CMAQ Mid Performance Plan

September 3, 2020

MPO Name: OKI Regional Council of Governments
TMA and States: Cincinnati, OH-KY-IN

This OKI CMAQ Performance Plan is prepared as an element of the Ohio Department of Transportation, Kentucky Transportation Cabinet, and Indiana Department of Transportation statewide CMAQ Performance reports for the mid-performance period in accordance with the requirements of 23 CFR 490.107(c) and 23 USC 149(I) by OKI staff in collaboration with the respective state departments of transportation, FHWA, and other stakeholders. Specifically, the report addresses the progress made toward the performance measures promulgated through the PM3 regulation Subpart G (Measures to Assess the CMAQ Program – Traffic Congestion) and Subpart H (Measures to Assess the CMAQ Program – On-road Mobile Source Emissions).

Table 1a shows the baseline and four-year target peak hours of excessive delay (PHED) per person, per year for the Cincinnati urbanized area. The data for this metric was derived from FHWA vehicle occupancy factors, HPMS traffic count data, and the NPMRDS travel time data set.

Table 1a – Traffic Congestion Measures: Peak Hour Excessive Delay (PHED)

Measure	Metric (annual hours per person)
2017 Baseline PHED	8.7
2020 2-Year PHED Target	N/A
2022 4-Year PHED Target	< 12.0

Table 1b presents actual PHED per person, per year for the Cincinnati urbanized area for 2018 and 2019. In both years, PHED was below the four-year target of 12.0, and in 2019, was slightly below the 2017 baseline of 8.7. The data for this metric was derived from FHWA vehicle occupancy factors, HPMS traffic count data, and the NPMRDS travel time data set.

Table 1b – Traffic Congestion Measures: Actual Peak Hour Excessive Delay (PHED) Statistics

Year	Metric (annual hours per person)
2018	11.5
2019	8.6

Table 2a shows the baseline, two-year, and four-year targets for non-single occupancy vehicle travel (Non-SOV) in the Cincinnati urbanized area. The data for this metric was derived from the American Community Survey Economic Characteristics table.

Table 2a – Traffic Congestion Measures: Non-Single Occupancy Vehicle (Non-SOV) Travel

Measure	Metric (% of total travel modes)
2017 Baseline	17.6%
2-Year Target	≥ 17.4%
4-Year Target	≥ 17.4%

Table 2b presents actual Non-SOV travel in the Cincinnati urbanized area for 2018 and 2019. Non-SOV travel in both years was slightly above both the two- and four-year targets of 17.4 percent. In comparison to the 2017 baseline, there was a slight increase of 0.1% in Non-SOV travel in 2018 while in 2019, returned to 2017 levels. The data for this metric was derived from the American Community Survey Economic Characteristics table.

Table 2b – Traffic Congestion Measures: Actual Non-Single Occupancy Vehicle (Non-SOV) Travel Statistics

Year	Metric (% of total travel modes)
2018	17.7%
2019	17.6%

Table 3a shows the on-road baseline, two-year, and four-year quantitative emissions targets for Volatile Organic Compounds (VOC), Nitrous Oxide (NOx), and Particulate Matter having a diameter of less than 2.5 micrometers (PM2.5). The baseline data was derived from the CMAQ Public Access System and aggregated, by state and pollutant type for the years 2014 – 2017. The data for the two and four-year targets was derived from CMAQ-eligible projects in the OKI TIP with quantitative emissions benefits, for the years 2018 – 2022.

Table 3a – On-Road Mobile Source Emissions

Measure	State	NOx (kg/day)	VOC (kg/day)	PM2.5 (kg/day)
2014-2017 Baseline	Indiana	N/A	N/A	N/A
	Kentucky	33.4	4.93	2.91
	Ohio	309.24	61.65	13.22

Measure	State	NOx (kg/day)	VOC (kg/day)	PM2.5 (kg/day)
2020 2-Year Target	Indiana	1,600	1,600	20
	Kentucky	100	100	N/A
	Ohio	537	69	36
2022 4-Year Target	Indiana	2,200	2,600	30
	Kentucky	200	200	N/A
	Ohio	537	69	36

Table 3b presents the on-road actual quantitative emissions statistics for VOC, NOx, and PM2.5 in fiscal years 2018 and 2019. During the two-year period, both Ohio and Kentucky CMAQ-funded projects in the OKI region contributed toward statewide daily emissions reduction targets. Overall, 16 CMAQ-funded projects (Table 3c) contributed to daily emissions savings in the OKI region of 16.51 kg of VOC, 147.66 kg of NOx, and 4.44 kg of PM2.5, during fiscal years 2018 and 2019. This data was derived from the FHWA CMAQ Public Access System and encompasses all CMAQ-funded projects within the OKI region with on-road mobile source emissions savings that were obligated during 2018 and 2019.

Table 3b – Actual On-Road Mobile Source Emissions Statistics

Year	State	NOx (kg/day)	VOC (kg/day)	PM2.5 (kg/day)
2018	Indiana	0	0	0
	Kentucky	0	0	0
	Ohio	132.34	12.74	4.08
2019	Indiana	0	0	0
	Kentucky	0.21	0.4	0.001
	Ohio	14.53	3.13	0.16

Table 3c – FY2018 and FY2019 CMAQ-funded Projects Actual Emissions Benefits

Year	PID	State	Facility/Agency	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
18	94484	Ohio	Cincinnati Traffic Signals Zone 1	130 signalized intersections in CBD bounded by Mehring Way, Central Pkwy, Central Ave, Eggleston Ave	Install underground duct bank with fiber optic interconnect cable, upgrade signals to LED technology	0.24	0.58	0.004	Reduces congestion and delay	N/A
18	99799	Ohio	BCRTA	BCRTA	Bus Replacements	0.2	3.49	0.09	Removes multiple	Encourages transit ridership

Year	PID	State	Facility/Agency	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
									vehicles from network	
18	99155	Ohio	SORTA	SORTA	Bus Replacements	5.90	110.773	2.455	Removes multiple vehicles from network	Encourages transit ridership
18	106797	Ohio	SORTA	SORTA	Bus Replacements - DERG	0	1.655	0.142	Removes multiple vehicles from network	Encourages transit ridership
18	99801	Ohio	SORTA	SORTA	Bus Replacements	1.95	12.14	1.09	Removes multiple vehicles from network	Encourages transit ridership
18	98771	Ohio	Fairfield ITS Phase 2	Throughout the City of Fairfield	Upgrades to existing central traffic system with advanced technology	0.99	1.22	0.13	Reduces congestion and delay	N/A
18	101886	Ohio	Cincinnati CTCS Zone 9	Hamilton County	Upgrades to existing central traffic system with advanced technology	1.25	0.9	0.06	Reduces congestion and delay	N/A
18	99839	Ohio	SR 32	Bells Lane at SR 32 and Old SR 74	Improvements at two intersections	2.21	1.58	0.11	Reduces congestion and delay	N/A
18	94484	Ohio	VAR CTCS Cincinnati	Hamilton County	Upgrades to existing central traffic system with advanced technology	0.24	0.58	0.004	Reduces congestion and delay	N/A
19	6-287	Kentucky	KY 1072 (Kyles Lane)	Align intersections of US 25 and Kyles Lane (KY 1072) toll credits	Roadway realignment	0.4	0.21	0.001	Reduces congestion and delay	N/A
19	99155	Ohio	SORTA	SORTA	Bus replacements - CMAQ transfers for the OTPPP,	2.877	3.431	0.065	Removes multiple vehicles from network	Encourages transit ridership
19	99347	Ohio	WCTA	WCTA	Vehicle Replacement and Capitalized Maintenance; CMAQ funds only are a flex fund transfer,	0.195	0.088	0.001	Removes multiple vehicles from network	Encourages transit ridership
19	103348	Ohio	BCRTA	BCRTA	Bus Replacements	0.06	3.4	0.01	Removes multiple vehicles from network	Encourages transit ridership

Year	PID	State	Facility/Agency	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
19	109541	Ohio	SORTA	SORTA	Bus Replacements - DERG	0	3.016	0.011	Removes multiple vehicles from network	Encourages transit ridership
19	104913	Ohio	Southwest School System	Southwest School System - DERG	Replace four model year 1999-2004 diesel powered school buses with four new diesel powered school buses.,	0	1.451	0.109	Removes multiple vehicles from network	Encourages transit ridership
19	105012	Ohio	Forest Hills School System	Forest Hills School System - DERG	Replace 11 model year 1998-2000 diesel-powered school buses with 11 new propane-powered school buses	0	3.147	0.162	Removes multiple vehicles from network	Encourages transit ridership
Total Emissions Reductions						**16.508**	**147.6614**	**4.444**		

Table 4 lists all of the CMAQ-eligible projects in the TIP with quantitative emissions benefits for the years 2018-2022. Additionally, each project includes a description on how OKI anticipates these projects will contribute to the achievement of the PHED and Non-SOV targets.

The addition of FY2022 projects will contribute further on-road mobile source emissions savings in the OKI region of 1.96 kg of VOC, 3.84 kg of NOx, and 0.16 kg of PM2.5. Each new project will contribute to emissions savings by reducing congestion and delay through improved traffic flow and safety or by eliminating vehicles on the transportation network through promotion of public transportation.

Table 4 – Future Projects Estimated Emissions Benefits

Year	PID	State	Facility	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
18	94484	Ohio	Cincinnati Traffic Signals Zone 1	130 signalized intersections in CBD bounded by Mehring Way, Central Pkwy, Central Ave, Eggleston Ave	Install underground duct bank with fiber optic interconnect cable, upgrade signals to LED technology	0.238	0.580	0.004	Reduces congestion and delay	N/A
18	99799	Ohio	BCRTA	BCRTA	Bus Replacements	0.2	3.49	0.09	Removes multiple vehicles from network	Encourages transit ridership
18	99801	Ohio	SORTA	SORTA	Bus Replacements	1.950	12.140	1.090	Removes multiple vehicles from network	Encourages transit ridership
18	101886	Ohio	Cincinnati CTCS Zone 9	Hamilton County	Upgrades to existing central traffic system with advanced technology	1.25	0.9	0.06	Reduces congestion and delay	N/A
18	99839	Ohio	SR 32	Bells Lane at SR 32 and Old SR 74	Improvements at two intersections	2.210	1.580	0.110	Reduces congestion and delay	N/A
18	98771	Ohio	Fairfield ITS Phase 2	Throughout the City of Fairfield	Upgrades to existing central traffic system with advanced technology	0.990	1.220	0.130	Reduces congestion and delay	N/A
18	99155	Ohio	SORTA	SORTA	Bus Replacement OTPPP	5.90	110.773	2.455	Removes multiple vehicles from network	Encourages transit ridership
18	106797	Ohio	SORTA	SORTA	Bus Replacement DERG	0.000	1.655	0.142	Removes multiple vehicles from network	Encourages transit ridership
19	NP-CMAQ2	Indiana	SR 1	SR 1 @ US 50, SR 1 @ Belleview/Ridge, SR 1 @ Oberting	Intersection Improvements including realignment, turn lanes and signal adjustments	0.400	1.790	0.396	Reduces congestion and delay	N/A
19	6-287	Kentucky	KY 1072 (Kyles Lane)	Align intersections of US 25 and Kyles Lane (KY 1072) toll credits	Roadway realignment	0.400	0.210	0.000	Reduces congestion and delay	N/A

Year	PID	State	Facility	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
19	99155	Ohio	SORTA	SORTA	Bus replacements - CMAQ transfers for the OTPPP,	2.877	3.431	0.065	Removes multiple vehicles from network	Encourages transit ridership
19	99347	Ohio	WCTA	WCTA	Vehicle Replacement and Capitalized Maintenance; CMAQ funds only are a flex fund transfer,	0.195	0.088	0.001	Removes multiple vehicles from network	Encourages transit ridership
19	103348	Ohio	BCRTA	BCRTA	Bus Replacements	0.06	3.4	0.01	Removes multiple vehicles from network	Encourages transit ridership
19	109541	Ohio	SORTA	SORTA	Bus Replacements - DERG	0	3.016	0.011	Removes multiple vehicles from network	Encourages transit ridership
19	104913	Ohio	Southwest School System	Southwest School System - DERG	Replace four model year 1999-2004 diesel powered school buses with four new diesel powered school buses.,	0	1.451	0.109	Removes multiple vehicles from network	Encourages transit ridership
19	105012	Ohio	Forest Hills School System	Forest Hills School System - DERG	Replace 11 model year 1998-2000 diesel-powered school buses with 11 new propane-powered school buses	0	3.147	0.162	Removes multiple vehicles from network	Encourages transit ridership
20	94491	Ohio	ORT Salem to Sutton	East side of Kellogg Avenue between Salem and Sutton Roads	Construct 10' wide bike path and 5' side path with retaining walls to accommodate grading	0.048	0.073	0.002	Encourages alternate modes	Encourages alternate modes
20	100047	Ohio	ORT West Segment 2	Phase 2-Fairbanks Avenue (near Boldface Park) to the Gilday Riverside Playfield	Construction of Ohio River Trail 10' wide bicycle trail--segment 2	0.160	0.400	0.010	Encourages alternate modes	Encourages alternate modes
20	103392	Ohio	Montgomery Road (US 22) Sidewalks	West side of road from Dearwester Dr. to existing sidewalk 375' south of Pinehurst Lane	Construction of new sidewalk	0.518	1.300	0.037	Encourages alternate modes	Encourages alternate modes

Year	PID	State	Facility	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
20	100046	Ohio	ORT West Segment 1	Phase 1-Evans Recreational area to State Street	Construction of Ohio River Trail 10' wide bicycle trail--segment 1	0.160	0.400	0.010	Encourages alternate modes	Encourages alternate modes
20	104712	Ohio	ITS Phase 3	In and around Milford and along the US 50 and SR 28 corridors	Interconnection of 15 traffic signals under municipal and ODOT jurisdiction	0.520	0.370	0.030	Reduces congestion and delay	N/A
20	100188	Ohio	Great Miami River Trail Extension	Adjacent to SR 73 from current trail terminus near Briel Blvd. to Baxter Dr trailhead north of SR 73	Construction of 10' wide multi-use trail to extend existing Great Miami River Trail	0.100	1.020	0.030	Encourages alternate modes	Encourages alternate modes
20	100882	Ohio	SR 741	Intersection of SR 741 and Parkside	Intersection improvement project	0.350	0.250	0.020	Reduces congestion and delay	N/A
20	100885	Ohio	Mason Snider Road	Mason & Snider Road intersection and Snider & Thornberry Court intersection	Reconstruction of existing intersections into single lane roundabouts	0.420	0.300	0.020	Reduces congestion and delay	N/A
20	103348	Ohio	BCRTA	BCRTA	Bus Replacements	0.060	3.400	0.010	Removes multiple vehicles from network	Encourages transit ridership
20	103349	Ohio	SORTA	SORTA	Bus Replacements	1.630	10.120	0.900	Removes multiple vehicles from network	Encourages transit ridership
20	104414	Ohio	SORTA	SORTA	Bus Replacements	0.080	4.480	0.020	Removes multiple vehicles from network	Encourages transit ridership
21	6-80003	Kentucky	US 42	at the I-71/I-75 Interchange	Increase capacity and reduce congestion by widening the bridge to provide for sidewalks and extend the left turn lane for WB US 42 to SB I-71/75	0.200	0.140	0.010	Reduces congestion and delay	N/A
21	107295	Ohio	Little Miami Scenic Trail-Beechmont Connector	Connecting existing trail termini north of Beechmont Av and Lunken Loop trail.	Construct 12' wide multi-use trail,crossing LMR via new bridge, utilizing existing bridge foundation	0.097	0.132	0.005	Encourages alternate modes	Encourages alternate modes

Year	PID	State	Facility	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
21	103371	Ohio	Butler Warren Road	Intersection of Butler Warren Road with Western Row/Barret Road	Convert intersection to a modern roundabout. Improve curb, gutter, drainage, culvert and geometry.	0.340	0.250	0.020	Reduces congestion and delay	N/A
21	103416	Ohio	Plainfield Road	Intersections with EB SR 126 ramps, Hunt Road and Peppermill Ln/Reed Hartman Hwy	Conversion of three signalized intersections to multi-lane modern roundabouts	0.400	0.290	0.020	Reduces congestion and delay	N/A
21	107296	Ohio	Mt. Healthy Signal System Phase 2	US 127 (Hamilton Av) and Compton Road	Upgrade 14 traffic signals.	1.320	1.550	0.040	Reduces congestion and delay	N/A
21	104415	Ohio	SORTA	SORTA	Bus Replacements	1.654	9.969	0.511	Removes multiple vehicles from network	Encourages transit ridership
21	107283	Ohio	SORTA FY21 Bus Replacements	Hamilton County	Bus replacements using OKI CMAQ funds as a flex fund transfer.	1.650	9.970	0.050	Removes multiple vehicles from network	Encourages transit ridership
21	107292	Ohio	CLE US 50/SR 132 Intersections	US 50 and SR 132 intersections in Village of Owensville (two intersections)	Add turn lanes, curb, sidewalk, storm sewer, curb ramps and upgrade signals.	0.358	0.421	0.012	Reduces congestion and delay	N/A
22	1297183	Indiana	State Line Road	State Line Road and US 50	Intersection improvement	0.015	0.016	0.000	Reduces congestion and delay	N/A
22	107301	Ohio	HAM US 22/SR 3 9.66 Silverton	US 22 (Montgomery Road) at Highland Av, Sampson Ln, Plainfield Rd, and Elwynne Dr.	Upgrade signals at Higland, Sampson and Elwynne. Upgrade signal at Plainfield. Access management.	0.040	0.040	0.000	Reduces congestion and delay	N/A
22	107302	Ohio	WAR US 42 Roundabouts	Intersections at Bethany Road and Mason-Morrow-Millgrove Road	Convert two existing stop controlled "T" intersections to roundabouts. Add multi-use path.	1.291	1.516	0.042	Reduces congestion and delay	N/A

Year	PID	State	Facility	Location	Description	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/day)	PHED Benefit	Non-SOV Benefit
22	100816	Ohio	Countryside YMCA Trail Extension	Bridge rehab & new trail btwn Lebanon Bike Park E of SR 48 and the YMCA. Connect north to Forge Rd.	Construction of new section of the Lebanon Countryside YMCA Trail. Includes rehab of E. Turtlecreek Union Road Bridge over SR 48.	0.022	0.030	0.001	Encourages alternate modes	N/A
22	107130	Ohio	HAM CR 284 1.33 Pfeiffer Road	Intersection of Pfeiffer Road and Deerfield Road	Construct roundabout	0.062	0.073	0.002	Reduces congestion and delay	N/A
22	107866	Ohio	HAM Winton Rd/IR 275 Ramp Y	Omniplex Drive south to Ramp Y (WB I-275 on -ramp)	Additional right turn lane from SB Winton onto WB I-275 on-ramp. Dual right turns on ramp.	0.490	2.114	0.111	Reduces congestion and delay	N/A
22	108014	Ohio	HAM US 50 8.43 Thornton Ave	Thornton Av from Forbes Rd across the RR and River Road (US 50)	Bike/ped crossing along south side of Thornton Av, across River Rd and RR tracks to Fernbank Park	0.018	0.024	0.001	Encourages alternate modes	N/A
22	108112	Ohio	BUT Oxford Area Trail Phase 3	Connection of Peffer Park to Talawanda High School	Construction of shared use path on south side of Oxford. Also paving the existing crushed aggregate path that connects Bonham Rd and SR 73 on the east side.	0.021	0.029	0.001	Encourages alternate modes	N/A
Total Emissions Reductions						**28.692**	**197.549**	**6.749**		

Appendix

Appendix 1 – Ohio Performance Management Form FY2018 and FY2019

Project Description	VOC (kg/day)	CO (kg/day)	NOx (kg/day)	PM2.5 (kg/day)
Traffic Flow Projects - Traffic Engineering - Turn Lanes.	2.72		3.28	0.198
Pedestrian/Bicycle Project - Facilities - Separate Path.				
Facilities, Other - Description, Bike/Ped Path				
Congestion Reduction, Left-Turn/Managed lanes, design				
Operating Assistance and Fuel, Expansion, Bus, Operating Assistance (Yrs. 1), Description, Funding for operating assistance to expand bus service.	11.18		142.59	4.14
Congestion Reduction, Left-Turn/Managed Lanes, Construction	2.21		1.58	0.11
Total Emissions Benefit	**16.11**		**147.45**	**4.44**

Appendix 2 – Kentucky Performance Management Form FY2018 and FY2019

Project Description	VOC (kg/day)	CO (kg/day)	NOx (kg/day)	PM2.5 (kg/day)
Traffic Flow Projects - Traffic Engineering - Turn Lanes.				
Pedestrian/Bicycle Project - Facilities - Separate Path.				
Facilities, Other - Description, Bike/Ped Path				
Congestion Reduction, Left-Turn/Managed lanes, design				
Operating Assistance and Fuel, Expansion, Bus, Operating Assistance (Yrs. 1), Description, Funding for operating assistance to expand bus service.				
Congestion Reduction, Left-Turn/Managed Lanes, Construction	0.40		0.21	0.001
Total Emissions Benefit	**0.40**		**0.21**	**0.001**