

THE REGIONAL TRANSPORTATION COMMISSION OF WASHOE COUNTY

CMAQ Project Selection

Guidance on Project Selection for Use of CMAQ Funds in Washoe County

June 2019

This document describes the process and criteria used for prioritizing projects and allocating CMAQ funding within Washoe County.

Introduction

With passage of the Clean Air Act Amendments of 1990, Congress made great strides in America's efforts to attain National Ambient Air Quality Standards (NAAQS). The 1990 amendments required further reduction in the amount of allowable vehicle tailpipe emissions, initiated more stringent control measures in areas that failed to meet the NAAQS (known as nonattainment areas), and provided for a stronger link between transportation and air quality planning. The Congestion Mitigation and Air Quality Improvement (CMAQ) Program was created in 1991 by transportation legislation known as the Intermodal Surface Transportation Efficiency Act (ISTEA). The CMAQ program was implemented to support surface transportation projects and other related efforts that contribute air quality improvements and provide congestion relief. The program has been reauthorized with each successive transportation bill up to and including the current Fixing America's Surface Transportation (FAST) Act.

State departments of transportation (DOTs) are recipients of CMAQ funds, which are sub-allocated to metropolitan planning organizations (MPOs). MPOs are responsible for the distribution of CMAQ funds to approved projects within their respective planning areas. The Regional Transportation Commission of Washoe County (RTC) is the MPO for the Reno-Sparks Urban Area, and is responsible for selecting projects to receive CMAQ funding in Washoe County.

Eligible Activities

Funds may be used for a transportation project or program that is included in the current Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP), and is likely to contribute to the attainment or maintenance of a national ambient air quality standard (NAAQS), with a high level of effectiveness in reducing air pollution.

Relevant Project Types

Acceptable types of projects fall under three general categories:

1. Capital Projects
2. Operating Assistance
3. Planning and Project Development

Funds have to be applied directly to a project or program. Operating assistance can only be used for a *new* project for five years, ideally tapering downward in contribution over the five years. The use of CMAQ funds for operating expenses is designed to ease the implementation of projects that may take some time to mature and support themselves at acceptable levels. This type of assistance is most commonly used with new transit services. CMAQ funds may also be used for the planning/project development of a specific project that meets the criteria for their use. CMAQ funds, however, cannot be used for general planning efforts such as major investment studies, commuter preference surveys, transit master plans, etc. Public private partnerships (PPP) projects are permitted to use CMAQ funds as long as the project demonstrates clear benefits to the public in terms of emission reductions.

In addition, projects must contribute to air quality benefits related to criterion pollutants causing nonattainment or maintenance status for the area. Washoe County currently is designated as a maintenance area for carbon monoxide (CO) and particulate matter less than 10 microns in diameter (PM₁₀). Thus, projects utilizing CMAQ funds should demonstrate a clear relationship between reduction/avoidance of these criterion air pollutants. Figure 1 shows the portion of Washoe County that is currently in maintenance for CO and PM₁₀.

RTC is a regional partner with the Washoe County Health District – Air Quality Management Division (WCHD – AQMD) participating in EPA’s Ozone Advance program, which includes voluntary initiatives to improve ozone levels. The initiatives focus on three categories of strategies — technology, behavior, and the built environment. Resolutions supporting the Ozone Advance program have been adopted by the District Board of Health, Board of County Commissioners, City of Reno, City of Sparks, Regional Planning Governing Board, and RTC. This program supports additional transportation options to reduce motor vehicle trips and VMT (vehicle miles traveled) and a clean and efficient motor vehicle fleet mix in Washoe County.

All CMAQ projects must demonstrate the three primary elements of eligibility: transportation identity, emissions reduction, and location in or benefitting a nonattainment or maintenance area. Some examples of eligible activities under CMAQ include:

1. Transit investments, including transit vehicle acquisitions and construction of new facilities or improvements to facilities that increase transit capacity
2. Alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling facilities
3. Travel demand management strategies and shared ride services
4. Pedestrian and bicycle facilities and promotional activities that encourage bicycle commuting
5. Projects that improve traffic flow, such as intersection improvements/ITS infrastructure

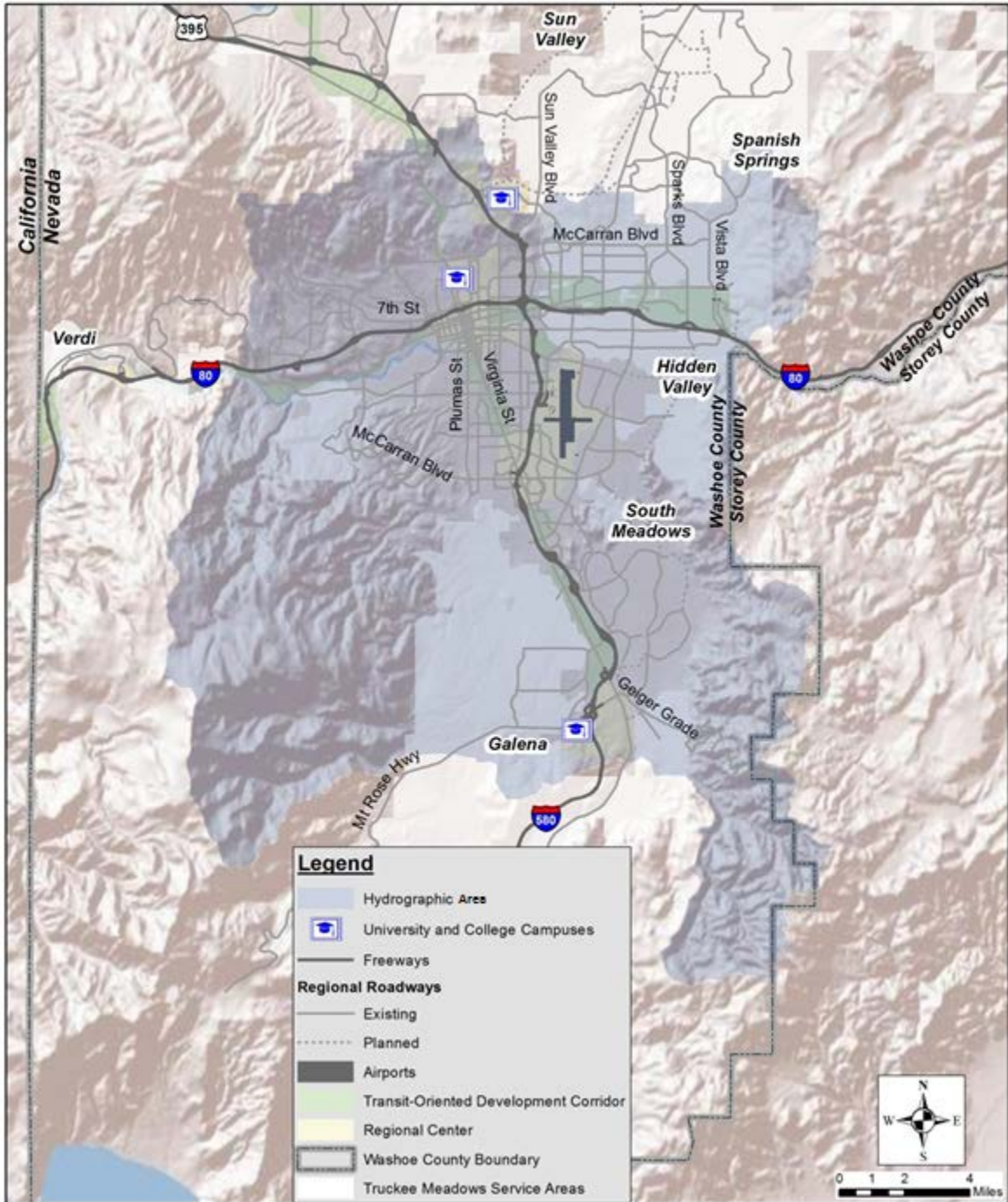
Some examples of these types of projects that have been implemented in Washoe County include the establishment and expansion of a bus rapid transit (BRT) system, the purchase of electric buses and charging infrastructure, and the purchase of compressed natural gas (CNG) paratransit vehicles.

Explicitly ineligible projects include:

1. Light-duty vehicle scrappage programs
2. Bike share program operations
3. Projects that increase single-occupant-vehicle (SOV) capacity
4. Routine maintenance and rehabilitation projects
5. Stand-alone projects to purchase fuel
6. Purchase of transportation models or air quality monitoring equipment
7. Litigation costs of Federal-aid (including CMAQ) projects

For additional information, definitive guidance, and program stipulations, please refer to the following link: [Congestion Mitigation and Air Quality Improvement \(CMAQ\) Program](#)

Figure 1: Washoe County CO and PM₁₀ Maintenance Area



Previous Uses of CMAQ Funds in Washoe County

There are several types of projects that are eligible for the use of CMAQ funding. Funds can be used for programs through either the Federal Highway Administration (FHWA) or Federal Transit Administration (FTA). Flexing funds to the FTA is a common practice nationwide, and an efficient use of the funds in Nevada. When flexed to the FTA, CMAQ funds can free up and leverage other limited FTA funding to provide for larger-scale and more meaningful projects that otherwise might not be feasible. While local sales tax can be used for transit projects, state legislation (Nevada Revised Statutes) prevents the use of local fuel tax revenues from funding transit costs.

CMAQ has funded many critical transportation improvements in Washoe County. Successful local examples include the following projects:

RTC Electric Bus Program

The RTC is a leader in the adoption of electric bus technology. The four electric buses purchased through a TIGGER grant put into service in 2014 have eliminated over 53,000 gallons of diesel fuel use. This improves air quality in the Truckee Meadows providing health benefits to the urban area. RTC purchased 17 all-electric buses in 2017 using CMAQ funds, resulting in about 30% of the fixed route fleet being fully electric. The Villanova Maintenance Facility was expanded and upgraded to better accommodate electric buses. RTC has a goal to transition the entire fixed route fleet to electric vehicles by 2030. CMAQ funds have also been used to construct bus stations to accommodate the electric buses and to purchase CNG vans.

Virginia Street RAPID

This transit project improved frequency of service, reliability, and on-time performance for the most heavily trafficked transit route in Washoe County. With improvements like level boarding stations, low emission hybrid diesel/electric vehicles, and signal priority, passenger travel time and experience has significantly improved. High quality service like this is capable of attracting new riders including those that formerly drove. This results in both air quality and congestion reduction benefits. In addition to these CMAQ qualifying benefits, the project also improves public transportation service, an identified goal of the 2040 Regional Transportation Plan (RTP). The project additionally benefits the community by improving transportation options and mobility options for residents of Washoe County, especially those with limited personal transportation options. CMAQ funds were used to help pay for the first years of operating expense for the Virginia Street RAPID.



Figure 2: RAPID Bus at Station

Pyramid/McCarran Intersection Improvement

The intersection of McCarran Boulevard and Pyramid Highway is a major bottleneck for commuters from outlying communities such as Sun Valley and Spanish Springs and a high crash location. During peak commuting hours the intersection had poor levels of service that resulted in motorists idling at the light for long periods. In addition to negatively impacting air quality, this congestion degrades quality of life and causes driver frustration. The Pyramid/McCarran intersection project provided right hand turning pockets, additional left turn lanes, and provided operational improvements on Pyramid Highway. A paved multi-use path was added as part of the project to improve alternative mode accessibility. CMAQ funds were used to pay for capital improvement costs.

Smart Trips Program

The Smart Trips program is an on-going travel demand management (TDM) program that helps parties interested in ride-sharing find carpooling, cycling, walking, or transit partners to share their commute with. Users input their origin and destination addresses, and the program searches the existing database of users for possible matches. The Smart Trips program also includes vanpooling services that benefit commuters with long distance commutes. TDM strategies such as Smart Trips program are cost-effective ways to reduce congestion and confer air quality benefits. By encouraging roadway users to travel in high occupancy vehicles, existing capacity can be used more efficiently. This reduces the cost of roadway maintenance, need for expansion, and the local/community impacts associated with roadway expansion. CMAQ funds are used to pay for ongoing operating expenses of the Smart Trips program.

4th Street/Prater Way Bus RAPID Transit Project

4th St/Prater Way is an innovative and truly multi-modal transportation project that has received acclaim and multiple types of federal funding including Small Starts, TIGER VI, and CMAQ. The project reconstructed the crumbling roadway and sidewalk on 4th Street/Prater Way from the 4TH STREET STATION in downtown Reno to CENTENNIAL PLAZA in downtown Sparks. The project included utility undergrounding and relocation, new pavement, traffic calming, expanded/improved sidewalks, dedicated bike lanes, and high-quality RAPID bus service. The RAPID service on 4th Street/Prater Way used fully electric, Proterra buses (made in the U.S.A.), with level-boarding stations. This project responds to the existing high-level of alternative mode share on the corridor by renovating the substandard infrastructure to make use of alternative modes safer and more convenient. This roadway is the most significant surface street connection between the city of Sparks and Reno. By improving multi-modal facilities, more travelers will use non-automobile transportation modes on this corridor resulting in air quality improvements. CMAQ funds were used on this project for capital costs.



Figure 3: 4th St/Prater Way Visualization

Project Selection Process

Regional Transportation Plan

The RTC updates the Regional Transportation Plan (RTP) every four years using a performance-based process founded on community input.

The RTP process incorporates several project selection criteria, including safety, land use compatibility, level of multimodal connectivity and operational improvement, travel demand, and community input.

Projects are identified for consideration in the RTP through a variety of ways:

- Previous RTP developed
- Corridor plans and studies such as the North Valleys Multimodal Transportation Study, Reno-Sparks Freeway Study, Short Range Transit Plan, Complete Streets Master Plan, Bicycle-Pedestrian Master Plan, and other corridor plans
- Road Safety Assessments and Safety Management Plans
- Community workshops and other public comments
- Issue-based forums
- Online surveys
- Input from the following throughout development: RTP Agency Working Group, the RTC Citizens Multimodal Advisory Committee (CMAC), RTC Technical Advisory Committee (TAC), and RTC Regional Road Impact Fee Technical Advisory Committee (RRIF TAC).

The manner in which CMAQ funds are programmed addresses all of the Guiding Principles identified in the adopted RTP. Specifically, the electrification of the fixed route transit fleet directly addresses the Guiding Principles in the following way:

- **Safe and Healthy Communities** – A reduction in harmful pollutants improves the air quality for all residents in the Truckee Meadows, and particularly benefits those at higher risk for respiratory conditions.
- **Economic Development and Diversification** – Reliable transit service helps connect residents with employment in the region and can support nearby local business.
- **Sustainability** – Transit, in general, offers a more sustainable transportation alternative to single-occupancy vehicles. In addition, the electric fleet reduces reliance on unsustainable fossil fuels and utilizes a more affordable energy source to transport riders.
- **Increased Travel Choices** – When combined with safe bicycle and pedestrian infrastructure, transit enhances connectivity within the transportation network, especially for those that are transit-dependent for a variety of reasons.

Once the RTP draft has been completed, a 21-day public comment period is initiated per the RTC Public Participation Plan. During the public comment period, the document is brought before the RTC advisory committees (TAC and CMAC) for final review and to receive a recommendation for adoption by the RTC Board. The public comment period culminates in a public hearing for the document, and it is presented to the Board for adoption. After Board adoption a formal transmittal is sent to NDOT, FHWA, FTA, and EPA for a conformity determination.

Congestion Management Process

An overview of the Congestion Management Process (CMP) evaluation criteria is provided below. These factors are integrated into the RTP project selection process.

1. Safety: Safety is a guiding principle and goal of the RTP and projects that address safety issues at high crash locations or deficiencies identified through Road Safety Assessments (RSAs) or Safety Management Plans (SMPs) are identified. All RTC projects are designed to appropriate safety design standards. For programmatic investments that include multiple projects, such as traffic signal upgrades and pavement preservation, some of these projects are located in high crash locations while others are not.

2. Land Use Compatibility: The next level of screening is for land use compatibility. The Regional Plan and land use plans of Reno and Sparks identify Transit Oriented Development Districts (TODs) and Regional Centers as locations where the streetscape should be walkable and focus on pedestrian amenities rather than accommodating high speed auto traffic. Locations with school crossings or other areas of high transit and pedestrian activity are noted as being less suitable for roadway widenings.

3. Multimodal Connectivity (Pedestrian & Bicycle): Improving travel choices through multimodal connectivity is another guiding principle of the RTP, and projects are scored on the level of non-motorized capacity they are expected to provide. The evaluation process identifies which projects include bicycle or pedestrian components.

4. Multimodal Connectivity (Transit): Projects are also scored on the level of transit capacity and amenities they are expected to provide. The evaluation process identifies which projects include transit components.

5. ITS/Operational Improvement: Operational improvements, such as traffic signal or fiberoptic communication systems upgrades, are also important investments to improve traffic flow while minimizing the need for new vehicle capacity. The evaluation process identifies which projects include an ITS or operational improvement component.

6. Community Input: The RTP process provides an opportunity for local residents to identify their top transportation priorities. The RTC utilizes several tools such as surveys and public outreach events to allow participants to select the projects that reflect their top priorities. The responses from public outreach are tabulated and included in the project selection process.

7. Traffic Congestion: Results of the regional travel demand model are used to identify which projects address areas of high traffic congestion. The evaluation process identifies which projects are located in areas with existing or forecast traffic congestion, defined as either Level of Service (LOS) E or F in the travel demand model. Following the project screening, RTC staff develops a draft fiscally constrained project listing for review by the RTC Agency Working Group and the RTC advisory committees. After incorporating feedback from these groups, the draft project listing is presented to the RTC Board for approval.

Air Quality Interagency Consultation Working Group

Air quality and transportation agencies regularly consult with each other because joint planning assists both conformity assessments and air pollution reduction efforts. This planning and consultation process is open stakeholders and members of the public.

Consultation is required when the RTC programs transportation improvements through the development of the RTP and RTIP. The RTC consults with all interested agencies, such as the WCHD – AQMD, Nevada Department of Transportation (NDOT), Nevada Division of Environmental Protection (NDEP), U.S. Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Truckee Meadows Regional Planning Agency (TMRPA) prior to making adopting or amending the RTP or RTIP.

Specific tasks of the of the Air Quality Interagency Consultation Working Group include the evaluation and selection of planning models, methodologies, and assumptions utilized in the analysis of emissions estimates associated with proposed transportation improvements. The Working Group also reviews analysis results to determine that the anticipated emissions resulting from collective transportation improvements do not exceed Motor Vehicle Emissions Budgets (MVEBs) for any of the criteria air pollutants for any given timeframe. This group makes a recommendation regarding conformity of the RTP and RTIP with the NAAQS.

Regional Transportation Improvement Program

Once the draft RTP has been developed, and has been determined to meet air quality conformity by the Interagency Consultation Working Group, the RTIP is updated with the project listing for the first five years of the RTP. It is at this time that the proposed projects are programmed utilizing various funding sources, including CMAQ funds.

As previously stated, the RTIP identifies project and program expenditures and the funds used to implement them. For a project to be considered for the use of CMAQ funds it must meet the following conditions:

1. It must be a CMAQ-eligible project based upon the criteria outlined in the Introduction section of this document
2. It must be identified in the RTP or further the goals and objectives outlined in the plan
3. It must be adopted into the RTIP

Projects should include quantitative estimates of air quality benefits including the gross impact on air quality over the lifetime of the project/program. The method of determining the air quality benefits should be logical and repeatable. Demonstrated methods of calculating air quality impacts for common types of projects are included in Appendix A. The RTC may consult WCHD - AQMD to validate the estimates of air quality impacts of proposed projects.

Based on the input from the public and partner agencies through the process described above, RTC staff makes recommendations on which eligible projects to fund with CMAQ during development of the RTIP. Depending on available funding, project needs, and the prioritization informed by the RTP, the RTC

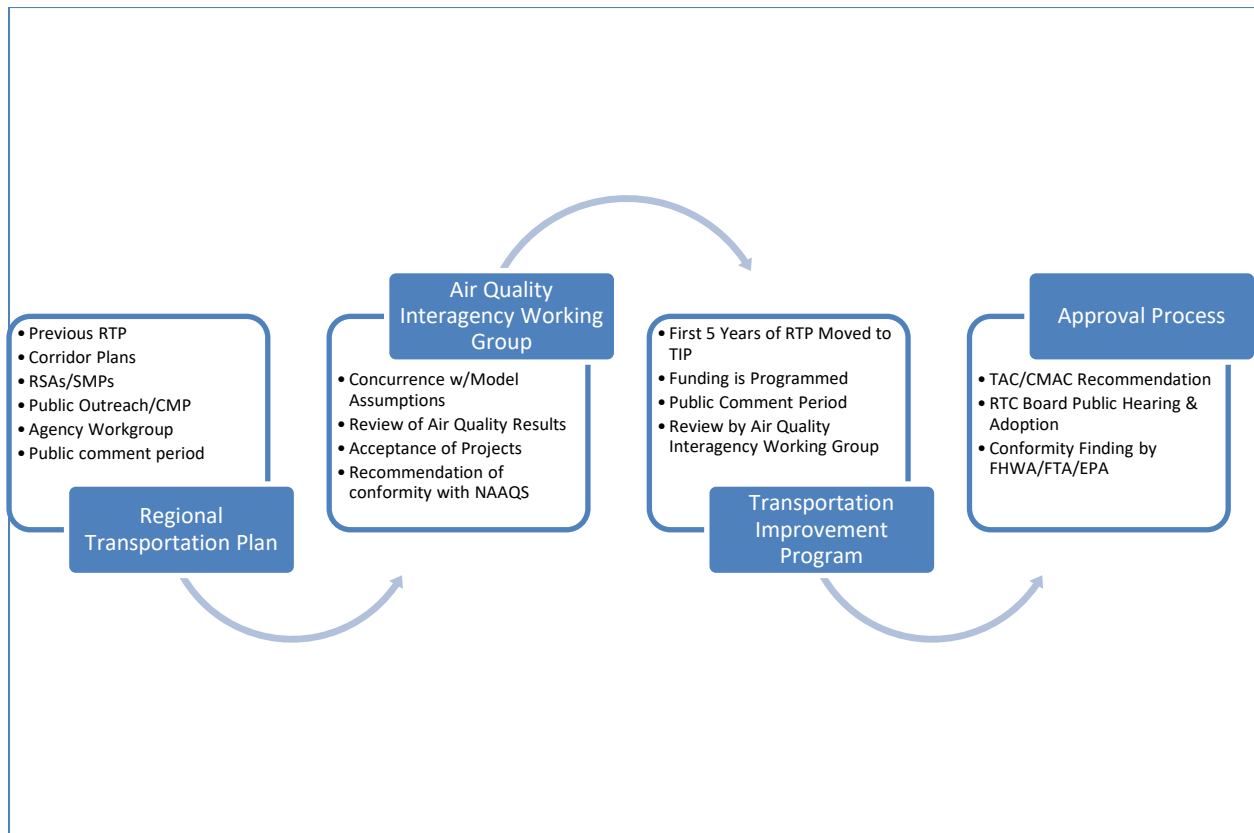
evaluates the best use of CMAQ funds in relation to performance management and support of the Guiding Principles and Goals of the agency.

RTC staff will evaluate candidate projects based on their cost-effectiveness, support of regional transportation objectives/goals, and additional benefits peripheral to air quality and congestion mitigation, and program them through proposed updates to the RTIP.

Once the RTIP has been updated, a 21-day public comment period is initiated per the RTC Public Participation Plan. During the public comment period, the document is brought before the RTC advisory committees (TAC and CMAC) for final review and receives a recommendation for adoption by the RTC Board. The public comment period culminates in a public hearing for the document, and it is presented to the Board for adoption. After Board adoption a formal transmittal is sent to NDOT, FHWA, FTA, and EPA for a conformity determination.

Figure 2 depicts the process outlined above. It should be noted that either an update or an amendment to the RTP will result in a similar action to the RTIP. However, there are circumstances where an update or an amendment could occur to the RTIP without necessitating an amendment to the RTP. In general, this occurs when projects are added to the RTIP that are exempt from an air quality analysis.

Figure 2: RTC Washoe Project Selection Process



During Federal Fiscal Year (FFY) 2018, the RTC experienced a permanent reduction in the amount of its annual CMAQ funding allocation. As a result of a policy decision regarding the distribution of CMAQ funds within the state, RTC received over a 45% cut in funds.

The FAST Act continues the legislation authorized under MAP-21, which created a data-driven, performance-based multimodal program to address the many challenges facing the U.S. transportation system. Performance management will lead to more efficient investment of transportation funds by focusing on national transportation goals, increasing accountability and transparency, and improving decision making. The CMAQ project selection process is a component of the RTC performance management program.

One of the noteworthy performance management targets identified in the RTP that the RTC has committed to is to operate a fully-electric, zero-emission, fixed-route transit fleet by 2030. That target is well on its way to being achieved, due in no small part to the flexing of CMAQ funds for electric bus purchases. As of the date of this document, RTC currently has 21 electric buses in service. In addition, the buses have been placed on routes that experience the highest ridership such as the Bus RAPID Transit (BRT) routes that have the most frequent headways. This maximizes their use and realizes the most emissions benefits.

Appendix A provides information regarding established methods of calculating air quality improvements for common types of CMAQ projects. Local emission factors produced by the WCHD - AQMD are included in Appendix B to ensure local relevance. These emission factors should be used in all calculations.

Project benefits should be stated in terms of kilograms per day of emission reduction for all applicable criteria pollutants.

Appendix A – Air Quality Analysis Methodologies

Reporting Guidelines

- Emission benefits should be reported in terms of kilogram/day of pollutants removed
- AADT may be used if time specific data is unavailable
- Submit working calculations for review
- Use the Washoe County specific emission factors for estimates

Common CMAQ Projects

The FHWA Office of Natural Environment has developed a series of tools to provide technical support and resources for the implementation of the CMAQ Program. CMAQ project justification as well as annual reporting require the development of reliable air quality benefit estimates. Realizing that every project sponsor may not have the capacity for developing independent air quality benefit estimates, the FHWA has begun to develop a series of spreadsheet based tools to facilitate the calculation of representative air quality benefit data. The CMAQ Emissions Calculator Toolkit is offered as an additional resource to assist DOTs, MPOs and project sponsors in the project justification process. The RTC may use a preferred methodology to generate air quality benefit information for various project types. The tool kit is being released in modules by project type and the main website can be found at: https://www.fhwa.dot.gov/environment/air_quality/cmaq/toolkit/.

Appendix B – Washoe County Emissions Factors

Air Quality Analysis Support Documentation

Table B-1
Emission Factor (lbs./VMT) for Paved Road Fugitives PM₁₀

Facility Type	2015	2020	2025	2030	2035	2040
Local	0.00081	0.00080	0.00080	0.00080	0.00080	0.00080
Collector	0.00081	0.00080	0.00080	0.00080	0.00080	0.00080
Minor	0.00033	0.00033	0.00033	0.00033	0.00033	0.00033
Major	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
Freeway	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
Ramps	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012

NOTES:

- Emission factors for Paved Roads PM₁₀ are calculated from an equation in EPA’s AP42, Section 13.2.1, 1/11. The 2015 emission factors are calculated based on actual 2015 climatic data for Reno, whereas the 2020 to 2040 emission factors are calculated based on the 30-year Normal Climate data for Reno from 1981 to 2010.
- Emission factors for On-Road CO and PM₁₀ are not available, they are calculated in MOVES 2014a and the output is generated as total emissions.

Table B-2
VMT by Facility Type by Analysis Year (Hydrographic Area #87)

Facility Type	2015	2020	2025	2030	2035	2040
Local	638,992	682,012	716,763	757,082	786,302	815,778
Collector	210,322	223,128	232,348	236,342	243,186	248,072
Minor	698,575	747,067	788,370	833,160	859,981	891,318
Major	1,317,781	1,484,768	1,563,816	1,582,074	1,652,137	1,716,468
Freeway	2,308,412	2,395,702	2,517,715	2,737,759	2,847,243	2,964,986
Ramps	449,826	469,855	489,370	516,828	531,565	543,216
Total	5,623,909	6,002,532	6,308,382	6,663,244	6,920,414	7,179,839

**Table B-3
Emissions (lbs./day)**

Analysis Year	CO	On-Road Vehicles PM₁₀	Diesel Idling PM₁₀	Paved Road Fugitive PM₁₀	Unpaved Road Fugitives PM₁₀	Road Construction PM₁₀	Total PM₁₀ Emissions
2015	73,274	1,111	26	1,320	1,423	191	4,071
2020	54,331	945	19	1,493	1,733	206	4,395
2025	42,308	839	14	1,608	2,019	215	4,695
2030	33,721	789	11	1,622	2,310	223	4,955
2035	29,587	791	10	1,712	2,597	229	5,339
2040	28,354	819	10	1,731	2,886	235	5,681