APPENDIX D

AIR QUALITY ANALYSIS

JANUARY 2015

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

STATE PROJECT NO. H.010571.2/FEDERAL AID PROJECT NO. H010571

AIR QUALITY ANALYSIS

LA 70 BYPASS STAGE 1 ENVIRONMENTAL ASSESSMENT

ASSUMPTION PARISH, LOUISIANA

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Project Number 040-014-001

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ACRONYMS AND ABBREVIATIONS

CAAA	Clean Air Act Amendment
CMP	Congestion Management Process
CO	Carbon Monoxide
DOTD	Louisiana Department of Transportation and Development
EA	Environmental Assessment
FHWA	Federal Highways Administration
LA 69	Louisiana Highway 69
LA 70	Louisiana Highway 70
mph	Miles Per Hour
MSATs	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
O_3	Ozone
Pb	Lead
PM	Particulate Matter
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
STIP	State Transportation Improvement Plan
TAQA	Transportation Air Quality Analysis
USEPA	United States Environmental Protection

AIR QUALITY

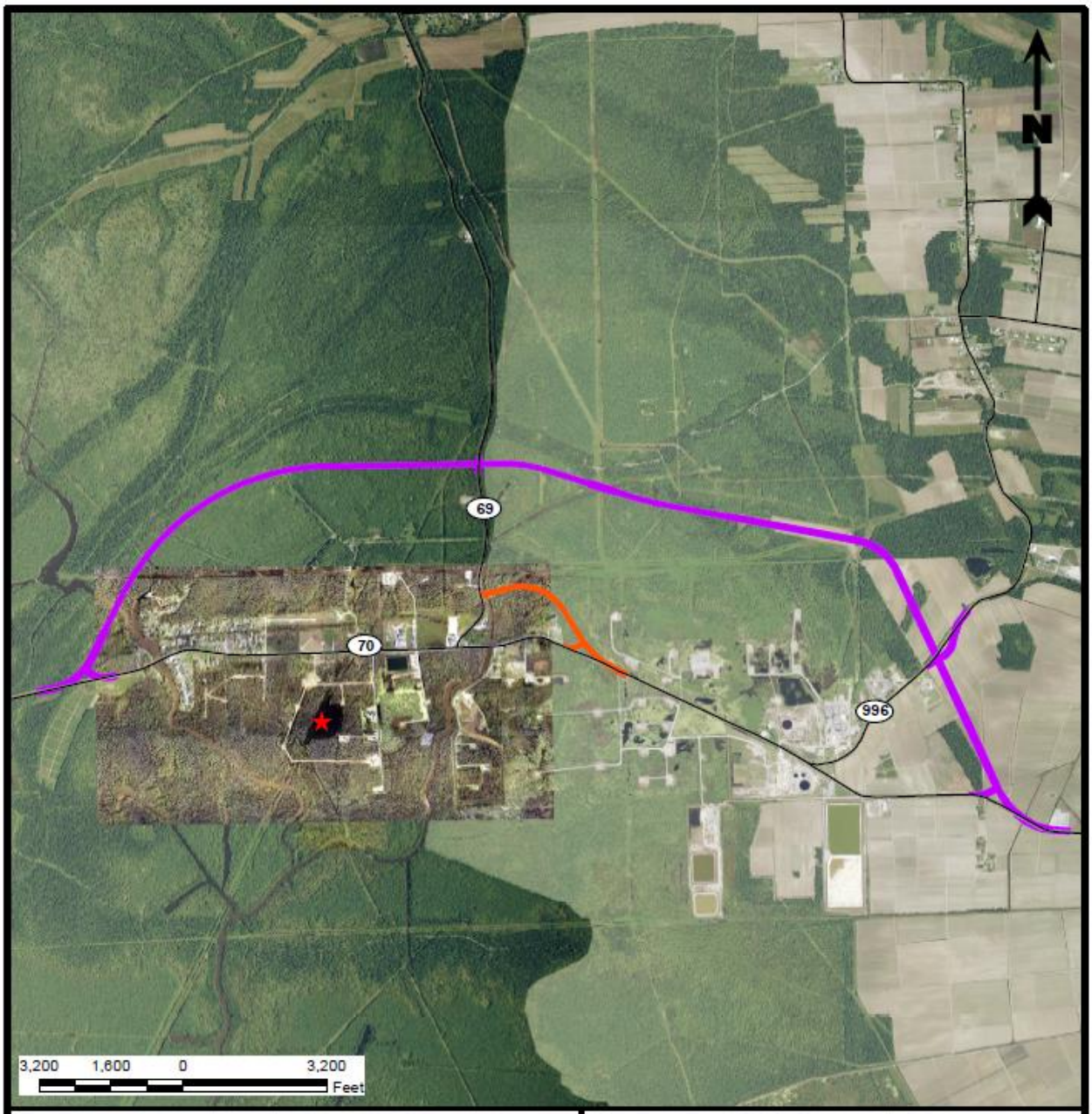
This report summarizes the results of an analysis of the potential air quality effects of the LA 70 Bypass project. The elements addressed below comply with all air quality-related provisions of the Clean Air Act, the National Environmental Policy Act, and the Federal-Aid Highways code.

1.0 PROJECT BACKGROUND

The Louisiana Department of Transportation and Development (DOTD) has proposed a permanent bypass of Louisiana Highway 70 (LA 70) in the vicinity of Louisiana Highway 69 (LA 69) in Assumption Parish. The LA 70 Bypass is proposed to provide system linkage and to protect the welfare of area residents in the event that LA 70 or the LA 70 Detour Route, which was studied under a separate Environmental Assessment (EA), is threatened as a result of the Napoleonville Salt Dome mining activities. It is assumed in this document that if the Bypass is deemed necessary, the LA 70 Detour Route is already in place.

Due to the unforeseeable circumstances surrounding the sinkhole and area subsidence, the EA recommends both Build Alternatives 3 and 4 as scenario-based Preferred Alternatives (see **Figure 1** at the end of this section). In the event the LA 70 Detour Route is constructed, but determined to be threatened and not a viable long-term facility, the EA recommends Bypass Alternative 3. However, in the event that the LA 70 Detour Route is constructed and deemed not threatened, the EA recommends Bypass Alterative 4 as a permanent bypass solution. Bypass Alternative 4 would provide intersection improvements on this state evacuation route.

Appendix A of the LA 70 Bypass EA contains the line and grade documentation for both Bypass Alternatives 3 and 4. The design criteria used for Bypass Alternative 3 follows the Rural Arterial 2 classification stated in the DOTD Roadway Design Manual. A design speed of 60 miles per hour (mph) was used for all curve computations with a maximum superelevation rate of 10%. The design criteria used for Bypass Alternative 4 matches that stated in the LA 70 Detour Route EA. For continuity, a Rural Arterial 1 classification as stated in the DOTD Roadway Design Manual was used which includes a design speed of 50 mph used for all curve computations with a maximum superelevation rate of 10%.



Legend

- Bypass Alternative 3
- Bypass Alternative 4
- Bayou Corne/Grand Bayou Sinkhole Area

Reference

Base map provided by CB&I on 4/15/14.

LA 70 Bypass Air Quality Analysis

LA 70 Bypass Traffic Noise Analysis
State Project No. H.010571.2
Assumption Parish, Louisiana

Louisiana Department
of Transportation and Development

PROVIDENCE

Drawn By	ECL	10/27/14
Checked By	MEH	1/5/15
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2.0 NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Air quality is measured by the type and level of pollutants in the air. The 1990 Clean Air Act Amendment (CAAA) requires the United States Environmental Protection Agency (USEPA) to set NAAQS (40 Code of Federal Regulations, Part 50) for pollutants considered harmful to public health and the environment, including six principal pollutants, which are called "criteria" pollutants, as shown in **Table 1**. In addition to criteria air pollutants for which there are NAAQS (listed in **Table 1**), the USEPA regulates air toxics which mostly originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories, refineries).

TABLE 1 CRITERIA POLLUTANTS

Pollutant Name	Chemical Abbreviation
Ozone	O_3
Carbon Monoxide	CO
Particulate Matter	PM
Nitrogen Dioxide	NO_2
Sulfur Dioxide	SO_2
Lead	Pb

In accordance with the CAAA, the USEPA identified those areas that did not meet the NAAQS for the criteria pollutant and designated them as “nonattainment” areas. Once the area meets the NAAQS, it is redesignated as a “maintenance” area. The proposed project is located in Assumption Parish in Louisiana, which is currently designated as attainment or unclassifiable for all NAAQS.

3.0 TRANSPORTATION CONFORMITY

Highway agencies are required to consider regional-level impacts of transportation improvement projects in the Transportation Conformity analysis and at a statewide level in the State Implementation Plan (SIP). Transportation conformity is a process required of Metropolitan Planning Organizations pursuant to the CAAA of 1990. The CAAA requires that transportation plans, programs, and projects in nonattainment areas that are funded or approved by the Federal Highway Administration (FHWA) conform to air quality goals identified in the SIP, the State’s plan to either achieve or maintain the NAAQs for a particular pollutant.

This proposed project is located within Assumption Parish and will not be included in the current Louisiana State Transportation Improvement Plan (STIP) unless they decided to construct it and at that point it would be added into the STIP prior to construction. Since Assumption Parish has been designated by the USEPA as attainment or unclassifiable for all NAAQS, transportation conformity rules do not apply.

4.0 CARBON MONOXIDE (CO) TRANSPORTATION AIR QUALITY ANALYSIS (TAQA)

CO is a colorless, odorless gas emitted from combustion processes. Nationally, and particularly in urban areas, the majority of CO emissions to ambient air come from mobile sources. CO is toxic because it combines with hemoglobin in the blood to produce carboxyhemoglobin, which reduces the blood's ability to carry oxygen.[1] At extremely high levels, CO can cause death. Since 1990, there has been a decrease in maximum CO concentrations measured across the United States. With a decline in the magnitude of maximum ambient CO concentrations nationwide, there has been a subsequent decline in the number of air monitoring stations reporting observations that exceed the CO NAAQS.[2]

Transportation projects have the potential to affect air quality by changing the number of vehicles at specific locations. Tailpipe emissions from vehicles could result in increases in ambient concentrations of CO near the project area. The proposed project is considered exempt from a TAQA because it is intended to enhance traffic safety and improve traffic flow. The proposed action would not add capacity to an existing facility. Current and future emissions should continue to follow existing trends not being affected by this project. Due to the nature of this project, further CO analysis was not required.

5.0 CONGESTION MANAGEMENT PROCESS (CMP)

This project is located in an area that is in attainment or unclassifiable for all NAAQS. Therefore, a CMP analysis is not required.

6.0 HOT-SPOT ANALYSIS

The project is not located within a CO/Particulate Matter (PM) nonattainment or maintenance area. Therefore, a project level hot-spot analysis is not required

7.0 MOBILE SOURCE AIR TOXICS (MSATS) ANALYSIS

MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted into the air when fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear, or impurities in oil or gasoline.

The proposed LA 70 Bypass project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative. Moreover, USEPA regulations for

[1] USEPA, http://www.epa.gov/air/carbonmonoxide/

[2] Jeffrey Houk and Michael Claggett, FHWA, "Survey of Screening Procedures for Project-Level Conformity Analyses", April 2004

vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with USEPA's Motor Vehicle Emission Simulator model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSATs from 2010 to 2050 while vehicle miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project

8.0 CONSTRUCTION IMPACTS

During the construction phase of this project, temporary increases in air pollutant emissions may occur from construction activities. PM (fugitive dust) from site preparation will be the primary construction-related emissions, which will only occur during the construction phase. The potential impacts of PM emissions will be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate.

9.0 SUMMARY

Conformity demonstration, the CMP, and hot-spot analysis are not required for the proposed project since the area has not been classified as nonattainment or maintenance and is in compliance with all NAAQS. The proposed project is exempt from a TAQA because it is intended to enhance traffic safety and improve traffic flow. Based on the Stage 0 Traffic Study, the April 2013 traffic counts determined that the average daily traffic totaled 7,517 on LA 70 (immediately west of the intersection of LA 69 and LA 70). The project has low potential MSAT effects since current and projected vehicle traffic does not exceed the FHWA threshold (140,000 vehicles per day). Also, emissions for the years 2018 and 2038 will likely be lower than existing levels as a result of the USEPA's national control programs, which are projected to reduce annual MSATs. Based on the results of the air quality analysis, the proposed project is not expected to cause or contribute to any violations of the NAAQS.