290	*	1463.	1112.	0.	1112.	*	1463.	270.	AG	6940.	0.5	0.0	18.0
I. NBFR	*	1527.	0.	1527.	1097.	*	1097.	360.	AG	840.	0.5	0.0	18.0
J. NBFR	*	1527.	1097.	1527.	2194.	*	1097.	360.	AG	1790.	0.5	0.0	18.0
K. SBFR	*	1399.	0.	1399.	1097.	*	1097.	360.	AG	1730.	0.5	0.0	18.0
L. SBFR	*	1399.	1097.	1399.	2194.	*	1097.	360.	AG	830.	0.5	0.0	18.0
M. EBFR	*	0.	1042.	1463.	1042.	*	1463.	90.	AG	580.	0.5	0.0	18.0
N. EBFR	*	1463.	1042.	2682.	1042.	*	1219.	90.	AG	1760.	0.5	0.0	18.0
O. WBFR	*	2682.	1152.	1463.	1152.	*	1219.	270.	AG	2390.	0.5	0.0	18.0
P. WBFR	*	1463.	1152.	0.	1152.	*	1463.	270.	AG	1000.	0.5	0.0	18.0
Q. N2E	*	1475.	837.	1818.	1082.	*	422.	54.					

```
    AG    760.   0.6   0.0  13.0
    R. W2S                   *  1793.   1112.   1451.    862. *      424.      234.
    AG   1430.   0.6   0.0  13.0
    S. E2N                   *  1133.   1082.   1475.   1327. *      421.       54.
    AG   1830.   0.6   0.0  13.0
    T. S2W                   *  1451.   1357.   1113.   1112. *      417.      234.
    AG   3530.   0.6   0.0  13.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  2

      JOB: OHP                                                 RUN: 2040 C



        I.  SITE VARIABLES


       U =  1.0 M/S            CLAS =   6  (F)        VS =   0.0 CM/S       ATIM =
60. MINUTES                   MIXH =  1000. M
     BRG = 270. DEGREES          Z0 = 100. CM         VD =   0.0 CM/S        AMB =
0.0 PPM



      III.  RECEPTOR LOCATIONS AND MODEL RESULTS

                             *                                *  TOTAL
                             *        COORDINATES (M)         *  + AMB
        RECEPTOR             *      X        Y         Z      *  (PPM)
    -------------------------*--------------------------------*--------
     1. RECP. 1              *      500.    1039.       1.8   *   0.0
     2. RECP. 2              *      948.    1039.       1.8   *   0.0
     3. RECP. 3              *     1396.    1039.       1.8   *   0.0
     4. RECP. 4              *     1396.     770.       1.8   *   0.0
     5. RECP. 5              *     1396.     500.       1.8   *   0.0
     6. RECP. 6              *     1530.     500.       1.8   *   0.0
     7. RECP. 7              *     1530.     770.       1.8   *   0.0
     8. RECP. 8              *     1680.     970.       1.8   *   0.0
     9. RECP. 9              *     1856.    1039.       1.8   *   0.1
    10. RECP.10              *     2182.    1039.       1.8   *   0.1
    11. RECP.11              *     1530.    1694.       1.8   *   0.0
    12. RECP.12              *     1530.    1425.       1.8   *   0.0
    13. RECP.13              *     1530.    1155.       1.8   *   0.2
    14. RECP.14              *     1856.    1155.       1.8   *   0.3
    15. RECP.15              *     2182.    1155.       1.8   *   0.3
    16. RECP.16              *      500.    1155.       1.8   *   0.1
    17. RECP.17              *      948.    1155.       1.8   *   0.2
    18. RECP.18              *     1280.    1260.       1.8   *   0.0
    19. RECP.19              *     1396.    1425.       1.8   *   0.0
    20. RECP.20              *     1396.    1694.       1.8   *   0.0
0                            CALINE3: CALIFORNIA LINE SOURCE DISPERSION MODEL -
SEPTEMBER, 1979 VERSION                     PAGE  3

      JOB: OHP                                                 RUN: 2040 C
```

I. SITE VARIABLES

U = 1.0 M/S   CLAS = 6 (F)   VS = 0.0 CM/S   ATIM = 60. MINUTES   MIXH = 1000. M
BRG = 270. DEGREES   Z0 = 100. CM   VD = 0.0 CM/S   AMB = 0.0 PPM

IV. MODEL RESULTS (RECEPTOR-LINK MATRIX)

RECEPTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	CO/LINK (PPM)																			
1. RECP. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. RECP. 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. RECP. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. RECP. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. RECP. 5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. RECP. 6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. RECP. 7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. RECP. 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9. RECP. 9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
10. RECP.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
11. RECP.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. RECP.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. RECP.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
14. RECP.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
15. RECP.15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
16. RECP.16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
17. RECP.17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
18. RECP.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19. RECP.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
    20. RECP.20                *  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0  0.0
```

Appendix C
MSAT Analysis

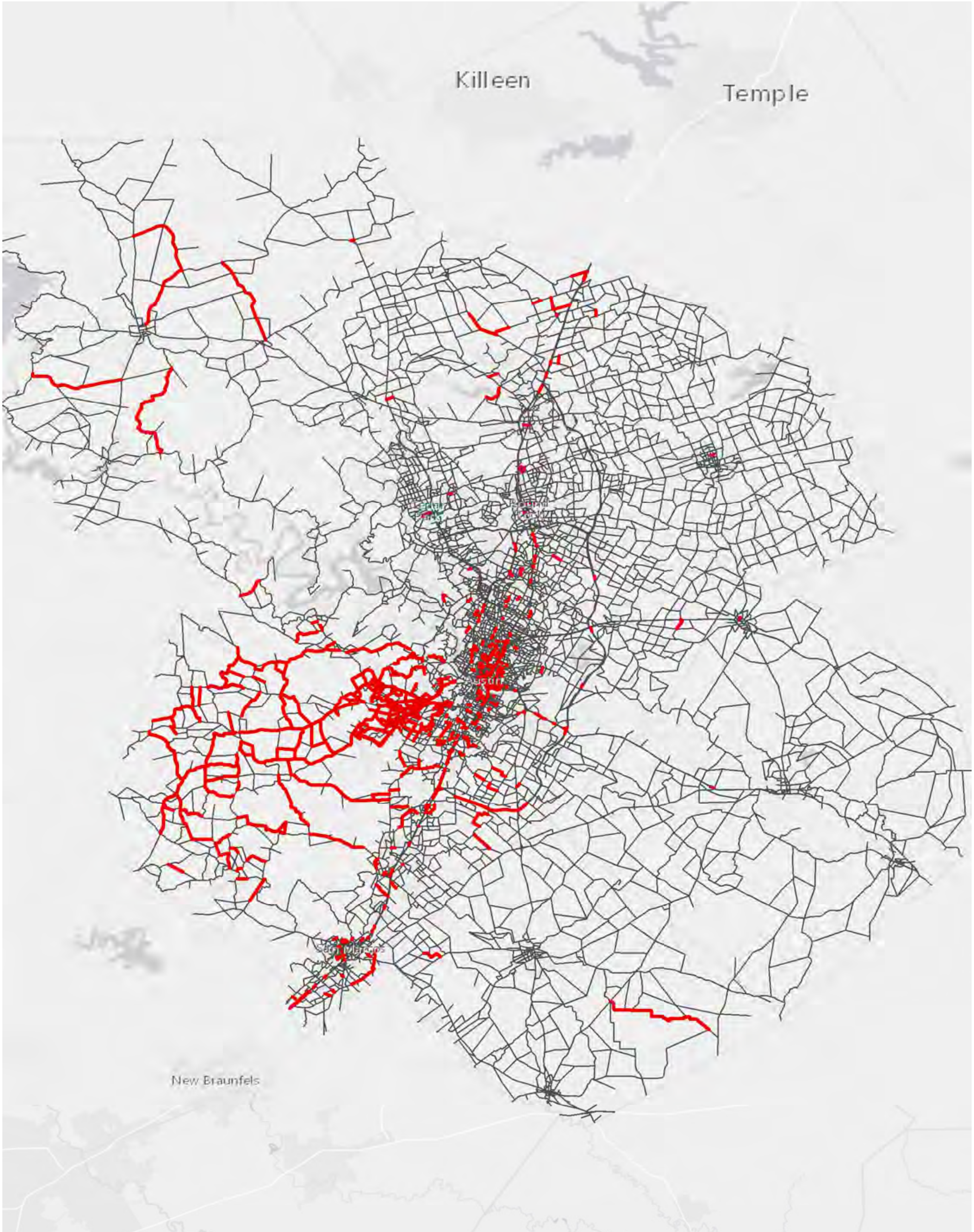

FIGURE B-1: EXISTING AFFECTED ENVIRONMENT - ALTERTATIVE A

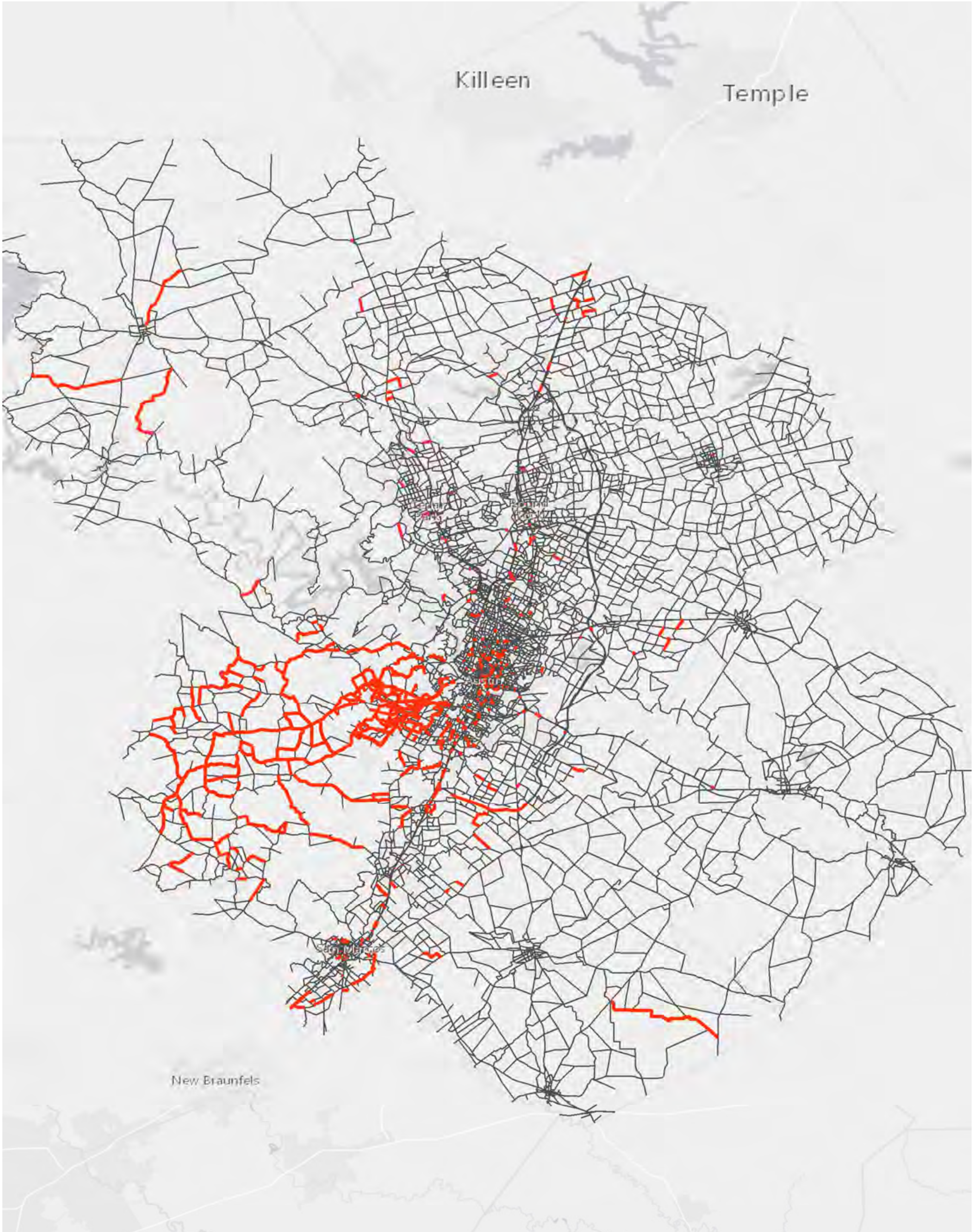

FIGURE B-2: EXISTING AFFECTED ENVIRONMENT - ALTERTATIVE C

PATH: G:\GIS_PRODUCTION\MARKETING\IRVINE\KEITH_LAY\US290\FIGURE.MXD - USER: ABURVALL - DATE: 8/9/2017

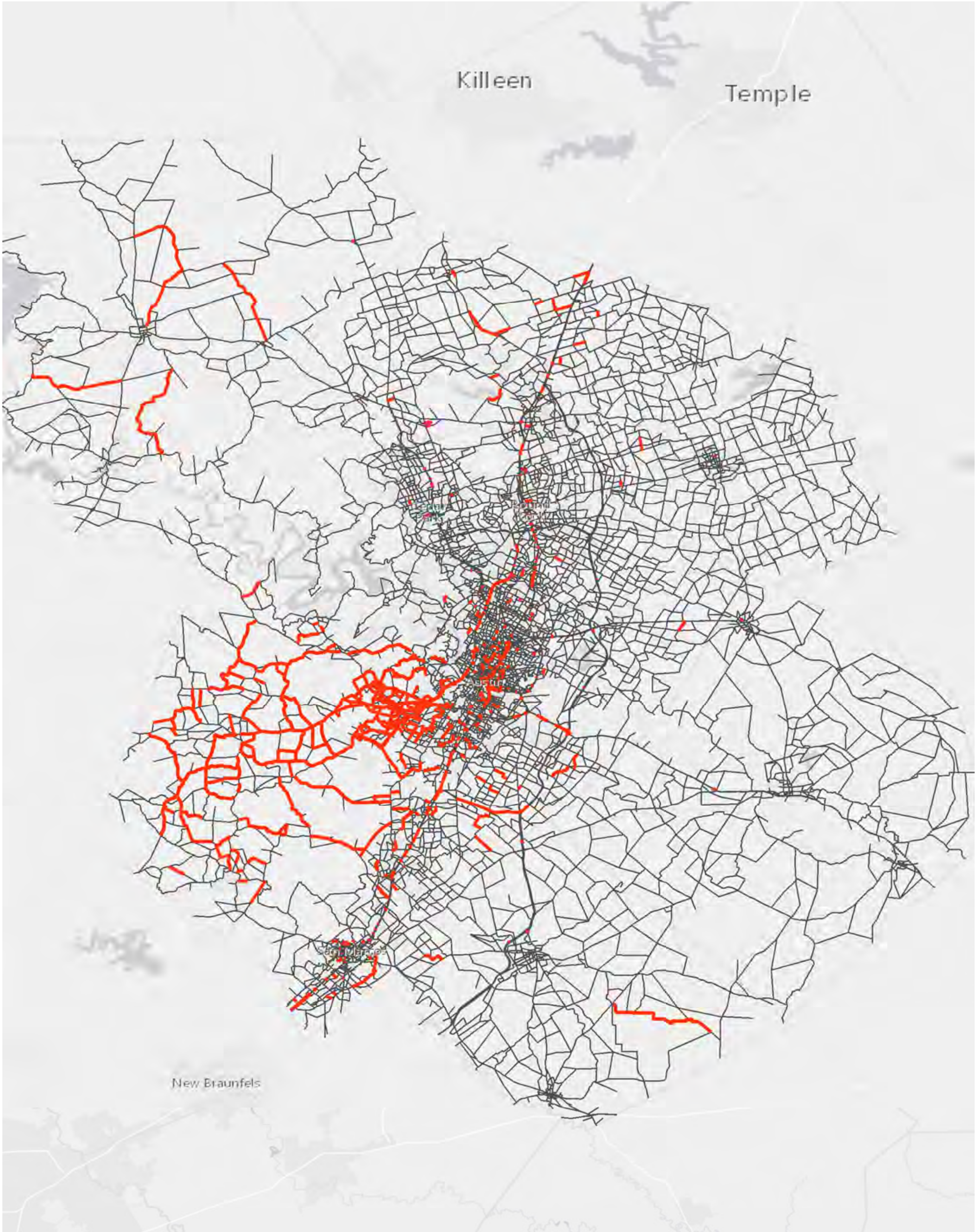

FIGURE B-3: 2040 AFFECTED ENVIRONMENT - ALTERNATIVE A

HDR

PATH: G:\GIS_PRODUCTION\MARKETING\IRVINE\KEITH_LAY\US290\FIGURE.MXD - USER: ABURVALL - DATE: 8/9/2017

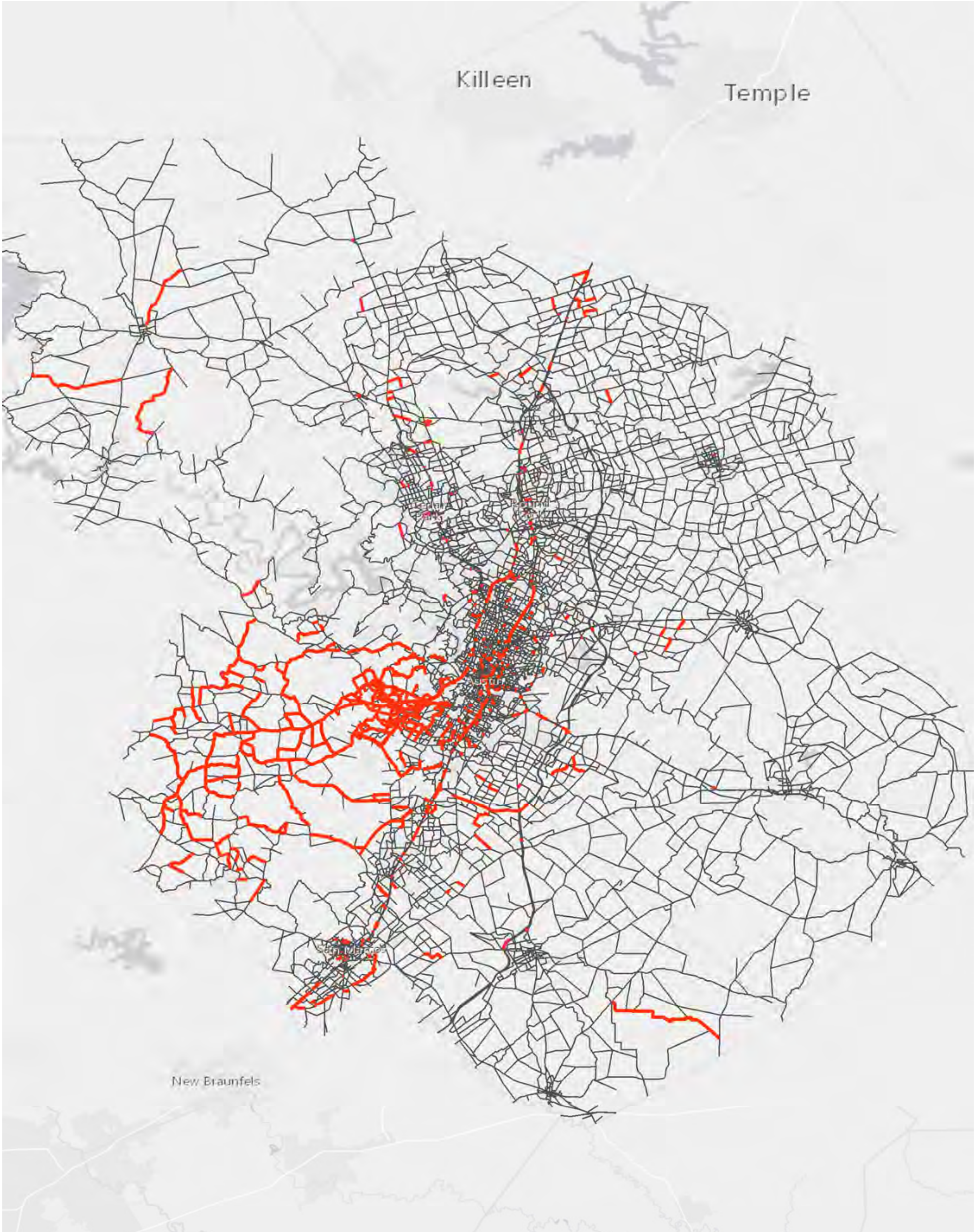

FIGURE B-4: 2040 AFFECTED ENVIRONMENT - ALTERNATIVE C

PATH: G:\GIS_PRODUCTION\MARKETING\IRVINE\KEITH_LAY\US290\FIGURE.MXD - USER: ABURVALL - DATE: 8/9/2017

Alternative A

Existing VMT =	2,607,602
No Build VMT =	6,448,070
Build VMT =	6,604,710
Existing VHT =	59,783
No Build VHT =	218,516
Build VHT =	190,122
Existing Speed (mph) =	43.6
No Build Speed (mph) =	29.5
Build Speed (mph) =	34.7

Alternative C

Existing VMT =	2,566,189
No Build VMT =	6,462,235
Build VMT =	6,614,696
Existing VHT =	58,351
No Build VHT =	218,503
Build VHT =	189,758
Existing Speed (mph) =	44.0
No Build Speed (mph) =	29.6
Build Speed (mph) =	34.9

Alternative A MSAT Emissions (Tons/year)

				Increase	
Toxic	2015 Baseline	2040 No Build	2040 Build	Existing	No Build
Benzene	3.09	1.03	0.93	-2.16	-0.10
Napthalene	0.48	0.26	0.24	-0.24	-0.02
Butadiene	0.41	0.01	0.01	-0.40	0.00
Formaldehyde	4.22	3.26	3.03	-1.19	-0.24
Acrolein	0.29	0.15	0.14	-0.15	-0.01
DPM	25.94	6.35	5.14	-20.81	-1.21
POM	0.19	0.05	0.05	-0.15	0.00
Acetaldehyde	2.08	1.06	0.98	-1.09	-0.08
Ethylbenzene	1.52	0.86	0.77	-0.75	-0.09
Total MSAT	38.23	13.03	11.28	-26.94	-1.75
Affected Network VMT	951,774,872	2,353,545,477	2,410,719,257	1,458,944,385	57,173,780

Alternative C MSAT Emissions (Tons/year)

				Increase	
Toxic	2015 Baseline	2040 No Build	2040 Build	Existing	No Build
Benzene	3.05	1.03	0.93	-2.11	-0.10
Napthalene	0.47	0.26	0.24	-0.23	-0.02
Butadiene	0.40	0.01	0.01	-0.39	0.00
Formaldehyde	4.15	3.27	3.03	-1.12	-0.24
Acrolein	0.28	0.15	0.14	-0.14	-0.01
DPM	25.53	6.36	5.15	-20.39	-1.21
POM	0.19	0.05	0.05	-0.14	0.00
Acetaldehyde	2.04	1.07	0.98	-1.06	-0.08
Ethylbenzene	1.50	0.86	0.77	-0.73	-0.09
Total MSAT	37.62	13.06	11.30	-26.32	-1.76
Affected Network VMT	936,658,869	2,358,715,617	2,414,363,978	1,477,705,110	55,648,362