

**AIR QUALITY CONFORMITY DETERMINATION
FOR THE OKI 2040 METROPOLITAN TRANSPORTATION PLAN AND THE
AMENDED OKI FY 2018-FY2021 TRANSPORTATION IMPROVEMENT
PROGRAM (AMENDMENT 9C) FOR THE KENTUCKY PORTION OF THE
CINCINNATI-HAMILTON OH-KY-IN AREA FOR NATIONAL AMBIENT AIR
QUALITY STANDARDS (NAAQS) – TECHNICAL DOCUMENTATION**

June 14, 2018



BACKGROUND

This report documents that the *OKI FY 2018-2021 Transportation Improvement Program (TIP)*, as amended on June 14, 2018, and the *OKI 2040 Regional Metropolitan Transportation Plan (OKI MTP)*, as amended in March 2018, are in conformance with the State Implementation Plan (SIP) of Kentucky and complies with the Clean Air Act.

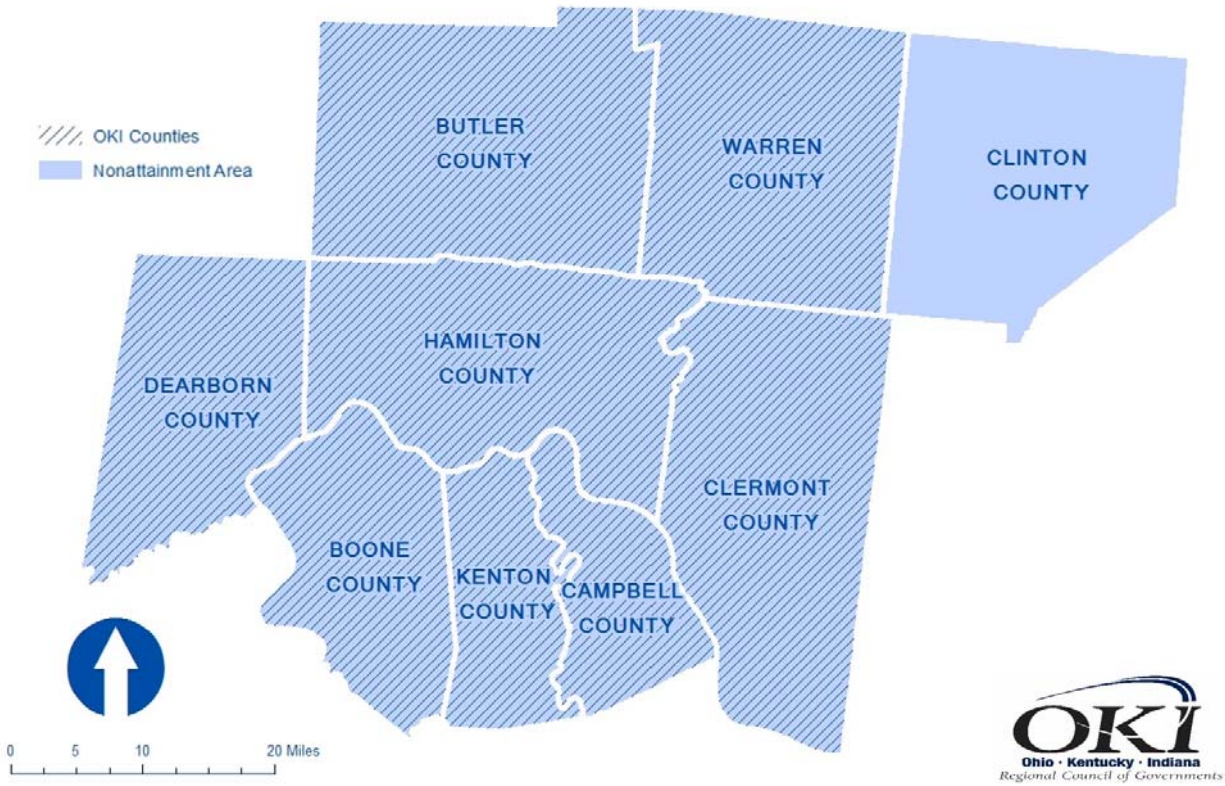
The March 2018 amended OKI MTP (Amendment #3) included a new regional emissions analysis and finding of conformity. A summary of the proposed changes and details of this conformity finding were shared with the Interagency Consultation Group on February 21, 2018 and May 23, 2018. MTP Amendment #3 was approved by the OKI Executive Committee on March 8, 2018. Due to the impact of the *South Coast v. EPA* court decision, federal approval was not made. TIP Amendment #9C includes four non-exempt projects in Kentucky. All projects in TIP Amendment #9C were included in OKI MTP Amendment #3, with no changes to timing or scope. Therefore, TIP Amendment #9C may rely on the previous regional emissions analysis which was completed for OKI MTP Amendment #3. This report documents the redemonstration of conformity for the OKI MTP and the amended OKI FY2018-FY2021 (TIP Amendment #9) for the Kentucky portion of the region only.

In February 2018, the U.S. Court of Appeals for the D.C. Circuit issued a decision in *South Coast Air Quality Management District v. EPA*. The decision impacts the Kentucky portion of the Cincinnati area that was formerly nonattainment (not meeting the national ambient air quality standard) under the 1997 ozone standard, but is now in attainment for all other standards (Figure 1). This “orphan area” includes the more rural southern tier of Boone, Campbell and Kenton counties. This area has not been subject to conformity since the 1997 ozone standard was vacated. The Recent FHWA and EPA guidance has indicated that a new demonstration of conformity with the 1997 ozone standard has become necessary for the Kentucky portion of the Cincinnati area.

The U.S. Environmental Protection Agency (EPA) designated portions of nine counties in the Cincinnati area as a nonattainment area for ozone under the 2008 ozone standard (Figure 2). In May 2016, the U.S. EPA made a determination of attainment for the Cincinnati area 2008 8-hour ozone area. In April 2018, the U.S. EPA designated portions of eight counties as a nonattainment area for ozone under the 2015 ozone standard (Figure 3). The 2008 Cincinnati ozone maintenance area includes Lawrenceburg Township in Dearborn County Indiana, portions of the Kentucky counties of Boone, Campbell and Kenton, and the Ohio counties of Butler, Clermont, Clinton, Hamilton and Warren. The 2015 Cincinnati ozone nonattainment area includes the identical area with the exception of Clinton County Ohio. Nonattainment and maintenance areas must demonstrate transportation conformity. Transportation conformity is a mechanism to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals as contained in the State Implementation Plans (SIPs). OKI is responsible for the air quality conformity determination for the region’s Transportation Plan and Transportation Improvement Program.

Figure 1.

Cincinnati-Middletown-Wilmington OH-KY-IN Ozone Nonattainment Area - 1997 Ozone Standard



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Figure 2.

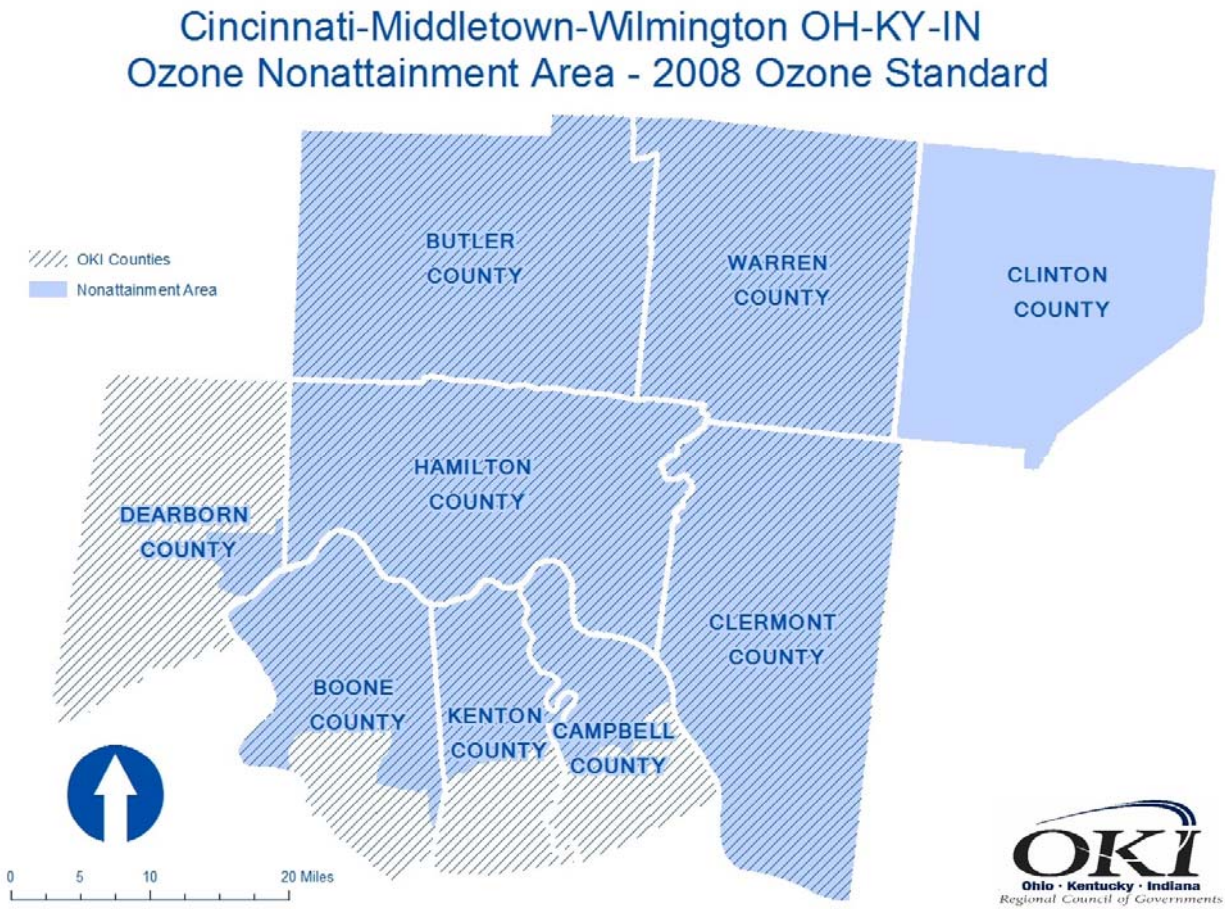
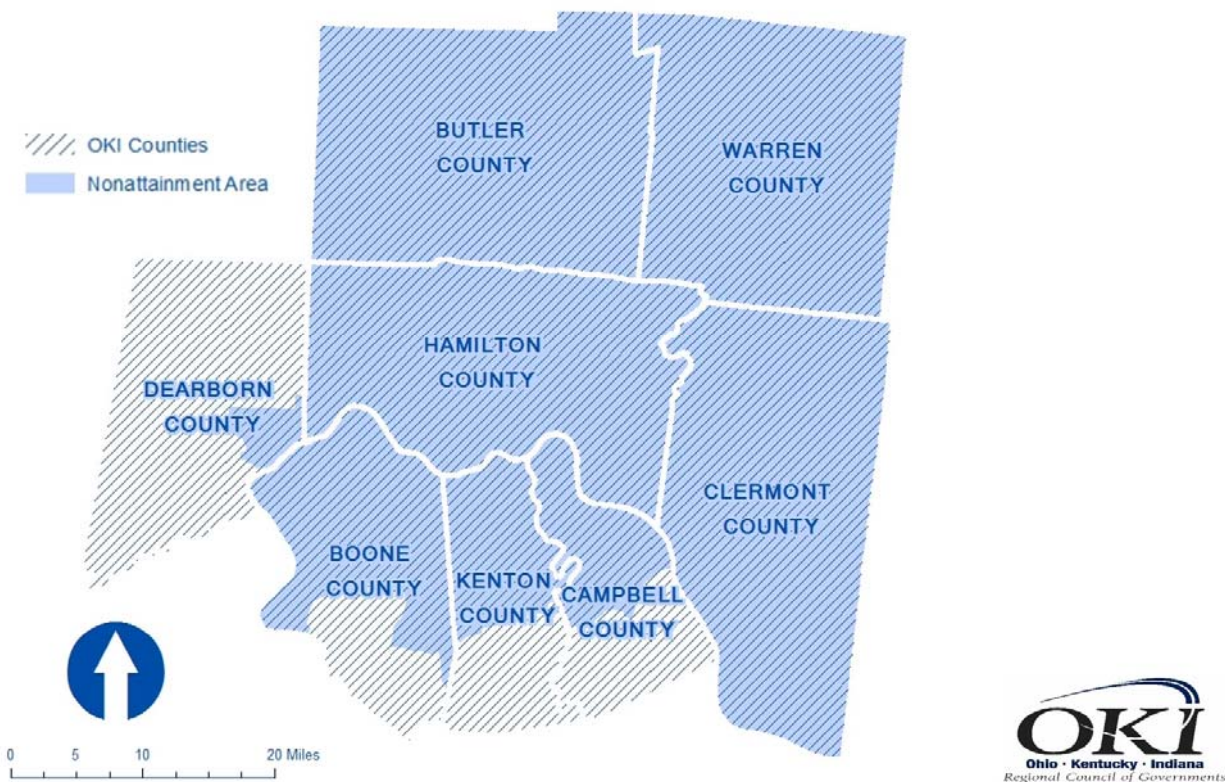


Figure 3.

Cincinnati-Middletown-Wilmington OH-KY-IN Ozone Nonattainment Area - 2015 Ozone Standard



In October 2016, U.S. EPA revoked the 1997 annual PM_{2.5} standards for fine particulates. With the revocation of that standard, areas that have already been redesignated to attainment for the 1997 annual PM_{2.5} standards, transportation conformity no longer applies.

OKI'S CONFORMITY PROCESS

This Amendment to the *FY 2018-2021 TIP* did not require changes to the regional transportation networks. All transportation networks are identical to the networks used in the March 2018 OKI MTP amendment #3. OKI's highway and transit networks include the existing transportation system plus all regionally significant, non-exempt projects in the Plan and TIP regardless of funding source. A list of non-exempt projects included in each transportation network is included in Appendix A. For details on OKI's travel demand model including population, household, employment forecasts and model validation, please refer to the [Conformity Technical Document for MTP Amendment #3](#).

Emission Factor Models

OKI's conformity assessment utilized U.S.EPA's emission model MOVES2014a to develop emission factors for VOC's and NO_x. The MOVES input files contain local parameters, developed

through consultation with state partners, for temperature, fuel programs, fuel characteristics, and vehicle fleet composition. The local parameters are combined with the VMT and speed data from the OKI Travel Demand Model to produce emission factors measured in grams per mile and grams per vehicle for the appropriate analysis year. These emission factors are then multiplied by VMT and vehicle population. The methodologies incorporated into MOVES for estimating emissions are based on methods and research conducted by U.S.EPA. OKI’s development of MOVES input values were guided by the U.S.EPA’s document “*MOVES2014 and MOVES2014a Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity*”, November 2015.

Table 2 summarizes the settings used in the MOVES run specification file. Table 3 lists the data and sources used in the MOVES County-Data Manager.

Table 2

MOVES RunSpec Parameter	Settings
MOVES2014a-20151201; movesdb20151028	
Scale	County, Inventory mode
Time Span	Time aggregation = Hour July and April weekday, July meteorological data and annual average meteorological data used in place of April data All hours of day selected Weekdays only
Geographic Bounds	3 Kentucky counties. Separate VMT/veh population inputs for whole and partial counties.
Vehicles/Equipment	All source types available for gasoline,diesel, & ethanol. CNG transit buses
Road Type	All road types including off-network
Pollutants and Processes	VOC, hydrocarbons, and NOx pollutants. No emissions from refueling.
Strategies	Default
General Output	Units= grams, joules and miles
Output Emissions	Total emissions in kilograms
Advanced Performance	none

Table 3

MOVES County Data Manager	Data Source
Source Type Population	Local and default. Local data from KYTC (2014) from motor vehicle registration data. Default data used for source types 41, 42, 43, 51, 52, 53, 61 and 62 in Kentucky.

Vehicle Type VMT	Local and default. HPMSVTypeYear VMT=daily VMT from OKI travel demand model with EPA's daily to annual VMT converter applied. MonthVMTFraction = default. dayVMTFraction=default, hourVMTFraction=default.
I/M Programs	No I/M Program. Default setting.
Fuel Supply	Removed RFG in KY.
Meteorology Data	Local. Kentucky values from Kentucky Division for Air Quality.
Ramp Fraction	Local. OKI travel demand model.
Road Type Distribution	Local. OKI travel demand model.
Age Distribution	Local and default. Local data from KYTC (2014) from motor vehicle registration data. Default data used for source types 41, 42, 43, 51, 52, 53, 61 and 62 in Kentucky.
Average Speed Distribution	Local. OKI travel demand model.

Complete MOVES input and output files are available electronically upon request.

DESCRIPTION OF CONFORMITY TESTS

The selection of analysis years and tests were determined through interagency consultation with federal, state and local partners and in accordance with 40 CFR 23.118(d)(2). The selection of analysis year 2040 represents the "build" condition of the entire *OKI 2040 Regional Transportation Plan*.

Table 4 - Conformity Analysis Years and Tests
Ozone

<u>Ozone</u>	
Attainment status:	Ozone nonattainment area – 2015 standard Ozone maintenance area – 2008 standard Ozone former maintenance area – 1997 standard
Geography:	Kentucky: Boone, Campbell, & Kenton Counties (partial for 2008 and 2015 standards). Entire Boone, Campbell and Kenton County for 1997 standard.
A/Q Budget Status:	8-Hour ozone budgets. 2008 MVEB from Federal Register 4/2/2018. 1997 MVEB from Federal Register 6/5/2013.
SIP Commitments:	No SIP commitments. Eliminated RFG summer fuel in Kentucky.
Conformity Tests:	8-Hour ozone budget tests of OKI Plan/TIP analysis year networks. 24-hour summer emissions.
Analysis Years:	2020 Budget year, 2030 Budget/Interim year, 2040 Plan horizon year.
Other:	None.

CONFORMITY DETERMINATION FOR THE KENTUCKY PORTION OF THE MAINTENANCE AREA

OKI has determined that the recommended projects in this *OKI FY 2018-2021 TIP* and the *OKI 2040 Regional Transportation Plan* are consistent with the air quality goals of the SIP and the conformity requirements under the 1997, 2008 and 2015 ozone standards. OKI’s quantitative conformity findings for ozone-forming emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are found in Tables 5 and 6. Motor vehicle emissions budgets (MVEB’s) for the 1997 ozone standard were approved in 2013. The MVEB’s for the 2008 ozone standard were approved in April 2018.

Table 5. 1997 Ozone Standard - Regional Emissions Analysis of Ozone-forming Emissions (tons per day) for the Kentucky Portion of the Maintenance Area (whole counties)

	<u>2020</u>	<u>2030</u>	<u>2040</u>
N. Kentucky VOC Budget	8.76	8.76	8.76
N. Kentucky VOC Emissions	2.91	1.32	0.84
N. Kentucky NO _x Budget	28.13	28.13	28.13
N. Kentucky NO _x Emissions	8.47	3.58	2.73

Table 6. 2008 and 2015 Ozone Standards - Previous Regional Emissions Analysis of Ozone-forming Emissions (tons per day) for the Kentucky Portion of the Nonattainment/Maintenance Area (partial counties)

	<u>2020</u>	<u>2030</u>	<u>2040</u>
N. Kentucky VOC Budget	4.36	2.86	2.86
N. Kentucky VOC Emissions	2.54	1.15	0.74
N. Kentucky NO _x Budget	9.03	5.19	5.19
N. Kentucky NO _x Emissions	7.39	3.13	2.39

- For the 1997 ozone standard, VOC and NO_x emissions in the Kentucky portion of the ozone maintenance area do not exceed the 2020 VOC or NO_x budget for the budget year 2020, the interim year 2030, or the Plan year 2040.
- For the 2008 and 2015 ozone standards, VOC and NO_x emissions in the Kentucky portion of the ozone maintenance area do not exceed the 2020 VOC or NO_x budget for the budget year 2020, the budget year 2030, or the Plan year 2040.
- OKI qualitatively finds that no goals, directives, recommendations or projects identified in the *OKI FY 2018-2021 TIP* or the *OKI 2040 Regional Transportation Plan* contradict in a negative manner any specific requirements or commitments of the applicable state implementation plan.
- The applicable implementation plan in Kentucky does not contain any transportation control measures (TCM’s), therefore; nothing in the *OKI FY 2018-2021 TIP* or the *OKI 2040 Regional Transportation Plan* can interfere with their timely implementation.

INTERAGENCY CONSULTATION AND PUBLIC INVOLVEMENT

OKI has engaged in consultation procedures with the Indiana Department of Transportation, the Indiana Department of Environmental Management, the Ohio Department of Transportation, the Ohio Environmental Protection Agency, the Kentucky Transportation Cabinet, the Kentucky Division of Air Quality, Miami Valley Regional Planning Commission, the U.S. Environmental Protection Agency, and the U.S. Department of Transportation before making this conformity determination and throughout the conformity process as appropriate. The criteria and procedures for the conformity determination of transportation plans, programs and projects are found in the OKI Transportation Conformity Consultation Memorandum of Understanding as adopted by the OKI Board of Directors in 2008. Interagency consultation for the MTP Amendment #3 conformity analysis was initiated on February 21, 2018. Further consultation to address issues surrounding *South Coast Air Quality Management District v. EPA* and TIP Amendment #9C were initiated on May 23, 2018. Following distribution of this document, in draft form, an interagency conference call occurred on May 23, 2018. Any interagency comments are included below.

The amended *OKI 2040 Regional Transportation Plan* was developed with significant attention to public involvement in accordance with *OKI's Participation Plan, January 2018*. Notice of the availability of the draft documents, the announcement of the public comment period and the March 5, 2018 public hearing were published in several local newspapers in February 2018. Beginning February 21, 2018 the draft conformity report was made available for public inspection on OKI's website and at OKI's office. This conformity document was reposted on OKI's website on May 25, 2018. Any comments specifically regarding this conformity determination are included in the Appendix. Information on general comments received, and details on the entire public involvement process may be found on in the TIP document. All public comments and the conformity results will be reported to the OKI Executive Committee on June 14, 2018.

APPENDIX A
Non-Exempt Project Listing

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APPENDIX B
Interagency Consultation and
Public Comments

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