-MEMO-
FINAL

Date: February 21, 2019

To: Robin Rhinesmith and Crystal Geiger, Florida Department of Transportation (FDOT)

From: Lindsay Baumaister, KB Environmental Sciences, Inc.

CC: Steve Gordillo, WSP

Subject: **Air Quality Memorandum**
Interstate 275 (I-275) Project Development & Environment (PD&E) Study
From North of Dr. Martin Luther King Jr. Boulevard (SR 574) to North of Bearss Avenue (SR 678/CR 582)
Hillsborough County, Florida
Work Program Item Segment No: 431821-1

Pursuant to ***23 United States Code (U.S.C.) § 327*** and the implementing Memorandum of Understanding (MOU) executed on December 14, 2016, the Florida Department of Transportation (FDOT) has assumed and Federal Highway Administration (FHWA) has assigned its responsibilities under the ***National Environmental Policy Act (NEPA)*** for highway projects on the State Highway System (SHS) and Local Agency Program (LAP) projects off the SHS (***NEPA*** Assignment). In general, FDOT's assumption includes all highway projects in Florida which source of federal funding comes from FHWA or which constitute a federal action through FHWA. ***NEPA*** Assignment includes responsibility for environmental review, interagency consultation and other activities pertaining to the review or approval of ***NEPA*** actions. Consistent with law and the MOU, FDOT will be the Lead Federal Agency for highway projects with approval authority resting in the Office of Environmental Management (OEM).

The Florida Department of Transportation (FDOT), District Seven, is conducting a Project Development and Environment (PD&E) Study to evaluate the need for capacity and operational improvements along 7.70 miles of State Road 93 (SR 93)/Interstate 275 (I-275) from north of Dr. Martin Luther King, Jr. Boulevard/SR 574 (MLK Boulevard) to north of Bearss Avenue/SR 678/County Road (CR) 582 in Hillsborough County, Florida (Figure 1).

The objective of the Project Development and Environment (PD&E) Study is to assist FDOT in reaching a decision on the type, location, and conceptual design of the I-275 improvements to safely and efficiently accommodate future travel demand. This PD&E Study documents the need for the improvements and the steps taken to develop and evaluate improvement alternatives along with proposed typical sections, and provision of general purpose lanes with transit accommodations. The anticipated social, physical, and natural environmental effects and costs of these improvements are identified, and the

alternatives are compared on a variety of factors to identify the alternative that best balances the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies applicable state and federal requirements, including the National Environmental Policy Act, to qualify this project for federal-aid funding of future phases (design, right of way, and construction). The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process. This project was designated as ETDM Project #13854. An ETDM Final Programming Screen Summary Report was republished on February 7, 2014, containing comments from the Environmental Technical Advisory Team on the project's effects on various natural, physical, and social resources. The lead agency determined the Class of Action to be a Type 2 Categorical Exclusion.

The Build Alternative includes one additional travel lane in each direction of I-275. The proposed typical section contains four 12-foot general purpose lanes in each direction and accommodates transit on the inside shoulders. The improvements would be constructed on the existing alignment with the same existing horizontal and vertical geometries. All the proposed improvements within the I-275 project corridor would be accomplished within the existing right of way. Minimal right of way may be required at the Bearss Avenue interchange for storm water ponds.

National Ambient Air Quality Standards (NAAQS)

The proposed improvements are located in Hillsborough County, Florida, an area currently designated by the US Environmental Protection Agency (EPA) as being in attainment for all of the criteria air pollutants. Because the project is in an attainment area and the project would reduce congestion, it is not likely that the proposed improvements will have an impact on local or regional air pollutant/pollutant precursor emissions or concentrations.

The project Build and No-Build alternatives were analyzed for both the opening year and design year of the project using the FDOT's air quality screening model, CO Florida 2012 (approved by the Federal Highway Administration (FHWA) on April 12, 2013). CO Florida 2012 uses the EPA's MOVES and CAL3QHC emission rate and dispersion models to produce estimates of one- and eight-hour concentrations of carbon monoxide (CO) at default receptor locations. These concentrations can be directly compared to the one- and eight-hour NAAQS for CO (35 and 9 parts per million [ppm], respectively).

The intersection forecasted to have the highest approach traffic volume for the No-Build and the Build Alternatives for both the opening year (2025) and the design year (2045) is the I-275/Bearss Avenue intersection. Estimates of CO concentrations were predicted at default receptor locations along each leg of the intersection. Based on the results from the screening model, the highest predicted CO one- and eight-hour concentrations would not exceed the NAAQS for this pollutant regardless of alternative or year of analysis (Table 1). Therefore, the project "passes" the screening test. The CO Florida 2012 output files are attached to this memorandum.

Notably, because the I-275 project is in an area that is designated attainment for all the NAAQS, the conformity requirements of the Clean Air Act do not apply.

Figure 1. Project Location Map

Table 1
Intersection CO Screening Results for the
No-Build and Build Alternatives for the Opening Year (2025) and the Build Year (2045)
(I-275/Bearss Avenue Intersection West of I-275)

Year	Alternative	Maximum CO Levels (ppm)		Passes Screening Test?
		NAAQS one-hr/ Project one-hr	NAAQS eight-hr/ Project eight-hr	
2025	No-Build	35 / 7.9	9 / 4.7	Yes
	Build	35 / 7.9	9 / 4.7	Yes
2045	No-Build	35 / 8.3	9 / 5.0	Yes
	Build	35 / 8.3	9 / 5.0	Yes

Green House Gas Emissions

Green House Gases (GHG) cause a global phenomenon in which heat is trapped in the earth's atmosphere. Because the atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels. The burning of fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries.

To date, no national standards have been established for GHGs, nor has EPA established criteria or thresholds for ambient GHG emissions. GHGs are different from other air pollutants evaluated in the Federal environmental reviews because their impacts are not localized or regional due to their rapid dispersion into the global atmosphere, which is characteristic of these gases. The affected environment for CO_2 and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad scale actions, such as actions involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts for a particular transportation

project. Furthermore, presently there is no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.

Under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making (40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7). FHWA has concluded, based on the nature of GHG emissions and the exceedingly small potential GHG impacts of the proposed action that the GHG emissions from the proposed action will not result in "reasonably foreseeable significant adverse impacts on the human environment" (40 CFR 1502.22(b)). The GHG emission from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. More detailed information on GHG emissions "is not essential to a reasoned choice among reasonable alternatives" (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)).

Mobile Source Air Toxics (MSATs)

The EPA has identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk contributors and noncancer hazard contributors from the ***2011 National Air Toxics Assessment (NATA)***. In the ***Updated Interim Guidance on MSAT Analysis in National Environmental Policy Act (NEPA) Documents (2016)***, FHWA considers these nine compounds priority MSATs. The nine priority MSATs are acetaldehyde, acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases, ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter.

Because this project improves operations of the highway without adding substantial capacity or creating a facility that is likely to meaningfully increase MSATs emissions, a qualitative analysis was performed. A qualitative analysis provides a basis for identifying and comparing the potential differences among MSATs emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*.

For each alternative analyzed in this study, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT) if other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and may attract some trips from elsewhere in the transportation network.

This increase in VMT would lead to higher MSATs emissions for the recommended alternative along the 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 the EPA's MOVES2014 model, emissions of all priority MSATs decrease as speed increases. Additionally, emissions will likely be lower than present levels in the design year because of EPA's national control

programs that are projected to reduce annual MSATs emissions by over 90 percent between 2010 and 2050 (refer to *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, Federal Highway Administration, October 12, 2016). 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 project area are likely to be lower in the future with or without the project.

The proposed improvements may have the effect of moving some traffic closer to nearby populated areas; therefore, there may be localized areas where ambient concentrations of MSATs could be higher under the Build Alternative than the No-Build Alternative. 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 MSATs health impacts. In summary, when a highway is widened, the localized level of MSATs 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 MSATs emissions). Also, MSATs would 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, would over time cause substantial reductions that, in almost all cases, will cause region-wide MSATs levels to be significantly lower than today.

Attachments

1. **Traffic Data for Air Study Screening Test**
2. **Carbon Monoxide Screening Test Results**

PD&E
TRAFFIC DATA FOR AIR STUDY SCREENING TEST

DATE: 18-Jan-19
PREPARED BY: HNTB

Financial Project Number(s): 431821-1
Work Program Item No.:
Federal Aid Numbers (s):
Project Description: I-275 Hillsborough PD&E Study

NOTE: The most congested signalized intersection is the intersection with the highest total volume and lowest departure speeds and it could be two different intersections based on the "Build" vs. "No-Build" alternatives. The traffic volumes are to be the vph of the most congested leg approaching the intersection. The speeds are to be the cruise speed, also known as mid-block speed, for the most congested leg. If cruise speed is unknown, use the speed limit.

OPENING YEAR: 2025

"Build"		"No-Build"	
Most Congested Signalized Intersection:		Most Congested Signalized Intersection:	
Bearss Avenue (West of I-275)		Bearss Avenue (West of I-275)	
Peak hour traffic for		Peak hour traffic for	
most congested approach leg:	3172 vph	most congested approach leg:	3172 vph
Specify leg (NB, SB, EB, WB):	WB	Specify leg (NB, SB, EB, WB):	WB
Cruise Speed:	45 mph	Cruise Speed:	45 mph

DESIGN YEAR: 2045

"Build"		"No-Build"	
Most Congested Signalized Intersection:		Most Congested Signalized Intersection:	
Bearss Avenue (West of I-275)		Bearss Avenue (West of I-275)	
Peak hour traffic for		Peak hour traffic for	
most congested approach leg:	4057 vph	most congested approach leg:	4057 vph
Specify leg (NB, SB, EB, WB):	WB	Specify leg (NB, SB, EB, WB):	WB
Cruise Speed:	45 mph	Cruise Speed:	45 mph

CO Florida 2012 - Results
Monday, January 21, 2019

Project Description

Project Title	I-275 Hillsborough WPI Seg No. 431821-1			
Facility Name	I-275/Bearss Avenue Intersection West of I-275			
User's Name	LMB			
Run Name	2025 No-Build			
FDOT District	7			
Year	2025			
Intersection Type	N-S Diamond			
Speed	Arterial	45 mph	Freeway	65 mph
Approach Traffic	Arterial	3172 vph	Freeway	5065 vph

Environmental Data

Temperature	48.8 °F
Reid Vapor Pressure	13.3 psi
Land Use	Suburban
Stability Class	D
Surface Roughness	108 cm
1 Hr. Background Concentration	3.3 ppm
8 Hr. Background Concentration	2.0 ppm

Results

(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.7	3.4
2	4.7	2.8
3	6.5	3.9
4	6.1	3.7
5	6.1	3.7
6	7.9	4.7
7	7.9	4.7
8	7.4	4.4
9	4.6	2.8
10	5.9	3.5
11	5.7	3.4
12	4.7	2.8
13	6.4	3.8
14	6.0	3.6
15	6.0	3.6
16	7.8	4.7
17	7.8	4.7
18	7.4	4.4
19	4.7	2.8
20	6.0	3.6

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**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

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