

**ON TO 2050
AIR QUALITY
CONFORMITY
ANALYSIS**

Contents

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1.0 ON TO 2050 Plan and Federal Fiscal Years 2019-24 TIP Conformity

1.1 Conformity finding

Chicago Metropolitan Agency for Planning (CMAP) staff finds that the ON TO 2050 plan update and the [Federal Fiscal Year 2019-2024 Transportation Improvement Program \(FFY 2019-24 TIP\)](#) conform to the State Implementation Plan (SIP) for the 8-hour ozone standard and the annual fine particulate matter (PM_{2.5}) standard based on the results of the conformity analysis.

This report makes the determination that the region's transportation plan and program satisfy all applicable criteria and procedures in the conformity regulations. The [Transportation Conformity Analysis for the PM_{2.5} and 8-Hour Ozone National Ambient Air Quality Standards](#) documentation are the subject of a public comment period from June 15 through August 14, 2018. CMAP will recognize, consider, and respond to comments received. The ON TO 2050 plan and FFY 2019-24 TIP, including this conformity determination, will be brought to the CMAP MPO and Board for approval and update in accordance with federal regulations on October 10, 2018.

1.2 History of attainment status

Ozone:

Based on air quality monitoring data gathered between 1988-90, the northeastern Illinois area was designated as a "severe" nonattainment area for the 1-hour national ambient air quality standard (NAAQS) for ozone by the U.S. Environmental Protection Agency (U.S. EPA) on November 6, 1991 (56 FR 56694). The northeastern Illinois ozone nonattainment area included the counties of Cook, DuPage, Kane, Lake, McHenry, and Will, the townships of Aux Sable and Goose Lake in Grundy County, and Oswego Township in Kendall County. The Indiana counties of Lake and Porter were also included in the nonattainment area.

On April 15, 2004, U.S. EPA issued final designations of areas not attaining the 8-hour NAAQS for ozone promulgated in 1997 under the Clean Air Act (69 FR 23898). The same area of northeastern Illinois and northwestern Indiana was designated as a "moderate" nonattainment area under this standard. On August 13, 2012, U.S. EPA issued a final rule finding the region in attainment of this standard, approving the Illinois Environmental Protection Agency's (IEPA's) redesignation request, and approving and finding adequate motor vehicle emissions budgets for 2008 and 2025 for volatile organic compounds (VOC) and nitrogen oxides (NO_x) for use in conformity (77 FR 48062).

On June 11, 2012, U.S. EPA issued final designations of areas not attaining the 8-hour NAAQS for ozone promulgated in 2008 (77 FR 34221). The northeastern Illinois



nonattainment area included the counties of Cook, DuPage, Kane, Lake, McHenry, and Will, the townships of Aux Sable and Goose Lake in Grundy County, and Oswego Township in Kendall County. The Indiana counties of Lake and Porter were included in the nonattainment area, as were Pleasant Prairie and Somers townships in Kenosha County, Wisconsin. These areas were designated as marginal nonattainment, meaning that they are expected to attain the NAAQS by the attainment year of 2015. The region did not reach attainment in 2015. This resulted in the designation for the aforementioned areas to be reclassified to moderate nonattainment on May 4, 2016, by the U.S. EPA (81 FR 26697).

On October 26, 2015, the U.S. EPA issued the final rule for the 2015 NAAQS, which strengthened the Ozone standard from .075 parts per million (ppm) to .070 ppm for the 8-hour standard. On April 30, 2018, the EPA published on its website the nonattainment area designations. U.S. EPA is designating as marginal nonattainment the following five counties and two partial counties within Illinois as part of the Chicago nonattainment area: Cook, DuPage, Kane, Lake, and Will counties, Aux Sable Township and Goose Lake Township in Grundy County, and Oswego Township in Kendall County. The EPA also designated Calumet Township, Hobart Township, North Township, Ross Township, and St. John Township in Lake County, Indiana, and the portion of Kenosha County bounded by the Lake Michigan shoreline on the East, the Kenosha County boundary on the North, the Kenosha County boundary on the South, and the 88th Avenue (including the entire avenue) on the West as the Wisconsin portion of the Chicago, IL-IN-WI nonattainment area for the 2015 ozone NAAQS¹.

PM 2.5:

Based on air quality monitoring data gathered between 2001-03, the northeastern Illinois area was designated as a “moderate” nonattainment area for the 1997 annual PM_{2.5} NAAQS by the U.S. EPA on April 5, 2005 (70 FR 944). The northeastern Illinois PM_{2.5} nonattainment area includes the counties of Cook, DuPage, Kane, Lake, McHenry, and Will, the townships of Aux Sable and Goose Lake in Grundy County, and Oswego Township in Kendall County. The Indiana counties of Lake and Porter are also included in the nonattainment area.

On October 2, 2013, U.S. EPA issued a final rule finding the region in attainment of the 1997 annual PM_{2.5} standard, approving IEPA’s redesignation request, and approving and finding adequate motor vehicle emissions budgets for 2008 and 2025 for direct PM_{2.5} emissions and NO_x for use in conformity (78 FR 60704).

On January 15, 2012, U.S. EPA issued a final rule lowering the annual PM_{2.5} NAAQS from 15.0 micrograms per cubic meter to 12.0 micrograms per cubic meter (78 FR 3086). On

¹ U.S. Environmental Protection Agency, “Chicago, IL-IN-WI Nonattainment Area Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (TSD),” 2018, https://www.epa.gov/sites/production/files/2018-05/documents/il_in_wi_chicago_final.pdf.



December 13, 2013, IEPA submitted a recommendation to U.S. EPA that the same counties and townships be designated as nonattainment as have been designated for the prior PM_{2.5} and ozone NAAQS. U.S. EPA's review of IEPA's designation request determined that the data used to support a determination was not valid. Because the U.S. EPA could not make a determination that a violation existed, it could not make a designation for the Chicago region. The result was that Cook, DuPage, Kane, Lake, McHenry, and Will counties, Aux Sable Township and Goose Lake Township in Grundy County, and Oswego Township in Kendall were determined to be "unclassifiable."

1.3 Overview of the conformity process

The transportation conformity provisions of the Clean Air Act Amendments of 1990 require that the Metropolitan Planning Organization (MPO) for northeastern Illinois make a determination that the region's transportation plan, program, and projects conform to applicable SIPs and that emissions -- taken as a whole from the plan, program, and projects - will not negatively impact the region's ability to meet the NAAQS deadlines. Conformity to a SIP means that the region's transportation plan and program: 1) will not cause any new violations of the NAAQS; 2) will not cause any worsening of existing violations; and 3) will not delay efforts to attain the NAAQS in a timely manner. This demonstration is conducted by comparing motor vehicle emissions estimates developed from implementation of the ON TO 2050 plan update and the FFY 2019–24 TIP for specific analysis years to the motor vehicle emissions budgets (MVEBs) contained in the applicable SIP.

Although transportation plans and metropolitan TIPs do not need to be approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA), they must approve conformity determinations for the Plan and TIP. In addition, the region's TIP needs to be amended into the Statewide TIP (STIP), and that amendment must be approved by FHWA and FTA.

The purpose of this report is to document the process and findings developed as part of the transportation conformity analysis of the ON TO 2050 plan update and the FFY 2019–24 TIP for northeastern Illinois.

1.4 Summary of 8-Hour ozone conformity process

The IEPA submitted a redesignation request and maintenance SIP for the 1997 8-hour ozone standard to U.S. EPA on March 18, 2009. In 2011, IEPA submitted a revised redesignation request that included proposed budgets developed with the U.S. EPA's Motor Vehicle Emission Simulator (MOVES) model. U.S. EPA approved these MOVES-based budgets and found them adequate for conformity on August 13, 2012. On March 28, 2014, IEPA submitted to U.S. EPA updated MVEBs for its maintenance SIP. On October 6, 2014, U.S. EPA published approval of the revised budgets in the Federal Register (79 FR 60073). This conformity analysis evaluated emissions in the region against these budgets.

Although northeastern Illinois was designated in nonattainment of the 2008 ozone NAAQS, the region was designated as marginal nonattainment, and no further budgets are required;



the maintenance SIP budgets can be used for this purpose. On May 4, 2016, the EPA finalized a reclassification (81 FR 26697) of the marginal nonattainment area to moderate due to a failure to attain the 2008 Ozone NAAQS by July 20, 2015. On October 26, 2015, the U.S. EPA issued the final rule for the 2015 NAAQS and on April 30, 2018,² the EPA published on its website the nonattainment designation for northeastern Illinois which EPA is designating as marginal nonattainment. The nonattainment areas for the 2008 and 2015 NAAQS are different, with McHenry County in the 2008 nonattainment area but not the 2015 nonattainment area. Once the nonattainment areas are published in the Federal Register, the nonattainment area will have 3 years (2020) to attain the 2015 Ozone NAAQS standard.

1.5 Summary of PM_{2.5} conformity process

The October 2, 2013, final rule finalized the MVEBs for 2008 and 2025 for NO_x and PM_{2.5} for use in conformity (78 FR 60704). With the revocation of the 1197 pursuant to final rules published May 6, 2005, (40 CFR 93.102(b)(2)(iv) and (v) and 93.119(f)(9) and (10)), PM_{2.5} nonattainment areas are required to perform a regional emissions analysis for direct PM_{2.5} motor vehicle emissions and for NO_x as a PM_{2.5} precursor unless the head of the state air agency and the U.S. EPA Regional Administrator make a finding that NO_x is not a significant contributor to the PM_{2.5} air quality problem in a given area. Such a finding has not been made for northeastern Illinois, so this conformity analysis includes NO_x as well as direct PM_{2.5} emissions. The PM_{2.5} standard was revised in 2012 by the U.S. EPA. The data used to support a PM_{2.5} designation for 2012 was deemed to be invalid, resulting in the region being unclassifiable. As a result, the region was not designated to be either in nonattainment or attainment status under the 2012 PM_{2.5} standard. Nonetheless, CMAP continues to conduct conformity analysis and determinations for PM_{2.5} as they have done in the past using the current approved budgets.

Regional emissions analyses under the annual PM_{2.5} standard are not required for VOC, sulfur oxides (SO_x), or ammonia unless the head of the state air agency or U.S. EPA Regional Administrator makes a finding that on-road emissions of any of these precursors is a significant contributor, or an adequate or approved SIP budget for such precursors is established. Because no budgets have been established for these precursors, nor has a finding of significance been made for the northeastern Illinois nonattainment area, these precursors have not been analyzed for this conformity determination.

² Non-Attainment Designations for the 2015 NAAQS by U.S. EPA are not official until they are published in the Federal Register.



2.0 Federal acceptance of the Plan and TIP

The most recent federal review of the TIP conformity determination occurred on March 12, 2018. The U.S. Department of Transportation (US DOT), through the FHWA Illinois Division and the FTA Region V, found that the conformity analysis performed by CMAP met the applicable criteria of 40 CFR 51 and 93, and approved the amendment to the FFY 2014-19 TIP.

3.0 Interagency consultation

Interagency consultation is required under the transportation conformity rule, as described in 40 CFR 93.105. In the northeastern Illinois region, these procedures are addressed through the consultation process described below and through the work of CMAP's committees, working committees, and other groups as described in the region's Public Participation Plan.³

In the northeastern Illinois region, consultation involving CMAP, IEPA, Illinois Department of Transportation (IDOT), Regional Transportation Authority (RTA), FHWA, FTA, U.S. EPA, and other entities as appropriate facilitates the local, regional, and state decision-making process by providing a forum for all affected federal, state, regional, and local agencies to discuss and resolve important issues. Decisions made through this interagency consultation process guide CMAP in making the conformity determination.

3.1 Consultation process

The consultation process facilitates the regional planning process in several ways. First, consultation assures early and proactive participation by the U.S. EPA, FTA, and FHWA in the plan and TIP development process. Second, consultation serves as a forum for interagency communication and understanding to prevent or resolve potential obstacles in the conformity process. Finally, the expertise of the federal agency representatives is relied upon for assistance in interpreting air quality regulations, as well as transportation plan and TIP requirements.

Acceptable means of communication for the purpose of consultation include telephone, fax, email, person-to-person communication, and arranged meetings. The consultation team has found that having all parties present at meetings greatly facilitates interagency coordination and assures mutual understanding of issues and determinations. Therefore, CMAP relies heavily upon scheduled consultation meetings with federal agency representatives and other members of the consultation team.

³ Chicago Metropolitan Agency for Planning, "Public Participation Plan," 2013, <https://www.cmap.illinois.gov/documents/10180/27099/Public+Participation+Plan+Update+2013.pdf/3c761441-0762-41b4-b1f7-f6fdb589e770>.



The consultation group is comprised of representatives of FHWA, FTA, U.S. EPA, IEPA, IDOT, RTA, and CMAP.

The consultation process in northeastern Illinois consists of two levels, or “tiers.” Tier I participants include federal representatives from headquarters offices in Washington, D.C. Tier II participants include federal representatives from U.S. EPA’s Region 5 office, FTA’s Region 5 office, FHWA’s Division Office, IEPA, IDOT, RTA, and CMAP. In addition to the standing members of the consultation team, representatives of local transportation implementing agencies and other stakeholders are invited to attend as appropriate. The Tier I consultation team is convened in the event the Tier II team is unable to resolve a particular issue.

The consultation process used during the development of the ON TO 2050 plan and the FFY 2019-24 TIP and this conformity analysis consisted solely of Tier II meetings.

The consultation team meets at the CMAP office on an as-needed basis. Every attempt is made to schedule meetings so that all representatives can attend, but the meetings are held whether or not all members are present. No decision is put into effect until the concurrence of all parties involved in the consultation process is achieved.

To provide a reference for discussion items and issue resolution, CMAP staff prepares meeting summaries following the completion of each scheduled consultation meeting. These summaries are reviewed for accuracy and approved by the consultation team at a subsequent meeting. Following resolution of an issue, staff typically provides a verbal update to pertinent CMAP committees to assist committee members in their decision-making processes.

3.2 Summary of formal consultation meetings

Agendas, minutes of consultation meetings, and other materials used by the Tier II Consultation Team are available on the CMAP web site.⁴

⁴ Chicago Metropolitan Agency for Planning, Tier II Consultation website, <http://www.cmap.illinois.gov/committees/other-groups/tier-ii-consultation>.



4.0 Public participation

The Public Participation Plan adopted by the CMAP Board and the MPO Policy Committee in January 2013⁵ establishes the mechanisms by which CMAP reaches out to its many stakeholders and the public.

A formal public comment period for the draft Transportation Conformity Analysis for the PM_{2.5} and 8-Hour Ozone National Ambient Air Quality Standards will be held from June 15 to August 14, 2018. A formal public hearing will be held July 25, 2018. Comments are accepted via fax, mail, and email.

CMAP or the Tier II Consultation committee will respond to any public comments received during the public comment period on the conformity analysis.

⁵ Chicago Metropolitan Agency for Planning, "Public Participation Plan," 2013, <https://www.cmap.illinois.gov/documents/10180/27099/Public+Participation+Plan+Update+2013.pdf/3c761441-0762-41b4-b1f7-f6fdb589e770>.



5.0 Procedures for determining regional transportation demand

The procedures for determining regional transportation demand are subject to requirements set out in the conformity regulations, at 40 CFR 93.122(b).

The ON TO 2050 plan appendix *Travel Demand Model Documentation*⁶ describes the modeling process used for this conformity analysis. This material demonstrates the inherent behavioral connections between regional land use, demographics, transportation infrastructure, and policy input to the quantification of travel demand levels and patterns, and the subsequent measurement of transportation system performance, which the models contain.

The following is a description of how CMAP’s demand model meets the specific criteria from the regulations:

| Paragraph | Requirement | How the Requirement is Satisfied |
|--------------|---|---|
| (b) (1) (i) | Network-based travel models must be validated against observed counts (peak and off-peak, if possible) for a base year that is not more than 10 years prior to the date of the conformity determination. Model forecasts must be analyzed for reasonableness and compared to historical trends and other factors, and the results must be documented. | The models were validated against the most recent ground counts as documented in the 2017 CMAP Travel Demand Model Validation Report. ⁷ |
| (b) (1) (ii) | Land use, population, employment, and other network-based travel model assumptions must be documented and based on the best available information. | The socioeconomic forecasts used are based on the best available information including census data and a sound methodology as described in the <i>Regional Socioeconomic Forecast</i> ⁸ appendix of the ON TO 2050 Plan. |

⁶ Chicago Metropolitan Agency for Planning, “ON TO 2050 Travel Demand Model Documentation Report,” 2018, https://www.cmap.illinois.gov/documents/10180/871931/TravelDemandModelDocumentation_June_Final+06-12-2018+DRAFT+FINAL.pdf/52b709eb-5635-41bf-538b-bbf4fc10966e.

⁷ Chicago Metropolitan Agency for Planning, “2017 Travel Model Validation Report,” 2017, http://www.cmap.illinois.gov/documents/10180/15634/CMAP_trip-based_model_validation_report_20170207.pdf/ea62fba4-007a-46b6-836e-da61e919be5d.

⁸ Chicago Metropolitan Agency for Planning, ON TO 2050 Socioeconomic forecast website, <http://www.cmap.illinois.gov/onto2050/socioeconomic-forecast>.



| | | |
|---------------|---|---|
| (b) (1) (iii) | Scenarios of land development and use must be consistent with the future transportation system alternatives for which emissions are being estimated. The distribution of employment and residences for different transportation options must be reasonable. | The analysis uses forecasts of population, employment, and land use developed by CMAP. The Local Area Allocation process described in the <i>Regional Socioeconomic Forecast</i> ⁹ specifically accounts for the interaction between residential and business locations; transportation system improvements; and land values and redevelopment policies. The transportation simulation model has been structured with a feedback mechanism. Analysis and scenario testing were performed on land use/transportation interactions during the development of ON TO 2050. |
| (b) (1) (iv) | A capacity-sensitive assignment methodology must be used, and emissions estimates must be based on a methodology that differentiates between peak and off-peak link volumes and speeds, and uses speeds based on final assigned volumes. | Separate capacity restraint assignments are produced to estimate vehicle miles and travel speeds for eight time periods during the day. Results of the separate period assignments are accumulated into daily volumes and tabulated by vehicle mile by speed range as required for the emission calculations. |
| (b) (1) (v) | Zone-to-zone travel impedances used to distribute trips between origin and destination pairs must be in reasonable agreement with the travel times estimated from final assigned traffic volumes. Where use of transit currently is anticipated to be a significant factor in satisfying transportation demand, these times should also be used for modeling mode splits. | The modeling process includes five iterations through the steps of distribution, mode split, and assignment. The final highway distribution and assignment is based on the times from the fifth iteration. In the iteration process, the highway and transit times for each step are the same for distribution, mode split, and assignment. |
| (b) (1) (vi) | Network-based travel models must be reasonably sensitive to changes in the time(s), cost(s), and other factors affecting travel choices. | The binary logit mode-choice model contains the full range of pricing (or cost) variables in the individual utility equation expressions for both auto and transit. These cost variables include destination zone parking cost, rail station parking cost, automobile operating cost (cents per mile), tolls, and transit fares. The intervening opportunities trip distribution model |

⁹ CMAP, ON TO 2050 Socioeconomic forecast website, <http://www.cmap.illinois.gov/onto2050/socioeconomic-forecast>.



| | | |
|--|--|--|
| | | <p>utilizes a composite impedance measure, also known as the LogSum variable, as a measure of zonal accessibility. The LogSum variable includes travel time and cost associated with both highway and transit travel. In addition, the transit path selection uses the transit fares as one of the key parameters in selecting the transit path. The use of transit fares in path building is very important in a region that has transit options including commuter rail, rapid transit, express bus, and local bus. The impact of tolling on vehicle route choice is realized in the traffic assignment procedures through generalized cost calculations, which make the choices sensitive to changes in toll amounts.</p> |
|--|--|--|



5.1 Travel demand for ozone conformity

Because the ozone NAAQS is based on daily measurements, the vehicle miles of travel (VMT) estimates for conformity analysis are daily values. Furthermore, because the highest ozone concentrations are monitored during the summer, the VMT estimates are adjusted to be daily VMT for a summer weekday. The travel demand model runs produce weekday averages over the year, so the VMT results of the model runs are adjusted by increasing the model averages to summer weekday averages, based on analysis of traffic monitoring data by IDOT. The adjusted VMT values are then used as input to the MOVES 2014a emissions model. The adjustment factors are:

Table 1: Daily Average Daily Traffic (ADT) conversion factors

| Facility | Multiplier |
|-----------------|-------------------|
| Arterial | 1.0700 |
| Expressway | 0.9969 |
| Local | 1.0700 |
| Ramp | 1.0700 |



5.2 Travel demand for PM_{2.5} conformity

In contrast to ozone, the annual PM_{2.5} NAAQS to which the northeastern Illinois region demonstrates conformity is based on annual measurements, so the VMT estimates are annual values. To convert weekday average VMT model output to monthly VMT, traffic monitoring data were obtained from IDOT. The data give the ratio of average weekday traffic to weekly traffic. In addition, the IDOT data supply the ratio of each month to annual traffic. To obtain monthly VMT estimates, the weekday to average (7-day) factor is multiplied by the month-to-year ratio. The following table gives the monthly ADT factors as a percentage of Annual Average Daily Traffic (AADT):

Table 2: Monthly ADT conversion factors

| Month | Freeway Monthly ADT (% of AADT) | Non-Freeway Monthly ADT (% of AADT) |
|-----------|---------------------------------|-------------------------------------|
| January | 87% | 86% |
| February | 95% | 87% |
| March | 96% | 89% |
| April | 97% | 96% |
| May | 96% | 99% |
| June | 98% | 101% |
| July | 95% | 95% |
| August | 98% | 97% |
| September | 95% | 97% |
| October | 94% | 95% |
| November | 94% | 94% |
| December | 90% | 95% |



6.0 Latest planning assumptions

6.1 Socioeconomic forecasts

A major input to any transportation demand modeling process is the socioeconomic data used to develop the number and types of trips to be assigned to the transportation system. There are three components to this data: the geographic or spatial component, the socioeconomic variables used to describe or characterize these areas, and the base and forecast years that define the time horizons for the analysis.

CMAP has systematically forecast 2050 population, employment, and economic activity from the land use and transportation strategies of ON TO 2050. The CMAP travel demand models are then used to estimate travel behavior, congestion, and VMT resulting from these forecasts. Population and employment estimates were developed for 5-year increments through the Regional Socioeconomic Forecast process; these forecasts are used for interim conformity years and are tested against transportation improvements expected to be implemented at the time. A description of the method used to prepare the forecasts and data summaries are included in the ON TO 2050 Socioeconomic forecast.¹⁰

6.2 Transit operating policies

The RTA develops Operating and Capital Budgets and Plans¹¹ that are updated annually, and serve as the basis for considering the impact of transit operating policies on travel demand model estimates. These documents include projections over the near term of key transit operating policies including fare, service, and ridership levels.

Because the most recent conformity determination was adopted in March 2018, transit operating policies (including fares and service levels) and assumed transit ridership have not changed.

6.3 Transit fares and highway costs in the conformity analysis

The transportation model used in the conformity analysis requires information on the cost of transportation by each mode. Of particular importance are the relative costs of transportation versus all other costs, and the relative costs of the transit and auto modes to each other. Auto costs used in the model are based on the cost to own and operate an automobile, parking costs, and charges for tollway facilities. Transit costs include information on the base fares, transfers, and access costs.

It was assumed that the relative costs of the two transportation modes (highway and transit) would be the same in the future years as that which existed in the base year. This treatment

¹⁰ Chicago Metropolitan Agency for Planning, ON TO 2050 Socioeconomic forecast website, <http://www.cmap.illinois.gov/onto2050/socioeconomic-forecast>.

¹¹ Regional Transportation Authority, Finance & Management website, <http://www.rtachicago.org/index.php/finance-management.html>.



of future costs for the transit mode and for the toll component of the auto operating cost is consistent with observed trends.

6.4 Transportation Control Measures (TCMs)

TCMs were used in development of SIPs related to the 1-hour ozone standard, including the 15% ROP SIP (1993), Control Strategy SIP (1995), 1996 ROP SIP, 9% Control Strategy SIP (1998), and 9% ROP Control Strategy SIP (1999). All the TCMs adopted for these SIPs were implemented by 1999.

The ozone maintenance SIP and the PM_{2.5} attainment SIP, which have budgets found adequate for conformity, assume no TCMs. Thus, no such measures are identified here.



7.0 Emissions budgets and moves model settings

Five analysis years are included in the region's conformity analyses:

- 2020 – the base year
- 2025 – the horizon budget year for the 1997 ozone maintenance SIP
- 2030 – an intervening year not more than 10 years apart from the preceding and succeeding scenario years
- 2040 – an intervening year not more than 10 years apart from the preceding and succeeding scenario years
- 2050 – the horizon year of the plan

7.1 Ozone conformity

Mobile source emissions budgets for ozone precursors -- VOC and NO_x -- were developed by IEPA as part of the 8-hour ozone maintenance SIP. On August 13, 2012, U.S. EPA issued a final rule approving and finding adequate MVEBs for 2008 and 2025 (77 FR 48062). These are the budgets that are used in conformity determinations by CMAP.

IEPA and CMAP worked closely during the development of the VOC and NO_x emission budgets to determine the appropriate MOVES model settings. This conformity demonstration uses the same applicable settings in MOVES runs as were used in developing the SIP budgets. A full discussion of the settings and input files is provided in the *Travel Model Documentation Report*.¹²

On March 28, 2014, IEPA submitted to U.S. EPA updated MVEBs for its maintenance SIP. On October 6, 2014, U.S. EPA published approval of the revised budgets in the Federal Register (79 FR 60073). These approved budgets are used in this conformity analysis.

7.2 PM_{2.5} conformity

On October 2, 2013, U.S. EPA issued a final rule approving and finding adequate MVEBs for 2008 and 2025 for NO_x and PM_{2.5} for use in conformity (78 FR 60704).

Because the requirements for including VOC, SO_x or ammonia emissions were not met, these precursors have not been analyzed for this conformity determination.

The northeastern Illinois region was in nonattainment of the annual PM_{2.5} standard so the emissions inventory must reflect annual emissions totals. To accomplish this, a daily emission inventory appropriate to each month and day type was developed, and the daily emission value was multiplied by number of days for the month. Monthly emissions were then added to obtain the annual emissions.

¹² Chicago Metropolitan Agency for Planning, ON TO 2050 Travel Demand Model Documentation Report, 2018, https://www.cmap.illinois.gov/documents/10180/871931/TravelDemandModelDocumentation_June_Final+06-12-2018+DRAFT+FINAL.pdf/52b709eb-5635-41bf-538b-bbf4fc10966e.



A more complete description of the MOVES runs and listings for the input files are given in the Travel Model Documentation Report.¹³

¹³ Chicago Metropolitan Agency for Planning, ON TO 2050 Travel Demand Model Documentation Report, 2018, https://www.cmap.illinois.gov/documents/10180/871931/TravelDemandModelDocumentation_June_Final+06-12-2018+DRAFT+FINAL.pdf/52b709eb-5635-41bf-538b-bbf4fc10966e.



8.0 Off-network calculations

The final estimate of regional emissions does not include credit for off-network calculations.

However, many of the projects not currently incorporated explicitly in the travel demand model have been programmed using federal Congestion Mitigation and Air Quality Improvement funds. These funds are programmed by CMAP on the basis of the project's demonstrated air quality benefits. A benefit evaluation method has been developed for each type of project. The methods are structured so that, if appropriate, a project's benefits can be incorporated in the appropriate SIP by the IEPA as a TCM, or used in conformity determinations.



9.0 Modeled projects

Projects included in the ON TO 2050 plan FFY 2019-24 TIP transportation demand estimation modeling process are listed on the CMAP website. Regionally Significant Projects included in the ON TO 2050 plan are listed and discussed in detail in the plan's *Mobility* section; TIP projects that require conformity are listed on the CMAP Conformity Analysis page under the Conformity Amendments section.¹⁴

¹⁴ Public eTIP website, Amendments for the Transportation Improvement Program, <https://etip.cmap.illinois.gov/#tabs-2>.



10.0 Results of the conformity analysis

Results of the conformity analysis for the ON TO 2050 plan and the FFY 2019-24 TIP are given below. CMAP maintains a policy of accepting amendments and updating the conformity analysis semiannually. The results of the most recent conformity analysis are listed on the CMAP Conformity Analysis web page under Current Conformity Analysis.¹⁵

10.1 Ozone conformity results

The VOC and NO_x emissions estimates for each of the scenario years are shown in Table 3. No credits are taken for projects that have air quality benefits but are not represented within the transportation networks. Emission reductions from the National Energy Policy Act Credit and Clean Fuel Fleet Program have not been claimed.

As shown in the table, the emission results from the conformity analysis for the analysis years show that the VOC and NO_x emissions are lower than the applicable SIP budgets, and conformity for the 8-hour ozone standard is demonstrated.

Table 3: 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 | 76.18 | 117.23 | 115.81 | 373.52 |
| 2025 | 59.07 | 60.13 | 77.44 | 150.27 |
| 2030 | 46.54 | 60.13 | 60.47 | 150.27 |
| 2040 | 36.30 | 60.13 | 51.46 | 150.27 |
| 2050 | 36.62 | 60.13 | 53.44 | 150.27 |

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

10.2 PM_{2.5} conformity results

The direct PM_{2.5} and NO_x emissions estimates for each of the scenario years are shown in Table 4. No credits are taken for projects that have air quality benefits but are not represented within the transportation networks.

The emission results from the conformity analysis for the analysis years show that the direct PM_{2.5} and NO_x emissions from motor vehicles are lower than the applicable SIP budgets, and conformity for the annual PM_{2.5} standard is demonstrated.

¹⁵ Chicago Metropolitan Agency for Planning, Conformity Analysis website, <http://www.cmap.illinois.gov/mobility/roads/conformity-analysis>.



Table 4: 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 | 1,558.13 | 5,100.00 | 43,609.87 | 127,951.00 |
| 2025 | 1,149.69 | 2,377.00 | 29,653.51 | 44,224.00 |
| 2030 | 944.30 | 2,377.00 | 23,589.19 | 44,224.00 |
| 2040 | 849.54 | 2,377.00 | 20,736.13 | 44,224.00 |
| 2050 | 902.63 | 2,377.00 | 21,513.59 | 44,224.00 |

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

10.3 Conclusion

The conformity analysis conducted by CMAP concludes that the ON TO 2050 plan and the FFY 2019-24 TIP meet all applicable requirements for conformity for the 8-hour ozone standard and the annual PM_{2.5} standard; the ON TO 2050 plan and the FFY 2019-24 TIP are recommended for approval by U.S. DOT.

The *Transportation Conformity Analysis for the PM_{2.5} and 8-Hour Ozone National Ambient Air Quality Standards* was the subject of a public comment period running from June 15 through August 14, 2018. This report and the accompanying appendices make the determination that the region’s transportation plan and program satisfy all applicable criteria and procedures in the conformity regulations and comply with all applicable implementation plan conformity requirements.



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The Chicago Metropolitan Agency for Planning (CMAP) is our region's comprehensive planning organization. The agency and its partners developed and are now implementing ON TO 2050, a new long-range plan to help the seven counties and 284 communities of northeastern Illinois implement strategies that address transportation, housing, economic development, open space, the environment, and other quality-of-life issues. See www.cmap.illinois.gov for more information.