



MEMORANDUM

To: CMAP Board and MPO Policy Committee

From: CMAP Staff

Date: October 3, 2019

Re: ON TO 2050/TIP Conformity Analysis & TIP Amendment
Supplemental Information

Following the public comment period and Transportation Committee approval of the ON TO 2050/TIP Conformity Analysis & TIP Amendment, staff discovered a minor error in the way the travel demand model (TDM) was run. Data from the TDM is used for conformity analysis. Staff reran the conformity analysis with the corrected data. The revised conformity analysis resulted in about a 1 percent increase in emissions in volatile organic compounds (VOCs) and oxides of nitrogen (NO_x). The slight uptick did not cause the region to exceed its Motor Vehicle Emissions Budget (MVEB) – the maximum emissions allowed in the approved state implementation plan (SIP) for all motor vehicles in the region -- for VOC or NO_x. As a result the region is able to demonstrate that projects in ON TO 2050 and the TIP conform to the region's MVEB. After consultation with regulatory agencies, staff recommends that the CMAP Board and MPO Policy Committee approve the corrected conformity analysis and TIP amendment.

Consultation process

On September 26, there was a previously scheduled Tier II consultation meeting. This group of regulators discussed the change in modeled emissions along with the fact that the newly modeled emissions had not gone through CMAP's public comment process. The committee noted that the mix of projects did not change from what was available for public comment, only the emission results changed slightly. The committee also noted that were the ON TO 2050/TIP Conformity Analysis & TIP Amendment if CMAP to go through another public comment period, approval of the ON TO 2050/TIP Conformity Analysis & TIP Amendment would not occur until January or March 2020, which could present challenges for implementers. The Tier II consultation committee recommended that CMAP present the revised results to the CMAP Board and MPO Policy Committee and inform them that while the original emissions modeling results went through the public comment process this 1% adjustment has not.

Modeling Change

CMAP introduced a new modeling zone system which includes a larger number of zones. These smaller zones allow for a finer level of analysis of the modeling results and are more evenly-sized in terms of household and employment density, and the number of trips generated than the prior zone system. Parameters within the modeling scripts were updated to reflect the new zone system. One parameter was inadvertently missed, which impacted the costs associated with driving to a train station and using transit. In some instances this cost was lower than it should have been, resulting in the Mode Choice model estimating approximately 6,500 too many transit trips (0.4% of total transit trips). With the correct parameter in place, the costs for these trips is no longer artificially low and they are now estimated to be auto trips. This increase in auto trips results in the slightly higher vehicle emission estimates.

Original Emission Modeling results:

Direct PM_{2.5} and NO_x Emissions in Tons per Year for PM_{2.5} Conformity

Year	Fine Particulate Matter		Nitrogen Oxides	
	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2020	2,041.41	5,100.00	55,368.26	127,951.00
2025	1,235.34	2,377.00	31,530.70	44,224.00
2030	952.89	2,377.00	23,775.31	44,224.00
2040	850.07	2,377.00	20,664.61	44,224.00
2050	898.98	2,377.00	21,691.69	44,224.00

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

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

Year	Volatile Organic Compounds		Nitrogen Oxides	
	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2020	71.39	117.23	146.15	373.52
2025	53.12	60.13	85.11	150.27
2030	43.41	60.13	60.95	150.27
2040	33.91	60.13	51.54	150.27
2050	34.15	60.13	54.13	150.27

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 July 11, 2019

Revised Emission Modeling results:

Direct PM_{2.5} and NO_x Emissions in Tons per Year for PM_{2.5} Conformity

Year	Fine Particulate Matter		Nitrogen Oxides	
	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2020	2,046.49	5,100.00	55,534.35	127,951.00
2025	1,282.61	2,377.00	32,218.53	44,224.00
2030	953.13	2,377.00	23,780.88	44,224.00
2040	853.17	2,377.00	20,581.03	44,224.00
2050	901.29	2,377.00	21,761.52	44,224.00

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

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

Year	Volatile Organic Compounds		Nitrogen Oxides	
	Northeastern Illinois	SIP Budget	Northeastern Illinois	SIP Budget
2020	71.51	117.23	146.59	373.52
2025	53.18	60.13	85.10	150.27
2030	43.43	60.13	60.96	150.27
2040	33.92	60.13	51.51	150.27
2050	34.16	60.13	54.11	150.27

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 October 1, 2019

ACTION REQUESTED: Approval

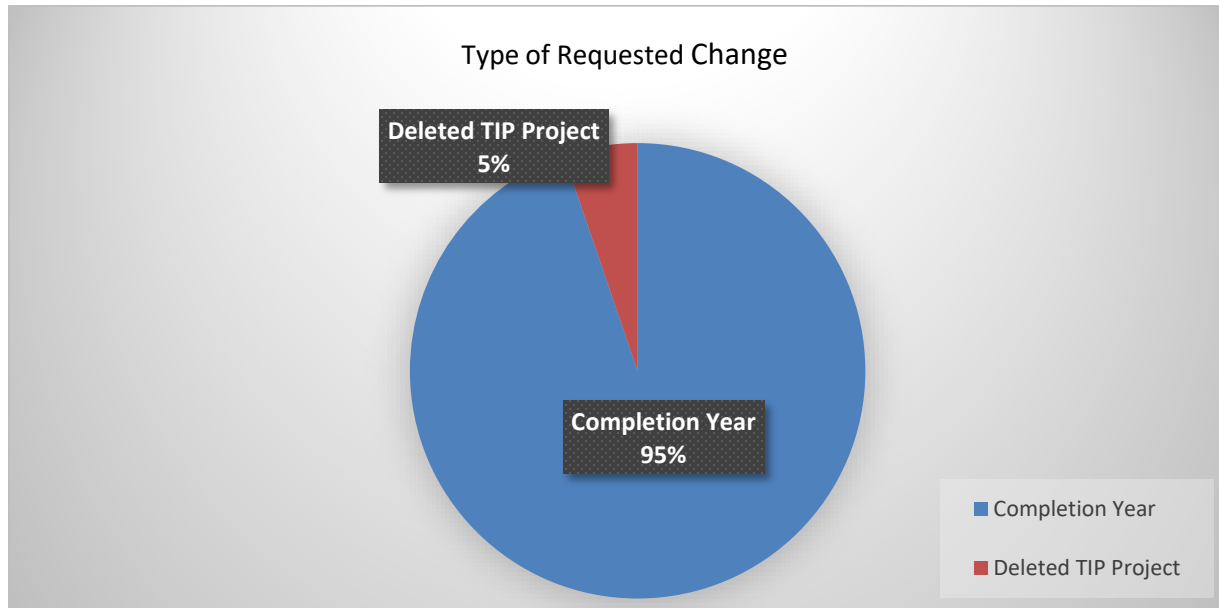
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MEMORANDUM

To: CMAP Transportation Committee
From: CMAP Staff
Date: September 13, 2019
Re: ON TO 2050/TIP Conformity Analysis & TIP Amendment

In accordance with the semi-annual conformity analysis policy, CMAP staff asked programmers to submit changes, additions, or deletions to non-exempt projects for inclusion in the regional air quality analysis of the FFY 2019-24 Transportation Improvement Program (TIP) and ON TO 2050. Of the changes requested, nineteen projects require air quality conformity analysis. Below is a summary by type of requested changes.



If the TIP amendment is approved, one non-exempt project will be removed from the TIP and eighteen existing non-exempt projects will be updated. These types of projects are included in the conformity analysis because funding for phases beyond preliminary engineering has been identified in the TIP. Non-exempt projects with only preliminary engineering funding and exempt tested projects are excluded from conformity analysis. Changes to existing projects are described below.

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 2020, 2025, 2030, 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 below project sponsors indicated a focus on different segments of their projects, providing a clarification of location with no physical change and noting a later completion year, therefore requiring a revision to the conformity analysis:

- TIP ID [07-94-0027](#): Torrence Ave to Burnham Ave; FAU 1631 Joe Orr Road Realignment/Extension from Stony Island Avenue to Burnham Ave
- TIP ID [09-03-0002](#): Huntley Rd from Randall Rd to Elm Ave
- TIP ID [09-16-0013](#): Wolfs Crossing Road from US 34 Chicago Road to Eola Road

These non-exempt projects crossed an analysis year and are included in the conformity analysis:

- TIP ID [03-03-0101](#): Meacham Rd from Kirchoff Rd to IL 62 Algonquin Rd
- TIP ID [06-00-0042](#): 143rd Street from Wolf Road to US 45 LaGrange Rd
- TIP ID [06-03-0005](#): 143rd St from Will-Cook Rd to IL 7 Wolf Rd
- TIP ID [07-96-0013](#): FAU 1631 Joe Orr Rd Main St Extension from FAU 2943 Burnham Ave to IL/IN State Line (Joe Orr Road project)
- TIP ID [09-16-0032](#): IL 71 Reconstruction and Add Lanes from IL 47 to E. of IL 126
- TIP ID [09-99-0102](#): La Fox Rd Bypass to Bunker Rd at Campton Twp (3783)
- TIP ID [12-06-0013](#): 143rd St from IL 59 to IL 126
- TIP ID [12-18-0006](#): Houbolt Road (I-80 to US ROUTE 6)
- TIP ID [12-18-0007](#): Houbolt Road ext (Des Plaines Bridge)

The following not exempt Regionally Significant Projects (RSP) crossed an analysis year:

- TIP ID [01-06-0051](#): CREATE - Central Av at BRC RR (GS-02) - RSP 151
- TIP ID [09-12-0036](#): I-80 Reconstruction and Managed Lanes from Ridge Rd to US 30 Lincoln Hwy - RSP 36
- TIP ID [13-16-0009](#): I-294 Central Tri-State Reconstruction and Mobility Improvements - RSP 23
- TIP ID [13-18-0005](#): I-290/I-88/I-294 Interchange Improvement - RSP 24

Due to the completeness of the vast majority of this Major Capital project, the sponsor requested for this segment to become a new stand-alone not exempt project, in doing so it crossed an analysis year:

- TIP ID [01-19-0031](#): Jane Addams Tollway (I-90) Eastbound Exit to Lee Street

The addition of the proposed bridge widening of this tollway improvement affects the project completion year and crosses an analysis year:

- TIP ID [08-16-0033](#): I-88 Recon -York Rd to I-290, and the Windsor Bridge over I-88

The following project is now being deleted and will be removed from the travel demand model:

- TIP ID [10-10-0022](#): Lewis Avenue from Grand Avenue to Belvidere Road

Current project information is available through the [eTIP database](#) public website. Details of the project changes summarized in this memo are found in the [19-09 Conformity Amendment](#) 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 the US Environmental Protection Agency’s MOVES 2014a model. The results from the MOVES model show emissions for each modeled year remain below the Motor Vehicle Emissions Budget (MVEB) set forth by the US EPA for the 8-Hour Ozone standard for the Chicago Non-Attainment area. Therefore, with the proposed changes, ON TO 2050 and the FFY 2019 – 2024 TIP conform to the 2008 and 2015 8-Hour Ozone NAAQs and the 1997 8-Hour Ozone Maintenance Plan. Although conformity to the PM_{2.5} MVEB is no longer required for the Chicago region by the US EPA, CMAP continues to model PM_{2.5} emissions and document the comparison of those emissions to the last applicable PM_{2.5} MVEB.

The model generated on-road emission estimates for each precursor or direct pollutant in each analysis year are shown in the table below. Ozone precursors, volatile organic compounds (VOC) and nitrogen oxides (NO_x), were modeled with the resulting emissions inventories estimates below the MVEB for ozone.

Direct PM_{2.5} and NO_x Emissions in Tons per Year for PM_{2.5} Conformity

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2040	850.07	2,377.00	20,664.61	44,224.00
2050	898.98	2,377.00	21,691.69	44,224.00

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

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

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2040	33.91	60.13	51.54	150.27
2050	34.15	60.13	54.13	150.27

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 July 11, 2019

No comments were received during the comment period from August 2 through September 3, 2019. Staff requests that the Transportation Committee recommend a finding of conformity and approval of TIP Amendment 19-09 to the CMAP Board and MPO Policy Committee.

ACTION REQUESTED: Approval

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