Ozone and Fine Particulate Matter ($PM_{2.5}$) Conformity Analysis

For SEMCOG's 2045 Regional Transportation Plan Summer Amendment and FY 2023-FY 2026 Transportation Improvement Program Adoption

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Introduction

The federal Clean Air Act requires that federally funded highway and transit projects contained in regional long-range transportation plans (RTP) and Transportation Improvement Programs (TIP) be consistent with the air quality goals established in state air quality implementation plans (SIP). The process for demonstrating this consistency is called Air Quality Conformity. The purpose of Conformity is to ensure that projects in the plan will not cause new air quality violations, worsen any existing violations, or delay timely attainment of National Ambient Air Quality Standards (NAAQS).

The U.S. Environmental Protection Agency (EPA) has established NAAQS for six criteria air pollutants: carbon monoxide, lead, ground-level ozone, nitrogen dioxide, sulfur dioxide, and particulate matter. EPA designates an area as either "attainment" or "nonattainment" for each of these pollutants based on whether local air monitoring data shows it is meeting or not meeting these standards. Areas that were initially designated as "nonattainment" for a particular standard but later attain that standard are termed "maintenance" areas.

Pollutants Analyzed for Transportation Conformity in Southeast Michigan

Air quality transportation conformity analysis is required for the entire seven-county region of southeast Michigan due to its designated status of "nonattainment" or "maintenance" for, particulate matter and ozone. Below is a summary of southeast Michigan's current air quality status for each of these two pollutants.

- Fine Particulate Matter ($PM_{2.5}$): The entire seven-county region was originally designated nonattainment for both the 1997 annual (15 $\mu g/m^3$) and 2006 24-hour (35 $\mu g/m^3$) $PM_{2.5}$ standards. However, since the implementation of Michigan's State Implementation Plan (SIP) for this pollutant, levels have declined significantly, and all air monitors have been measuring levels well below the standards since 2009. Consequently, the U.S. EPA has re-designated the region as a "maintenance area" for these two standards in 2013. In 2015, southeast Michigan was designated as "attainment" for the tougher 2012 annual standard (12 $\mu g/m^3$) and the 1997 annual standard was revoked by the EPA in 2016. Thus, conformity analysis for this pollutant is only required for the 24-hour standard for the region.
- Ozone: The entire region was originally designated nonattainment for the 1997 ozone NAAQS of 0.08 ppm. Following successful implementation of Michigan's SIP for this pollutant, the region was re-designated as "maintenance" in 2009. In 2012, Southeast Michigan was designated as "attainment" for the 2008 ozone NAAQS of 0.075 ppm. In 2018, the entire seven-county region was designated nonattainment for the new stricter 2015 ozone NAAQS of 0.070 ppm by the EPA However, since the implementation of Michigan's SIP for this pollutant, all air monitors have been measuring levels below the standards. Therefore, on January 3, 2022, the Michigan department of Environment, Great Lakes, and Energy (EGLE) submitted the request to redesignate the area to attainment for the 2015 ozone NAAQS. The EPA has proposed to approve the request and is currently reviewing the comments received from the public. The results of 8-hour ozone conformity analysis are included in this report for the determination of conformity requirements.

Overview of Conformity Analysis Process

To analyze conformity, emissions generated by all vehicles on Southeast Michigan's roadway system are estimated using a complex set of computer models. The models estimate the expected change in these emissions due to the combination of:

- Anticipated growth in the region, and
- The implementation of regionally significant transportation projects that either increase or decrease roadway capacity (e.g., building of new roads, adding or reducing the number of traffic lanes on existing roads). The impact of major transit projects is also included.

This report provides the results of SEMCOG's air quality conformity analysis for SEMCOG's 2045 RTP and the Fiscal Year (FY) 2023-FY 2026 TIP, as well as detailed documentation on the modeling process used to conduct this analysis.

1. Results of Transportation Conformity Analysis

A. 24-Hour Fine Particulate Matter ($PM_{2.5}$)

Table 1 shows the results of the 24-hour fine particulate matter ($PM_{2.5}$) conformity analysis for the Southeast Michigan attainment/maintenance area. This area includes the entire seven-county SEMCOG region. In accordance with EPA conformity guidance on the 24-hour $PM_{2.5}$ standard, the analysis uses daily emissions inventories for the season in which most 24-hour $PM_{2.5}$ violations occur. Research by the EGLE and SEMCOG's Air Quality Study (SEMAQS) group found that $PM_{2.5}$ concentrations in Southeast Michigan tend to be highest during the winter season. Thus, vehicle emissions for an average winter day are used for this conformity analysis.

On-road mobile source emission budgets for the 24-hour standard were approved by the EPA in 2013, when the region was re-designated as an attainment/maintenance area. Conformity is demonstrated if forecasted 24-hour $PM_{2.5}$ and nitrogen oxide (NO_x) emissions for specific future years do not exceed these budgets. The data in Table 1 show that forecasted emissions of both $PM_{2.5}$ and NO_x are well below the established budgets for all analysis years. Thus, conformity is demonstrated.

Table 1: Results of Daily $PM_{2.5}$ Conformity Analysis -Budget Emissions Test

Analysis Year	Emissions (tons/day)		Regional Winter Weekday VMT (in millions)
	Primary $PM_{2.5}$	NO_x	
Conformity Budget	16	365	NA
2025	2.89	60.68	116.36
2035	2.28	41.40	120.19
2045	2.24	39.86	122.63

B. Ozone

Table 2 shows the results of the ozone conformity analysis for SEMCOG's 1997 ozone "maintenance" area and 2015 ozone "nonattainment" area. This area includes the entire seven-county SEMCOG region. Conformity is demonstrated if forecasted emissions for

specific future years do not exceed the EPA-approved mobile source emission budgets set forth in Michigan's State Implementation Plan (SIP) for ozone.

The data in Table 2 show that forecasted emissions in the SEMCOG region for the two pollutants causing ozone formation - volatile organic compounds (VOC) and nitrogen oxides (NO_x) - are well below the 1997 established mobile source emissions budgets for all analysis years. In addition, these forecasted emissions are also below the new budgets, submitted along with the redesignation request for the region and are currently being reviewed by the EPA. Thus, conformity is demonstrated.

Table 2: Results of 8-Hour Ozone Conformity Analysis -Budget Emissions Test

Analysis Year	Emissions (tons/day)		Regional Summer Weekday VMT (in millions)
	VOC	NO_x	
Conformity Budget	106	274	NA
Pending Approval -2025 Interim Year Budget	47.86	104.35	NA
Pending Approval -2035 Maintenance Year Budget	44.67	102.41	NA
2025	34.12	60.95	139.29
2035	21.92	40.34	143.86
2045	20.07	38.56	146.78

2. Projects Included in the Conformity Analysis

This analysis included all capacity-related projects proposed for SEMCOG's FY 2023-FY 2026 TIP adoption and the 2045 RTP amendments, plus those already in SEMCOG's 2045 RTP. A complete list of the projects included in this analysis can be found in Appendix A.

3. Coordination With Michigan Transportation Conformity Interagency Workgroup

A. Coordination Process

On May 24th, the Michigan Transportation Conformity Interagency Workgroup (MITC-IAWG) held a conference call to review proposed projects to SEMCOG's FY 2023-FY 2026 TIP. A summary of this call is provided in Appendix B, along with the list of projects being discussed during the call. The results of the conformity analysis are documented in Section 1 above. A copy of this conformity analysis documentation was sent to each member of the MITC-IAWG for review and comment.

B. MITC-IAWG Comments and Responses

No comments received to date

4. Description of Public Participation Process

A. Public Involvement

A public comment period for the 2022 summer amendment and the FY 2023-FY 2026 TIP was initiated on June 29, 2022, and concluded on July 28, 2022 when SEMCOG's Executive Committee formally adopted both documents. Public notices were emailed to a broad cross section that included interested citizens, advocacy groups, community organizations, and municipal clerks. The notice was also sent to the media, public libraries, published in SEMCOG's biweekly electronic newsletter, and posted on its Web site and social media pages.

B. Public Comments and Responses

No comments received to date

5. Formal MPO Action Supporting the Conformity Determination

SEMCOG committee action on the 2022 summer amendment and the adoption of the FY 2023 - FY 2026 TIP:

- Transportation Coordinating Council (TCC), July 21, 2022
- Executive Committee, July 28, 2022

6. Key Modeling Inputs and Assumptions for SEMCOG Area

A. MOVES Model Run Specifications

EPA's MOVES version MOVES3.0.3 was used to perform this transportation conformity analysis.

For ozone and $PM_{2.5}$, MOVES' County level run was utilized, and Wayne County was chosen to represent the fuel characteristics used in all seven SEMCOG counties. These seven counties comprise Southeast Michigan's ozone maintenance area for the 1997 National Air Ambient Quality Standard (NAAQS) and ozone nonattainment area for the 2015 NAAQS. As ozone conformity analysis involves generating emissions for a high-ozone summer weekday, only weekday emissions were specified in MOVES. The simulated ozone meteorological data was used for the month of July to represent the typical summer day. These seven counties also reflect the attainment /maintenance area for the 2006 24-hour $PM_{2.5}$ NAAQS. MOVES runs for this pollutant specify the weekdays of the three winter months: December, January and February since previous monitoring data has shown $PM_{2.5}$ emissions are highest during these months. Although Wayne County was chosen to represent the whole region geographically in MOVES runs, all local inputs were developed to represent the transportation activities in all seven SEMCOG counties.

More information on the development of these local inputs is provided in specific sections below.

B. Description of Local Travel Data Inputs

1) Demographic Data

Travel forecasts used to calculate on-road mobile source emissions for the conformity analysis are based on demographic data from SEMCOG's 2045 Regional Development Forecast (RDF). A three-step process was used to develop this forecast.

a) Regional forecast totals of population and jobs were generated from the REMI (Regional Economic Models, Inc.) model. The model forecasts Southeast Michigan's ability to attract and retain population and jobs relative to all other parts of the United States. Regional totals were developed for all forecast years from the 2015 base year to 2045;

b) The regional totals were then used to develop a small-area forecast that disaggregates regional population, households and jobs into 1.8 million land parcels using the UrbanSim model. UrbanSim is a computer simulation model for planning and analysis of urban development. It incorporates the interaction between land use, transportation, and public policy. In doing so, it finds the most desirable land parcels for future population and jobs, and models residential and nonresidential developments as demand changes.

c) Land parcels from the small-area forecast were aggregated to traffic analysis zones (TAZs) for use in SEMCOG's travel demand forecasting model.

2) SEMCOG's Travel Demand Forecasting Model (TDFM)

Vehicle miles of travel (VMT) forecasts for the on-road emissions inventory were developed using version E7 of SEMCOG's Travel Demand Forecasting Model (TDFM), which was implemented in 2018 using SEMCOG's 2015 household travel survey and observation data. The TDFM runs on the TransCAD software platform and utilizes the standard four-step travel modeling process: trip generation, trip distribution, mode choice, and traffic assignment. Detailed documentation on the model is contained in a separate SEMCOG document that is available upon request.

3) Mapping of Travel Demand Model (TDFM) Functional Classes and Area Types to MOVES Road Types

To use TDFM data in MOVES, the road types used in SEMCOG's model must be reconciled with those used in MOVES. The MOVES model uses four basic road types for on-road activities: Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted. The term, "restricted", refers to restricted or limited-access roadways. In the SEMCOG region, this includes all freeway facilities. All other roadways in the SEMCOG region are considered unrestricted facilities. The TDFM also includes several special functional classes that are not part of the regular roadway network (e.g. walk only, external zone connectors, transit-only links)..

As TDFM functional classes do not distinguish between urban and rural facilities, another TDFM variable, Area Type, was used as a surrogate. The TDFM defines five area types (urban business, urban fringe, urban, suburban and rural) and assigns one to each roadway link based on the density of households, population and employment in the traffic analysis zone in which the link resides.

Table 3 shows how each area type and functional class in SEMCOG's TDFM is mapped to the four road types used in MOVES.

Table 3: Mapping of TDFM Functional Class and Area Type to MOVES Road Type

<table>
<tr><th rowspan="2">SEMCOG TDFM
Functional Class</th><th colspan="5">SEMCOG TDFM Area Type</th></tr>
<tr><th>Urban Business</th><th>Urban Fringe</th><th>Urban</th><th>Suburban</th><th>Rural</th></tr>
<tr><td>1 - Interstate Freeway</td><td colspan="4" rowspan="2">4 – MOVES Urban Restricted Road Type</td><td rowspan="2">2 – MOVES Rural Restricted Road Type</td></tr>
<tr><td>2 - Other Freeway</td></tr>
<tr><td>3 - Principal Arterial</td><td colspan="4" rowspan="6">5 – MOVES Urban Unrestricted Road Type</td><td rowspan="6">3 – MOVES Rural Unrestricted Road Type</td></tr>
<tr><td>4 - Minor Arterial</td></tr>
<tr><td>5/6 - Collector</td></tr>
<tr><td>7 - Local</td></tr>
<tr><td>9 - Uncertified Road</td></tr>
<tr><td>99 - Centroid connector (local road surrogate)</td></tr>
<tr><td>81 - 94 Transit Use Only</td><td colspan="5" rowspan="3">Non-road or outside region. Not used in MOVES</td></tr>
<tr><td>90 - External</td></tr>
<tr><td>96 - Walk Only</td></tr>
</table>

4) **Vehicle Miles of Travel (VMT)**

MOVESprovides an option to input annual VMT by the six FHWA Highway Performance Monitoring System (HPMS) vehicle types with the passenger car (HPMS 20) and other 4-tire/2-axle vehicles (HPMS 30) combined as HPMS25.

- HPMS10 – Motorcycle;
- HPMS25 - Passenger car and Other 4-tire, 2-axle vehicles;
- HPMS40 – Bus;
- HPMS50 - Single unit truck;
- HPMS60 - Combination truck.

Local VMT data used in the MOVES model is derived from SEMCOG's Travel Demand Forecasting Model (TDFM). The model generates average weekday VMT forecasts and does not currently have the capability to allocate this VMT to different vehicle types. The remaining part of this section describes the adjustment factors required to convert the TDFM data into the format required for MOVES.

a) HPMS Normalization

In accordance with EPA and FHWA guidance, SEMCOG TDFM VMT was normalized to HPMS VMT by county and road type. Normalization factors were

developed by dividing 2015 HPMS VMT by the estimated 2015 VMT from regional TDFM. Table 4 shows the resulting factors. These factors were applied to TDFM VMT in all analysis years.

Table 4: HPMS Normalization Factors

County	Road Type	
	Restricted	Unrestricted
Livingston	1.06146	0.96310
Macomb	0.92232	0.97739
Monroe	0.90947	1.12472
Oakland	0.94420	0.96211
St Clair	0.88407	1.41495
Washtenaw	0.92334	0.99751
Wayne	0.92180	1.21861

b) Distribution of VMT Among HPMS Vehicle Types

Two sets of distribution factors for restricted and unrestricted roadways have been developed to allocate the total VMT of an analysis year among five vehicle classes as described at the beginning of this section.

Every year, MDOT collects permanent traffic recording (PTR) counts, which includes vehicle classification counts from 13 freeway stations through SEMCOG region. These 2015 PTR classification counts were used to develop the average distribution factors for restricted roadways.

Every five years beginning in 2005, SEMCOG has been collecting screen line counts, which are mostly non-freeway counts, throughout the seven-county SEMCOG region. The 2015 screen line traffic count was used to develop VMT distribution factors for unrestricted roadways.

Both counts collected from MDOT and SEMCOG were classified based on FHWA's standard 13 traffic bins. These bins were aggregated to five vehicle classes required by MOVES. The factors derived from these counts are shown in Table 5.

Table 5: VMT Distribution Factors by HPMS Vehicle Type

HPMS Vehicle Type	Restricted	Unrestricted
H10 – Motorcycle	0.00276	0.00589
H25 - Passenger Car and Other 4-tire, 2-axle vehicles	0.89201	0.90783
H40 – Bus	0.00166	0.00442
H50 - Single-Unit Truck	0.01931	0.05772
H60 - Combination Truck	0.08426	0.02414

c) Conversion of Average Weekday VMT to Annual VMT

Monthly and weekend adjustment factors were developed using 2014-2016 count data from the 35 PTR stations in Southeast Michigan. Monthly adjustment factors for motorcycles were developed separately due to its significant difference from other vehicle types. Weekend adjustment factors were developed for each of the five vehicle types since significant variations were shown between one another. These adjustment factors (shown in Table 6), along with the HPMS-normalized weekday VMT by vehicle types, were then entered EPA's AADVMT converter of "*aadvmt-conveter-tool-moves2014.xls"* to compute the annual VMT, monthly and daily VMT fractions needed for MOVES3

Table 6: Monthly and Weekend Adjustment Factors

Month	Monthly Adjustment Factors		Weekend Adjustment Factors				
	Motorcycle	Others	H10	H25	H40	H50	H60
Jan	0.61591	0.84277	0.74004	0.76880	0.50814	0.31258	0.34568
Feb	0.64898	0.89507	0.72627	0.74810	0.53906	0.28693	0.32378
Mar	0.70943	0.97283	0.78072	0.80027	0.56487	0.28654	0.32074
Apr	0.86564	1.01831	1.06431	0.80995	0.56013	0.30115	0.30696
May	1.18817	1.03520	1.00755	0.82747	0.51042	0.31796	0.31331
Jun	1.39409	1.08036	1.09094	0.82842	0.53217	0.34252	0.32225
Jul	1.47548	1.06434	1.04333	0.83058	0.61693	0.34956	0.31060
Aug	1.42116	1.07990	1.07714	0.85262	0.61017	0.36666	0.32662
Sep	1.29399	1.04244	1.02136	0.85271	0.61270	0.36014	0.32851
Oct	0.95050	1.04384	0.84475	0.82973	0.63029	0.33629	0.33077
Nov	0.78996	0.98673	0.72377	0.79581	0.61643	0.32037	0.34036
Dec	0.64280	0.93822	0.77974	0.78883	0.52432	0.31239	0.34840

Table 7: Weekday Hourly Fractions for Restricted Road Types

HOUR	H10	H25	H40	H50	H60	Total
1	0.00901	0.00853	0.01300	0.00685	0.01929	0.00941
2	0.00506	0.00508	0.01077	0.00607	0.01775	0.00618
3	0.00495	0.00412	0.01079	0.00671	0.01748	0.00531
4	0.00572	0.00487	0.01220	0.00855	0.01974	0.00621
5	0.01331	0.01094	0.01839	0.01323	0.02500	0.01218
6	0.03873	0.02914	0.02854	0.02445	0.03304	0.02940
7	0.05610	0.05634	0.04263	0.05114	0.04400	0.05518
8	0.05897	0.07031	0.05985	0.06570	0.04968	0.06843
9	0.05187	0.06151	0.06112	0.07814	0.05658	0.06139
10	0.04527	0.04812	0.06610	0.07654	0.06325	0.04996
11	0.04491	0.04411	0.06347	0.07401	0.06555	0.04653
12	0.04792	0.04569	0.05739	0.07388	0.06606	0.04798
13	0.05076	0.04846	0.06006	0.07350	0.06413	0.05029
14	0.05422	0.05120	0.06267	0.07587	0.06291	0.05269
15	0.06414	0.06073	0.06700	0.07750	0.06062	0.06107
16	0.07425	0.07509	0.06726	0.07268	0.05566	0.07339
17	0.07592	0.08344	0.05918	0.06113	0.04929	0.08007
18	0.07156	0.08323	0.05087	0.04636	0.04353	0.07909
19	0.06320	0.06326	0.04795	0.03500	0.04076	0.06079
20	0.04912	0.04401	0.03725	0.02398	0.03570	0.04292
21	0.03837	0.03466	0.02944	0.01737	0.03160	0.03407
22	0.03307	0.02891	0.03085	0.01314	0.02904	0.02863
23	0.02533	0.02233	0.02336	0.01009	0.02620	0.02243
24	0.01823	0.01591	0.01989	0.00810	0.02316	0.01638

5) Hourly VMT Fractions

Two different data sources were used to develop hourly VMT fractions for MOVES:

- 2015 screen line traffic counts collected by SEMCOG - All screen line counts include classification data but were only collected on weekdays.
- 2015 PTR counts for locations within the SEMCOG region - This data includes both weekdays and weekends. All the count stations are on freeways and only a limited number of these stations collect classification data.

Using this data, SEMCOG was able to develop weekday hourly VMT fractions for each of five HPMS vehicle types by restricted (shown in Table 7) and unrestricted MOVES road types (shown in Table 8).

Table 8: Weekday Hourly Fractions for Unrestricted Road Types

Hour	H10	H25	H40	H50	H60	Total
1	0.00536	0.00794	0.00434	0.00529	0.01420	0.00791
2	0.00371	0.00543	0.00249	0.00395	0.01364	0.00552
3	0.00416	0.00527	0.00357	0.00407	0.01379	0.00539
4	0.00426	0.00685	0.00344	0.00528	0.01637	0.00696
5	0.00865	0.01299	0.00744	0.00917	0.02186	0.01294
6	0.01924	0.02808	0.01596	0.02223	0.03012	0.02769
7	0.03800	0.04830	0.06490	0.04586	0.04488	0.04809
8	0.06079	0.06905	0.09539	0.06604	0.06031	0.06873
9	0.05785	0.06046	0.09259	0.07022	0.06781	0.06133
10	0.04103	0.04541	0.06258	0.06268	0.06417	0.04691
11	0.04297	0.04380	0.05978	0.06083	0.06390	0.04533
12	0.04714	0.04747	0.06159	0.06332	0.06677	0.04891
13	0.05924	0.05097	0.05531	0.06543	0.06308	0.05216
14	0.06083	0.05242	0.06116	0.06275	0.06378	0.05338
15	0.07287	0.06154	0.08679	0.06809	0.06259	0.06213
16	0.08846	0.07415	0.09969	0.07556	0.06072	0.07411
17	0.10167	0.08174	0.08279	0.07774	0.05772	0.08105
18	0.09847	0.08327	0.04963	0.07190	0.05491	0.08187
19	0.07032	0.06446	0.03165	0.05387	0.04189	0.06319
20	0.04197	0.04739	0.01901	0.03639	0.03149	0.04621
21	0.03187	0.03906	0.01488	0.02833	0.02705	0.03800
22	0.01966	0.02956	0.01118	0.01918	0.02313	0.02866
23	0.01337	0.02062	0.00735	0.01304	0.01861	0.02003
24	0.00810	0.01378	0.00649	0.00879	0.01722	0.01351

However, for weekends, the count data was not robust enough to develop separate factors by road type or by vehicle type so only a single set of hourly VMT factors (shown in Table 9 below) was developed.

Table 9: Weekend Hourly Fractions for Restricted/Unrestricted Road Types

HOUR	H10	H25	H40	H50	H60	Total
1	0.01635	0.01781	0.03310	0.01946	0.03316	0.01839
2	0.01066	0.01119	0.02323	0.01586	0.02873	0.01187
3	0.00790	0.00841	0.01984	0.01526	0.02595	0.00911
4	0.00579	0.00642	0.01708	0.01556	0.02498	0.00718
5	0.00749	0.00823	0.01755	0.01712	0.02806	0.00902
6	0.01279	0.01332	0.02291	0.02249	0.03179	0.01407
7	0.01867	0.02010	0.03379	0.03690	0.03798	0.02089
8	0.02291	0.02624	0.05137	0.05046	0.04349	0.02708
9	0.03282	0.03478	0.05412	0.06060	0.04905	0.03552
10	0.04456	0.04581	0.05471	0.06376	0.05285	0.04622
11	0.05503	0.05565	0.05689	0.06525	0.05602	0.05574
12	0.06466	0.06392	0.05137	0.06709	0.05710	0.06369
13	0.07084	0.06986	0.05404	0.06761	0.05578	0.06932
14	0.07520	0.07230	0.04839	0.06710	0.05434	0.07159
15	0.07703	0.07398	0.04786	0.06348	0.05153	0.07307
16	0.08072	0.07576	0.05201	0.06053	0.04996	0.07469
17	0.07736	0.07454	0.05285	0.05702	0.04782	0.07342
18	0.07136	0.07088	0.05550	0.05255	0.04620	0.06982
19	0.06338	0.06289	0.05654	0.04594	0.04549	0.06211
20	0.05482	0.05373	0.04961	0.03817	0.04285	0.05321
21	0.04560	0.04517	0.03900	0.03143	0.03990	0.04486
22	0.03578	0.03735	0.04079	0.02575	0.03628	0.03722
23	0.02814	0.02989	0.03471	0.02164	0.03196	0.02990
24	0.02016	0.02177	0.03273	0.01898	0.02874	0.02201

6) Road Type Distribution

Several steps were involved to produce the VMT road type distribution factors for each HPMS vehicle class. First, the 2015 HPMS VMT numbers were grouped into four MOVES road types (Urban Restricted, Urban Unrestricted, Rural Restricted and Rural Unrestricted). Then, the VMT value for each of the four MOVES road types was divided among five HPMS vehicle types based on the vehicle type distribution factors developed in Table 5. The final VMT road type distribution factors were developed by dividing the calculated VMT for each MOVES road type and each HPMS vehicle type with the total VMT of each HPMS vehicle class.

Table 10: Road Type Distribution Used in MOVES for Ozone and $PM_{2.5}$ Analysis

HPMS Vehicle Type	Road Type Distribution for SEMCOG Region			
	Rural Restricted	Rural Unrestricted	Urban Restricted	Urban Unrestricted
H10 - Motorcycle	0.01934	0.05799	0.19721	0.72546
H25 - Passenger Car or Other 4-tire, 2-axle vehicles	0.03277	0.04686	0.33416	0.58621
H40 - Bus	0.01622	0.06058	0.16539	0.75782
H50 - Single-Unit Truck	0.01472	0.06182	0.15009	0.77337
H60 - Combination Truck	0.06011	0.02420	0.61294	0.30275

7) Average Speed Distributions

MOVES uses the distribution of vehicle hours of travel (VHT) by average speed to determine an appropriate operating mode distribution. To develop the local average speed distribution for Southeast Michigan, SEMCOG used congested speed and VHT output from the TDFM to compute the VHT fraction in each MOVES speed bin. MOVES requires the user to input hourly speed distributions by road type and vehicle class. While SEMCOG's travel model does not provide hourly speed data, it calculates speeds by five different time periods:

- AM peak, simulating the hours of 6:30 - 9:00 a.m.;
- Mid-day, simulating the hours of 9:00 a.m. - 2:30 p.m.;
- PM peak, simulating the hours of 2:30 - 6:30 p.m.;
- Evening, simulating the hours of 6:30 p.m. - 10:00 p.m.
- Night, simulating the hours of 10 p.m. – 6:30 a.m.

For MOVES, separate speed distributions were developed for each of these time periods and applied to all hours within that period. This was done as follows:

- For each time period, the directional congested speed of each roadway link was assigned to one of MOVES 16 speed bins;
- The associated directional VHTs on the links were then aggregated by speed bin and MOVES road type;
- Then, for each road type, the VHT fraction in each speed bin was computed.

For each analysis year, the average speed distributions were developed. As no local data is currently available on speed differentiation between vehicle classes, the same distributions were applied to all vehicle types.

8) Vehicle Population

Year 2015 vehicle registration data from the Michigan Department of State (DOS) was used to develop the base year vehicle population inputs for MOVES. In addition, 2015 school bus fleet records from the Michigan Department of Education (MDOE) and 2017

public transit bus records from the Michigan Department of Transportation (MDOT) were used to supplement the base year vehicle population.

The body style and plate type fields in the DOS database were used to determine the MOVES source type of each vehicle. Table 11 shows how each DOS body style and plate type was mapped to the MOVES source types. Where DOS data did not provide sufficient detail, it was supplemented with information from MOVES default distributions for Southeast Michigan counties.

Future year vehicle population data was based on future growth of regional population, households and jobs of that year from SEMCOG's 2045 regional development forecasts (RDF). The rate of growth between 2015 and each future analysis year was calculated. Table 12 shows the growth factors of regional vehicle population. This rate was then uniformly applied to all 2015 vehicle population source types to generate the future year population.

Table 11: Mapping between MOVES Vehicle Types and Michigan DOS Body Styles

MOVES Vehicle Type	Michigan DOS Body Style
M11 – Motorcycle	Motorcycle
M21 – Passenger Car	2-door, 4-door, Convertible
M31 – Passenger Truck	Station Wagon, Non-Commercial Pick-up/Van
M32 – Light Commercial Truck	Ambulance, Hearse, Panel, Commercial Pick-up/Van
M41 – Other Bus	Bus (Apportioned this data between MOVES M41 and M43 vehicle types the Fee Code of "B03"; data for M42-transit buses and M43-school buses were added using fleet information from MDOE and MDOT)
M42 – Transit Bus	
M43 – School Bus	
M51 – Refuse Truck	Dump Truck, Mixer, utility, Wrecker, Stake, Tank (Apportioned this data MOVES M51, M52 and M53 vehicle types using split factors from MOVES2014 default run.)
M52 – Single-unit Short-haul Truck	
M53 – Single–unit Long-haul Truck	
M54 – Motor Home	Motor Home
M61 – Combination Short-haul Truck	Tractor (Apportioned this data between MOVES M61 and M62 vehicle types using split factors from MOVES2014 default run)
M62 – Combination Long-haul Truck	

Table 12 Regional Vehicle Population Growth Factors

Growth Index from year 2015		Regional Growth Index Based on SEMCOG's 2045RDF						
Forecasted Item	% of	2015	2020	2025	2030	2035	2040	2045
Population	30%	1.00000	1.00967	1.02125	1.03764	1.05555	1.07054	1.08092
Households	30%	1.00000	1.02308	1.04826	1.07427	1.09583	1.11000	1.11663
Jobs	40%	1.00000	1.03300	1.03190	1.02678	1.04265	1.05781	1.06696
Vehicle Population	100%	1.00000	1.02302	1.03361	1.04428	1.06247	1.07728	1.08605

Detailed documentation on the development of SEMCOG's vehicle population data is contained in a separate SEMCOG mobile emissions model development memo.

9) Vehicle Age Distribution

Year 2015 DOS vehicle registration was also used to develop the vehicle/source type age distribution used in MOVES. The DOS body style field was used to assign each vehicle to one of six HPMS vehicle types (see Table 13 below). Once HPMS vehicle types had been assigned, the data was aggregated by model year and assigned to the appropriate age category. Model years 2015 and 2016 were considered age 0, 2014 was considered age 1 and so on. Model years 1985 and older were grouped into the age 30+ category. The age distribution for each HPMS vehicle type was then computed.

Table 13: Mapping between HPMS Vehicle Types and Michigan DOS Body Styles

HPMS Vehicle Type	Michigan DOS Body Style
H10 – Motorcycle	Motorcycle
H20 – Passenger Car	2-door; 4-door; Convertible
H30 – Other 4-tire, 2-axle vehicles	Station Wagon; Pick-up/Van; Ambulance; Hearse; Panel;
H40 – Bus	Bus
H50 – Single-unit Short Truck	Dump Truck; Mixer; Utility; Wrecker; Stake; Tank, Motor Home
H60 – Combination Truck	Tractor

By using base year 2015 data, future year age distribution was projected by applying EPA's age projection tool of "*age-distribution-projection-tool-moves2014*.xls".

C. Other Local Data Inputs

1) Temperature and Humidity Data

Temperature and humidity data are required inputs for MOVES. Local temperature profiles were developed for each month of the year. To generate these profiles, the average minimum and maximum daily temperatures for each month in Southeast Michigan were calculated using 2014-2016 National Weather Service (NWS) local climatological data reports for Detroit/Pontiac area. The relative humidity data was developed using the 2014-2016 National Centers for Environmental Information (NCDC) for the Detroit metropolitan airport posted by National Oceanic and Atmospheric Administration (NOAA).

EPA's "*MeteorologicalDataConverter_Mobile6.xls*" tool was then used to convert these numbers to the required hourly temperature and relative humidity inputs for MOVES. Table 14 shows the average min/max temperatures that were used to develop each month's hourly profile and Table 15 shows the necessary input format used in the tool to develop the relative humidity.

Table 14: Monthly Average Min/Max Temperatures for $PM_{2.5}$ and CO Runs

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min	14.7	13.5	26.4	37.8	52.1	60.2	63.2	64.1	57.5	45.4	34.2	28.8
Max	29.1	29.7	44.5	59.0	72.6	80.1	83.2	82.6	76.5	62.9	51.4	40.4

Table 15: Hourly Relative Humidity by each Month

Month	HOUR ID											
	Hour 1 (6:00 AM)	Hour 2 (7:00 AM)	Hour 3 (8:00 AM)	Hour 4 (9:00 AM)	Hour 5 (10:00 AM)	Hour 6 (11:00 AM)	Hour 7 (12:00 Noon)	Hour 8 (1:00 PM)	Hour 9 (2:00 PM)	Hour 10 (3:00 PM)	Hour 11 (4:00 PM)	Hour 12 (5:00 PM)
	Hour 13 (6:00 PM)	Hour 14 (7:00 PM)	Hour 15 (8:00 PM)	Hour 16 (9:00 PM)	Hour 17 (10:00 PM)	Hour 18 (11:00 PM)	Hour 19 (12:00 AM)	Hour 20 (1:00 AM)	Hour 21 (2:00 AM)	Hour 22 (3:00 AM)	Hour 23 (4:00 AM)	Hour 24 (5:00 AM)
ENTER MOBILE6 HOURLY RELATIVE HUMIDITY												
1	78.8	79.0	78.3	78.1	74.0	76.8	79.3	77.8	79.0	78.8	78.0	79.2
	73.4	73.4	77.5	77.3	76.7	73.0	69.1	67.3	67.9	70.0	69.6	72.6
2	79.1	77.3	77.3	74.7	70.7	73.7	76.4	76.6	78.1	78.7	77.8	78.8
	68.8	67.9	71.4	73.4	72.5	66.7	66.5	63.7	64.5	61.5	60.8	67.3
3	77.5	75.3	73.6	69.7	64.3	72.8	74.5	73.7	75.8	77.0	76.3	77.6
	62.3	63.2	66.9	71.3	69.7	63.1	60.5	56.6	57.5	58.1	55.3	61.1
4	74.4	69.6	62.7	60.4	55.7	69.5	71.2	70.5	74.9	76.1	73.0	75.6
	57.8	57.8	64.9	67.8	66.3	55.6	51.1	48.9	51.1	54.6	50.0	55.1
5	76.4	72.8	66.9	61.6	59.3	71.1	74.5	74.1	77.7	77.8	77.2	79.4
	56.4	57.9	63.9	66.2	66.4	57.0	54.6	52.2	53.9	58.4	53.4	55.8
6	78.5	73.7	67.7	62.9	59.7	73.2	76.9	76.6	79.4	80.6	81.2	81.1
	59.8	60.6	67.1	69.5	69.2	59.5	54.9	53.4	55.2	55.0	52.7	55.8
7	74.4	68.8	53.8	47.2	45.1	67.6	73.9	75.3	78.0	79.6	80.1	80.6
	45.3	49.4	60.5	64.1	65.1	40.5	38.0	37.8	37.0	38.1	38.5	40.3
8	85.9	82.1	74.1	69.2	65.3	79.3	83.1	83.5	86.6	86.9	86.8	88.4
	66.3	65.4	71.0	74.6	76.4	62.6	58.0	56.8	60.6	61.8	58.3	65.5
9	88.5	85.2	78.2	72.9	69.1	83.5	85.8	86.3	87.9	88.3	88.1	88.7
	69.8	69.7	75.5	78.5	80.0	63.6	62.3	60.2	59.0	58.3	58.6	62.0
10	85.9	85.0	80.4	74.5	69.9	79.7	83.1	82.8	84.3	85.0	84.5	85.3
	69.3	69.7	73.9	77.0	77.8	67.6	62.4	60.5	60.4	60.4	59.9	64.8
11	81.8	81.3	78.9	75.9	71.6	76.3	80.7	78.9	80.7	80.5	79.8	81.7
	71.4	71.1	75.2	76.0	75.1	68.1	63.4	61.1	62.8	65.2	63.1	69.2
12	83.1	82.4	82.7	81.3	77.3	80.6	83.5	82.2	83.1	84.1	83.3	83.8
	77.0	76.8	79.5	79.7	79.2	75.4	73.1	71.2	73.4	73.4	72.4	76.2

Since PM 2.5 emissions are highest during winter months, only data from December, January and February are used in the conformity analysis for this pollutant.

For ozone analysis, different temperature inputs are used. The objective is to simulate the on-road emissions that are likely to occur on days when meteorological conditions are conducive to high ozone formation (i.e., hot summer days). Thus, the maximum summer temperature used in MOVES was calculated by averaging the maximum local temperatures on the 10 highest ozone days in the year of 2014 to 2016. Similarly, the minimum summer temperature was calculated by averaging the minimum local temperatures on the same 10 highest ozone days. This yielded a maximum temperature

of 86.9 degrees and a minimum of 60.0 degrees. These numbers were entered into the month of July to simulate a typical summer day for ozone conformity analysis.

2) Fuel Supply/Fuel Formulation

The default fuel tables from MOVES3 for the county of Wayne were used for the seven counties (Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties) in Southeast Michigan. Special attention was given to the Raid Vapor Pressure (RVP) of summer fuel since the legal limit of summer RVP is 7.0 in Southeast Michigan region. SEMCOG confirmed with the EPA that the RVP of 8.0 for E10 fuel was attributable to the one psi waiver for ethanol in the default database for the region. Thus, it was decided to use the default values in MOVES' runs for SEMCOG's regional conformity analysis.

Appendix A:

Projects Included in Conformity Analysis

Projects Included in 2045 RTP (2022 Summer Amendment) and FY 23-26 TIP Conformity Analysis

FISCAL YEAR / PERIOD	PROJECT ID	COUNTY	JURISDICTION	PROJECT NAME	PROJECT LIMITS	PROPOSED WORK	Length	AQ Exempt	FIRST MODEL YEAR
2016	2011372	Oakland	MDOT - Metro	I-75	from North of Coolidge road to South BoulevArd	Reconstruct and add one lane in each direction		Non-Exempt	2020-2025
2016.2018	12940	Wayne	MDOT - Regional	Gordie Howe International Bridge	Detroit to Windsor	Bridge access road infrastructure improvements		Non-Exempt	2025
2018	13059	Wayne	MDOT - Regional	I-75	N of 13 Mile Rd to Coolidge Hwy, Oakland County	Reconstruct and widen		Non-Exempt	2025
2018	13060	Wayne	MDOT - Regional	I-75	8 Mile Rd to N of 13 Mile Rd, Oakland County	Reconstruct and widen; drain tunnel construction		Non-Exempt	2025
2020	132613	Livingston	MDOT	M-59 (Highland Rd)	Cullen Rd to 950 ft E of Hartland Woods Dr	Construct center-left turn lane	0.7	Exempt	2025
2020	205872	Livingston	Livingston County	Whitmore Lake Rd	Whitmore Lake Road from Leo Drive to Spencer Road East	Road widening from 2 lanes up to 5 lanes	1.957	Non-exempt	2025
2020	207599	Macomb	Eastpointe	E 8 Mile Rd	Old 8 Mile Road from Vernier Road to Beaconsfield Road	Reconstruct road with reduction of lanes from 4 to 3	0.324	Non-exempt	2025
2020	207178	Macomb	RCMC	Mound Rd	I-696 to M-59	Reconstruct; add one lane each direction from 17 Mile Rd to M-59; add ITS, safety and ped/bike features.	9.4	Non-exempt	2025
2020	203539	Oakland	RCOC	Currie Rd	Eight Mile Rd to Ten Mile Rd	Pave gravel roadway	2.0	Exempt	2025
2020	132536	Oakland	RCOC	Dequindre Rd	Utica Rd to N of Auburn Rd	Widen to 5 Lanes	0.831	Non-Exempt	2025
2020	124103	Oakland	MDOT	I-96	from I-275 to County Line	Installation of Active Traffic Management System	11.392	Non-exempt	2025
2020	132522	Oakland	RCOC	Orchard Lake Rd	13 Mile Rd to 14 Mile Rd	Widen from five lanes to four-lane boulevard	1.1	Non-exempt	2025
2020	113542	Washtenaw	MDOT	M-17	Normal Rd to Michigan Ave, I-94 to Michigan Ave, Hamilton Rd to Ecorse Rd (Ecorse Rd is wrong in the description. It is actually Cross st. as said in the IAWG meeting	Mill & resurface; Concrete patches. Road diet w/ buffered bike lanes	1.736	Non-exempt	2025
2021	212853	Macomb	MCDR	23 Mile Rd	900 ft W of Card Rd to 900 ft W of Heydenreich Rd	Reconstruct and widen from two to five lanes	1.0	Non-exempt	2025
2021	132484	Macomb	MDCR	23 Mile Rd	Nine hundred (900) ft W of Heydenreich Rd 600 ft E of Romeo Plank Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2025
2021	129661	Monroe	MDOT	I-75	Under LaPlaisance Rd	Bridge Replacement with interchange reconstruction	1.325	Exempt	2025
2021	202465	St. Clair	Marysville	Huron Blvd	Huron from Gratiot to Connecticut	Road Reconstruction and 4-to-3 lane road diet	0.267	Non-exempt	2025
2022	210068	Livingston	MDOT	US-23	M-36 to one mile North of Spencer Rd	Milling and two-course overlay, flex route, bridge replacement & widening	8.0	Non-Exempt	2025
2022	209478	Oakland	RCOC	Waldon Rd	Waldon Rd, Clintonville Rd to Baldwin Rd	Pave Gravel Road	2.2	Exempt	2025
2022	211928	Wayne	Dearborn	Vernor Ave, Chase Rd	Dix Hwy to east city limits (Vernor); Gould St to Diversey St (Chase) (No road diet on Chase)	Rapid rectangular flashing beacon, crosswalks, road diet	0.254	Non-exempt	2025
2023	123138	Regional	MDOT	M-153	W. of Sheldon Road to W. of Lotz Road	Reconstruct to boulevard, no added lanes	2.4	Non-Exempt	2025
2023	200202	Washtenaw	MDOT	US-12	US-12 from west of Platt Rd to west of US-23 interchange	Operational improvements; add one lane in each direction.	0.948	Non-Exempt	2025
2024	214338	Livingston	Livingston County	Challis Rd	Challis Rd/Bauer Rd roundabout and road relocation	Construct roundabout at Bauer Rd and Challis Rd and relocate Challis Rd	0.575	Non-Exempt	2025
2024	211921	Macomb	MCDR	Romeo Plank Rd	Approximately 725 ft south of Iroquois Middle School drive to 23 Mile Road	Reconstruction from 2 to 5 lanes with replacement of bridges and culverts	1.2	Non-exempt	2025

Projects Included in 2045 RTP (2022 Summer Amendment) and FY 23-26 TIP Conformity Analysis

FISCAL YEAR / PERIOD	PROJECT ID	COUNTY	JURISDICTION	PROJECT NAME	PROJECT LIMITS	PROPOSED WORK	Length	AQ Exempt	FIRST MODEL YEAR
2024	209389	Oakland	MDOT	M-59	from US-24 to Loop	Pedestrian Refuge and lane reduction; one WB motor vehicle lane reduced; three pedestrian refuge crossings and buffered bike lanes added	1.483	Non-Exempt	2025
2024	132535	Oakland	Troy C.	Rochester Rd	Barclay Dr to Trinway Dr	Widen from five lanes to six-lane boulevard	1.1	Non-exempt	2025
2024 -2034	45RTP-142	Wayne	MDOT	I-94	I-96 to Conner Ave ()	Trunkline modernization	6.6	Non-exempt	2025-2030
2025-2034	45RTP-165	Oakland	Novi C.	Beck Rd	Eight Mile Rd to Ten Mile Rd	Widen from two to five lanes	2.0	Non-exempt	2030
2025-2034	45RTP-168	Oakland	RCOC	Pontiac Trail	Decker Rd to Welch Rd	Widen from two to five lanes	0.5	Non-exempt	2030
2025-2034	45RTP-177	Wayne	WDPS	Canton Center Rd [AC, ACC]	Geddes Rd to Palmer Rd	Add center-left turn lane; HMA resurfacing	1.1	Non-exempt	2030
2025-2034	45RTP-133	Macomb	Various	26 Mile Rd	Eight hundred (800) ft E of M-53 (Christopher Columbus Fwy) to 1000 ft E of Schoenherr Rd	Reconstruct roadway and widen from two to five lanes	1.4	Non-exempt	2035
2025-2034	45RTP-134	Macomb	MCDR	Hayes Rd	23 Mile Rd to 1000 ft N of 24 Mile Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2035
2025-2034	45RTP-135	Macomb	MCDR	Hayes Rd	One thousand (1000) ft N of 24 Mile Rd to 1000 ft N of 25 Mile Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2035
2025-2034	45RTP-136	Macomb	MCDR	Hayes Rd	One thousand (1000) ft N of 25 Mile Rd to 1000 ft N of 26 Mile Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2035
2025-2034	45RTP-137	Macomb	MCDR	North Ave	One thousand (1000) ft N of 22 Mile Rd to 1000 ft N of 23 Mile Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2035
2025-2034	45RTP-164	Oakland	Wixom C.	Beck Rd	West Rd to Pontiac Trail	Widen from three to five lanes	1.0	Non-exempt	2035
2025-2034	45RTP-169	Oakland	RCOC	Southfield Rd	Mt Vernon St to Beverly Rd	Widen from five lanes to four-lane boulevard	4.0	Non-exempt	2035
2027	45RTP-98	Macomb	MCDR	North Ave	21 Mile Rd to 1000 ft N of 22 Mile Rd	Reconstruct roadway and widen from two to five lanes	1.1	Non-exempt	2030
2027	45RTP-108	Oakland	Various	Beck Rd	12 Mile Rd to West Rd	Widen from three to five lanes	1.0	Non-exempt	2030
2030	60725	Wayne	Wayne DPS	Beck Rd	Six Mile Rd to Base Line Rd (Eight Mile Rd)	Road reconstruction, add center turn lane	1.922	Non-exempt	2035
2035-2045	45RTP-197	Oakland	RCOC	12 Mile Rd	E of Beck Rd to W of Dixon Rd	Widen from two to four lane boulevard	1.5	Non-exempt	2040
2035-2045	45RTP-199	Oakland	Novi C.	Meadowbrook Rd	Ten Mile Rd to 12 Mile Rd	Widen from three to five lanes	2.0	Non-exempt	2040
2035-2045	45RTP-142	Wayne	MDOT	I-94	I-96 to Conner Ave (between I96 and Cass)	Trunkline modernization	6.6	Non-exempt	2040
2035-2045	45RTP-198	Oakland	Novi C.	Beck Rd	Ten Mile Rd to Grand River Ave	Widen from two to five lanes	1.5	Non-exempt	2045
2035-2045	45RTP-200	Oakland	RCOC	Ten Mile Rd	South Lyon E CL to Haggerty Rd	Widen from two to five lanes	10.0	Non-exempt	2045

Appendix B:

Summary of the MITC-IAWG Conference Call

Michigan Transportation Conformity Interagency Working Group
May 24th, 2022 Call

Participants:

EGLE: Breanna Bukowski EPA: Michael Leslie FHWA: Andy Pickard FTA: Susan Weber
MDOT: Richard Bayus, Peter Oyewale, James Schultz, Donna Wittl.
WATS: Ryan Buck, Jodie Lynch, Nick Sapkiewicz.
SEMCOG: Steve Brudzinski, Trevor Brydon, Jilan Chen, Chris Klove, Saima Masud.

Ms. Chen welcomed meeting participants and informed them that Kevin Tracy had resigned from SEMCOG and was starting a new job in Grand Rapids. She asked if there were any questions about the transition. There were none.

Mr. Brydon discussed staff's preliminary air quality (AQ) conformity analysis designations of projects in the new FY23-26 TIP, scheduled for adoption by the SEMCOG Executive Committee on July 28th. He placed the list of projects preliminarily determined by SEMCOG staff to be non-exempt from AQ conformity analysis on the screen. Each project was discussed in turn. Projects with corrections and/or questions/discussion by IAWG committee members were:

- JN 210587 (Old US-23): Mr. Brydon stated that, although the CON phase of the project is marked non-exempt on the IAWG list, staff had switched the preliminary determination to exempt.
- JN 214565 (I-94 W): Mr. Brydon stated that, while the CON phase of this project is non-exempt, the particular phase of JN 214565 in today's list (PE) should be classified as exempt.
- JN 215372 (Rochester Rd): Mr. Brydon stated that, while the CON phase of this project is non-exempt, the particular phase of JN 215372 in today's list (ROW) should be classified as exempt. Ms. Wittl stated that non-construction phases of road projects will generally be exempt, even if the CON phase is non-exempt.
- JN 211793 (Blue Water Bridge Plaza): Mr. Brydon mentioned that this project can't be modeled due to the nature of the improvement. Ms. Wittl asked, in that case, why is it shown as non-exempt in the list? Mr. Brydon stated that if IAWG so decided, SEMCOG would have no objection to JN 211793 being shown as exempt. Ms. Chen stated that the project was classified as non-exempt the previous time it was at IAWG. Mr. Pickard recommended that a statement that JN 211793 cannot be modelled should be included with the list, given the size of the project. Ms. Wittl asked if there will be a project-level AQ conformity analysis of this project in the future. Mr. Leslie stated that if the project does not cause an increase in diesel truck traffic, there is no need to run a hotspot analysis. Ms. Wittl said that in that case, the CON phase of JN 211793 should be classified as exempt, and agreed with Mr. Pickard that a statement should be included that the project cannot be modeled for AQ conformity.

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- JN 210997 (I-94 Flex Lane): Mr. Brydon stated that, while the EPE phase of this project is exempt, the CON phase is non-exempt, due to the project's capacity implications. This project is similar to the flex lane projects on US-23 and I-96 in Washtenaw, Livingston, and Oakland counties.
- JN 200202 (US-12): Mr. Brydon stated that SEMCOG staff have determined that the project description needs to change by adding the phrase "add one lane in each direction" for clarity. The CON phase is non-exempt, but the EPE phase is exempt.
- JN 123138 (M-153): Mr. Brydon stated that this is a top traffic safety concern in the SEMCOG region. While most of this project will not change the number of lanes from an AQ modeling perspective (i.e., five-lane cross section to a four-lane boulevard), staff have determined there are sufficient changes to the road geometry to warrant classifying the CON phase as non-exempt.
- RTP Project #2027 (Pennsylvania Rd/CSX Rail grade separation): Mr. Brydon stated that this project, recently added by the City of Romulus, was not a TIP project, but had been included in the list for the committee's information.

Mr. Brydon then asked if there were any questions about the list just discussed, or about the list of FY23-26 projects with a preliminary determination of exempt that had also been sent to the committee. There were none. Ms. Wittl requested that, in the future, lists provided to IAWG be in Excel format instead of PDF, or that an option to request a list in Excel format be offered. SEMCOG staff agreed to provide these options for future meetings.

Mr. Brudzinski discussed the list of eight FY22 projects to be included in the 2022 summer TIP/RTP amendment list. He stated that the preliminary determination is that all eight phases shown in the list are exempt from AQ conformity analysis. Ms. Wittl agreed. There were no other questions or comments on the list of FY22 projects to be included in the 2022 summer amendment.

Ms. Chen stated that MOVES3 will be the model used to run the conformity analysis for the summer amendment (both the eight FY22 projects in the FY20-23 TIP and the new FY23-26 TIP). She then asked Mr. Leslie if the SEMCOG region's ozone redesignation status and new motor vehicle emissions budgets (MVEBs) would be available in time to be used on the summer amendment model run. Mr. Leslie stated that USEPA is in the process of approving the MVEBs, but legal analysis was still incomplete, due to some negative public comments received. Because of this, Mr. Leslie is estimating it could be July before the redesignation is officially announced. He recommended a statement be included in the TIP that USEPA is working on issuing the redesignation. Ms. Chen said that SEMCOG would run the model with analysis years 2025, 2035, and 2045. She asked if there were any questions. There were none.

Ms. Chen opened the floor to general questions and/or comments. There were none. Mr. Brydon then stated that he would send a summer amendment project list with the modifications discussed in the meeting to IAWG members.

The meeting adjourned at approximately 1:43 p.m.

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SEMCOG FY 2023 to 2026 TIP

Projects with Potential Air Quality Conformity Modeling Effects

Job Number	Fiscal Year	GPA Type	FAC, Transit, MDOT, Other	County/ Region	Lead Agency	Project Name	Project Limits	Primary Work Type	Project Description	Federal Performance Area	Project Type	Draft Air Quality (pre IAWG meeting)	Air Quality (post IAWG meeting)	Note	Model Network Change?	In 2020-2023 TIP (Already Modeled = 1)
210587	2023	aS/TIP Line items	Huron Valley	Livingston	Livingston County	N Old US 23 Hwy	Bergin Rd to M-59	Road Rehabilitation	Road Rehabilitation, Left Turn Lane Widening	Pavement	Pavement	Non-Exempt	Exempt	Summer 2020 added to TIP as exempt; left turn lanes at intersections	no	0
214338	2024	aS/TIP Line items	Huron Valley	Livingston	Livingston County	Challis Rd	Challis Rd/Bauer Rd roundabout and road relocation	Reconstruction	Construct roundabout at Bauer Rd and Challis Rd and relocate Challis Rd	Safety	Safety	Exempt, need diagram to confirm	Non-Exempt	Requires change to model to reflect road relocation	yes	0
211921	2024	aS/TIP Line items	Macomb	Macomb	Macomb County	Romeo Plank Rd	Romeo Plank Road from 21 1/2 Road to 23 Mile Road	Reconstruction	Widen from 2 to 5 Lanes	System Performance	Capacity	Non-Exempt	Non-Exempt	Already modeled	no	1
214565	2025	aS/TIP Line items	MDOT	Macomb	MDOT	I-94 W	I-94 Between M-59 and 21 Mile Road	Minor Widening	Auxiliary Lane Construction between M-59 and 21 Mile Road	System Performance	Operations	Non-Exempt	Exempt	Addition of merge/weave lanes; no through lands added	no	0
215372	2023	aS/TIP Line items	Oakland	Oakland	Troy	Rochester Rd	from Barclay Dr to Trinway Dr	Major Widening	Widen from 5 to 6 lane Blvd	System Performance	Capacity	Non-Exempt	Exempt	ROW phase is exempt; CON phase Non-Exempt	no	0
132535	2024	aS/TIP Line items	Oakland	Oakland	Troy	Rochester Rd	Barclay Dr to Trinway Dr	Major Widening	Widen from 5 to 6 lane Blvd	System Performance	Capacity	Non-Exempt	Non-Exempt	Already modeled	2020-2023 TIP	1
209389	2023	Trunkline Traffic Operations And Safety	MDOT	Oakland	MDOT	M-59	from US-24 to Loop	Traffic Safety	Pedestrian Refuge and lane reduction; one WB motor vehicle lane reduced; three pedestrian refuge crossings and buffered bike lanes added	Safety	Safety	Non-Exempt	Exempt	ROW phase is exempt; CON phase Non-Exempt	no	0
209389	2024	Trunkline Traffic Operations And Safety	MDOT	Oakland	MDOT	M-59	from US-24 to Loop	Traffic Safety	Pedestrian Refuge and lane reduction; one WB motor vehicle lane reduced; three pedestrian refuge crossings and buffered bike lanes added	Safety	Safety	Non-Exempt	Non-Exempt	Lane reduction potentially over one mile	yes	0
211792	2023	aS/TIP Line items	MDOT	St. Clair	MDOT	I-94 E	Blue Water Bridge Plaza	Reconstruction	BWB Plaza Expansion	N/A	Border	Non-Exempt/ Not Modeled	Exempt (not modeled)	Customs plaza not modeled; no expected effect on diesel truck volumes; IAWG previous review in Spring 2021	no	0
211793	2023	aS/TIP Line items	MDOT	St. Clair	MDOT	I-94 E	Blue Water Bridge Plaza	Reconstruction	BWB Plaza Expansion	N/A	Border	Non-Exempt/ Not Modeled	Exempt (not modeled)	Customs plaza not modeled; no expected effect on diesel truck volumes; IAWG previous review in Spring 2021	no	0
210997	2023	aS/TIP Line items	MDOT	Washtenaw	MDOT	I-94 W	I-94 from State Street to US-23; US-23/I-94 interchange	Minor Widening	Construct I-94 flex lane and State St. interchange improvements	System Performance	Capacity	Non-Exempt	Exempt	EPE phase is Exempt; CON phase will be Non-Exempt	no	0
210997	2025	aS/TIP Line items	MDOT	Washtenaw	MDOT	I-94 W	I-94 from State Street to US-23; US-23/I-94 interchange	Minor Widening	Construct I-94 flex lane and State St. interchange improvements	System Performance	Capacity	Non-Exempt	Exempt	PE phase is Exempt; CON phase will be Non-Exempt	no	0
200202	2023	aS/TIP Line items	MDOT	Washtenaw	MDOT	US-12	US-12 from west of Platt Rd to west of US-23 interchange	Traffic Safety	Operational improvements; add one lane in each direction.	Safety	Safety	Non-Exempt	Non-Exempt	n/a	yes	1
123138	2023	aS/TIP Line items	MDOT	Wayne	MDOT	M-153	W of Sheldon Rd to W of Lotz Rd	Reconstruction	Reconstruction of M-153 to Boulevard Section	Safety	Safety	Non-Exempt	Non-Exempt	n/a	2020-2023 TIP	1
2045 RTP Only	2027	aS/TIP Line items	Wayne	Wayne	Romulus	Pennsylvania Rd Grade Separation	over CSX Rail Line	Bridge Construction	Construct two lane highway bridge over CSX railroad	System Performance	Operations	Exempt	Exempt	no	no	0