



Appendix C: Air Quality Conformity

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Air Quality Conformity

This document serves as:

Appendix 1 to MORPC 2016-2040 Metropolitan Transportation Plan

And

Appendix II to LCATS 2040 Metropolitan Transportation Plan

**Air Quality Conformity Determination
Documentation**

Franklin, Delaware, Licking, Fairfield, Madison and Knox
County Ozone Non-Attainment Area

and

Franklin, Delaware, Licking, Fairfield, and Coshocton
(Franklin Twp) County PM_{2.5} Maintenance Area

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Section I: Introduction

The Clean Air Act Amendments of 1990 expanded transportation's role in contributing to national clean air goals. The 1990 amendments expand the requirements of "transportation conformity" as:

Conformity to the (air quality implementation) plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and that such activities will not (i) cause or contribute to any new violations of any standards in any area, (ii) increase the frequency or severity of any existing violation of any standard in any areas, or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The CAAA defines nonattainment areas as geographic regions of the country that do not meet the National Ambient Air Quality Standards (NAAQS). In Ohio, the Ohio Environmental Protection Agency (Ohio EPA) is the lead agency for coordinating development of the State Implementation Plan (SIP). The SIP includes actions done on a statewide basis as well as actions done within each specific nonattainment area of the state to achieve the air quality standards.

Redesignation requests to attainment are SIP revisions that document that the NAAQS have been met and provide a maintenance plan to ensure meeting the standards for the next ten years. The first item of documentation contained in a redesignation request is three consecutive years of air quality monitoring data that meet the NAAQS. Second, an inventory of point source, area source and mobile source emissions is developed. The total of the three sources is certified as the attainment emission levels that will allow the air quality standards to be met. Next, emission projections for each source are made to the end of the maintenance period. It must be documented that the total emissions will not exceed the attainment emissions level. Any difference between the total future emissions and the total attainment level emissions is considered a safety margin.

Specifically for on road mobile emissions, budgets are established in the SIP. These budgets are the future projections plus any of the safety margins that the local area may choose to allocate.

One of the requirements is that plans, programs and projects do not delay the timely implementation of transportation control measures (TCMs) in the applicable SIP. Transportation conformity is the process of analyzing the projects included in the Transportation Plan to ensure they do not lead to violations in the air quality standards or delay obtaining the standard. The documentation of this process is called the conformity determination. This appendix is the transportation conformity documentation for the six-county Columbus ozone nonattainment area and the four-plus county PM2.5 maintenance area.

Section II: Background

1-Hour Ozone Standard

Under the CAAA Franklin, Delaware and Licking counties were designated a marginal nonattainment area for ozone. This designation was based on 1988 air quality data that violated the NAAQS for ozone. At ground level, ozone is formed by the reaction of volatile organic compounds (VOCs) and nitrogen oxides (NOx). The CAAA requires that VOC and NOx emissions be reduced to lower the amount of ground-level ozone. Since 1988 the nonattainment area has had no violations of the 1-hour standards. However, the area must comply with the nonattainment area requirements in the CAAA.

In January 1994, the Ohio EPA working with the Ohio Department of Transportation (ODOT), the Mid-Ohio Regional Planning Commission (MORPC), and the Licking County Area Transportation Study (LCATS) submitted a redesignation request to the United States Environmental Protection Agency (U.S. EPA) for the three-county nonattainment area. On April 11, 1994, the Ohio EPA provided additional information to U.S. EPA. On February 1, 1996, a direct final rule was published in the Federal Register approving the redesignation request. The approval was effective April 1, 1996.

8-Hour Ozone Standard

On April 15, 2004, U.S. EPA issued final designations with regard to the 8-hour ozone standard and final rules on conformity requirements for these areas. It resulted in expanding the Central Ohio nonattainment area to expand to six counties: Franklin, Delaware, Licking, Knox, Fairfield and Madison.

Ohio EPA submitted an ozone redesignation package to U.S. EPA in March 2009. The May 20, 2009 Federal Register included a notice that the budgets included in the redesignation request are adequate for transportation conformity purposes and are depicted in Table 1. In September 15, 2009 Federal Register, U.S. EPA approved the redesignation to attainment effective September 15, 2009. The approval retained these budgets.

U.S. EPA approved the request by Ohio to revise the Columbus, Ohio 1997 8-hour ozone maintenance air quality State Implementation Plans (SIPs) under the Clean Air Act (CAA) to replace the previously approved motor vehicle emissions budgets (budgets) with budgets developed using U.S. EPA's Motor Vehicle Emissions Simulator (MOVES) emissions model. Ohio submitted the SIP revision requests to U.S. EPA on October 30, 2012, and December 12, 2012, respectively. On March 19, 2013, the 1997 Ozone standard SIP (MOVES based) motor vehicle emission budgets (MVEB) for the region are established as follows:

Table 1: On Road Mobile Source Budgets for the Columbus 8-Hour Ozone Nonattainment Area (VOC, NOx)

[Tons per summer day]

Year	2012	2020
VOC	93.99	50.34
NOx	188.85	99.12

Source: Federal Register Vol. 78, No. 53, March 19, 2013

The U.S. EPA promulgated a new 8- hour ozone standard in 2008 and on July 20, 2012, the 6- county region was redesignated marginal non-attainment. On August 27, 2015 U.S. EPA proposed to reclassify the area to attainment based on three years of Clean data. As of this date a final rule has not been issued nor has Ohio EPA submitted a maintenance plan with new mobile source budgets. Thus the budgets in Table 1 are still to be used for conformity determination.

PM2.5 Standards

April 14, 2005, U.S. EPA issued final designations with regard to the 1997 PM2.5 standard. Franklin, Delaware, Licking, Fairfield counties and Franklin Township in Coshocton County were designated as a non-attainment area for the annual PM2.5 standard. On November 7, 2013 U.S. EPA approved re-designation of the Columbus area to attainment of the 1997 annual PM 2.5 standard of 15 µg/m³ (15 micrograms per cubic meter) for fine particulate matter, FR 66845, Vol. 78, No. 216. The SIP maintenance plan establishes 2015 and 2022 budgets (MVEBs) as follows:

**Table 2: On Road Mobile Source Budgets
for the Columbus annual PM2.5 (PM2.5, NOx)**

[Tons per year]

Year	2015	2022
PM2.5	873.46	559.13
NOx	25,084.11	12,187.50

A new annual PM 2.5 standard was promulgated by U.S. EPA in 2012 which strengthened the annual fine particle standard to 12 micrograms per cubic meter (µg/m³). On December 18, 2014, the EPA issued final area designations for the 2012 annual national air quality standard for fine particulate matter (PM2.5) which showed counties in Central Ohio are in attainment of the standard.

NOx Waiver

The CAAA allows the U.S. EPA administrator to issue a waiver of the NOx requirements if the administrator determines that additional reductions of NOx would not contribute to attainment of the air quality standards. A final rule approving a NOx waiver was published in the July 13, 1995, Federal Register. The NOx waiver removed the build/no-build test and the less than 1990 test that

apply to NO_x. However, an area that is redesignated to attainment must still meet the approved NO_x budget for the conformity analysis. Thus, the NO_x waiver is no longer applicable to the Columbus nonattainment area.

Transportation Conformity Procedures

On November 24, 1993, U.S. EPA published regulations, 40 CFR 51 Subpart T, which define the specific process necessary to demonstrate conformity of transportation plans, TIPs and projects. Three updates to the conformity have also been finalized and incorporated into the Ohio Administrative Code (OAC). With the implementation regulations for the 8-hour ozone standard and the PM 2.5 standard, new procedures were established to demonstrate conformity for each of these pollutants. The conformity regulations identified three tests to be performed at various milestone or horizon years to show conformity. These are a budget test, a build/no build test and a no greater than 2002 baseline test. The test that must be satisfied depends upon the status of an area's SIP submittals. As an ozone area with approved on road mobile budgets, the budget test will be used. Likewise as a PM_{2.5} area with approved on road mobile budgets, the budget test will be used.

This appendix documents the conformity determination process for the ozone nonattainment area and the PM 2.5 nonattainment area.

Multiple Metropolitan Planning Organizations

The six-county ozone and four-county PM 2.5 non-attainment areas consist of two metropolitan planning organizations (MPOs), MORPC and LCATS with area outside of the two MPO's in Fairfield, Madison, and Knox Counties. The additional PM_{2.5} area in Coshocton County is also outside of any MPO area. The MORPC transportation planning area consists of Franklin County, Delaware County, Pataskala and Etna Township in Licking County, and Violet and Bloom Townships in Fairfield County. The LCATS transportation planning area covers the remainder of Licking County.

Each MPO develops a transportation plan for its respective transportation study area. The conformity procedures require that the entire non-attainment area be considered as a whole. This requires that the two transportation plans and any projects in the non-MPO area be considered together to make a conformity determination. This appendix documents the process used to combine the entire area to make single conformity determinations for ozone and PM_{2.5}. This document serves as an appendix to the MORPC 2016-2040 Metropolitan Transportation Plan and the LCATS 2040 Transportation Plan.

Latest Planning Assumptions

The Transportation Plans' conformity analysis readily meets this requirement. A 10/11/2000 U.S. DOT/U.S. EPA memorandum further emphasized the use of latest planning assumptions highlighting the following areas: 1) Model Validation; 2) Land Use, Population and Employment Projections; and 3) Travel and Congestion. The following addresses these issues.

1) Model Validation

For the travel demand model in the non-attainment area, model validation is a joint process between MORPC, LCATS and the ODOT Office of Technical Services. In December 2004, a new complete validated model was accepted and installed for use at MORPC. The new model covers all of the MORPC and LCATS area including portions of Pickaway, Madison and

Union Counties along with additional portions of Fairfield County outside of the MORPC MPO area. Further, MORPC continuously updates the highway and transit network information and maintains accurate networks for future year analysis. In 2009 MORPC completed a new validation of the model for the year 2005.

2) Future Networks

The Transportation Plan horizon year for MORPC and LCATS is 2040. Based on Interagency consultation for the ozone conformity analysis, the years 2020, 2030 and 2040 are being used. For the PM 2.5 conformity analysis, the years 2020, 2022, 2030 and 2040 are being used. The Transportation Plans list the projects included and Section III lists the projects included for each analysis year.

3) Land Use, Population and Employment Projections

MORPC continually monitors land use, population and employment information. MORPC performs complete land use inventories every five years. The complete documentation of the process and future forecasts is provided in *Future Land use Scenario Methodology* appendix to the Transportation Plan. MORPC coordinates with LCATS for updates to the variables for their area.

4) Travel and Congestion

Based on the validated model, highway and transit changes since then, the most up-to-date land use, population and employment projections, 24-hour ADT volumes are produced. MOVES software is used to create the emission factors. ODOT in conjunction with MORPC and inter-agency consultation ensures the emission factors used in this process are based on the most up-to-date assumptions.

Urban Transportation Modeling Process

The MORPC model covers Franklin County, Delaware County, Licking County and portions of Fairfield, Pickaway, Madison and Union counties. The model employs activity-based modeling procedures. Output from the urban model is link-by-link directional 24-hour traffic volumes for the existing or future regional transportation network. These 24-hour traffic volumes provide the basis for performing the air quality analysis. ODOT, MORPC and LCATS jointly hold the models and provide extensive technical support for each other. The non-modeled areas in the Fairfield, Madison, Knox and Coshocton counties utilize Highway Performance Monitoring System (HPMS) data.

Air Quality Modeling Process

The Transportation Plan conformity demonstration for Ohio's urbanized nonattainment and maintenance areas utilize the capabilities of the urban transportation models to perform milestone year and Transportation Plan horizon year analyses required under the conformity regulations. The modeling process identifies the growth in vehicle miles of travel and changes in the travel patterns resulting from the projects proposed in the non-attainment or maintenance area transportation plans and programs.

Motor Vehicle Emissions Simulator (MOVES) is the U.S. EPA official software for estimating emissions. Using MOVES, emission factor files were generated for the analysis. Programs and corresponding MOVES parameters were developed in consultation with Ohio EPA.

Table 3 summarizes the settings used in the MOVES run specification file and the MOVES County-Data Manager. Further details in specific inputs that are not using default values are provided below.

Table 3 – MOVES Inputs

RunSpec Parameter Settings	
MOVES Version	MOVES2010a
Scale	Custom Domain
MOVES Modeling Technique	Emission Factor Method Rates per Profile (grams/vehicle) Rates per Distance (grams/mile) Rates per Vehicle (grams/vehicle)
Time Span	Time Aggregation: Hour 1 Month representing average annual temperatures All hours of day selected 16 speed bins Weekdays only
Geographic Bounds	Franklin, Delaware, Licking, Fairfield, Madison & Knox Counties.
Vehicles/Equipment	All source types, gasoline and diesel
Road Type	All road types including off-network
Pollutants and Processes	Total Gaseous Hydrocarbons, Non-Methane Hydrocarbons, Volatile Organic Compounds, NO _x , NO, NO ₂ , Total Energy Consumption
Strategies	None
General Output	Units = grams, joules and miles
Output Emissions	Time = hour, Location = custom area, on-road emission rates by road type and source use type.
Advance Performance	None
County Data Manager Sources	
Source Type Population	Combination of local and default data Local data (2010) ODOT from motor vehicle registration Default data used for source types 41, 51, 54, 61, and 62 Future year growth rate based on MPO model Household growth rate.
Vehicle Type VMT	Combination of local and default data HPMSVTypeYear VMT = daily VMT from travel demand model monthVMTFraction = default dayVMTFraction=default hourVMTFraction=local
I/M Program	None

Fuel Formulation	Default
Fuel Supply	Default Future runs modified for reformulated gas, RVP, etc. for summer analyses
Metereology Data	Local data obtained from NOAA National Climatic Data Center. Data consist of monthly high and low temperatures and daily relative humidity for 2002.
Ramp Fraction	Using the base year travel demand model for VHT fractions. Future fractions assumed constant
Road Type Distribution	Use ODOT county summary VMT categorized by federal functional classes
Age Distribution	Combination of local and default data. Local data (2010) ODOT from motor vehicle registration Default data used for source types 41, 51, 54, 61, and 62 The same age distribution used for all analysis years
Average Speed Distribution	Default
Alternative Fuel Type	Default

Temperature and Relative Humidity

Temperatures used for the single season approach are representative of 12 months in 2002 based on NOAA data from the National Climate Data Center website. Data for Port Columbus International Airport was used because it was the most complete compared to other airports in the non-attainment area. To get the correct format for MOVES, the data was entered into a spreadsheet provided by U.S. EPA which was designed to convert Mobile6 data to MOVES. An average annual hourly temperature and relative humidity distribution profile can be seen in Table 4.

Table 4 – Temperature and Relative Humidity Data

Hour	Average	Average
1	48.9	73.0
2	47.8	75.0
3	46.9	77.0
4	46.2	80.0
5	45.7	81.0
6	45.1	81.0
7	44.6	80.0
8	45.0	77.0
9	47.5	73.0
10	51.5	67.0
11	55.6	64.0
12	59.1	61.0
13	62.2	57.0
14	63.9	56.0
15	64.4	53.0
16	64.6	53.0
17	64.2	54.0
18	63.0	55.0
19	61.0	57.0
20	58.4	63.0
21	55.9	67.0
22	53.6	70.0
23	52.0	72.0
24	50.4	75.0

Ramp Fraction

Ramp fractions were derived using the base year travel demand model VHT fractions. Ramp fractions can be seen in Table 5. Base year fractions were assumed to apply to future years.

Table 5 – Ramp Fractions

RoadTypeID	Road Description	Ramp Fraction
2	Rural Restricted Access	0.02
4	Urban Restricted Access	0.13

Source Type Population

Source type population is based on a combination of local and MOVES default data. Local data was provided by ODOT based on 2010 motor vehicle registration. Default data is used for source types 41, 51, 54, 61, and 62. Future year growth rate is based on MPO model growth in cars which is an independent variable to the travel demand model. Table 6 shows source type population for the analyzed counties in 2008.

Table 6 – Source Type Population for year 2008

Source	sourceTypeName		Delaware	Licking	Fairfield	Madison &
11	MotorCycle	55,222	6,868	8,999	2,444	3,565
21	Passenger Car	878,901	97,120	128,334	35,905	43,829
31	Passenger Truck	383,900	44,774	58,759	16,550	31,914
32	Light Commercial Truck	11,553	1,348	1,768	498	1,280
41	Intercity Bus	294	66	83	23	66
42	Transit Bus	79	18	22	6	35
43	School Bus	1,582	357	446	126	405
51	Refuse truck	228	39	49	13	37
52	Single Unit Short-haul Truck	205	35	44	12	1,553
53	Single Unit Long-haul Truck	264	44	57	15	198
54	Motor Home	1,102	184	235	65	181
61	Comb Short-haul Truck	3,144	653	905	154	780
62	Comb Long-haul Truck	3,616	750	1,040	178	897

Vehicle Age Distribution

Vehicle age distribution information was derived using Ohio Bureau of Motor Vehicle registration data for year 2010. The data was given to Ohio EPA who supplied a VIN decoder that allowed ODOT to create correctly formatted MOVES inputs. MOVES default data is used for source types 41, 51, 54, 61, and 62. The registration data for most populous four counties were obtained in the non-attainment area and combined to create a regional vehicle age distribution file. This data is applied to all six counties in the region. The same age distribution will be used for all analysis years

Vehicle Type VMT and VMT Fractions

The first component of the VMT inputs is the Yearly HPMS VMT, but the travel demand model was used instead of ODOT's HPMS data since it was felt that the model would better predict future year VMT. ODOT's CMS post-processor was run for each year to generate congestion reports, which includes total daily VMT. The vehicle type percentages of the total VMT were based on ODOT's weigh-in-motion (WIM) data. Since there are not enough WIM stations for lower class facilities in the non-attainment area, a statewide average of all ODOT WIM data collectors was used. Daily VMT was then converted to yearly. The same method was used to generate all other analysis years

Output Emission Factors

Table 7 shows the first record in a MOVES sample output (rate per distance) emission file for year 2008. For any given month, day of week, hour of the day, pollutant, and process; the rate per distance varies by road type, and speed bin. Rates per distance emissions are applied to link and intrazonal VMT.

Table 7 – Sample Emission File (Rate per Distance)

Heading:	MOVESScenarioID	MOVESRunID	yearID	monthID	dayID	hourID
Record:	OhioCustomDomain	6	2008	7	5	1
Heading:	linkID	pollutantID	processID	sourceTypeID	SCC	fuelTypeID
Record:	990250201	3	0	1		0
Heading:	modelYearID	roadTypeID	avgSpeedBinID	temperature	relHumidity	ratePerDistance
Record:	0	2	1	48.9333	73	12.9489

Table 8 shows the first record in a MOVES sample output (rate per vehicle) emission file for year 2008. The rate per vehicle varies for any combinations of month, day of week, hour of the day, pollutant, and process. Rates per vehicle emissions are applied to the vehicle source type population.

Table 8 – Sample Emission File (Rate per Vehicle)

Heading:	MOVESScenarioID	MOVESRunID	yearID	monthID	dayID
Record:	OhioCustomDomain	6	2008	7	5
Heading:	hourID	zoneID	pollutantID	processID	sourceTypeID
Record:	1	990250	3	0	2
Heading:	SCC	fuelTypeID	modelYearID	temperature	ratePerVehicle
Record:		0	0	48.9333	0.054967

Analysis Years

The analysis years for transportation conformity must include the Transportation Plan horizon year, any milestone years (maintenance plan out year, 2040), and any interim years (to be less than ten years between analysis years). The Transportation Plan horizon year for MORPC and LCATS is 2040. The analysis years were determined, through the interagency consultation process. Thus, the years 2020, 2030 and 2040 are used for the ozone conformity analysis, since the future budget year established is 2020. The analysis years 2020, 2022, 2030 and 2034 are used for the PM 2.5 conformity analysis, since the future budget year established is 2022.

PM2.5 Precursors

The annual emission inventories will be developed for the direct PM2.5 pollutants, tail pipe, brake and tire wear and the precursor NOx. It is agreed through interagency consultation that no major pollutant is missing from the analysis. ODOT generated emission factors for both, but used the default values. Also, no significance findings were made for the precursors SOx, ammonia, or road dust.

Air Quality Consultation Process

The 1990 Clean Air Act amendments required identification of the consultation procedures that Ohio's air quality and transportation agencies will follow in the conformity process. To fulfill this requirement, the Ohio EPA has adopted Ohio Administrative Code 3745-101-04 to define the interagency consultation procedures used on air quality issues. These rules define a "straw man" process, whereby the lead agencies in the conformity process assume responsibility for preparing and distributing draft documents, with supporting information, and ensuring that each affected party involved in the conformity process is included in the consultation process. In addition, a Memorandum of Understanding (MOU) between MORPC, LCATS, ODOT and Ohio EPA has been signed to clarify OAC 3745-101-04 for the Columbus maintenance area. As a result of SAFETEA-LU Ohio EPA led the process to update MOU. This process concluded with signatures from all parties obtained in February/March 2008.

The Columbus non-attainment area Transportation Plan's conformity process employed the consultation procedures embodied in the rules. The procedures used in the current air quality analysis are comparable to the previous TIP and Transportation Plan conformity determinations. As necessary air quality consultation reports on conformity process for the Transportation Plan are prepared and distributed to MORPC's TAC and Transportation Policy committees, LCATS Policy Committee, ODOT, Ohio EPA, FHWA, FTA, and U.S. EPA. In addition, MORPC has had various telephone conversations and e-mail correspondence with Ohio EPA, ODOT and FHWA. Ohio EPA has also discussed various issues of transportation conformity with U.S. EPA. Documentation is provided in attachments to this appendix.

Section III: Quantitative Analysis

Projects Included in the Air Quality Analysis

Every location-specific project listed in the Metropolitan Transportation Plans are included in the Transportation Plan networks and listed in the following project listing. MORPC meets with the local agencies to identify potential MTP projects. We also compile projects based on the local agencies' Capital Improvement Plans and any local thoroughfare and/or comprehensive plans. Thus, both federally funded and non-federally funded projects are included. Our model network includes all the projects that can be coded on the regional network. These listings include intersection improvements and other minor network changes which are potentially exempt projects as defined the conformity regulations (40 CFR in sections 93.126 and 93.127). There are no TCM's in the SIP for the Columbus area. Thus, the projects included in the transportation plans are consistent with those stated in the SIP. The following tables (Tables 9-11) identify the projects that are included in the analysis for the years 2020/2022, 2030, and 2040 respectively.

Table 9: Additional Projects identified for year 2020/2022

Plan Project ID	Project Description (2020/2022)
7	Hayden Run Blvd. from Golden Cascade Dr. to Avery Rd., New Roadway 2 lane(s) each direction with complete street facilities
8	Cosgray Rd. extension from Alton & Darby Creek Rd. s. of Davis Rd. to Scioto & Darby Creek Rd. at Cosgray Rd., New Roadway 2 lane(s) each direction with complete street facilities
11	Lazelle Rd. from Flint Rd. to Sancus Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
13	Hamilton Rd. ext. from Hamilton Rd. (s. of old Dub.-Granvl. Rd) to Dublin-Granville Rd., New Roadway 2 lane(s) each direction with complete street facilities
23	Tuttle Crossing Blvd. extension from Avery Rd. to Wilcox Rd., New Roadway 2 lane(s) each direction with complete street facilities
34	Alum Creek Dr. from Refugee Rd. to Frebis Ave., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
36	US 23 at Pennsylvania Ave., Interchange modification
66	Trueman Blvd.-Edwards Farms Rd. connector from Davidson Rd. to Edwards Farms Rd., New Roadway 2 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2020/2022)
69	Worthington-Galena Rd. from Wilson Bridge Rd./Huntley Rd. to Sancus Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
72	Sunbury Rd. from County Line Rd./Smothers Rd. to Maxtown Rd., Add turn lanes and complete street facilities to 2 lane roadway
76	I-70 (East Freeway) at SR 310 (Hazelton-Etna Rd.), Interchange modification
79	Hamilton Rd. (SR 317) from Refugee Rd. to I-70 (East Freeway), Add turn lanes and complete street facilities to 4 lane roadway
88	Home Rd. extension from US 23 (Columbus Pk.) to Lewis Center Rd. (east of railroad), New Roadway 2 lane(s) each direction with complete street facilities
98	Old State Rd. from Polaris Pkwy. (SR 750) to Orange Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
104	Houk Rd. from US 36 (William St.) to SR 37 (Central Ave.), Add turn lanes and complete street facilities to 2 lane roadway
133	US 23 (Columbus Pk.) at SR 315 and Stratford Rd., Add/Modify turn lanes and add complete street facilities
146	Polaris Pkwy. from I-71 (North Freeway) to Worthington Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities
147	James Rd. from Livingston Ave. to Main St. (US 40), Add turn lanes and complete street facilities to 4 lane roadway
168	Taylor Rd. from Taylor Rd. SW to Windsor Rd., Add turn lanes and complete street facilities to 2 lane roadway
213	Cleveland Ave. (SR 710) at Schrock Rd. (SR 710), Add/Modify turn lanes and add complete street facilities
232	Scioto Darby Rd. at Walcutt Rd., Add/Modify turn lanes and add complete street facilities
235	Hill Rd. (SR 256) at Refugee Rd., Add/Modify turn lanes and add complete street facilities
239	Winchester Pike at Ebright Rd./Shannon Rd., Add/Modify turn lanes and add complete street facilities

Plan Project ID	Project Description (2020/2022)
242	Gender Rd. at Refugee Rd., Add/Modify turn lanes and add complete street facilities
248	Avery-Muirfield Dr. at Perimeter Dr. & Perimeter Loop Dr., Add/Modify turn lanes and add complete street facilities
262	Lazelle Rd. from Sancus Blvd. to Worthington-Galena Rd., Add turn lanes and complete street facilities to 2 lane roadway
338	Old 3C Hwy. from Mt. Royal Ave. to Freeman Rd., Add turn lanes and complete street facilities to 2 lane roadway
342	US 23 (Columbus Pk.) at Orange Rd., Add/Modify turn lanes and add complete street facilities
346	Refugee Rd. from Wheatfield Dr. to Woodstock Ave., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
359	Lazelle Rd. from High St. (US 23) to Flint Rd., Add turn lanes and complete street facilities to 2 lane roadway
375	I-270 from I-70 to US-33/SR-161, Widen freeway from 6 lanes to 8 lanes total both directions
376	I-71 from Pickaway County Line to SR-665, Widen freeway from 4 lanes to 6 lanes total both directions
379	US 33 from Hamilton Road to I-270 EB ramps, Widen freeway from 4 lanes to 6 lanes total both directions
539	Johnstown Rd. from Stygler Rd. to Olde Ridenour Rd., Add turn lanes and complete street facilities to 2 lane roadway
541	Winchester Pike at Bixby Rd./Brice Rd., Add/Modify turn lanes and add complete street facilities
542	US 62/SR 3 (Harrisburg Pk.) from Eakin Rd./Hopkins Ave. to Brown Rd., Add turn lanes and complete street facilities to 2 lane roadway
546	Joyce Ave. from Seventeenth Ave. to Kenmore Rd., Add turn lanes and complete street facilities to 2 lane roadway
547	Front St. from Broad St. to Hickory St., Convert from 4 one-way lanes to 4 lanes total both directions with complete street facilities

Plan Project ID	Project Description (2020/2022)
548	Marconi Blvd. from Broad St. to Hickory St., Convert from 3 one-way lanes to 2 lanes total both directions with complete street facilities
549	Hamilton Rd. from Morse Rd. to Chilmark Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
550	Sawmill Rd. from I-270 to Hard Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities
564	Wilcox Rd. at Hayden Run Rd., Add/Modify turn lanes and add complete street facilities
565	Reynoldsburg-New Albany Rd. at Clark State Rd., Add/Modify turn lanes and add complete street facilities
566	SR 315 at Home Rd., Add/Modify turn lanes and add complete street facilities
567	Georgesville Rd. at Holt Rd./Automall Dr., Add/Modify turn lanes and add complete street facilities
568	Worthington Rd. at Big Walnut Rd., Add/Modify turn lanes and add complete street facilities
569	William St. (US 36) from Lewis St. to E. Central ave. (SR 37), Add turn lanes and complete street facilities to 2 lane roadway
570	Alkire Rd. at Darby Creek Dr., Add/Modify turn lanes and add complete street facilities
571	Westerville Rd. at Innis Rd., Add/Modify turn lanes and add complete street facilities
604	Hilliard-Rome Rd. at Feder Rd./Fisher Rd., Add/Modify turn lanes and add complete street facilities
605	Livingston Ave. at Barnett Rd., Add/Modify turn lanes and add complete street facilities
693	Smothers Rd. at Schott Rd./Red Bank Rd., Construct roundabout with complete street facilities
765	Lewis Center Rd. at Worthington Rd./Rome Corners Rd., Construct roundabout with complete street facilities
766	Sunbury Rd. at Agler Rd./Cassady Ave., Add/Modify turn lanes and add complete street facilities
767	Mound St. at Central Ave./Harrisburg Pk., Add/Modify turn lanes and add complete

Plan Project ID	Project Description (2020/2022)
	street facilities
769	Home Rd. at Steitz Rd., Add/Modify turn lanes and add complete street facilities
770	High St. at Rathmell Ave., Add/Modify turn lanes and add complete street facilities
772	Main St. from I-270 to McNaughten Rd., Add turn lanes and complete street facilities to 4 lane roadway
775	Livingston Ave. from Front St. to High St., Convert from 2 one-way lanes to 2 lanes total both directions with complete street facilities
1117	I-70/I-71 (South Innerbelt) at I-70E/I-71N (east interchange), Reconfigure slip, loop and/or directional interchange ramps

Table 10: Additional Projects identified for year 2030

Plan Project ID	Project Description (2030)
3	Williams Rd. from Alum Creek Dr. to Hamilton Rd., Add turn lanes and complete street facilities to 2 lane roadway
9	Leppert Rd. from Scioto Darby Rd. to Hayden Run Rd., Add turn lanes and complete street facilities to 2 lane roadway
12	Sunbury Rd. from Agler Rd. to Morse Rd., Add turn lanes and complete street facilities to 2 lane roadway
26	Avery Rd. from Rings Rd. to Woerner-Temple Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
42	Avery Rd. from Britton-Cosgray connector to Tuttle Crossing Blvd. extension, Widen road from 2 lanes to 6 lanes total both directions with complete street facilities
43	Kinnear Rd. from North Star Rd. to Olentangy River Rd., Add turn lanes and complete street facilities to 2 lane roadway
48	Sunbury Rd. from Morse Rd. to SR 161, Add turn lanes and complete street facilities to 2 lane roadway
53	Cassady Ave. from Bexley north corp. limit to Agler Rd., Add turn lanes and complete street facilities to 2 lane roadway

Plan Project ID	Project Description (2030)
54	Hamilton Rd. from Chilmark Dr. to Hamilton Rd. realignment (ID 13), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
58	I-70 (East Freeway) at Brice Rd., Interchange modification
60	I-70 (East Freeway) at SR 256 and at Taylor Rd./SR 204, Interchange modification
62	Williams Rd. from Corr Rd./Lockbourne Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway
64	I-70 (East Freeway) from SR 256 (Baltimore-Reynoldsburg Rd.) to SR 310 (Hazelton-Etna Rd.), Widen freeway from 4 lanes to 6 lanes total both directions
70	Worthington-Galena Rd. from Sancus Blvd. to Lazelle Rd., Add turn lanes and complete street facilities to 2 lane roadway
75	SR 310 (Hazelton-Etna Rd.) from I-70 (East Freeway) to US 40 (National Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
77	SR 256 (Hill Rd.) from Diley Rd. to Town Square Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
80	I-270 (South Outerbelt) at US 33 (Southeast Freeway), Reconfigure slip, loop and/or directional interchange ramps
84	Tussing Rd. from Brice Rd. to SR 256 (Reynoldsburg-Baltimore Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
85	US 62/SR 3 (Harrisburg Pk.) from Hyde Rd. to Eakin Rd./Hopkins Ave., Add turn lanes and complete street facilities to 2 lane roadway
90	Glenn Pkwy. Extension from Existing Glenn Pkwy. to Berlin Station Rd., New Roadway 2 lane(s) each direction with complete street facilities
91	Scioto & Darby Creek Rd. from Cosgray Rd. to Bradford Dr., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
94	Cosgray Rd. from Scioto & Darby Creek Rd. to Hayden Run Rd, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
95	Valleyside Dr. from US 36 (William St.) to SR 37 (Central Ave.) at Lexington Blvd., New Roadway 1 lane(s) each direction with complete street facilities
99	US 36/SR 37 from I-71 to SR 3, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities

Plan Project ID	Project Description (2030)
100	SR 665 (London-Groveport Rd.) from Hoover Rd. to SR 104 (Jackson Pk.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
102	SR 665 (London-Groveport Rd.) from US 62 (Harrisburg Pk.) to Gateway West Dr., Add turn lanes and complete street facilities to 2 lane roadway
108	Britton Pkwy. from Davidson Rd. to Hayden Run Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
111	SR 310 (Hazelton-Etna Rd.) from US 40 (National Rd.) to Mill Street Rd., Add turn lanes and complete street facilities to 2 lane roadway
118	Livingston Ave. from Country Club Rd. to Briceton Dr., Add turn lanes and complete street facilities to 4 lane roadway
126	I-71 (East Innerbelt) from I-70/I-71 (South Innerbelt) to I-670/Fort Hayes Interchange, Widen freeway from 6 lanes to 8 lanes total both directions
127	Cemetery Rd. from Main St. (Hilliard) to Norwich St., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
129	Courtright Dr. extension from SR 256 (Hill Rd.) to Milnor Rd., New Roadway 1 lane(s) each direction with complete street facilities
135	I-70 (East Freeway) at I-270 (East Outerbelt), Reconfigure slip, loop and/or directional interchange ramps
140	I-71 (South Freeway) at I-270 (South Outerbelt), Reconfigure slip, loop and/or directional interchange ramps
148	Rings-Tuttle Crossing connector from Rings Rd. (at Rings Rd. relocation) to Tuttle Crossing Blvd., New Roadway 1 lane(s) each direction with complete street facilities
174	Bixby Rd. from Ebright Rd. to US 33 (Southeast Freeway), Add turn lanes and complete street facilities to 2 lane roadway
176	SR 317 (London-Groveport Rd.) from Alum Creek Dr. to Main St. (Groveport Rd.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
178	I-71 (South Freeway) at Stringtown Rd., Interchange modification
182	Courtright Rd. extension from Milnor Rd. to Pickerington Rd. at Stemen Rd., New Roadway 1 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2030)
183	Stygler Rd. from Johnstown Rd. to US 62, Add turn lanes and complete street facilities to 2 lane roadway
188	I-270 (South Outerbelt) at High St. (US 23), Interchange modification
192	Frantz Rd. extension from Post Rd. to High St. (Dublin Rd./SR 745), New Roadway 1 lane(s) each direction with complete street facilities
193	Eiterman Rd. relocation from Cosgray Rd. to Eiterman Rd., New Roadway 2 lane(s) each direction with complete street facilities
214	Goodale Blvd. from Edgeworth St. to Olentangy River Rd./Twin Rivers Dr., Add turn lanes and complete street facilities to 4 lane roadway
227	Churchman Rd. (Rings Rd. relocation) from Marmion Dr. to Rings Rd. (west of 3rd Ave in Amlin), New Roadway 1 lane(s) each direction with complete street facilities
261	Glenn Pkwy. from Berlin Station Rd. to Glenn Rd. (south of US 36/SR 37), New Roadway 2 lane(s) each direction with complete street facilities
270	I-70/I-71 (South Innerbelt) from I-71S/SR 315 (west interchange) to I-70E/I-71N (east interchange), Widen freeway from 6 lanes to 10 lanes total both directions
272	Riggins Rd. extension from Wilcox Rd. to Avery Rd., New Roadway 2 lane(s) each direction with complete street facilities
321	Wilson Rd. south extension (future) from Cheshire Rd. to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities
322	Sunbury Pkwy. (east section) from Wilson Rd. south extension (future) to US 36, New Roadway 2 lane(s) each direction with complete street facilities
323	Four Winds Dr. (south extension) from 3B's & K Rd. (north of Cheshire Rd.) to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities
324	Sunbury Pkwy. (west section) from US 36/SR 37 to Four Winds Dr. extension (future), New Roadway 2 lane(s) each direction with complete street facilities
325	Sunbury Pkwy. (middle section) from Four Winds Dr. extension (future) to Wilson Rd. south extension (future), New Roadway 2 lane(s) each direction with complete street facilities
326	Four Winds Dr. (north extension) from US 36/SR 37 to 3B's & K Rd., New Roadway 1 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2030)
330	Lyra Dr. from Gemini Pl. to Powell Rd., New Roadway 2 lane(s) each direction with complete street facilities
339	Old 3C Hwy. from Tussic Street Rd. to Harrison St. (Galena), Add turn lanes and complete street facilities to 2 lane roadway
343	Shanahan Rd. from US 23 (Columbus Pk.) to Piatt Rd., Add turn lanes and complete street facilities to 2 lane roadway
344	3B's & K Rd. from Plumb Rd. to US 36/SR 37, Add turn lanes and complete street facilities to 2 lane roadway
345	Cannon Dr. from Kinnear Rd. extension (future) to Lane Ave., New Roadway 2 lane(s) each direction with complete street facilities
347	US 33 (College Ave.) at Petzinger Rd., New interchange
349	SR 37 (Cherry St./Granville St.) from US 36/SR 3 to Walnut St., Add turn lanes and complete street facilities to 2 lane roadway
350	Cannon Rd. (relocation) from King Ave. to Kinnear Rd. extension (future), New Roadway 2 lane(s) each direction with complete street facilities
380	SR 161 from US-62 to Beech Road, Widen freeway from 4 lanes to 6 lanes total both directions
383	I-71 at TR 109 (Big Walnut Road), New interchange
384	I-71 at Sunbury Parkway, New interchange
385	I-71 at Jackson Pike Ramp at SR 104 (Frank Road), Modify ramp termini intersection(s)
425	Brand Rd. from Avery Rd to Hyland-Croy Rd, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
426	Cosgray Rd. from Dublin South Corp Limit to Tuttle Crossing Blvd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
427	Cosgray Rd. from Tuttle Crossing Blvd. to Shier Rings Rd., Add turn lanes and complete street facilities to 2 lane roadway
428	Cosgray Rd. from Shier Rings Rd. to Fishel Drive South, Add turn lanes and complete street facilities to 2 lane roadway
430	Eiterman Rd. from Bobcat Way to Shier Rings Rd., Add turn lanes and complete street

Plan Project ID	Project Description (2030)
	facilities to 2 lane roadway
433	Hyland-Croy Rd. from Post Rd. to Brock Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
434	Industrial Pkwy from US 42 to Memorial Dr (Plain City), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
435	Perimeter Dr. from Holt Rd./Perimeter Loop Dr. to Emerald Pkwy, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
437	Research Pkwy. from Eiterman Rd. to SR 161/Post Rd., New Roadway 1 lane(s) each direction with complete street facilities
442	Tuttle Crossing Blvd. extension from Cosgray Rd. to Avery Rd., New Roadway 1 lane(s) each direction with complete street facilities
443	Tuttle Crossing Blvd. extension from Amity Pike to Cosgray Rd., New Roadway 1 lane(s) each direction with complete street facilities
459	South Horseshoe Rd. from E. Dublin-Granville Rd. to East Beech Rd., New Roadway 1 lane(s) each direction with complete street facilities
460	West Beech Rd. from E. Dublin-Granville Rd. to South Horseshoe Rd., New Roadway 1 lane(s) each direction with complete street facilities
461	Beech Rd. connector from West Beech Rd. to East Beech Rd., New Roadway 1 lane(s) each direction with complete street facilities
462	Smith's Mill Rd. extension from Smith's Mill Rd. North to Harrison Rd., New Roadway 1 lane(s) each direction with complete street facilities
463	Clover Valley Rd. extension from Jug St. to Innovation Way extension, New Roadway 1 lane(s) each direction with complete street facilities
464	SR-161 from Harlem Rd. to US-62, Widen freeway from 4 lanes to 6 lanes total both directions
475	East Beech Rd. from South Horseshoe Rd. to Worthington Rd., New Roadway 1 lane(s) each direction with complete street facilities
530	Innovation Way from Existing Innovation Way end to Mink St. Rd., New Roadway 1 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2030)
537	Old 3C Hwy from Freeman Rd. to Tussic Rd., Add turn lanes and complete street facilities to 2 lane roadway
633	Big Walnut Rd. from Africa Rd. to Worthington Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
636	Powell Rd. from Old State Rd. to I-71, Add turn lanes and complete street facilities to 2 lane roadway
637	Powell Rd. from I-71 to Worthington Rd., Add turn lanes and complete street facilities to 2 lane roadway
682	Rickenbacker Pkwy Extension from Ashville Pike to Pontious Rd., New Roadway 2 lane(s) each direction with complete street facilities
745	Cottswold Dr. extension from US 23 to Stratford Rd., New Roadway 1 lane(s) each direction with complete street facilities
746	Jeg's Blvd. extension from US 42 to Sawmill Pkwy., New Roadway 1 lane(s) each direction with complete street facilities
748	SR 37 (W Central Ave.) from CSX Railway to Lexington Blvd., Add turn lanes and complete street facilities to 2 lane roadway
749	SR 37 (E Central Ave.) from US 23 to US 36, Add turn lanes and complete street facilities to 2 lane roadway
787	I-70 from I-270 to Brice Rd., Widen freeway from 6 lanes to 8 lanes total both directions
805	Allen Rd. extension from Stemen Rd. to Auult Rd., New Roadway 1 lane(s) each direction with complete street facilities
810	County Line Rd. from Cleveland Ave. to Africa Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities
811	Altair Pkwy extension from Altair Pkwy (existing) to State St. (at Hoff Rd.), New Roadway 1 lane(s) each direction with complete street facilities
812	Westar Blvd. extension from Westar Blvd. (existing) to County Line Rd. (at Thompson Ave.), New Roadway 1 lane(s) each direction with complete street facilities
813	Thompson Ave. from County Line Rd. to Polaris Pkwy., New Roadway 1 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2030)
819	Tech Center Dr. extension from Science Blvd. to Taylor Station Rd., New Roadway 1 lane(s) each direction with complete street facilities
875	West Case St. (proposed) from Big Bear Ave. to Traditions Way, New Roadway 1 lane(s) each direction with complete street facilities
877	Depot St. extension (north) from Case Ave. to Adventure Park Dr., New Roadway 1 lane(s) each direction with complete street facilities
878	Sharp St. extension (west) from N. Liberty St. to Depot St. (proposed), New Roadway 1 lane(s) each direction with complete street facilities
879	Sharp St. extension (east) from existing Sharp St. end to Grace Dr., New Roadway 1 lane(s) each direction with complete street facilities
880	Hall St. extension from Scioto St. to Sharp St. (proposed), New Roadway 1 lane(s) each direction with complete street facilities
881	Depot St. extension (south) from Powell City Hall to Liberty St., New Roadway 1 lane(s) each direction with complete street facilities
882	Grace Dr. extension from Powell Rd. to Liberty St., New Roadway 1 lane(s) each direction with complete street facilities
883	Liberty - Grace connector (north) from Liberty St. to Grace Dr extension (proposed), New Roadway 1 lane(s) each direction with complete street facilities
884	Liberty - Grace connector (south) from Liberty St. to Grace Dr. extension (proposed), New Roadway 1 lane(s) each direction with complete street facilities
904	Tuttle Crossing Blvd. extension from Rings Rd. to Houchard Rd., New Roadway 1 lane(s) each direction with complete street facilities
907	I-670 from 4th St. to I-270, Apply traffic management strategies to specific lanes during specified times of day
908	I-70 (east freeway) from Alum Creek Dr. to SR 310, Apply traffic management strategies to specific lanes during specified times of day
921	John Shields Pkwy. from Riverside Dr. to Shawan Falls Dr. (proposed), New Roadway 1 lane(s) each direction with complete street facilities
922	Shawan Falls Dr. extension from Existing Shawan Falls Dr. to John Shields Pkwy (proposed), New Roadway 1 lane(s) each direction with complete street facilities

Plan Project ID	Project Description (2030)
923	Post Rd. extension from Kilgour Pl to High St./Dublin Rd., New Roadway 1 lane(s) each direction with complete street facilities
924	John Shields Pkwy Phase 2 from Dale Dr. to Village Pkwy., New Roadway 1 lane(s) each direction with complete street facilities
925	Village Center Pkwy extension from Existing Village Center Pkwy to SR 161, New Roadway 1 lane(s) each direction with complete street facilities
936	Dempsey Rd. from I-270 to Sunbury Rd., Add turn lanes and complete street facilities to 2 lane roadway
1108	Easton Square Place extension from Morse Crossing to Stelzer Rd., New Roadway 1 lane(s) each direction with complete street facilities
1182	Alum Creek Dr. from SR 317 to Groveport Rd., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities
1183	Blaney Rd. (CR-15) Extension/Realignment from Home Rd. to US 42, New Roadway 2 lane(s) each direction with complete street facilities
1184	Ravenhill Pkwy extension from Existing western terminus to Mitchell-Dewitt Rd., New Roadway 1 lane(s) each direction with complete street facilities
1188	Watkins-California Rd. realignment from Watkins-California Rd. to US 42, New Roadway 1 lane(s) each direction with complete street facilities
1190	Long Rd. from Columbus St. to Diley Rd., Add turn lanes and complete street facilities to 2 lane roadway
1192	John Shields Pkwy from Village Pkwy to Dublin Center Dr., New Roadway 1 lane(s) each direction with complete street facilities
LCATS	IR70 widening through Licking County

Table 11: Additional Projects identified for year 2040

Plan Project ID	Project Description (2040)
1	Lockbourne Rd. from SR 104 (Frank-Refugee Freeway) to Livingston Ave. (US 33), Add turn lanes and complete street facilities to 2 lane roadway

Plan Project ID	Project Description (2040)
2	Mckinley Ave. from Grandview Ave. to Central Ave., Add turn lanes and complete street facilities to 4 lane roadway
14	Watkins Rd. from Groveport Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway
17	Veterans Pkwy. from US 23 at US 42 to US 36/SR 37, New Roadway 2 lane(s) each direction with complete street facilities
18	Galloway Rd.-Hilliard Rome Rd. connector from Broad St. (US 40) to Feder Rd., New Roadway 2 lane(s) each direction with complete street facilities
33	Gender Rd. from US 33 (Southeast Freeway) to Brice Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
39	Trabue Rd./Renner Rd. from Hilliard-Rome Rd. to Conrail overpass, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
40	I-270 (North Outerbelt) at SR 315 (Olentangy Freeway), Reconfigure slip, loop and/or directional interchange ramps
49	Hudson St. from McGuffey Rd. to Cleveland Ave. (SR 3), Add turn lanes and complete street facilities to 2 lane roadway
55	Sunbury Rd. from Leonard Ave. to Agler Rd., Add turn lanes and complete street facilities to 2 lane roadway
59	Courtright Rd. from Refugee Rd. to Livingston Ave., Add turn lanes and complete street facilities to 2 lane roadway
63	Groveport Rd. from Watkins Rd. to Williams Rd., Add turn lanes and complete street facilities to 2 lane roadway
67	US 33 (Riverside Dr.) from Lane Ave. to Fishinger Rd., Add turn lanes and complete street facilities to 4 lane roadway
81	US 33 (Southeast Freeway) from Gender Rd. (SR 674) to Hill Rd./Diley Rd., Convert 4 lane roadway to 4 lane freeway
82	US 33 (Southeast Freeway) from Hamilton Rd. (SR 317) to Gender Rd. (SR 674), Convert 4 lane roadway to 4 lane freeway
83	US 33 (Southeast Freeway) at Bixby Rd., New interchange
92	Broad St. (SR 16) from McNaughten Rd. to Taylor Rd., Widen road from 4 lanes to 6

Plan Project ID	Project Description (2040)
	lanes total both directions with complete street facilities
93	Roberts Rd. from Alton & Darby Creek Rd. to Hilliard Rome Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
96	Sawmill Pkwy. extension from US 42 at Sawmill Pkwy. (s. of Slack Rd.) to Section Line Rd. (south of Airport Rd.), New Roadway 1 lane(s) each direction with complete street facilities
97	Home Rd. from Section Line Rd. to US 23 (Columbus Pk.), Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
110	Waggoner Rd. from Main St. (US 40) to Broad St. (SR 16), Add turn lanes and complete street facilities to 2 lane roadway
113	Noe Bixby Rd. from Winchester Pk. to Main St. (US 40), Add turn lanes and complete street facilities to 2 lane roadway
122	Johnstown Rd. from Goshen La. to Stygler Rd., Add turn lanes and complete street facilities to 2 lane roadway
152	Hill Rd. from Hill Rd. relocation (n. of Busey Rd.) to Columbus St. (SR 256), Add turn lanes and complete street facilities to 2 lane roadway
153	Busey Rd. from Bowen Rd. to Allen Rd., Add turn lanes and complete street facilities to 2 lane roadway
155	Bixby Rd. from US 33 (Southeast Freeway) to Winchester Pk., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
166	US 33/SR 161 at Frantz Rd/Post Rd., Add/Modify turn lanes and add complete street facilities
173	Waggoner Rd. from Broad St. (SR 16) to Havens Corners Rd., Add turn lanes and complete street facilities to 2 lane roadway
175	Bixby-Sims connector from Bixby Rd. (west of US 33) to Sims Rd. (at Winchester Blvd. extension), New Roadway 2 lane(s) each direction with complete street facilities
177	Groveport Rd. from Williams Rd. to Alum Creek Dr., Add turn lanes and complete street facilities to 2 lane roadway
187	Third Ave. from Edgehill Rd. to Olentangy River Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities

Plan Project ID	Project Description (2040)
189	I-70/I-71 (South Innerbelt) at I-71S/SR 315 (west interchange), Reconfigure slip, loop and/or directional interchange ramps
196	Broad St. (SR 16) at James Rd., Add/Modify turn lanes and add complete street facilities
197	Cleveland Ave. at Oakland Park Ave., Add/Modify turn lanes and add complete street facilities
199	Livingston Ave. (US 33) at Alum Creek Dr., Add/Modify turn lanes and add complete street facilities
208	High St. (US 23) at Obetz Rd., Add/Modify turn lanes and add complete street facilities
209	Morse Rd. at Westerville Rd. (SR 3), Add/Modify turn lanes and add complete street facilities
211	Henderson Rd. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities
212	Dublin-Granville Rd. (SR 161) at Karl Rd., Add/Modify turn lanes and add complete street facilities
218	Ebright-Bixby interchange connector from Ebright Rd. (north of rail line) to Bixby-Sims connector (future), New Roadway 2 lane(s) each direction with complete street facilities
221	Big Walnut Rd. at Tussic Street Rd., Add/Modify turn lanes and add complete street facilities
222	South Old State Rd. at Cheshire Rd., Add/Modify turn lanes and add complete street facilities
223	Hills Miller Rd. at Troy Rd., Add/Modify turn lanes and add complete street facilities
224	Cheshire Rd. at Africa Rd., Add/Modify turn lanes and add complete street facilities
225	Cheshire Rd. at Galena Rd./Rome Corners Rd., Add/Modify turn lanes and add complete street facilities
226	Liberty Rd. at Jewett Rd., Add/Modify turn lanes and add complete street facilities
233	Milnor Rd. from Pickerington Rd. to Refugee Rd., Add turn lanes and complete street facilities to 2 lane roadway

Plan Project ID	Project Description (2040)
236	Pickerington Rd. (Center St.) at Milnor Rd./Meadows Blvd., Add/Modify turn lanes and add complete street facilities
250	Columbus St. (Wright Rd.) from Diley Rd. to Hill Rd. (SR 256), Add turn lanes and complete street facilities to 2 lane roadway
251	SR 521 at Bowtown Rd., Add/Modify turn lanes and add complete street facilities
260	US 23 (Columbus Pk.) at Cheshire Rd., Add/Modify turn lanes and add complete street facilities
263	Old State Rd. from Orange Rd. to Lewis Center Rd., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
271	I-70 (East Freeway) from I-71 (East Innerbelt) to Kelton Ave., Widen freeway from 8 lanes to 10 lanes total both directions
386	US 33 at SR-161/Post Road, Interchange modification
387	I-270 at Cemetery Road, Interchange modification
414	US 33 (Columbus-Lancaster Rd) from Hill Rd/Diley Rd to Lancaster Bypass, Convert 4 lane roadway to 4 lane freeway
419	US 33/SR 161 from Dublin-Plain City Rd (SR 161/Post Rd) to Avery-Muirfield Dr, Widen freeway from 4 lanes to 6 lanes total both directions
422	Winchester Blvd from Kroger/Home Depot Shopping Center to West, New Roadway 1 lane(s) each direction with complete street facilities
423	High St (Canal Winchester) at US 33, New Roadway 1 lane(s) each direction with complete street facilities
453	Norwich St. from Cemetery Rd. to Scioto Darby Rd., New Roadway 1 lane(s) each direction with complete street facilities
465	Dublin-Granville Rd. at Fodor Rd./Market St., Construct roundabout with complete street facilities
468	Kitzmiller Rd. at Smith's Mill Rd., Construct roundabout with complete street facilities
471	Palmer Rd. from Graham Rd. to Ravine Way (corp limit), Add turn lanes and complete street facilities to 2 lane roadway
474	Dublin-Granville Rd. from Sawmill Rd. to Linworth Rd., Widen road from 2 lanes to 4

Plan Project ID	Project Description (2040)
	lanes total both directions with complete street facilities
482	Champion Ave. at Mt. Vernon Ave., Add/Modify turn lanes and add complete street facilities
483	Champion Ave. at Broad St., Add/Modify turn lanes and add complete street facilities
575	Merrick - Troy Connector from Merrick Blvd. to Troy Rd., New Roadway 1 lane(s) each direction with complete street facilities
581	Ferguson - Vernon Connector from Ferguson Ave. to Vernon Ave., New Roadway 1 lane(s) each direction with complete street facilities
598	Hyatts Rd. at Liberty Rd., Add/Modify turn lanes and add complete street facilities
607	Delaware Northeast Bypass from US 23 to US 36, New Roadway 2 lane(s) each direction with complete street facilities
632	SR 3 at Galena Rd., Add/Modify turn lanes and add complete street facilities
648	Hudson St. at Indianola Ave., Add/Modify turn lanes and add complete street facilities
651	Olentangy River Rd. at Goodale Blvd., Add/Modify turn lanes and add complete street facilities
652	King Ave. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities
654	Seventeenth Ave. at I-71 off ramp, Add/Modify turn lanes and add complete street facilities
676	Trabue Rd. at Dublin Rd., Add/Modify turn lanes and add complete street facilities
679	US 23 from I-270 S to Pickaway County Line, Convert 4 lane roadway to 4 lane freeway
704	Tremont Rd. at Redding Rd., Construct roundabout with complete street facilities
723	Refugee Rd. at Pickerington Rd., Construct roundabout with complete street facilities
727	Scioto-Darby Rd. at Leap Rd., Add/Modify turn lanes and add complete street facilities
735	High St. at Greenlawn Ave., Add/Modify turn lanes and add complete street facilities

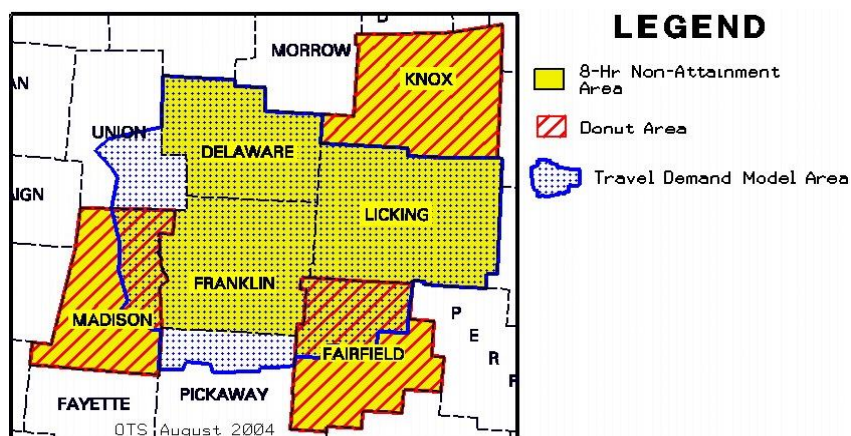
Plan Project ID	Project Description (2040)
750	US 36/SR 37 from Bowtown Rd. to SR 37 split, Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
751	Merrick Pkwy from Troy Rd. to US 23, New Roadway 1 lane(s) each direction with complete street facilities
764	Gender Rd. at Groveport Rd., Add/Modify turn lanes and add complete street facilities
781	SR 161 at Cosgray Rd., Construct roundabout with complete street facilities
782	Refugee Rd. from Mink Rd. to SR 310, Add turn lanes and complete street facilities to 2 lane roadway
792	Groveport Rd. from Swisher Rd. to SR 317, Add turn lanes and complete street facilities to 2 lane roadway
808	Cleveland Ave. from County Line Rd. to Polaris Pkwy., Widen road from 4 lanes to 6 lanes total both directions with complete street facilities
809	State St. from County Line Rd. to Polaris Pkwy., Widen road from 2 lanes to 4 lanes total both directions with complete street facilities
815	Stygler Rd. at Agler Rd., Add/Modify turn lanes and add complete street facilities
818	Havens Corners Rd. from Hamilton Rd. to Taylor Station Rd., Add turn lanes and complete street facilities to 2 lane roadway
834	Etna Rd. from Hamilton Rd. to Country Club Rd., Add turn lanes and complete street facilities to 2 lane roadway
836	I-70 - US 33 Connector (SE) from I-70 (East Freeway) to US 33 (SE), New Roadway 2 lane(s) each direction with complete street facilities
838	I-70 at Hamilton Rd., Modify ramp termni intersection(s)
852	SR 204 at Milnor Rd., Construct roundabout with complete street facilities
853	SR 204 at Harmon Rd., Add/Modify turn lanes and add complete street facilities
854	SR 204 at Taylor rd., Add/Modify turn lanes and add complete street facilities
856	Ackerman Rd. at Fred Taylor, Add/Modify turn lanes and add complete street facilities
868	Kinnear Rd. at Kenny Rd., Add/Modify turn lanes and add complete street facilities

Plan Project ID	Project Description (2040)
910	SR 315 from I-670 to I-270, Apply traffic management strategies to specific lanes during specified times of day
911	I-71 (North Freeway) from I-670 to I-270, Apply traffic management strategies to specific lanes during specified times of day
935	College Ave. from Otterbein Ave. to Spring Rd., Add turn lanes and complete street facilities to 2 lane roadway
937	Schrock Rd. at Cooper Rd., Add/Modify turn lanes and add complete street facilities
948	Grandview Ave. at Fifth Ave., Add/Modify turn lanes and add complete street facilities
949	Grandview Ave. at Third Ave., Add/Modify turn lanes and add complete street facilities
953	Livingston Ave. from High St. to Mohawk St., Convert from 3 one-way lanes to 2 lanes total both directions with complete street facilities
961	Main St. from High St. to Grant Ave., Convert from 2 one-way lanes to 2 lanes total both directions with complete street facilities
1107	Sullivant Ave. at Hague Ave., Add/Modify turn lanes and add complete street facilities
1119	Dublin-Granville Rd. at Linworth Rd., Add/Modify turn lanes and add complete street facilities
1120	Dublin-Granville Rd. at Olentangy River Rd., Add/Modify turn lanes and add complete street facilities

Conformity Analysis for Ozone

The conformity analysis consists of comparing the pollutant burden in the non-attainment area resulting from the projects listed in the MORPC and LCATS Transportation Plans to the approved emission budgets.

Fig 1: Columbus / Newark 8-Hour Nonattainment Area



The ozone marginal non-attainment has established 8-hour budgets for VOC and NO_x for the six county area. Thus, the conformity test requirements is the budget test with the budgets being the values shown previously in Table 1.

The Regional model is used in evaluating emissions for the Franklin, Delaware and Licking counties. Modeled portions of Fairfield, and Madison Counties are also evaluated by using Regional model. The VOC and NO_x emissions modeled are summarized in the following Tables.

Emission estimates summary of results is presented in the next sections.

Areas within The Regional Travel Demand Model

Table 12: Emission Estimations for On-Road Mobile Sources - Franklin County

Franklin County	2020	2030	2040
VMT (miles/day)	36,386,814	38,843,26	41,137,50
VOC (tons/day)	32.350	27.925	28.136
NO _x (tons/day)	60.678	51.039	50.567

Table 13: Emission Estimations for On-Road Mobile Sources - Delaware County

Delaware County	2020	2030	2040
VMT (miles/day)	6,410,371	7,413,649	8,379,502
VOC (tons/day)	3.442	3.252	3.494
NO _x (tons/day)	7.797	7.145	7.611

Table 14: Emission Estimations for On-Road Mobile Sources - Licking County

Licking County	2020	2030	2040
VTM (miles/day)	6,285,906	7,006,267	7,746,020
VOC (tons/day)	4.001	3.561	3.789
NOx (tons/day)	8.531	7.402	7.761

Areas partially within The Regional Travel Demand Model

Counties that are partially within regional travel demand model are Fairfield County, and Madison County. Tables 15a, and 15b, summarize emissions estimates for Fairfield County, for the areas within and outside travel demand model area, respectively. Results presented in Table 15a is for the area covered by the travel demand model. Table 15b is for the area not covered by the travel demand model, obtained by using HPMS data. Table 15c presents the emissions for the entire Fairfield County, which is simply sum of emissions from Tables 15a, and 15b.

Table 15a: Emission Estimations for Fairfield County within the Travel Demand Model Area

Fairfield County	2020	2030	2040
VTM (miles/day)	2,061,96	2,262,546	2,359,020
VOC (tons/day)	1.079	0.913	1.027
NOx (tons/day)	2.478	2.083	2.203

Table 15b: Emission Estimations for Fairfield County outside of the Travel Demand Model Area- using HPMS data

Fairfield County	2020	2030	2040
VTM (miles/day)	2,242,634	2,641,843	3,036,549
VOC (tons/day)	1.046	0.931	1.005
NOx (tons/day)	2.237	1.996	2.139

Table 15c: Emission Estimations for Fairfield County

Fairfield County	2020	2030	2040
VTM (miles/day)	4,304,596	4,904,389	5,395,569
VOC (tons/day)	2.125	1.844	2.032
NOx (tons/day)	4.715	4.079	4.342

Tables 16a, and 16b, summarize emissions estimates for Madison County, for the areas within and outside travel demand area, respectively. Results presented in Table 16a is for the area covered by the travel demand model. Table 16b is for the area not covered by the travel demand model, obtained based on HPMS VMT. Table 16c presents the emissions for the entire Madison county, which is simply sum of emissions from Tables 16a, and 16b.

Table 16a: Emission Estimations for Madison County within the Travel Demand Model Area

Madison County	2020	2030	2040
VMT (miles/day)	1,013,538	1,152,756	1,279,454
VOC (tons/day)	0.503	0.478	0.513
NOx (tons/day)	1.180	1.079	1.143

Table 16b: Emission Estimations for Madison County outside of the Travel Demand Model Area - using HPMS data

Madison County	2020	2030	2040
VMT (miles/day)	2,601,728	2,962,869	3,315,531
VOC (tons/day)	0.939	0.853	0.913
NOx (tons/day)	2.238	1.997	2.116

Table 16c: Emission Estimations for Madison County

Madison County	2020	2030	2040
VMT (miles/day)	3,615,266	4,115,625	4,594,985
VOC (tons/day)	1.442	1.331	1.427
NOx (tons/day)	3.419	3.076	3.258

Area outside Regional Travel Demand Model

Table 17, summarizes emissions estimates for Knox County, and the results presented in this Table used methodology based on HPMS data.

Table 17: Emission Estimations for Knox County – using only HPMS

Knox County	2020	2030	2040
VMT (miles/day)	1,297,675	1,342,317	1,382,776
VOC (tons/day)	0.712	0.642	0.681
NOx (tons/day)	1.464	1.327	1.393

Total Emissions for the Columbus/Central Ohio area

Table 18, summarizes emissions estimates for the entire six county area. These emissions presented here is simply sum of all emissions in six counties summarized in Tables 12 through 17.

Table 18: Emission Estimations for On-Road Mobile Sources for Columbus/Central Ohio

Central Ohio Area	2020	2030	2040
VMT (miles/day)	58,300,62	63,625,50	68,636,35
VOC (tons/day)	44.073	38.555	39.559
NOx (tons/day)	86.603	74.069	74.931

Emissions Summary for the Columbus/Central Ohio Area

Tables 19 and 20, summarize VOC and NOx emissions estimates respectively for the analysis years. The summary presented in the following tables is from the aforementioned in Tables 12 through 17.

Table 19: VOC Emission Inventory Summary (tons/day)

VOC	2020	2030	2040
Franklin	32.350	27.925	28.136
Delaware	3.442	3.252	3.494
Licking	4.001	3.561	3.789
Fairfield	2.125	1.844	2.032
Madison	1.442	1.331	1.427
Knox	0.712	0.642	0.681
Total	44.073	38.555	39.559

Table 20: NOx Emission Inventory Summary (tons/day)

NOx	2020	2030	2040
Franklin	60.678	51.039	50.567
Delaware	7.797	7.145	7.611
Licking	8.531	7.402	7.761
Fairfield	4.715	4.079	4.342
Madison	3.419	3.076	3.258
Knox	1.464	1.327	1.393
Total	86.603	74.069	74.931

Conformity Determination for Ozone

Table 21 illustrates that the emissions for VOC and NO_x are less than their corresponding budgets. Thus, the MORPC and LCATS Transportation Plans are in conformity with the requirements of the CAAA and the SIP.

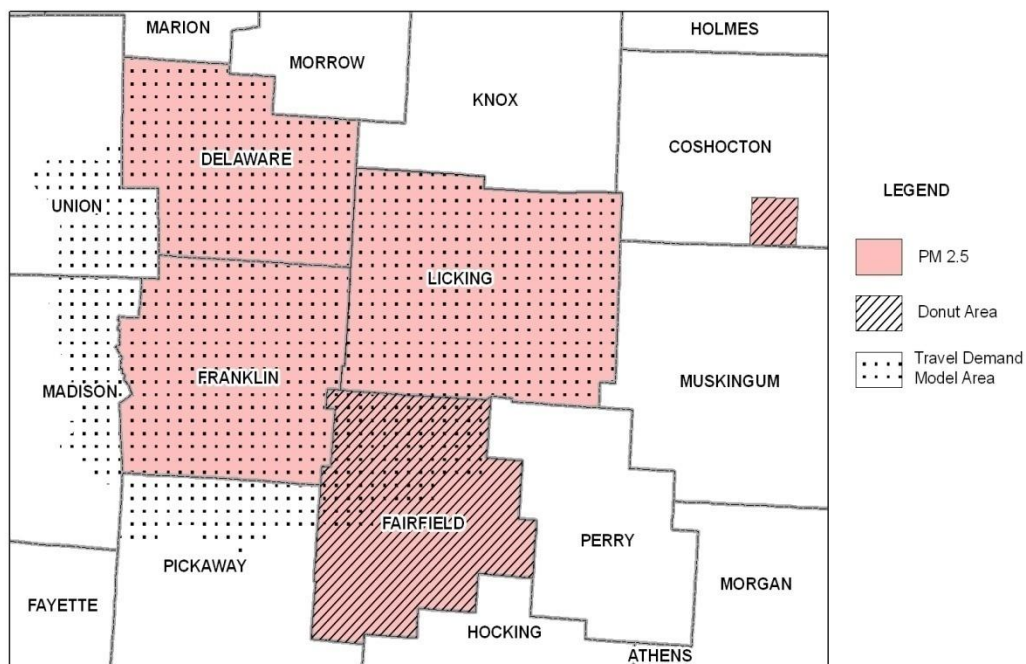
Table 21: Air Quality Analysis for the Columbus Ozone Nonattainment Area

	VOC (tons/day)	Budget (tons/day)	NOx (tons/day)	Budget (tons/day)
2020	44.073	50.34	86.603	99.12
2030	38.555	50.34	74.069	99.12
2040	39.559	50.34	74.931	99.12

Conformity Analysis for PM2.5

The PM2.5 non-attainment area is illustrated in Figure 2 as the shaded area. The non-attainment area is divided into a modeled area comprised of Franklin, Delaware and Licking Counties and part of Fairfield County, and into the donut area which includes the remainder of Fairfield County, and Franklin Twp in Coshocton County, as shown in Figure 2. The model coverage area will use the post-processors link-level procedures to compute the emissions, while the non-modeled donut areas will utilize the ODOT HPMS county level VMT by functional class data.

Figure 2: Columbus / Newark PM2.5 Redesignated to Attainment Area



The PM2.5 redesignated to attainment area is shown on the above figure as the shaded area. The area is divided into a modeled area comprised of Franklin, Delaware and Licking counties and part of Fairfield County, and into the donut area which includes the remainder of Fairfield County, and Franklin Township in Coshocton County, as shown in Figure 2.

Emission estimates summary of results is presented in the next sections.

Areas within The Regional Travel Demand Model

Table 22: Emission Estimations for On-Road Mobile Sources - Franklin County

Franklin	2020	2022	2030	2040
VT (miles/yr)	12,286,400,415	12,438,122,520	13,103,545,260	13,898,715,280
PM _{2.5} (tons/yr)	357.14	325.54	303.46	310.10
NO _x (tons/yr)	8,395.19	7,026.55	5,465.49	5,084.66

Table 23: Emission Estimations for On-Road Mobile Sources - Delaware County

Delaware	2020	2022	2030	2040
VT (miles/yr)	2,160,911,325	2,227,788,085	2,501,484,065	2,833,651,220
PM _{2.5} (tons/yr)	50.55	47.03	46.63	51.22
NO _x (tons/yr)	1,395.96	1,189.44	989.08	981.20

Table 24: Emission Estimations for On-Road Mobile Sources - Licking County

Licking	2020	2022	2030	2040
VT (miles/yr)	2,128,400,045	2,172,990,635	2,365,619,020	2,611,678,295
PM _{2.5} (tons/yr)	51.29	47.10	45.21	48.17
NO _x (tons/yr)	1,385.41	1,167.95	947.09	915.76

Area partially within The Regional Travel Demand Model

One county that is partially within regional travel demand model is Fairfield County.

Tables 25a, and 25b, summarize emissions estimates for Fairfield County, for the areas within and outside travel demand model area, respectively. Results presented in Table 25a is for the area covered by the travel demand model. Table 25b is for the area not covered by the travel demand model, these are derived by using HPMS based VT data. Table 25c presents the emissions for the entire Fairfield county, which is simply sum of emissions from Tables 25a, and 25b.

Table 25a: Emission Estimations for Fairfield County within the Travel Demand Model Area

Fairfield	2020	2022	2030	2040
VT (miles/yr)	699,339,270	712,448,975	761,433,800	798,110,825
PM _{2.5} (tons/yr)	16.57	15.33	14.32	15.11
NO _x (tons/yr)	442.64	371.31	291.41	269.29

Table 25b: Emission Estimations for Fairfield County outside of the Travel Demand Model Area- using HPMS data

Fairfield	2020	2022	2030	2040
VTM (miles/yr)	580,497,825	586,829,115	613,777,795	651,449,080
PM2.5 (tons/yr)	15.40	14.20	12.96	13.40
NOx (tons/yr)	370.33	310.76	236.30	223.05

Table 25c: Emission Estimations for Fairfield County - sum of emissions from both the Travel Demand Model area as well as the HPMS area

Fairfield	2020	2022	2030	2040
VTM (miles/yr)	1,279,837,095	1,299,278,090	1,375,211,595	1,449,559,905
PM2.5 (tons/yr)	31.97	29.53	27.28	28.50
NOx (tons/yr)	812.97	682.07	527.71	492.34

Area outside Regional Travel Demand Model

Tables 26, summarizes emissions estimates for Franklin Township in Coshocton County, and the results presented in this Table used methodology based on HPMS data.

Table 26: Emission Estimations for Franklin Twp in Coshocton County – using only HPMS

Coshocton (Fr twp)	2020	2022	2030	2040
VTM (miles/yr)	22,958,865	23,091,360	23,652,365	24,431,640
PM2.5 (tons/yr)	0.69	0.62	0.58	0.58
NOx (tons/yr)	12.96	10.69	7.74	7.12

Emissions Summary for the Columbus PM 2.5 non-attainment Area

Tables 27, and 28, summarize PM 2.5, NOx, emissions estimates respectively for the analysis years, in the units of tons/year of emissions. The summary presented in the following tables is from the aforementioned in Tables 22 through 26.

Table 27: PM 2.5 Emission Inventory Summary (tons/year)

PM 2.5 (tons/yr)	2020	2022	2030	2040
Franklin	357.14	325.54	303.46	310.10
Delaware	50.55	47.03	46.63	51.22
Licking	51.29	47.10	45.21	48.17
Fairfield	31.97	29.53	27.28	28.50
Franklin Township	0.69	0.62	0.58	0.58
Total	491.64	449.83	423.16	438.58

Table 28: NOx Emission Inventory Summary (tons/year)

NOx (tons/yr)	2020	2022	2030	2040
Franklin	8,395.19	7,026.55	5,465.49	5,084.66
Delaware	1,395.96	1,189.44	989.08	981.20
Licking	1,385.41	1,167.95	947.09	915.76
Fairfield	812.97	682.07	527.71	492.34
Franklin Township	12.96	10.69	7.74	7.12
Total	12,002.49	10,076.70	7,937.11	7,481.08

Conformity Determination for PM2.5

The conformity test for the Columbus PM2.5 nonattainment area consisting of the modeled counties of Franklin, Delaware and Licking, the modeled portion of the Fairfield County and the HPMS-based areas of Fairfield County and Coshocton County is the “no greater than 2002 Baseline Interim Conformity Test.” Table 29 illustrates that the emissions for NO_x and PM2.5 are less than the Budgets established. Thus, the MORPC and LCATS Transportation Plans are in conformity for PM 2.5 with the requirements of the CAAA and the SIP.

Table 29: Air Quality Analysis for the Columbus PM2.5 Nonattainment Area

	NOx (tons/year)	Budget (tons/year)	PM 2.5 (tons/year)	Budget (tons/year)
2020	12,002	25,084.11	491.64	873.46
2022	10,077	12,187.50	449.83	559.13
2030	7,937	12,187.50	423.16	559.13
2040	7,481	12,187.50	438.58	559.13

Attachment A-Technical Air Quality Information

Franklin, Delaware, Licking, Fairfield, Madison and Knox
County Ozone Non-Attainment Area

and the

Franklin, Delaware, Licking, Fairfield, and Coshocton
(Franklin Twp) County PM_{2.5} Maintenance Area

Appendix A – Model Script, Figures illustrating Data

Ozone Analysis Reports Data

CUBE VOYAGER PROGRAM SCRIPT FOR COMPUTING VOC & NOx EMISSIONS

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

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BUT 9 2
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CLA12 3
CLE13 2
CLI14 4
COL15 4
COS16 4
CRA17 4
CUY18 1
DAR19 4
DEF20 4
DEL21 2
ERI22 3
FAI23 4
FAY24 4
FRA25 1
FUL26 4
GAL27 4
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JAC40 4
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LAW44 3

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MORPC 2016-2040 Metropolitan Transportatoin Plan

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LCATS 2016-2040 Metropolitan Transportatoin Plan

LIC45 3
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 LOR47 2
 LUC48 2
 MAD49 4
 MAH50 2
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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
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7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
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RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
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URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
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48	42	40	44	48	48	44	46	44							
RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44	44							
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							

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curve11	50	50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6	36.2
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9								
curve12	50	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5	32.9
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5								
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3	33.5
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12								
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1	29.4
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6								
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5	26.4
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6								
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1	23.5
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1								
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8	23.1
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9								
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4	20.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6								
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5	19.1
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8								
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1	18.6
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6								
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6	17
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9								

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

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MAX VC RATIO FWY: 1.30
 MAX VC RATIO ART: 1.30
 MAX ITERATIONS : 1000

TRUCK PCE: {cm3tpce}

AQ SEASON FACTOR: {cm3aqfact}
 ENDCOPY

rrmode='{cm3rrmode}'
 if(rrmode='NORMAL')
 COPY FILE=dailyb.dat

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))																
CLS	TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS	BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS	END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS	NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0																

ENDCOPY
 volfff='li.1.{cm3volff}'
 trkfff='{cm3trkf}'
 if (trkfff == 'NONE') then
 trkff='_zero'
 else
 trkff='li.1.{cm3trkf}'
 endif
 vol1s='_zero'
 vol2s='_zero'
 vol3s='_zero'
 vol4s='_zero'
 vol5s='_zero'
 vol6s='_zero'
 vol7s='_zero'
 vol8s='_zero'
 vol9s='_zero'
 vol10s='_zero'
 vol11s='_zero'
 vol12s='_zero'
 vol13s='_zero'
 vol14s='_zero'
 vol15s='_zero'
 vol16s='_zero'
 elseif(rrmode='4PERIOD_OMS')
 COPY FILE=dailyb.dat

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

```

CLS TRK      0      0      0      0      1      1      1      1      0      0      0      0      0      0      0
0
CLS BEG      18      6      9      14     18      6      9      14      0      0      0      0      0      0      0
0
CLS END       5      8     13     17      5      8     13     17      0      0      0      0      0      0      0
0
CLS NUM       1      1      1      1      3      3      3      3      0      0      0      0      0      0      0
0

```

```

ENDCOPY
  volff='_zero'
  trkff='_zero'
  volls='li.1.volnt_aut'
  vol2s='li.1.volam_aut'
  vol3s='li.1.volmd_aut'
  vol4s='li.1.volpm_aut'
  vol5s='li.1.volnt_trk'
  vol6s='li.1.volam_trk'
  vol7s='li.1.volmd_trk'
  vol8s='li.1.volpm_trk'
  vol9s='_zero'
  voll0s='_zero'
  voll1s='_zero'
  voll2s='_zero'
  voll3s='_zero'
  voll4s='_zero'
  voll5s='_zero'
  voll6s='_zero'
elseif(rrmode='4PERIOD_SW')
COPY FILE=dailyb.dat

```

```

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))
CLS TRK      0      0      0      0      1      1      1      1      0      0      0      0      0      0      0
0
CLS BEG      19      7     10     16     19      7     10     16      0      0      0      0      0      0      0
0
CLS END       6      9     15     18      6      9     15     18      0      0      0      0      0      0      0
0
CLS NUM       1      1      1      1      3      3      3      3      0      0      0      0      0      0      0
0

```

```

ENDCOPY
  volff='_zero'
  trkff='_zero'
  volls='li.1.evol_aut'
  vol2s='li.1.amvol_aut'
  vol3s='li.1.mdvol_aut'
  vol4s='li.1.pmvol_aut'
  vol5s='li.1.evol_trk'
  vol6s='li.1.amvol_trk'
  vol7s='li.1.mdvol_trk'
  vol8s='li.1.pmvol_trk'

```

```

vol9s='_zero'
vol10s='_zero'
vol11s='_zero'
vol12s='_zero'
vol13s='_zero'
vol14s='_zero'
vol15s='_zero'
vol16s='_zero'
elseif(rrmode='4PERIOD_MARKETSEGMENTS_SW')
COPY FILE=dailyb.dat

```

```

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))
CLS TRK      0      0      0      0      1      1      1      1      0      0      0      0      0      0      0
0
CLS BEG      19      7      10     16     19      7      10     16     19      7      10     16     19      7      10
16
CLS END       6      9      15     18      6      9      15     18      6      9      15     18      6      9      15
18
CLS NUM       1      1      1      1      3      3      3      3      2      2      2      2      4      4      4
4

```

```

ENDCOPY
volff='_zero'
trkff='_zero'
vol1s='li.1.evvol_autwk'
vol2s='li.1.amvol_autwk'
vol3s='li.1.mdvol_autwk'
vol4s='li.1.pmvol_autwk'
vol5s='li.1.evvol_trkhv'
vol6s='li.1.amvol_trkhv'
vol7s='li.1.mdvol_trkhv'
vol8s='li.1.pmvol_trkhv'
vol9s='li.1.evvol_autnw'
vol10s='li.1.amvol_autnw'
vol11s='li.1.mdvol_autnw'
vol12s='li.1.pmvol_autnw'
vol13s='li.1.evvol_trklt'
vol14s='li.1.amvol_trklt'
vol15s='li.1.mdvol_trklt'
vol16s='li.1.pmvol_trklt'
endif

```

```

*if exist daily.dat del daily.dat
*copy dailya.dat+dailyb.dat daily.dat
*del dailya.dat
*del dailyb.dat
RUN PGM=NETWORK
NETI={cm3neti.q}
LINKO=templnk.txt, format = TXT, include = a(6),b(6),junk1(1),junk1(4),junks(1),moffpspd(4),
        ctoll(4),junkb(1),lanes(1),twidth(2),junkb(1),terrain(1),junk1(1),junkb(1),
        cap(6),vol(6),loneway(1),boffpspd(4),ttoll(4),junkb(1),blanes(1),areatype(1),admclass(1),

```

```

        junkb(1),bterrain(1),junk1(1),junkb(1),bcap(6),bvol(6),medturn(1),pcttrk(2),junk1(2),
        func(2),lnkgrp(2),mpostspd(2),jurisdic(1),county(3),rtenumb(5),junk1(7),nhs(1),
        fedfunc(2),trkvol(5),junkp(1),junk1(30),junk1(30),junk1(30),junk1(21),mdist(6),
        vol1(6),vol2(6),vol3(6),vol4(6),vol5(6),vol6(6),vol7(6),vol8(6),vol9(6),vol10(6),vol11(6),
        vol12(6),vol13(6),vol14(6),vol15(6),vol16(6)
NODEO=tempnod.txt, format = TXT, include = junkn(1),n(6),x(11),y(11)
PHASE=NODEMERGE
junkn='N'
ENDPHASE
PHASE=LINKMERGE
zero=0
junk1=0
junks='S'
junkp='P'
fffff='{cm3pri}'
/*;commented out 04/02/2012

if(fffff=='SW')
    if(li.1.admclass==1 && li.1.district <13 && li.1.district>0)
        junkp='P' ;state system
    elseif(li.1.district<13 && li.1.district>0)
        junkp='G' ;non-state
    else
        junkp='U' ;out of state
    endif
elseif(fffff=='OMS')
    if(li.1.admclass<6)
        junkp='P'
    else
        junkp='G'
    endif
endif
/*;commented out 04/02/2012

jurisdic=' '
nhs=0
fedfunc=li.1.fedfunc1

junkb=' '
ctoll=0; =cartoll*10
ttoll=0; =trktoll*10
mdist = LI.1.DIST*1000
moffpspd=li.1.offpspd*100
mpeakspd=li.1.peakspd*100
cap=li.1.{cm3capf}*{cm3kfact}
loneway='1' ; el_oneway change
bcap=0
bvol=0
boffpspd=0
bpeakspd=0

```

```

        blanes=0
        bterrain=0
        mpostspd=round(li.1.postspd)
        vol=@volfff@
        trkvolt=@trkfff@
        vol1=@vol1s@
        vol2=@vol2s@
        vol3=@vol3s@
        vol4=@vol4s@
        vol5=@vol5s@
        vol6=@vol6s@
        vol7=@vol7s@
        vol8=@vol8s@
        vol9=@vol9s@
        vol10=@vol10s@
        vol11=@vol11s@
        vol12=@vol12s@
        vol13=@vol13s@
        vol14=@vol14s@
        vol15=@vol15s@
        vol16=@vol16s@
    ENDPHASE
ENDRUN
aqmode='{cm3aqtype}'
if (aqmode=='MOBILE')
*copy {cm3effile.q} tempef.txt
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\postcms10.exe templnk.txt tempcms.txt N tempef.txt {cm3rmode}
*del tempef.txt
else
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\postcms10.exe templnk.txt tempcms.txt N NONE {cm3rmode}
endif
if (aqmode=='MOVES')
*copy {cm3effile.q} tempef.txt
if (rrmode='NORMAL' && trkfff == 'NONE') then
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\movesnet.exe hourly.rpt tempef.txt cmstext.rpt {cm3aqfact}
else
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\movesnet.exe hourly.rpt tempef.txt cmstext.rpt {cm3aqfact} 1 {cm3tpce} 3
endif
endif

RUN PGM=NETWORK
NETI[1]={cm3neti.q}
LINKI[2]=tempcms.txt var=a,1-6,b,8-13,
        cvmt,97-111,cTRKVMt,113-128,cVOLPERLANE,130-137,cCONINDEX,139-146,
        cvcratio,148-155,cPEAKHOUR,157-160,cvht,162-169,cCONGDELAY,171-178,
        cPHYSDELAY,180-187,cSPDLIMDELAY,189-196,cDELAYRATIO,198-205,
        cDIR1HRSEXCEED,229-232,cDIR2HRSEXCEED,234-237,cPKVMT,253-267,cEXCEEDVMT,269-283,
        cEXCEEDPKVMT,285-299,cLOS,317,1,,1,
        select=(substr(record,1,1) != 'A')
NODEI[2]=tempnod.txt var=n,2-7, x,8-18, y,19-29

```

```

    NETO={cm3neto.q}
    MERGE RECORD=F
ENDRUN

iiztype='{cm3iztype}'
if(iiztype=='TEXT')
*copy {cm3ifile.q} tempif.txt
elseif(iiztype=='OMSTABLE')

RUN PGM=MATRIX
FILEO PRINTO[1] = tempif.txt
FILEI MATI[1] = {cm3ifile.q}
MW[1]=mi.1.5+mi.1.10+mi.1.15
jloop
if(j=i)
print list=i(4.0),mw[1][j](6.0),printo=1
endif
endjloop
ENDRUN

endif

if(iiztype!='NONE')
*copy {cm3afile.q} tempaf.txt

if(aqmode=='MOBILE')
*copy {cm3ieffile.q} tempief.txt
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\intracal2.exe tempif.txt summary.rpt tempaf.txt tempief.txt
*del tempief.txt

elseif(aqmode=='MOVES')
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\movesintra.exe tempif.txt tempef.txt tempaf.txt cmstext.rpt {cm3aqfact}
*del tempef.txt
endif

*del tempaf.txt
*DEL tempif.txt
endif

if(aqmode=='MOVES')
*copy {cm3ieffile.q} tempief.txt
*copy {cm3vfile.q} tempveh.txt
*N:\AQ\MOVES\morpc\07_2014_update\Ozone\model\AQ\utils\movesveh.exe tempveh.txt tempief.txt cmstext.rpt {cm3aqfact}
*del tempveh.txt
*del tempief.txt
endif

if(aqmode=='MOVES')
*echo MOVES BASED EMISSIONS REPORT > tempcom.txt
elseif(aqmode=='MOBILE')

```

```

*echo MOBILE BASED EMISSIONS REPORT >> tempcom.txt
else
*echo NO EMISSIONS ANALYSIS CONDUCTED >> tempcom.txt
endif
*echo {cm3aqcom} >> tempcom.txt
*echo Loaded Network:           {cm3neti} >> tempcom.txt
*echo Network Emission Factors: {cm3effile} >> tempcom.txt
if(aqmode=='MOVES')
*echo Vehicle Emission Factors: {cm3ieffile} >> tempcom.txt
*echo Vehicle Population       : {cm3vfile} >> tempcom.txt
else
*echo Intrazonal Emission Factors: {cm3ieffile} >> tempcom.txt
endif
*echo Intrazonal Trips :           {cm3ifile} >> tempcom.txt
*echo Area File (sq mi):           {cm3afile} >> tempcom.txt
*echo Volume Field Used:           {cm3volf} >> tempcom.txt
*echo Truck Volume Field Used:     {cm3trkf} >> tempcom.txt
*echo Capacity Field Used:         {cm3capf} >> tempcom.txt
*echo ----- >> tempcom.txt
*copy /B tempcom.txt+cmstext.rpt {cm3rpto.q}
*if exist {cm3sumo.q} del {cm3sumo.q}
*rename summary.rpt {cm3sumo.q}
*del tempcom.txt
*del cmstext.rpt
*DEL tempnod.txt
*DEL templnk.txt
*DEL tempcms.txt
hhro=rightstr('{cm3hro}',4)
if(hhro=='NONE')
*del hourly.rpt
else
*if exist {cm3hro.q} del {cm3hro.q}
*rename hourly.rpt {cm3hro.q}
endif

```

Appendix – MORPC Travel Demand Model Emissions Run Report for 2020

Ozone Analysis

MOVES BASED EMISSIONS REPORT

Ozone Analysis with MOVES - MORPC

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2020\AQ_asgn_2020.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2020MORPC_ozone_3source_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2020MORPC_ozone_3source_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\Source_Type_Pop_2020_MORPC_on-Model.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2020\FRA2020.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Truck Volume Field Used: NONE
 Capacity Field Used: CAP24

CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:09:37:42

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							

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RUR FWY		44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44								
RUR ART		40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44	44								
LOS E VC		0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375								
SPEEDVC																
curve1		75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5								
curve2		70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8								
curve3		65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6								
curve4		60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2								
curve5		55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5								
curve6		60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4								
curve7		55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2								
curve8		50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9								
curve9		45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8								
curve10		50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4								
curve11		50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6	36.2
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9								
curve12		50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5	32.9
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5								
curve13		40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3	33.5
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12								
curve14		40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1	29.4
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6								
curve15		40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5	26.4
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6								
curve16		35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1	23.5
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1								
curve17		35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8	23.1
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9								
curve18		35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4	20.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6								
curve19		30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5	19.1
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8								
curve20		30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1	18.6
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6								
curve21		30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6	17
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9								

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VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUI, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30
MAX VC RATIO ART: 1.30
MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.08

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000

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ASD	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	5928344.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	1901589.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	33663648.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	5805972.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	937264.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	79730.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	878326.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	1862631.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	127039.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	51169944.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	5928344.	0.0000	0.0000	0.0000	0.0000
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	1901589.	0.0000	0.0000	0.0000	0.0000
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	33663648.	0.0000	0.0000	0.0000	0.0000
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	5805972.	0.0000	0.0000	0.0000	0.0000
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	937264.	0.0000	0.0000	0.0000	0.0000
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	79730.	0.0000	0.0000	0.0000	0.0000
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	878326.	0.0000	0.0000	0.0000	0.0000
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	1862631.	0.0000	0.0000	0.0000	0.0000
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	127039.	0.0000	0.0000	0.0000	0.0000
TOT	APRIL	51169944.	0.0000	0.0000	0.0000	0.0000
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	6402612.	1.3932	4.1015	0.0000	0.0000
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000

FAI	JULY	2053717.	0.4362	1.3017	0.0000	0.0000
FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	36356740.	13.0966	31.9291	0.0000	0.0000
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	6270450.	1.6191	4.4858	0.0000	0.0000
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	1012245.	0.2035	0.6208	0.0000	0.0000
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	86108.	0.0182	0.0548	0.0000	0.0000
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	948592.	0.1730	0.5564	0.0000	0.0000
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000

SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	2011642.	0.5738	1.5570	0.0000	0.0000
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	137203.	0.0188	0.0680	0.0000	0.0000
TOT	JULY	55263540.	17.5231	44.6608	0.0000	0.0000
MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	27847.	0.0000	0.0000	0.0000	0.0000	
APRIL	27847.	0.0000	0.0000	0.0000	0.0000	
JULY	30074.	0.0052	0.0174	0.0000	0.0000	
MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2089669.	0.0000	0.0000	0.0000	0.0000	
APRIL	2089669.	0.0000	0.0000	0.0000	0.0000	
JULY	2256843.	25.7675	40.2006	0.0000	0.0000	

Appendix – MORPC Travel Demand Model Emissions Run Report for 2030

Ozone Analysis

MOVES BASED EMISSIONS REPORT

Ozone Analysis with MOVES - MORPC

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2030\AQ_asgn_2030.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2030MORPC_ozone_3source_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2030MORPC_ozone_3source_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\Source_Type_Pop_2030_MORPC_on-Model.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2030\FRA2030.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Truck Volume Field Used: NONE
 Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:09:46:41

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							

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RUR FWY		44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44								
RUR ART		40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44	44								
LOS E VC		0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875		12.5	13.125	13.75	14.375							
SPEEDVC																
curve1		75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5								
curve2		70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8								
curve3		65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6								
curve4		60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2								
curve5		55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5								
curve6		60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4								
curve7		55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2								
curve8		50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9								
curve9		45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8								
curve10		50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4								
curve11		50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6	36.2
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9								
curve12		50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5	32.9
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5								
curve13		40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3	33.5
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12								
curve14		40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1	29.4
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6								
curve15		40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5	26.4
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6								
curve16		35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1	23.5
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1								
curve17		35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8	23.1
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9								
curve18		35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4	20.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6								
curve19		30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5	19.1
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8								
curve20		30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1	18.6
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6								
curve21		30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6	17
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9								

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VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUI, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30

MAX VC RATIO ART: 1.30

MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.08

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000

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ASD	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	6855548.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	2085837.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	35936540.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	6470913.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	1065974.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	90152.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	931607.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	2196761.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	142909.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	55761432.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	6855548.	0.0000	0.0000	0.0000	0.0000
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	2085837.	0.0000	0.0000	0.0000	0.0000
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	35936540.	0.0000	0.0000	0.0000	0.0000
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	6470913.	0.0000	0.0000	0.0000	0.0000
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	1065974.	0.0000	0.0000	0.0000	0.0000
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	90152.	0.0000	0.0000	0.0000	0.0000
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	931607.	0.0000	0.0000	0.0000	0.0000
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	2196761.	0.0000	0.0000	0.0000	0.0000
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	142909.	0.0000	0.0000	0.0000	0.0000
TOT	APRIL	55761432.	0.0000	0.0000	0.0000	0.0000
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	7403992.	1.1047	2.7099	0.0000	0.0000
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000

FAI	JULY	2252704.	0.3098	0.7892	0.0000	0.0000
FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	38811464.	9.4873	19.3614	0.0000	0.0000
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	6988587.	1.2093	2.8064	0.0000	0.0000
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	1151252.	0.1623	0.4093	0.0000	0.0000
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	97365.	0.0146	0.0360	0.0000	0.0000
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	1006135.	0.1303	0.3454	0.0000	0.0000
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000

SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	2372502.	0.4564	1.0408	0.0000	0.0000
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	154341.	0.0149	0.0437	0.0000	0.0000
TOT	JULY	60222348.	12.8816	27.5277	0.0000	0.0000
MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	29440.	0.0000	0.0000	0.0000	0.0000	
APRIL	29440.	0.0000	0.0000	0.0000	0.0000	
JULY	31796.	0.0039	0.0105	0.0000	0.0000	
MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2529559.	0.0000	0.0000	0.0000	0.0000	
APRIL	2529559.	0.0000	0.0000	0.0000	0.0000	
JULY	2731924.	25.0443	45.0473	0.0000	0.0000	

Appendix – MORPC Travel Demand Model Emission Run Report for 2040

Ozone Analysis

MOVES BASED EMISSIONS REPORT

Ozone Analysis with MOVES - MORPC

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2040\AQ_asgn_2040.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2040MORPC_ozone_3source_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\2040MORPC_ozone_3source_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Ozone\factors\Source_Type_Pop_2040_MORPC_on-Model.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2040\FRA2040.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Truck Volume Field Used: NONE
 Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:09:52:02

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							

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RUR FWY		44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44								
RUR ART		40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44	44								
LOS E VC		0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875		12.5	13.125	13.75	14.375							
SPEEDVC																
curve1		75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5								
curve2		70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8								
curve3		65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6								
curve4		60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2								
curve5		55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5								
curve6		60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4								
curve7		55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2								
curve8		50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9								
curve9		45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8								
curve10		50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4								
curve11		50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6	36.2
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9								
curve12		50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5	32.9
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5								
curve13		40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3	33.5
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12								
curve14		40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1	29.4
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6								
curve15		40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5	26.4
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6								
curve16		35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1	23.5
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1								
curve17		35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8	23.1
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9								
curve18		35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4	20.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6								
curve19		30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5	19.1
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8								
curve20		30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1	18.6
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6								
curve21		30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6	17
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9								

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VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUI, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30

MAX VC RATIO ART: 1.30

MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.08

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000

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ASD	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	7748101.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	2173685.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	38059260.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	7153830.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	1183090.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

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MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	100432.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	1003991.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	2531273.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	158894.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	60097608.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	7748101.	0.0000	0.0000	0.0000	0.0000
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	2173685.	0.0000	0.0000	0.0000	0.0000
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	38059260.	0.0000	0.0000	0.0000	0.0000
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	7153830.	0.0000	0.0000	0.0000	0.0000
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	1183090.	0.0000	0.0000	0.0000	0.0000
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	100432.	0.0000	0.0000	0.0000	0.0000
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	1003991.	0.0000	0.0000	0.0000	0.0000
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	2531273.	0.0000	0.0000	0.0000	0.0000
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	158894.	0.0000	0.0000	0.0000	0.0000
TOT	APRIL	60097608.	0.0000	0.0000	0.0000	0.0000
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	8367950.	1.1497	2.6508	0.0000	0.0000
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000

FAI	JULY	2347579.	0.3377	0.7665	0.0000	0.0000
FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	41104004.	9.2603	17.6169	0.0000	0.0000
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	7726137.	1.2466	2.7023	0.0000	0.0000
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	1277738.	0.1689	0.3981	0.0000	0.0000
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	108467.	0.0152	0.0349	0.0000	0.0000
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	1084310.	0.1332	0.3289	0.0000	0.0000
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000

SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	2733775.	0.4860	1.0359	0.0000	0.0000
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	171605.	0.0154	0.0424	0.0000	0.0000
TOT	JULY	64905420.	12.8049	25.5661	0.0000	0.0000
MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	31020.	0.0000	0.0000	0.0000	0.0000	
APRIL	31020.	0.0000	0.0000	0.0000	0.0000	
JULY	33501.	0.0038	0.0096	0.0000	0.0000	
MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2718164.	0.0000	0.0000	0.0000	0.0000	
APRIL	2718164.	0.0000	0.0000	0.0000	0.0000	
JULY	2935617.	26.1116	47.8233	0.0000	0.0000	

Appendix – Model Script, Figures illustrating Data

APPENDIX: CUBE VOYAGER PROGRAM SCRIPT FOR COMPUTING PM2.5 & NOX EMISSIONS

```
;Input Network File: {cm3neti,filename,"Input Network File Name",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\Networks\2020\AQ_asgn_2020.net","Network File (*.net)|*.net"}
;Output Network File: {cm3neto,filename,"Output Network File Name",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\PM2_5\output\AQ_2020out.net","Network File (*.net)|*.net"}
;Output CSV Summary File: {cm3sumo,filename,"Output CSV Summary File",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\PM2_5\output\fra20_v3.csv","Report File (*.csv;*.txt)|*.csv;*.txt"}
;Output TXT Report File: {cm3rpto,filename,"Output TXT Report File",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\PM2_5\output\fra20_v3.rpt","Report File (*.rpt;*.txt)|*.rpt;*.txt"}
;Output CSV Hourly File: {cm3hro,filename,"Output CSV Hourly File (Needed for benefits calc but very big)",x,"NONE","Report File
(*.csv;*.txt)|*.csv;*.txt"}
;Note: {cm3junkname,note,"Optional Air Quality Files, Leave Blank When Not Doing Air Quality Calculations"}
;AQ Run Type: {cm3aqtype,combolist,"AQ Run Type","MOVES","NONE","MOBILE"}
;AQ Comment Line: {cm3aqcom,editbox,"Optional AQ Report Comment",T,"PM2.5 Conformity Analysis - morpc"}
;Input Network Emissions Factors: {cm3effile,filename,"Input Network Emissions Factors",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\PM2_5\emissions\2020MORPC_rpd.csv","Emissions File (*.fac;*.csv)|*.fac;*.csv"}
;Input Vehicle (MOV) or Intrazonal (MOB) Emissions Factors: {cm3ieffile,filename,"Input Vehicle (MOV) or Intrazonal (MOB) Emissions
Factors",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2020MORPC_rpv.csv","Emissions File (*.crd;
*.csv)|*.crd; *.csv"}
;Input area file: {cm3afile,filename,"Input Area File",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\TripTables\TAZ_areaain.txt","Text File (*.txt; *.prn)|*.txt; *.prn"}
;Input Intrazonal Trips File: {cm3ifile,filename,"Input Intrazonal Trips (Matrix must be OMS format else use text)",x,"O:\TPlan\MTP16
(2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2020\FRA2020.txt","Matrix or Text File (*.txt; *.prn; *.mat; *.trp)|*.txt; *.prn;
*.mat; *.trp"}
;Intrazonal File Type: {cm3iztype,combolist,"Intrazonal File Type","TEXT","NONE","OMSTABLE"}
;Input vehicle file: {cm3vfile,filename,"Input Vehicle File (Moves Only)",x,"O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ
Conformity\PM2_5\emissions\STP2020MORPC.csv","Text File (*.csv)|*.csv"}
;Space: {cm3space,note,"Parameters"}
;Truck PCE: {cm3tpce,editbox,"Truck PCE",N,"2.0"}
;Capacity Field: {cm3capf,comboedit,"Capacity Field","CAP24","CAP1","CAP2","CAP3","CAP4"}
;Hourly/Model Capacity Factor: {cm3kfact,editbox,"Hourly/Model (usually daily) Capacity Factor",N,"1.00"}
;AQ Season Factor: {cm3aqfact,comboedit,"AQ Season Factor (Ozone Only)","1.00","1.08"}
;Set Priority Code from ADMCLASS?: {cm3pri,combolist,"Set Priority Code from ADMCLASS? (CMS COST can use)","NO","SW","OMS"}
;Run Mode: {cm3rmode,combolist,"Run Mode (only use Normal for AQ for
now)","NORMAL","4PERIOD OMS","4PERIOD SW","4PERIOD MARKETSEGMENTS_SW"}
;Note: {cm3junkname2,note,"Normal Mode Inputs (if you specify another mode the fields are predetermined)"}
;Volume Field: {cm3vol,comboedit,"Volume Field","VOL24_TOT","V_1","LOADEDVOL","WINTERVOL","SUMMERVOL"}
;Truck Volume Field: {cm3trkf,comboedit,"Truck Volume Field (leave to none if doing AQ for
now)","NONE","VOL24_TRK","VOL24_TRKHV","V2_1"}
;;<<End Parameters>>;
```

```

*if exist tempcms.txt DEL tempcms.txt
*if exist summary.rpt DEL summary.rpt
*if exist hourly.rpt DEL hourly.rpt
*if exist cmstext.rpt DEL cmstext.rpt
COPY FILE=county.dat
ADA 1 4
ALL 2 3
ASD 3 4
ATB 4 4
ATH 5 4
AUG 6 4
BEL 7 3
BRO 8 4
BUT 9 2
CAR10 4
CHP11 4
CLA12 3
CLE13 2
CLI14 4
COL15 4
COS16 4
CRA17 4
CUI18 1
DAR19 4
DEF20 4
DEL21 2
ERI22 3
FAI23 4
FAY24 4
FRA25 1
FUL26 4
GAL27 4
GEA28 2
GRE29 2
GUE30 4
HAM31 1
HAN32 4
HAR33 4
HAS34 4
HEN35 4
HIG36 4
HOC37 4
HOL38 4
HUR39 4
JAC40 4
JEF41 3
KNO42 4
LAK43 2
LAW44 3
LIC45 3

```

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LOG46 4
 LOR47 2
 LUC48 2
 MAD49 4
 MAH50 2
 MAR51 4
 MED52 2
 MEG53 4
 MER54 4
 MIA55 2
 MOE56 4
 MOT57 2
 MRG58 4
 MRW59 4
 MUS60 4
 NOB61 4
 OTT62 4
 PAU63 4
 PER64 4
 PIC65 4
 PIK66 4
 POR67 2
 PRE68 4
 PUT69 4
 RIC70 3
 ROS71 4
 SAN72 4
 SCI73 4
 SEN74 4
 SHE75 4
 STA76 2
 SUM77 2
 TRU78 2
 TUS79 4
 UNI80 4
 VAN81 4
 VIN82 4
 WAR83 2
 WAS84 3
 WAY85 4
 WIL86 4
 WOO87 2
 WYA88 4
 ENDCOPY

COPY FILE=dailya.dat

15	16	17	18	19	20	21	22	23	7	8	9	10	11	12	13	14
PCTADT																
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1	
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								

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URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							
RUR FWY	44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44							
RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44	44							
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	50	49.9	49.8	49.7	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							
curve11	50	50	50	50	50	50	49.9	49.7	48.9	48	46.7	44.9	42.5	39.6	36.2
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9							

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curve12	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5	32.9
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5							
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12							
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6							
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6							
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1							
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9							
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6							
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8							
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6							
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9							

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30

MAX VC RATIO ART: 1.30

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MAX ITERATIONS : 1000

TRUCK PCE: {cm3tpce}

AQ SEASON FACTOR: {cm3aqfact}
ENDCOPY

rrmode='{cm3rrmode}'
if(rrmode='NORMAL')
COPY FILE=dailyb.dat

MODEL CLASS	PARAMETERS	(MAX 4 CLASSES,	HOURS 0-23 W/ NO OVERLAP IN CLASS,	ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))												
CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																

ENDCOPY

```
volfff='li.1.{cm3volff}'  
trkffff='{cm3trkff}'  
if (trkffff == 'NONE') then  
  trkfff='_zero'  
else  
  trkfff='li.1.{cm3trkff}'  
endif  
vol1s='_zero'  
vol2s='_zero'  
vol3s='_zero'  
vol4s='_zero'  
vol5s='_zero'  
vol6s='_zero'  
vol7s='_zero'  
vol8s='_zero'  
vol9s='_zero'  
vol10s='_zero'  
vol11s='_zero'  
vol12s='_zero'  
vol13s='_zero'  
vol14s='_zero'  
vol15s='_zero'  
vol16s='_zero'  
elseif(rrmode='4PERIOD_OMS')  
COPY FILE=dailyb.dat
```

MODEL CLASS	PARAMETERS	(MAX 4 CLASSES,	HOURS 0-23 W/ NO OVERLAP IN CLASS,	ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))												
CLS TRK	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
0																

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CLS BEG	18	6	9	14	18	6	9	14	0	0	0	0	0	0	0
CLS END	5	8	13	17	5	8	13	17	0	0	0	0	0	0	0
CLS NUM	1	1	1	1	3	3	3	3	0	0	0	0	0	0	0

```

ENDCOPY
  volff='_zero'
  trkff='_zero'
  volls='li.1.volnt_aut'
  vol2s='li.1.volam_aut'
  vol3s='li.1.volmd_aut'
  vol4s='li.1.volpm_aut'
  vol5s='li.1.volnt_trk'
  vol6s='li.1.volam_trk'
  vol7s='li.1.volmd_trk'
  vol8s='li.1.volpm_trk'
  vol9s='_zero'
  voll10s='_zero'
  voll11s='_zero'
  voll12s='_zero'
  voll13s='_zero'
  voll14s='_zero'
  voll15s='_zero'
  voll16s='_zero'
elseif(rrmode='4PERIOD_SW')
COPY FILE=dailyb.dat

```

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))															
CLS TRK	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
CLS BEG	19	7	10	16	19	7	10	16	0	0	0	0	0	0	0
CLS END	6	9	15	18	6	9	15	18	0	0	0	0	0	0	0
CLS NUM	1	1	1	1	3	3	3	3	0	0	0	0	0	0	0

```

ENDCOPY
  volff='_zero'
  trkff='_zero'
  volls='li.1.evol_aut'
  vol2s='li.1.amvol_aut'
  vol3s='li.1.mdvol_aut'
  vol4s='li.1.pmvol_aut'
  vol5s='li.1.evol_trk'
  vol6s='li.1.amvol_trk'
  vol7s='li.1.mdvol_trk'
  vol8s='li.1.pmvol_trk'
  vol9s='_zero'
  voll10s='_zero'

```

```

    voll1s='_zero'
    voll2s='_zero'
    voll3s='_zero'
    voll4s='_zero'
    voll5s='_zero'
    voll6s='_zero'
elseif(rrmode='4PERIOD_MARKETSEGMENTS_SW')
COPY FILE=dailyb.dat

```

MODEL CLASS	PARAMETERS	(MAX 4 CLASSES,	HOURS 0-23 W/ NO OVERLAP IN CLASS,	ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))
CLS TRK	0	0	0	0
CLS BEG	19	7	10	16
CLS END	6	9	15	18
CLS NUM	1	1	1	3

```

ENDCOPY
    volfff='_zero'
    trkfff='_zero'
    voll1s='li.1.evvol_autwk'
    voll2s='li.1.amvol_autwk'
    voll3s='li.1.mdvol_autwk'
    voll4s='li.1.pmvvol_autwk'
    voll5s='li.1.evvol_trkhv'
    voll6s='li.1.amvol_trkhv'
    voll7s='li.1.mdvol_trkhv'
    voll8s='li.1.pmvvol_trkhv'
    voll9s='li.1.evvol_autnw'
    voll10s='li.1.amvol_autnw'
    voll11s='li.1.mdvol_autnw'
    voll12s='li.1.pmvvol_autnw'
    voll13s='li.1.evvol_trklt'
    voll14s='li.1.amvol_trklt'
    voll15s='li.1.mdvol_trklt'
    voll16s='li.1.pmvvol_trklt'
endif

```

```

*if exist daily.dat del daily.dat
*copy dailya.dat+dailyb.dat daily.dat
*del dailya.dat
*del dailyb.dat
RUN PGM=NETWORK
NETI={cm3neti.q}
LINKO=templnk.txt, format = TXT, include = a(6),b(6),junk1(1),junk1(4),junks(1),moffpspd(4),
    ctoll(4),junkb(1),lanes(1),twidth(2),junkb(1),terrain(1),junk1(1),junkb(1),
    cap(6),vol(6),loneway(1),boffpspd(4),ttoll(4),junkb(1),blanes(1),areatype(1),admclass(1),
    junkb(1),bterrain(1),junk1(1),junkb(1),bcap(6),bvol(6),medturn(1),pcttrk(2),junk1(2),
    funcclass(2),lnkgrp(2),mpostspd(2),jurisdic(1),county(3),rtenumb(5),junk1(7),nhs(1),

```

```

        fedfunc(2),trkvol(5),junkp(1),junk1(30),junk1(30),junk1(30),junk1(21),mdist(6),
        vol1(6),vol2(6),vol3(6),vol4(6),vol5(6),vol6(6),vol7(6),vol8(6),vol9(6),vol10(6),vol11(6),
        vol12(6),vol13(6),vol14(6),vol15(6),vol16(6)
NODEO=temphod.txt, format = TXT, include = junkn(1),n(6),x(11),y(11)
PHASE=NODEMERGE
    junkn='N'
ENDPHASE
PHASE=LINKMERGE
    _zero=0
    junk1=0
    junkp='S'
    junkp='P'
    fffff='{cm3pri}'
;CommentOUT=====
;if statement
;CommentOUT above
jurisdic=' '
nhs=0
fedfunc=li.1.fedfunc1
    junkb=' '
    ctoll=0;cartoll*10
    ttoll=0;trktoll*10
    mdist = LI.1.DIST*1000
    moffpspd=li.1.offpspd*100
    mpeakspd=li.1.peakspd*100
    cap=li.1.{cm3capf}*{cm3kfact}
    loneway='1'
    bcap=0
    bvol=0
    boffpspd=0
    bpeakspd=0
    blanes=0
    bterrain=0
    mpostspd=round(li.1.postspd)
    vol=@volfff@
    trkvol=@trkfff@
    vol1=@vol1s@
    vol2=@vol2s@
    vol3=@vol3s@
    vol4=@vol4s@
    vol5=@vol5s@
    vol6=@vol6s@
    vol7=@vol7s@
    vol8=@vol8s@
    vol9=@vol9s@
    vol10=@vol10s@
    vol11=@vol11s@
    vol12=@vol12s@
    vol13=@vol13s@
    vol14=@vol14s@

```

```

    voll15=@voll15s@
    voll16=@voll16s@
ENDPHASE
ENDRUN
aqmode='{cm3aqtype}'
if (aqmode=='MOBILE')
*copy {cm3effile.q} tempef.txt
*N:\AQ\MOVES\utils\postcms10.exe templnk.txt tempcms.txt N tempef.txt {cm3rmode}
*del tempef.txt
else
*N:\AQ\MOVES\utils\postcms10.exe templnk.txt tempcms.txt N NONE {cm3rmode}
endif
if (aqmode=='MOVES')
*copy {cm3effile.q} tempef.txt
*N:\AQ\MOVES\utils\movesnet.exe hourly.rpt tempef.txt cmstext.rpt {cm3aqfact}
endif

RUN PGM=NETWORK
    NETI[1]={cm3neti.q}
    LINKI[2]=tempcms.txt var=a,1-6,b,8-13,
        cvmt,97-111,ctrkvm,113-128,cvolperlane,130-137,cconindex,139-146,
        cvcratio,148-155,cpeakhour,157-160,cvht,162-169,ccongdelay,171-178,
        cphysdelay,180-187,cspdlimdelay,189-196,cdelayratio,198-205,
        cdir1hrsexceed,229-232,cdir2hrsexceed,234-237,cpkvm,253-267,cexceedvmt,269-283,
        cexceedpkvmt,285-299,clos,317,1,,1,
        select=(substr(record,1,1)!='A')
    NODEI[2]=tempnod.txt var=n,2-7, x,8-18, y,19-29
    NETO={cm3neto.q}
    MERGE RECORD=F
ENDRUN

iiztype='{cm3iztype}'
if (iiztype=='TEXT')
*copy {cm3ifile.q} tempif.txt
elseif (iiztype=='OMSTABLE')

RUN PGM=MATRIX
FILEO PRINTO[1] = tempif.txt
FILEI MATI[1] = {cm3ifile.q}
MW[1]=mi.1.5+mi.1.10+mi.1.15
jloop
if (j=i)
print list=i(4.0),mw[1][j](6.0),prnto=1
endif
endjloop
ENDRUN

endif

if (iiztype!='NONE')

```

```

*copy {cm3afile.q} tempaf.txt

if(aqmode=='MOBILE')
*copy {cm3ieffile.q} tempief.txt
*N:\AQ\MOVES\utils\intracal2.exe tempif.txt summary.rpt tempaf.txt tempief.txt
*del tempief.txt

elseif(aqmode=='MOVES')
*N:\AQ\MOVES\utils\movesintra.exe tempif.txt tempief.txt tempaf.txt cmstext.rpt {cm3aqfact}
*del tempief.txt
endif

*del tempaf.txt
*DEL tempif.txt
endif

if(aqmode=='MOVES')
*copy {cm3ieffile.q} tempief.txt
*copy {cm3vfile.q} tempveh.txt
*N:\AQ\MOVES\utils\movesvehv3.exe tempveh.txt tempief.txt cmstext.rpt {cm3aqfact}
*del tempveh.txt
*del tempief.txt
endif

if(aqmode=='MOVES')
*echo MOVES BASED EMISSIONS REPORT > tempcom.txt
elseif(aqmode=='MOBILE')
*echo MOBILE BASED EMISSIONS REPORT >> tempcom.txt
else
*echo NO EMISSIONS ANALYSIS CONDUCTED >> tempcom.txt
endif
*echo {cm3aqcom} >> tempcom.txt
*echo Loaded Network: {cm3neti} >> tempcom.txt
*echo Network Emission Factors: {cm3effile} >> tempcom.txt
if(aqmode=='MOVES')
*echo Vehicle Emission Factors: {cm3ieffile} >> tempcom.txt
*echo Vehicle Population : {cm3vfile} >> tempcom.txt
else
*echo Intrazonal Emission Factors: {cm3ieffile} >> tempcom.txt
endif
*echo Intrazonal Trips : {cm3ifile} >> tempcom.txt
*echo Area File (sq mi): {cm3afile} >> tempcom.txt
*echo Volume Field Used: {cm3volf} >> tempcom.txt
*echo Capacity Field Used: {cm3capf} >> tempcom.txt
*echo ----- >> tempcom.txt
*copy /B tempcom.txt+cmstext.rpt {cm3rpto.q}
*if exist {cm3sumo.q} del {cm3sumo.q}
*rename summary.rpt {cm3sumo.q}
*del tempcom.txt
*del cmstext.rpt

```

```
*DEL tempnod.txt
*DEL templnk.txt
*DEL tempcms.txt
hhro=rightstr('{cm3hro}',4)
if(hhro=='NONE')
*del hourly.rpt
else
*if exist {cm3hro.q} del {cm3hro.q}
*rename hourly.rpt {cm3hro.q}
endif
```

Appendix – MORPC Travel Demand Model Emission Run Report for 2020

PM2.5 & NOx Analysis

MOVES BASED EMISSIONS REPORT

PM2.5 Conformity Analysis - morpc

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2020\AQ_asgn_2020.net
Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2020MORPC_rpd.csv
Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2020MORPC_rpv.csv
Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\STP2020MORPC.csv
Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2020\FRA2020.txt
Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
Volume Field Used: VOL24_TOT
Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:12:42:17

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23								
PCTADT																
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1	
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8	
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5	
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7	
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								
PCTADT TRK																
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3	
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4								
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4	
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3								
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8	
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1								
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8	
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7								
PCTDIR																
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50	
46	38	38	46	52	46	42	42	40								
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50	
46	40	38	46	52	48	46	46	46								
RUR FWY	44	46	48	54	60	68	68	64	58	54	52	50	50	52	52	
48	42	40	44	48	48	44	46	44								

RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44								
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							
curve11	50	50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9							
curve12	50	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5							
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12							
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6							
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6							
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1							
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9							
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6							
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8							
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6							
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9							17

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30
MAX VC RATIO ART: 1.30
MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.00

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0																

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000
ASD	JANUARY		0.	0.0000	0.0000	0.0000

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ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	5913120.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	1908364.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	33633524.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	5816922.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	942856.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	77825.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	880083.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	1867551.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	127039.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	51151524.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	5913120.	0.0000	2.6213	0.0342	0.1140
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	1908364.	0.0000	0.8293	0.0111	0.0372
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	33633524.	0.0000	15.7697	0.2076	0.8063
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	5816922.	0.0000	2.5990	0.0338	0.1155
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	942856.	0.0000	0.4220	0.0054	0.0166
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	77825.	0.0000	0.0359	0.0004	0.0012
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000

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PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	880083.	0.0000	0.3736	0.0049	0.0151
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	1867551.	0.0000	0.8350	0.0107	0.0361
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	127039.	0.0000	0.0602	0.0009	0.0037
TOT	APRIL	51151524.	0.0000	23.5400	0.3088	1.1455
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	5913120.	0.0000	2.4718	0.0373	0.0939
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JULY	1908364.	0.0000	0.7877	0.0121	0.0309

FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	33633524.	0.0000	14.9985	0.2265	0.6621
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	5816922.	0.0000	2.4451	0.0367	0.0944
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	942856.	0.0000	0.3938	0.0058	0.0135
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	77825.	0.0000	0.0328	0.0005	0.0009
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	880083.	0.0000	0.3535	0.0053	0.0124
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000

SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	1867551.	0.0000	0.7806	0.0116	0.0288
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	127039.	0.0000	0.0586	0.0009	0.0033
TOT	JULY	51151524.	0.0000	22.3170	0.3366	0.9401

MOVES INTRA ZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	27847.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	27847.	0.0000	0.0143	0.0002	0.0010	
JULY	27847.	0.0000	0.0150	0.0002	0.0009	

MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2204358.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	2204358.	0.0000	10.7751	0.0206	0.2432	
JULY	2204358.	0.0000	9.2827	0.0134	0.1224	

Appendix – MORPC Travel Demand Model Emissions Run Report for 2022

PM2.5 & NOx Analysis

MOVES BASED EMISSIONS REPORT

PM2.5 Conformity Analysis - morpc

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2022\AQ_asgn_2022.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2022MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2022MORPC_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\STP2022MORPC.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2022\FRA2022.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:12:51:08

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							
RUR FWY	44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44							

RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44								
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							
curve11	50	50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9							
curve12	50	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5							
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12							
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6							
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6							
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1							
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9							
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6							
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8							
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6							
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9							17

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Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30
MAX VC RATIO ART: 1.30
MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.00

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000
ASD	JANUARY		0.	0.0000	0.0000	0.0000

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	6095991.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	1943980.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	34048888.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	5938676.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	967568.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	80296.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	893212.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	1933568.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	130280.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	52016136.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	6095991.	0.0000	2.2356	0.0342	0.1055
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	1943980.	0.0000	0.6963	0.0109	0.0342
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	34048888.	0.0000	13.2115	0.2038	0.7306
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	5938676.	0.0000	2.1931	0.0334	0.1054
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	967568.	0.0000	0.3583	0.0053	0.0152
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	80296.	0.0000	0.0309	0.0004	0.0011
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	893212.	0.0000	0.3129	0.0048	0.0138
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	1933568.	0.0000	0.7155	0.0107	0.0333
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	130280.	0.0000	0.0503	0.0008	0.0035
TOT	APRIL	52016136.	0.0000	19.8009	0.3045	1.0424
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	6095991.	0.0000	2.1184	0.0373	0.0857
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JULY	1943980.	0.0000	0.6647	0.0119	0.0281

FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	34048888.	0.0000	12.6201	0.2223	0.5937
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	5938676.	0.0000	2.0727	0.0363	0.0851
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	967568.	0.0000	0.3360	0.0058	0.0122
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	80296.	0.0000	0.0283	0.0005	0.0008
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	893212.	0.0000	0.2975	0.0053	0.0112
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000

SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	1933568.	0.0000	0.6722	0.0116	0.0262
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	130280.	0.0000	0.0491	0.0009	0.0030
TOT	JULY	52016136.	0.0000	18.8553	0.3318	0.8457

MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	28160.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	28160.	0.0000	0.0118	0.0002	0.0009	
JULY	28160.	0.0000	0.0124	0.0002	0.0008	

MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2194401.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	2194401.	0.0000	9.0354	0.0198	0.2289	
JULY	2194401.	0.0000	7.6617	0.0129	0.1166	

Appendix – MORPC Travel Demand Model Emissions Run Report for 2030

PM2.5 & NOx Analysis

MOVES BASED EMISSIONS REPORT

PM2.5 Conformity Analysis - morpc

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2030\AQ_asgn_2030.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2030MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2030MORPC_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\STP2030MORPC.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2030\FRA2030.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:12:52:07

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
17	18	19	20	21	22	23										
PCTADT																
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1	
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART	0.7	0.4	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8		
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5	
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7	
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								
PCTADT TRK																
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3	
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4								
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4	
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3								
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8	
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1								
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8	
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7								
PCTDIR																
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50	
46	38	38	46	52	46	42	42	40								
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50	
46	40	38	46	52	48	46	46	46								
RUR FWY	44	46	48	54	60	68	68	64	58	54	52	50	50	52	52	
48	42	40	44	48	48	44	46	44								

RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44								
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							
curve11	50	50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9							
curve12	50	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5							
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12							
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6							
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6							
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1							
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9							
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6							
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8							
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6							
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9							17

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30
MAX VC RATIO ART: 1.30
MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.00

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000
ASD	JANUARY		0.	0.0000	0.0000	0.0000

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	6844439.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	2077007.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	35870684.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	6464777.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	1067271.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	90129.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	940387.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	2204282.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	142909.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	55685456.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	6844439.	0.0000	1.7959	0.0354	0.1028
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	2077007.	0.0000	0.5279	0.0107	0.0314
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	35870684.	0.0000	9.9278	0.1976	0.6699
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	6464777.	0.0000	1.7182	0.0336	0.0995
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	1067271.	0.0000	0.2833	0.0054	0.0144
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	90129.	0.0000	0.0253	0.0004	0.0010
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	940387.	0.0000	0.2345	0.0047	0.0126
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	2204282.	0.0000	0.5825	0.0112	0.0327
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	142909.	0.0000	0.0379	0.0009	0.0033
TOT	APRIL	55685456.	0.0000	15.1289	0.3000	0.9676
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	6844439.	0.0000	1.7179	0.0385	0.0815
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JULY	2077007.	0.0000	0.5076	0.0117	0.0252

FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	35870684.	0.0000	9.5650	0.2156	0.5337
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	6464777.	0.0000	1.6392	0.0365	0.0784
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	1067271.	0.0000	0.2682	0.0059	0.0112
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	90129.	0.0000	0.0235	0.0005	0.0007
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	940387.	0.0000	0.2250	0.0051	0.0099
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000

SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	2204282.	0.0000	0.5530	0.0122	0.0252
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	142909.	0.0000	0.0373	0.0009	0.0028
TOT	JULY	55685456.	0.0000	14.5320	0.3268	0.7685

MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	29440.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	29440.	0.0000	0.0084	0.0002	0.0008	
JULY	29440.	0.0000	0.0090	0.0002	0.0007	

MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2529559.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	2529559.	0.0000	7.6792	0.0206	0.2321	
JULY	2529559.	0.0000	6.2598	0.0134	0.1240	

Appendix – MORPC Travel Demand Model Emissions Run Report for 2040

PM2.5 & NOx Analysis

MOVES BASED EMISSIONS REPORT

PM2.5 Conformity Analysis - morpc

Loaded Network: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\Networks\2040\AQ_asgn_2040.net
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2040MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\2040MORPC_rpv.csv
 Vehicle Population : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\emissions\STP2040MORPC.csv
 Intrazonal Trips : O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\2040\FRA2040.txt
 Area File (sq mi): O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\TripTables\TAZ_areain.txt
 Volume Field Used: VOL24_TOT
 Capacity Field Used: CAP24

----- CMS/AQ REPORT

POSTCMS10, UPDATED DEC 2009, GTG

DATE:04/26/2016 TIME:12:53:57

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							
PCTADT TRK															
URB FWY	2.1	1.9	1.8	2.0	2.4	3.0	3.9	4.6	5.3	6.0	6.3	6.4	6.4	6.4	6.3
5.8	5.2	4.6	4.1	3.7	3.4	3.1	2.8	2.4							
URB ART	1.1	0.9	1.0	1.2	1.6	2.3	3.9	5.9	6.9	6.7	7.1	7.6	7.4	7.2	7.4
7.2	6.0	5.0	3.7	2.8	2.3	1.9	1.5	1.3							
RUR FWY	2.6	2.2	2.1	2.3	2.6	3.1	3.5	4.0	4.5	5.1	5.6	5.8	5.8	5.8	5.8
5.6	5.3	4.9	4.6	4.3	4.0	3.8	3.5	3.1							
RUR ART	1.5	1.3	1.4	1.6	2.2	3.0	4.2	5.3	6.1	6.7	7.0	7.1	7.0	6.9	6.8
6.3	5.5	4.6	3.8	3.1	2.6	2.3	2.1	1.7							
PCTDIR															
URB FWY	38	40	40	46	56	64	70	70	68	62	58	52	52	52	50
46	38	38	46	52	46	42	42	40							
URB ART	44	46	44	48	54	62	66	68	64	56	54	52	50	50	50
46	40	38	46	52	48	46	46	46							
RUR FWY	44	46	48	54	60	68	68	64	58	54	52	50	50	52	52
48	42	40	44	48	48	44	46	44							

RUR ART	40	42	44	48	58	66	72	68	60	56	54	50	50	50	50
46	40	38	46	50	46	44	44								
LOS E VC	0	0.625	1.25	1.875	2.5	3.125	3.75	4.375	5	5.625	6.25	6.875	7.5	8.125	8.75
9.375	10	10.625	11.25	11.875	12.5	13.125	13.75	14.375							
SPEEDVC															
curve1	75	75	75	75	75	75	74.9	74.8	74.6	74.2	73.5	72.3	70.5	67.8	64.2
59.5	54	47.7	41.2	34.9	28.9	23.7	19.2	15.5							
curve2	70	70	70	70	70	70	70	69.9	69.8	69.6	69.2	68.4	67.1	65.1	62.2
58.2	53	47	40.5	33.9	27.7	22.2	17.6	13.8							
curve3	65	65	65	65	65	65	65	65	65	64.9	64.8	64.4	63.8	62.6	60.5
57	52	45.4	37.8	29.9	22.7	16.7	12.1	8.6							
curve4	60	60	60	60	60	60	60	60	60	59.9	59.8	59.6	59.1	58.2	56.7
54.3	50.8	46.1	40.3	33.8	27.3	21.3	16.2	12.2							
curve5	55	55	55	55	55	55	55	55	55	55	55	54.9	54.7	54.3	53.6
52.3	50	46.5	41.5	35.3	28.5	21.9	16.1	11.5							
curve6	60	60	60	60	60	60	60	60	59.9	59.8	59.7	59.4	59.1	58.5	57.7
56.5	55	53.1	50.7	47.9	44.7	41.1	37.3	33.4							
curve7	55	55	55	55	55	55	55	55	54.9	54.9	54.7	54.5	54.2	53.8	53.1
52.2	50.9	49.3	47.3	44.9	42.1	39	35.7	32.2							
curve8	50	50	50	50	50	50	50	50	49.9	49.9	49.8	49.6	49.4	49	48.5
47.7	46.7	45.4	43.8	41.8	39.5	36.8	33.9	30.9							
curve9	45	45	45	45	45	45	45	45	45	44.9	44.8	44.7	44.4	44.1	43.6
43	42.1	40.9	39.4	37.6	35.5	33.1	30.5	27.8							
curve10	50	50	50	50	49.9	49.8	49.7	49.4	49	48.4	47.5	46.5	45.1	43.5	41.7
39.6	37.3	34.9	32.4	29.8	27.3	24.9	22.6	20.4							
curve11	50	50	50	50	50	50	49.9	49.7	49.4	48.9	48	46.7	44.9	42.5	39.6
32.6	28.7	25	21.4	18.2	15.3	12.9	10.8	9							
curve12	50	50	50	50	50	50	49.9	49.8	49.6	49.1	48.2	46.8	44.5	41.4	37.5
28	23.1	18.7	14.9	11.8	9.2	7.2	5.7	4.5							
curve13	40	40	40	40	40	40	40	39.9	39.8	39.5	39.2	38.6	37.8	36.7	35.3
31.4	29	26.4	23.7	21.1	18.5	16.1	13.9	12							
curve14	40	40	40	40	40	40	39.9	39.8	39.6	39.1	38.5	37.5	36.1	34.3	32.1
26.5	23.5	20.5	17.7	15.1	12.8	10.7	9	7.6							
curve15	40	40	40	40	40	40	39.9	39.7	39.4	38.8	37.9	36.5	34.7	32.3	29.5
23.2	20	17	14.3	11.9	9.9	8.2	6.8	5.6							
curve16	35	35	35	35	35	35	34.9	34.8	34.5	34	33.2	32.1	30.5	28.5	26.1
20.6	17.9	15.2	12.8	10.7	8.9	7.4	6.1	5.1							
curve17	35	35	35	35	35	35	34.9	34.7	34.4	33.9	33.1	32	30.3	28.3	25.8
20.3	17.5	14.9	12.5	10.4	8.6	7.2	5.9	4.9							
curve18	35	35	35	35	35	35	34.9	34.6	34.2	33.5	32.4	30.9	28.8	26.3	23.4
17.4	14.6	12.1	9.9	8.1	6.6	5.4	4.4	3.6							
curve19	30	30	30	30	30	30	29.9	29.8	29.5	29	28.2	27.1	25.6	23.7	21.5
16.6	14.2	12	10	8.3	6.8	5.6	4.6	3.8							
curve20	30	30	30	30	30	30	29.9	29.7	29.4	28.9	28.1	26.9	25.3	23.4	21.1
16.1	13.6	11.4	9.5	7.8	6.4	5.3	4.3	3.6							
curve21	30	30	30	30	30	30	29.9	29.7	29.3	28.7	27.7	26.2	24.4	22.1	19.6
14.4	12	9.9	8.1	6.6	5.4	4.4	3.6	2.9							17

VC RATIO TO LOS CONVERSION (VALUE SHOWN IS LOWER LIMIT FOR THAT LOS) (URBAN ROADS USE SPEED BREAKS BELOW FOR LOS DETERMINATION) (ALL USE THE BASE VC'S TO DETERMINE EXCEEDANCE)

	BASE	RUR2	FWY
A	0.00	0.00	0.00
B	0.30	0.00	0.25
C	0.50	0.10	0.40
D	0.70	0.30	0.60
E	0.90	0.50	0.80
F	1.00	1.00	1.00
F+	1.10	1.10	1.10
F++	1.30	1.30	1.30

SPEED VC RATIO BREAKS FOR URBAN STREETS (HIGHEST SPEED FOR GIVEN LOS & FF SPEED)

FFS	B	C	D	E	F
>47	42.	34.	27.	21.	16.
>37	35.	28.	22.	17.	13.
>32	30.	24.	18.	14.	10.
<33	25.	19.	13.	9.	7.

LEVEL OF SERVICE THRESHOLD BY AREA

NUM LOS DEFINITION

1	F	CINCINNATI, CLEVELAND, COLUMBUS CENTRAL MPO COUNTIES (CUY, FRA, HAM)
2	E	OTHER TMA MPOS (AKRON, CANTON, DAYTON, TOLEDO, YOUNGSTOWN + NON-CENTRAL COUNTIES FROM 1)
3	E	OTHER MPOS & PARTS OF AREAS 1 & 2 OUTSIDE URBANIZED AREA
4	E	RURAL NON MPO COUNTIES

PEAK SPREADING MODEL INFO (SET MAX ITERATIONS TO 0 TO DISABLE PEAK SPREADING)

MAX VC RATIO FWY: 1.30
MAX VC RATIO ART: 1.30
MAX ITERATIONS : 1000

TRUCK PCE: 2.0

AQ SEASON FACTOR: 1.00

MODEL CLASS PARAMETERS (MAX 4 CLASSES, HOURS 0-23 W/ NO OVERLAP IN CLASS, ALLOCATE ENTIRE CLASS AS TRUCK(1) OR NOT(0))

CLS TRK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS BEG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS END	23	23	0	0	0	0	0	0	0	0	0	0	0	0	0
0															
CLS NUM	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
0															

MOVES NETWORK LINK EMISSIONS OUTPUT

COUNTY	MONTH	VMT	HC	NOX	SO2	PM2.5
ADA	JANUARY		0.	0.0000	0.0000	0.0000
ALL	JANUARY		0.	0.0000	0.0000	0.0000
ASD	JANUARY		0.	0.0000	0.0000	0.0000

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

ATB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
COS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JANUARY	7752732.	0.0000	0.0000	0.0000	0.0000
ERI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JANUARY	2176011.	0.0000	0.0000	0.0000	0.0000
FAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JANUARY	38047652.	0.0000	0.0000	0.0000	0.0000
FUL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JANUARY	7136873.	0.0000	0.0000	0.0000	0.0000
LOG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JANUARY	1186210.	0.0000	0.0000	0.0000	0.0000
MAH	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MED	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000

MER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JANUARY	102277.	0.0000	0.0000	0.0000	0.0000
NOB	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PER	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JANUARY	1006461.	0.0000	0.0000	0.0000	0.0000
PIK	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
POR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SEN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
STA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JANUARY	2536958.	0.0000	0.0000	0.0000	0.0000
VAN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JANUARY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JANUARY	158894.	0.0000	0.0000	0.0000	0.0000
TOT	JANUARY	60087920.	0.0000	0.0000	0.0000	0.0000
ADA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ALL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ASD	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ATH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
AUG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BEL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BRO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
BUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CHP	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CLE	APRIL	0.	0.0000	0.0000	0.0000	0.0000

CLI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
COS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CRA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
CUY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
DEL	APRIL	7752732.	0.0000	1.8084	0.0393	0.1128
ERI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FAI	APRIL	2176011.	0.0000	0.4950	0.0111	0.0331
FAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
FRA	APRIL	38047652.	0.0000	9.3755	0.2055	0.6836
FUL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GAL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GEA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
GUE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HIG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HOL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
HUR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JAC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
JEF	APRIL	0.	0.0000	0.0000	0.0000	0.0000
KNO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LAW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LIC	APRIL	7136873.	0.0000	1.6864	0.0364	0.1059
LOG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LOR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
LUC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAD	APRIL	1186210.	0.0000	0.2802	0.0059	0.0155
MAH	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MED	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MEG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MIA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MOT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRG	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MRW	APRIL	0.	0.0000	0.0000	0.0000	0.0000
MUS	APRIL	102277.	0.0000	0.0258	0.0005	0.0011
NOB	APRIL	0.	0.0000	0.0000	0.0000	0.0000
OTT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PAU	APRIL	0.	0.0000	0.0000	0.0000	0.0000

PER	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PIC	APRIL	1006461.	0.0000	0.2234	0.0049	0.0131
PIK	APRIL	0.	0.0000	0.0000	0.0000	0.0000
POR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PRE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
PUT	APRIL	0.	0.0000	0.0000	0.0000	0.0000
RIC	APRIL	0.	0.0000	0.0000	0.0000	0.0000
ROS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SCI	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SEN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SHE	APRIL	0.	0.0000	0.0000	0.0000	0.0000
STA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
SUM	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TRU	APRIL	0.	0.0000	0.0000	0.0000	0.0000
TUS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
UNI	APRIL	2536958.	0.0000	0.5952	0.0127	0.0363
VAN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
VIN	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAR	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAS	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WAY	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WIL	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WOO	APRIL	0.	0.0000	0.0000	0.0000	0.0000
WYA	APRIL	0.	0.0000	0.0000	0.0000	0.0000
XXX	APRIL	158894.	0.0000	0.0370	0.0009	0.0036
TOT	APRIL	60087920.	0.0000	14.5223	0.3172	1.0048
ADA	JULY	0.	0.0000	0.0000	0.0000	0.0000
ALL	JULY	0.	0.0000	0.0000	0.0000	0.0000
ASD	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATB	JULY	0.	0.0000	0.0000	0.0000	0.0000
ATH	JULY	0.	0.0000	0.0000	0.0000	0.0000
AUG	JULY	0.	0.0000	0.0000	0.0000	0.0000
BEL	JULY	0.	0.0000	0.0000	0.0000	0.0000
BRO	JULY	0.	0.0000	0.0000	0.0000	0.0000
BUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
CAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
CHP	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLE	JULY	0.	0.0000	0.0000	0.0000	0.0000
CLI	JULY	0.	0.0000	0.0000	0.0000	0.0000
COL	JULY	0.	0.0000	0.0000	0.0000	0.0000
COS	JULY	0.	0.0000	0.0000	0.0000	0.0000
CRA	JULY	0.	0.0000	0.0000	0.0000	0.0000
CUY	JULY	0.	0.0000	0.0000	0.0000	0.0000
DAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
DEL	JULY	7752732.	0.0000	1.7350	0.0428	0.0888
ERI	JULY	0.	0.0000	0.0000	0.0000	0.0000
FAI	JULY	2176011.	0.0000	0.4763	0.0121	0.0263

FAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
FRA	JULY	38047652.	0.0000	9.0518	0.2242	0.5420
FUL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GAL	JULY	0.	0.0000	0.0000	0.0000	0.0000
GEA	JULY	0.	0.0000	0.0000	0.0000	0.0000
GRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
GUE	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAM	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
HAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
HEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
HIG	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOC	JULY	0.	0.0000	0.0000	0.0000	0.0000
HOL	JULY	0.	0.0000	0.0000	0.0000	0.0000
HUR	JULY	0.	0.0000	0.0000	0.0000	0.0000
JAC	JULY	0.	0.0000	0.0000	0.0000	0.0000
JEF	JULY	0.	0.0000	0.0000	0.0000	0.0000
KNO	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAK	JULY	0.	0.0000	0.0000	0.0000	0.0000
LAW	JULY	0.	0.0000	0.0000	0.0000	0.0000
LIC	JULY	7136873.	0.0000	1.6134	0.0395	0.0829
LOG	JULY	0.	0.0000	0.0000	0.0000	0.0000
LOR	JULY	0.	0.0000	0.0000	0.0000	0.0000
LUC	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAD	JULY	1186210.	0.0000	0.2661	0.0064	0.0120
MAH	JULY	0.	0.0000	0.0000	0.0000	0.0000
MAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
MED	JULY	0.	0.0000	0.0000	0.0000	0.0000
MEG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MER	JULY	0.	0.0000	0.0000	0.0000	0.0000
MIA	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOE	JULY	0.	0.0000	0.0000	0.0000	0.0000
MOT	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRG	JULY	0.	0.0000	0.0000	0.0000	0.0000
MRW	JULY	0.	0.0000	0.0000	0.0000	0.0000
MUS	JULY	102277.	0.0000	0.0240	0.0005	0.0008
NOB	JULY	0.	0.0000	0.0000	0.0000	0.0000
OTT	JULY	0.	0.0000	0.0000	0.0000	0.0000
PAU	JULY	0.	0.0000	0.0000	0.0000	0.0000
PER	JULY	0.	0.0000	0.0000	0.0000	0.0000
PIC	JULY	1006461.	0.0000	0.2149	0.0053	0.0102
PIK	JULY	0.	0.0000	0.0000	0.0000	0.0000
POR	JULY	0.	0.0000	0.0000	0.0000	0.0000
PRE	JULY	0.	0.0000	0.0000	0.0000	0.0000
PUT	JULY	0.	0.0000	0.0000	0.0000	0.0000
RIC	JULY	0.	0.0000	0.0000	0.0000	0.0000
ROS	JULY	0.	0.0000	0.0000	0.0000	0.0000
SAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SCI	JULY	0.	0.0000	0.0000	0.0000	0.0000

SEN	JULY	0.	0.0000	0.0000	0.0000	0.0000
SHE	JULY	0.	0.0000	0.0000	0.0000	0.0000
STA	JULY	0.	0.0000	0.0000	0.0000	0.0000
SUM	JULY	0.	0.0000	0.0000	0.0000	0.0000
TRU	JULY	0.	0.0000	0.0000	0.0000	0.0000
TUS	JULY	0.	0.0000	0.0000	0.0000	0.0000
UNI	JULY	2536958.	0.0000	0.5673	0.0138	0.0278
VAN	JULY	0.	0.0000	0.0000	0.0000	0.0000
VIN	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAR	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAS	JULY	0.	0.0000	0.0000	0.0000	0.0000
WAY	JULY	0.	0.0000	0.0000	0.0000	0.0000
WIL	JULY	0.	0.0000	0.0000	0.0000	0.0000
WOO	JULY	0.	0.0000	0.0000	0.0000	0.0000
WYA	JULY	0.	0.0000	0.0000	0.0000	0.0000
XXX	JULY	158894.	0.0000	0.0365	0.0010	0.0031
TOT	JULY	60087920.	0.0000	13.9803	0.3455	0.7937

MOVES INTRAZONAL EMISSIONS OUTPUT						
MONTH	VMT	HC	NOX	SO2	PM2.5	
JANUARY	31020.	0.0000	0.0000	0.0000	0.0000	0.0000
APRIL	31020.	0.0000	0.0078	0.0002	0.0009	
JULY	31020.	0.0000	0.0083	0.0002	0.0007	

MOVES VEHICLE BASED EMISSIONS OUTPUT						
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	2718164.	0.0000	0.0000	0.0000	0.0000	
APRIL	2718164.	0.0000	7.0458	0.0214	0.2427	
JULY	2718164.	0.0000	5.5999	0.0139	0.1318	

Appendix – MORPC HPMS VMT and Emissions

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\FAI2020VMT.csv
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2020MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2020MORPC_rpv.csv
 Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\FAI_STP2020MORPC.csv

 DATE:03/07/2016 TIME:15:22:26

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23								
PCTADT																
URB FWY		0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART		0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY		1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART		0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								

AQ SEASON FACTOR: 1.00000000

MOVES HPMS EMISSIONS OUTPUT

MONTH	VMT	HC	NOX	SO2	PM2.5
JANUARY	1590405.	0.0000	0.0000	0.0000	0.0000
APRIL	1590405.	0.0000	0.6915	0.0095	0.0350
JULY	1590405.	0.0000	0.6639	0.0104	0.0300

MOVES VEHICLE BASED EMISSIONS OUTPUT

MONTH	VEHICLES	HC	NOX	SO2	PM2.5
JANUARY	65547.	0.0000	0.0000	0.0000	0.0000
APRIL	65547.	0.0000	0.3231	0.0006	0.0072
JULY	65547.	0.0000	0.2780	0.0004	0.0036

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\FAI2022VMT.csv
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2022MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2022MORPC_rpv.csv
 Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\FAI_STP2022MORPC.csv

 DATE:03/07/2016 TIME:15:35:08

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	17	18	19	20	21	22	23	7	8	9	10	11	12	13	14
PCTADT																
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1	
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8	
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5	
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7	
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								

AQ SEASON FACTOR: 1.00000000

MOVES HPMS EMISSIONS OUTPUT

MONTH	VMT	HC	NOX	SO2	PM2.5
JANUARY	1607751.	0.0000	0.0000	0.0000	0.0000
APRIL	1607751.	0.0000	0.5733	0.0093	0.0319
JULY	1607751.	0.0000	0.5529	0.0101	0.0269

MOVES VEHICLE BASED EMISSIONS OUTPUT

MONTH	VEHICLES	HC	NOX	SO2	PM2.5
JANUARY	66863.	0.0000	0.0000	0.0000	0.0000
APRIL	66863.	0.0000	0.2781	0.0006	0.0070
JULY	66863.	0.0000	0.2355	0.0004	0.0036

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\FAI2030VMT.csv
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2030MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2030MORPC_rpv.csv
 Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\FAI_STP2030MORPC.csv

DATE:03/07/2016 TIME:15:54:58

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	17	18	19	20	21	22	23	7	8	9	10	11	12	13	14
PCTADT																
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1	
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8	
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5	
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7	
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

AQ SEASON FACTOR: 1.00000000

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MOVES HPMS EMISSIONS OUTPUT
  MONTH      VMT      HC      NOX      SO2      PM2.5
  JANUARY    1681583.  0.0000  0.0000  0.0000  0.0000
  APRIL      1681583.  0.0000  0.4189  0.0089  0.0287
  JULY       1681583.  0.0000  0.4077  0.0097  0.0237
MOVES VEHICLE BASED EMISSIONS OUTPUT
  MONTH      VEHICLES  HC      NOX      SO2      PM2.5
  JANUARY    74218.    0.0000  0.0000  0.0000  0.0000
  APRIL      74218.    0.0000  0.2285  0.0006  0.0068
  JULY       74218.    0.0000  0.1860  0.0004  0.0036
```

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\FAI2040VMT.csv
Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2040MORPC_rpd.csv
Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2040MORPC_rpv.csv
Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\FAI_STP2040MORPC.csv

DATE:03/07/2016 TIME:16:14:51

PARAMETER FILE DUMP (DAILY.DAT FILE)

15	16	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PCTADT		17	18	19	20	21	22	23								
URB FWY		0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5								
URB ART		0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3								
RUR FWY		1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0								
RUR ART		0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3								

AQ SEASON FACTOR: 1.00000000

```
MOVES HPMS EMISSIONS OUTPUT
  MONTH      VMT      HC      NOX      SO2      PM2.5
  JANUARY    1784792.  0.0000  0.0000  0.0000  0.0000
  APRIL      1784792.  0.0000  0.3930  0.0093  0.0293
  JULY       1784792.  0.0000  0.3832  0.0101  0.0241
MOVES VEHICLE BASED EMISSIONS OUTPUT
  MONTH      VEHICLES  HC      NOX      SO2      PM2.5
  JANUARY    82731.    0.0000  0.0000  0.0000  0.0000
  APRIL      82731.    0.0000  0.2181  0.0007  0.0074
  JULY       82731.    0.0000  0.1731  0.0004  0.0040
```

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\COS2020VMT.csv
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2020MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2020MORPC_rpv.csv
 Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\COS_STP2020MORPC.csv

DATE:03/07/2016 TIME:15:26:53

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							

AQ SEASON FACTOR: 1.00000000

MOVES HPMS EMISSIONS OUTPUT

MONTH	VMT	HC	NOX	SO2	PM2.5
JANUARY	62901.	0.0000	0.0000	0.0000	0.0000
APRIL	62901.	0.0000	0.0293	0.0004	0.0018
JULY	62901.	0.0000	0.0287	0.0005	0.0016

MOVES VEHICLE BASED EMISSIONS OUTPUT

MONTH	VEHICLES	HC	NOX	SO2	PM2.5
JANUARY	1263.	0.0000	0.0000	0.0000	0.0000
APRIL	1263.	0.0000	0.0062	0.0000	0.0001
JULY	1263.	0.0000	0.0054	0.0000	0.0001

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\COS2022VMT.csv
 Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2022MORPC_rpd.csv
 Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2022MORPC_rpv.csv
 Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\COS_STP2022MORPC.csv

DATE:03/07/2016 TIME:15:36:07

PARAMETER FILE DUMP (DAILY.DAT FILE)

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							

AQ SEASON FACTOR: 1.00000000

MOVES	HPMS	EMISSIONS	OUTPUT				
MONTH	VMT	HC	NOX	SO2	PM2.5		
JANUARY	63264.	0.0000	0.0000	0.0000	0.0000		
APRIL	63264.	0.0000	0.0240	0.0004	0.0016		
JULY	63264.	0.0000	0.0236	0.0004	0.0014		
MOVES	VEHICLE	BASED	EMISSIONS	OUTPUT			
MONTH	VEHICLES	HC	NOX	SO2	PM2.5		
JANUARY	1283.	0.0000	0.0000	0.0000	0.0000		
APRIL	1283.	0.0000	0.0053	0.0000	0.0001		
JULY	1283.	0.0000	0.0045	0.0000	0.0001		

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\COS2030VMT.csv
Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2030MORPC_rpd.csv
Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\2030MORPC_rpv.csv
Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\factors\COS_STP2030MORPC.csv

DATE:03/07/2016 TIME:15:55:56

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							

AQ SEASON FACTOR: 1.00000000

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

MOVES	HPMS	EMISSIONS	OUTPUT				
MONTH	VMT	HC	NOX	SO2	PM2.5		
JANUARY	64801.	0.0000	0.0000	0.0000	0.0000		
APRIL	64801.	0.0000	0.0168	0.0004	0.0015		
JULY	64801.	0.0000	0.0167	0.0004	0.0013		

MOVES	VEHICLE BASED EMISSIONS	OUTPUT				
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	1425.	0.0000	0.0000	0.0000	0.0000	
APRIL	1425.	0.0000	0.0044	0.0000	0.0001	
JULY	1425.	0.0000	0.0036	0.0000	0.0001	

MOVES BASED HPMS EMISSIONS REPORT

2016-2040 MTP PM2.5 Conformity Analysis - morpc

Input VMT File: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\hpms\COS2040VMT.csv
Network Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2040MORPC_rpd.csv
Vehicle Emission Factors: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\2040MORPC_rpv.csv
Vehicle Population: O:\TPlan\MTP16 (2040)\5 - DELIVERABLES\AQ Conformity\PM2_5\ factors\COS_STP2040MORPC.csv

DATE:03/07/2016 TIME:16:15:44

PARAMETER FILE DUMP (DAILY.DAT FILE)

HOUR	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23							
PCTADT															
URB FWY	0.9	0.6	0.5	0.6	0.9	2.2	5.2	7.3	6.4	5.2	4.9	5.1	5.3	5.5	6.1
7.2	8.0	7.9	5.8	4.2	3.4	2.9	2.2	1.5							
URB ART	0.7	0.4	0.3	0.3	0.6	1.5	3.5	5.7	5.5	5.1	5.3	6.2	6.5	6.4	6.8
7.6	8.2	8.1	6.2	4.8	4.0	3.0	1.9	1.3							
RUR FWY	1.4	1.1	0.9	1.0	1.3	2.2	3.7	5.2	5.4	5.4	5.6	5.6	5.7	6.0	6.5
7.1	7.5	7.0	5.6	4.5	3.8	3.2	2.5	2.0							
RUR ART	0.8	0.5	0.4	0.5	1.0	2.4	4.8	6.2	5.5	5.3	5.5	5.8	6.0	6.0	6.7
7.6	8.1	7.7	5.6	4.2	3.5	2.8	1.9	1.3							

AQ SEASON FACTOR: 1.00000000

MOVES	HPMS	EMISSIONS	OUTPUT				
MONTH	VMT	HC	NOX	SO2	PM2.5		
JANUARY	66936.	0.0000	0.0000	0.0000	0.0000		
APRIL	66936.	0.0000	0.0153	0.0004	0.0015		
JULY	66936.	0.0000	0.0151	0.0004	0.0013		

MOVES	VEHICLE BASED EMISSIONS	OUTPUT				
MONTH	VEHICLES	HC	NOX	SO2	PM2.5	
JANUARY	1590.	0.0000	0.0000	0.0000	0.0000	
APRIL	1590.	0.0000	0.0042	0.0000	0.0001	
JULY	1590.	0.0000	0.0033	0.0000	0.0001	

Attachment B-Consultation Correspondence

Franklin, Delaware, Licking, Fairfield, Madison and Knox
County Ozone Non-Attainment Area

and the

Franklin, Delaware, Licking, Fairfield, and Coshocton
(Franklin Twp) County PM_{2.5} Non-Attainment Area

From: Nick Gill
Sent: Friday, April 22, 2016 8:42 AM
To: 'Frank.Burkett@dot.gov'; 'Dave.Moore1@dot.ohio.gov'; 'Nino.Brunello@dot.state.oh.us'; 'Andrew.Shepler@dot.state.oh.us'; 'Andrew.Hurst@dot.state.oh.us'; 'mhill@lcounty.com'; 'Leigh.Oesterling@dot.gov'; 'Mike.Maleski@epa.ohio.gov'; 'Maietta.Anthony@epamail.epa.gov'; 'Vanessa.Adams@dot.gov'
Cc: Maria Schaper; Thea Walsh; Zhuojun Jiang
Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation - Draft MTP and Conformity document

All,

Following up to let you know that our public comment period was over last Friday and that we only received relatively minor comments. We will be making slight modifications to the MTP with the final version to be completed next week including updates to the various appendices.

Let me know ASAP if you have any comments.

We will be adopting the MTP during our May meetings. CAC on 5/2, TAC on 5/4 and Transportation Policy Committee on 5/12.

Thanks
Nick

Nicholas T. Gill
Assistant Director, Transportation Systems & Funding | [Mid-Ohio Regional Planning Commission](#)
T: 614.233.4151 | F: 614.233.4251 | ngill@morpc.org
111 Liberty Street, Suite 100 | Columbus, OH 43215



From: Nick Gill
Sent: Tuesday, March 15, 2016 2:43 PM
To: 'Frank.Burkett@dot.gov'; Dave.Moore1@dot.ohio.gov; Nino.Brunello@dot.state.oh.us; Andrew.Shepler@dot.state.oh.us; Andrew.Hurst@dot.state.oh.us; mhill@lcounty.com; Leigh.Oesterling@dot.gov; Mike.Maleski@epa.ohio.gov; Maietta.Anthony@epamail.epa.gov; Vanessa.Adams@dot.gov
Cc: Maria Schaper; Thea Walsh
Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation - Draft MTP and Conformity document

All,

Attached is the AQ conformity documentation for the MORPC and LCATS 2016-2040 Metropolitan Transportation Plans.

Complete information on the draft MORPC MTP is available at www.morpc.org/mtp2040

The complete draft LCATS MTP is available at
http://www.lcats.org/documents/documents/2040Plan/Transportation_Plan_2040_Draft_for_Public_comment.pdf

The comment period on MORPC's Draft plan is through April 15.

The comment period on LCATS's Draft plan is through April 8.

Both MORPC and LCATS plan to adopt their MTP's during their May meetings.

Thanks and let me know if you have any questions.

Nick

Nicholas T. Gill

Assistant Director, Transportation Systems & Funding | **Mid-Ohio Regional Planning Commission**

T: 614.233.4151 | F: 614.233.4251 | ngill@morpc.org

111 Liberty Street, Suite 100 | Columbus, OH 43215



From: Nick Gill [mailto:NGILL@morpc.org]
Sent: Monday, February 08, 2016 12:14 PM
To: Moore, David <Dave.Moore1@dot.ohio.gov>; Brunello, Antonino <Nino.Brunello@dot.ohio.gov>; Shepler, Andrew <Andrew.Shepler@dot.ohio.gov>; Hurst, Andrew <Andrew.Hurst@dot.ohio.gov>; mhill@lcounty.com1 <mhill@lcounty.com>; Oesterling, Leigh <leigh.oesterling@dot.gov>; Burkett, Frank <frank.burkett@dot.gov>; Maleski, Michael <Michael.Maleski@epa.ohio.gov>; Maietta.Anthony@epamail.epa.gov; vanessa.adams@dot.gov
Cc: Maria Schaper <mschaper@morpc.org>
Subject: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

All,

MORPC & LCATS will be completing their new Metropolitan Transportation Plans this spring. Please see attached for interagency consultation for the conformity analysis for the Columbus area.

The only change to the last conformity process (completed spring 2015 for the SFY 16-19 TIP) is the change to the horizon year from 2035 to 2040.

I would like to complete consultation with concurrence or clarifications via email this week. If anyone feels a conference call is needed please respond with available times this Thursday or Friday (2/11 or 2/12).

Thanks
Nick

Nicholas T. Gill

Assistant Director, Transportation Systems & Funding | [Mid-Ohio Regional Planning Commission](#)

T: 614.233.4151 | F: 614.233.4251 | ngill@morpc.org

111 Liberty Street, Suite 100 | Columbus, OH 43215



Columbus & Newark MPOs 2040 Transportation Plan Update Conformity Analysis Summary

Conformity Topics:

- The Columbus and Newark Ohio MPOs' quadrennial Transportation Plan (2040 horizon year) and conformity determination lapse date is August 2016.
- Conformity analysis will generally be the same as the analysis done in Spring 2015 for the SFY 16-19 TIP. Primary change is horizon year of 2040 instead of 2035.
- The tables below identify analysis years for the Ozone budget tests and PM_{2.5} budget tests.
- The geography for the analysis includes both travel demand model and non-modeled areas. The procedures to establish the emission will be the same as used for previous conformity analyses.
- Emissions will be established based on most recent planning assumptions.

- MORPC MTP Anticipated Schedule is:
 - Draft project list currently available
 - Full draft document with appendices and begin public involvement early March
 - Open House on March 15 from 4-7 pm
 - Close comment period mid April
 - Final document complete late April
- Adoption by MORPC Policy Committee on May 12
- LCATS MTP Anticipated Schedule
 - Draft project list currently available
 - Policy Board adopts draft for public comment March 8
 - Public Comment Period March 8 – April 8, 2016
 - Open House on March 30 from 4-7 pm at Licking County Library, 101 West Main St, Newark, Ohio 43055
 - Final document complete first week of May
 - Adoption of Transportation Plan by Policy Board May 10

Ozone

Attainment status: 1997 8-Hour Ozone Attainment Area
2008 Standard Ozone Nonattainment Area (re-designation to attainment pending)

8-Hour Geography: DEL, FAI, FRA, KNO, LIC, MAD Counties, OH

SIP Status: Re-designation/Maintenance Plan (1997 standard) approved MOVES budget, effective 3/19/13

Conformity Tests: 8-Hour **SIP budget tests** of MORPC & LCATS 2040 MTP/TIP analysis year networks & rural county STIP networks

Analysis Years: 2020 8-Hour budget year
2030 Interim analysis year
2040 MTP(s) horizon year

Ozone (tons/day)				
	2020 Budget	2020 Emissions	2030 Emissions	2040 Emissions
VOC	50.34			
NOx	99.12			

PM_{2.5}

Attainment status: 1997 PM_{2.5} Attainment Maintenance Area
2006 Standard PM_{2.5} Attainment Area
2012 Standard PM_{2.5} Attainment Area

Geography: DEL, FAI, FRA, LIC Counties, & Franklin Township, COS County, OH

SIP Status Redesignation/Maintenance Plan (1997 standard) approved, effective 11/7/13

Conformity Tests: SIP Maintenance Plan Budget tests

Analysis Years: 2020 1st Analysis year – aligned with Ozone Tests
2022 Budget Year
2030 Interim analysis year
2040 MTP(s) horizon year

PM _{2.5} (tons/year)						
	2015 Budget	2020 Emissions	2022 Budget	2022 Emissions	2030 Emissions	2040 Emissions
Direct PM	873.46		559.13			
NOx Precursor	25,084.11		12,187.50			

From: Dave.Moore1@dot.ohio.gov [mailto:Dave.Moore1@dot.ohio.gov]

Sent: Monday, February 08, 2016 1:51 PM

To: Nick Gill; Nino.Brunello@dot.ohio.gov; Andrew.Shepler@dot.ohio.gov; Andrew.Hurst@dot.ohio.gov; mhill@lcounty.com; leigh.oesterling@dot.gov; frank.burkett@dot.gov; Michael.Maleski@epa.ohio.gov; Maietta.Anthony@epamail.epa.gov; vanessa.adams@dot.gov

Cc: Maria Schaper

Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

All,

ODOT concurs with MORPC's documentation.

Thanks

DM

From: Michael.Maleski@epa.ohio.gov [mailto:Michael.Maleski@epa.ohio.gov]

Sent: Friday, February 12, 2016 7:29 AM

To: Dave.Moore1@dot.ohio.gov; Nick Gill; Nino.Brunello@dot.ohio.gov; Andrew.Shepler@dot.ohio.gov; Andrew.Hurst@dot.ohio.gov; mhill@lcounty.com; leigh.oesterling@dot.gov; frank.burkett@dot.gov; Maietta.Anthony@epamail.epa.gov; vanessa.adams@dot.gov

Cc: Maria Schaper

Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

All,

Ohio EPA also concurs with MORPC's referenced conformity analysis summary.

Thanks,

May 2016

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MORPC 2016-2040 Metropolitan Transportatoin Plan

Air Quality Conformity Appendix

LCATS 2016-2040 Metropolitan Transportatoin Plan

Mike Maleski
Ohio EPA - Division of Air Pollution Control
Mailing Address: P.O. Box 1049, Columbus, OH 43216-1049
Street Address: 50 West Town Street, Suite 700 Columbus, OH 43215
Phone: 614-644-1961 Fax: 614-644-3681
michael.maleski@epa.ohio.gov



From: Maietta, Anthony [<mailto:maietta.anthony@epa.gov>]
Sent: Friday, February 12, 2016 10:42 AM
To: Michael.Maleski@epa.ohio.gov; Dave.Moore1@dot.ohio.gov; Nick Gill; Nino.Brunello@dot.ohio.gov; Andrew.Shepler@dot.ohio.gov; Andrew.Hurst@dot.ohio.gov; mhill@lcounty.com; leigh.oesterling@dot.gov; frank.burkett@dot.gov; vanessa.adams@dot.gov
Cc: Maria Schaper
Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

EPA concurs as well

-Tony

Anthony Maietta
EPA Region 5
maietta.anthony@epa.gov
(312) 353-8777

From: Frank.Burkett@dot.gov [<mailto:Frank.Burkett@dot.gov>]
Sent: Thursday, February 25, 2016 11:23 AM
To: Nick Gill; Dave.Moore1@dot.ohio.gov; Nino.Brunello@dot.state.oh.us; Andrew.Shepler@dot.state.oh.us; Andrew.Hurst@dot.state.oh.us; mhill@lcounty.com; Leigh.Oesterling@dot.gov; Mike.Maleski@epa.ohio.gov; Maietta.Anthony@epamail.epa.gov; Vanessa.Adams@dot.gov
Cc: Maria Schaper
Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

Nick,

I've discussed this with Leigh Oesterling and the Division concurs with your approach. Please ensure that this step, and any subsequent interagency coordination activity, is documented in your MTP conformity request.

Frank Burkett, Senior Planning Specialist
Federal Highway Administration - Ohio Division
200 N. High St. - Rm 328
Columbus, OH 43215
614-280-6838

From: Frank.Burkett@dot.gov [mailto:Frank.Burkett@dot.gov]
Sent: Thursday, February 25, 2016 11:32 AM
To: Nick Gill; Dave.Moore1@dot.ohio.gov; Nino.Brunello@dot.state.oh.us;
Andrew.Shepler@dot.state.oh.us; Andrew.Hurst@dot.state.oh.us; mhill@lcounty.com;
Leigh.Oesterling@dot.gov; Mike.Maleski@epa.ohio.gov; Maietta.Anthony@epamail.epa.gov;
Vanessa.Adams@dot.gov
Cc: Maria Schaper
Subject: RE: MORPC/LCATS 2016 MTP Conformity Interagency Consultation

Nick,

FTA also concurs with your approach. I apologize for not mentioning that in my previous response.

Frank Burkett, Senior Planning Specialist
Federal Highway Administration - Ohio Division
200 N. High St. - Rm 328
Columbus, OH 43215
614-280-6838