Kentucky Transportation Cabinet

Department of Highways

Division of Environmental Analysis

HOW TO ADDRESS TRANSPORTATION AIR QUALITY IN NEPA DOCUMENTS

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1. INTRODUCTION

The Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants (also known as "criteria" pollutants). NAAQS are currently set for carbon monoxide, lead, ground-level ozone, nitrogen dioxide, particulate matter, and sulfur dioxide. The CAA has established specific procedures and limitations for evaluating transportation projects within regions of the United States that have not met these standards (non-attainment areas) or do meet but have not met in the past (maintenance areas). The specific procedures, often referred to as conformity regulations, are outlined in *42 U.S.C. Part 7401* and are further detailed in federal regulations (*40 CFR Parts 51 and 93*). Conformity regulations require KYTC to assess the potential air quality impacts of all regionally significant planned and programmed transportation projects on the natural and human environment.

EPA established *National Ambient Air Quality Standards* (NAAQS) for commonly found air pollutants, called criteria pollutants, in the CAA and *1990 Clean Air Act Amendments* (CAAA). The six criteria pollutants are carbon monoxide (CO), ozone, Particulate Matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. A number of these pollutants, such as CO, PM, ozone (O_3), and NO_2 are caused by transportation-related sources.

In addition to these conformity regulation requirements, the *National Environmental Policy Act* (NEPA) is the federal act that requires environmental review of any action that has the potential to affect the environment. Specifically, transportation projects using federal-aid funds and/or requiring *Federal Highway Administration* (FHWA) approval actions must be evaluated for the potential impacts the actions will have on the natural and human environment. Air quality is one of several elements within the human environment to be considered as part of a NEPA evaluation. The NEPA requirements regarding project-level air quality analysis are outlined in *23 CFR Part 771*.

This checklist will help the NEPA practitioner determine the necessary steps and language to document air quality information in the NEPA document. This checklist is only intended as a tool to assist in the preparation of NEPA documents and does not replace any regulatory requirements.

1.1. GENERAL REQUIREMENTS

As the NEPA document is a public disclosure document, as well as a regulatory document, the *Air Quality* portion of the NEPA document should contain a brief discussion of all transportation-related air quality concerns in the project area, including:

1) transportation criteria pollutants,

2) land use adjacent to the project where those land uses may impact air quality,
3) mitigation (if required), as well as a discussion of
4) cumulative and indirect impacts.

1.2. GUIDANCE AND PLANNING LEVEL CONFORMITY SOURCES USED IN NEPA DOCUMENTS

For the NEPA document preparation, except for Categorically Excluded or Exempt Projects (see Appendices A and B), each criteria pollutant and Mobile Source Air Toxics (MSAT) should be addressed. Each criteria pollutant and MSAT has a section to assist in addressing each air quality concern.

In the preparation of the air quality sections of NEPA documents it may be necessary to show that the proposed project is a part of a conforming transportation plan in order to meet the air quality regulatory requirements. States utilize system-level planning as part of the EPA approved air quality *State Implementation Plan* (SIP) development to demonstrate how the state will improve air quality. Additionally, transportation plans and projects demonstrate conformity through planning level documents. These conformity documents are typically the Statewide Transportation Improvement Plan (STIP) for areas outside of a Metropolitan Planning Organization (MPO) area. Projects within the boundaries of an MPO demonstrate conformity in the MPO's Transportation Implementation Plan (TIP). The project reference in the STIP or TIP is required to show conformity as described in sections below. The current STIP can be found at the KYTC's Program Management website[1]. The TIP documents are available from the MPO's directly (refer to KYTC's Metropolitan Planning website[2] for information on the MPO's). If the project is not in either of those plans or their corresponding amendments, please contact the KYTC project manager in order to add this project to the current planning document(s). The addition of a project to the STIP or TIP is done through a plan amendment and can take weeks to months to accomplish depending on the scope of the project and therefore the inclusion in a transportation plan, if necessary, should be evaluated early in the NEPA process.

1.3. DEFINITIONS

The following definitions apply to the terms used within this document:

1) **AIR QUALITY CONFORMITY**. Conformity demonstrates that future transportation projects created emissions will be less than the budget or baseline. Conformity is a

[1] KYTC, "Program Management," accessed August 4, 2020. https://transportation.ky.gov/Program-Management/Pages/default.aspx
[2] KYTC, "Metropolitan Planning," accessed August 4, 2020. https://transportation.ky.gov/Planning/Pages/Metropolitan-Planning.aspx

series of calculations, using transportation data and EPA's emissions model (currently MOVES_2014b).

2) **ATTAINMENT AREA**. A geographic area in which levels of a criteria air pollutant meet or exceed the health-based primary standard (national ambient air quality standard, or NAAQS). Any area may have an acceptable level for one air pollutant, but may have unacceptable levels for others.
3) **CARBON MONOXIDE (CO)**. A criteria air pollutant. A colorless, odorless, poisonous gas, produced by incomplete burning of carbon- based fuels, including gasoline, oil, and wood.
4) **CLEAN AIR ACT (CAA)**. The Clean Air Act was initially passed in 1963, but current national air pollution control program is based on the 1970 version of the law. The 1990 Clean Air Act Amendments are the most far-reaching revisions of the 1970 law.
5) **CONGESTION MITIGATION & AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)**. A categorical Federal-aid funding program that directs funding to projects that contribute to meeting the National Ambient Air Quality Standards.
6) **CRITERIA AIR POLLUTANT**. One of six principle air pollutants determined to be hazardous to human health and regulated under EPA's NAAQS. The six criteria air pollutants are carbon monoxide, lead, nitrogen oxides, ozone, sulfur oxides, and particulate matter. The term "criteria pollutants" derives from the requirement that EPA must describe the characteristics and potential health and welfare effects of these pollutants. It is on the basis of these criteria that standards are set or revised.
7) **EXCEEDANCE**. A measured level of an air pollutant higher than the NAAQS.
8) **FEDERAL HIGHWAY ADMINISTRATION**. A federal agency under the United States Department of Transportation.
9) **GREENHOUSE GASES (GHGS)**. Any gas that absorbs infrared radiation in the atmosphere.
10) **HIGHWAY PERFORMANCE MANAGEMENT SYSTEM (HPMS)**. A program developed by FHWA to inventory the Vehicle Miles Traveled (VMT) statewide and project future travel. Division of Planning develops the annual submittal to FHWA.
11) **HYDROCARBONS (HC)**. A result when unburned or partially burned fuel is emitted from the engine as exhaust, and when fuel evaporates directly into the atmosphere. Hydrocarbons also react with nitrogen oxides in the presence of sunlight to form ozone (O_3), also known as Volatile Organic Compounds (VOC).
12) **ISOLATED RURAL NONATTAINMENT AND MAINTENANCE AREAS**. Areas that do not contain or are not part of any metropolitan planning area as designated under the transportation planning regulations. Projects in such areas are instead included in the Statewide Transportation Improvement Program (STIP) and Statewide Long-Range Plan.

13) **KENTUCKY DIVISION FOR AIR QUALITY (KY DAQ)**. Is a section of the state's Energy and Environmental Cabinet (EEC).
14) **LEAD**. A criteria air pollutant. A gray-white metal that is soft, malleable, ductile, and resistant to corrosion. Sources of lead resulting in concentrations in the air include industrial sources and crustal weathering of soils followed by fugitive dust emissions.
15) **LONG-RANGE TRANSPORTATION PLAN (LRTP)**. A document resulting from regional or statewide collaboration and consensus on a region or state's transportation system, and serving as the defining vision for the region's or state's transportation systems and services. In metropolitan areas, the plan indicates all of the transportation improvements scheduled for funding over the next 20 years.
16) **MAINTENANCE AREA**. A geographic area of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAAA.
17) **MAINTENANCE PLAN**. Areas that have been designated as nonattainment but have since demonstrated that they are meeting the standard, can be re-designated by EPA as "attainment with an approved maintenance plan." The maintenance plan must show how the area will continue to meet the standard and must contain "budgets" or maximum mobile source emissions for future years for the pollutants in question.
18) **METROPOLITAN PLANNING ORGANIZATION (MPO).** An organization designated by the Governor responsible for transportation planning in an urbanized area. It serves as the forum for cooperative decision making by principal elected officials of local government. The Governor designates an MPO in every urbanized area with a population of over 50,000 people.
19) **METROPOLITAN TRANSPORTATION PLAN (MTP)**. The official intermodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the metropolitan planning area. See Long Range Transportation Plan.
20) **MOBILE SOURCE**. Vehicles, engines, and other machines that move, such as cars, boats, and lawnmowers are collectively known as mobile sources. Mobile sources are further divided into on-road and non-road. Regulations differ for the two categories.
21) **NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)**. Standards established by EPA that apply to outdoor air throughout the country. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. EPA has set NAAQS for the six criteria pollutants.

22) **NITROGEN OXIDES (NO_x)**. A criteria air pollutant. Nitrogen oxides are produced from burning fuels, including gasoline and coal. Nitrogen oxides are smog-formers, which react with volatile organic compounds to form smog. Nitrogen oxides are also major components of acid rain.
23) **NONATTAINMENT AREA**. A geographic area in which the level of a criteria air pollutant is higher that the level allowed by the federal standards. A single geographic area may have acceptable levels of one criteria air pollutant but unacceptable levels of one or more other criteria air pollutants; thus, an area can be both attainment and nonattainment at the same time.
24) **NON-ROAD EMISSIONS**. Pollutants emitted by a variety of non-road sources such as farm and construction equipment, gasoline-powered lawn and garden equipment, power boats and outboard motors.
25) **ON-ROAD EMISSIONS**. Vehicles that are intended by their manufacturer for use on public highways. On-road vehicles must be certified by their manufacturer with the U.S. Department of Transportation (DOT), National Highway Traffic Administration (NHTSA), as compliant with on-highway safety standards as well as certified to all applicable U.S. EPA on-road emission standards. Compliance with these standards is indicated by separate safety and emissions labels on the vehicle.
26) **OZONE(O_3)**. A criteria air pollutant. A gas which is a variety of oxygen. The oxygen gas found in the air consists of two oxygen atoms stuck together; this is molecular oxygen. Ozone consists of three oxygen atoms stuck together into an ozone molecule. Ozone occurs in nature; it produces the sharp smell you notice near a lightning strike. High concentrations of ozone gas are found in a layer of the atmosphere--the stratosphere--high above the Earth. Stratospheric ozone shields the Earth against harmful rays from the sun, particularly ultraviolet B. Smog's main component is ozone; this ground-level ozone is a product of reactions among chemicals produced by burning coal, gasoline and other fuels, and chemicals found in products including solvents, paints, hair sprays, etc.
27) **PARTICULATES/PARTICULATE MATTER (PM)**. A criteria air pollutant. Solid particles or liquid droplets suspended or carried in the air. PM_{10} refers to particles in the atmosphere with a diameter of less than ten or equal to 10 micrometers. $PM_{2.5}$ refers to smaller particles in the air (i.e., less than or equal to 2.5 micrometers in diameter).
28) **PARTS PER BILLION (PPB)**. A measure of an air pollutant concentration.
29) **PARTS PER MILLION (PPM)**. A measure of an air pollutant concentration.
30) **STATE IMPLEMENTATION PLAN (SIP)**. A detailed document of the programs a state will use to carry out its responsibilities under the Clean Air Act. State implementation plans are collections of the regulations used by a state to reduce air pollution. The Clean Air Act requires that EPA approve each state implementation plan. Members of the

public are given opportunities to participate in review and approval of state implementation plans.

31) **STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)**. A multi-year, statewide, intermodal program of transportation projects, consistent with the statewide transportation plan and planning processes as well as MTPs, TIPs, and processes.

32) **SULFUR DIOXIDE (SO_2)**. A criteria air pollutant. Sulfur dioxide is a gas produced by burning coal, most notable in power plants. Some industrial processes, such as production of paper and smelting of metals, produce sulfur dioxide. Sulfur dioxide is closely related to sulfuric acid, a strong acid. Sulfur dioxide plays and important role in the production of acid rain. While two areas in Kentucky have been identified as nonattainment for sulfur dioxide (SO_2), sulfur dioxide sources include stationary sources and non-road diesel sources such as diesel trains and non-road diesel equipment. No meaningful quantities are emitted by mobile sources and consideration in transportation NEPA documents is not necessary.

33) **TRANSPORTATION IMPROVEMENT PROGRAM (TIP)**. A document prepared by a metropolitan planning organization that lists projects to be funded with FHWA/FTA funds for the next one- to three-year period.

34) **UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA)**. A federal agency established to coordinate programs aimed at reducing pollution and protecting the environment.

2. TRANSPORTATION CRITERIA POLLUTANTS

The NAAQS have been established for the following transportation criteria pollutants and their precursors (pollutants that contribute to the formation of other pollutants): The NEPA document should address all transportation pollutants listed in Table 1.

TABLE 1: TRANSPORTATION CRITERIA POLLUTANTS

Criteria Pollutant	Direct Emissions	Precursors			
		NO_x	VOC*	NH_3*	SO_2#
CO	X				
O_3		X	X		
$PM_{2.5}$	X		X	X	X
PM_{10}	X	X	X		
NO_2		X			

Legend:

* If deemed significant by the State Air Quality Agency.

Not a mobile source related pollutant and not evaluated in transportation NEPA.

Notes: The following pages provide sample dialogue for each of the items listed above.

IF the project is in a transportation air quality nonattainment or maintenance area for any of the criteria pollutants,

THEN include a discussion of the designation and attainment status for each pollutant.

IF the project is in a transportation air quality nonattainment or maintenance area for CO, $PM_{2.5}$, or PM_{10},

THEN include a project-level conformity determination for that pollutant may be necessary in the final NEPA document. Ozone is a regional pollutant and addressed through a conforming transportation plan.

2.1. CARBON MONOXIDE (CO)

The Carbon Monoxide (CO) levels have been drastically reduced throughout the country and Kentucky no longer has any maintenance areas for CO and the entire state is in attainment for

CO. Though the entire state is in attainment for CO, very large urban projects could have the potential for localized CO issues. Therefore, the following procedures[3] are in place for CO:

IF a Federal project is:

- A signalized intersection with a projected open to traffic year average daily traffic (ADT) greater than 80,000 vehicles per day at the intersection, or
- Controversial,

THEN

- In the event that a project level CO analysis is requested for a large urban project with AADT exceeding 80,000, the project parameters may indicate that the project is categorically covered and therefore the project should be evaluated with respect to the Federal Highway Administration Carbon Monoxide Categorical Hot-Spot Finding with MOVES2014a[4], and the associated tool[5], to determine if an individual CO hot-spot analysis is necessary. If the results from screening tool do not categorically cover the CO analysis, then a project level analysis is required. Any CO project level analysis should be made using an approved dispersion model (MOVES2014b, CAL3QHC, AERMOD Modeling System, or other approved model.).
- Include the CO Categorical or model results.

ELSE Insert the following statement:

> **"Based on the data from current emissions models and the KYTC CO Screening Criteria, a project level CO analysis is not required for the project. All areas in Kentucky are in attainment for CO."**

Primary Standard: 8-hr average < 9ppm; 1-hr average < 35 ppm, not to be exceeded more than once per year.

Secondary Standard: None.

[3] KYTC Division of Planning, "Kentucky CO Screening Procedure for NEPA Background Documentation," 11/08/2007.
[4] FHWA. "Federal Highway Administration Carbon Monoxide Categorical Hot-Spot Finding Memo," accessed July 29, 2020. https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2017/hotspot_memo.cfm
[5] FHWA. "Carbon Monoxide Categorical Hot-Spot Finding Tool," accessed July 29, 2020. https://www.fhwa.dot.gov/environment/air_quality/conformity/policy_and_guidance/cmcf_2017/tool.cfm

2.2. OZONE (O_3)

Ozone is primarily a regional pollutant; it is evaluated in transportation planning as part of the air quality State Implementation Plan (SIP) development and conformity process. Through the Transportation Improvements Program (TIP)/SIP evaluation process, this pollutant is evaluated on a regional level, but is not a concern as a hot-spot pollutant.

The update to the 2008 ozone NAAQS in 2015 identified areas in/near Louisville, KY, and Cincinnati, OH that were in nonattainment for the 8-hour ozone standard. These areas are shown in Figure 2.2-1 and the GIS layer containing these areas is available on the EPA website[6].

In addition to the 2015 standards, a February 16, 2018 decision from the United States Court of Appeals ruled that areas that were in nonattainment or maintenance for the 1997 ozone standard that were designated attainment for the 2008 ozone standard, which was later vacated, are still required to demonstrate conformity. These ozone "orphan areas" are required to show conformity after February 16, 2019 for: new or amended STIP or TIP documents; new non-exempt FHWA projects; and non-exempt FHWA projects where conformity was determined but the was a significant change in the project's design concept and scope. These areas are shown on Figure 2.2-1 and a GIS layer is available on the EPA website[7].

IF a Federal project is located in an area that requires a conformity determination for ozone:

THEN

- Specify area and include discussion of 8-hr ozone designation and attainment status,
- Indicate which Transportation Control Measures (TCMs) are included in the State Implementation Plan (SIP), and (Note: Currently there are no TCM's in the SIP)
- List name of "Conforming" TIP and plan, or STIP. Include the page number on which project is listed. The project's design concept and scope **must** be consistent with the project as modeled for TIP and plan.
- Include the following statement:

  "This project included in a transportation plan that demonstrates air quality conformity and therefore this project has been addressed for ozone."

[6] EPA. "Nonattainment Areas for the 2015 Ozone Standards," accessed August 4, 2020. https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=d37c4a84a023422e8a24272dd8875f56
[7] EPA. "Nonattainment Areas for the 1997 Ozone Standards (Revoked)," accessed August 4, 2020. https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=13231f1bb1344425bb18833668f309a3

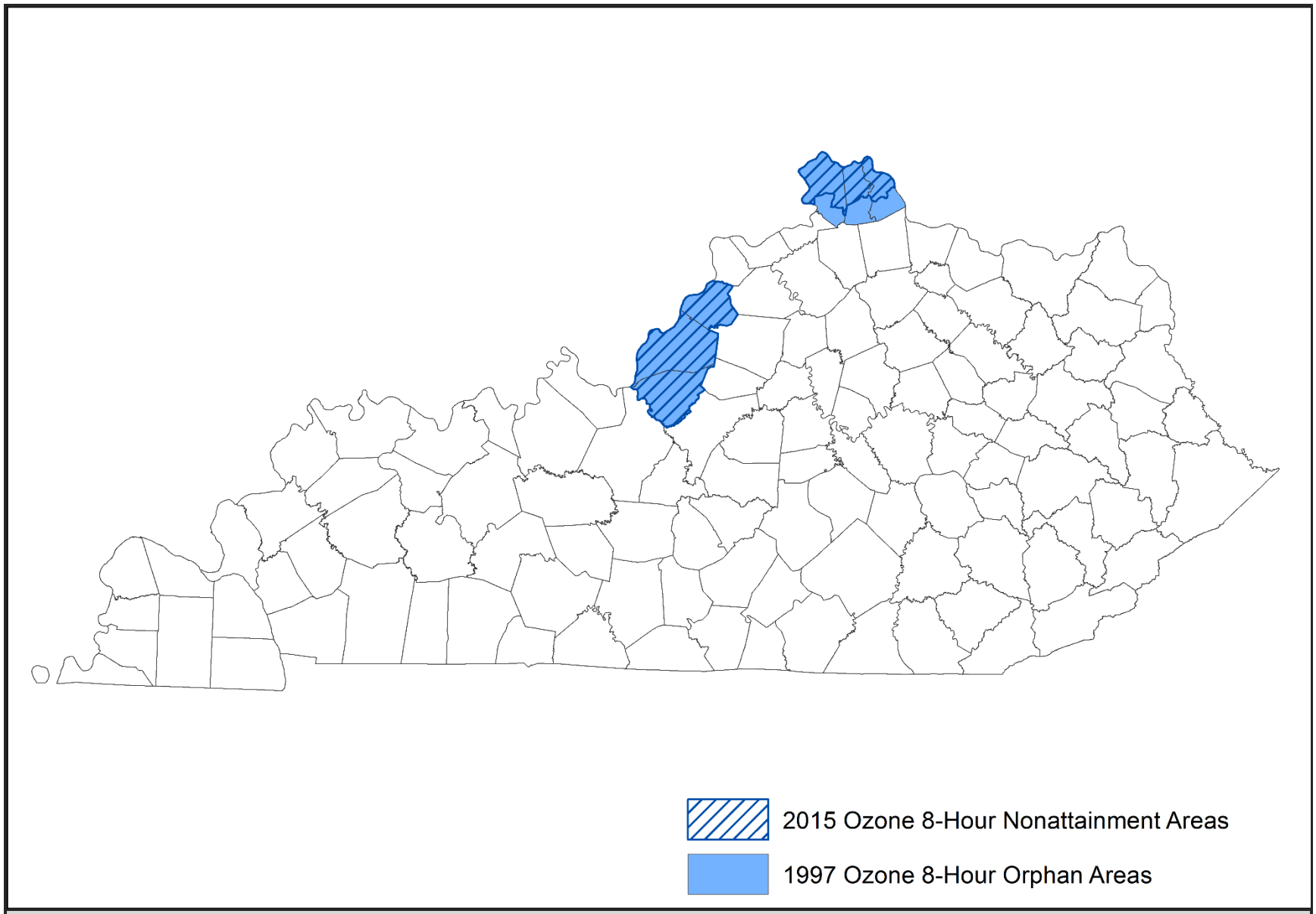

Figure 2.2-1. Kentucky's NAAQS for Ozone

ELSE

- Include the following statement:

  "This project is located in an ozone attainment area and is not a project-level concern."

Primary Standard: Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years < 0.070 ppm.

Secondary Standard: Same as Primary Standard. Particulate Matter$_{2.5}$ ($PM_{2.5}$)

2.3. PARTICULATE MATTER$_{2.5}$ ($PM_{2.5}$)

All areas are in attainment for the revised 2012 $PM_{2.5}$ standard.

IF a Federal project:

THEN

- Include the following statement:

  "All areas in Kentucky are in attainment for $PM_{2.5}$. Therefore, the conformity procedures of 40 CFR 93 do not apply to this project and no project level hot-spot analyses are necessary."

Primary Standard: Annual mean, averaged over 3 years < 12.0 µg/m3
Daily 24-hr average, 98th percentile, averaged over 3 years < 35 µg/m3

Secondary Standard: Annual mean, averaged over 3 years < 15.0 µg/m3
Daily 24-hr average, 98th percentile, averaged over 3 years < 35 µg/m3

2.4. PARTICULATE MATTER$_{10}$ (PM_{10})

All areas in Kentucky are in attainment for the 1987 PM_{10} standard.

IF a Federal project:

THEN

- Include the following statement:

"All areas in Kentucky are in attainment for PM_{10}. Therefore, the conformity procedures of 40 CFR 93 do not apply to this project and no project level hot-spot analyses are necessary."

Primary Standard: Daily, 24-hr average < 150 µg/m3, not to be exceeded more than 1x/ year on average over 3 years.

Secondary Standard: Same as Primary Standard.

2.5. NITROGEN DIOXIDE (NO_2)

All areas in Kentucky are in attainment for the 1971 NO_2 standard.

IF a Federal project:

THEN

- Include the following statement:

  "All areas in Kentucky are in attainment for Nitrogen Dioxide (NO_2) and project level conformity determinations are not necessary."

Primary Standard: 98th percentile of 1-hr daily maximum concentrations, averaged over 3 years < 100 ppb. Annual mean over a calendar year < 0.053 ppb.

Secondary Standard: Annual mean over a calendar year < 0.053 ppb.

3. MOBILE SOURCE AIR TOXICS (MSAT)

IF a Federal project,

AND

- Project is a(n)
  - Categorical Exclusions under *23 CFR 771.117 (c)* (*see Appendix A*),
  - Exempt Project under *40 CFR 93.126* (see *Appendix B*), or
  - Project with no meaningful impacts on traffic volumes or vehicle mix.

THEN

- Project is considered to be ***"NO POTENTIAL FOR MEANINGFUL MSAT EFFECTS"***.
- Analysis is not required.
- Include an explanation of why the project qualifies under this category. Guidance and example language can be found in FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (MSAT Guidance), which is provided at KYTC's Division of Environmental Analysis (DEA) "Air Quality" website[8].

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ELSE IF a Federal project,

AND

- Project is **NOT** considered to be a(n)
  - "Exempt or No Potential for Meaningful MSAT Effects", or
  - "Higher Potential for Meaningful MSAT Effects".

THEN

- Project is considered to be ***"LOWER POTENTIAL FOR MEANINGFUL MSAT EFFECTS"***.
- It is anticipated that most highway projects that need an MSAT assessment will fall into this category. Examples of these types of projects are minor widening projects; new interchanges; replacing a signalized intersection on a surface street; and projects where design year traffic is projected to be less than 140,000 to 150,000 AADT.
- A **Qualitative Analysis** is required. Example language can be found in FHWA's MSAT Guidance, which is provided at KYTC DEA "Air Quality" website.

[8] KYTC DEA, "Air Quality", accessed August 4, 2020.
https://transportation.ky.gov/EnvironmentalAnalysis/Pages/Air-Quality.aspx

- Discussion of information that is incomplete or unavailable is required. Example language can be found in FHWA MSAT Guidance, which is provided at KYTC DEA's "Air Quality" website linked above.

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ELSE IF a Federal project,

AND

- Project will either:
    - Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
    - Create new or additional capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the highest AADT, anywhere along the project corridor, is projected to be 140,000 to 150,000 AADT or greater by the design year.

  And also
    - Is proposed to be located in proximity to populated areas.

THEN

- Project is considered to be ***"HIGHER POTENTIAL FOR MEANINGFUL MSAT EFFECTS"***.
- A Specific Approach for Assessing Impacts with input from Federal Highway Administration Headquarters (FHWA-HQ) is required.
    - Contact Division Office (502-223-6729) to work with
        - FHWA-HQ's Office of Natural Environment (HEPN) and the
        - FHWA-HQ's Office of Project Development and Environmental Review (HEPE).
    - A **Quantitative Analysis** is required to forecast local-specific emissions trend of the priority MSATs for each alternative, for comparison purposes.
    - The Nine Priority MSATs are:
        - Acrolein
        - Acetaldehyde
        - Benzene
        - Ethylbenzen
        - Butiadiene
        - Diesel Particulate Matter
        - Formaldehyde
        - Naphthalene
        - Polycyclic Organic Matter

(Note: Analysis may address potential for cumulative impacts and identification of mitigation options.)

- Discussion of information that is incomplete or unavailable is required. Example language can be found in FHWA MSAT Guidance, which is provided at KYTC DEA's "Air Quality" website linked above.

4. CLIMATE CHANGE AND IMPACTS OF GREENHOUSE GASES (GHG)

In an April 5, 2017 notice in the Federal Register, the *Council on Environmental Quality* (CEQ) withdrew its August 2016 "*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 described how agencies should address climate change in NEPA reviews. The withdrawal was directed by *Executive Order 13783*, "*Promoting Energy Independence and Economic Growth*". The withdrawal was effective April 5, 2017.

As a result of the withdrawal, the CEQ guidance no longer applies to Environmental Assessments (EAs) and Environmental Impact Statements (EISs) undertaken by FHWA.

On June 21, 2019 the CEQ submitted draft guidance titled "*Draft National Environmental Policy Act [NEPA] Guidance on Consideration of Greenhouse Gas [GHG] Emissions*," to the Federal Register for publication and public comment. If the 2019 Draft Guidance is finalized, the result would replace the Final Guidance that was issued in 2016 and withdrawn in 2017 for further consideration pursuant to Executive Order 13783.

Context and Background Information Only:

Climate change is a critical national and global concern. Carbon dioxide (CO_2) is the largest component of greenhouse gas emissions; other prominent emissions include methane (CH_4), nitrous oxide (N_2O) and hydrofluorocarbons (HFCs). These emissions are different from criteria air pollutants since their effects in the atmosphere are global rather than localized, and also since they remain in the atmosphere for decades to centuries, depending on the species.

Greenhouse gas emissions have accumulated rapidly as the world has industrialized, with concentration of atmospheric CO_2 increasing from roughly 300 parts per million in 1900 to over 400 parts per million today. Over this timeframe, global average temperatures have increased by roughly 1.5 degrees Fahrenheit (1 degree Celsius), and the most rapid increases have occurred over the past 50 years. Scientists have warned that significant and potentially dangerous shifts in climate and weather are possible without substantial reductions in greenhouse gas emissions. They commonly have cited 2 degrees Celsius (1 degree Celsius beyond warming that has already occurred) as the total amount of warming the earth can tolerate without serious and potentially irreversible climate effects. For warming to be limited to this level, atmospheric concentrations of CO_2 would need to stabilize at a maximum of 450 ppm, requiring annual global emissions to be reduced 40-70%

below 2010 levels by 2050[9]. State and national governments in many developed countries have set GHG emissions reduction targets of 80 percent below current levels by 2050, recognizing that postindustrial economies are primarily responsible for GHGs already in the atmosphere. However, on May 30, 2018, FHWA formally repealed performance measures pertaining to GHGs, indefinitely[10].

GHG emissions from vehicles using roadways are a function of distance travelled (expressed as vehicle miles travelled, or VMT), vehicle speed, and road grade. GHG emissions are also generated during roadway construction and maintenance activities.

[9] IPCC, 2014: Climate Change 2014: Synthesis Report Summary for Policymakers. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
[10] Federal Register, "National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program," accessed August 4, 2020. https://www.federalregister.gov/documents/2018/05/31/2018-11652/national-performance-management-measures-assessing-performance-of-the-national-highway-system

5. MITIGATION

If mitigation is needed or being considered to address MSAT impacts, construction impacts, or other air quality issues, the final environmental document should include a discussion of the proposed mitigation measures. Mitigation adopted to satisfy the CAA conformity requirements must include enforceable written commitments from the agency(s) responsible for implementing it.

6. CUMULATIVE AND INDIRECT IMPACTS

For **indirect impacts**, include basic information (e.g., if a new interchange is going to facilitate development of a new shopping mall, make sure that the traffic estimates for the build scenarios include the activity associated with the mall).

For **cumulative impacts**, include qualitative analysis (e.g. use state air agency emissions inventories or MPO conformity projections).

APPENDIX A. 23 CFR § 771.117 CATEGORICAL EXCLUSIONS

(a) Categorical exclusions (CEs) are actions which meet the definition contained in *40 CFR 1508.4*, and, based on past experience with similar actions, do not involve significant environmental impacts. They are actions which: do not induce significant impacts to planned growth or land use for the area; do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water quality impacts; do not have significant impacts on travel patterns; or do not otherwise, either individually or cumulatively, have any significant environmental impacts.

(b) Any action which normally would be classified as a CE but could involve unusual circumstances will require the FHWA, in cooperation with the applicant, to conduct appropriate environmental studies to determine if the CE classification is proper. Such unusual circumstances include:

1. Significant environmental impacts;
2. Substantial controversy on environmental grounds;
3. Significant impact on properties protected by Section 4(f) of the DOT Act or Section 106 of the National Historic Preservation Act; or
4. Inconsistencies with any Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the action.

(c) The following actions meet the criteria for CEs in the CEQ regulations (*40 CFR 1508.4*) and *§ 771.117(a)* and normally do not require any further NEPA approvals by the FHWA:

1. Activities which do not involve or lead directly to construction, such as planning and research activities; grants for training; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed; and Federal-aid system revisions which establish classes of highways on the Federal-aid highway system.
2. Approval of utility installations along or across a transportation facility.
3. Construction of bicycle and pedestrian lanes, paths, and facilities.
4. Activities included in the State's *highway safety pla*n under 23 U.S.C. 402.

5. Transfer of Federal lands pursuant to 23 U.S.C. 107(d) and/or 23 U.S.C. 317 when the land transfer is in support of an action that is not otherwise subject to FHWA review under NEPA.

6. The installation of noise barriers or alterations to existing publicly owned buildings to provide for noise reduction.

7. Landscaping.

8. Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur.

9. The following actions for transportation facilities damaged by an incident resulting in an emergency declared by the Governor of the State and concurred in by the Secretary, or a disaster or emergency declared by the President pursuant to the Robert T. Stafford Act (42 U.S.C. 5121):

    i. Emergency repairs under 23 U.S.C. 125; and

    ii. The repair, reconstruction, restoration, retrofitting, or replacement of any road, highway, bridge, tunnel, or transit facility (such as a ferry dock or bus transfer station), including ancillary transportation facilities (such as pedestrian/bicycle paths and bike lanes), that is in operation or under construction when damaged and the action:

        A. Occurs within the existing right-of-way and in a manner that substantially conforms to the preexisting design, function, and location as the original (which may include upgrades to meet existing codes and standards as well as upgrades warranted to address conditions that have changed since the original construction); and

        B. Is commenced within a 2-year period beginning on the date of the declaration.

10. Acquisition of scenic easements.

11. Determination of payback under 23 U.S.C. 156 for property previously acquired with Federal-aid participation.

12. Improvements to existing rest areas and truck weigh stations.

13. Ridesharing activities.

14. Bus and rail car rehabilitation.

15. Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons.

16. Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand.

17. The purchase of vehicles by the applicant where the use of these vehicles can be accommodated by existing facilities or by new facilities which themselves are within a CE.

18. Track and railbed maintenance and improvements when carried out within the existing right-of-way.

19. Purchase and installation of operating or maintenance equipment to be located within the transit facility and with no significant impacts off the site.

20. Promulgation of rules, regulations, and directives.

21. Deployment of electronics, photonics, communications, or information processing used singly or in combination, or as components of a fully integrated system, to improve the efficiency or safety of a surface transportation system or to enhance security or passenger convenience. Examples include, but are not limited to, traffic control and detector devices, lane management systems, electronic payment equipment, automatic vehicle locaters, automated passenger counters, computer-aided dispatching systems, radio communications systems, dynamic message signs, and security equipment including surveillance and detection cameras on roadways and in transit facilities and on buses.

22. Projects, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way. Existing operational right-of-way refers to right-of-way that has been disturbed for an existing transportation facility or is maintained for a transportation purpose. This area includes the features associated with the physical footprint of the transportation facility (including the roadway, bridges, interchanges, culverts, drainage, fixed guideways, mitigation areas, etc.) and other areas maintained for transportation purposes such as clear zone, traffic control signage, landscaping, any rest areas with direct access to a controlled access highway, areas maintained for safety and security of a transportation facility, parking facilities with direct access to an existing transportation facility, transit power substations, transit venting structures, and transit

maintenance facilities. Portions of the right-of-way that have not been disturbed or that are not maintained for transportation purposes are not in the existing operational right-of-way.

23. Federally-funded projects:

    i. That receive less than $5,000,000 (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor, see www.fhwa.dot.gov or www.fta.dot.gov) of Federal funds; or

    ii. With a total estimated cost of not more than $30,000,000 (as adjusted annually by the Secretary to reflect any increases in the Consumer Price Index prepared by the Department of Labor, see www.fhwa.dot.gov or www.fta.dot.gov) and Federal funds comprising less than 15 percent of the total estimated project cost.

24. Localized geotechnical and other investigation to provide information for preliminary design and for environmental analyses and permitting purposes, such as drilling test bores for soil sampling; archeological investigations for archeology resources assessment or similar survey; and wetland surveys.

25. Environmental restoration and pollution abatement actions to minimize or mitigate the impacts of any existing transportation facility (including retrofitting and construction of stormwater treatment systems to meet Federal and State requirements under sections 401 and 402 of the Federal Water Pollution Control Act (33 U.S.C. 1341; 1342)) carried out to address water pollution or environmental degradation.

26. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing lanes), if the action meets the constraints in paragraph (e) of this section.

27. Highway safety or traffic operations improvement projects, including the installation of ramp metering control devices and lighting, if the project meets the constraints in paragraph (e) of this section.

28. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the actions meet the constraints in paragraph (e) of this section.

29. Purchase, construction, replacement, or rehabilitation of ferry vessels (including improvements to ferry vessel safety, navigation, and security systems) that would not

require a change in the function of the ferry terminals and can be accommodated by existing facilities or by new facilities which themselves are within a CE.

30. Rehabilitation or reconstruction of existing ferry facilities that occupy substantially the same geographic footprint, do not result in a change in their functional use, and do not result in a substantial increase in the existing facility's capacity. Example actions include work on pedestrian and vehicle transfer structures and associated utilities, buildings, and terminals.

(d) Additional actions which meet the criteria for a CE in the CEQ regulations (40 CFR 1508.4) and paragraph (a) of this section may be designated as CEs only after Administration approval unless otherwise authorized under an executed agreement pursuant to paragraph (g) of this section. The applicant shall submit documentation which demonstrates that the specific conditions or criteria for these CEs are satisfied and that significant environmental effects will not result. Examples of such actions include but are not limited to:

1. [Reserved]
2. [Reserved]
3. [Reserved]
4. Transportation corridor fringe parking facilities.
5. Construction of new truck weigh stations or rest areas.
6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
7. Approvals for changes in access control.
8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial

area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

    i. Hardship acquisition is early acquisition of property by the applicant at the property owner's request to alleviate particular hardship to the owner, in contrast to others, because of an inability to sell his property. This is justified when the property owner can document on the basis of health, safety or financial reasons that remaining in the property poses an undue hardship compared to others.

    ii. Protective acquisition is done to prevent imminent development of a parcel which may be needed for a proposed transportation corridor or site. Documentation must clearly demonstrate that development of the land would preclude future transportation use and that such development is imminent. Advance acquisition is not permitted for the sole purpose of reducing the cost of property for a proposed project.

13. Actions described in paragraphs (c)(26), (c)(27), and (c)(28) of this section that do not meet the constraints in paragraph (e) of this section.

(e) Actions described in (c)(26), (c)(27), and (c)(28) of this section may not be processed as CEs under paragraph (c) if they involve:

1. An acquisition of more than a minor amount of right-of-way or that would result in any residential or nonresidential displacements;

2. An action that needs a bridge permit from the U.S. Coast Guard, or an action that does not meet the terms and conditions of a U.S. Army Corps of Engineers nationwide or

general permit under section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act of 1899;

3. A finding of ‘‘adverse effect’’ to historic properties under the National Historic Preservation Act, the use of a resource protected under 23 U.S.C. 138 or 49 U.S.C. 303 (section 4(f)) except for actions resulting in de minimis impacts, or a finding of ‘‘may affect, likely to adversely affect’’ threatened or endangered species or critical habitat under the Endangered Species Act;

4. Construction of temporary access, or the closure of existing road, bridge, or ramps, that would result in major traffic disruptions;

5. Changes in access control;

6. A floodplain encroachment other than functionally dependent uses (e.g., bridges, wetlands) or actions that facilitate open space use (e.g., recreational trails, bicycle and pedestrian paths); or construction activities in, across or adjacent to a river component designated or proposed for inclusion in the National System of Wild and Scenic Rivers.

(f) Where a pattern emerges of granting CE status for a particular type of action, the FHWA will initiate rulemaking proposing to add this type of action to the list of categorical exclusions in paragraph (c) or (d) of this section, as appropriate.

(g) FHWA may enter into programmatic agreements with a State to allow a State DOT to make a NEPA CE certification or determination and approval on FHWA’s behalf, for CEs specifically listed in paragraphs (c) and (d) of this section and that meet the criteria for a CE under 40 CFR 1508.4, and are identified in the programmatic agreement. Such agreements must be subject to the following conditions:

1. The agreement must set forth the State DOT’s responsibilities for making CE determinations, documenting the determinations, and achieving acceptable quality control and quality assurance;

2. The agreement may not have a term of more than five years, but may be renewed;

3. The agreement must provide for FHWA’s monitoring of the State DOT’s compliance with the terms of the agreement and for the State DOT’s execution of any needed corrective action. FHWA must take into account the State DOT’s performance when considering renewal of the programmatic CE agreement; and

4. The agreement must include stipulations for amendment, termination, and public availability of the agreement once it has been executed.

[52 FR 32660, Aug. 28, 1987; 53 FR 11066, Apr. 5, 1988, as amended at 70 FR 24469, May 9, 2005; 74 FR 12529, Mar. 24, 2009; 78 FR 8983, Feb. 7, 2013; 78 FR 11602, Feb. 19, 2013; 79 FR 2118, Jan. 13, 2014; 79 FR 60115, Oct. 6, 2014; 81 FR 34274, May 31, 2016]

APPENDIX B. 40 CFR § 93.126 EXEMPT PROJECTS LIST

Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in Table 2 of this section are exempt from the requirement to determine conformity. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP. A particular action of the type listed in Table 2 of this section is not exempt if the MPO in consultation with other agencies (see § 93.105(c)(1)(iii)), the EPA, and the FHWA (in the case of a highway project) or the FTA (in the case of a transit project) concur that it has potentially adverse emissions impacts for any reason. States and MPOs must ensure that exempt projects do not interfere with TCM implementation. Table 2 follows:

[62 FR 43801, Aug. 15, 1997, as amended at 69 FR 40081, July 1, 2004; 71 FR 12510, Mar. 10, 2006; 73 FR 4441, Jan. 24, 2008]

TABLE 2: EXEMPT PROJECTS

AIR QUALITY	
☐	Bicycle and pedestrian facilities.
☐	Continuation of ride-sharing and van-pooling promotion activities at current levels.
MASS TRANSIT	
☐	Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.
☐	Construction of small passenger shelters and information kiosks.
☐	Construction or renovation of power, signal, and communications systems.
☐	Operating assistance to transit agencies.
☐	Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet. *NOTE: In PM_{10} and $PM_{2.5}$ nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.*
☐	Purchase of office, shop, and operating equipment for existing facilities.
☐	Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).
☐	Purchase of support vehicles.
☐	Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).
☐	Rehabilitation of transit vehicles. *NOTE: In PM_{10} and $PM_{2.5}$ nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.*

- ☐ Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.

SAFETY

- ☐ Adding medians.
- ☐ Bridge reconstruction (no additional travel lanes).
- ☐ Emergency relief (23 U.S.C. 125).
- ☐ Emergency truck pullovers.
- ☐ Fencing.
- ☐ Guardrails, median barriers, crash cushions.
- ☐ Highway Safety Improvement Program (HSIP) implementation.
- ☐ Increasing sight distance.
- ☐ Lighting improvements.
- ☐ Pavement marking.
- ☐ Pavement resurfacing and/or rehabilitation.
- ☐ Projects that correct, improve, or eliminate a hazardous location or feature.
- ☐ Railroad/highway crossing.
- ☐ Railroad/highway crossing warning devices.
- ☐ Safer non-Federal-aid system roads.
- ☐ Safety roadside rest areas.
- ☐ Shoulder improvements.
- ☐ Skid treatments.
- ☐ Traffic control devices and operating assistance other than signalization projects.
- ☐ Truck climbing lanes outside the urbanized area.
- ☐ Widening narrow pavements (no additional travel lanes).

OTHER

- ☐ Acquisition of scenic easements.
- ☐ Directional and informational signs.
- ☐ Emergency or hardship advance land acquisitions (23 CFR 710.503).
- ☐ Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.
- ☐ Noise attenuation.
- ☐ Plantings, landscaping, etc.
- ☐ Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.
- ☐ Sign removal.

- ☐ Specific activities which do not involve or lead directly to construction, such as:
  - Federal-aid systems revisions
  - Grants for training and research programs
  - Planning activities conducted pursuant to titles 23 and 49 U.S.C.
  - Planning and technical studies
- ☐ Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).