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NOACA

MEMORANDUM

To:	Natasha Turner (614) 752-5757	**From:**	Ed May (216) 241-2414 ext. 287
Date:	12/30/20	**Pages:**	2
Re:	**Technical Amendment**	**CC:**	Jordan Whisler (614) 644-8181

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

● **Comments:**

The purpose of this correspondence is to inform you of an amendment to the NOACA SFY 2021 - 2024 Transportation Improvement Program (TIP), March 2020 involving NOACA's CMAQ Mid-Performance Plan.

Attached for your information is narrative related to Section 4 (Performance Measures) of NOACA's SFY 2021 – 2024 TIP, addressing federal performance measures, targets and required CMAQ performance plan and, specifically, the mid- and full-performance period progress reports requirement.

NOACA's CMAQ Performance Plan was prepared in 2018 as a component of the Ohio Department of Transportation (ODOT) statewide CMAQ performance report in accordance with requirements outlined in 23 CFR 490.107(C) and 49 USC 149(1) in partnership with the ODOT, Federal Highway Administration (FHWA), and regional stakeholders. Specifically, it focuses on performance measures established 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).

The CMAQ program, Traffic Congestion Measures, include (a) Annual Hours of Peak Hour Excessive Delay (PHED) per person, per year for the Cleveland urbanized area and (b) the Percent of Non-Single Occupancy Vehicle (Non-SOV) Travel. The On-Road Mobile Source Emissions measures include Volatile Organic Compounds (VOCs), Nitrous Oxide (NOx), and Fine Particulate Matter (diameter less than 2.5 micrometers (PM2.5)). Using a four-year average baseline, the Plan established both two- and four-year targets based on programmed TIP projects with quantified emissions benefits for each of the congestion and emissions reduction performance measures.

23 CFR 490.809(b)(2) requires Mid- and Full-Performance Period Progress Reports. MPOs must include an assessment of their progress towards meeting their 2-year and 4-year targets, respectively, based upon projects in their Performance Plans. As such, the attached NOACA CMAQ Mid-Performance Plan demonstrates that NOACA has exceeded its established 2-year targets for the three On-Road Mobile Source Emissions and is projected to also do so for its 4-year targets.

Please contact me if you have any questions.

CMAQ Congestion & Air Quality Mid-Performance Measures and Targets

The NOACA Air Quality/CMAQ Performance plan was prepared as a component of the Ohio Department of Transportation (ODOT) statewide CMAQ Performance reports for the mid-performance period in accordance with the requirements of 23 CFR 409.107(c) and 49 USC 149(1) in collaboration with the ODOT, FHWA, and stakeholders within the region. Specifically, this section focuses on the performance measures established 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).

The national performance measures to assess traffic congestion for the CMAQ program were established in 23 CFR 707 (a-b) and are referred to collectively as the CMAQ Traffic Congestion Measures. They are: (a) Annual Hours of Peak Hour Excessive Delay (PHED) per Person per Year (PHED Measure); and (b) Percent of Non-Single Occupancy Vehicle Travel (Non-SOV). Section VI of the agreement establishes targets for each of the CMAQ Congestion and Air Quality measures.

Table 1a shows the baseline and four-year target peak hours of excessive delay (PHED) per person, per year for the Cleveland urbanized area.

Peak travel hours are defined as 6:00 a.m. to 10:00 a.m. local time on weekday mornings. The weekday afternoon period is 3:00 p.m. to 7:00 p.m. The information for this measure was developed from FHWA vehicle occupancy factors, HPMS traffic count data, and the NPMRDS (National Performance Management Research Data Set) travel time data set.

Table1a
Traffic Congestion Measure: Peak Hour Excessive Delay (PHED)

Measure	NOACA Baseline 4-Year Average	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 4-Year Target
Cleveland: Peak Hour Excessive Delay Per Capita	7.4 hours/year	N/A	< 10 hours/year	N/A	< 10 hours/year

Table 1b presents the baseline, two-year and four-year targets for Non-Single Occupancy Vehicle (Non-SOV) within the Cleveland urbanized area. The information for this metric was developed and analyzed using data from the American Community Survey (Table DP03). The performance of 18.1% within the NOACA region over the two-year period slightly exceeds the target of at least 18% or greater.

Table 1b
Traffic Congestion Measure: Non-Single Occupancy Vehicle (Non-SOV) Travel

Measure	NOACA Baseline 4-Year Average	ODOT 2-Year Target	ODOT 4-Year Target	NOACA 2-Year Target	NOACA 2-Year Performance	NOACA 4-Year Target
Cleveland: % of Non-SOV Travel	17.90%	$\geq$ 18%	$\geq$ 18.5%	$\geq$ 18%	18.1%	$\geq$ 18.5%

The following CMAQ On-Road Mobile Source Emissions information included in Table 2 on the following page shows the on-road baseline, ODOT and NOACA two-year quantitative NOACA emissions targets for Volatile Organic Compounds (VOC), Nitrous Oxide (NOx), and Particulate Matter with a diameter of less that 2.5 micrometers (PM2.5) compared to the impact of obligated projects during the first two years. NOACA's baseline data was derived from the FHWA Congestion Mitigation and Air Quality (FHWA CMAQ) Public Access Database and aggregated by pollutant type for the years 2014-17. For the two and four-year targets, the data was derived from obligated projects with quantified emissions benefits for the two years and the four-year projection includes programmed project for those years. The following year's projects programmed for 2023-2025 listed in Table 6 on

the following pages will continue efforts towards reducing emissions. Table 2 below compares NOACA's two-year targets to the actual performance over the same period of time.

Table 2
On Road Mobile Source Emissions

Measures	NOACA Baseline	ODOT 2-Year Target	NOACA 2-Year Target	NOACA 2-Year Performance
Volatile Organic Compounds Total Emissions Reduction (VOC kg/day)	4 year average 85.90 kg/day	69 kg/day	16.16 kg/day	21.96 kg/day
Nitrous Oxide Total Emissions Reduction (NOx kg/day)	4 year average 671.31 kg/day	537 kg/day	56.71 kg/day	74.92 kg/day
Particulate Matter at 2.5 Micrometers Total Emissions Reduction (PM2.5 kg/day)	4 year average 44.97 kg/day	36 kg/day	3.96 kg/day	5.32 kg/day

Table 3 lists implemented projects during the first two years of the program with their quantified emissions benefits for those years. In addition, each project includes a short description on how they are anticipated to contribute to the achievement of the Peak Hour Excessive Delays (PHED) and the Non-Single Occupancy Vehicle (Non-SOV) performance targets.

Table 3

Years 1 and 2 Implemented Projects Estimated Emissions Benefits/Reductions

PID No.	County	Sponsor	Description	SFY	VOC (kg/day)	NOx (kg/ day)	PM2.5 (kg/ day)	PHED Benefit	Non-SOV Benefit
99121	Lake	Laketran	Light Transit Replacement Vehicles	2018	0.0289	0.4650	0.0190	Reduces vehicles in network	Encourages transit ridership
99122	Lake	Laketran	Commuter Buses	2018	0.7180	4.5252	0.3708	Reduces vehicles in network	Encourages transit ridership
97821	Regional	NOACA	NOACA Air Quality/Ride Share Program	2018	0.1023	0.4287	0.0242	Reduces vehicles in network	Encourages use of alternate modes
97822	Regional	NOACA	NOACA Air Quality/Ride Share Program	2019	0.1125	0.4708	0.0266	Encourages use of alternate travel modes	Encourages use of alternate travel modes
108142	Cuyahoga	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2019	0.6100	4.4000	0.4100	Reduces traffic congestion and delays	N/A
105005	Lorain	Lorain County Metroparks	Black River Trail (Phase 3B)	2019	0.0100	0.0043	0.0550	Encourages use of alternate travel modes	Encourages use of alternate travel modes
94963	Cuyahoga	GCRTA	Bus Replacement Program	2019	3.8838	25.2327	2.0824	Reduces vehicles in network	Encourages transit ridership
87075 / 80997	Cuyahoga	Cuyahoga County	Cleveland Towpath Trail: Phases 1 & 4	2019	3.9900	5.0000	0.1000	Encourages use of alternate travel modes	Encourages use of alternate travel modes
99132	Lake	Laketran	Light Transit Replacement Vehicles	2019	0.0304	0.4833	0.0200	Reduces vehicles in network	Encourages transit ridership

Table 3 (cont.)

Years 1 and 2 Implemented Projects Estimated Emissions Benefits/Reductions

PID No.	County	Sponsor	Description	SFY	VOC (kg/day)	NOx (kg/ day)	PM2.5 (kg/ day)	PHED Benefit	Non-SOV Benefit
99106	Medina	Medina County Transit	Bus Replacement	2019	3.3390	0.1500	0.0940	Reduces vehicles in network	Encourages transit ridership
106792	Cuyahoga	GCRTA	Bus Replacement Program - DERG	2019	1.3800	8.4033	0.5965	Reduces vehicles in network	Encourages transit ridership
104911	Lake	Kirtland Schools	Bus Replacement - DERG	2019	n/a	1.1900	0.0820	N/A	N/A
104912	Medina	Black River Schools	Bus Replacement - DERG	2019	n/a	0.3680	0.0300	N/A	N/A
97602	Cuyahoga	Strongsville	SR-82/SR-42 Signals	2020	3.2188	3.5155	0.1049	Reduces traffic congestion and delays	N/A
94963	Cuyahoga	GCRTA	Bus Replacement Program	2020	0.1649	4.9861	0.0443	Reduces vehicles in network	Encourages transit ridership
95109	Cuyahoga	North Olmsted	North Olmsted Signals Phase 2	2020	0.3400	2.4900	0.2300	Reduces traffic congestion and delays	N/A
95404	Cuyahoga	East Cleveland	East Cleveland Signals Upgrade	2020	0.1900	1.3800	0.1300	Reduces traffic congestion and delays	N/A
99114	Lake	Laketran	Light Transit Replacement Vehicles	2020	0.0304	0.4883	0.0200	Reduces vehicles in network	Encourages transit ridership
107562	Lorain	Lorain County Metroparks	Black River Trail Expansion Phase 3C	2020	0.9831	1.1572	0.0517	Encourages use of alternate travel modes	Encourages use of alternate travel modes
107598	Lorain	Lorain County Metroparks	Black River Trail Expansion Phase 4E	2020	0.6136	0.7223	0.0323	Encourages use of alternate travel modes	Encourages use of alternate travel modes
97823	Regional	NOACA	NOACA Air Quality/Ride Share Program	2020	0.1237	0.5179	0.0292	Encourages use of alternate travel modes	Encourages use of alternate travel modes
109653	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2020	0.6700	4.8400	0.4500	Reduces traffic congestion and delays	N/A
104804	Cuyahoga	Cleveland Metroparks System	Red Line Greenway Trail	2020	0.1833	0.2133	0.0103	Encourages use of alternate modes	Encourages use of alternate modes
103291	Lake	Laketran	Bus Replacement Vehicles	2020	0.4160	2.6120	0.2320	Reduces vehicles in network	Encourages transit ridership
TOTAL EMISSIONS REDUCTIONS: 2-Year Performance					**21.9590**	**74.9188**	**5.3212**		

Table 4 below compares NOACA's four-year targets to the actual performance during the first two years plus programmed projects in 2021 and 2022. The addition of several projects in the last two years, chief among them PID #112897 for Electric Vehicle charging stations throughout the region, results in the significant improvement in projected emissions reductions over the 4-year period compared with the targets.

Table 4
On Road Mobile Source Emissions

Measures	NOACA Baseline	ODOT 4-Year Target	NOACA 4-Year Target	NOACA 4-Year Projection
Volatile Organic Compounds Total Emissions Reduction (VOC kg/day)	4 year average 85.90 kg/day	69 kg/day	38.56 kg/day	80.00 kg/day
Nitrous Oxide Total Emissions Reduction (NOx kg/day)	4 year average 671.31 kg/day	537 kg/day	107.17 kg/day	163.05 kg/day
Particulate Matter at 2.5 Micrometers Total Emissions Reduction (PM2.5 kg/day)	4 year average 44.97 kg/day	36 kg/day	7.58 kg/day	10.43 kg/day

Table 5 below lists programmed projects for years three and four the current program along with their quantified emissions benefits for those years. In addition, each project includes a short description on how they are anticipated to contribute to the achievement of the Peak Hour Excessive Delays (PHED) and the Non-Single Occupancy Vehicle (Non-SOV) performance targets. Projected reduction of emissions during the third and fourth year of the program exceeds NOACA's targets due to the inclusion of additional projects during this time frame, led by the District 3 and 12 Electric Vehicle Charging Stations project that will result in significant reductions in all three measures.

Table 5

Programmed Years 3 and 4 Projects Estimated Emissions Benefits/Reductions

PID No.	County	Sponsor	Description	SFY	VOC (kg/day)	NOx (kg/ day)	PM2.5 (kg/ day)	PHED Benefit	SOV Benefit
101814	Regional	NOACA	NOACA Air Quality/Ride Share Program	2021	0.1361	0.5697	0.0.322	Reduces vehicles in network	Encourages use of alternate modes
109652	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2021	0.7400	5.3200	0.5000	Reduces traffic congestion and delays	N/A
112897	Regional	NOACA	D12/D3 NOACA EV Charging Stations	2021	41.1493	43.6414	2.6222	N/A	N/A
112565	Cuyahoga	GCRTA	Blue/Green Line Passenger Shelters	2021	0.1012	10.5208	0.1036	Reduces vehicles in network	Encourages transit ridership
108526	Lorain	Lorain	Washington Avenue Bikeway	2021	0.3010	0.3542	0.0158	Encourages use of alternate travel modes	Encourages use of alternate travel modes
103290	Cuyahoga	GCRTA	Bus Replacement Program	2021	1.4300	8.9650	0.7950	Reduces vehicles in network	Encourages transit ridership

Table 5 (cont.)

Programmed Years 3 and 4 Projects Estimated Emissions Benefits/Reductions

PID No.	County	Sponsor	Description	SFY	VOC (kg/day)	NOx (kg/ day)	PM2.5 (kg/ day)	PHED Benefit	SOV Benefit
108258	Cuyahoga	Rocky River	Rocky River Signals Upgrade	2021	0.2343	0.2559	0.0076	Reduces traffic congestion and delays	N/A
113726	Cuyahoga	Cuyahoga County	Towpath Trail: Phase 4 Trailhead	2021	**n/a**	**n/a**	**n/a**	Encourages use of alternate travel modes	Encourages use of alternate travel modes
112415	Cuyahoga	Cuyahoga County Port Authority	Bulk Terminal Tunnel Extension	2021	9.7769	0.5050	0.1689	N/A	N/A
101814	Regional	NOACA	NOACA Air Quality/Ride Share program	2022	0.1497	0.6267	0.0354	Reduces vehicles in network	Encourages use of alternate modes
111098	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2022	0.7400	5.3200	0.5000	Reduces traffic congestion and delays	N/A
89034	Cuyahoga	Cleveland	Lake Link Trail	2022	0.3379	0.3640	0.0291	Encourages use of alternate travel modes	Encourages use of alternate travel modes
104941	Cuyahoga	Cleveland	Johnston Mill Run Trail: Phase 1	2022	1.0494	1.1303	0.0902	Encourages use of alternate modes	Encourages use of alternate modes
105932	Cuyahoga	Cleveland	Lorain Avenue Cycle Track	2022	0.8737	10.944	0.0223	Encourages use of alternate modes	Encourages use of alternate modes
108945	Cuyahoga	Mayfield Heights	Lander Road Roundabout	2022	0.4152	0.4535	0.0135	Reduces traffic congestion and delays	N/A
109034	Cuyahoga	Cleveland Metro Parks	Euclid Creek Greenway	2022	0.1458	0.1827	0.0037	Encourages use of alternate modes	Encourages use of alternate modes
108943	Cuyahoga	Mayfield Heights	Mayfield Road Signals	2022	1.0846	1.1846	0.0353	Reduces traffic congestion and delays	N/A
TBD	Cuyahoga	Bedford Heights	Richmond Road Multi-Purpose Facility	2022	0.1833	0.2133	0.0103	Encourages use of alternate modes	Encourages use of alternate modes
104528	Cuyahoga	GCRTA	40-Ft Replacement Vehicles	2022	2.5093	13.7374	0.7215	Reduces vehicles in network	Promotes transit ridership
108810	Lake	Laketran	Light Transit Replacement Vehicles	2022	0.0933	1.7973	0.0955	Reduces vehicles in network	Promotes transit ridership
108259	Cuyahoga	Cleveland	Midway – Superior Corridor	2022	1.2440	1.4642	0.0655	Encourages use of alternate travel modes	Encourages use of alternate travel modes
PROGRAMED EMISSIONS REDUCTIONS: Years 3 & 4					**62.7620**	**98.2443**	**5.9120**		

Future awarded and programmed NOACA projects along with their quantified emission reductions are listed below in Table 6. These projects will continue NOACA's efforts to not only meet, but to exceed its emission reduction targets in thee future.

Table 6

Future Projects Estimated Emissions Benefits/Reductions

PID No.	County	Sponsor	Description	SFY	VOC (kg/day)	NOx (kg/day)	PM2.5 (kg/ day)	PHED Benefit	Non-SOV Benefit
101814	Regional	NOACA	NOACA Air Quality/Ride Share program	2023	0.1647	0.6894	0.3890	Reduces vehicles in network	Encourages use of alternate modes
111102	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2023	0.7400	5.3200	0.5000	Reduces traffic congestion and delays	N/A
104528	Cuyahoga	GCRTA	40-Ft Replacement Vehicles	2023	2.5093	13.7374	0.7215	Reduces vehicles in network	Promotes transit ridership
108810	Lake	Laketran	Light Transit Replacement Vehicles	2023	0.0933	1.7973	0.0955	Reduces vehicles in network	Promotes transit ridership
108245	Cuyahoga	Cleveland	E. 93rd and E.105th Streets Modal	2023	1.1950	1.4070	0.0630	Encourages use of alternate travel modes	Encourages use of alternate travel modes
110145	Cuyahoga	Beachwood	SR-175 / Cedar Road Signals	2023	0.8689	0.9490	0.0283	Reduces traffic congestion and delays	N/A
108940	Cuyahoga	Parma	West Creek Greenway	2023	2.0330	2.5464	0.0519	Encourages use of alternate modes	Encourages use of alternate modes
112809	Cuyahoga	Cleveland Heights	Cleveland Heights Signals	2023	0.4710	0.5144	0.0153	Reduces traffic congestion and delays	N/A
109413	Cuyahoga	University Heights	University Heights Signals	2023	0.3151	0.3442	0.0103	Reduces traffic congestion and delays	N/A
TBD	Lake	Painesville	SR-283 / US-20 Signals	2023	0.1076	0.1175	0.0035	Reduces traffic congestion and delays	N/A
109412	Lorain	Lorain	Lorain Citywide Signals	2023	0.8565	0.9534	0.0279	Reduces traffic congestion and delays	N/A
101814	Regional	NOACA	NOACA Air Quality/Ride Share program	2024	0.1811	0.0428	0.2590	Reduces vehicles in network	Encourages use of alternate modes
111103	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2024	0.7400	5.3200	0.5000	Reduces traffic congestion and delays	N/A
113047	Cuyahoga	GCRTA	60-Ft Replacement Articulated Vehicles	2024	0.0089	1.2435	0.0474	Reduces vehicles in network	Promotes transit ridership

Table 6 (cont.)

Future Projects Estimated Emissions Benefits/Reductions

108810	Lake	Laketran	Vehicle replacements	2024	0.0282	0.1622	0.0202	Reduces vehicles in network	Promotes transit ridership
TBD	Regional	NOACA	NOACA Air Quality/Ride Share program	2025	0.1647	0.6894	0.3890	Reduces vehicles in network	Encourages use of alternate modes
TBD	Regional	NOACA	Signal Timing Optimization Program (STOP) Two Corridors	2025	0.7400	5.3200	0.5000	Reduces traffic congestion and delays	N/A
108810	Lake	Laketran	Bus Replacement Vehicles	2025	0.0610	6.3120	0.0620	Reduces vehicles in network	Promotes transit ridership
113047	Cuyahoga	GCRTA	Bus Replacement Program	2025	-0.0089	1.2435	0.0474	Reduces vehicles in network	Promotes transit ridership
TBD	Lake	Willoughby	SR-91 (SOM Center Rd. Multi-Purpose Facility	2025	0.3360	0.3911	0.0189	Encourages use of alternate modes	Encourages use of alternate modes
113165	Cuyahoga	Glenwillow	Broadway – Richmond Intersection improvements	2025	0.0427	0.0374	0.0014	Reduces traffic congestion and delays	N/A
PROGRAMMED 2023-25 EMISSIONS REDUCTIONS					**12.2426**	**60.1429**	**3.2469**		