# Air Quality Memorandum

**REPORT NO.** 40

**DATE** August 26, 2021

**SUBJECT** CONFORMITY ANALYSIS FOR AMMENDMENT #3 OF THE WFRC 2019-2050 REGIONAL TRANSPORTATION PLAN.

**ABSTRACT** The FAST Act and the Clean Air Act Amendments (CAAA) require that all regionally significant highway and transit projects in air quality non-attainment and maintenance areas be derived from a "conforming" Regional Transportation Plan and Transportation Improvement Program. A conforming Plan or Program is one that has been analyzed for emissions of controlled air pollutants and found to be within emission limits established in the State Implementation Plan (SIP) or within guidelines established by the Environmental Protection Agency (EPA) until such time that a SIP is approved. This conformity analysis is made by the Wasatch Front Regional Council (WFRC), as the Metropolitan Planning Organization for the Salt Lake-West Valley and Ogden-Layton Urbanized Areas, and submitted to the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for their concurrence. This conformity analysis is being prepared according to the EPA transportation conformity regulations published in Federal Register April 2012 and according to FHWA final rulemakings found in the FAST legislation. The EPA approved MOVES model for estimating vehicle emissions was used for this conformity analysis.

This conformity analysis addresses the emissions impact of the 2019-2050 RTP, including Amendments 1, 2, and 3. The projected vehicle activity is based on Version 8.3.1 of the WFRC travel demand model and the 2012 Household Travel Survey of trip making activity. For a detailed list of projects included in this conformity analysis, see Appendix L of the Regional Transportation Plan: 2019-2050 at

https://wfrc.org/vision-plans/regional-transportation-plan/2019-2050-regional-transportation-plan/

The Amendment 3 revisions to this project list can be found in Appendix-2 at the end of this document. Based on the analysis presented in this document, Amendment #3 of the WFRC 2019-2050 RTP conforms to the State Implementation Plan or the Environmental Protection Agency interim conformity guidelines for all pollutants in applicable non-attainment or maintenance areas. Therefore, all transportation projects in Box Elder, Weber, Davis, Salt Lake, and Tooele Counties included in the Amended 2019-2050 RTP are found to conform.

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# A. Conformity Requirements

**Conformity Process**

Since the commencement of the federal transportation planning requirements in the late 1960s, further requirements (most recently the 2015 Fixing America's Surface Transportation Act (FAST) and the 1990 Clean Air Act Amendments) have added to the responsibilities and the decision-making powers of local governments through the Metropolitan Planning Organization. The Wasatch Front Regional Council (WFRC) is the Metropolitan Planning Organization for the Salt Lake/West Valley and Ogden / Layton Urbanized Areas. This report summarizes WFRC's conformity analysis of the 2019-2050 RTP with the Division of Air Quality's State Implementation Plan (SIP) and the Environmental Protection Agency's interim conformity guidelines. This conformity analysis is subject to public and agency review, and requires the concurrence of the Federal Highway Administration and Federal Transit Administration.

In November, 1993, the Environmental Protection Agency and the U.S. Department of Transportation issued rules establishing the procedures to be used to show that transportation plans and programs conform to the SIP. The conformity rules establish that federal funds may not be used for transportation projects that add capacity in areas designated as "non-attainment (or maintenance) with respect to the National Ambient Air Quality Standards", until and unless a regional emissions analysis of the Plan and TIP demonstrates that the projects conform to the SIP. This restriction also applies to "regionally significant" transportation projects sponsored by recipients of federal funds even if the regionally significant transportation project uses local funds exclusively.

Davis and Salt Lake Counties, Ogden City, and portions of Weber, Box Elder and Tooele Counties are designated as non-attainment (or maintenance) for one or more air pollutants. Specifically, there are four areas in the Wasatch Front region for which the conformity rules apply. These areas are listed in Table 1 below.

**Table 1**
**Wasatch Front Region Non-attainment Designations**

| Area | Designation | Pollutant | Attainment Date |
|---|---|---|---|
| Salt Lake City | Maintenance Area | Carbon Monoxide (CO) | 1983 |
| Ogden City | Maintenance Area | Carbon Monoxide (CO) | 1983 |
| | Moderate Non-Attainment Area | Particulate Matter ($PM_{10}$) | TBD |
| Salt Lake County | Moderate Non-Attainment Area | Particulate Matter ($PM_{10}$) | 2003 |
| Salt Lake (including Davis, Salt Lake, and portions of Weber, Box Elder, and Tooele Counties) | Serious Non-Attainment Area | Particulate Matter ($PM_{2.5}$) | 2019 |
| Northern Wasatch Front (including Salt Lake, Davis, and portions of Weber and Tooele Counties) | Marginal Non-Attainment Area | Ozone ($O_3$) | 2023 |

The CAAA established requirements for conformity. These requirements are outlined in 40 CFR 93.109 and include the following:

- Latest planning assumptions
- Transportation Control Measures (TCM)
- Emissions budget
- Projects from a conforming plan and TIP
- $PM_{10}$ control measures
- Latest emissions model
- Consultation
- Currently conforming plan and TIP
- CO, $PM_{10}$, and $PM_{2.5}$ "hot spots"

Each of these requirements will be discussed in the following paragraphs.

**Latest Planning Assumptions**
Current travel models are based on socioeconomic data and forecasts from local building permits, the Utah Division of Workforce Services, and the Governor's Office of Management and Budget (GOMB). Base year socioeconomic data are for calendar year 2015. Forecasts of population and employment by traffic analysis zone were developed by WFRC in 2019 and are controlled to county-level forecasts produced in 2017 by the University of Utah's Kem C. Gardner Policy Institute (GPI) funded by the Utah legislature.

**Latest Emissions Model**
The conformity analysis presented in this document is based on EPA mobile source emissions models: MOVES3 for tailpipe emissions and AP-42 section 13.2.1 for paved road dust emissions. The application of these models will be discussed in greater detail in the Emissions Model section of this document.

**Consultation Process**

Section 105 of 40 CFR Part 93 (Conformity Rule) requires, among other things, interagency consultation in the development of conformity determinations. To satisfy this requirement, the State Division of Air Quality (DAQ) prepared a Conformity SIP to outline the consultation procedures to be used in air quality and transportation planning. The Conformity SIP also defines the membership of the Interagency Consultation Team (ICT) as representatives from DAQ, WFRC, Mountainland Association of Governments, Utah Department of Transportation, Utah Transit Authority, EPA, FHWA, and the FTA. The Conformity SIP has been approved by EPA. WFRC followed the consultation procedures as outlined in the Conformity SIP in the preparation of this conformity analysis. As part of the public involvement procedures referenced in the Conformity SIP, WFRC presented this report to the Regional Growth Committee for review and comment. The TransCom committee includes a member of the Utah Air Quality Board as well as representatives of UDOT, UTA, and FHWA. Management level staff members from the Utah Division of Air Quality are notified of meetings and agendas of the above committees. The Utah Division of Air Quality and other members of the ICT were also provided with a copy of this report during the public comment period for the 2019-2050 RTP.

This Conformity Analysis for the 2019-2050 RTP was made available for public inspection and comment for a 30-day period in accordance with EPA conformity regulations. This analysis was also posted on the WFRC website during the comment period. Notification of the comment period was sent by electronic mail to interested stakeholders. In addition, public comment was taken during various committee meetings of the Wasatch Front Regional Council.

**TCM Implementation**

A conformity analysis for the 2019-2050 RTP must certify that the RTP does not interfere with the implementation of any Transportation Control Measure (TCM) identified in the applicable State Implementation Plan (SIP). There are not any TCM's identified in any of the currently applicable SIP documents for the Wasatch Front Region.

**Emissions Budget**

A comparison of mobile source emission estimates to emission budgets defined in the SIP is outlined in this document in Section D - Conformity Determination.

**Currently Conforming Plan and TIP**

The amended 2019-2050 RTP for the Wasatch Front Area conforms to State air quality goals and objectives as noted in the most recent letter from FHWA and FTA dated June 17, 2019. The existing 2021-2026 TIP for the Wasatch Front Area was also found to conform and this was also noted in a letter from FHWA and FTA dated September 4, 2020.

**Projects from a Conforming Plan and TIP**

**TIP Time Frame** - All projects which must be started no later than 2027 in order to achieve the transportation system envisioned by the 2019-2050 RTP are included in the 2022-2027 TIP. The TIP is fiscally constrained, meaning that only those projects with an identified source of funds are included in the TIP. Estimated funding availability is based on current funding levels and reasonable assumptions that these funds will continue to be available. Conformity for the 2022-2027 TIP is addressed separately in Air Quality Memorandum 40a.

**Regionally Significant**

All regionally significant projects, regardless of funding source (federal, state, or local) are included in the RTP. All regionally significant projects are also included in the regional emissions analysis of the RTP. Regionally significant highway projects are identified as capacity projects on roadways functionally classified as a principal arterial or higher order facility, and certain minor arterials as identified through the interagency consultation process (see Appendix 1 for a complete definition of regionally significant projects). The latest Utah Department of Transportation Functional Classification map is used to identify functional classification. Capacity projects on interstate highways, freeways, expressways, principal arterials, certain minor arterials, light rail, and commuter rail are treated as regionally significant projects.

Because of their relative impact on air quality, all regionally significant projects regardless of funding source must be included in the regional emissions analysis, and any significant change in the design or scope of a regionally significant project must also be reflected in the analysis. All regionally significant projects have been included in the regional emissions analysis, and the modeling parameters used for these projects are consistent with the design and scope of these projects as defined in the RTP. In order to improve the quality of the travel model, minor arterials and collectors, as well as local transit service, are also included in the regional travel model (and thus the regional emissions analysis) but these facilities are not considered regionally significant since they do not serve regional transportation needs as defined by EPA. For a list of projects included in this conformity analysis, see Appendix L of the Regional Transportation Plan: 2019-2050 at

https://wfrc.org/vision-plans/regional-transportation-plan/2019-2050-regional-transportation-plan/

The Amendment 3 revisions to this project list can be found in Appendix-2 at the end of this document.

**CO, $PM_{10}$ and $PM_{2.5}$ "Hot Spot" Analysis**

In addition to the regional emissions conformity analysis presented in this document, specific projects within carbon monoxide (CO) and particulate matter ($PM_{10}$ and $PM_{2.5}$) non-attainment areas are required to prepare a "hot spot" analysis of emissions. The "hot spot" analysis serves to verify whether localized emissions from a specific project will meet air quality standards. This requirement is addressed during the NEPA phase of project development before FHWA or FTA can issue final project approval.

FHWA has issued guidance on quantitative $PM_{10}$ and $PM_{2.5}$ "hot spot" analysis to be used for the NEPA process. This guidance can be found at:

*http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm.*

**$PM_{10}$ Control Measures**

**Construction-related Fugitive Dust** - Construction-related dust is not identified in the Utah SIP as a contributor to the $PM_{10}$ non-attainment area. Therefore, there is no conformity requirement for construction dust. Section 93.122(d) (1) of 40 CFR reads as follows:

> "For areas in which the implementation plan does not identify construction-related fugitive PM10 as a contributor to the non-attainment problem, the fugitive PM10 emissions associated with highway and transit project construction are not required to be considered in the regional emissions analysis."

In the Utah $PM_{10}$ SIP, construction-related $PM_{10}$ is not included in the inventory, nor is it included in the attainment demonstration or control strategies. Control of construction-related $PM_{10}$ emissions are mentioned in qualitative terms in Section IX.A.7 of the SIP as a maintenance measure to preserve attainment of the $PM_{10}$ standard achieved by application of the control strategies identified in the SIP. Section IX.A.7.d of the SIP requires UDOT and local planning agencies to cooperate and review all proposed construction projects for impacts on the $PM_{10}$ standard. This SIP requirement is satisfied through the Utah State Air Quality Rules. R307-309-4 requires that sponsors of any construction activity file a dust control plan with the State Division of Air Quality.

**Other Conformity Requirements**

**Transit Fares -** Transit fares have increased periodically and will continue to increase in response to rising operating costs. The RTP assumes that transit fare revenues will cover a constant percentage of all transit operating cost, so future fare increases are consistent with the Plan. With any price increase some market reaction is expected. While there have been some short term fluctuations in transit patronage in response to fare increases, the implementation of light rail service and other transit improvements has retained and increased transit patronage consistent with the levels anticipated by the RTP.

Plans to expand light rail service, to increase and enhance bus service, and to extend commuter rail operations are moving forward. These transit projects are envisioned in the Plan and the steps necessary to implement these projects are moving forward including various voter approved sales tax increases for transit funding.

# B. Transportation Modeling

Improvement to the WFRC travel demand model practice and procedure is an ongoing process. This conformity analysis is based on the latest version (8.3.1) of the travel demand model. Version 8.3 of the travel demand model has a 2015 base year and incorporates the results of the 2012 Household Travel Survey conducted by WFRC. Version 8.3.1 of the model made minor updates to the transportation network and socio-economic data since the previous version 8.3.

**Planning Process**

Federal funding for transportation improvements in urban areas requires that these improvements be developed through a comprehensive, coordinated, and continuous planning process involving all affected local governments and transportation planning agencies. The planning process is certified annually by the Regional Council and reported to the Federal Highway Administration and Federal Transit Administration. Every four years FHWA and FTA conduct a comprehensive certification review. The certification review of August 2017 found that the WFRC planning process meets federal requirements. Recommendations were made to continue to improve WFRC's planning process and these are being addressed.

The documentation of the planning process includes at a minimum, a twenty-year Regional Transportation Plan updated at least every four years; and a four-year Transportation Improvement Program (capital improvement program) updated and adopted at least every four years. The planning process includes the involvement of local elected officials, state agencies, and the general public.

**Travel Characteristics**

The WFRC travel model is used to estimate and forecast highway Vehicle Miles Traveled (VMT) and vehicle speeds for Weber, Davis, and Salt Lake Counties. The Utah State Travel Model (USTM) is used to estimate VMT and speed in Box Elder County and Tooele County. The WFRC travel demand model is based on the latest available planning assumptions and a computerized representation of the transportation network of highways and transit service. The base data for the travel demand model is reviewed regularly for accuracy and updates. The travel model files used for this conformity analysis are available upon request.

Shown below in Table 2a and Table 2b is a summary of winter and summer weekday VMT for the cities and counties in designated non-attainment areas. Totals for VMT are given for various air quality analysis years from 2019 to 2050. Note that the VMT values for Box Elder and Tooele Counties are not for the entire county but only that portion of the county designated as non-attainment for a criteria pollutant.

Seasonal factors for highway VMT variations have been revised and refined by research commissioned by the Utah Department of Transportation. Seasonal factors are determined for each link of the highway system based on the functional class (freeway or arterial) and the area type (rural, transitional, suburban, and urban). Other considerations include traffic volume and recreational activity.

**Table 2a**

**Vehicle Miles Traveled (HPMS Adjusted Average Winter Weekday)**

| | 2021 | 2024 | 2030 | 2040 | 2050 |
|---|---|---|---|---|---|
| **Ogden City** | 1,831,472 | 1,887,665 | 1,991,353 | 2,153,355 | 2,278,618 |
| **Salt Lake County** | 31,163,465 | 31,892,811 | 35,559,230 | 39,567,722 | 42,600,730 |
| **Davis County** | 8,724,763 | 9,372,186 | 10,408,462 | 11,494,701 | 12,453,173 |
| **Weber County** | 5,502,705 | 5,665,134 | 6,108,786 | 6,768,004 | 7,301,225 |
| **Box Elder County*** | 2,150,397 | 2,226,867 | 2,469,230 | 2,888,821 | 3,362,191 |
| **Tooele County*** | 1,772,599 | 1,928,781 | 2,269,896 | 2,775,621 | 3,245,074 |

**non-attainment portion of the county*

**Table 2b**

**Vehicle Miles Traveled (HPMS Adjusted Average Summer Weekday)**

| | 2021 | 2024 | 2030 | 2040 | 2050 |
|---|---|---|---|---|---|
| **Salt Lake County** | 34,977,247 | 35,587,921 | 39,635,524 | 43,956,310 | 47,241,871 |
| **Davis County** | 10,058,191 | 10,769,660 | 11,938,848 | 13,143,410 | 14,198,200 |
| **Weber County** | 6,472,502 | 6,618,305 | 7,130,944 | 7,909,175 | 8,532,464 |
| **Tooele County*** | 2,202,571 | 2,400,702 | 2,815,115 | 3,432,616 | 4,005,208 |

**non-attainment portion of the county*

**Peak and Off-Peak Trip Distribution**

The modeled VMT and the modeled vehicle speed depend on the number of vehicle trips assigned for each time period (AM, midday, PM, and evening) defined in the travel demand model. The percentage of trips by purpose varies for each time period. The percentages in Table 3 and Table 4 below are based on data from the 2012 Household Travel Survey.

**Table 3**
**Percent of Trips by Time of Day**

| Trip Purpose | AM | Mid-Day | PM | Evening | Grand Total |
|---|---|---|---|---|---|
| Home Based - Other | 11% | 27% | 24% | 37% | 100% |
| Home Based - Personal Business | 9% | 50% | 25% | 16% | 100% |
| Home Based - School | 40% | 29% | 26% | 5% | 100% |
| Home Based - Shopping | 2% | 43% | 26% | 29% | 100% |
| Home Based - Work | 35% | 18% | 28% | 19% | 100% |
| Non-home Based - Non-work | 6% | 46% | 25% | 23% | 100% |
| Non-home Based - Work | 13% | 49% | 29% | 9% | 100% |
| **Grand Total** | **15%** | **34%** | **26%** | **25%** | **100%** |

**Table 4**
**Percent of Trips by Purpose**

| Trip Purpose | AM | Mid-Day | PM | Evening | Grand Total |
|---|---|---|---|---|---|
| Home Based - Other | 25% | 26% | 31% | 50% | 33% |
| Home Based - Personal Business | 3% | 8% | 5% | 4% | 5% |
| Home Based - School | 19% | 6% | 7% | 1% | 7% |
| Home Based - Shopping | 1% | 13% | 10% | 12% | 10% |
| Home Based - Work | 37% | 8% | 17% | 12% | 16% |
| Non-home Based - Non-work | 7% | 25% | 18% | 18% | 19% |
| Non-home Based - Work | 8% | 13% | 11% | 3% | 9% |
| **Grand Total** | **100%** | **100%** | **100%** | **100%** | **100%** |

**Comparison of Modeled Speeds with Observed Data**

WFRC strives for a high level of consistency between speeds predicted by its travel demand model and those observed in the real world. As part of WFRC's travel model's post-calibration validation process, observed travel speeds were collected in the Fall of 2018 and compared to speeds predicted by the Wasatch Front Travel Demand Model (v.8.3 beta).

Observations were collected for weekdays, from real time trip-routing web applications for the morning and evening peak travel periods for a set of 138 origin-destination pairs within the Wasatch Front region. Several web applications and data sources were evaluated before selecting the observed data source most consistent with real world experiences.

For the validation comparison, 43 trip origins, from traffic analysis zone (TAZ) centroids, were selected by staff, balancing the desires for region-wide coverage and trips volume representation. A set of up to 6 TAZ centroid destinations were selected for each trip origin point.

For each origin-destination pair, average trip speed was collected on the half-hour for each of the three peak hours of both the AM and PM periods. A weighted average of the hourly observed travel speeds for each peak period was calculated using observed travel volume as the weight factor.

Across the region, as shown in Table 5, averaged modeled trip speeds were 11% faster than the observed speed during the AM peak period and 6% faster during the PM peak period.

**Table 5**
**WFRC Planning Area Modeled Speeds Compared to Observed Speeds**

| | AM Peak | PM Peak |
|---|---|---|
| **Modeled Speeds (mph)** | 41 | 36 |
| **Observed Speeds (mph)** | 37 | 34 |
| **Percent Difference** | **11%** | **6%** |

# C. Emission Modeling

**I/M Programs**
Assumptions for the input files for EPA's MOVES vehicle emissions model include I/M programs in Salt Lake, Davis, and Weber Counties. Box Elder and Tooele Counties do not presently have I/M programs.

**VMT Mix**
The VMT mix describes how much a particular vehicle type is used in the transportation network. While no longer a required input for the MOVES model as it was for MOBILE6.2, VMT mix is used in several instances to generate the input files required to run the MOVES model. The national default VMT mix found in the MOVES database was used to disaggregate local vehicle type data collected in 2017. The local vehicle type data is collected by UDOT as part of the federal HPMS data collection system and is based on automated counters which classify vehicles based on vehicle length. The UDOT classification is used to calculate control percentages for light duty (LD) vehicles and heavy duty (HD) vehicles for each facility type. The EPA default VMT mix is then applied to disaggregate the two UDOT control percentages into detailed percentages for the thirteen vehicle classes used in MOVES.

**Vehicle Weights**
Facility specific VMT mix data described above was also used to estimate the average vehicle weight on each facility type. Since vehicle weight affects the rate of re-entrained road dust emissions estimated using the AP-42 method, vehicle weight variations on different facilities will affect the amount of fugitive dust created. The VMT mix for each facility type was used to estimate an average vehicle weight for each facility type with the following results:

| Facility | Average Vehicle Weight |
|---|---|
| Urban - Freeway | 6,500 lbs, or 3.25 tons |
| Urban - Arterial | 6,100 lbs, or 3.05 tons |
| Urban - Local | 3,900 lbs, or 1.95 tons |

**Post Model Adjustments**

For conformity analyses prior to 2000, the WFRC applied post model adjustments to vehicle emission estimates. Emission credits for work trips were modeled for reductions in single occupant vehicle rates based primarily on increased investments in transit service and rideshare programs, and the projected increase in telecommuting. Other less significant post model adjustments were also estimated for incident management, pavement re-striping, and signal coordination. Additional emission reducing programs and projects supported by CMAQ funds such as park and ride lots, bicycle facilities, transit vehicles, intelligent transportation systems (ITS), and intersection improvements have also been implemented.

WFRC believes that these programs have a positive effect in reducing vehicle emissions. In practice, however, WFRC has found that documenting the air quality benefits of these programs can be challenging. WFRC will continue to support these emission reduction programs, but credits from these programs have not been included in this conformity analysis.

**MOVES Inputs**

The MOVES model is a very data intensive computer program based on the MariaDB software. Through the interagency consultation process the required MOVES inputs reflecting local conditions have been established.

Data files defining local conditions by county and year are required inputs to the MOVES model including vehicle population, emission testing programs, fuel supply, fuel formulation, meteorological conditions, and vehicle age. Vehicle population estimates are based on 2019 registration data by county and the estimated VMT for the same year. This vehicle population to VMT ratio is then applied to model projections of VMT to estimate future year vehicle population. By estimating vehicle population in this way the calculation considers the effects of human population and employment projections, as well as mode choice options that are included in the travel demand model.

Vehicle activity input files for the MOVES model are generated by the WFRC travel demand model using a customized in-house program for this purpose. The MOVES input files required include data for road distribution, speed distribution, and VMT by vehicle type for each county (Box Elder, Davis, Salt Lake, Tooele, and Weber) and analysis year as required for operating the MOVES model.

The input files listed above are read into the MOVES program as database files. The input database folders in Table 6 below contain the database files used for each county and year modeled using MOVES for this conformity analysis. The results of the MOVES model are stored in the output database “Conf21_wt_out” and “Conf21_sm_out” for each county and analysis year identified in Table 6.

**Table 6**
**MOVES Data – Input Database Folders**

| Box Elder | Weber | Davis | Salt Lake | Tooele | Ogden |
|---|---|---|---|---|---|
| Conf21_wt_be_2021_IN | Conf21_wt_we_2021_IN | Conf21_wt_da_2021_IN | Conf21_wt_sl_2021_IN | Conf21_wt_to_2021_IN | Conf21_wt_og_2021_IN |
| Conf21_wt_be_2024_IN | Conf21_wt_we_2024_IN | Conf21_wt_da_2024_IN | Conf21_wt_sl_2024_IN | Conf21_wt_to_2024_IN | Conf21_wt_og_2024_IN |
| Conf21_wt_be_2030_IN | Conf21_wt_we_2030_IN | Conf21_wt_da_2030_IN | Conf21_wt_sl_2030_IN | Conf21_wt_to_2030_IN | Conf21_wt_og_2030_IN |
| Conf21_wt_be_2040_IN | Conf21_wt_we_2040_IN | Conf21_wt_da_2040_IN | Conf21_wt_sl_2040_IN | Conf21_wt_to_2040_IN | Conf21_wt_og_2040_IN |
| Conf21_wt_be_2050_IN | Conf21_wt_we_2050_IN | Conf21_wt_da_2050_IN | Conf21_wt_sl_2050_IN | Conf21_wt_to_2050_IN | Conf21_wt_og_2050_IN |
| | | | | | |
| | Conf21_sm_we_2021a_IN | Conf21_sm_da_2021_IN | Conf21_sm_sl_2021_IN | Conf21_sm_to_2021_IN | |
| | Conf21_sm_we_2024_IN | Conf21_sm_da_2024_IN | Conf21_sm_sl_2024_IN | Conf21_sm_to_2024_IN | |
| | Conf21_sm_we_2030_IN | Conf21_sm_da_2030_IN | Conf21_sm_sl_2030_IN | Conf21_sm_to_2030_IN | |
| | Conf21_sm_we_2040_IN | Conf21_sm_da_2040_IN | Conf21_sm_sl_2040_IN | Conf21_sm_to_2040_IN | |
| | Conf21_sm_we_2050_IN | Conf21_sm_da_2050_IN | Conf21_sm_sl_2050_IN | Conf21_sm_to_2050_IN | |

**Road Dust Estimates**

In January 2011, the EPA released new guidance for estimating dust emissions from paved roads. These guidelines are published in Chapter 13.2.1 of the AP-42 document. The new formula is

$$E = k\,(sL)^{0.91} \times (W)^{1.02}$$

where: E = particulate emission factor (grams/mile),
k = particle size multiplier for particle size range and units of interest (for $PM_{10}$, k=1.0 and for $PM_{2.5}$ k=0.25),
$sL$ = road surface silt loading (grams per square meter - $g/m^2$), and
W = average weight (tons) of the vehicles traveling the road.

Based on vehicle type counts on roads in the WFRC region, average vehicle weights for local roads, arterials, and freeways are 1.95, 3.05, and 3.25 tons respectively. The silt load (sL) factor varies by highway functional class and by traffic volume. The default silt load factors found in Table 13.2.1-2 of the AP-42 document are summarized below.

| Traffic Volume | Functional Class | Silt Load (grams/meter$^2$) |
|---|---|---|
| 500-5,000 | local roads | 0.200 |
| 5,000-10,000 | arterial roads | 0.060 |
| limited access | freeways | 0.015 |

A precipitation reduction factor is also applied to the above equation using the following expression:

$$(1 - P/4N)$$

Where: $P$ = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period, and
$N$ = number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly).

The AP-42 guidance recommends a value of 90 precipitation days per year for the Wasatch Front region. Using these values, the precipitation reduction factor yields a value of 0.9384. Combined with the basic road dust emission rate, the net $PM_{2.5}$ and $PM_{10}$ road dust factors by highway functional class are as follows:

| Functional Class | $PM_{10}$ Road Dust Rate (grams/mile) | $PM_{2.5}$ Road Dust Rate (grams/mile) |
|---|---|---|
| local roads | 0.429 | 0.107 |
| arterials | 0.226 | 0.057 |
| freeways | 0.068 | 0.017 |

# D. Conformity Determination

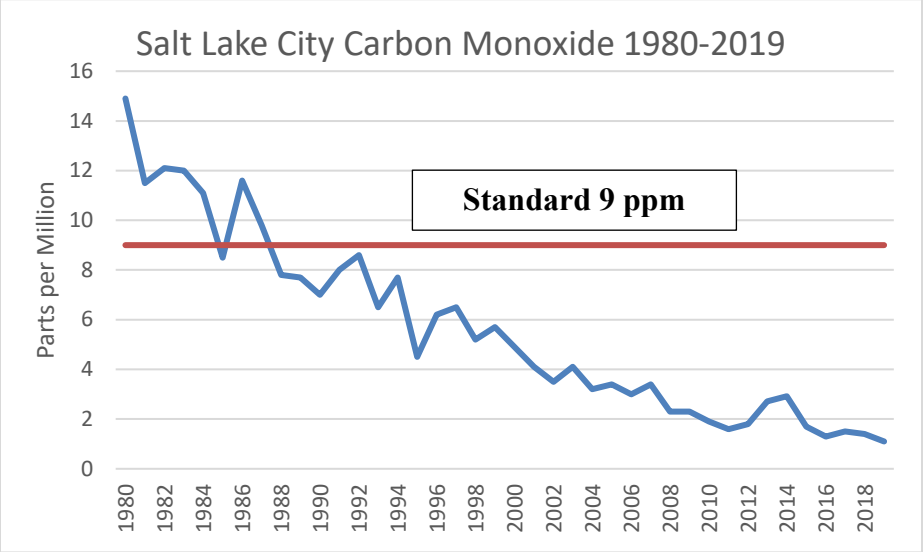
The following conformity findings for Amendment 3 of the 2019-2050 Regional Transportation Plan for the Wasatch Front are based on the transportation systems and planning assumptions described in this report and the EPA approved vehicle emissions model (MOVES3).

**Salt Lake City CO Conformity**
Carbon monoxide levels in Salt Lake City have been at healthy levels for over 20 years which has resulted in the EPA removing the non-attainment designation. Salt Lake City was first designated as a non-attainment area for carbon monoxide in 1978. After 42 years of monitoring CO pollution, implementing vehicle emission testing, and adopting much improved vehicle emission standards, the air in Salt Lake City continues to be clear of unhealthy levels of carbon monoxide pollution.

The chart below shows the dramatic reductions in CO pollution in Salt Lake City since 1980. The EPA health standard for CO is 9 ppm. Salt Lake City has not exceeded that level since 1987.

This dramatic improvement in CO pollution is primarily due to improved vehicle emission standards and cleaner fuels. Before 1966, passenger cars and light duty trucks emitted about 80 grams/mile and 102 grams/mile of CO respectively. Following a series of vehicle emission standard improvements, the emission rate for both types of vehicles since 2006 now stands at 3.4 grams/mile for CO – a reduction of over 96%.

Over the years as older vehicles have been replaced with newer, cleaner vehicles the accumulated CO pollution has gone down steadily to the point that Salt Lake City carbon monoxide has remained in the healthy range for the last 33 years. Ogden City has also experienced decades of safe carbon monoxide levels and is on track to be designated in 2021 as attaining the CO health standard. Emissions of other pollutants such as nitrogen oxides and volatile organic compounds – precursor emissions to particulate pollution and ozone pollution – have likewise been reduced but more work remains for management of these pollutants.




*Source: Second highest 8-hour observation. 1980-1994 EPA AIRS data for Salt Lake City, station unidentified; 1995-1996 Utah DAQ monitoring archive, Cottonwood station; 1997-2019 Utah DAQ monitoring archive, Hawthorne station.*

**Ogden CO Conformity**
The carbon monoxide maintenance plan for Ogden City was approved by EPA effective November 14, 2005 as recorded in the Federal Register (Vol. 70, No. 177, September 14, 2005). The maintenance plan defines a motor vehicle emission budget for the years 2005 and 2021 of 75.36 and 73.02 tons/day respectively. Table 8 below demonstrates that projected mobile source emissions are within the emission budget defined in the maintenance plan for the 2021 budget year. The other years listed in Table 8 are in accordance with requirements of the Conformity Rule (40 CFR Part 93) as noted in the table.

From this demonstration it is concluded that the 2019-2050 RTP conforms to the applicable controls and goals of the State Implementation Plan (Maintenance Plan) for Carbon Monoxide in Ogden City.

**Table 7**

## Ogden City - CO
## Conformity Determination

| | *b* | *c* | *c* | *e* |
|---|---|---|---|---|
| **Year** | **2021** | **2030** | **2040** | **2050** |
| **Budget[#] (tons/day)** | 73.02 | 73.02 | 73.02 | 73.02 |
| *emission rate (grams/mile)* | *5.3896* | *2.4624* | *1.9220* | *1.8337* |
| *seasonal VMT* | *1,831,472* | *1,991,353* | *2,153,355* | *2,278,618* |
| **Projection* (tons/day)** | 10.88 | 5.41 | 4.56 | 4.61 |
| **Conformity** (Projection < Budget) | **Pass** | **Pass** | **Pass** | **Pass** |

*b - budget year, c - 10-year rule, d - no budget 5-year rule, e - last year of Plan,*

*[#] Federal Register Vol. 70 No. 177, September 14, 2005, Table V-2.*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Ogden PM10 Conformity**
Ogden City was designated as a $PM_{10}$ non-attainment area in August of 1995 based on $PM_{10}$ violations in 1993 or earlier. Since a $PM_{10}$ SIP for Ogden has not yet been approved by EPA, it must be demonstrated that Ogden $PM_{10}$ emissions are either less than 1990 emissions or less than "no-build" emissions. The analysis years 2024, 2034, 2040, and 2050 were selected in accordance with the requirements of 40 CFR Section 93.119(e).

$PM_{10}$ emissions are present in two varieties referred to as primary and secondary $PM_{10}$. Primary $PM_{10}$ consists mostly of fugitive road dust but also includes particles from brake wear and tire wear and some "soot" particles emitted directly from the vehicle tailpipe. The methods defined in the January 2011 version of the EPA publication known as "AP-42" were used to estimate dust from paved roads. Secondary $PM_{10}$ consists of gaseous tailpipe emissions that take on a particulate form through subsequent chemical reactions in the atmosphere. Nitrogen oxides are the main component of secondary $PM_{10}$ emissions with sulfur oxides a distant second.

As summarized in Tables 8a and 8b, emission estimates for the 2019-2050 RTP satisfy the "Build < 1990" test for secondary $PM_{10}$ (NOx precursors) and primary $PM_{10}$ (direct tailpipe particulates, brake wear, tire wear, and road dust) in Ogden City. The 1990 emission estimates based on the Mobile6.2 vehicle emissions model for the 2003 conformity analysis have been updated for this conformity analysis using the MOVES model and the January 2011 AP-42 road dust methodology for consistency with current emission modeling requirements. Specifically, the NOx precursor budget (1990 emission estimate) changes from 4.57 tons/day to 6.92 tons/day, and the direct PM10 budget (1990 estimate) changes from 2.28 tons/day to 1.28 tons/day. The 1990 primary $PM_{10}$ estimate for Ogden City includes emissions from the unpaved access road to the Ogden landfill which was closed in 1998.

For projections of primary PM10 emissions, no credit was taken for a number of programs adopted since Ogden City last violated the PM10 standard. These particulate reducing programs include covered load ordinances, increased frequency of street sweeping, and reduced application of deicing and skid resistant materials (salt and sand). Documentation of these programs has been provided by Ogden City but the actual benefits of these programs are not included in the emission projections below. Other areas that have estimated the benefit of these programs have found a silt load reduction of over 30% for effective street sweeping programs and a 5% silt load reduction when limiting the amount of sand and salt applied to the roads. Ogden City has also implemented a number of specific projects that have a positive effect in reducing particulate emissions including park and ride lots, storm water improvements, shoulder widening and edge striping, and addition of curb and gutter on several roadways.

From this demonstration it is concluded that the 2019-2050 RTP conforms under the Emission Reductions Criteria for areas without motor vehicle emissions budgets for $PM_{10}$ in Ogden City.

**Table 8a**
## Ogden City - PM10 (NOx Precursor)
## Conformity Determination

| | *d* | *c* | *c* | *e* |
|---|---|---|---|---|
| **Year** | **2024** | **2030** | **2040** | **2050** |
| **1990 Emissions (tons/day)** | 6.92 | 6.92 | 6.92 | 6.92 |
| *emission rate (grams/mile)* | *0.6673* | *0.4540* | *0.3504* | *0.3342* |
| *seasonal VMT* | *1,887,665* | *1,991,353* | *2,153,355* | *2,278,618* |
| **Projection* (tons/day)** | 1.39 | 1.00 | 0.83 | 0.84 |
| **Conformity** (Projection < 1990 Emissions) | **Pass** | **Pass** | **Pass** | **Pass** |

*c - 10-year rule, d - no budget 5-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Table 8b**
## Ogden City - PM10 (Primary Particulates**)
## Conformity Determination

| | *c* | *c* | *c* | *e* |
|---|---|---|---|---|
| **Year** | **2021** | **2030** | **2040** | **2050** |
| **1990 Emissions (tons/day)** | 1.28 | 1.28 | 1.28 | 1.28 |
| *emission rates (grams/mile)* | | | | |
| *total exhaust particulates* | *0.0282* | *0.0164* | *0.0127* | *0.0125* |
| *brake particulates* | *0.0630* | *0.0517* | *0.0518* | *0.0528* |
| *tire particulates* | *0.0128* | *0.0124* | *0.0123* | *0.0123* |
| *road dust particulates* | *0.2672* | *0.2664* | *0.2640* | *0.2629* |
| *seasonal VMT* | *1,831,472* | *1,991,353* | *2,153,355* | *2,278,618* |
| **Projection* (tons/day)** | 0.75 | 0.76 | 0.81 | 0.86 |
| **Conformity (Projection < 1990 Emissions?)** | **Pass** | **Pass** | **Pass** | **Pass** |

*** Includes total PM10 exhaust particulates, road dust, tire wear, and brake wear.*

*c - 10-year rule, d - no budget 5-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Salt Lake County PM10 Conformity**

The $PM_{10}$ SIP for Salt Lake County does not define a budget beyond the year 2003. Therefore, conformity tests are required only for analysis years which are identified in accordance with 40 CFR 93.118. All analysis years after 2003 must meet the 2003 budgets for primary particulates and secondary particulates (see the discussion above under Ogden $PM_{10}$ Conformity for an explanation of primary and secondary $PM_{10}$ emissions). The State air quality rule R307-310 allows a portion of the surplus primary $PM_{10}$ budget to be applied to the secondary $PM_{10}$ budget for conformity purposes. However, for the analysis years, 2021, 2030, 2040 and 2050, no budget adjustments were necessary.

**Table 9**

**Salt Lake County - PM10 Budgets**

**Direct (Dust) and Precursor (NOx) PM10 Emission Budgets**

(tons/day)

| **Year** | **2021** | **2030** | **2040** | **2050** |
|---|---|---|---|---|
| **Total PM10 Budget** | 72.60 | 72.60 | 72.60 | 72.60 |
| *Direct PM10 Budget to be Traded* | *0.00* | *0.00* | *0.00* | *0.00* |
| **Direct PM10 Budget** | 40.30 | 40.30 | 40.30 | 40.30 |
| **NOx Precursor PM10 Budget** | 32.30 | 32.30 | 32.30 | 32.30 |

Table 10a and Table 10b below demonstrate that projected mobile source emissions are within the emission budget defined in the SIP. The years listed in Table 10a and Table 10b are in accordance with requirements of the Conformity Rule (40 CFR Part 93) as noted in the tables.

From this demonstration it is concluded that the 2019-2050 RTP conforms to the applicable controls and goals of the State Implementation Plan for $PM_{10}$ in Salt Lake County.

**Table 10a**

## Salt Lake County - PM10 (NOx Precursor)
## Conformity Determination

| | *c* | *c* | *c* | *e* |
|---|---|---|---|---|
| **Year** | **2021** | **2030** | **2040** | **2050** |
| **Budget (tons/day)** | 32.30 | 32.30 | 32.30 | 32.30 |
| *emission rate (grams/mile)* | *0.6167* | *0.2852* | *0.2182* | *0.2060* |
| *seasonal VMT* | *31,163,465* | *35,559,230* | *39,567,722* | *42,600,730* |
| **Projection* (tons/day)** | 21.19 | 11.18 | 9.51 | 9.67 |
| **Conformity** (Projection < Budget) | **Pass** | **Pass** | **Pass** | **Pass** |

*c - 10-year rule, e - last year of Plan*

*# WFRC Memo to Jeff Houk of EPA, April 15, 1994.*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Table 10b**

## Salt Lake County - PM10 (Primary Particulates**)
## Conformity Determination

| | *c* | *c* | *c* | *e* |
|---|---|---|---|---|
| **Year** | **2021** | **2030** | **2040** | **2050** |
| **Budget (tons/day)** | 40.30 | 40.30 | 40.30 | 40.30 |
| *emission rates (grams/mile)* | | | | |
| *total exhaust particulates* | *0.0287* | *0.0122* | *0.0102* | *0.0100* |
| *brake particulates* | *0.0462* | *0.0324* | *0.0326* | *0.0330* |
| *tire particulates* | *0.0112* | *0.0102* | *0.0101* | *0.0102* |
| *road dust particulates* | *0.2031* | *0.1930* | *0.1896* | *0.1893* |
| *seasonal VMT* | *31,163,465* | *35,559,230* | *39,567,722* | *42,600,730* |
| **Projection* (tons/day)** | 9.93 | 9.71 | 10.58 | 11.38 |
| **Conformity** (Projection < Budget) | **Pass** | **Pass** | **Pass** | **Pass** |

*** Includes total PM10 exhaust particulates, road dust, tire wear, and brake wear.*

*# WFRC Memo to Jeff Houk of EPA, April 15, 1994.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

### Salt Lake $PM_{2.5}$ Conformity

Davis, Salt Lake, and portions of Weber, Tooele, and Box Elder Counties have been designated as a maintenance area under the new $PM_{2.5}$ standard (35 $\mu g/m^3$) that was established in 2006. As reported in the November 6, 2020 Federal Register, EPA approved the following motor vehicle emission budgets for the Salt Lake $PM_{2.5}$ area effective in 2035 and thereafter: 21.63 tpd of $NO_X$, 20.57 tpd of VOC, and 1.38 tpd of direct $PM_{2.5}$.

For years prior to 2035 no motor vehicle emission budget is specified. It is expected, however, that a qualitative assessment of emission reductions be provided for these intervening years. As part of this qualitative assessment, Tables 11a-11c below include a comparison of projected emissions for select years prior to 2035 and compares those emissions to 2008 levels which was the previous interim conformity test. Since 2008, emissions related to $PM_{2.5}$ pollution have been reduced by half or more. The VMT estimates found in Tables 11a-11c reflect the strong economic growth anticipated in the region and there is no reason to expect a dramatic increase in VMT growth beyond these estimates which could bring into question the emission projections.

Table 11a below demonstrates that projected mobile source emissions of NOx (a precursor to $PM_{2.5}$ emissions) in the five-county $PM_{2.5}$ non-attainment area are less than 2008 NOx emissions prior to 2035, and less than the approved budget after 2035. Table 11b below demonstrates that projected mobile source emissions of VOC (also a precursor to $PM_{2.5}$ emissions) in the five-county $PM_{2.5}$ non-attainment area are less than 2008 VOC emissions prior to 2035, and less than the approved budget after 2035. Table 11c below demonstrates that direct particle emissions of $PM_{2.5}$ in the five-county $PM_{2.5}$ non-attainment area are also less than 2008 direct particle emissions prior to 2035, and less than the approved budget after 2035. Direct particle emissions include exhaust emissions of elemental carbon, organic carbon, and sulfates (SO4); and mechanical emissions from brake wear and tire wear.

From this demonstration it is concluded that the RTP conforms under the interim conformity guidelines for $PM_{2.5}$ areas without an approved motor vehicle emissions budget for the Salt Lake $PM_{2.5}$ non-attainment area.

**Table 11a**

## Salt Lake Area[#] - PM2.5 (NOx Precursor)

**Conformity Determination**

| | *c* | *c* | *c* | *c* | *e* |
|---|---|---|---|---|---|
| **Year** | **2021** | **2024** | **2030** | **2040** | **2050** |
| **2008 Emissions (tons/day)** | 97.98 | 97.98 | 97.98 | -- | -- |
| **Budget[#] (tons/day)** | -- | -- | -- | 21.63 | 21.63 |
| *emission rate (grams/mile)* | *0.6987* | *0.4911* | *0.3266* | *0.2519* | *0.2397* |
| *seasonal VMT* | *49,313,929* | *51,085,779* | *56,815,600* | *63,494,870* | *68,962,394* |
| **Projection* (tons/day)** | 37.98 | 27.65 | 20.45 | 17.63 | 18.22 |
| **Conformity** (Projection < 2008 Emissions, or < Budget ) | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** |

*# Salt Lake PM2.5 Non-Attainment Area includes: Davis, Salt Lake, and portions of Weber, Box Elder and Tooele Counties.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Table 11b**

## Salt Lake Area[#] - PM2.5 (VOC Precursor)

**Conformity Determination**

| | *c* | | *c* | *c* | *e* |
|---|---|---|---|---|---|
| **Year** | **2021** | **2024** | **2030** | **2040** | **2050** |
| **2008 Emissions (tons/day)** | 61.35 | 61.35 | 61.35 | -- | -- |
| **Budget[#] (tons/day)** | -- | -- | -- | 20.57 | 20.57 |
| *emission rate (grams/mile)* | *0.5081* | *0.2489* | *0.1887* | *0.1666* | *0.1632* |
| *seasonal VMT* | *49,313,929* | *51,085,779* | *56,815,600* | *63,494,870* | *68,962,394* |
| **Projection* (tons/day)** | 27.62 | 14.02 | 11.82 | 11.66 | 12.41 |
| **Conformity** (Projection < 2008 Emissions, or < Budget) | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** |

*# Salt Lake PM2.5 Non-Attainment Area includes: Davis, Salt Lake, and portions of Weber, Box Elder and Tooele Counties.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Table 11c**

## Salt Lake Area[#] - PM2.5 (Direct PM Emissions**)

**Conformity Determination**

| | *c* | *c* | *c* | *c* | *e* |
|---|---|---|---|---|---|
| **Year** | **2021** | **2024** | **2030** | **2040** | **2050** |
| **2008 Emissions (tons/day)** | 4.77 | 4.77 | 4.77 | -- | -- |
| **Budget[#] (tons/day)** | -- | -- | -- | 1.38 | 1.38 |
| *emission rate (grams/mile)* | *0.0359* | *0.0219* | *0.0170* | *0.0149* | *0.0146* |
| *seasonal VMT* | *49,313,929* | *51,085,779* | *56,815,600* | *63,494,870* | *68,962,394* |
| **Projection* (tons/day)** | 1.95 | 1.23 | 1.07 | 1.04 | 1.11 |
| **Conformity** (Projection < 2008 Emissions, or < Budget) | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** |

*# Salt Lake PM2.5 Non-Attainment Area includes: Weber, Davis, Salt Lake, and portions of Box Elder and Tooele Counties.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

*** Direct PM for conformity includes total PM2.5 exhaust particulates, brake wear, and tire wear. Road dust is excluded.*

**Northern Wasatch Front Ozone Conformity**

A new ozone standard of 70 ppb was approved October 2015. The Northern Wasatch Front Area was designated as a marginal non-attainment area for ozone by EPA effective December 2018. The Northern Wasatch Front Area includes Salt Lake and Davis Counties, and portions of Weber and Tooele Counties. Pending development and approval of a State Implementation Plan for ozone, interim conformity is based on future ozone precursor emissions being less than the 2017 base year.

Table 12a below demonstrates that projected mobile source emissions of NOx (a precursor to ozone emissions) in the four-county ozone non-attainment area are less than 2017 NOx emissions. Table 12b below demonstrates that projected mobile source emissions of VOC (also a precursor to ozone emissions) in the four-county ozone non-attainment area are less than 2017 VOC emissions.

From this demonstration it is concluded that the RTP conforms under the interim conformity guidelines for ozone areas without an approved motor vehicle emissions budget for the Northern Wasatch Front Area ozone non-attainment area.

**Table 12a**

## Northern Wasatch Front Ozone# - NOx Precursor Conformity Determination

| | | *c* | *c* | *c* | *c* | *e* |
|---|---|---|---|---|---|---|
| **Year** | **2021** | **2024** | **2030** | **2040** | **2050** |
| **2017 Emissions (tons/day)** | 48.64 | 48.64 | 48.64 | 48.64 | 48.64 |
| *emission rate (grams/mile)* | *0.5756* | *0.4173* | *0.2819* | *0.2102* | *0.1991* |
| *seasonal VMT* | *53,710,512* | *55,376,589* | *61,520,432* | *68,441,512* | *73,977,744* |
| **Projection (tons/day)** | 34.08 | 25.47 | 19.12 | 15.86 | 16.23 |
| **Conformity** (Projection < 2017 Emissions) | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** |

*# Northern Wasatch Front Ozone Non-Attainment Area includes: Davis, Salt Lake, and portions of Weber and Tooele Counties.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

**Table 12b**

## Northern Wasatch Front Ozone# - VOC Precursor Conformity Determination

| | *c* | *c* | *c* | *c* | *e* |
|---|---|---|---|---|---|
| **Year** | **2021** | **2024** | **2030** | **2040** | **2050** |
| **2017 Emissions (tons/day)** | 28.69 | 28.69 | 28.69 | 28.69 | 28.69 |
| *emission rate (grams/mile)* | *0.3559* | *0.1939* | *0.1153* | *0.0894* | *0.0856* |
| *seasonal VMT* | *53,710,512* | *55,376,589* | *61,520,432* | *68,441,512* | *73,977,744* |
| **Projection (tons/day)** | 21.07 | 11.83 | 7.82 | 6.75 | 6.98 |
| **Conformity** (Projection < 2017 Emissions) | **Pass** | **Pass** | **Pass** | **Pass** | **Pass** |

*# Northern Wasatch Front Ozone Non-Attainment Area includes: Davis, Salt Lake, and portions of Weber and Tooele Counties.*

*c - 10-year rule, e - last year of Plan*

** Projection = Emission Rate x Seasonal VMT / 453.6 grams per pound / 2,000 pounds per ton.*

# Appendix – 1
## Definition of Regionally Significant Projects

**Process for Determining Regionally Significant Facilities**
**for Purposes of Regional Emissions Analysis (see CFR 93.105.2.c.1.ii)**

Background: 40 CFR 93.101 defines "regionally significant project" and associated facilities for the purpose of transportation conformity. The federal definition does not specifically include minor arterials. The following definitions and processes will be used by the Wasatch Front Regional Council (WFRC) and Mountainland Association of Governments (MAG) in consultation with DAQ, UDOT, UTA, FHWA, FTA, and EPA to determine which facilities shall be considered regionally significant for purposes of regional emissions analysis. It is the practice of the MPO to include minor arterials and collectors in the travel model for the purpose of accurately modeling regional VMT and associated vehicle emissions. The inclusion of minor arterials and collectors in the travel model, however, does not identify these facilities as regionally significant.

1. Any new or existing facility with a functional classification of principal arterial or higher on the latest UDOT Functional Classification Map shall be considered regionally significant (see https://www.arcgis.com/home/webmap/viewer.html?webmap=494d57208ea4464bb664ac2da38f9c91&extent=-116.9385,35.9224,-106.1719,42.8498).

2. Any fixed guide-way transit service including light rail, commuter rail, or portions of bus rapid transit that involve exclusive right-of-way shall be considered regionally significant.

3. As traffic and land use conditions change in the future, the MPO's - in consultation with DAQ, UDOT, FHWA, and EPA - will consider 1) the relative importance of minor arterials serving major activity centers, and 2) the absence of principal arterials in the vicinity to determine if any minor arterials in addition to those listed in Exhibit A should be considered as regionally significant for purposes of regional emissions analysis.

## Exhibit A
## Minor Arterials Determined to be Regionally Significant for Purposes of Regional Emissions Analysis

40 FR 93.105(c)(ii), "Consultation – Interagency consultation procedures: Specific processes" specifies that Interagency Consultation shall include a process to identify which minor arterials should be considered as "regionally significant" for the purpose of regional emissions analysis. Based on inspection and engineering judgment of current traffic conditions; and based on application of the "Process for Determining Regionally Significant Facilities for Purposes of Regional Emissions Analysis" agreed upon by members of the Interagency Consultation Team; the WFRC initially designated several minor arterials as regionally significant.

Since 2015, all but one of the minor arterials referenced above have been reclassified with the functional type of principal arterial and are therefore by definition regionally significant. The remaining minor arterial to be considered as regionally significant for emissions analysis is listed below. It should also be noted that all collectors, minor arterials, and principal arterials are included in the highway network used in the WFRC travel demand model.

**Davis County**
none

**Salt Lake County**
none

**Weber County**
SR-79 (Hinckley Drive): SR-108 to I-15

**Process for Determining Significant Change in Design Concept and Scope for Purposes of Regional Emissions Analysis (see CFR 93.105.2.c.1.ii)**

Changes to regionally significant projects may or may not necessitate a new regional emissions analysis. The following definitions and processes will be used to determine what changes to project concept and scope are to be considered significant or not for purposes of regional emissions analysis.

1. Adding or extending freeway auxiliary lanes or weaving lanes between interchanges is not considered a significant change in concept and scope since these lanes are not normally included in the travel model.

2. Adding or extending freeway auxiliary/weaving lanes from one interchange to a point beyond the next interchange is considered a significant change in concept and scope.

3. A change to a regionally significant project defined in the Regional Transportation Plan that does not change how the project is defined in the travel model is not considered a significant change in concept and scope. These changes include but are not limited to lane or shoulder widening, cross section (other than the number of through lanes), alignment, interchange configuration, intersection traffic control, turn lanes, continuous or center turn lanes, and storage lanes.

4. A change to a regionally significant project defined in the Regional Transportation Plan that does alter the number of through lanes, lane capacity, or speed classification as defined in the travel model is considered a significant change in concept and scope.

5. Advancing or delaying the planned implementation of a regionally significant project that does not result in a change in the transportation network described in the travel model for any horizon year (as defined in CFR 93.101) is not considered a significant change in concept and scope.

6. Advancing or delaying the planned implementation of a regionally significant project that does result in a change in the transportation network described in the travel model for any horizon year (as defined in CFR 93.101) is considered a significant change in concept and scope.

7. Project changes not addressed in the above statements will be decided on a case by case basis through consultation by representatives from DAQ, WFRC, MAG, UDOT, UTA, FHWA, FTA, and EPA.

## Appendix-2
## RTP 2019-2050 – Amendment 3 Projects

| PROJECT NUMBER | PROJECT CORRIDOR | PROJECT EXTENTS | PROJECT TYPE | LEVEL | AGENCY |
|---|---|---|---|---|---|
| N/A | 3 Gate Rail Trail | Roy HAFB Gate to Clearfield West HAFB Gate | New regional active transportation project | Level 1 | MIDA |
| N/A | Sandy Active Transportation Plan | City-wide | New regional active transportation plan | Level 2 | Sandy |
| N/A | West Jordan Active Transportation Plan | City-wide | New regional active transportation plan | Level 2 | West Jordan |
| N/A | Draper Active Transportation Plan | City-wide | New regional active transportation plan | Level 2 | Draper |
| N/A | Murray Fashion Place Mall Center | Fashion Place Employment District | Center modification | Level 2 | Murray |
| R-B-15 | Forest Street RR Crossing | @ 900 West RR Crossing | Move from Phase 3 to Phase 1 | Level 2 | Brigham City |
| R-D-44 | South Bench Drive | I-84 to South Weber Drive | Alignment change | Level 2 | South Weber |
| R-D-47 | South Bench Drive | South Weber Drive to Fairfield Road | Project removal | Level 2 | South Weber |
| R-S-46 | 7800 South | MVC and SR-111 | Move from Phase 3 to Phase 1 | Level 2 | West Jordan |
| T-W-1, T-D-2, T-S-1 | Double Tracking FrontRunner | Spot locations | Move from Phase 2 to Phase 1 | Level 3 | UTA |
| T-S-17/T-S-19 | S-line Streetcar Extenstion | McClelland to Highland Drive | Move a portion from Unfunded to Phase 1 | Level 3 | UTA |
| R-W-77 | I-15 Interchange | @ 5600 South | Update costs | Level 3 | UDOT |
| R-D-53 | I-15 | Farmington to SLCo Line | Move from Phase 3 to Phase 1 | Level 3 | UDOT |
| R-S-137 | I-15 | Davis Co Line to 600 N | Move from Phase 3 to Phase 1 | Level 3 | UDOT |
| R-S-102 | Mountain View Corridor | Old Bingham Hwy to 13400 South | Move from Phase 2 to Phase 1 and update extents | Level 3 | UDOT |
| R-D-51 | I-15 | 2600 South to SLCo Line | Delete | Level 3 | UDOT |
| R-S-133 | I-15 Northbound | 2100 South to Bangerter Hwy | Update extents and costs | Level 3 | UDOT |
| R-S-134 | I-15 Collector and Distributors (North Bound) | I-215 to Bangerter Hwy | Update extents and costs | Level 3 | UDOT |
| R-S-188 | Bangerter Hwy Interchange (Upgrade) | @ SR-201 | Delete | Level 3 | UDOT |

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| R-S-97 | Mountain View Corridor | 13400 South to Utah Co. Line | Update extents and costs | Level 3 | UDOT |
| R-W-82 | US-89 Interchange | @ I-84 | Scope change and costs | Level 3 | UDOT |
| R-W-83 | US-89 Interchange | @ I-84 | Move System-to-System to Phase 2 - costs update, new project number | Level 3 | UDOT |