PART 2, CHAPTER 16

AIR QUALITY

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AIR QUALITY

16.1 OVERVIEW

16.1.1 Purpose

This chapter describes how to evaluate the air quality effects of transportation projects. The chapter explains Florida Department of Transportation's (FDOT's) process to address existing air quality conditions within the region where a project is located; how to evaluate project specific air quality effects; and, if necessary, how to address those effects.

Motor vehicle pollutant emissions from the combustion of fossil fuels have long been tied to air quality. The primary air pollutants associated with highway motor vehicles are carbon monoxide (CO), nitrogen oxides (NOX), volatile organic compounds (VOC), and to a lesser degree particulate matter (PM_{10} and $PM_{2.5}$). Emissions of NOX and VOC also contribute to the formation of ozone, the primary component of what is commonly referred to as smog. Vehicle emission standards and continued improvement in traffic flow have reduced fleet-wide pollutant emissions over the past several decades.

FDOT's analysis of air quality effects is based on the local area's attainment status for each National Ambient Air Quality Standards (NAAQS**)** as detailed in ***Section 16.2***. It is not necessary to prepare an extensive report to document potential impacts to air quality. Rather, a brief ***Air Quality Technical Memorandum*** is prepared and placed in the project file, and the results documented in the Environmental Document for the project as well.

16.1.2 Definitions

Averaging Time – the time increments over which pollutant concentrations are measured and on which pollutant standards are based. Ambient air quality standards are specified based on the concentration of a pollutant over specific time periods, such as 1-hour, 8-hour, 24-hour, or one year. The different averaging times and concentrations are designed to protect against different exposure effects.

Budget – the estimated amount of air pollution that can occur in a particular area within a specific amount of time without causing a violation of the ambient air quality standards.

Project Level (Hot Spots) Analysis – refers to a modeling analysis used to estimate localized concentrations of one or more criteria pollutants that may exceed the national ambient air quality standards.

Primary Standards – ambient air pollution standards set to protect public health

Secondary Standards – ambient air pollution standards set to protect public welfare, such as protecting against visibility degradation and damage to animals, crops, vegetation, and buildings.

16.1.3 Clean Air Act

The ***Clean Air Act (CAA)*** as enacted in 1967, focused on technical information associated with air pollution, including research, grants, and the abatement of interstate air pollution issues. In 1970, the ***CAA*** was amended and the ***NAAQS*** were established to protect public health and welfare. The 1970 Amendments also required states to prepare and implement control plans to achieve the ***NAAQS***. In 1990, the ***CAA*** was amended to include strategies to achieve and maintain the criteria air pollutant ***NAAQS***, to reduce air pollutant and pollutant precursor emissions from mobile sources, and to provide enforcement sanctions for not achieving and maintaining the ***NAAQS***.

16.1.3.1 National Ambient Air Quality Standards

In 1970, the Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (AQPS) established primary (to protect public health) and secondary (to protect public welfare) ***NAAQS*** for six pollutants. These pollutants are referred to as the **criteria air pollutants:** ozone, nitrogen dioxide, particulate matter, sulfur oxides, carbon monoxide, and lead. The current standards are provided in ***Table 16-1***. The ***NAAQS*** show the maximum allowable concentration of a pollutant by averaging time. For example, the maximum allowable primary and secondary ambient concentration of ozone is 0.070 parts per million (ppm), averaged over an 8-hour period. The **criteria air pollutants are** described below (see ***Section 16.4*** for more information):

16.1.3.1.1 Ozone

Ozone is not usually emitted directly into the air. At ground level, ozone is created by a chemical reaction between oxides of nitrogen and volatile organic compounds in the presence of sunlight. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources emit oxides of nitrogen and volatile organic compounds. While ozone typically occurs at a regional level, no methodology currently exists to determine ozone emissions at the project level.

16.1.3.1.2 Nitrogen Dioxide

Nitrogen oxides are a group of highly reactive gases. One of these gases, nitrogen dioxide, along with particles in the air, is often seen as a reddish brown layer over urban areas. The primary sources of nitrogen oxides are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. Motor vehicles emit approximately 49 percent of the national level of nitrogen oxides.

16.1.3.1.3 Particulate Matter

Particulate matter is a term used to describe particles in the air including dust, dirt, soot, smoke, and liquid droplets. Sources that directly emit particulate matter include motor vehicles, construction activities, and unpaved roads. Particles that form in the air from chemical processes involving sunlight and water vapor include fuel combustion in motor vehicles and at power plants, and industrial processes. Particulate matter is of interest because diesel vehicles emit high levels of the pollutant and diesel particulate has been identified as a probable carcinogen (cancer causing substance) by the EPA.

There are two standards for particulate matter – one for "coarse" particles (those 10 microns or less in size – PM_{10}) and one for "fine" particles (those 2.5 microns or less in size – $PM_{2.5}$). Coarse particles are typically formed by earth-based materials (brake and tire wear) that contribute to particles of this size. Fine particles are a product of combustion.

16.1.3.1.4 Sulfur Dioxide

Sulfur dioxide belongs to a family of sulfur oxide gases. Approximately 65 percent of the sulfur dioxide released in to the air comes from electric utilities. Locomotives, large ships, and some non-road diesel equipment currently burn high sulfur fuel and emit sulfur dioxide. Overall, on-road motor vehicles are not considered a significant source of sulfur dioxide.

16.1.3.1.5 Carbon Monoxide

Carbon monoxide is a colorless, odorless gas that is formed when carbon in fossil fuels is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of carbon monoxide emissions nationally.

16.1.3.1.6 Lead

Although lead is a naturally occurring metal, motor vehicles were historically the major source of lead emissions. However, due to a phase out of leaded gasoline in the 1970s, metals processing is currently the major source of lead emissions.

16.1.3.1.7 NAAQS Designations

In accordance with the ***CAA***, all areas within the United States are designated with respect to the ***NAAQS*** as being "attainment," "non-attainment," "maintenance," or "unclassifiable." An area with air quality better than the ***NAAQS*** is designated attainment; an area with air quality conditions worse than the ***NAAQS*** is designated non-attainment. Maintenance areas are non-attainment areas that have been re-designated to attainment status. As of January 2016, all areas in Florida are designated as attainment. Finally, an area may be designated unclassifiable when there is a lack of data to form a basis of attainment status (unclassifiable areas are typically treated as attainment areas when addressing transportation conformity, ***Section 16.1.3.3***). Current information on the

status of non-attainment areas with respect to the ***NAAQS*** is available within ***EPA's Green Book (U.S. Environmental Protection Agency, 2016b)***.

Table 16-1 National Ambient Air Quality Standards (NAAQS)

Pollutant		Averaging Time	Primary[e]	Secondary[f]
Ozone		8-hour[a]	0.070 ppm[g]	0.070 ppm
Nitrogen Dioxide		1-hour[b]	100 ppb[h]	NA
		Annual Arithmetic Mean	0.053 ppm	0.053 ppm
Particulate Matter	2.5 microns or less in size	24-hour	35 µg/m^3	35 µg/m^3
		Annual Arithmetic Mean[c]	12.0 µg/m^3	15.0 µg/m^3
	10 microns or less in size	24-hour	150 µg/m^3	NA
Sulfur Oxides[d]		1-hour	75 ppb	NA
		3-hour	NA	0.5 ppm
		24-hour	0.14 ppm	NA
		Annual Arithmetic Mean	0.030 ppm	NA
Carbon Monoxide		1-hour[a]	35 ppm	NA
		8-hour[a]	9 ppm	NA
Lead		Calendar Quarter	1.5 µg/m^3	1.5 µg/m^3
		Rolling 3-Month Average	0.15 µg/m^3	0.15 µg/m^3

[a] The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard.
[b] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb.
[c] To attain this primary standard, the 3-year average of the annual arithmetic mean concentrations from single or multiple community-oriented monitors must not exceed 12.0 µg/m^3.
[d] To attain the 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75ppb.
[e] Primary standards are designed to establish limits to protect public health, including the health of "sensitive" individuals such as asthmatics, children, and the elderly.
[f] Secondary standards set limits to protect public welfare including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.
[g] ppm = parts per million
[h] ppb = parts per billion

NA = Not applicable
ppm = parts per million
ppb = parts per billion
µg/m^3 = microgram per cubic meter

Source: United States Environmental Protection Agency, 2016a

16.1.3.2 State Implementation Plans

The control plans that States prepare to address how they will achieve the ***NAAQS*** are known as ***State Implementation Plans (SIPs)***. ***SIPs*** are prepared for all areas designated non-attainment for the ***NAAQS***. They are **not prepared** for areas **designated attainment or unclassifiable**. Maintenance plans detail how an area will maintain

ambient levels of pollutants below the ***NAAQS*** once attaining a standard. ***SIPs*** (which can include maintenance plans) for the EPA's Region 4 (in which the state of Florida is located) that are or have been designated non-attainment for any of the ***NAAQS*** can be found on the EPA's website. A web link to these documents is provided in ***Section 16.4***.

Pursuant to ***Section 176 of the CAA*** no department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity that does not conform to an approved ***SIP***.

Conformity to a ***SIP*** means conforming to a ***SIP***'s purpose of eliminating or reducing the severity and number of violations of and achieving expeditious attainment of the ***NAAQS***. FDOT complies with the ***CAA*** and ***SIPs*** by requiring that projects meet the standards described in this chapter and EPA's transportation conformity requirements.

16.1.3.3 Transportation Conformity

In 1993, the EPA promulgated two sets of regulations to implement ***Section 176 of the CAA***. These are referred to as the ***Transportation Conformity and General Conformity Regulations***. ***The Transportation Conformity Regulations (40 CFR Part 93)*** apply to transportation (highway) plans, programs, and projects within non-attainment or maintenance areas that are developed, funded, or approved under ***Title 23 U.S.C.*** or the ***Title 49 U.S.C.*** *The* ***General Conformity Regulations*** are applicable to all other federal actions.

A transportation conformity determination shows that the estimated pollutant/precursor emissions associated with highway plans or programs are within the emission budgets specified in a ***SIP*** or Maintenance Plan. Metropolitan Planning Organizations (MPOs) typically perform and make the initial conformity determinations in metropolitan areas while state DOTs typically do so in rural areas. Conformity determinations are also made at the federal level by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Transportation conformity determinations are made at least every three years or, when Long-Range Transportation Plans (LRTPs) and Transportation Improvement Plans (TIPs) are updated. Transportation conformity determinations are made using estimates of the regional amount of an applicable pollutant/precursor emission for a TIP (the entire transportation network within a non-attainment or maintenance area) and forecast highway/transit operating conditions (volume and speed). If the projected emissions for a TIP do not exceed the emission budget for this type of activity, the TIP can be found to conform to a ***SIP***.

In areas designated non-attainment or maintenance for carbon monoxide and/or particulate matter, additional project level (hot spot) analysis may be necessary to determine project-level conformity. These projects must also come from a currently conforming TIP. There have been no areas within the State of Florida designated non-attainment for either carbon monoxide or the current particulate matter standards (for PM_{10} or less in size or $PM_{2.5}$ or less in size).

16.1.3.4 National Environmental Policy Act (NEPA)

Project-level air quality analysis is performed as part of the ***NEPA*** process to identify project-related impacts, and to evaluate possible mitigation, if appropriate. The analysis performed as part of the environmental review process in ***NEPA*** is not required in order to determine conformance in an area designated as non-attainment or maintenance for any of the ***NAAQS***.

The main difference between the analysis performed for the ***CAA*** (conformity) and the analysis performed for ***NEPA*** is that the analysis for the ***CAA*** is based on a comparison of predicted levels (with and without proposed improvements) while the analysis for ***NEPA*** estimates pollutant emissions/concentrations in the vicinity of a proposed project for direct comparison with the ***NAAQS***.

16.2 PROCEDURE

Both the ***CAA*** and ***NEPA*** require that air quality be considered in the preparation of Environmental Documents. The ***CAA*** requires that transportation (motor vehicle-related) projects proposed in non-attainment areas that require federal participation (e.g., approval, licensing, funding) conform to a ***SIP,*** if there are provisions in the ***SIP*** for transportation conformity. Both the ***SIP*** and ***NEPA*** require that project-related (hot-spot) impacts in all areas (attainment and non-attainment) be discussed, and if applicable, mitigation measures considered.

16.2.1 ETDM Screening

Evaluation of project effects on air quality starts during the Efficient Transportation Decision Making (ETDM) screening for qualifying projects. As part of the Preliminary Environmental Discussion (PED), the Project Manager works with the District Air Quality Specialist to identify air quality issues within the project area to determine if an air quality screening will occur. During the Planning and Programming Screens of the ETDM process, the EPA, which is a Technical Advisory Team (ETAT) member, provides comments on air quality issues. The ETAT comments are summarized in the ***Programming Screen Summary Report*** for the ETDM process. For more information, refer to the FDOT's ***ETDM Manual, Topic No. 650-000-002***. The air quality screening results that are summarized in the Programming Screen help support the development of scope of air quality analysis for a Project Development and Environment (PD&E) Study.

16.2.2 Air Quality Analysis

The level of air quality analysis during the PD&E Study varies according to the size of the project, existing air quality issues, and the degree of controversy regarding the project.

16.2.2.1 Categorical Exclusions

Projects evaluated as Categorical Exclusions (CEs) are projects that do not involve significant environmental impacts. These types of projects typically have no effect on area-wide air quality levels, but may provide some air quality benefits on a local basis. As such, FHWA has indicated that an air quality analysis is generally not necessary. (See the ***FHWA Discussion Paper: Appropriate Level of Highway Air Quality Analysis for a CE, EA/FONSI, and EIS***). See ***Section 16.4*** for links to latest models (MOVES and CAL3QHC), tools, and ***NAAQS***.

If there is some question as to whether a particular project normally processed as a CE would have an air quality impact, a screening test should be performed in accordance with ***Section 16.2.2.3.1***. If the analysis indicates that the project will not create a new violation or exacerbate an existing exceedance of the carbon monoxide standard, the project may be processed as a CE.

16.2.2.2 Environmental Assessment

Environmental Assessments (EAs) are prepared when the significance of environmental impacts associated with a project are unknown. In general a simplified analysis procedure is adequate for most EA projects. Low volume roads in rural areas do not require any analysis to determine air quality impacts. Air quality analysis for EAs for other roads are done qualitatively using a knowledge of similar projects. However, if the predicted CO concentrations exceed the standard noted in ***Table 16-1***, a more detailed analysis using computer modeling techniques should be used.

If it is not certain whether there is an air quality impact on an EA, the procedures for an Environmental Impact Statement (EIS) outlined in ***Section 16.2.2.3*** should be followed.

16.2.2.3 Environmental Impact Statement

The air quality analysis in an EIS should normally include at least the results of a screening level analysis. Each alternative, including the no-build alternative, should be analyzed. In most circumstances, the build alternatives will indicate an improvement in carbon monoxide concentrations. A flow chart illustrating the project evaluation process is provided in ***Figure 16-1***.

Ozone, nitrogen dioxide, particulate matter (not associated with construction), sulfur dioxide and lead are regional pollutants. It is not possible to estimate the individual effects of a project on these regional pollutants. Therefore, project level analyses are not required for these pollutants in either attainment or non-attainment areas.

The following sections describe the type of analysis required on a project level for attainment areas and non-attainment/maintenance areas for carbon monoxide and particulate matter criteria pollutants, as appropriate.

16.2.2.3.1 Carbon Monoxide

Attainment/Non-attainment/Maintenance Areas – Levels of carbon monoxide (CO) tend to be the highest adjacent to intersections. Application of a screening test is typically not required for smaller projects with no potential to result in CO hotspots.

Figure 16-1 documents the process for determining whether carbon monoxide screening is required on a project. When a project carbon monoxide screening test is required, intersections within the project corridor should be reviewed to evaluate the potential for a violation of the carbon monoxide ***NAAQS***. At a minimum, the intersection with a combination of the highest intersection approach volume and lowest approach speed should be screened for carbon monoxide using the latest FDOT's carbon monoxide Screening Model (***CO Florida 2012***). The screening test should be performed for future (opening year and design year) conditions with and without the proposed roadway improvements. For additional information on data requirements for the carbon monoxide screening model, see ***User's Guide to CO Florida 2012*** for the screening methodology and the Environmental Office Software Download web page (See ***Section 16.4***) for a link to download the free screening model. ***Figure 16-4*** includes a sample traffic data input sheet to be used for entering traffic data in the Screening Model.

CO Florida 2012 incorporates both the EPA's emission rates model, MOVES, and dispersion model, CAL3QHC. ***CO Florida 2012*** quickly and easily screens intersections for the ambient CO ***NAAQS***. ***CO Florida 2012*** incorporates worst case conservative assumptions including peak hour traffic, January time-frame temperatures, meteorology (wind speed, stability class, and wind angle search), and close-in receptors. If the CO ***NAAQS*** are not exceeded during screening, using the worst-case assumptions, the intersection passes the screening test and no detailed modeling has to be performed. ***CO Florida 2012*** has built in different intersection configurations that are analyzed by the screening model after certain specific inputs are entered by the user.

Should the project fail the screening test, a detailed microscale emissions rates and dispersion analysis should be performed on the intersection failing the test to insure there are no violations of the CO ***NAAQS***. The detailed microscale emissions rates and dispersion analysis should be performed using the latest versions of the EPA's MOVES and CAL3QHC models.

If the detailed microscale analysis shows that the intersection still violates the CO ***NAAQS***, mitigation should be done through changes in lanes configuration, signal timing, exclusive vehicle allowances per lane, or other techniques. Once this is done the analysis should be redone for the adjusted scenarios. Compliance with the ***NAAQS standards*** shall be achieved in order for the proposed project to proceed.

16.2.2.3.2 Particulate Matter Associated with Construction

Attainment Areas - Particulate emissions associated with construction activity (e.g. dust) should be evaluated in a project. The following statement should be included in the ***Air Quality Technical Memorandum*** for the project:

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to the ***FDOT Standard Specifications for Road and Bridge Construction***.

Non-attainment/Maintenance Areas - The EPA has developed guidance describing how to perform a quantitative hot spots analysis for PM_{10} and $PM_{2.5}$ (a link can be found in ***Section 16.4***). The EPA guidance applies to new or expanded highway or transit projects with significant increases in diesel traffic. Consequently, if any area within the State of Florida is ever designated non-attainment with respect to PM_{10} or $PM_{2.5}$, then the PM_{10}/$PM_{2.5}$ guidance would apply. First, a determination would need to be made as to whether a project would significantly increase diesel traffic. If it would, then a quantitative PM_{10}/$PM_{2.5}$ analysis would be required.

16.2.2.3.3 Greenhouse Gases

No national standards have been established regarding greenhouse gases, nor has the EPA established criteria or thresholds for greenhouse gas emissions. In 2007, the U.S. Supreme Court ruled that greenhouse gases (specifically CO_2) should be considered as pollutants under the ***Clean Air Act***. The EPA is currently determining the implications to national policies and programs as a result of the U.S. Supreme Court decision.

In the interim, FHWA has encouraged the Division Offices to develop standard qualitative language related to greenhouse gases for inclusion in Environmental Documents. The FHWA Florida Division Office and FDOT developed the standard language provided in ***Figure 16-3*** to qualitatively address greenhouse gases in environmental documents.

On August 2, 2016, the Council on Environmental Quality (CEQ) issued ***Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews***, which calls for an analysis of direct and indirect greenhouse gas (GHG) emissions from proposed federal agency actions for EAs and EISs. The guidance establishes that the level of analysis should be commensurate with the quantity of projected GHG emissions. In initial response, FHWA notified its Division Offices encouraging a Planning and Environmental Linkages (PEL) approach relying on a planning level analysis ranging from a statewide level greenhouse gas analysis to an analysis at the Metropolitan Planning Organization (MPO), corridor, or subarea planning levels. ***FHWA Transmittal of CEQ Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews Memo, August 4, 2016***. Although information and technical assistance is developing, the CEQ guidance applies to new proposed federal agency actions where an EA or an EIS commences on or after August 2, 2016.

16.3 DOCUMENTATION

16.3.1 Technical Memorandum

It is not necessary to prepare an extensive report to document the status of the project with respect to air quality. Rather, a brief ***Air Quality Technical Memorandum*** should be prepared. When final, the memorandum should be placed in the project file. The ***Air Quality Technical Memorandum*** should include:

1. A brief description of the project and the area in which the project is located (i.e., is the area primarily residential, commercial, industrial, etc.).

2. A brief description of air quality conditions within the area with respect to the ***NAAQS*** [the current EPA designation (attainment, non-attainment, maintenance, or unclassifiable) for the area (for each of the criteria air pollutants)]. It may be appropriate to cite published information regarding regional or local trend data, when such data is available and relevant to the project.

3. Confirm the project was reviewed for air quality impacts consistent with the ***FHWA Discussion Paper: Appropriate Level of Highway Air Quality Analysis for a CE, EA/FONSI, and EIS*** and provide the results of the analysis for the project alternatives (Build and No-Build). See ***Section 16.2.2.3.1*** for carbon monoxide screening requirements.

4. In attainment areas: The ***Air Quality Technical Memorandum*** should include the following statements:

   > The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

5. In non-attainment/maintenance areas: The ***Air Quality Technical Memorandum*** should identify the specific LRTP/TIP in which the project is included (i.e., Fiscal Year 2015), the project identification number, and date the conformity determination for the LRTP/TIP was approved. This and other required information can be provided by inserting the following statements in to the memorandum:

   > The project is located in an area that has been designated as non-attainment/maintenance for the averaging time National Ambient Air Quality Standard for pollutant under the criteria provided in the Clean Air Act. This project is included in the urban area's current approved conforming Transportation Improvement Plan (TIP), the area's conforming long-range plan, and the area's Conformity Determination Report. The

project's design concept and scope are the same as that which were evaluated in the conforming TIP and long-range plan.

6. Text addressing greenhouse gas emissions (see text provided in ***Figure 16-3***).

An example ***Air Quality Technical Memorandum*** is provided as ***Figure 16.2***.

16.3.2 Environmental Document

The results documented in the ***Air Quality Technical Memorandum*** are documented in the Environmental Document as described below:

1. Type 2 Categorical Exclusions - For Type 2 CEs, air quality analysis results documented in the ***Air Quality Technical Memorandum*** must be addressed in Section 6 Impact Evaluation, Item D.2 Physical/Air Quality of the ***Type 2 Categorical Exclusion Determination Form, Form No. 650-050-11*** and demonstrate whether the proposed project's impacts are significant, not significant, none, or no involvement. The purpose of this form is to provide focused documentation. The basis of decision is documented in the referenced ***Air Quality Technical Memorandum***. Also include greenhouse gases text provided in ***Figure 16-3***.

2. Environmental Assessments - The air quality analysis results documented in the ***Air Quality Technical Memorandum*** are summarized under the Physical Impacts section of the EA, including greenhouse gases text provided in ***Figure 16-3***.

3. Environmental Impact Statements

    a. Affected Environment - A brief summary statement is provided on air quality related issues, including a statement that indicates that there will not be any violations of the ***NAAQS*** for carbon monoxide.

    b. Environmental Consequences - This section should summarize results of the air quality analysis documented in the ***Air Quality Technical Memorandum*** including the text for greenhouse gases (***Figure 16-3***).

4. State Environmental Impact Report (SEIR) – If an air quality analysis is performed, the results are included in the Environmental Analysis Section of the SEIR. See (***Part 1, Chapter 10, State, Local and Privately Funded Project Delivery***) for more detail on how to prepare a SEIR.

16.4 REFERENCES

40 Code of Federal Regulations (CFR) 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans.
http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr93_main_02.tpl

42 United States Code (USC) 85 Subchapter I (Programs and Activities), Part A (Air Quality and Emission Limitations). http://uscode.house.gov/browse/prelim@title42/chapter85/subchapter1/partA&edition=prelim

CO FDOT Florida 2012 (a Florida-specific, CO Screening Model for Air Quality Analyses of Transportation Projects); User's Guide and Screening Model. http://www.dot.state.fl.us/emo/software/software.shtm

Council on Environmental Quality (CEQ). Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. August 1, 2016 Memorandum. https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance

Federal Highway Administration (FHWA), Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(F) Documents, October 30, 1987; available from the FHWA Environmental Guidebook. https://www.environment.fhwa.dot.gov/projdev/impta6640.asp

FHWA Policies and Guidance Papers. http://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance

FHWA Discussion Paper: Appropriate Level of Highway Air Quality Analysis for a CE, EA/FONSI, and EIS, March 1986. http://www.environment.fhwa.dot.gov/guidebook/vol1/doc1r.pdf

FHWA Transmittal of CEQ Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. Memo from Gloria Shepherd, August 4, 2016. http://www.fhwa.dot.gov/environment/climate_change/adaptation/policy_and_guidance/ghgnepa.cfm

Florida Department of Environmental Protection, Air Resource Management Rules, Chapter 62-204 (Air Pollution Control – General Provisions). http://www.dep.state.fl.us/air/rules/current.htm

U.S. Environmental Protection Agency (EPA), 2015a, Tier 3 Vehicle Emission and Fuel Standards Program. http://www3.epa.gov/otaq/tier3.htm

EPA, 2015b. What Are the Six Common Air Pollutants? http://www3.epa.gov/airquality/urbanair/

EPA, 2016a. National Ambient Air Quality Standards (NAAQS). http://www3.epa.gov/ttn/naaqs/criteria.html

EPA, 2016b. The Green Book Nonattainment Areas for Criteria Pollutants.
http://www.epa.gov/airquality/greenbook/

EPA, CAL3QHC Model.
http://www3.epa.gov/ttn/scram/dispersion_prefrec.htm#cal3qhc

EPA, Guidance on Hot Spots Analysis for PM_{10} and $PM_{2.5}$.
http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm

EPA, Motor Vehicle Emission Simulator (MOVES) Model.
http://www.epa.gov/otaq/models/moves/

Webpage links to additional information on:

Chapter 62-4 the Florida Administrative Code (FAC) – DEP's current air quality rules.
http://www.dep.state.fl.us/air/rules/current.htm

Florida Department of Environmental Protection - General Air Quality Publications.
http://www.dep.state.fl.us/air/publication/general.htm

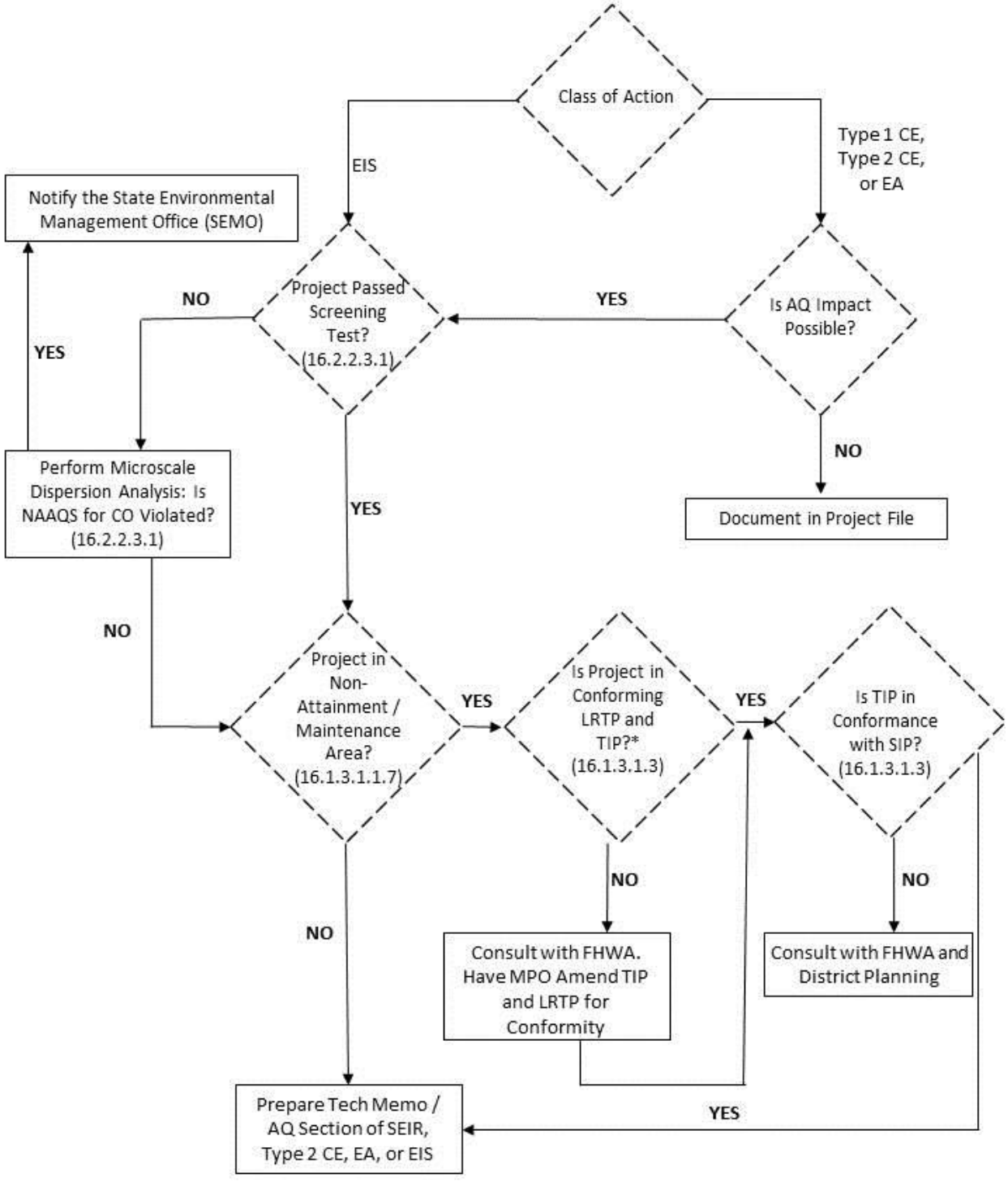
Federal Highway Administration (FHWA) Air Quality.
http://www.fhwa.dot.gov/environment/air_quality/

Federal Highway Administration (FHWA) - Transportation conformity.
http://www.fhwa.dot.gov/environment/conform.htm

US Environmental Protection Agency (EPA) - State Implementation Plans (Region 4).
http://www3.epa.gov/region4/air/sips/

16.5 HISTORY

8/18/1999, 9/13/2006



* Assumes that the project scope (concept and design) have not changed significantly from what is identified in the LRTP/TIP. If the scope has changed significantly, the MPO must reevaluate and re-conform their TIP.

Figure 16-1 Air Quality Analysis Process (for Carbon Monoxide)

AIR QUALITY TECHNICAL MEMORANDUM

Date:
To: Name, Title

From: Name, Title

Subject: Financial Management Number(s)_____
Air Quality Screening Test
Project Description,
_____County
_____

The proposed project is located in _____ County, an area currently designated as being *attainment/non-attainment/maintenance* for the following criteria air pollutant(s) *ozone/nitrogen dioxide/particulate matter (2.5 microns in size and 10 microns in size)/sulfur dioxide/carbon monoxide/lead*.

The project alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology and traffic. The Florida Department of Transportation's (FDOT's) screening model for CO uses the latest United States Environmental Protection Agency (EPA)-approved software to produce estimates of one-hour and eight-hour CO at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the current one-and eight-hour **National Ambient Air Quality Standards** (**NAAQS**) for CO.

The roadway intersection forecast to have the highest total approach traffic volume was *name of intersection*. The Build and No-Build scenarios for both the opening year (*year*) and the design year (*year*) were evaluated. The traffic data input used in the evaluation is attached to this memorandum.

Estimates of CO were predicted for the default receptors which are located 10 feet to 150 feet from the edge of the roadway. Based on the results from the screening model, the highest project-related CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour **National Ambient Air Quality Standards** (**NAAQS**) for this pollutant with either the No-Build or Build alternatives. As such, the project "passes" the screening model. The results of the screening model are attached to this memorandum.

[For projects in non-attainment or maintenance areas also include the following paragraph]
The project is located in an area that has been designated as non-attainment/maintenance for the averaging time **National Ambient Air Quality Standard** for pollutant under the criteria provided in the Clean Air Act. This project is included in the urban area's current approved conforming **Transportation Improvement Plan (TIP),** the area's conforming long-range plan, and the area's **Conformity Determination Report**. The project's design concept and scope are the same as that which were evaluated in the conforming **TIP** and long-range plan. A copy of FDOT's memorandum documenting conformity for the project is attached.

[Insert text from Figure 16.3 to address greenhouse gas (GHG) emissions]

Figure 16-2 Example Air Quality Technical Memorandum

Greenhouse Gases

Greenhouse gases (GHG) cause a global phenomenon in which heat is trapped in the earth's atmosphere. Because 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 regarding GHGs, nor has United States Environmental Protection Agency (EPA) established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO2 under the Clean Air Act. 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 CO2 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)).

Summary
This document does not incorporate an analysis of the GHG emissions or climate change effects of each of the alternatives because the potential change in GHG emissions is very small in the context of the affected environment. Because of the insignificance of the GHG impacts, those local impacts will not be meaningful to a decision on the environmentally preferable alternative or to a choice among alternatives.
For these reasons, no alternatives-level GHG analysis has been performed for this project.

Figure 16-3 Greenhouse Gases (GHG) Standard Text

TRAFFIC DATA FOR AIR QUALITY ANALYSIS

Date: _____ Prepared by: _____

Financial Management Number(s): _____

Federal Aid Number(s): _____

Project Description: _____

NOTE: Traffic data should be provided for the intersection that is forecast to have the highest total approach traffic volume. Notably, the intersection may not be the same for the Build and No-Build alternatives. The number of lanes should be the number of intersection approach through lanes. The traffic volumes should be representative of vehicles per hour (vph) and vehicle speeds should be representative of posted speeds if intersection cruise approach speeds are unknown. This traffic data sheet was prepared to assist in obtaining appropriate traffic data for the FDOT CO Florida 2004 Intersection Screening Model. Notably, additional traffic data is required for diamond interchanges (see User's Guide).

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Opening Year: _____

Intersections: Build_____ No-Build_____

Land Use: Urban_____, Suburban_____, or Rural _____

Build/ No-Build	EB			WB			NB			SB		
	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd
Build												
No-Build												

==========

Design Year: _____

Intersections: Build_____ No-Build_____

Land Use: Urban_____, Suburban_____, or Rural _____

Build/ No-Build	EB			WB			NB			SB		
	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd	No. of Lanes	VPH	Spd
Build												
No-Build												

Figure 16-4 Example Traffic Data Input Sheet