2023 Transportation Conformity

Appendix 12.15

Interagency Consultation Process

Alamo Area MPO
Interagency Consultative Partners
February 10, 2022
9:00 a.m. – 10:30 a.m.
Agenda

Join WebEx Meeting
https://alamoareampo.webex.com/alamoareampo/j.php?MTID=md32bc2f8e86fa335f710187885673b7b
Meeting number: 2483 867 3988
Password: IAC2022

Join by phone
+1-408-418-9388 United States Toll
1-844-992-4726 United States Toll Free
Access code: 248 386 73988

1. **Introductions** *(All partners - 5 minutes)*

2. **Walk through pre-analysis consensus plan** *(All partners - 15 minutes)*
   - Overview of Conformity Timeline

3. **Review PACP Comment Matrix** *(All partners – 15 minutes)*

4. **Review of AAMPO's 2021 Transportation Conformity and Expectations for 2022** *(FHWA, TxDOT, MPO - 20 min)*

5. **Next steps** *(FHWA, TxDOT, MPO - 10 min)*

6. **Discussion of Next Meeting Date** *(All Partners – 5 minutes)*

Alamo Area MPO Interagency Consultation Partner Meeting
February 10, 2022 | 9:00 a.m. - 10:30 a.m.
WebEx

1. Participants:

Tim Wood – TxDOT ENV, Laura Norton – TxDOT TPP-TA, Jeff Riley – EPA, Jamie Zech – TCEQ, Art Herrera – VIA Metropolitan Transit, Barbara Maley – FHWA, Clayton Ripps – TxDOT SAT, Farideh Dassi – TxDOT, Ivonne DeLaRosa – TxDOT SAT, Jose Campos – FHWA, Mark Mosley – TxDOT SAT, Aaron Slevin – TCEQ, Darcie Schipull – TxDOT SAT, Madhu Venugopal – TTI, Mary McGarry-Barber – TCEQ, Nick Page – TxDOT TPP, Clifton Hall – AAMPO, Sonia Jimenez – AAMPO, Travis Nedrich - AAMPO

2. Walk through Pre-Analysis Consensus Plan:

AAMPO began by overviewing the PACP and remaining elements. TCEQ noted staff was still reviewing MOVES inputs and would provide comment. TCEQ also began a discussion of the potential reclassification of the Bexar Co. nonattainment area to moderate. FHWA stated a new attainment year might be possible, and EPA reiterated that it would be an attainment year of 2023 and an analysis year in future conformity. EPA gave a tentative timeline of when reclassification would take effect through federal rulemaking. AAMPO agreed to develop scenarios that would mitigate obsolescence of the in-progress conformity determination if reclassification were to take effect prior to TCD approval. TCEQ, EPA, and FHW agreed to provide additional guidance in PACP comments. FHWA inquired why AAMPO had decided to complete all three documents this year, since the MTP was still valid an additional year. FHWA stated that several TMA MPOs in the state had less than a year to complete a conforming MTP, and this fact would delay review of AAMPO's MTP. FHWA inquired why 2020 pre-COVID was used for model validation; AAMPO responded that COVID had disrupted typical traffic patterns so only pre-COVID figures were used. FHWA asked why MOVE2014b was being used for emissions analysis when MOVES3 was fully available; AAMPO replied that it was necessary because of technical limitations with using a new model. Both FHWA and TCEQ stated that justification would be required in the final PACP. FHWA asked why Vehicle Registration data for 2017 was backcast from 2018, with TTI replying that no reliable data was available for 2017. FHWA also asked why the PACP note additional pollutants (in addition to the ozone precursors) would be modeled; TTI responded that these are required to be generated for analysis, but not to be reported. FHWA re-iterated a reclassification of the nonattainment area could render the entire conformity timeline subject to change.

3. Review PACP Comment Matrix:

AAMPO demonstrated a comment matrix similar to one used for previous IAC conformity reviews. FHWA and TCEQ agreed to submit comments via the matrix once it was transmitted. AAMPO staff explained the procedure by which comments would be collected using the matrix.

4. Review of AAMPO 2021 Conformity and Expectations for 2022:

AAMPO inquired of FHWA how they would prioritize review of multiple MTPs. FHWA stated they would prioritize based on expiration date of current MTPs, and that DFW and El Paso both were expiring this

year. TTI stated Houston would be targeting next year. FHWA re-iterated that there is a one-year “grace period” for conformity lapses, but FHWA and MPOs avoided this because of implications. AAMPO inquired if the conformity document would be circulated to partners for review prior to local conformity determination, to which FHWA replied that the IAC partners should not review formally until after local determination.

5. Next Steps

AAMPO committed to providing the comment matrix for partners to record comments, and asked tentative dates to receive comments. TCEQ, EPA, and FHWA provided estimated dates, and others stated they did not plan to comment. AAMPO sought feedback on the date of a follow-up meeting, tentatively in mid-March. The meeting adjourned.

Alamo Area MPO
Interagency Consultative Partners
April 14, 2022
9:00 a.m. – 10:00 a.m.
Agenda

Join WebEx Meeting
https://alamoareampo.webex.com/alamoareampo/j.php?MTID=m8c3c25ca47a566f4e4750d641e636693
Meeting number: 2484 366 7628
Password: WJkDuSyh328

Join by phone
+1-408-418-9388 United States Toll
1-844-992-4726 United States Toll Free
Access code: 2484 366 7628

1. **Introductions** *(5 minutes)*

2. **Review PACP Comment Matrix** *(10 minutes)*

3. **Discuss Analysis Using Both Interim Methods** *(25 min)*

4. **Revisit Conformity Timeline** *(10 minutes)*

5. **Next steps/Closing Comments** *(10 min)*

Alamo Area MPO Interagency Consultation Partner Meeting
February 10, 2022 | 9:00 a.m. - 10:30 a.m.
WebEx

1. Participants:

Tim Wood – TxDOT ENV, Laura Norton – TxDOT TPP-TA, Jeff Riley – EPA, Jamie Zech – TCEQ, Art Herrera – VIA Metropolitan Transit, Barbara Maley – FHWA, Clayton Ripps – TxDOT SAT, Farideh Dassi – TxDOT, Ivonne DeLaRosa – TxDOT SAT, Jose Campos – FHWA, Mark Mosley – TxDOT SAT, Aaron Slevin – TCEQ, Darcie Schipull – TxDOT SAT, Madhu Venugopal – TTI, Mary McGarry-Barber – TCEQ, Nick Page – TxDOT TPP, Clifton Hall – AAMPO, Sonia Jimenez – AAMPO, Travis Nedrich - AAMPO

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Alamo Area MPO
Interagency Consultative Partners
May 25, 2022
10:00 a.m. – 11:00 a.m.

Agenda

1. **Welcome/Introductions** *(5 minutes)*
2. **Discuss AAMPO Timeline for Build/No-Build Analysis *(see below)*** *(20 min)*
3. **Discuss Review Timeline and Partner Expectations** *(20 min)*
4. **Next Steps/Closing Comments** *(15 min)*

***Estimated* EPA Reclassification Schedule**
Original EPA public comment end date: June 13, 2022
60-day extension: August 12, 2022
90 days after public comment period ends (anticipated effective reclassification date): November 10, 2022

Tentative AAMPO Conformity Document Schedule with Build/No-Build Test
June 10 – AAMPO sends Build networks to consultant for model runs
July 8 – AAMPO receives Build/No-Build analysis results from TTI (4 weeks)
July 29 – AAMPO final draft of Revised Conformity Document
August 15 – Revise AAMPO Conformity Document webpage
August 22 – TPB Information (begin 30-day public comment period)
September 26 – TPB Action on Revised Conformity Document

825 South Saint Mary's Street | San Antonio, Texas 78205
Phone: 210.227.8651 | Fax: 210.227.9321 | TTD: 1.800.735.2989
www.alamoareampo.org

Agenda

AAMPO IAC Partners Meeting
Wednesday, Sep 28, 2022 9:00 am | 2 hours | (UTC-05:00) Central Time (US & Canada)
Join WebEx Meeting
Hosted by Clifton Hall
https://alamoareampo.webex.com/alamoareampo/j.php?MTID=m483373547b75b4848ce4c3f961a6bd2a
Meeting number: 2494 336 1948
Password: BrA2TNqEh43
Join by phone
+1-408-418-9388 United States Toll
1-844-992-4726 United States Toll Free
Access code: 249 433 61948

1. **Introductions** *(All partners)*

2. **Build v No Build Results** *(AAMPO)*
    a. Overview Results
    b. "Off-model" Projects

3. **Network Changes Between Analyses** *(AAMPO)*
    a. Overview of Changes
    b. Procedure for Posting/Reviewing 2nd Analysis

4. **Proposed Schedule for Updated TCD** *(AAMPO)*

5. **Other Items** *(All partners)*

Alamo Area MPO Interagency Consultation Partner Meeting
September 28, 2022 | 9:00 a.m. - 10:00 a.m.
WebEx

1. Participants:

Tim Wood – TxDOT ENV, Laura Norton – TxDOT TPP-TA, Janie Temple – TxDOT TPP-TA, Jeff Riley – EPA, Jamie Zech – TCEQ, Barbara Maley – FHWA, Ivonne DeLaRosa – TxDOT SAT, Jose Campos – FHWA, Krystal Lastrape – FHWA, Mark Mosley – TxDOT SAT, Brigida Gonazalez – TxDOT-TPP, Madhu Venugopal – TTI, Clifton Hall – AAMPO, Sonia Jimenez – AAMPO, Travis Nedrich – AAMPO

2. Review of Build v. No-Build Analysis Results:

AAMPO began by presenting the analysis results for the Build (a.k.a "Action") and No-Build (a.k.a. "Baseline") scenarios received from TTI in early September 2022. AAMPO explained the Build scenario had changed because of changes to the network to match the locally approved TIP and MTP, but that the ultimate result (passing the No-Less-Than-Baseline test, § 93.119(b)(1)(ii)) were the same. Also, AAMPO explained the Build v. No-Build test (§ 93.119(b)(1)(i)) was not passed outright; however, based on an informal call with TxDOT, FHWA, and TCEQ, AAMPO suggested CMAQ-funded projects could be used to demonstrate future emissions reductions. AAMPO asked a follow-up question of TCEQ on whether Early Action Compacts negotiated between the Bexar County region and EPA included voluntary emissions testing. TCEQ and EPA provided that no emissions testing was implemented in Bexar County, and the consensus was an I/M program would not apply.

3. Network Changes Between Analysis:

AAMPO explained to the partners they had discovered multiple network errors between the initial networks sent to TTI in the spring and the finally adopted Mobility 2050 and F23-26 TIP approved in June. They have reconciled all differences between the networks and the approved TIP and MTP before sending the corrected networks to TTI for analysis of the No-Build network and re-analysis of the Build network. AAMPO also explained with the development of the new Travel Demand Model, there were other non-project-related changes made which would necessitate re-analysis of the Build network as well. TxDOT TPP-TA inquired what changes were made, and AAMPO clarified these changes were to centroid connectors and high-volume anomalies ("hot-spots") in various places in the network. AAMPO then inquired if a restart of review, once the new TCD and appendices were available, would present a burden to reviewers, to which FHWA and EPA replied in the negative. AAMPO re-iterated it would provide any useful or necessary materials to continue review as smoothly as possible, if requested.

4. Proposed Schedule for Updated TCD:

AAMPO described two scenarios for TPB approval of the updated TCD: Option A would be approval in October 2022, using the One-Step process allowed in the local Public Participation

Plan, and Option B would be the standard two-step process with information in October and action in mid-December, 2022. AAMPO described its initial preference to approve the document as soon as possible using Option A, but also potential issues including those raised at a pre-meeting with FHWA on September 27, 2022. One concern raised by FHWA was if the state Conformity SIP included specific requirements for public involvement, to which TCEQ tentatively replied there were no additional requirements since MVEB had not established. There not being additional public involvement requirements was confirmed later via email. AAMPO sought clarification on whether approval in December would work for the partners, to which FHWA responded in the affirmative.

TxDOT-SAT asked if AAMPO Policy Board approval in December would halt review of the TCD prior to approval, to which FHWA, TPP-TA, and EPA tentatively agreed that review could commence prior to AAMPO's Policy Board approval in December, if no changes were made to the TIP or MTP, and they would confirm this as soon as reasonable to AAMPO. TxDOT TPP-TA asked what the timeframe of posting new materials would be, and AAMPO replied they would strive to update the webpage with all materials by mid-October. TxDOT TPP-TA stated they would like to meet with AAMPO to ensure all needed materials were available for the update. FHWA stated they would like to coordinate with AAMPO, TxDOT-SAT, and TxDOT-TPP to determine which projects could be affected by the review schedule at hand. FHWA also explained that the under-review FY23-26 STIP would be reviewed initially under the conforming MTP, Mobility 2045, until the new 2050 MTP was found to be conforming.

5. Next Steps

AAMPO committed to providing the meeting summary to all partners, as well as to facilitating meetings with TPP-TA as well as FHWA and TxDOT on "at-risk" projects. AAMPO will be moving forward with updating the TCD and conformity website before mid-October, and will prefer "Option B" for approval of the TCD in mid-December, if at all possible to meet state deadlines.

Transportation Conformity Pre-Analysis Consensus Plan

ALAMO AREA METROPOLITAN PLANNING ORGANIZATION

Consensus by:	*Date:*
EPA	*3/30/2022*
FHWA/FTA	*4/14/2022*
TCEQ	*3/30/2022*
TxDOT	*4/6/2022*

1. Reason for the Transportation Conformity Regional Emissions Analysis (§93.104) Beginning 12/01/2021

Table 1: Explanation

X	New Metropolitan Transportation Plan (demographics, horizon year, etc.)
	Modify Existing Metropolitan Transportation Plan (interim year adjustments)
X	New or Amended Transportation Improvement Program
	State Implementation Plan (SIP) Requirement
	Newly Designated Nonattainment Area
	Other

The Alamo Area MPO (AAMPO) is developing a new Metropolitan Transportation Plan (*Mobility 2050*) and a new TIP for FY 2023-2026. Local approval is scheduled for **June 2022 in order for the STIP to be approved by October 2022 (FY 2023)**. Below are important target dates proposed to meet that deadline:

Early 2022 – internal staff deadline to complete all model runs
March 2022 – AAMPO transmits travel demand model output to TTI for MOVES analysis
Late March 2022 – TTI transmits MOVES summary table and supporting files to AAMPO
April 13, 2022 – 30-day public comment period, begins including TIP/MTP/transportation conformity public meetings
May 23, 2022 – presentation to AAMPO Transportation Policy Board (TPB) of conformity document and FY 2023-2026 TIP/Mobility 2050
June 27, 2022 – concurrent action by AAMPO TPB to approve conformity document and FY 2023-2026 TIP/Mobility 2050
July-September 2022 – comment and response period between interagency consultation partners

Here is a link to the *federal transportation conformity rule*.

2. Planning Detail (§93.110)

Table 2: Metropolitan Transportation Plan/Transportation Improvement Program

Plan or Programs	Years Covered
Mobility 2050	2023-2050
Transportation Improvement Program	2023-2026

Table 3: State Implementation Plan

SIP Element	Description
Title of Applicable SIP(s)	n/a
Motor Vehicle Emissions Budgets	n/a
Transportation Control Measures	n/a

Table 4: Conformity Analysis Years

[Note: AAMPO will produce the necessary TDM outputs to perform both interim emissions test: "action v. baseline" and "build v. no-build." The former is required for non-attainment areas classified as Marginal non-attainment and both are required for areas designated as Moderate non-attainment. Analyzing the FY 2023-2026 TIP and Mobility 2050 according to both tests will ensure they are conforming under AAMPO's current Marginal non-attainment designation in addition to the possibility of the Bexar County non-attainment area being re-classified as Moderate, which is expected to be determined in late FY 2022 or early FY 2023.]

Requirement	Year
Conformity Baseline Year	2017
Attainment Year*	N/A
Base Year	2020
First Analysis Year[1]	2025
Intermediate Analysis Year(s)[2]	2035, 2045
Last Year of Transportation Plan (MTP/RTP)	2050

[1] Per 40 CFR 93.119(g)(1), the first analysis year cannot be more than five years beyond the year in which the conformity determination is being made.
[2] Per 40 CFR 93.119(g)(1), analysis years cannot be more than 10 years apart.
*Attainment year is not an analysis year unless an Motor Vehicle Emissions Budget has been established, per CFR 93.119(g)(1).

Interpolation Years	n/a
Other	

Table 5: Demographics Used in Conformity Analysis

Data Element	Detail and Source of Data
Population	County-Level Control Totals: Texas Demographic Center 2018 population Disaggregate Data: AAMPO 2015 TAZ Data; ACS 5-year data and 1-year data projections
Employment	County-Level Control Totals: TDC Disaggregate Data: 2020 point-level employment data by NAICS code (InfoUSA); TEA
Socio-economic	Avg. household (HH) size: ratio of residential pop. to households Median HH income: ACS 5- and 1-yr data, utilized directly and adjusted to Base Year 2020 Dollars (USD) Avg. workers per HH: ACS 5- and 1-yr data, utilized directly Area type: calculated based on household and employment totals
Other	

3. Activity Detail

- Travel Model and Demographics Update

AAMPO through consultation with Cambridge Systematics (CS) and Alliance Transportation Group (ATG) facilitated updates to Mobility 2050 Demographics and the San Antonio Multimodal Model (SAMM). These updates focused on implementing changes to individual model components as well as advancing the base year of SAMM to 2020. As part of the model update, TripCAL5 was replaced with TripCAL6. Tables 5 and 6 detail the data sources used as inputs into the demographic model.

A panel of local experts was constituted to help identify and confirm specific opportunities and constraints to development, and to guide the allocation of growth in the AAMPO model area. CS prepared detailed information on existing development patterns and the latest thinking on future economic activity for the region to a panel of local experts to spur discussion and feedback. The panel of local experts ensured a multifaceted understanding of the full region and the growth potential of communities and environments that comprise the region. This approach led to a defensible demographic forecast to support transportation planning for the region.

Population, households, and employment were utilized for the TDC county-level totals as control totals. County-level data were apportioned to the block-group level based on ACS data and then further disaggregated to TAZs using the 2015 AAMPO TAZ data. County-level totals of employment were apportioned to TAZs based on a combination of InfoUSA and TEA data. The InfoUSA point data were categorized into Basic, Retail, Service, and Education employment (as per Table 2) and aggregated to the TAZ-level. The TEA data was a secondary source of data for Education employment. Both sets of inputs were adjusted by comparing to the 2015 AAMPO TAZ dataset, satellite imagery, and available GIS layers of zoning, development type, and developability of vacant land.

The special generators were retained from the 2015 AAMPO dataset and updated as appropriate. The special generator population and employment were manually updated based on demographic update data sets. For some special generators, primary sources of population and employment totals were obtained by directly contacting the special generator institution. Block-group level median household income and workers per household were obtained directly from ACS and allocated to TAZs based on share of TAZs within each block-group. All other TAZ-level TripCAL6 inputs were calculated based on the other input data, such as average household size and area type, or left blank.

Table 6: Travel Demand Model

Model Factor	Detail and Methodology
Model Validation Year	2020 (Pre-Covid-19[3])
Software	SAMM 4.1 and TransCAD 8.0
Mode Split/Mode Choice	Typical nested logit model that is FTA compliant (calibrated and validated to 2019-2020 by Cambridge Systematics (CS.))
Vehicle Miles Travel (VMT) Adjustments (HPMS FACTOR)	For the future years, TTI produces a regional HPMS adjustment factor (0.823578) used to adjust total VMT (TDM assignment VMT plus intrazonal VMT estimate) for consistency with HPMS for each future analysis year TDM. Specifically, TTI will convert Bexar, Comal, Guadalupe, Kendall, Wilson Counties 2020 HPMS annual average daily traffic (AADT) VMT to ANSWT VMT, using an automatic traffic recorder (ATR)-based factor (1.040896). This factor is developed using county-specific total VMT from the 2020 travel model validation; the 2020 county-level HPMS AADT VMT reported by TxDOT; and 2013-2020 ATR data.
Seasonal Correction Factor	TTI produces seasonal, day-of-week, factors by TxDOT district for use with district-counties using multi-year (2013-2020) ATR data. TTI will produce the TxDOT San Antonio District factor (1.019930) to convert TDM VMT and volumes from ANSWT to ASWT (average summer weekday traffic - June through August, Monday through Friday).

[3] Saturation counts used were collected prior to CoV-19-related government stay-at-home/sheltering orders.

<table>
<tr><td>Hourly Distribution Factors</td><td>TTI then produces seasonal weekday, hourly factors for allocating VMT and volumes within TDM time periods to each hour of the day, using the multi- year (2013-2020), June through August, Monday through Friday, hourly ATR data for the TDM five-county region. The ATR-based hourly factors shown below will be normalized in each TDM time period:

<table><tr><th>Hour</th><th>Factor</th></tr><tr><td>12a-1a</td><td>0.01013</td></tr><tr><td>1a-2a</td><td>0.00690</td></tr><tr><td>2a-3a</td><td>0.00599</td></tr><tr><td>3a-4a</td><td>0.00655</td></tr><tr><td>4a-5a</td><td>0.01071</td></tr><tr><td>5a-6a</td><td>0.02721</td></tr><tr><td>6a-7a</td><td>0.05155</td></tr><tr><td>7a-8a</td><td>0.06381</td></tr><tr><td>8a-9a</td><td>0.05607</td></tr><tr><td>9a-10a</td><td>0.04915</td></tr><tr><td>10a-11a</td><td>0.04893</td></tr><tr><td>11a-12p</td><td>0.05194</td></tr><tr><td>12p-1p</td><td>0.05494</td></tr><tr><td>1p-2p</td><td>0.05604</td></tr><tr><td>2p-3p</td><td>0.05876</td></tr><tr><td>3p-4p</td><td>0.06603</td></tr><tr><td>4p-5p</td><td>0.07222</td></tr><tr><td>5p-6p</td><td>0.07773</td></tr><tr><td>6p-7p</td><td>0.06424</td></tr><tr><td>7p-8p</td><td>0.04765</td></tr><tr><td>8p-9p</td><td>0.03857</td></tr><tr><td>9p-10p</td><td>0.03291</td></tr><tr><td>10p-11p</td><td>0.02485</td></tr><tr><td>11p-12p</td><td>0.01713</td></tr></table></td></tr>
<tr><td>Counties Covered by Model</td><td>Bexar, Comal, Guadalupe, Kendall and Wilson</td></tr>
<tr><td>Other</td><td></td></tr>
</table>

Table 7: Projects

Project Element	Description
Regionally Significant Definition	All Regionally Significant roads can be viewed at: http://www.alamoareampo.org/imap/ *(check "on" the layer titled "Regionally Significant Roads")* and include: • Those facilities federally functionally classified as interstate freeways, other freeways or expressways • Those facilities federally functionally classified as principal arterials • Roadways and intermodal connectors included in the federally adopted National Highway System • Roads designated as SH or US routes • Community connections that provide direct, continuously signed connections between nearby or adjacent census defined urbanized areas, urban clusters and population centers with more than 5,000 people • Roadways between activity centers that serve as primary regional connectors to an otherwise unserved regional activity center • Extensions of Regionally Significant Roadways to connect non-connecting termini While not mapped because none currently exist, the AAMPO's regionally Significant Roadways definition also includes the following: • Fixed guideway transit facilities that offer an alternative to regional highway travel • Tollways as documented in the Metropolitan Transportation Plan • Grade-separated interchange projects on Regionally Significant Roadways where no access existed previously
Capacity Changes	Refer to 2023-2026 TIP and Mobility 2050 *(forthcoming)*

CMAQ Projects	Refer to 2023-2026 TIP and Mobility 2050 *(forthcoming)*
Non-Federal Projects	Refer to 2023-2026 TIP and Mobility 2050 *(forthcoming)*
Exempt Projects	Refer to 2023-2026 TIP and Mobility 2050 *(forthcoming)*
Other	

4. Emissions Detail (MOVES Emission Factor Model Information)

- Development of Emission Factors:

While the travel demand model covers a five-county area, TTI will produce county scale emission rates for Bexar County, the only county designated nonattainment.

Emission Model Version:	MOVES2014b
Analysis Year Runs:	2017 baseline year; 2025, 2035, 2045, and 2050 analysis years.
Time Periods:	Hourly, average summer weekday.
Pollutants Reported:	Volatile Organic Compounds (VOC), Oxides of Nitrogen (NOx).
Functional Class:	The five MOVES road types – rural and urban, restricted, unrestricted access and the MOVES off-network category.
VMT Mix:	Using latest available VMT mix. TTI estimated San Antonio TxDOT District, four-period time-of-day, weekday VMT mixes, for conventional gasoline and diesel-powered MOVES source use types (SUT), by the five MOVES road types, for use with historical and future analysis years. The methodology is described in MOVES Source Use Type and VMT Mix for Conformity Analysis (TTI, October 2017). (Note - VMT mix is used external to MOVES in link-level emissions calculations.)
Speed:	TTI will use the MOVES county scale/emission rates mode to model urban and rural, restricted and unrestricted access road type emissions factors for each of the 16 speed bin average speeds (i.e., 2.5 miles-per-hour (mph) and 5 mph through 75 mph, at 5 mph increments) for rates lookup tables.
Vehicle Registration:	Latest available 2018 EOY registration data (for age distributions) will be used for the 2017 baseline and all future years.

- MOVES2014 inputs:

Table 8: MOVES2014 Modeled Pollutants

Command	Function/Description	Input Parameter Source/Value
Pollutant	Defines the basic set of pollutants to report.	VOC, NOx (required). (Additional pollutants may be included in the runs.)

Table 9: MOVES2014 External Conditions

Command	Function/Description	Input Parameter Values	Description
MOVES Model Version	Identifies the model version to be utilized for the analysis.	MOVES2014b [4]	Latest and final MOVES2014 series version, released December 2018
Calendar Year	Identifies calendar year for which emissions factors are to be calculated. (Required to run model)	2017, 2025, 2035, 2045, and 2050	*Baseline year and plan forecast years*
Evaluation Month	Provides option of calculating emissions factors for each month of the calendar year	7 (July)	Month of July is used to represent the summer season.

[4] MOVES2014b is being used (in lieu of MOVES3) because of the institutional knowledge and familiarity of AAMPO staff with this version of MOVES. This is allowable under a grace period effective until January 2023.

Table 12: MOVES2014 Input Parameters and Source

Input Parameter Name	Description	Source
Source Type Population	Input the number of vehicles in the geographic modeling domain for each SUT. (MOVES sourcetypeyear table.)	MOVES defaults for rates runs. TTI estimates local gasoline and diesel-powered source type populations by analysis year for use external to MOVES in the estimation of county level vehicle starts and source-hours-parked activity, needed in the external emissions calculations, per TTI's rates-per-activity, TDM-based method. Populations by SUT and fuel type are a function of Texas Department of Motor Vehicles (TxDMV) vehicle registration data (2018 is latest available) and VMT mix, and in the case of future years (and earlier, historical years), population scaling factors.
Source Type Age Distribution	Input that provides the distribution of vehicle counts by age for each calendar year and MOVES source type. TXDMV registration data is used to estimate the age distributions of vehicle types up to 31 years. The distribution of age fractions should sum up to 1.0 for each vehicle type for each analysis year. (MOVES sourcetypeagedistribution table.)	TTI develops age distributions using TxDMV analysis year-specific vehicle registration data aggregated at the county level for all vehicle classes except short-haul source-types, which use the regional aggregation (five TDM counties), and the long-haul source-types, which use the statewide level. All source type age distributions are estimated using the TxDMV data except for refuse trucks, motor homes, and buses which use MOVES defaults for the analysis year. Latest available 2018 EOY registration data (for age distributions) will be used for the 2017 baseline and all future years.
Vehicle Type VMT	Input county-specific VMT distributed to 5 HPMS vehicle types (by MOVES "HPMSVtypeID"). (MOVES hpmsvtypeyear table.)	MOVES defaults for rates runs. Local activity estimates are applied in the link-based emissions calculations external to MOVES.

Average Speed Distribution	Input average speed fractions into 16 speed bins, by SUT, road type, hour, day-type. The sum of each speed distribution over the 16 speed bins by SUT, road type, hour, day-type is 1.0. (MOVES avgspeeddistribution table.)	MOVES defaults for rates runs. Local activity estimates are applied in the link-based emissions calculations external to MOVES.
Road Type Distribution (VMT Fractions)	Input county specific VMT by road type. VMT fractions are distributed between the road types and must sum to 1.0 for each SUT. (MOVES roadtypedistribution table.)	MOVES defaults for rates runs. Local activity estimates are applied in the link-based emissions calculations external to MOVES.
Ramp Fraction	Input county specific fraction of ramp driving time on rural and urban restricted roadway types. (MOVES roadtype table.)	Ramp fractions are set to zero. The restricted access roadway type emission rates output will be 100% restricted access roadway type, exclusive of ramps, which are processed separately. TTI's external link-level emissions calculation procedure applies MOVES un-restricted access roadway type emission rates to individual network links coded as ramps. (Separate ramp roadway type emission rates output is not available from MOVES.)
Fuel Supply	Input to assign existing fuels to counties, months, and years, and to assign the associated market share for each fuel type. (MOVES fuelsupply table.)	For each analysis year and season, the fuel supply will consist of one conventional gasoline formulation and one biodiesel formulation. See Table 13.a.

Meteorology	County specific data on temperature and humidity. (MOVES zonemonthhour table.)	Average June through August, hourly temperature and hourly relative humidity inputs by county (produced by TCEQ for inventory development using 2017 weather station data) for all analysis years. See Table 14.
Fuel Formulation	Input county specific fuel properties in the MOVES database. (MOVES fuelformulation table.)	Local fuel formulations based on TCEQ 2017 summer fuel survey data for 2017, and latest local survey data (TCEQ 2020 summer fuel survey), with some adjustments to particular future year values made for consistency with future year "expected" values (regulatory standards). See Table 13b.
I/M Coverage	Input I/M coverage record for each combination of pollutants, process, county, fuel type, regulatory class and model year are specified using this input. (MOVES imcoverage table.)	N/A – I/M program not required under current Marginal non-attainment classification.[5]
Fuel Engine Fraction / Diesel Fraction	Input fuel engine fractions (i.e. Gasoline vs. Diesel Engines types in the vehicle population) for all vehicle types. (MOVES avft table.)	Locality-Specific/MOVES default. TTI develops the evaluation year-specific local gasoline/diesel fractions for the MOVES single unit and combination truck SUTs using the TxDMV registration data, for each analysis year, aggregated to the statewide level. MOVES defaults are used for the other SUTs, except alternative fuel fractions are dropped and the default gasoline/diesel fractions are renormalized.

Table 13.a: MOVES2014 Fuel Supply

Fuel Formulation ID	Market Share	Market Share CV[6]
17702, 19702	1.0	\N
30176, 30600	1.0	\N

[5] See CFR 51.350(a)(8). If re-classified as Moderate non-attainment, a program must be fully implemented no later than 4 years after effective date of designation and classification, see CFR 51.373(b).

[6] Market Share CV – the coefficient variation of the market share ("\N" is "null", or not used).

Table 13.b: MOVES2014 Fuel Properties

Fuel Type	Summer 2017[1]		Summer Future Years[1]	
	Gas E	Diesel	Gas E	Diesel
Fuel Formulation ID	17702	30176	19702	30600
Fuel Subtype ID[2]	12	21	12	21
RVP	7.54	0	7.80	0
Sulfur Level	21.28	6.37	10.00	6.00
ETOH Volume	9.66	0	9.56	0
MTBE Volume	0	0	0	0
ETBE Volume	0	0	0	0
TAME Volume	0	0	0	0
Aromatic Content	25.35	0	22.22	0
Olefin Content	8.33	0	8.69	0
Benzene Content	0.76	0	0.61	0
e200	49.45	0	49.64	0
e300	82.68	0	84.60	0
Vol to Wt Percent Oxy	0.3653	0	0.3653	0
BioDieselEster Volume	\N	4.68	\N	4.34
Cetane Index[2]	\N	\N	\N	\N
PAH Content[2]	\N	\N	\N	\N
T50	203.73	0	202.53	0
T90	327.68	0	319.75	0

[1] TTI produced the gasoline formulations based on TCEQ's summer 2017 and summer 2020 statewide fuel (gasoline and diesel) survey data. The gasoline formulations are by Texas fuel regions; diesel is statewide. Gas E is the east Texas formulation based on samples from "state 7.8 RVP limit" counties. The Summer 2017 gasoline properties are actual averages using the 2017 survey data. The Future Years gasoline properties are summer 2020 actual averages (latest local survey-based estimates), except with RVP, sulfur level, and benzene content set equal to the MOVES defaults (i.e., expected future year values consistent with the pertinent regulatory standards). Bexar County falls under Gas E. Diesel sulfur for 2017 is the statewide actual average based on TCEQ's summer 2017 fuel survey data; and for Future Years diesel sulfur is set to the expected future year level (i.e., within the ultra low sulfur diesel average annual standard and conservatively consistent with the preponderance of observed values from the last four TCEQ statewide surveys). The biodiesel (BD) ester volume percentages for 2017 and future years were based on 2017 and the latest available (2019) DOE state-level transportation sector BD consumption estimates.

[2] Fuel subtype IDs 12 and 21 are 10% ethanol-blend gasoline and biodiesel, respectively. "\N" is "null" value, or not used.

Table 14: MOVES2014 Hourly Meteorological Data

Hours	Temperature[1]	Relative Humidity[1]
	County Code[2]	County Code[2]
	48029	48029
12:00 a.m.	78.99	77.90
1:00 a.m.	77.82	81.39
2:00 a.m.	76.91	84.04
3:00 a.m.	76.21	85.87
4:00 a.m.	75.69	87.13
5:00 a.m.	75.26	88.00
6:00 a.m.	74.88	88.78
7:00 a.m.	75.43	87.31
8:00 a.m.	77.66	81.44
9:00 a.m.	80.33	72.68
10:00 a.m.	82.98	64.24
11:00 a.m.	85.47	57.70
12:00 p.m.	87.72	52.12
1:00 p.m.	89.53	48.18
2:00 p.m.	91.03	44.94
3:00 p.m.	92.13	43.00
4:00 p.m.	92.60	42.18
5:00 p.m.	92.48	42.81
6:00 p.m.	91.50	44.95
7:00 p.m.	89.54	50.16
8:00 p.m.	86.61	56.89
9:00 p.m.	84.11	62.97
10:00 p.m.	82.12	68.75
11:00 p.m.	80.42	73.82

[1] June through August 2017 hourly averages (consistent with the TCEQ's 2017 Periodic Emissions Inventory for Bexar County).
[2] Federal Information Processing Standard (FIPS) county code 48029 is Bexar County, Texas.

Table 15: MOVES2014 I/M Descriptive Inputs for Subject Counties[1]

I/M Program ID[1]	n/a	n/a	n/a	n/a	n/a	n/a
Pollutant Process ID	n/a	n/a	n/a	n/a	n/a	n/a
Source Use Type	n/a	n/a	n/a	n/a	n/a	n/a
Begin Model Year[1]	n/a	n/a	n/a	n/a	n/a	n/a
End Model Year[2]	n/a	n/a	n/a	n/a	n/a	n/a
Inspect Freq	n/a	n/a	n/a	n/a	n/a	n/a
Test Standards Description	n/a	n/a	n/a	n/a	n/a	n/a
Test Standards ID	n/a	n/a	n/a	n/a	n/a	n/a
I/M Compliance	n/a					n/a

[1] The I/M Program is not applicable to Bexar County. No I/M Program will be modeled.

Table 16: MOVES2014 Emissions Factor Post-Processing to Be Performed by County and Year

Strategy and Post-Processing[1] Result	Analysis Year	Counties
Texas Low Emission Diesel Fuel (TxLED)	All years	Bexar
[1]TTI will perform the post-processing using TxLED factors updated (according to the TCEQ procedure) using the 2018 EOY registration data (age distributions) for all years.		

Table 17: Emissions Controls Used for Conformity Credit[1]

Emission Reduction Strategy and Years Covered	Modeling or Post-Processing Approach	Analysis Year
Texas Emission Reduction Plan	n/a	n/a
Intersection Improvements	n/a	n/a
Transit Service	n/a	n/a
High Occupancy Vehicle / Managed Lanes	n/a	n/a
Park-n-Ride Lots	n/a	n/a
Vanpools	n/a	n/a
Grade Separations	n/a	n/a
Traffic Signal Improvements	n/a	n/a
Intelligent Transportation Systems	n/a	n/a
Clean Vehicle Commitments	n/a	n/a
Bicycle/Pedestrian Facilities	n/a	n/a
Employer Trip Reduction Programs	n/a	n/a
Vehicle Retirement Program	n/a	n/a
Sustainable Development	n/a	n/a
Public Education/ Ozone Season Fare Reduction	n/a	n/a
[1] MOVES results do not indicate that emissions controls are necessary, so no modeling or post-processing approaches are used for transportation conformity credit in Bexar County.		

Figure 1: Mobility 2050, FY23-26 Transportation Improvement Program, and Transportation Conformity Document Development and Approval Timeline