Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

MEMORANDUM

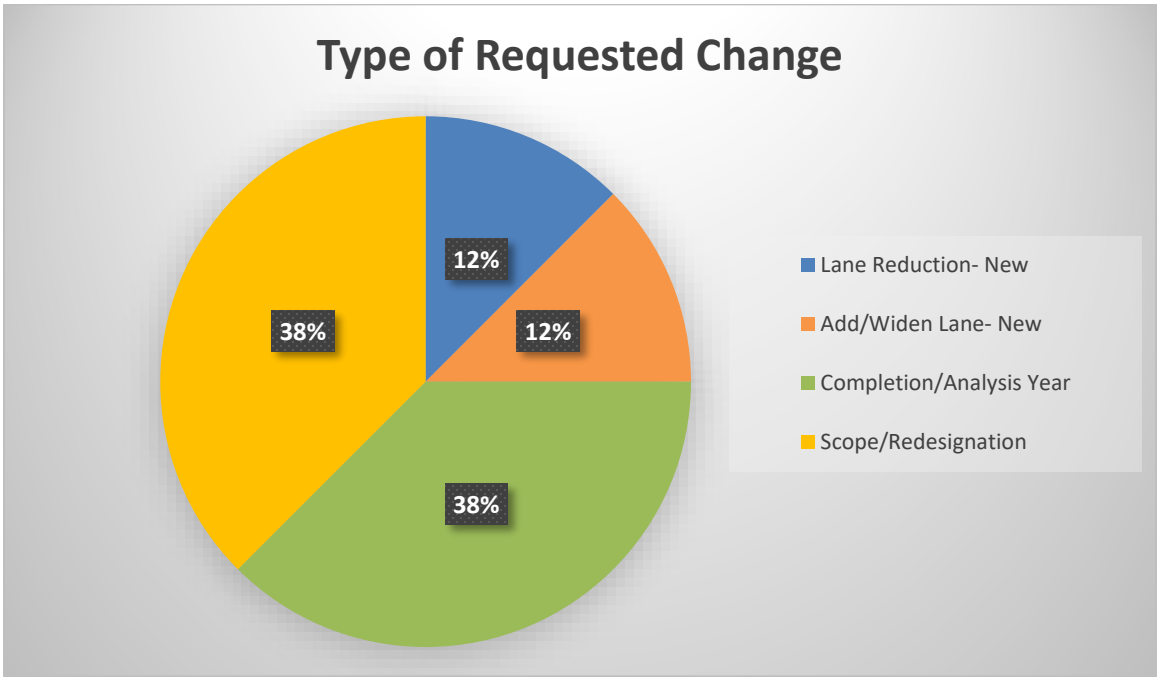
To: **CMAP Transportation Committee**

From: **CMAP Staff**

Date: **December 15th, 2023**

Re: **ON TO 2050/2024-2028 TIP Conformity Analysis & TIP Amendment 24-04 release for public comment**

In accordance with the required plan update conformity analysis policy, CMAP staff asked programmers to submit changes, additions, or deletions to non-exempt projects included in the FFY 2024-28 TIP that are anticipated to be carried forward into the FFY 2024-28 TIP and ON TO 2050 for inclusion in the regional air quality analysis. Of the changes requested, eight projects require air quality conformity analysis. Below is a summary by type of requested change.



If the 2024-28 TIP is approved, two new non-exempt projects and six previously conformed projects will be included in the conformed TIP. The federal government requires regional

planning agencies to demonstrate fiscal constraint by determining that sufficient resources will be available to construct projects recommended in the plan. Careful selection of these projects must meet the federal standard of fiscal constraint, while also helping to achieve regional goals. These types of projects are included in the conformity analysis because funding for phases beyond preliminary engineering has been identified in the TIP or within the planning horizon of ON TO 2050. Non-exempt projects with only preliminary engineering funding and exempt tested projects are excluded from conformity analysis.

The newly non-exempt projects to be conformed are:

- TIP ID 02-14-0003: bike/ped facilities, lane reduction, and signal modernization on Church St from Linder Ave to McCormick Blvd
- TIP ID 09-20-0039: road reconstruction and improvements with a bridge replacement at US 20/Shales from Poplar Creek to IL 59

The previously conformed projects included in the amendment are:

- TIP ID 01-03-0017: new bridge construction at Taylor St over the Chicago River
- TIP ID 03-96-0021: road extension and access improvement from Gary Rd to the O'Hare West Bypass
- TIP ID 06-04-0008: removal of the add lanes work type on IL 7 Wolf Rd from 143rd St to 167th St
- TIP ID 08-06-0028: road widening of N Aurora Rd, Pennsbury Ln to Frontenac Rd (at the CN RR)
- TIP ID 09-18-0015: road expansion of Randall Rd from N County Line Rd to Orchard Rd
- TIP ID 10-22-0001: bike/ped improvements, ADA upgrades, and new traffic light installation with interconnect and signal timing improvements at Old McHenry crossing from Abbey Glenn to Fairfield Rd

Changes to existing projects are described below.

Updated open to traffic year and project schedule, new accessibility work types, adding lanes and road expansion/extension, deletion of a project and removal from RSP list, major changes to project limits.

The completion year indicates when a project is anticipated to be in service to users. The conformity analysis is conducted for selected analysis years between now and 2050. The analysis years are currently 2025, 2030, 2035, 2040 and 2050. If a change in completion year results in moving a project across an analysis year, the project must be revised in the conformity analysis.

The following non-exempt projects crossed an analysis year:

- TIP ID 01-03-0017: new bridge construction at Taylor St over the Chicago River
- TIP ID 03-96-0021: road extension and access improvement from Gary Rd to the O'Hare West Bypass
- TIP ID 08-06-0028: road widening of N Aurora Rd, Pennsbury Ln to Frontenac Rd (at the CN RR)

The scope of a project is determined by the work types associated with the project.

- Non-exempt work types are expected to affect air quality and must be included in the conformity analysis. Examples of non-exempt work types are adding lanes to a road, remove lanes from road, interchange expansion, and the major expansion of bus route service.
- Exempt tested work types do not require an air quality conformity analysis, but the region has chosen to include the impacts of these types of projects in the travel demand model. Exempt tested projects include new commuter parking lots, road (diet) reconfiguration of lanes to improve safety, and road reconstruction with lane widening to standard widths (e.g., 10 feet to 12 feet).
- Exempt work types do not require an air quality conformity analysis. Examples of exempt work types are intersection improvements and rail station modernization.

Projects with a change in scope, scale, or plan.

The new, former exempt project addition is accommodating new bike facilities, by implementing a change in scope by removing a lane.

- TIP ID 02-14-0003: Church St from Linder Ave to McCormick Blvd. with the lane removal segment between Gross Point Rd. to Kenton Ave. aims to improve connectivity of the local regional bike network with the addition of a dedicated bike lane toward a proposed bicycle project in the neighboring community.

A project repositioning from the programmer with the removal of the add lanes work type. This former conformed project needs to be redesignated, as exempt tested. The project will remain in the TIP, included within the model once the funding is figured out.

- TIP ID 06-04-0008: IL 7 Wolf Rd from 143rd St to 167th St included adding lanes, but the project is being canceled in the TIP and non-exempt work types have been removed.

The implementer initiated a grander scale to the scope of these corridor improvements.

- TIP ID 09-20-0039: US 20/Shales from Poplar Creek to IL 59 an expanded interchange and reconstruction, supporting a new bridge and highway extension in implementing major changes and broadening of project limits in support of US 20 expansion to the west.
- TIP ID 10-22-0001: Old McHenry Crossing from Abbey Glenn Drive to Bonnie Lane a major corridor improvement project affecting four major arterials. Project scoping indicates a grade separation with an additional thru lane, intersection improvements, upgrades in traffic signals, and new bike paths.

Change in plans.

- TIP ID 09-18-0015: Randall Rd from N County Line Rd to Orchard Rd, this former RSP is no longer being pursued as initially presented and is being deleted from the TIP.

Newly submitted changes are found in the 24-04 Conformity Amendments report.

The regional travel demand model was run using the updated networks. The resultant vehicle miles traveled (VMT) by vehicle class, speed, time of day, and facility type were entered into U.S. Environmental Protection Agency's new MOVES3 model. The MOVES3 model is a significant upgrade from the previous model, MOVES 2014a that CMAP had been using. MPO's are required to start using the MOVES3 model by November of 2022 but CMAP chose to use the new model for the ON TO 2050 plan update which is part of this conformity analysis. The MOVES3 model has updated data for vehicle populations, travel activity, and emission rates as well as updated fuel supply information at the county level. MOVES3 also adjusted modeling to better account for vehicle starts, long-haul truck hoteling, and off-network idling and incorporated the impacts of the Heavy-Duty Greenhouse Gas Phase 2 rule and the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule. In various test of the MOVES3 model by U.S. EPA and practitioners, both ozone precursors, volatile organic compounds (VOC) and nitrogen oxides (NOx) produced changes in the mobile source emission results compared to the previous model even when the input data was relatively unchanged. Specifically, VOC emissions went down, and NOx emissions increased in urbanized areas. While all emissions decreased in rural areas. CMAP's modeling produced similar results with a decrease in VOC and an increase in NOx compared to the emissions estimated using MOVES 2014a. As part of the migration to MOVES3 all the data inputs into the model were reviewed and updated. The changes in data inputs and modeling procedures make it nearly impossible to attribute a percentage change in the emissions estimates to the MOVES3 model. CMAP did conduct some internal testing of MOVES3 prior to using it for conformity and has a high degree of confidence that a substantial amount of the changes seen in the emissions estimates shown in the table below can be attributed to a change in emissions models and not changes attributed to transportation projects in the TIP or travel behavior modeled in the travel demand model.

Using the MOVES3 model on-road emission estimates for each precursor or direct pollutant in each analysis year were produced. The MVEB for the NEIL nonattainment area for 2035 and beyond was revised in a federal register notice on May 20, 2022 (87 FR 30828) to correspond to the 2008 ozone maintenance SIP that was approved in that noticed by U.S. EPA. The result is that the MVEB changes to 65 tons/day of VOCs and 110 tons/day of NOx in 2035. Prior year MVEB remain unchanged. In addition to a revised MVEB the analysis year of 2035 is now being modeled as that corresponds to the last year of the 2008 ozone maintenance plan and demonstrates conformity for the 2008 ozone maintenance SIP. For ozone precursors volatile organic compounds (VOC) and nitrogen oxides (NOx), the resulting mobile source emissions estimates fell below the applicable motor vehicle emissions budgets for ozone as shown in the table below.

VOC and NOx Emissions in Tons per Summer Day for Ozone Conformity

	Volatile Organic Compounds		Nitrogen Oxides	
Year	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2025	**41.89**	60.13	**112.04**	150.27
2030	**36.31**	60.13	**85.63**	150.27
2035	**32.56**	65.00	**75.86**	110.00
2040	**29.49**	65.00	**75.02**	110.00
2050	**27.55**	65.00	**80.17**	110.00

Conformity is demonstrated by comparison of analysis year emissions to the SIP budgets

Notes:

Off-model benefits are not included in the total emissions estimates

Results updated as of November 2023

Direct $PM_{2.5}$ and NOx Emissions in Tons per Year for $PM_{2.5}$ (Informational Only)

	Fine Particulate Matter		Nitrogen Oxides	
Year	Northeastern Illinois	Historical SIP Budget	Northeastern Illinois	Historical SIP Budget
2025	**1,372.71**	5,100.00	**38,187.65**	127,951.00
2030	**1,088.06**	2,377.00	**29,082.15**	44,224.00
2035	**945.13**	2,377.00	**25,591.97**	44,224.00
2040	**940.36**	2,377.00	**25,218.07**	44,224.00
2050	**978.19**	2,377.00	**26,610.41**	44,224.00

Greenhouse Gas Mobile Source Emissions (Informational Only)

CO_2 Equivalent in Tons per Year	
Year	Northeastern Illinois
2025	33,674,602.03
2030	31,539,569.41
2035	30,598,332.46
2040	30,725,751.45
2050	31,878,970.25