



**Regional Transportation Commission
of Washoe County**

**FY 2011-2015
Regional Transportation
Improvement Program**

May 20, 2011

RESOLUTION

RESOLUTION AUTHORIZING THE ADOPTION OF THE FY 2011-2015 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM FOR THE RENO-SPARKS URBANIZED AREA.

WHEREAS, Title 23 Code of Federal Regulations, Part 450, and Title 49 Code of Federal Regulations, Part 613, require the preparation and updating of a Regional Transportation Improvement Program by the Metropolitan Planning Organization; and

WHEREAS, the Regional Transportation Improvement Program is developed and updated at least every four years under the direction of the Metropolitan Planning Organization; and

WHEREAS, the Regional Transportation Commission of Washoe County has been designated as the Metropolitan Planning Organization for the Reno-Sparks Urbanized Area of Washoe County; and

WHEREAS, the Regional Transportation Commission, through the conduct of a continuing, comprehensive and coordinated transportation planning process and in conformance with all applicable federal requirements, has previously adopted a Regional Transportation Plan; and

WHEREAS, the Regional Transportation Commission, through the conduct of a continuing, comprehensive, and coordinated transportation planning process and in conformance with all applicable federal requirements has prepared an FY 2011-2015 RTIP for the Reno-Sparks Urbanized Area of Washoe County;

NOW, THEREFORE, BE IT RESOLVED BY THE REGIONAL TRANSPORTATION COMMISSION OF WASHOE COUNTY:

1. That the Regional Transportation Commission does hereby adopt the FY 2011-2015 Regional Transportation Improvement Program.
2. That the Regional Transportation Commission finds the FY 2011-2015 Regional Transportation Improvement Program in conformance with the Regional Transportation Plan.

3. That the Regional Transportation Commission finds the FY 2011-2015 Regional Transportation Improvement Program in conformance with applicable air quality implementation plans pursuant to 40 CFR 93.
4. That the Regional Transportation Commission certified that the urban transportation planning process is being carried on in conformance with all applicable federal requirements.
5. That the local transportation planning process has provided for the participation of private enterprise and the private operation of mass transportation services, consistent with the Public Participation Plan adopted by the Regional Transportation Commission Board on September 19, 2008 and amended on August 21, 2009..
6. That the Regional Transportation Commission finds that current fiscal resources are adequate to develop, operate and maintain the transportation system, and finds that the Regional Transportation Improvement Program is limited to projects for which funds are available or committed.

CERTIFICATE

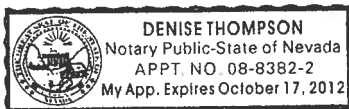
The undersigned, duly qualified Chairperson of the Regional Transportation Commission, certifies that the foregoing is a true and correct copy of a resolution adopted at a legally convened meeting held on May 20, 2011.



 Ron Smith, Chair
 Regional Transportation Commission

STATE OF NEVADA)
 §
 COUNTY OF WASHOE)

This instrument was acknowledged before me on May 20, 2011, by Ron Smith, Chair of the Regional Transportation Commission.




 Notary Public

ACKNOWLEDGMENTS

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Dan Gustin, Commissioner
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CHAPTER 1: INTRODUCTION

Overview of the Regional Transportation Improvement Program Process

The Fiscal Year (FY) 2011-2015 Regional Transportation Improvement Program (RTIP) is a five-year plan of major street and highway, transit, bicycle and pedestrian projects for Washoe County. The RTIP includes a summary of projects by fiscal year and shows the agency responsible for implementing the project, funding source and other related information. The RTIP represents a prioritized program directed at meeting Washoe County's growing transportation needs while improving the region's air quality, transportation efficiency, safety and mobility. The RTIP is required by federal regulation and serves as a useful tool in planning and programming transportation system improvements.

The initial federal legislation that established overall federal transportation program direction and authorized funding levels to the Regional Transportation Commission (RTC) as the Metropolitan Planning Organization (MPO) for Washoe County was included in the 1990 Clean Air Act Amendment (CAAA) and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). ISTEA was reauthorized in June 1998 as the Transportation Equity Act for the 21st Century (TEA-21) and TEA-21 was reauthorized in August 2005 as the Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU).

Conformity with the Clean Air Act Amendment of 1990

The commitment of Congress to promote and continue major reforms in the transportation planning process is shown with CAAA and TEA-21. The conformity provisions of the CAAA established important new requirements that transportation plans, programs and projects conform to the "purpose" of the State Implementation Plan (SIP). The SIP is a formal submission of the region's air quality strategy to the federal government.

Because emissions from motor vehicles make a significant contribution to air pollution, the CAAA requires that transportation officials make a commitment to programs and projects that will help achieve air quality goals. Among these goals are providing for greater integration of the transportation and air quality process; ensuring that transportation plans, programs and projects conform with the Statewide Implementation Plan (SIP) and contribute to attainment of national standards; and reducing growth in vehicle miles traveled (VMT) and congestion in areas that have not attained the U.S. Environmental Protection Agency (EPA) air quality standards. The federal standards require that certain pollutants do not exceed specified levels more than one day a year. Areas that violate this standard for specified pollutants are designated as non-attainment areas.

The core area of the Truckee Meadows is designated as Hydrographic Area #87 (HA #87) and is fully incorporated within the metropolitan planning area boundary. The hydrographic area is designated as in "maintenance" for carbon monoxide (CO) and "serious" non-attainment for particulate matter of less than 10 microns (PM₁₀). A regional emissions analysis must be performed for each pollutant the area is determined to be in maintenance or non-attainment. The results from this analysis are shown in Chapter 9.

Another requirement of the 1990 CAAA is the expeditious implementation of transportation control measures (TCM) in the air quality implementation plan. The status of these control measures is documented in this RTIP. The following TCMs are included in this RTIP:

<u>FY 2011-2015 TCM Projects</u>	<u>RTIP Funding Year</u>
1. Public Transportation RTC RIDE Operations	2011-2015
Federal Transit Administration (FTA) Section 5307 and Local RTC ACCESS (paratransit)	2011-2015
Federal Transit Administration (FTA) Sections 5307 and 5309 and RTC Sales Tax	2011-2015
2. Bicycle/Pedestrian Facilities	2011-2015
3. Traffic Flow Improvements	2011-2015
4. Intersection Geometric Improvements	2011-2015
5. Annual Traffic Signal Operations Review	2011-2015
6. Trip Reduction Program	2011-2015

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)

The approval of ISTEA in late 1991 resulted in a major change in the decision-making process to allocate federal funds for transportation improvements. ISTEA completely revised both the structure and flexibility of federal funding categories while explicitly requiring cooperation and consultation between states and MPOs in the planning of transportation projects. The flexibility was illustrated by the Surface Transportation Program (STP) funding category. In response to these requirements, the state created the Statewide Transportation Technical Advisory Committee (STTAC) to ensure coordination with the MPOs and other state and federal agencies.

ISTEA also emphasized the performance of the transportation system with a priority on reducing congestion and providing improved access in a cost efficient manner that is sensitive to environmental goals. ISTEA recognized the importance of the 1990 CAAA explicitly with the creation of the Congestion Mitigation Air Quality (CMAQ) funding category and the requirement that a Congestion Management System (CMS) (renamed Congestion Management Process – CMP – in 2005 under SAFETEA-LU) be developed for all urbanized areas with a population of 200,000 or more people. The structure of federal public transportation funding was not changed substantially, although the funding was increased and the Urban Mass Transportation Administration (UMTA) was renamed the Federal Transit Administration (FTA).

Transportation Equity Act for the 21st Century (TEA-21)

In June 1998, Congress passed the reauthorization of ISTEA, known as TEA-21. TEA-21 continued the mission of ISTEA to develop a balanced and sustainable transportation policy. Over the life of TEA-21 (six years), approximately \$215 billion in spending authority nationwide for highways and transit was provided.

TEA-21 maintained the major programs established under ISTEA including the CMAQ, STP, National Highway System (NHS) and Enhancement Programs. A new funding category established as part of TEA-21 was the Minimum Guarantee, which provided additional funding in Washoe County.

Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU)

In August 2005, SAFETEA-LU was signed into law, which was the reauthorization of TEA-21. SAFETEA-LU continued the mission of the previous transportation bills to develop a balanced and sustainable transportation policy. Over the life of SAFETEA-LU (five years), approximately \$286.4 billion in spending authority nationwide for highways and transit will be provided. Of this amount, approximately \$233.8 billion is directed toward highways and \$52.6 billion toward transit. The \$286.4 billion in SAFETEA-LU transportation funds was an increase of nearly \$70 billion from TEA-21.

As was the case with TEA-21, SAFETEA-LU maintains the major programs established under ISTEA including the CMAQ, STP, National Highway System (NHS) and Enhancement Program. Key modifications to the metropolitan planning process as result of SAFETEA-LU include requiring the RTIP to be a four-year document (previously only three years), encouraging additional efforts in consulting and coordinating with other planning officials responsible for other types of planning activities.

Reauthorization of SAFETEA-LU has not occurred. Until a new transportation bill is enacted, SAFETEA-LU funding levels and programs are assumed.

FY 2011-2015 Regional Transportation Improvement Program Summary

The following table is a summary of the highway, transit capital and operating, bikeway and other projects in the FY 2011-2015 RTIP. The five-year program has a total cost of approximately \$683 million.

Table 1-1
FY 2011-2015 RTIP Summary

<u>Transportation Mode</u>	<u>Total Cost</u>	<u>Percent of Total Program</u>
Interstate/Freeway Projects	\$ 146.9 million	22%
Local Projects—Capacity	\$ 90.9 million	13%
Local Projects—Major Maintenance	\$ 107.9 million	16%
Transit—Operating	\$ 176.5 million	26%
Transit—Capital	\$ 50.3 million	7%
Transportation Management	\$ 95.6 million	14%
Other	\$ 14.6 million	2%
TOTAL	\$ 682.7 million	100%

The complete FY 2011-2015 RTIP project listing is contained in Chapter 7. The list is divided by funding category and shows the project description, the project limits where applicable, the project phase (engineering/design, right-of-way, construction, operations or equipment purchases), the year programmed, the project costs and the federal, state or local contributions to the project cost. The individual projects were developed by the RTC, the Nevada Department of Transportation (NDOT), Washoe County and the cities of Reno and Sparks. The RTC transportation committees (Technical Advisory Committee and Citizens Advisory Committee) provided input on the FY 2011-2015 RTIP.

The project listing includes \$248 million in bond repayments for three projects statewide including the US 395 extension, US 95 in Las Vegas and the Carson City Freeway. This amount has not been included in the summary for this RTIP as the allocation of the bond repayments to each project has not been determined.

Major State Highway Projects

The major state highway projects in the FY 2011-2015 RTIP total approximately \$147 million. The major state highway projects consist of the Design Build Project on I-80 (Robb Drive to Vista Boulevard), interchange improvements at I-580 and Moana Lane. Also included are three developer funded projects including interchanges on I-80 at Patrick, Tracy/Clark and Garson Road. The funds for major state highway projects come primarily from federal, state and local money.

Major Local Projects

Local projects include those funded with federal SAFETEA-LU money, RTC Fuel Tax, Regional Road Impact Fee (RRIF) funds and local jurisdiction funds. Approximately \$90.9 million is for local major capacity projects (including studies, environmental review and preliminary design) and \$107.9 million for major maintenance or reconstruction projects. Major capacity projects include the widening of McCarran Boulevard from Longley Lane to Greg Street as well as the pavement reconstruction on McCarran Boulevard from Virginia Street to Longley Lane (together \$47 million) and intersection improvements to Pyramid/McCarran (\$71 million).

Transit Programs

The FY 2011-2015 RTIP programs approximately \$227 million on public transportation projects during the five-year period. This includes projects on the RTC RIDE fixed-route transit system and the RTC ACCESS paratransit services system. Capital expenditures total \$176.5 million while operating costs are \$50.3 million. Under SAFETEA-LU, all operating costs are locally-funded except operating expenses related to nonfixed-route paratransit Americans with Disabilities Act (ADA) and RTC RIDE preventive maintenance, which may include federal funds. Most capital outlays are federal funds from FTA Section 5307, Section 5309 and the Congestion Mitigation Air Quality (CMAQ) program. Section 5309 is discretionary and its availability is not guaranteed. The primary capital expenditures call for the replacement of 18 RTC RIDE coaches and 40 RTC ACCESS vans. RTC is planning the next phase of RAPID implementation. The next RAPID service extension may include a connection to the University of Nevada, Reno on Virginia Street and/or service to Centennial Plaza on 4th Street/Prater Way. Studies of these corridors are ongoing and it is expected that the RAPID extension would begin in 2014 at an estimated cost of \$1.5 million annually beginning in FY 2014.

Transportation Systems Management (TSM), Transportation Demand Management (TDM) and Other Projects

Transportation system operations improvements maximize the capacity of existing roadways in a highly cost effective way. RTC conducts a traffic operations program cooperatively with Washoe County, the City of Reno and the City of Sparks. Over the next five years, approximately \$95.6 million is to be used for the traffic management program, geometric improvements, intersection capacity improvements, bicycle and pedestrian improvements and trip reduction programs.

Other Regional TIP Conformities and Certifications

Conformity with the Regional Transportation Plan (RTP)

The projects in the RTIP must also conform to the Regional Transportation Plan (RTP). The projects and policies included in the RTP are used in developing the RTIP. The

RTIP is the principal mechanism for implementing the long-range transportation plans contained in the RTP.

Financial Capacity

With FTA programs, the RTC is required to evaluate the financial capacity of the agency to conduct and carry forward the financial requirements related to the public transportation operation. The financial capacity analysis is prepared annually by the RTC Finance Department with the budget process. The RTC has the financial capacity to continue the public transportation program through the five-year operating and capital financial model.

Public Involvement Plan

SAFETEA-LU continues the requirement that each MPO formally adopt a proactive public involvement process. The intent of the process is an early and continuing involvement of the public in developing transportation plans and programs. Regulations require MPO public participation plans to address the following:

- » Provide for a minimum public comment period of 45 days before the public involvement process is initially adopted or revised
- » Provide timely information about transportation issues and processes to citizens, affected public agencies, representatives of transportation agencies, private providers of transportation and other interested parties and segments of the community affected by transportation plans and projects
- » Provide reasonable public access to technical and policy information used in the development of plans and the Transportation Improvement Program (TIP) and open public meetings where matters related to the federal-aid highway and transit programs are being considered

RTC's Public Participation Plan is a SAFETEA-LU compliant, comprehensive plan that outlines the public involvement and education process.

Conformity Determination

The air quality and regulatory conformity determination associated with the RTIP is included as part of this document. A finding of conformity by the Regional Transportation Commission (RTC) is required before approval of federal program funding for individual projects included in the RTIP. The RTIP will be reviewed and updated annually, allowing consideration and revision of project priorities. The resolution adopting this RTIP incorporates the required findings of conformance. Chapter 9 provides specific detail on the air quality and regulatory conformity analysis and determination. RTC works closely with the Washoe County Air Quality Management Division and other partner agencies involved in air quality analysis through quarterly interagency consultation meetings.

CHAPTER 2: RTIP PLANNING PROCESS

The FY 2011-2015 Regional Transportation Improvement Program (RTIP) is a five-year plan of major street and highway, transit, bicycle and pedestrian projects for Washoe County. The RTIP includes a summary of projects by fiscal year and shows the agency responsible for implementing the project, funding source and other related information. The RTIP represents a prioritized program directed at meeting Washoe County's growing transportation needs while improving the region's air quality, transportation efficiency, safety and mobility. The RTIP is required by federal regulation and serves as a useful tool in planning and programming transportation system improvements.

The RTIP is developed with the assistance and cooperation of state and local governments, including public works and planning officials, who develop project proposals and review the project listing developed by RTC staff.

Regional Planning Process

The State Legislature created the Regional Transportation Commission (RTC) in 1979, combining the previous statutory authority of the Regional Street and Highway Commission, the Regional Transit Commission and the Washoe County Area Transportation Study Policy Committee. The responsibilities of the RTC include design and construction of major streets and highways and administration of public transportation systems serving Washoe County.

The Governor of Nevada designated the Regional Transportation Commission (RTC) of Washoe County as the Metropolitan Planning Organization (MPO) for the Reno-Sparks urbanized area pursuant to federal law (23 USC 134). In this capacity, RTC is responsible under the Code of Federal Regulations (23 CFR Part 450) for carrying out a "continuing, cooperative, comprehensive" transportation planning process that results in plans and programs consistent with the planned development of the urbanized area. The RTC prepares short- and long-range transportation plans for the region, programs highway and public transportation improvements through the RTIP process and develops and carries out the Unified Planning Work Program (UPWP).

The Truckee Meadows Regional Plan (TMRP) guides regional planning in the Truckee Meadows. The Truckee Meadows Regional Planning Agency (TMRPA), created by state legislation in 1989, develops the TMRP. The TMRP addresses transportation issues, provides policies to guide regional transportation planning and requires the RTC to develop a Regional Transportation Plan (RTP). The major elements of the TMRP and RTP are shown in **Figure 2-1**. RTC develops the RTP, RTIP and other planning documents in cooperation with several federal, state and local transportation and environmental agencies described on the following pages.

**Figure 2-1
Regional Planning Process**



Truckee Meadows Regional Planning Agency (TMRPA). The Regional Planning Governing Board, composed of elected officials from Reno, Sparks and Washoe County and the Regional Planning Commission, composed of members of the Reno, Sparks and Washoe County planning commissions, provides policy direction to the TMRPA. The TMRPA is charged with the development of a comprehensive plan for the region including land-use and transportation components. Local master plans, facilities plans and other similar plans are required to be brought into conformance with this plan.

Nevada Department of Transportation (NDOT). NDOT is responsible for planning, programming, construction and maintenance activities involving federal aid and state gas tax funding. Planning and programming of these projects are coordinated with RTC through the RTIP and RTP processes. NDOT also provides funds to RTC for transportation planning and transit operations and provides technical data and analysis to support the regional transportation planning process.

Washoe County District Health Department (WCDHD). The WCDHD has statutory responsibility for developing and implementing air quality plans and programs in Washoe County.

Reno-Tahoe Airport Authority (RTAA). The Reno-Tahoe Airport Authority, created in 1977 by the State Legislature, has responsibility for county-wide airport operations and planning.

RTC Planning Process

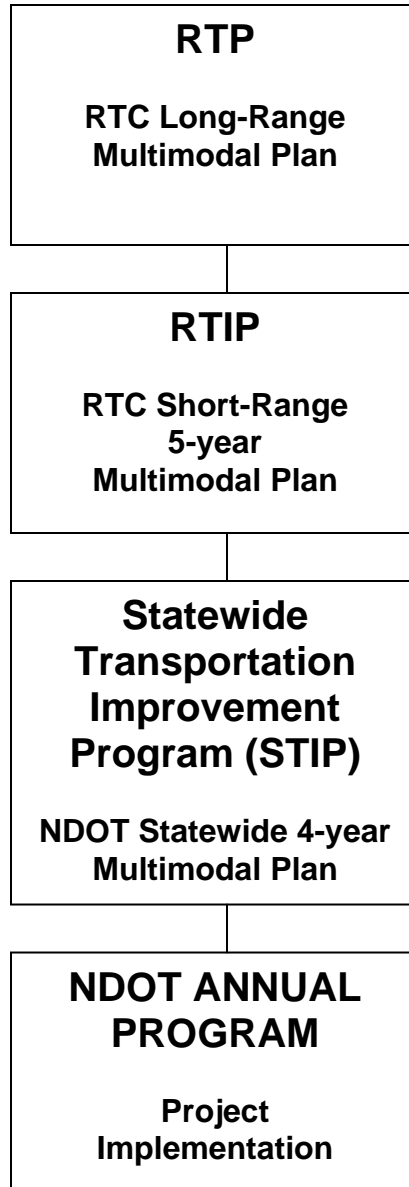
The RTC planning process is intended to provide decision makers with implementable plans and projects that effectively meet community needs. The measure of any planning program is the extent to which planned projects are implemented and the extent to which they achieve the desired objectives. By this measure, transportation planning in Washoe County has been generally successful. This is due, in large part, to the unique structure of RTC as both a planning and an implementing agency. The fact that regional plans are often translated into immediate actions implemented by RTC imposes a realism and discipline on the planning process that is present in few other urban areas.

The following goal guides the planning process:

"To provide safe and efficient transportation facilities and services at a reasonable cost for the movement of goods and people through a coordinated regional transportation system composed of highways, airports, public transit and other modes."

The implementation of RTC transportation planning goals and objectives contained in the RTP mainly occurs through the RTIP, as shown in **Figure 2-2**. The development and content of the RTP and RTIP are described following.

**Figure 2-2
Regional Transportation Commission
Planning Process**



Regional Transportation Plan (RTP)

The central component or foundation of the RTC planning process is the Regional Transportation Plan (RTP). The RTP includes transportation policies encompassing travel by autos, bicycles, transit, pedestrian and transportation management. The RTP identifies the facilities, services and programs necessary to meet the increasing travel demands through the year 2030.

Regional Transportation Improvement Program (RTIP)

The RTIP is a five-year, multimodal transportation plan for Washoe County. It includes transit, paratransit, major street and highway capital projects and transportation system and demand management programs. The RTIP is the RTC's principal means of implementing long-term transportation planning objectives through annual programming of specific projects. The local governments determine local government-funded street and highway projects that are included in the RTIP when the funding is considered secure and the project is of regional significance. Public transportation projects are incorporated into the RTIP.

Transportation Control and System Management

The continuance of the Congestion Mitigation Air Quality funding category under SAFETEA-LU provides additional opportunities for funding transportation control and system management projects and programs in Washoe County. The trip reduction programs and transportation system management projects have been discussed as strategies to alleviate congestion and reduce pollution emissions. This RTIP identifies several of these programs for funding during FY 2011-2015.

RTC Advisory Committees

RTC has established three standing advisory committees that participate actively in the transportation planning process. The Citizens Advisory Committee (CAC) is a self-governing committee that meets once a month and has responsibility for reviewing goals and objectives, evaluating plan conclusions and recommendations and interjecting general public attitudes and concerns into the planning process. The CAC consists of citizens from various jurisdictions of Washoe County appointed by the RTC Board to provide public input to RTC staff in the conduct of transportation planning activities. CAC membership is geographically diverse, thus providing another forum for discussion of regional transportation issues.

The Technical Advisory Committee (TAC) is composed of planning and public works personnel from each of the local governmental entities including the cities of Reno and Sparks and Washoe County. In addition, representatives from the Nevada Department of Transportation (NDOT), Federal Highway Administration (FHWA), Truckee Meadows Regional Planning Agency (TMRPA), the Reno-Tahoe Airport Authority (RTAA) and the Washoe County District Health Department, Air Quality Management Division (WCDHD—AQMD) provide input on transportation and air quality planning issues. It is

the responsibility of this committee to review and comment on plans developed by RTC from a technical standpoint. It also advises and assists the RTC planning staff with methods and procedures and recommends technical standards.

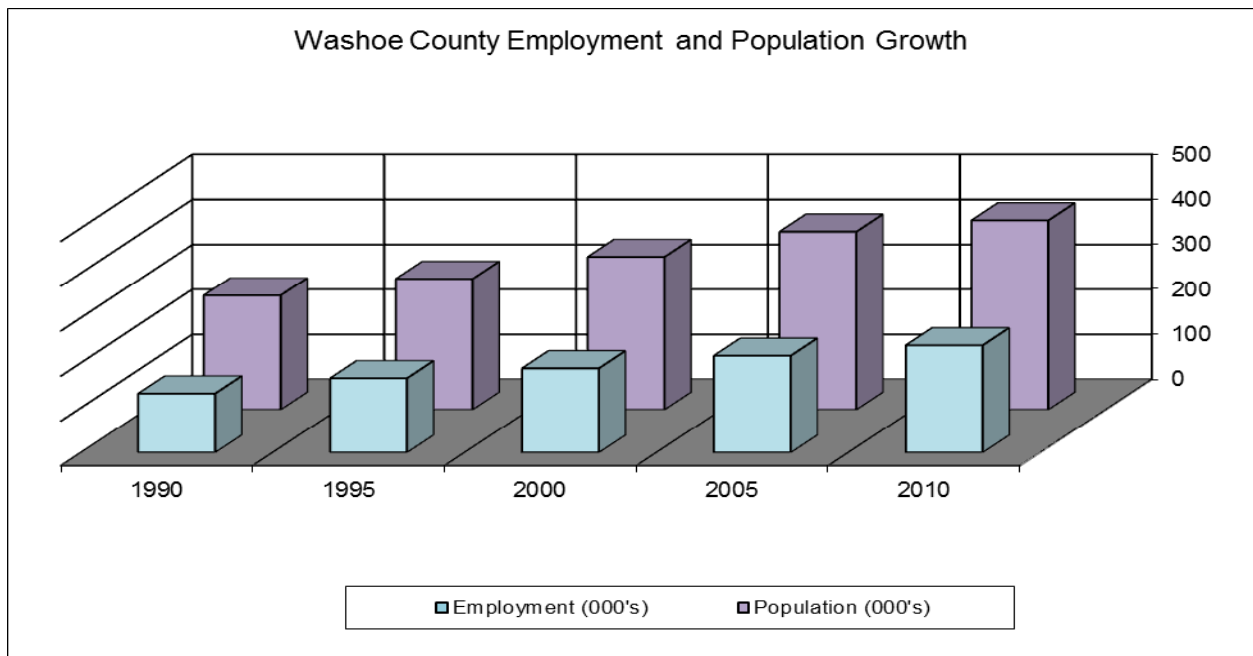
The Bicycle/Pedestrian Advisory Committee (BPAC) meets once a month and was created to encourage public participation on regional bicycle and pedestrian transportation issues. This committee is responsible for reviewing and commenting on bicycle/pedestrian issues. The BPAC membership is also geographically diverse and provides a forum for discussion of regional transportation issues with a focus on bicycle/pedestrian issues.

CHAPTER 3: CURRENT AND FUTURE TRENDS

Socioeconomic Trends

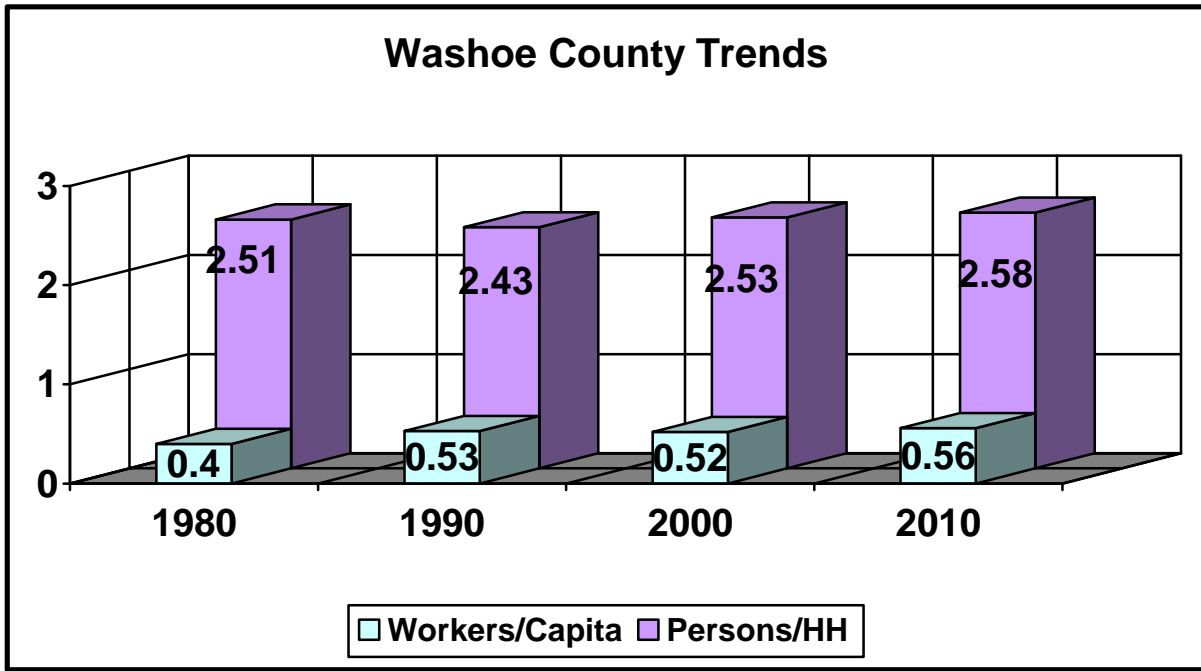
Washoe County has seen consistent growth over the last decade in both population and employment. Between 1990 and 2010, the U. S. census showed the county population increased from 254,000 to 421,407. During this same time, employment increased from 132,000 to 239,455 (2010 employment source Washoe County Consensus Forecast Final 2010-2030). While population growth was rapid, other socioeconomic trends were also affecting the amount of travel in Washoe County.

Figure 3-1



Most resident travel originates from the residence; thus, the rate of household formation also affects the amount of travel by residents. While persons per household remained somewhat constant between 1980 and 2010, there was an increase in the number of two-worker households. The number of workers per capita in Washoe County increased from 0.4 to 0.56 between 1980 and 2010. **Figure 3-2** shows these trends during 1980-2010.

Figure 3-2



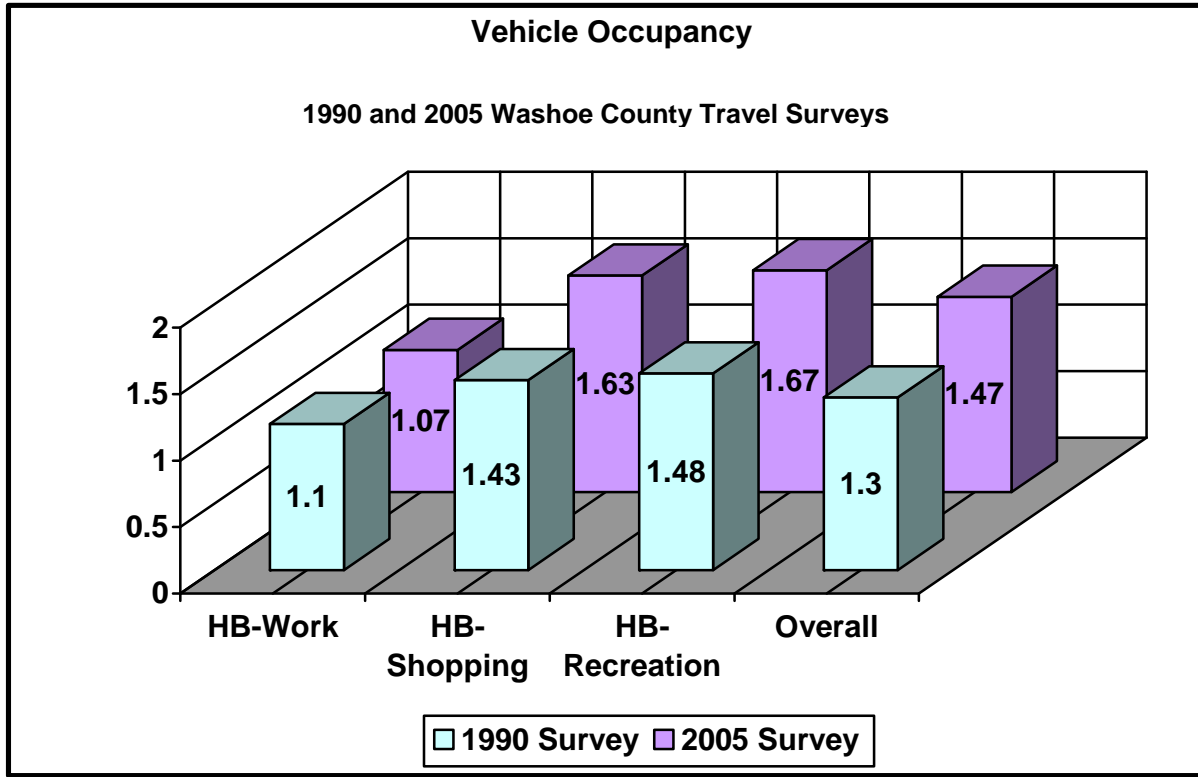
Source: 1980-2010 Census Data and Washoe County Consensus Forecast Final 2010-2030.

Travel Trends

Most all travel in Washoe County takes place in private vehicles. Even with the expansion and success of the RTC RIDE public transit system, private vehicles account for more than 95% of all person trips made according to a 1990 survey of Reno-Sparks residents. The 1990 survey also showed that there has been a substantial drop in the number of persons per vehicle trip, as shown in **Figure 3-3**. This decrease in auto occupancy rates is an important factor that has caused vehicle travel to increase faster than population growth.

Annually, NDOT has tracked the growth in motor vehicle travel in Washoe County as part of the Highway Performance Monitoring System (HPMS). While population increased from 191,000 in 1980 to 421,401 in 2010, the HPMS estimate of annual vehicle miles of travel (VMT) increased from 1.3 billion in 1980 to more than 3.2 billion in 2009.

Figure 3-3



RTIP Population and Employment Forecasts

The projection of population and employment are critical parts of the RTIP process in planning for the future. The amount and location of development are critical components of the air quality analysis requirements of the RTIP as well as determining street improvement priorities. The population and employment utilized for the RTIP is derived from the Regional Transportation Plan (RTP). Federal regulations require the RTP to be based on the best available land-use data, which the RTC has historically obtained from the Cities of Reno and Sparks and Washoe County. For the RTP, the RTC began this process in late 2006 through a series of meetings with the planning personnel from the local governments and participation by staff of the Truckee Meadows Regional Planning Agency (TMRPA). The RTP was developed using the data obtained from the local governments in early 2007. In June 2008, a new consensus forecast was published and approved. Although the new population numbers are somewhat lower than the original numbers received from the local governments, the difference in numbers does not undermine the basic validity of the planning process as it was guided by goals, objectives and policies that are independent of specific population forecasts. While growth may occur somewhat more slowly, the projects, services and programs necessary to make the community's transportation vision a reality simply would be implemented at an appropriately slower pace. This plan acknowledges the updated population forecasts and provides context by identifying a range of years for a particular population that are consistent with original information received in early 2007 and the recently approved consensus forecast.

These ranges are shown in **Table 3-1**. With regard to travel forecasting and air quality analysis, it was assumed that the population milestones would be reached at the earliest time of the ranges to insure that the worst case for emissions is considered.

Table 3-1

Washoe County Population	Time Frame
440,000	2009-2010
485,000	2012-2015
550,000	2016-2022
620,000	2022-2030
730,000	2031-2039
800,000	2040-2044

The RTC is currently coordinating closely with the Truckee Meadows Regional Planning Agency to incorporate the 2010 Consensus Forecast population and employment data disaggregated to Traffic Analysis Zones (TAZ) for the new RTP to be adopted prior to summer 2013.

CHAPTER 4: FEDERAL TRANSPORTATION PROGRAMS

Introduction

The federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 established overall federal transportation program direction and, through the reauthorizations of the bill, a major portion of the FY 2009-2013 Regional Transportation Improvement Program (RTIP) funding is provided. These programs were, for the most part, continued under TEA-21 and SAFETEA-LU transportation legislation. A brief summary of the funding categories is provided below.

National Highway System (NHS). The NHS funding category is available for a variety of projects including new construction, maintenance, operational and management improvements, transit and high-occupancy vehicle (HOV) projects, planning, bicycle/pedestrian facilities and transportation control measures on facilities that are identified as part of the NHS. In addition, the state may transfer up to 50% of NHS funds to the Surface Transportation Program (STP), which is described below.

Surface Transportation Program (STP). The STP funding category is extremely flexible and can be used for new construction, maintenance, transit capital projects, ridesharing/employer trip reduction (ETR), centralized traffic signal control systems and traffic management programs. STP funds cannot be used to build new capacity for single-occupant vehicles (SOVs) unless the project is included in the Congestion Management Process (CMP), which is a requirement of all urbanized areas with a population of 200,000 or more.

STP funding is subdivided into the following subcategories:

STP Statewide Funds. 80% of the STP allocation (excluding STP Safety and Enhancement Programs, which receive approximately 10% each) comes to the state for distribution under STP Statewide and STP Urbanized Area. Major state priority capacity projects are funded under the STP Statewide Category.

STP Urbanized Areas. 65% of STP funds will be allocated to urbanized areas of the state with an urbanized area population of 200,000 or more. The two urbanized areas of Nevada meeting this requirement are Las Vegas and Reno-Sparks.

Congestion Mitigation Air Quality (CMAQ). The CMAQ funding category is available to air quality non-attainment/maintenance areas. CMAQ can be used only for projects that will have substantial air quality benefits or projects included in the State Implementation Plan (SIP). CMAQ cannot be used to fund projects that will result in the construction of new capacity available to single-occupancy vehicles (SOVs). Programs and projects that CMAQ can fund include programs to improve public transit, HOV facilities, ETR programs, traffic flow improvements that reduce emissions, bicycle/pedestrian facilities, park-and-ride facilities and programs to restrict vehicle use

in areas of emission concentration. The Las Vegas, Reno-Sparks and Lake Tahoe areas are eligible for the CMAQ funds.

SAFETEA-LU Planning Provisions

The passage of SAFETEA-LU made no significant regulatory changes pertaining to transportation planning and these are being practiced by the RTC in its planning process. The most important planning requirements are summarized below.

Long-Range Plan. The MPO must prepare a long-range transportation plan that identifies transportation facilities for all modes necessary to serve a 20-year forecast period at a minimum. The long-range plan must include a financial plan that demonstrates how the long-range plan can be implemented, including all public and private revenue sources that are "reasonably expected to be made available to carry out the plan, and recommends any innovative financing techniques to finance needed projects and programs."

Transportation Management Area (TMA) Designation and Requirement for Congestion Management Process (CMP). The Secretary of the Department of Transportation is required to designate as TMAs all urbanized areas with more than 200,000 population. Within a TMA, it is necessary to develop a Congestion Management Process (CMP) that provides for effective management of new and existing transportation facilities eligible for federal funding. The RTC developed a CMP that was adopted in September 1997 and updated the CMP under the RTP.

MPO-State Coordination in RTIP Development. The MPO, in cooperation with the state, is required to develop the RTIP. Federal regulation specifies RTIP project selection responsibility within Washoe County, as a TMA, as follows:

"All projects carried out within the boundaries of a TMA with Federal participation pursuant to this title (excluding projects undertaken on the National Highway System and pursuant to the bridge and Interstate maintenance programs) or pursuant to the Federal Transit Act **shall be selected by the MPO designated for such area in consultation with the State** and in conformance with the RTIP for such area and priorities established therein. Projects undertaken within the boundaries of a TMA on the National Highway System or pursuant to the bridge and Interstate maintenance programs **shall be selected by the State in cooperation with the MPO designated for such area** and in conformance with the RTIP" (emphasis added).

Federal regulations also require that the RTIP prioritize all projects and have a financial plan that demonstrates that funding is available for the projects listed. These requirements are discussed in Chapter 6—Project Prioritization and Chapter 8—Financial Plan.

Functional Classification. ISTEA required the state to develop a new functional classification "in cooperation with local and regional officials." Functional classification identifies and groups roadways by the character of the service they provide. The RTC approved a functional classification in December 1992. In addition, it was necessary to designate the National Highway System (NHS) segments within Nevada by 1993. The NHS in Washoe County consists of I-80, US 395 and McCarran Boulevard.

Certification. SAFETEA-LU requires the Secretary of the Department of Transportation to certify that each MPO is carrying out its responsibilities under the law. The first certification deadline was September 30, 1993. Recertification under ISTEA and TEA-21 occurred at least every three years; SAFETEA-LU has changed that requirement to recertification occurring every four years. The RTC received recertifications in April 1996, June 1999, November 2003 and September 2007. STP and FTA funds may be withheld if the MPO is not certified.

CHAPTER 5: PUBLIC TRANSPORTATION CAPITAL AND OPERATING PLAN

Introduction

The FY 2011-2015 Public Transportation Capital and Operating Plan provides an overview of the current status of public transportation and, more importantly, is a plan for future service delivery. Public transportation is an important part of the regional economy. This service allows local residents to access jobs, education, and commercial activities. By providing transit service to Transit Oriented Development (TOD) districts, public transportation also helps promote the higher density, mixed use, and walkable communities envisioned in the *Truckee Meadows Regional Plan*.

RTC Public Transportation Services

The RTC provides the following public transportation services to the residents of Washoe County:

- RTC RIDE
- RTC ACCESS
- RTC RAPID
- RTC SIERRA SPIRIT
- RTC INTERCITY
- TART (Tahoe Area Regional Transit)

RTC RIDE

RTC RIDE began operating public transportation services on September 18, 1978 and is RTC's primary fixed-route public transportation system. RTC owns RTC RIDE facilities and equipment. RTC RIDE is operated by a private contractor, First Transit, through Transit Management of Washoe, Inc. (TMW), a Nevada corporation established by First Transit. As of July 1, 2011, MV Transit will take over operations of RTC RIDE with a turn-key contract.

RTC RIDE began operating public transit services on September 18, 1978. RTC RIDE is a public fixed-route transit service owned by RTC. Passage of a ¼% sales tax referendum by the voters of Washoe County on September 14, 1982, provided the financial resources necessary to expand fixed-route and paratransit service. As federal transit funding steadily declined over the past several years, the sales tax funding has been critical to continued improvement in public transportation. As a part of a larger transportation funding package, transit funding was increased by the adoption of an additional 1/16% sales tax effective July 1, 2003.

The RTC owns all RTC RIDE facilities and equipment. The RTC RIDE system encompasses the cities of Reno and Sparks and areas of Washoe County, using a fleet of 70 buses on 26 routes. The service area has grown to approximately 136 square miles.

RTC RAPID

On October 11, 2009, RTC RAPID and RTC RAPID CONNECT were introduced. RTC RAPID is a Bus Rapid Transit (BRT) express service that serves the Virginia Street corridor from downtown Reno to Meadowood Mall. RTC RAPID CONNECT local service operates in the same corridor with more stops 24-hours a day, seven days a week.

FY 2010 RTC RIDE System Performance Indicators

RTC RIDE operates every day of the year with some routes operating 24 hours per day. In 2010, RTC RIDE operated 58 peak-hour vehicles and carried over 7.474 million passengers. Approximately 44% of these trips were made by youth, senior citizens, and people with disabilities. On an average weekday, over 23,000 passengers ride the RTC RIDE. About 35% of the trips are made by those traveling to and from work. According to 2000 U.S Census data and the RTC forecasting tool, RTC RIDE carried approximately 3.5% of the total work trips in the region. This percentage is even higher to downtown Reno and Sparks, where transfer centers (RTC 4th Street Station and RTC Centennial Plaza) create an effective and convenient service for hotel/casino employees and visitors.

Approximately 2% of the total trips in our region are being made using fixed-route transit (3.5% of all work trips). The RTC has set a goal to increase transit mode share to 6% by 2030. To help accomplish this, two new transit centers were constructed to replace the downtown Reno and Sparks facilities. RTC RIDE received the delivery of 14 new biodiesel style, 40-foot, low-floor buses in 2007. These buses are deployed on RTC RAPID to take advantage of the engine power and faster boarding speed achieved from the low-floor design.

RTC RIDE initiated its two-year hybrid electric buses demonstration project in 2007. Two hybrid electric, BRT style low-floor buses were compared with eight biodiesel BRT style low-floor buses on benefits and cost-savings. At the six-month period, the hybrids were performing remarkably well with an 80% savings in cost parts per mile, an all overall operating cost savings of 25.7%.

RTC ACCESS

Under Nevada Revised Statutes (NRS) 377A.080 and NRS 377A.130, the RTC is authorized to fund and administer public transportation for senior citizens and persons with disabilities. In 1988, RTC established RTC ACCESS and assumed direct responsibility for providing door-to-door transportation for people with disabilities in the

Reno/Sparks urbanized area. Since July 1, 1992, RTC ACCESS has operated 24 hours a day, 7 days a week, in compliance with Americans with Disabilities Act (ADA) regulations. Trips are not prioritized by purpose and may be scheduled one to three days in advance. Passengers requiring fixed-schedule service may request subscription service, which has limited availability.

The service is currently operated by a private contractor, First Transit of FirstGroup America, with offices in Cincinnati, Ohio, under contract to RTC. Previous operators were ATC and MV Transportation with contractor changes resulting from Federal Transit Administration (FTA) required competitive solicitations. RTC also contracts with a local taxi company, Reno-Sparks Cab, to transport ACCESS customers at night, during the day when ridership is low and for overload trips to maintain ADA compliance. The previous contractor was Whittlesea Checker Taxi and the change occurred effective FY 2010. All RTC ACCESS facilities and equipment are owned by RTC.

Eligibility for ACCESS is restricted to those whose disabilities prevent them from accessing RTC RIDE service independently, regardless of age. In 2007 RTC began requiring in-person evaluations for all RTC ACCESS new and renewing clients. This, combined with a fare increase in 2009 resulted in decreased numbers of people applying RTC ACCESS ADA paratransit eligibility. In FY 2010, RTC processed 18% fewer ACCESS ADA paratransit eligibility applications than in the previous year and 38% fewer than in 2007. New applicants continue to make up slightly over half of all eligible clients.

RTC ACCESS operations are more than 90% funded by the Washoe County sales tax which has been depressed in recent years. This has resulted in RTC ACCESS service levels being reduced from 88,000 revenue vehicle (RVH) in FY 2009 to 77,000 RVH in FY 2010. Due to sales tax constraints RTC partners with the non-profit CitiCare, which subsidizes the operating cost of almost all trips that travel outside the ADA zone.

RTC ACCESS continues to utilize electronic routing, scheduling and dispatching. All paratransit manifests are transmitted from dispatch to drivers via the mobile-data terminal. Drivers transmit the trip schedule and passenger status in real-time. This enables dispatch to better manage on-time performance by reassigning trips throughout the day.

The RTC ACCESS van fleet uses compressed natural gas (CNG), a cleaner burning fuel, for better air quality and lower emissions.

The RTC ACCESS service area encompasses approximately 250 square miles. The service area includes all of the RTC RIDE service area plus additional unincorporated areas of Washoe County including Cold Springs/Bordertown, Spanish Springs, Verdi and Steamboat. In August 2007, the RTC divided the RTC ACCESS service area into ADA and non-ADA zones and increased the fare for trips outside the ADA zone. This was one of several measures implemented to facilitate compliance with the ADA requirement to accommodate all ADA trip requests. In 2009 the fare was increased so that trips having both origin and destination end within the ADA zone (3/4 mile either

side of a RTC RIDE transit) are charged \$3.00 1-way; trips with origin and/or destination outside the ADA zone are charged double, \$6.00 per boarding. This is also in recognition that the average cost to provide a non-ADA trip is twice that of an ADA trip. Approximately 93% of all RTC ACCESS trips occur entirely within the ADA zone and cost the regular fare.

FY 2010 RTC ACCESS System Performance Indicators

- In FY 2010, ACCESS van and taxi services provided 221,609 passenger trips, a 6.9% decrease from FY 2009.
- On an average day in FY 2010 RTC ACCESS provided 577 trips to ADA certified passengers, a decrease of 12% from the 653 daily trips provided in FY 2007.
- During the PM peak, RTC ACCESS operated 42 vans.
- From FY 2009 to FY 2010 overall van and taxi revenue hours and miles decreased by 11.6% and 10.8% respectively. Passengers per revenue hour increased 3% and passengers per revenue mile increased 4.9%, while total operating costs decreased 0.8%.

Tahoe Area Regional Transit (TART)

Tahoe Area Regional Transit (TART) began operation in February 1975 and is operated by Placer County, California. In 1985, RTC signed an interlocal cooperative agreement (ICA) with Placer County to fund the extension of the TART system into the Incline Village/Crystal Bay area. TART provides fixed-route service to people living in the communities of Tahoma, Homewood, Tahoe City, Kings Beach, and Incline Village with four fixed routes daily.

RTC INTERCITY

On August 14, 2000, RTC, in cooperation with the Nevada Department of Transportation (NDOT) and Carson City, began an intercity service between Reno and Carson City. RTC INTERCITY provides an easy commute between Reno and Carson city and is operated Monday through Friday during peak hours.

Prioritization of Public Transportation Improvements

Federal legislation requires prioritization of projects in the RTIP. This requirement is consistent with existing RTC practices to evaluate the overall benefit of any public transportation project. The criteria used to measure the benefit of each public transportation project are as follows:

1. What is the intent of the project and why is it needed?
2. What are the anticipated benefits?
 - a. What user groups or area of the community will benefit from the project?
 - b. What existing services or facilities are available to that group or area?

- c. Will the project improve productivity?
 - d. Is the project self-sustaining after the initial funding?
3. How will the project improve the availability of public transportation?
 - a. Does the project enhance service level?
4. Does the project improve overall level of service performance standards?
5. Does the project provide air quality benefits?
6. What is the overall cost effectiveness of the project?
 - a. Does the project meet the RTC policy of providing approximately 75% productivity oriented service and 25% coverage oriented?
7. Does the project leverage other funding sources?

The analysis of new or expanded service addresses current and future demand as well as the cost effectiveness of each service. Capital improvements are prioritized by the RTC for inclusion in the RTIP.

Service and Capital Strategies

Attracting new riders and encouraging current riders to take more trips on public transportation requires improving the customers' total transportation experience. It is important not only to expand service to new areas of the community and to make existing service more frequent where passenger loads warrant, but also to consider other factors including:

- How do passengers get to and from their bus stop?
- What is the waiting environment like?
- Do the buses run on-time?
- Are the vehicles and passenger amenities clean?
- Is sufficient information about bus stops, routes and schedules readily available to the public?
- How long does it take to travel from origin to destination?

RTC must formulate service and capital strategies based on these factors to attract new riders and encourage existing riders to take more trips. The public transportation improvements for FY 2011-2015 are contained in the project listing in Chapter 7.

CHAPTER 6: RTIP PROJECT PRIORITIZATION

Prioritization of Street and Highway Improvements

Federal requirements mandate prioritization of projects in the RTIP. In April 2006, the RTC Board adopted the *Regional Transportation Commission Capacity Priority Setting Process* (See Appendix A.) This document provides a description of the process used to identify and prioritize capacity improvements projects that includes the intersections/signals within the road segment as well as spot intersection/signal projects undertaken by the RTC. This process was developed in collaboration with a subcommittee of the RTC's Technical Advisory Committee (TAC) consisting of representatives from the City of Reno, City of Sparks, Washoe County, Truckee Meadows Regional Planning Agency and Nevada Department of Transportation. The goal is a process that prioritizes projects so that available funding is spent on building those projects having the greatest benefit for the community at the time they are needed.

The steps of the process are summarized as follows:

1. Time stratification of road segment projects through the RTP process
2. Benefit cost analysis to determine an initial priority ranking
3. Consideration of "other factors" to develop final priority recommendations
4. Assignment of projects to their "best fit" funding categories
5. TAC review and recommendation
6. Presentation and recommendation to the RTC Board for consideration

Prioritization of public transportation projects is discussed in Chapter 5.

Transportation Demand and System Management Analysis

Several federal funding categories have expanded the scope of the projects possible including transportation demand and system management programs and projects. While the priority analysis of the above-mentioned categories of projects is possible, e.g., delay reduction for intersection improvements, other improvements are much more difficult to analyze in the same manner.

The following transportation demand and system management projects are contained in this RTIP but were not included in the priority analysis:

- » RTC Trip Reduction Program
- » Signal Coordination Improvements/Traffic Signal Controller-Timing Upgrade

The description and justification for these programs and projects are discussed below.

RTC Trip Reduction Programs. The RTC's trip reduction programs include a variety of programs including the bus pass subsidy program, RTC VANPOOL program, RTC RIDESHARE (free carpool matching program), guaranteed ride home (GRH) program and the park-and-ride program. These are ongoing programs intended to promote trip reduction strategies on a region-wide basis within Washoe County.

- The bus pass subsidy program encourages transit ridership working with local business partners. The number of participants (both employers and employees) has continued to grow since the inception of the program, aiding in the reduction of congestions and improvement of air quality standards in the region.
- The RTC VANPOOL program has been a very successful and popular program since it began in 2007.
- The RTC RIDESHARE program is a web-based rideshare matching service that uses modern mapping technology.
- The guaranteed ride home (GRH) provides an additional incentive to ridesharing. It is currently a demonstration program and will be monitored to determine its success.
- Park-and-ride locations are available to the public throughout the region. These facilities support the RTC RIDE service as well as the vanpool and rideshare programs.

These programs have succeeded in developing community awareness and building partnerships between the public and the private sectors. The programs' goals are to dramatically increase the number of employers and employees involved in trip reduction and to make measurable inroads into improving air quality and reducing VMT.

Signal Coordination Improvements/Traffic Signal Coordination-Timing Upgrade. The congestion benefit of signal coordination has been documented in the Air Quality chapter of this document. Studies are cited supporting the benefit associated with signal interconnection and optimization of the signal timing plan that found improvements in travel time and operating speeds of 8 to 25%. The RTC has an ongoing Traffic Management Program that will continue the signal timing and coordination along the regions arterials and will also explore an adaptive signal control system.

CHAPTER 7: RTIP PROJECT LISTING

FY 2011-2015 Project Listing

Table 7-1 (pages 7-3 to 7-17) provides a list of the FY 2011-2015 program of projects. The list is divided by funding category and shows the project description, the project limits (where applicable), the project phase (engineering/design, right-of-way, construction, operations or equipment purchases), the year programmed, the project costs and the federal, state or local contributions to the project cost. The RTC, Nevada Department of Transportation (NDOT), Washoe County and the cities of Reno and Sparks developed the individual projects. RTC transportation committees (Technical Advisory Committee and Citizens Advisory Committee) provided input on the FY 2011-2015 RTIP.

Project Cost Estimates

Construction cost estimates were derived from the Regional Road Impact Fee Capital Improvements Plan (RRIF CIP) and/or the Regional Transportation Plan (RTP). The estimates were developed for each project based on generalized cost estimates for the various types of improvements, e.g., new two-lane roadway, geometric improvement. Right-of-way cost estimates were derived from the RRIF CIP. Cost estimates for ramp improvements were based on recent NDOT and RTC interchange improvement costs and/or plan line studies. As a project progresses into the design phase, a more detailed cost estimate is prepared to ensure adequate funding is available to construct the project.

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FUND SOURCE: SURFACE TRANSPORTATION PROGRAM STATEWIDE FEDERAL-CONGESTION, MAINTENANCE, TRANSIT- PRIORITIZED BY NDOT

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
Bond Repayment - US 395 <i>Additional funding sources: NHS - \$1723,000,000 Other - \$48,000,000 RTIP project funding - \$248,000,000</i>	Bowers Mansion to Mt Rose Hwy (SR 431)		\$7,000	\$7,000	\$7,000	\$7,000		\$28,000 ¹	\$28,000	\$0	\$0
I-80 Design Build Project Pavement reconstruction, auxiliary lanes, ITS infrastructure, ramp improvements, widen from 2 to 3 lanes eastbound (Rock to East McCarran and East McCarran to Vista) and 3 to 4 lanes eastbound (Keystone to US 395) <i>Additional funding sources: STP Local - \$16,000,000 AB 595 - \$29,000,000 Equity Bonus - \$20,000,000 LHIP - \$5,100,000 State Gas Tax - \$3,700,000 Public Lands Highway - \$700,000 City of Sparks - \$500,000 Total project cost/RTIP funding - \$85,000,000</i>	Robb to Vista	E,R,C	\$10,000					\$10,000	\$9,500	\$500	\$0
Total Project Costs			\$17,000	\$7,000	\$7,000	\$7,000	\$0	\$38,000	\$37,500	\$500	\$0
STP Statewide Funds Scheduled for Washoe County Programming			\$17,000	\$7,000	\$7,000	\$7,000	\$0	\$38,000	\$38,000	\$0	\$0
State Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Local Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

¹ Amount indicates federal portion of costs only and includes bond repayment for US 95 from I-15 to Craig Rd and the Carson City Freeway

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

FUND SOURCE: SURFACE TRANSPORTATION PROGRAM WASHOE COUNTY URBANIZED AREA FEDERAL-CONGESTION, MAINTENANCE, TRANSIT-PRIORITIZED BY RTC

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
Trip Reduction Program Administrative Activities		O	\$300	\$400	\$325	\$300	\$300	\$1,625	\$1,544	\$0	\$81
I-80 Design Build Project Pavement reconstruction, auxiliary lanes, ITS infrastructure, ramp improvements, widen from 2 to 3 lanes eastbound (Rock to East McCarran and East McCarran to Vista) and 3 to 4 lanes eastbound (Keystone to US 395) <i>Additional funding sources:</i> <i>STP Statewide - \$10,000,000</i> <i>AB 595 - \$29,000,000</i> <i>Equity Bonus - \$20,000,000</i> <i>LHIP - \$5,100,000</i> <i>State Gas Tax - \$3,700,000</i> <i>Public Lands Highway - \$700,000</i> <i>City of Sparks - \$500,000</i> <i>Total project cost/RTIP funding - \$85,000,000</i>	Robb to Vista	E,R,C	\$16,000					\$16,000	\$15,200	\$800	\$0
Pyramid Highway Intersection Improvements <i>Additional funding sources:</i> <i>CMAQ - \$28,000,000</i> <i>NHS - \$6,000,000</i> <i>Other - \$8,200,000</i> <i>Total project cost/RTIP funding - \$71,000,000</i>	@McCarran Blvd	E,R,C			\$9,000	\$10,000	\$9,800	\$28,800	\$27,360	\$1,440	\$0
Virginia Street Corridor Alternatives Analysis Address Comprehensive Multi-Modal Needs	City of Reno TOD Corridor & Regional Centers	E		\$800				\$800	\$760	\$0	\$40
Total Project Costs			\$16,300	\$1,200	\$9,325	\$10,300	\$10,100	\$47,225	\$44,864	\$2,240	\$121
STP-Local Balance Forward			\$10,000	\$1,782	\$7,542	\$5,583	\$2,698	---	---	---	---
STP-Local Fund Allocation			\$7,267	\$6,900	\$6,900	\$6,900	\$6,900	\$34,867	\$34,867	\$0	\$0
Available STP-Local Funds			\$17,267	\$8,682	\$14,442	\$12,483	\$9,598	\$62,473	\$62,473	\$0	\$0
STP-Local Funds Scheduled for Programming			\$15,485	\$1,140	\$8,859	\$9,785	\$9,595	\$44,864	\$44,864	\$0	\$0
STP-Local Carryover			\$1,782	\$7,542	\$5,583	\$2,698	\$3	---	---	---	---
State Funds Scheduled for Programming			\$800	\$0	\$450	\$500	\$490	\$2,240	\$0	\$1,250	\$0
Local Funds Scheduled for Programming			\$15	\$60	\$16	\$15	\$15	\$121	\$0	\$0	\$121

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)
 Totals may vary slightly due to rounding

Approval Date 5/20/11

FUND SOURCE: NATIONAL HIGHWAY SYSTEM FEDERAL-NHS DESIGNATED FACILITIES, CAPACITY-PRIORITIZED BY NDOT

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
Bond Repayment - US 395 <i>Additional funding source: STP Statewide - \$28,000,000 Other - \$48,000,000 RTIP project funding - \$248,000,000</i>	Bowers Mansion to Mt Rose Hwy (SR 431)		\$38,000	\$45,000	\$44,000	\$45,000		\$172,000 ¹	\$172,000	\$0	\$0
US 395/I-580/I-80 Freeway management ITS project <i>Additional funding source: Other - \$3,000,000 RTIP project funding - \$4,000,000</i>		E,C	\$250	\$250	\$250	\$250		\$1,000	\$950	\$50	\$0
US 395/I-580/I-80 Freeway Service Patrol <i>Additional funding source: Other - \$2,400,000 RTIP project funding - \$4,640,000</i>		O	\$560	\$560	\$560	\$560		\$2,240	\$2,128	\$112	\$0
I-580 Interchange Improvements	@ Moana Lane	E,R,C	\$4,000					\$4,000	\$3,800	\$200	\$0
Pyramid Highway Intersection Improvements <i>Additional funding sources: STP-Local - \$28,800,000 CMAQ - \$28,000,000 Other - \$8,200,000 Total project cost/RTIP funding - \$71,000,000</i>	@McCarran Blvd	E,R,C		\$6,000				\$6,000	\$5,700	\$300	\$0
Total Project Costs			\$42,810	\$51,810	\$44,810	\$45,810	\$0	\$185,240	\$184,578	\$662	\$0
NHS Funds Scheduled for Washoe County Programming			\$42,570	\$51,470	\$44,770	\$45,770	\$0	\$184,578	\$184,578	\$0	\$0
State Funds Scheduled for Programming			\$241	\$341	\$41	\$41	\$0	\$662	\$0	\$662	\$0
Local Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

¹ Amount indicates Federal portion of costs only and includes bond repayment for US 95 from I-15 to Craig Rd and the Carson City Freeway

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Approval Date 5/20/11

Totals may vary slightly due to rounding

FUND SOURCE: ENHANCEMENT FEDERAL-NON CAPACITY, NON MAINTENANCE-PRIORITIZED BY RTC AND NDOT, PROGRAM IS ON A TWO YEAR CYCLE

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECTS COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
West End Prater Way Pedestrian Improvement Project Phase 3	View St to 22nd St	E,R,C	\$746					\$746	\$650	\$0	\$96
Virginia Street Pedestrian Enhancements	4th St to 5th St	E,R,C	\$622					\$622	\$591	\$0	\$31
Sun Valley Blvd Sidewalk/Bike Lanes Phase I	7th Ave to Quartz	E,R,C	\$722					\$722	\$626	\$0	\$96
East 4th St Streetscape	Lake to Valley	E,R,C	\$443					\$443	\$420	\$0	\$23
Lemmon Valley School and Park Pedestrian Project	Lemmon @ Patrician	E,R,C	\$411					\$411	\$390	\$0	\$21
West End Prater Way Pedestrian Improvement Project Phase 4	20th to 22nd	E,R,C	\$684					\$684	\$650	\$0	\$34
Enhancement Projects	Various locations	E,R,C		\$1,000	\$1,000	\$1,000	\$1,000	\$4,000	\$3,800	\$0	\$200
Total Project Costs			\$3,628	\$1,000	\$1,000	\$1,000	\$1,000	\$7,628	\$7,127	\$0	\$501
Anticipated Enhancement Fund Allocation Statewide			\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$23,000	\$23,000	\$0	\$0
Federal Funds Scheduled for Programming			\$3,327	\$950	\$950	\$950	\$950	\$7,127	\$7,127	\$0	\$0
State Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Local Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)
 Totals may vary slightly due to rounding

Approval Date 5/20/11

FUND SOURCE: CONGESTION MITIGATION/AIR QUALITY (Page 1 of 2) FEDERAL-NON CAPACITY, AIR QUALITY BENEFIT PROJECTS-PRIORITIZED BY RTC

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
Trip Reduction Program			\$100	\$100	\$100	\$100	\$100	\$500	\$475	\$0	\$25 ¹
RIDE Replacement Vehicles ² Number		V									
ACCESS Replacement Vehicles ² Number		V	\$2,250 15		\$420 3			\$2,670	\$2,537	\$0	\$134
Traffic Management Program Annual Traffic Signal Operations Review, Regional ITS Network Master Plan, Regional ITS Network Pilot Project, Regional ITS Network - Phase 1, Regional ITS Network - Phase 2 Design,	Region-wide	E,R,C	\$660	\$2,260	\$1,460	\$500	\$500	\$5,380	\$5,111	\$0	\$269 ³
Pyramid Highway Intersection Improvements Additional funding sources: STP-Local - \$28,800,000 CMAQ - \$28,000,000 Other - \$8,200,000 Total project cost/RTIP funding - \$71,000,000	@ McCarran Blvd	E,R,C	\$800	\$300	\$6,500	\$8,000	\$12,400	\$28,000	\$26,600	\$1,400	\$0
Demonstration Service - FY 14, FY 15, FY 16 RAPID Extension		O				\$1,600	\$1,600	\$3,200	\$3,040	\$0	\$160
Demonstration Service S Virginia St RTC RAPID	\$4.8 million RTC RAPID Operating FY11 RAPID capital \$1.5 million FY11	O	\$6,300					\$6,300	\$5,985	\$0	\$315
								Totals On Page 6			

¹ Local contributions for transit projects are from a 1/4 cent sales tax revenue

² To be transferred to Section 5307

³ Local contribution is from Regional Road Impact Fee funding

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

Approval Date 5/20/11

FUND SOURCE: CONGESTION MITIGATION/AIR QUALITY (Page 2 of 2) FEDERAL-NON CAPACITY, AIR QUALITY BENEFIT PROJECTS-PRIORITIZED BY RTC

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
<u>Bicycle/Pedestrian Improvements</u>											
Cold Springs Area Sidewalks Install sidewalks	Fantail, Lumkin, Egret and Sandpiper	E,R,C		\$506				\$506	\$481	\$0	\$25
Lemmon Drive Install sidewalks	Bernoulli to Palace	E,R,C	\$907					\$907	\$862	\$0	\$45
Future Bicycle/Pedestrian Projects		E,R,C		\$600	\$600	\$600	\$600	\$2,400	\$2,280	\$0	\$120 ¹
Total Project Costs			\$11,017	\$3,766	\$9,080	\$10,800	\$15,200	\$49,863	\$47,370	\$1,400	\$1,093
CMAQ Fund Balance Forward Estimate			\$0	\$929	\$6,351	\$6,725	\$5,465	\$0	\$0	---	---
CMAQ Allocation			\$11,395	\$9,000	\$9,000	\$9,000	\$9,000	\$47,395	\$47,395	\$0	\$0
Available CMAQ Funds			\$11,395	\$9,929	\$15,351	\$15,725	\$14,465	\$47,395	\$47,395	\$0	\$0
CMAQ Funds Scheduled for Programming in Washoe County			\$10,466	\$3,578	\$8,626	\$10,260	\$14,440	\$47,370	\$47,370	\$0	\$0
CMAQ Fund Carryover			\$929	\$6,351	\$6,725	\$5,465	\$25	\$25	\$25	\$0	\$0
State Funds Scheduled for Programming			\$40	\$15	\$325	\$400	\$620	\$1,400	\$0	\$1,400	\$0
Local Funds Scheduled for Programming			\$511	\$173	\$129	\$140	\$140	\$1,093	\$0	\$0	\$1,093

¹ Local contribution is from Regional Road Impact Fee funding

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Approval Date 5/20/11

Totals may vary slightly due to rounding

FUND SOURCE: FUEL TAX (Page 1 of 2) LOCAL-RECONSTRUCTION, NEW CONSTRUCTION, AND PREVENTIVE MAINTENANCE-PRIORITIZED BY RTC
 PROJECTS ARE PRIORITIZED ANNUALLY FOR A TWO YEAR CYCLE

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
<u>Rehabilitation/Reconstruction</u>											
Brinkby Ave	Plumas to Virginia	E,C	\$1,384					\$1,384	\$0	\$0	\$1,384
Crummer/Green Acres/Huffaker	Cul-de-sac to S Virginia	E,C	\$100	\$513				\$613	\$0	\$0	\$613
Delucchi Ln	S Virginia to Tyrone	E,C		\$1,028				\$1,028	\$0	\$0	\$1,028
Evans St	Jodi to Enterprise	E,C	\$639					\$639	\$0	\$0	\$639
5th St	Keystone to Ralson and Center to Record	E,C	\$829					\$829	\$0	\$0	\$829
1st St	Keystone to Arlington	E,C	\$1,313					\$1,313	\$0	\$0	\$1,313
Gould St	200' north of Mill to 2nd	E,C	\$234					\$234	\$0	\$0	\$234
Grove St	Kietzke to Harvard	E,C	\$365					\$365	\$0	\$0	\$365
Highland Ave	Evans to Valley	E,C	\$413					\$413	\$0	\$0	\$413
Kuenzli St and Sunshine Ln	Kietzke to Sunshine and 2nd to cul-de-sac	E,C	\$690					\$690	\$0	\$0	\$690
Lakeside Dr	McCarran to Moana	E,C	\$2,706					\$2,706	\$0	\$0	\$2,706
Lewis St	Maine to Golden	E,C	\$484					\$484	\$0	\$0	\$484
Linden St and Steen	Kietzke to Harvard	E,C	\$287					\$287	\$0	\$0	\$287
Lymberry St	Moana to Brinkby	E,C	\$522					\$522	\$0	\$0	\$522
Manzanita Ln	Plumas to Lakeside	E,C	\$741					\$741	\$0	\$0	\$741
Marietta Way	Greg to end of pavement	E,C	\$1,118					\$1,118	\$0	\$0	\$1,118
Mayberry Dr	McCarran to California	E,C	\$3,131					\$3,131	\$0	\$0	\$3,131
Mount Rose St	Arlington to Plumas	E,C	\$451					\$451	\$0	\$0	\$451
North Virginia	4th to 6th	E,C	\$388	\$2,234				\$2,622 ¹	\$0	\$0	\$2,622
Peckham Ln	S Virginia to Kietzke	E,C	\$865					\$865	\$0	\$0	\$865
Prosperity St	Kietzke to Golden	E,C	\$197					\$197	\$0	\$0	\$197
Ralston St	2nd to 4th	E,C	\$789					\$789	\$0	\$0	\$789
Rock Blvd	Glendale to Hymer	E,C	\$823					\$823	\$0	\$0	\$823
South Stanford Way	Greg St to Glendale	E,C	\$766					\$766	\$0	\$0	\$766
Snider Way	Stanford to Steneri	E,C	\$257					\$257	\$0	\$0	\$257
								See Totals On Page 8			

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Approval Date 5/20/11

¹ Includes Enhancement funding

Totals may vary slightly due to rounding

FUND SOURCE: FUEL TAX (Page 2 of 2) LOCAL-RECONSTRUCTION, NEW CONSTRUCTION, AND PREVENTIVE MAINTENANCE-PRIORITIZED BY RTC
 PROJECTS ARE PRIORITIZED ANNUALLY FOR A TWO YEAR CYCLE

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)				
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL	
Alexander Lake Rd	McCarran to end of pvmt	E,C		\$1,139					\$1,139	\$0	\$0	\$1,139
Bridge St	Front to 3rd	E,C		\$141					\$141	\$0	\$0	\$141
Caughlin Pkwy	Longknife to McCarran	E,C		\$1,403					\$1,403	\$0	\$0	\$1,403
East Nugget Ave	McCarran to end of pvmt	E,C		\$427					\$427	\$0	\$0	\$427
Greenbrae Dr	El Rancho to Rock	E,C		\$1,182					\$1,182	\$0	\$0	\$1,182
Hunter Lake Rd	Rodney to Plumb	E,C		\$852					\$852	\$0	\$0	\$852
Merchant St	Sullivan to Clinic	E,C		\$448					\$448	\$0	\$0	\$448
North Virginia and Panther Ct	S Security Cir to RRxing	E,C		\$388					\$388	\$0	\$0	\$388
Plumb Ln	McCarran to Ferris	E,C		\$566	\$7,789				\$8,355	\$0	\$0	\$8,355
Socrates Dr	McCarran to Sienna Pk	E,C	\$2,790						\$2,790	\$0	\$0	\$2,790
W Huffaker	Del Monte to Spring Leaf	E,C		\$907					\$907	\$0	\$0	\$907
Woodland Ave and Sugar Pine Ct	Sugar Pine to 4th St	E,C		\$556					\$556	\$0	\$0	\$556
<u>Bicycle/Pedestrian Project</u>												
Nichols Boulevard	East Victorian to Howard	E	\$133						\$133	\$0	\$0	\$133
Preventive Maintenance ²	Region-wide	E,C	\$5,500	\$5,500	\$5,500	\$5,500	\$5,500		\$27,500	\$0	\$0	\$27,500
RTC Local Roads Preventative Maintenance	Region-wide	E,C	\$1,300						\$1,300	\$0	\$0	\$1,300
Intersection Corrective Maintenance	Various locations	E,C	\$1,500						\$1,500	\$0	\$0	\$1,500
Corrective Maintenance Project	Various regional roads	E,C		\$1,500	\$1,000	\$1,000	\$1,000		\$4,500	\$0	\$0	\$4,500
Alignment plan-line and related studies	Various locations	E	\$400	\$400	\$300	\$300	\$300		\$1,700	\$0	\$0	\$1,700
Rehabilitation/reconstruction projects	Region-wide	E,C			\$4,991	\$12,200	\$12,200		\$29,391	\$0	\$0	\$29,391
Total Project Costs			\$31,115	\$19,184	\$19,580	\$19,000	\$19,000		\$107,879	\$0	\$0	\$107,879
RTC Fuel Tax Balance Forward			\$0	\$0	\$0	\$0	\$0		---	---	---	---
Fuel Tax Fund Allocation ¹			\$31,115	\$19,184	\$19,580	\$19,000	\$19,000		\$107,879	\$0	\$0	\$107,879
Available Fuel Tax Funds			\$31,115	\$19,184	\$19,580	\$19,000	\$19,000		\$107,879	\$0	\$0	\$107,879
Fuel Tax Funds Scheduled for Programming			\$31,115	\$19,184	\$19,580	\$19,000	\$19,000		\$107,879	\$0	\$0	\$107,879
Fuel Tax Fund Carryover			\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0
Federal Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0
State Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0		\$0	\$0	\$0	\$0
Local Funds Scheduled for Programming			\$31,115	\$19,184	\$19,580	\$19,000	\$19,000		\$107,879	\$0	\$0	\$107,879

¹ Fund allocation is less debt service, configurations, etc.

² Preventive Maintenance includes Sales Tax Funding as follows: FY12 \$3,266,000; FY13 \$3,331,000; FY14 \$3,398,000; FY15 \$3,500,000

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Approval Date 5/20/11

Totals may vary slightly due to rounding

FUND SOURCE: REGIONAL ROAD IMPACT FEE (Page 1 of 2) LOCAL-NEW CAPACITY-PRIORITIZED BY RTC

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
<u>Northwest Benefit District</u>											
Sharlands Ave Intersection Improvement	@ Robb	E,R,C	\$645	\$755				\$1,400 ¹	\$0	\$0	\$1,400
<u>Northeast Benefit District</u>											
<u>South Benefit District</u>											
Moana Ln Widen to 6 lanes	S. Virginia to I-580	E,R,C	\$17,200	\$10,000	\$9,100			\$36,300 ¹	\$0	\$0	\$36,300
Plumb Ln Intersection Improvement	@Harvard	E,R,C	\$370	\$4,630				\$5,000 ¹	\$0	\$0	\$5,000
Geiger Grade Re-Alignment	Toll Rd to Virginia St	E	\$124	\$1,176				\$1,300 ¹	\$0	\$0	\$1,300
<u>All RRIF Benefit Districts</u>											
Southeast Connector Pre-Construction	S Meadows to Greg	E	\$1,500	\$2,900				\$4,400 ¹	\$0	\$0	\$4,400
McCarran Blvd Widen to 6 lanes Pavement Reconstruction <i>Additional funding source: State Gas Tax - \$8,000,000 Total project cost/RTIP funding - \$47,000,000</i>	Longley to Greg Virginia to Longley	E,R,C	\$1,200	\$15,700	\$22,100			\$39,000 ¹	\$0	\$0	\$39,000
								See Totals On Page 10			

¹ Project accelerated by RTC-5 funding

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

FUND SOURCE: REGIONAL ROAD IMPACT FEE (Page 2 of 2) LOCAL-NEW CAPACITY-PRIORITIZED BY RTC

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
Bike/Ped Improvements 2 (10/11)	Virginia St and Sierra St	E,R,C	\$200	\$400				\$600 ¹	\$0	\$0	\$600
Traffic Engineering Spot Intersection Improvements 2 (10/11)	Area wide	E,R,C	\$60	\$1,440				\$1,500 ¹	\$0	\$0	\$1,500
Total Project Costs			\$21,299	\$37,001	\$31,200	\$0	\$0	\$89,500	\$0	\$0	\$89,500
RRIF Balance Forward			\$0	\$0	\$0	\$0	\$0	---	---	---	---
RRIF Fund Allocation ²			\$21,299	\$37,001	\$31,200	\$0	\$0	\$89,500	\$0	\$0	\$89,500
Available RRIF Funds			\$21,299	\$37,001	\$31,200	\$0	\$0	\$89,500	\$0	\$0	\$89,500
RRIF Scheduled for Programming			\$21,299	\$37,001	\$31,200	\$0	\$0	\$89,500	\$0	\$0	\$89,500
RRIF Fund Carryover			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Local Funds Scheduled for Programming			\$21,299	\$37,001	\$31,200	\$0	\$0	\$89,500	\$0	\$0	\$89,500

¹ Project accelerated by RTC-5 funding

² Fund allocation is less debt service, configurations

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

Approval Date

5/20/11

FUND SOURCE: PRIVATE/DEVELOPER

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL
I-80 Construct new interchange	West of Tracy-Clark Interchange	E,R,C			\$25,000			\$25,000	\$0	\$0	\$25,000 ¹
I-80 Interchange improvements	@ Garson Road	E,R,C			\$24,950			\$24,950	\$0	\$0	\$24,950 ¹
I-80 Interchange improvements	@ Patrick	E,R,C	\$8,000					\$8,000	\$0	\$0	\$8,000 ¹
Total Project Costs			\$8,000	\$0	\$49,950	\$0	\$0	\$57,950	\$0	\$0	\$57,950
Local Projects Scheduled for Washoe County Programming			\$8,000	\$0	\$49,950	\$0	\$0	\$57,950	\$0	\$0	\$57,950
Federal Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State Funds Scheduled for Programming			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Local Funds Scheduled for Programming			\$8,000	\$0	\$49,950	\$0	\$0	\$57,950	\$0	\$0	\$57,950

¹ Anticipated local funding sources: Developer

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

FUND SOURCE: OTHER (Page 1 of 2)

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)				
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL	
State Gas Tax												
US 395/I-580/I-80 Freeway management ITS project <i>Additional funding source:</i> <i>NHS - \$1,000,000</i> <i>RTIP project funding - \$4,000,000</i>		E,C	\$750	\$750	\$750	\$750		\$3,000	\$0	\$3,000	\$0	
US 395/I-580/I-80 Freeway Service Patrol <i>Additional funding source:</i> <i>NHS - \$2,240,000</i> <i>RTIP project funding - \$4,640,000</i>		O	\$600	\$600	\$600	\$600		\$2,400	\$0	\$2,400	\$0	
Bond Repayment - US 395 <i>Additional funding source:</i> <i>STP Statewide - \$28,000,000</i> <i>NHS - \$172,000,000</i> <i>RTIP project funding - \$248,000,000</i>	Bowers Mansion to Mt Rose Hwy (SR 431)	E	\$12,000	\$12,000	\$12,000	\$12,000		\$48,000 ¹	\$0	\$48,000	\$0	
Pyramid Hwy & U.S. 395 Connection EIS (NEPA)		E	\$400					\$400	\$0	\$400	\$0	
McCarran Blvd Widen to 6 lanes Pavement Reconstruction <i>Additional funding source:</i> <i>RRIF - \$39,000,000</i> <i>Total project cost/RTIP funding - \$47,000,000</i>	Longley to Greg Virginia to Longley	E,R,C	\$8,000					\$8,000	\$0	\$8,000	\$0	
TIGGER GRANT												
Purchase 3 electric buses and related equipment		V		\$5,167				\$5,167	\$4,650	\$0	\$517	
TCSP												
I-80 Intermodal Corridor Study	Oakland, CA to Salt Lake City, Utah	E	\$950					\$950	\$950	\$0	\$0	
								See Totals On Page 13				

¹ Amount includes bond repayment for US 95 from I-15 to Craig Rd and the Carson City Freeway
 Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)
 Totals may vary slightly due to rounding

Approval Date 5/20/11

FUND SOURCE: OTHER (Page 2 of 2)

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)				
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL	
SAFETEA LU Section 1702 High Priority Projects												
Pyramid Highway Corridor Transportation Improvements	Pyramid Highway La Posada to McCarran US 395 Connection Sparks Blvd to US 395	E		\$1,500					\$1,500	\$1,500	\$0	\$0
Pyramid Highway Intersection Improvements <i>Additional funding sources: STP-Local - \$28,800,000 NHS - \$6,000,000 CMAQ - \$28,000,000 Total project cost/RTIP funding - \$71,000,000</i>	@ McCarran Blvd	E,R,C		\$8,200					\$8,200	\$8,200	\$0	\$0
Reno Access Rail Corridor/ReTRAC Project Enhancements		E,R,C										
2009 Omnibus Appropriations Act Surface Transportation Priorities			\$238						\$238	\$238	\$0	\$0
2009 Omnibus Appropriations Act TCSP Program			\$285						\$285	\$285	\$0	\$0
FY 2008 Appropriations Act Section 129			\$500						\$500	\$500	\$0	\$0
I-80 Design Build Project Pavement reconstruction, auxiliary lanes, ITS infrastructure, ramp improvements, widen from 2 to 3 lanes eastbound (Rock to East McCarran and East McCarran to Vista) and 3 to 4 lanes eastbound (Keystone to US 395)	Robb to Vista	E,R,C										
AB595			\$29,000						\$29,000	\$0	\$29,000	\$0
Equity Bonus			\$20,000						\$20,000	\$20,000	\$0	\$0
LHIP			\$5,100						\$5,100	\$5,100	\$0	\$0
State Gas Tax			\$3,700						\$3,700	\$0	\$3,700	\$0
Public Lands Highway			\$700						\$700	\$700	\$0	\$0
City of Sparks <i>Additional funding sources: STP Local - \$16,000,000 STP Statewide - \$10,000,000 Total project cost/RTIP funding - \$85,000,000</i>			\$500						\$500	\$0	\$0	\$500
Total Project Costs			\$82,723	\$28,217	\$13,350	\$13,350	\$0		\$137,640	\$42,123	\$94,500	\$1,017
Federal Funds Scheduled for Programming			\$27,773	\$14,350	\$0	\$0	\$0		\$42,123			
State Funds Scheduled for Programming			\$54,450	\$13,350	\$13,350	\$13,350	\$0		\$94,500			
Local Funds Scheduled for Programming			\$500	\$517	\$0	\$0	\$0		\$1,017			

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Approval Date 5/20/11

Totals may vary slightly due to rounding

FUND SOURCE: FTA (Page 1 of 2)

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000's)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL ¹
FTA Section 5307²											
RIDE/ACCESS Preventative Mntce- Mechanical	Systemwide	O	\$3,700	\$3,700	\$3,700	\$3,700	\$3,700	\$18,500	\$14,800	\$0	\$3,700
RIDE Operations	Systemwide	O	\$26,200	\$26,300	\$26,300	\$26,400	\$26,700	\$131,900	\$26,380	\$0	\$105,520
<u>RIDE Capital</u>											
Transit Enhancements	Systemwide	V, C	\$200	\$75	\$75	\$75	\$75	\$500	\$400	\$0	\$100
Support Vehicles	Systemwide	V			\$60			\$60	\$48	\$0	\$12
Shop Equipment	Systemwide	V	\$50	\$50	\$50	\$50	\$50	\$250	\$200	\$0	\$50
Replacement Vehicles	Systemwide	V	\$0	\$3,000	\$1,000	\$3,060	\$2,100	\$9,160	\$7,328	\$0	\$1,832
<i>Number</i>				6	2	6	4				
Vehicle/Communication/Computer Equipment	Systemwide	V	\$230	\$100	\$100	\$100	\$100	\$630	\$504	\$0	\$126
ITS	Systemwide	V	\$50	\$50	\$50	\$50	\$50	\$250	\$200	\$0	\$50
Building Renovations and Upgrades	Systemwide	C	\$650	\$100	\$100	\$100	\$100	\$1,050	\$840	\$0	\$210
Total Section 5307 - RIDE			\$31,080	\$33,375	\$31,435	\$33,535	\$32,875	\$162,300	\$50,700	\$0	\$111,600
<u>ACCESS Operations</u>											
ACCESS Operations (10% formula allocation for ADA related expenses)	Systemwide	O	\$6,800	\$6,600	\$6,600	\$6,600	\$6,600	\$33,200	\$3,320	\$0	\$29,880
	Systemwide	O	\$690	\$690	\$690	\$690	\$690	\$3,450	\$2,760	\$0	\$690
<u>ACCESS Capital</u>											
Facilities (Operations & Maintenance)	ACCESS Bldg @ Sutro	V	\$75	\$75	\$75	\$75	\$75	\$375	\$300	\$0	\$75
Replacement Vehicles (CNG Vans)	Systemwide	V	\$1,620	\$0	\$0	\$1,750	\$0	\$3,370	\$2,696	\$0	\$674
<i>Number</i>		V	12			10					
Total Section 5307 ACCESS			\$9,185	\$7,365	\$7,365	\$9,115	\$7,365	\$40,395	\$32,316	\$0	\$8,079
Total Section 5307			\$40,265	\$40,740	\$38,800	\$42,650	\$40,240	\$202,695	\$162,156	\$0	\$40,539
								See Totals On Page 15			

¹ Local contributions for transit projects are from a 5/16 cent sales tax revenue, contribution could vary

² Capital project costs shown for year of grant application, not necessarily year of expenditure

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

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FUND SOURCE: FTA (Page 2 of 2)

PROJECT DESCRIPTION	LIMITS	PHASE	PROJECT COSTS (\$000'S)					PROJECT CONTRIBUTIONS (\$000's)			
			FY 11	FY 12	FY 13	FY 14	FY 15	TOTAL	FEDERAL	STATE	LOCAL ¹
FTA Section 5309²											
<u>RIDE Capital</u>											
Replacement Vehicles	Systemwide	V	\$0	\$1,500	\$400	\$0	\$0	\$1,900	\$1,520	\$0	\$380
Building Renovations and Upgrades	Systemwide	C	\$780	\$500	\$200	\$300	\$300	\$2,080	\$1,664	\$0	\$416
<u>ACCESS Capital</u>											
Replacement Vehicles Includes Statewide Grant Number	Systemwide	V	\$330 3	\$1,860 12	\$200 1	\$200 1	\$200 1	\$2,790	\$2,232	\$0	\$558
Total Section 5309			\$1,110	\$3,860	\$800	\$500	\$500	\$6,770	\$5,416	\$0	\$1,354
FTA Section 5316 - JARC²											
<u>The Ridge House</u>											
Operations	Systemwide	O		\$64	\$0			\$64	\$32	\$0	\$32
<u>Regional Transportation Commission</u>											
Operations	INTERCITY Service	O		\$179	\$0			\$179	\$90	\$0	\$90
Total Section 5316				\$243	\$0			\$243	\$121	\$0	\$121
FTA Section 5317 - New Freedom²											
<u>CITICARE</u>											
Operations	Systemwide	O		\$101	\$0			\$101	\$50	\$0	\$50
Total Section 5317				\$101	\$0			\$101	\$50	\$0	\$50
Funds Scheduled for Programming Include RIDE Preventative Maintenance and ACCESS ADA Related Expenses			\$41,375	\$44,943	\$39,600	\$43,150	\$40,740	\$209,808	\$167,744	\$0	\$42,065

¹ Local contributions for transit projects are from a 5/16 cent sales tax revenue, contribution could vary

² Capital project costs shown for year of grant application, not necessarily year of expenditure

Phases: E(Engineering/Design); R(Right-of-Way); C(Construction); O(Operations); V(Vehicles/Equipment)

Totals may vary slightly due to rounding

Approval Date 5/20/11

CHAPTER 8: FINANCIAL PLAN

SAFETEA-LU Requirements

Federal regulations mandate that the Transportation Improvement Program (TIP) include:

“. . . a financial plan that demonstrates how the TIP can be implemented, (and) indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan.”

Further, regulations specify that:

“The program (TIP) shall include a project, or an identified phase of a project, only if full funding can reasonably be anticipated to be available for the project within the time period contemplated for completion of the project.”

Financial Assumptions Summary

To comply with both SAFETEA-LU requirements and FTA policies, RTC has prepared the following FY 2011-2015 RTIP financial assumptions summary. This summary is intended to establish and document the levels of funding anticipated to be made available for the implementation of this improvement program with each fund source addressed separately.

Local Fund Sources

There were two initiatives that made additional local funding available to the RTC. In 2003 with the approval of Washoe County ballot question WC-2, a 1/8% sales tax was added to implement road and transit projects and fuel tax indexing was implemented based on the Consumer Price Index (CPI). In 2008 with the approval of Washoe County ballot question RTC-5 froze the CPI indexing and implemented new indexing provisions calculated on the Producer Price Index (PPI).

Fuel Taxes

In 2003, the indexing of fuel tax to CPI was implemented. Following passage of RTC-5, legislation was approved in 2009 to index fuel to PPI and additional bases were added including Federal, State, Diesel and alternative fuels. Additional revenue from three bond sales was made available to accelerate projects in the road program. Eligible uses for fuel tax include overlays, reconstruction and new construction for regional streets included in the Regional Road System. Over the last several years, the RTC has dedicated this funding source to maintaining the existing regional network. A

significant portion of fuel tax funds will continue to be directed toward addressing the preservation of the existing system of the region.

Transit Sales Tax

The single most important funding source for transit in Washoe County continues to be the dedicated 5/16 cent sales tax. The revenue generated by this tax provided more than half the funds necessary for RTC to operate RTC RIDE and RTC ACCESS and to contribute to the TART service. Over the past nine years, sales tax revenue growth has varied considerably. This variation can be attributed to differing rates of inflation, population growth and other conditions affecting the local and national economy. Since 1985, sales tax growth has averaged 6.4% annually. Because sales tax is the single most important funding source for public transit and it can vary from year to year, the amount of available sales tax revenue will greatly affect the level of public transit service RTC can provide.

Road Sales Tax

This funding source has been used exclusively for preventive maintenance.

Regional Road Impact Fees (RRIF)

Impact fees are imposed on new development to offset the cost of providing specific infrastructure improvements necessary to serve new development. New development can be required to improve and add facilities necessary to maintain an established policy level of service (LOS). Impact fees are calculated and levied on the new development based on the degree that they contribute to the need for identified improvement. The Regional Road Impact Fee (RRIF) was implemented in October 1995. Although RRIF projects identified in the FY 2011-2015 project listing (Chapter 7) total nearly \$89.5 million, the majority of those projects are being accelerated by RTC-5 funding.

Transit Farebox-Passenger Fare Revenues

Farebox recovery ratio (FRR) is one of the most important performance indicators. Current one-way fare for RTC RIDE is \$2.00 and RTC ACCESS is \$1.75 each. RTC policy states that RTC RIDE should achieve a minimum farebox recovery standard of 35% return. RTC RIDE annual ridership decreased 11.5% from FY 2009 to FY 2010, the largest drop in RTC history. Revenue hours fell 6.6% and revenue miles fell 9.5%. From FY 2008 to FY 2010, ridership fell 17.5%, revenue hours fell 14.7% and revenue miles fell 18.9%. The number of passengers per revenue hour declined from 32.0 to 30.4, and total annual revenue fell 14.1%. The farebox recovery ratio was 23.9%, a 6.8% decrease from FY 2009. This ratio is high when compared with other larger transit systems in the nation that have a typical farebox recovery ratio in the range of 15% to 22%.

Paratransit service is more labor-intensive and costly compared with fixed-route transit service. The RTC ACCESS farebox recovery ratio is approximately 6%. Major factors influencing the low fare recovery ratio include a low fare (\$1.75) compared with a high cost per trip (approximately \$20.00), increased insurance premium and labor costs, attendants who ride free and increasing trip distances.

Federal Fund Sources

National Highway System (NHS)

The NHS was created by the ISTEA and continued under TEA-21 and SAFETEA-LU to:

“ . . . provide for an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations . . . ”

Within the Truckee Meadows, NDOT has directed NHS funding to major projects through the I-80 and US Highway 395 corridors. For TIP planning and programming purposes, the RTIP shows projects totaling \$185 million in NHS funding for FY 2011-2015, although the majority of that amount (\$172 million) is being allocated to the bond repayment that includes the US 395 extension (Bowers Mansion to Mt. Rose Highway), US 95 in southern Nevada (I-15 to Craig Road) and the Carson City Freeway.

Surface Transportation Program (STP)

As discussed in Chapter 4, STP funds are highly flexible providing NDOT and RTC with the opportunity to program funds for new construction, maintenance, transit, ridesharing/employer trip reduction (ETR), centralized traffic signal control systems and traffic management programs. STP funds cannot be used to build new capacity for single-occupant vehicles unless the project is included in the Congestion Management Process (CMP), which is a requirement of all urbanized areas with a population of 200,000 or more.

STP funding is divided into many subcategories as described in the following:

STP Safety. 10% of the STP funding allocated to a state is available for safety projects. Safety projects would include projects such as hazard elimination and rail crossing safety. The need for these projects is recognized by using FHWA hazard identification methodology. NDOT and the local entities work cooperatively to bring forward projects for programming under this category.

STP Enhancement. 10% of the STP funding allocated to a state is available for enhancement projects, which includes provision of facilities for pedestrians and bicycles, acquisition of scenic easements and scenic or historic sites, landscaping, preservation of abandoned railway corridors, removal of outdoor advertising and

mitigation of water pollution due to highway runoff. The RTC has set as its top priority for Enhancement Program funding the development of pedestrian and bicycle facilities, landscaping and mitigation of water pollution due to highway runoff.

STP-Statewide. 80% of the STP allocation (excluding STP Safety and Enhancement Programs, which receive approximately 10% each) comes to the state for distribution under STP Statewide and STP Urbanized Area. Major state priority capacity projects are funded under the STP Statewide Category.

STP Urbanized Areas. 65% of STP funds will be allocated to urbanized areas of the state with an urbanized area population of 200,000 or more. The two urbanized areas of Nevada meeting this requirement are Las Vegas and Reno-Sparks. Projected revenues for STP-Washoe County are approximately \$45 million for FY 2011-2015.

Congestion Mitigation Air Quality Funds (CMAQ)

ISTEA established and SAFETEA-LU continues the CMAQ program as a means to fund projects that contribute to the attainment of a national ambient air quality standard. Projects funded with CMAQ program dollars must have been included in the State Air Quality Implementation Plan (SIP) approved pursuant to the Clean Air Act or have substantial air quality benefits.

Both SAFETEA-LU and the Clean Air Act Amendments direct an MPO to expeditiously implement all transportation control measures identified in the SIP. To that end, the RTC, in concurrence with its Technical and Citizen Advisory Committees, has funded the following projects with CMAQ funds:

1. Traffic Management Program
2. Replacement of the public transit (RTC RIDE, RTC ACCESS) fleets
3. Intersection Geometric Improvement Program
4. Trip Reduction Programs
5. RTC RIDE Operating Assistance

CMAQ funds can only be expended in areas identified by the U.S. Environmental Protection Agency (U.S. EPA) as in non-attainment of a national air quality standard or in maintenance areas, which subsequently receive an attainment designation from EPA. Within Nevada, these funds are divided between Clark County and Washoe County based upon an approved formula that considers population and the severity of the area's carbon monoxide and ozone air pollution problems. CMAQ funding cannot be used for projects that result in new capacity for single-occupant vehicles. For programming purposes, it has been assumed that CMAQ funding of approximately \$47 million will be devoted to projects within Washoe County in FY 2011-2015.

Other Roadway Funds

Federal legislation provides the potential for roadway funding under many other unique categories. These may include Bureau of Indian Affairs (BIA) funding of roads on

Native American held lands, Federal Enhancement Funds, Forest Highway funding, Interstate Discretionary funding, Scenic Byways and state and local matching funds.

FTA Section 5307

The Federal Transit Administration (FTA) provides Section 5307 Formula Funds to urban areas with a population of 50,000 or more. There have been some revisions to this formula grant program under SAFETEA-LU. For urbanized areas with population less than 200,000, funding may be used for either capital or operating costs at local option without limitation. For urbanized areas with population of 200,000 or more, the definition of "capital" has been revised to include preventive maintenance. Operating assistance is no longer eligible for these large areas, as is the case with the Reno-Sparks metropolitan area. The funds projected to be available each year for urbanized areas with populations more than 200,000 are based on a formula that considers the population and density of the region as well as revenue vehicle miles of service. The federal contribution is up to 80% in capital expenditures with a required local match of at least 20%.

FTA Section 5309

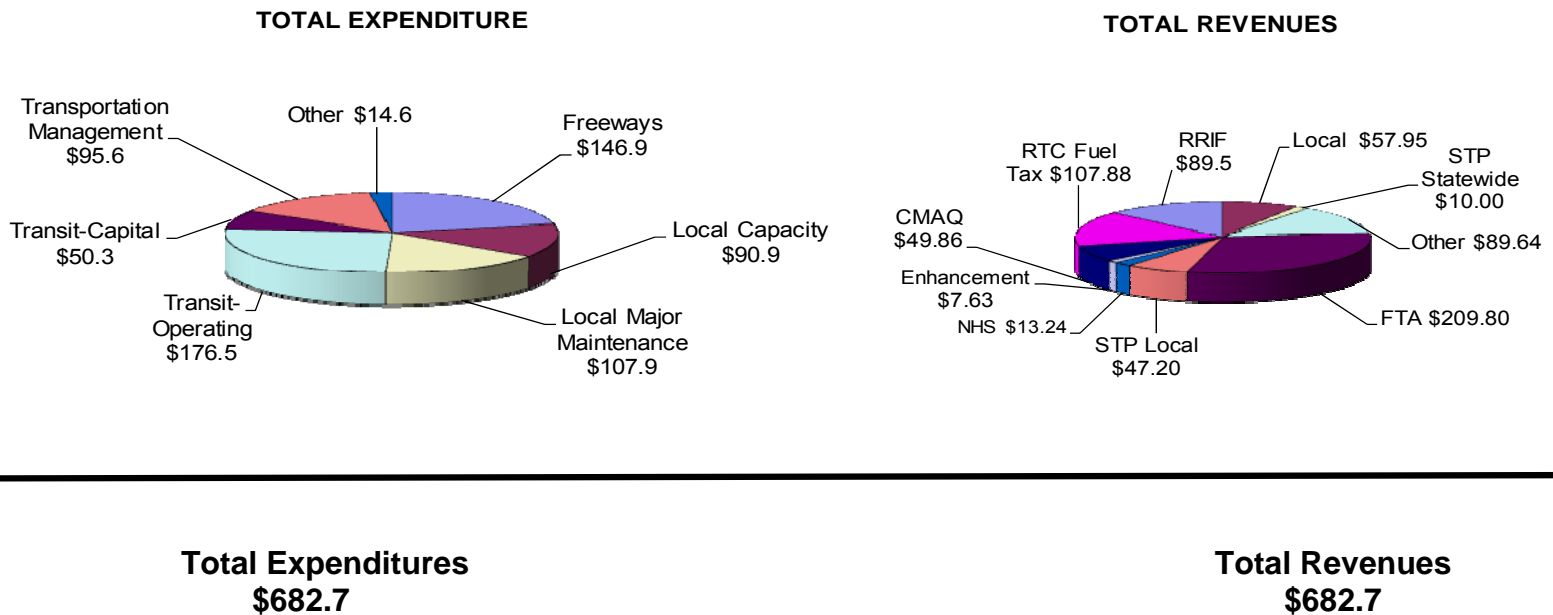
Under SAFETEA-LU, the FTA Section 5309, Discretionary Capital Grants and Loan Program, funds three major capital programs: new fixed guideway systems; extensions to existing fixed guideway systems; and bus and bus related facilities. The remaining funds are used for other FTA-sponsored programs. These funds are discretionary and their availability is not guaranteed.

Financial Summary

Figure 8-1 represents a summary of revenues and expenditures for the FY 2011-2015 RTIP. Expenditures are divided into the transportation mode in which the funds are to be expended. Revenues are categorized by the funding source including STP-Local, CMAQ, NHS, RTC Fuel Tax, RRIF, FTA, bonds and Federal Enhancement funding.

The project listing for this RTIP includes \$248 million in bond repayments (under STP-Statewide, NHS and State Gas Tax) for three projects statewide including the US 395 extension, US 95 in Las Vegas and the Carson City Freeway. This amount has not been included in the financial summary for this RTIP as the allocation of the bond repayments to each project has not been determined.

**Figure 8-1
FY 2011—2015 RTIP
Expenditures & Revenues
(\$ Millions)**



Chapter 9: AIR QUALITY ANALYSIS AND CONFORMITY DETERMINATION

Introduction

As discussed in Chapter 1, the 1990 Clean Air Act Amendment (CAAA) and the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 signaled the intent of Congress to promote major reforms in the transportation planning process. The conformity provisions of the CAAA established important new requirements that transportation plans, programs and projects conform to the "purpose" of the State Implementation Plan (SIP). The SIP is a formal submission of the region's air quality strategy to the federal government. SAFETEA-LU legislation has not significantly altered the air quality analysis and conformity determination process.

Because emissions from motor vehicles make a significant contribution to air pollution, the CAAA requires that transportation officials make a commitment to programs and projects that will help achieve air quality goals. Among these goals are providing for greater integration of the transportation and air quality process; ensuring that transportation plans, programs and projects conform with the SIP and contribute to attainment of national standards; and reducing the growth in vehicle miles traveled (VMT) and congestion in areas that have not attained the Environmental Protection Agency's (EPA) air quality standards. The federal standards require that certain pollutants do not exceed specified levels more than one day a year. Ozone may not exceed the standard more than one day a year averaged over a three-year period. Areas that violate this standard for specified pollutants are designated as non-attainment areas.

The core area of the Truckee Meadows is designated as the Hydrographic Basin #87 (HA #87) (**Figure 9-1**). This basin is fully incorporated within the metropolitan planning area boundary. The current status of the various pollutants in Washoe County is listed below:

- CO (8-hr): Attainment/maintenance for the Basin
 Attainment/unclassifiable for the rest of Washoe County
- PM₁₀ (24-hr): Serious non-attainment for the Basin
 Attainment for the rest of Washoe County

Regional emissions analyses were performed for each pollutant to document conformity with the CAAA as part of the RTP. PM₁₀ continues to be a problem, although progress has been made in reducing emissions due to many regional efforts to improve air quality.

Conformity of the RTIP, State Transportation Improvement Program (STIP) and RTP with the requirements of the CAAA is essential to continued federal transportation funding and project implementation. Conformity determinations have been made for the current RTIP and RTP. However, Washoe County needs to continue to implement Transportation Control Measures (TCMs) to reduce transportation emissions by reducing vehicle miles of travel and making all travel on the system more efficient.

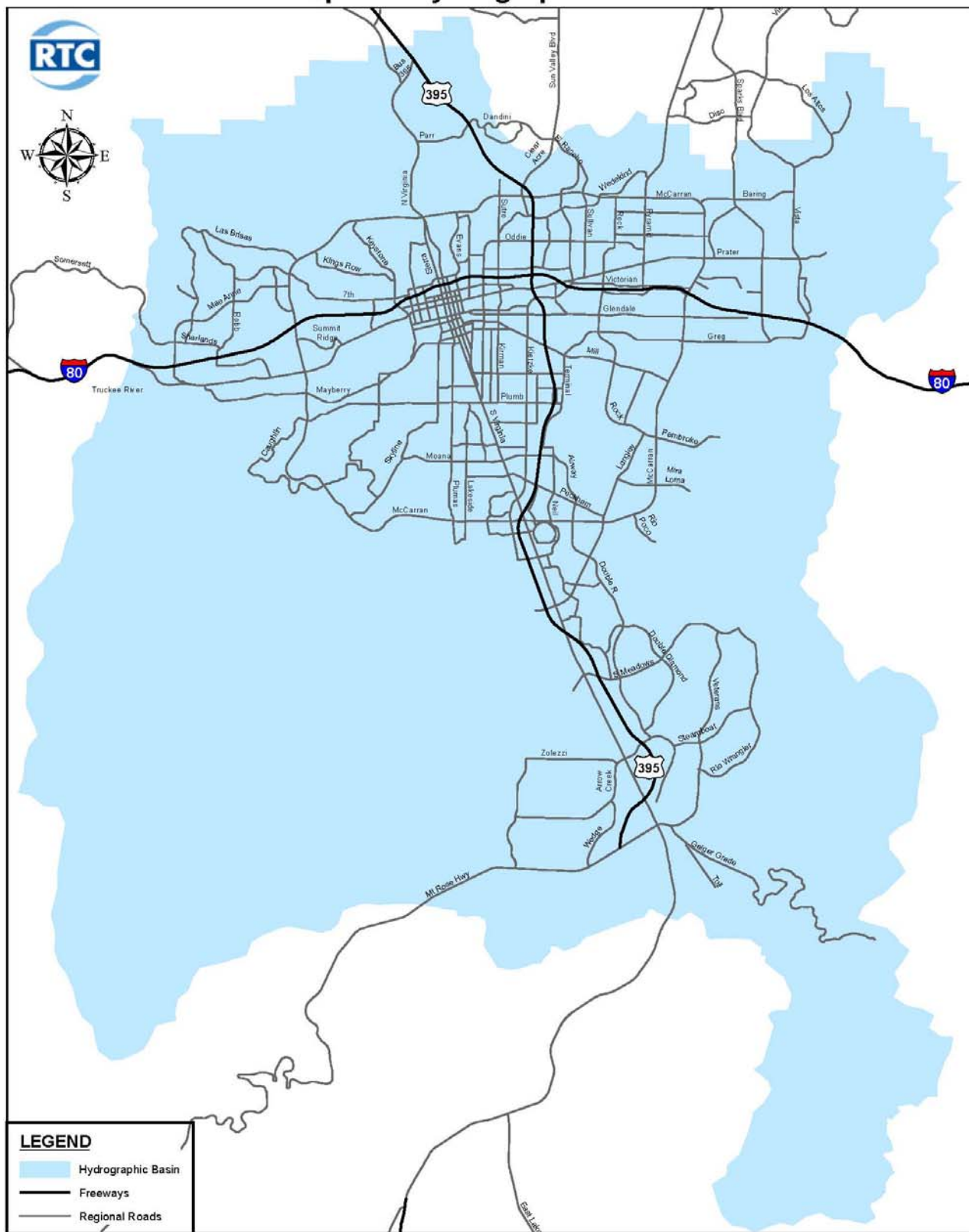
A regional emissions analysis must be performed for each pollutant the area is determined to be in non-attainment or maintenance. For both CO and PM₁₀, the analysis of emissions for the required years cannot exceed the motor vehicle emission budgets (MVEB) established for the Hydrographic Area #87 (HA #87).

Travel Demand Forecasting and Mobile 6.2.2 Emission Model

The Regional Transportation Commission uses the Travel Forecasting Model (TFM) EMME3. Originally developed by the University of Montreal, EMME3 has evolved into a commercial product that is now the most widely used travel demand forecasting software in the world. The RTC's EMME3 model was calibrated to 2006 population and employment and 2005 traffic count data and has been validated as meeting or exceeding industry standards.

The EPA Office of Air and Radiation, Office of Mobile Sources, Emission Control Technology Division, Test and Evaluation Branch developed the MOBILE 6.2.2 Emission Model. On-road motor vehicle emission factors for each analysis year were generated from the MOBILE 6.2.2 model. Emissions were calculated using the latest planning assumptions including population, land-use and vehicle miles traveled (VMT). The Washoe County District Health Department, Air Quality Management Division (WCDHD-AQMD) staff assisted RTC in calculating the amount pollutants generated by various scenarios. Staff maintains documentation regarding the parameters utilized in the MOBILE 6.2.2 analysis. It should be noted that carbon monoxide (CO) and particulate matter (PM₁₀) emissions were analyzed for a typical winter day, which is considered to be worst case conditions.

**Figure 9-1
Reno/Sparks Hydrographic Area #87**



Air Quality Analysis—Plan Requirements

Federal regulations are specific in defining the level of air quality analysis necessary for incorporation into the RTP. Section 93, Title 40 of Code of Federal Regulations (CFR) dated August 15, 1997 (effective September 15, 1997), pertains to the criteria and procedures necessary to analyze the air quality impacts of the RTP for carbon monoxide non-attainment areas such as Washoe County. These requirements are summarized below:

- A. The RTP must contribute to emission reductions in CO non-attainment/maintenance areas.
- B. Air quality analysis years must be no more than 10 years apart.
- C. In PM₁₀ and CO non-attainment/maintenance areas, analysis must be performed for both pollutants.
- D. The first analysis year must be no more than five years beyond the year in which the conformity determination is being made (2011).
- E. The last year of the RTP (2030) shall also be an analysis year.
- F. For both CO and PM₁₀, the analysis of emissions for the required years cannot exceed the motor vehicle emission budgets (MVEB) established for the Hydrographic Area #87.

Air Quality Analysis-Crediting Provisions

Federal regulations also allow for crediting procedures over the life of the RTP for the implementation of Transportation Control Measures (TCMs) in which emissions reductions can be quantified. These TCMs are critical to areas such as Washoe County that have and are expected to continue growth in population and VMT. Several specific TCM measures are in progress or planned in Washoe County that will have quantifiable emissions reductions. These include:

- A. Traffic signal optimization program.
- B. Conversion of public transit and paratransit fleets to CNG or cleaner burning diesel fuels.
- C. Implementation of trip reduction programs.

These TCMs have been the focus of studies to quantify the air quality benefit of each. Where applicable, credits for these TCM measures and the research done to quantify the benefits of each have been incorporated into the conformity determination section of the RTP.

Traffic Signal Optimization/Timing Upgrade Program

Traffic signal coordination and improvements seek to achieve two primary objectives: 1) improved traffic flow resulting in improved level of service and 2) mobile source emission reductions through decreased delay, fewer accelerations/decelerations and a decreased number of stops. The RTC has reviewed several studies and federally accepted models to quantify the reduction of mobile emissions from signal coordination programs. These include signal coordination studies conducted by several cities in southern California and the California Department of Transportation (CALTRANS). A comparison of before and after field studies was conducted and the improvements in all three peak periods were noted. Examples included a statewide average reduction of 14 seconds in stop delay and a 12% reduction in the number of stops per mile in the afternoon peak period. Several methodologies were used to take the results of studies to quantify the emission reductions from signal coordination programs.

The pollution reduction results (tons/per day or percentage reduction) from each model vary as some models focus on corridor specific reductions while the others are more of an area-wide reduction projection. Pollutant reductions ranged from 11% along specific corridors to 3% to 4% on a regional level.

The RTC has initiated a region-wide traffic management program to enhance the capacity of the existing system and reduce traffic congestion in the region.

Although, the emission model reduction estimates taken from the southern California and other studies could reasonably support a regional emission reduction credit of 3-4%, the RTC has chosen at this time to take only a 1% credit for signal coordination programs in Washoe County through the year 2030. Additional credit may be taken in the future, if conditions warrant.

Conversion of RTC ACCESS and RTC RIDE Fleets to Alternative or Cleaner Burning Fuels

Over 7 million annual miles are driven by the RTC RIDE public transit and RTC ACCESS paratransit service. While this is a small percentage of total daily travel, it is important in terms of air quality. Present and future conversions of these fleets to compressed natural gas (CNG) or cleaner burning fuels can reduce mobile emission totals. Estimates by the Southern California Air Resources Board between standard urban diesel and cleaner burning diesel or CNG determined that NO_x emissions from vehicles with CNG or cleaner burning diesels were reduced approximately 60%. This relationship was augmented from a study entitled *Public Transportation Alternative Fuels* done in June of 1992 by Booz-Allen and Hamilton.

All RTC ACCESS vehicles have been converted to CNG or cleaner burning diesels. For the RTP, the RTC is not taking any credit for reduced emissions due to the use of cleaner burning fuels but may choose to take credit in the future if conditions warrant.

Trip Reduction Programs

The effectiveness information on these programs comes from national studies conducted after 1979 by both the U.S. Department of Transportation and the National Association of Regional Councils (NARC). Estimates of VMT reductions have ranged as high as 3%. For the RTP, a 0.60% reduction in total VMT in all build scenarios was taken for the implementation of the RTC's trip reduction programs. Additional credit may be considered in the future if conditions warrant.

The RTC's trip reduction programs are discussed at length in Chapter 4 and include a variety of programs such as the bus pass subsidy program, RTC VANPOOL program, RTC RIDESHARE (free carpool matching program), guaranteed ride home (GRH) program and the park-and-ride-program. These are ongoing programs intended to promote trip reduction strategies on a region-wide basis within Washoe County.

- The bus pass subsidy program encourages transit ridership working with local business partners. The number of participants (both employers and employees) has continued to grow since the inception of the program, aiding in the reduction of congestions and improvement of air quality standards in the region.
- The RTC VANPOOL program has been a very successful and popular program since it began in 2007.
- The RTC RIDESHARE program is a web-based rideshare matching service that uses modern mapping technology.
- The guaranteed ride home (GRH) program provides an additional incentive to ridesharing. The program is for unexpected/unscheduled trips home from work for personal or family illness, unexpected overtime, or other emergencies.
- Park-and-ride locations are available to the public throughout the region. These facilities support the RTC RIDE service as well as the vanpool and rideshare programs.

These programs have succeeded in developing community awareness and building partnerships between the public and the private sectors. The program goals are to dramatically increase the number of employers and employees involved in trip reduction and to make measurable inroads into improving air quality and reducing VMT.

Air Quality Analysis-Conformity Determination

RTC Traffic Model Modifications

The last air quality conformity determination was made in November 2004, with a conformity finding issued by the U.S. Department of Transportation in April 2005. To meet the requirements of 40 CFR Section 93 of the air quality conformity regulations, 2015, 2018, 2028 and 2030 networks were established for the RTP air quality analysis. The 2015 network consists of the current roadway network, the current transit network (including BRT service in the South Virginia corridor) and the projects contained in this RTIP. Each of the remaining networks is comprised of the previous horizon networks and the capacity projects necessary to meet policy level of service by the identified timeframe - see Chapter 3, Table 3-6 of the RTP for a listing of the projects.

Air Quality Analysis

An emission test on both CO and PM₁₀ must be successfully completed to make a finding of conformity. The area of analysis for these pollutants is the Hydrographic Area #87 (HA #87). As stated previously, the emissions for both pollutants for the required analysis years cannot exceed the motor vehicle emission budgets established for HA #87. Analysis is performed for 2015, 2018, 2028 and 2030 for both pollutants.

To initiate the air quality conformity determination, the emission levels for the pollutants in each analysis year are generated. The VMT for each facility type is derived from the RTC's traffic model. The assumption of VMT for local streets is a percentage of the total VMT for collector and major and minor arterials on the Regional Road System (RRS) taken from the traffic model. The VMT for all facilities is then multiplied by an emission rate (from the MOBILE 6.2.2 emissions model) for the average speed of vehicles traveling that facility type. Totals of emissions for each facility type are then added to get a daily emission total for the roadway system in the analysis area. Emission totals are show in pounds per day (lb/day).

CO Analysis

The Motor Vehicle Emissions Budget (MVEB) for carbon monoxide (CO), effective March 30, 2006, is shown in **Table 9-1**, which also includes the CO emissions for all analysis years of the RTP. All RTP analysis years are within the MVEB. The tables supporting this analysis are contained at the end of this chapter (**Tables 9-3 to 9-10**).

**Table 9-1
CO Emissions Analysis
(lbs/day)**

Analysis Year	MVEB	RTP Analysis
2015	330,678	216,519
2018	321,319	243,388
2028	321,319	252,897
2030	321,319	278,418

PM₁₀ Analysis

The MVEB for PM₁₀, effective June 2, 2010, is shown in **Table 9-2**, which also includes the PM₁₀ emissions for all analysis years of the RTP. All analysis years are shown to be in conformity. The tables supporting this analysis are contained at the end of this chapter.

**Table 9-2
PM₁₀ Total Emissions
(lbs/day)**

Analysis Year	MVEB	RTP Analysis
2013	20,871	13,201
2018	20,836	13,826
2028	20,816	17,605
2030	20,816	18,902

Summary

The past and projected growth in population and VMT in Washoe County is well documented throughout the RTP. A strong commitment to fund and implement feasible TCM measures must be made if acceptable air quality standards are to be sustained. The local jurisdictions and NDOT, through the RTP process, have made the commitment to fund TCMs such as ridesharing, traffic flow improvements, signal coordination and conversion of public transit and paratransit fleets to cleaner burning fuels. Based on existing and planned commitments, the air quality analysis conducted in this chapter demonstrates that the required air quality conformity determination can be made and the RTP shown to be in conformance with federal air quality regulations.

Table 9-3

2015—Emissions by Facility												
Facility	VMT	Adjusted VMT	Emission Factor (lbs/mi)			Emissions (lbs/day)						
			CO	On-Road Vehicles PM ₁₀	Paved Road Fugitives PM ₁₀	CO	On-Road Vehicles PM ₁₀	Paved Road Fugitive PM ₁₀	Road Construction PM ₁₀	Unpaved Road Fugitives PM ₁₀	Diesel Idling PM ₁₀	Total PM ₁₀ Emissions
Local (Collector)	778,299	765,846	0.02884	0.00002	0.00268	23,275	19	2,163				
(Minor)	427,360	420,522			0.00268			1,174				
(Major)	1,286,848	1,266,258			0.00117			1,559				
M6 Arterial	2,177,286	2,142,449			0.00117			2,650				
Freeway	3,891,494	3,829,230	0.02622	0.00002		105,822	94					
Ramps	2,669,584	2,626,871	0.02834	0.00002	0.00117	77,516	64	3,201				
TOTALS	305,786	300,893	0.03180	0.00002	0.00268	9,906	7	835	526	893	16	13,201

Totals may vary slightly due to rounding

* Collector, Minor Arterial and Major Arterial VMT used for Paved Road PM₁₀ calculations only.

** M6 Arterial (which is Collectors, Minor Arterials and Major Arterials added together) used for CO and PM₁₀ tailpipe emission calculations only.

1.00% credit for Traffic Signal Optimization/Timing Upgrade Program

0.60% credit for Trip Reduction Programs

Table 9-4

2018—Emissions by Facility												
Facility	VMT	Adjusted VMT	Emission Factor (lbs/mi)			Emissions (lbs/day)						
			CO	On-Road Vehicles PM ₁₀	Paved Road Fugitives PM ₁₀	CO	On-Road Vehicles PM ₁₀	Paved Road Fugitive PM ₁₀	Road Construction PM ₁₀	Unpaved Road Fugitives PM ₁₀	Diesel Idling PM ₁₀	Total PM ₁₀ Emissions
Local	929,310	914,441	0.02687	0.00002	0.00268	24,567	16	2,451				
(Collector)	479,307	471,638			0.00268			1,264				
(Minor)	1,442,411	1,452,418			0.00117			1,661				
(Major)	2,724,833	2,681,236			0.00117			3,137				
M6 Arterial	4,646,551	4,572,206	0.02447	0.00002		111,886	79					
Freeway	3,593,836	3,536,335	0.02712	0.00002	0.00117	95,916	61	4,137				
Ramps	383,255	377,123	0.02922	0.00002	0.00268	11,019	6	1,011				
TOTALS	9,545,299	9,400,105				243,388	162	13,661	522	1,034	17	15,396

Totals may vary slightly due to rounding

NOTES:

- * Collector, Minor Arterial and Major Arterial VMT used for Paved Road Fugitives PM₁₀ calculations only.
- ** M6 Arterial (Collectors, Minor Arterials and Major Arterials added together) used for CO and On-Road Vehicles PM₁₀ calculations only.
- *** The PM₁₀ emissions categories given as totals only are from the Truckee Meadows PM₁₀ Maintenance Plan Motor Vehicle Budgets (MVEB).

1.00% credit for Traffic Signal Optimization/Timing Upgrade Program
 0.60% credit for Trip Reduction Programs

Table 9-5

2028—Emissions by Facility												
Facility	VMT	Adjusted VMT	Emission Factor (lbs/mi)			Emissions (lbs/day)						
			CO	On-Road Vehicles PM ₁₀	Paved Road Fugitives PM ₁₀	CO	On-Road Vehicles PM ₁₀	Paved Road Fugitive PM ₁₀	Road Construction PM ₁₀	Unpaved Road Fugitives PM ₁₀	Diesel Idling PM ₁₀	Total PM ₁₀ Emissions
Local (Collector)	1,077,643	1,060,401	0.02465	0.00001	0.00268	26,134	13	2,842				
(Minor)	538,300	529,687			0.00268			1,420				
(Major)	1,639,077	1,612,852			0.00117			1,887				
M6 Arterial	3,210,839	3,159,466			0.00117			3,696				
Freeway	5,388,216	5,302,005	0.02208	0.00001		117,074	67					
Ramps	4,175,303	4,108,498	0.02401	0.00001	0.00117	98,510	52	4,807				
TOTALS	429,336	422,467	0.02646	0.00001	0.00268	11,176	5	1,132	518	1,147	19	17,605

Totals may vary slightly due to rounding

NOTES:

- * Collector, Minor Arterial and Major Arterial VMT used for Paved Road Fugitives PM₁₀ calculations only.
- ** M6 Arterial (Collectors, Minor Arterials and Major Arterials added together) used for CO and On-Road Vehicles PM₁₀ calculations only.
- *** The PM₁₀ emissions categories given as totals only are from the Truckee Meadows PM₁₀ Maintenance Plan Motor Vehicle Budgets (MVEB).

1.00% credit for Traffic Signal Optimization/Timing Upgrade Program
 0.60% credit for Trip Reduction Programs

Table 9-6

2030—Emissions by Facility												
Facility	VMT	Adjusted VMT	Emission Factor (lbs/mi)			Emissions (lbs/day)						
			CO	On-Road Vehicles PM ₁₀	Paved Road Fugitives PM ₁₀	CO	On-Road Vehicles PM ₁₀	Paved Road Fugitive PM ₁₀	Road Construction PM ₁₀	Unpaved Road Fugitives PM ₁₀	Diesel Idling PM ₁₀	Total PM ₁₀ Emissions
Local (Collector) (Minor) (Major)	1,150,493 539,228 1,711,637 3,501,745	1,132,085 530,600 1,684,251 3,445,717	0.02458	0.00001	0.00268	27,823	14	3,034				
M6 Arterial	5,752,610	5,660,568	0.02234	0.00001		126,439	69					
Freeway	4,624,995	4,550,995	0.02449	0.00001	0.00117	111,437	55	5,325				
Ramps	489,679	481,844	0.02640	0.00001	0.00268	12,719	6	1,291				
TOTALS	12,017,777	11,825,492				278,418	144	17,074	518	1,147	19	18,902

Totals may vary slightly due to rounding

NOTES:

- * Collector, Minor Arterial and Major Arterial VMT used for Paved Road Fugitives PM₁₀ calculations only.
- ** M6 Arterial (Collectors, Minor Arterials and Major Arterials added together) used for CO and On-Road Vehicles PM₁₀ calculations only.
- *** The PM₁₀ emissions categories given as totals only are from the Truckee Meadows PM₁₀ Maintenance Plan Motor Vehicle Budgets (MVEB).

1.00% credit for Traffic Signal Optimization/Timing Upgrade Program
 0.60% credit for Trip Reduction Programs

APPENDIX A: CAPACITY PROJECT PRIORITY SETTING PROCESS

This document provides a description of the process used to identify and prioritize capacity improvement projects undertaken or supported by the Regional Transportation Commission (RTC). The document provides background on the policy direction on capacity improvements given by the RTC Board through the 2030 Regional Transportation Plan (RTP) and other RTC Board guidance and improvements to the current process made possible by advances in technology. In addition, the document will discuss significant practical issues relating to capacity priority and the various factors that were considered in arriving at the process identified herein.

Background Information

The Regional Transportation Plan (RTP) identifies hundreds of capacity improvement projects that will be needed over the next 20-30 years to meet the community's goals for mobility, congestion and air quality. Funding is not available to construct all of these projects at one time. Even if the funding were available, there is insufficient industrial capacity to do this much work all at once. Finally, doing all the projects immediately would be economically inefficient since many of the improvements will not be needed for many years and maintaining unneeded facilities would squander valuable public resources. Ideally, a capacity project priority setting process will reasonably address these issues so that available funding is spent on building those projects having the greatest benefit for the community at the time they are needed, that is, building the right project at the right time.

Policy Guidance

The primary purpose of capacity improvements is to address traffic congestion within the community. The 2030 RTP contains the following objectives and policies related to this purpose:

Street and Highway Congestion Objectives

1. Average per capita daily delay increase will not increase above 2000 levels more than 20% in 2007, 30% by 2012; 40% by 2020 and 50% by 2030.
2. All signalized intersections will be within policy level of service by the year 2012 and maintained at that policy level of service thereafter.

Street and Highway Congestion Policies

- Existing and future traffic needs for the Regional Road System (RRS) will be determined through technical analyses and prioritized based upon the most cost effective solutions to congestion.
- Assure adequate right-of-way for the construction of future streets and widening of existing streets through timely advance planning and preliminary design, property acquisition, dedication of easements and development setbacks.
- The level of service standards as shown in **Table 2-2** will be used for assessing the need for and location of future street and highway improvements for Washoe County at a planning level. As appropriate, design of facilities will be based upon more detailed operational analysis.

In addition to the above-stated congestion related objectives and policies, the RTP also includes policy guidance to consider factors in addition to congestion in prioritizing capacity improvements.

- Prioritize street and highway funding for capacity improvements to promote in-fill development and higher intensity development along transit-oriented development (TOD) corridors and within downtown, regional and emerging employment centers.

Conceptual guidance for updating the RTC's historic capacity priority setting process was received from the RTC Board in July 2005 as follows:

While the current methodology of identifying project priorities has served the community well, advances in the capability of the RTC's travel forecasting tools and other technology offer opportunities to further evolve and improve this process. The improved process should be developed in consultation with the affected local governments and incorporate the following conceptual recommendations as far as they prove technically feasible:

- 1. The RTP should continue to be used identify and time stratify regional capacity projects. The projects from the first planning horizon (currently 2005-2012) should be supplemented, in consultation with local governments, with the specific intersection and signal projects that will be needed within the planning horizon.*
- 2. All projects identified in Step 1 should be ranked using a benefit cost analysis (BCA) process that will consider the benefits of reduced travel time, reduced delay time and safety and the costs of designing, constructing and maintaining the project.*
- 3. The BCA ordered projects should be assigned to the best-fit funding categories and prioritized within those categories according to their BCA rankings.*

4. *The priorities by funding type should be further adjusted based upon other considerations as outlined in this memo above, e.g., conflicts with other work, coordination/integration with private development, etc.*
- 5 *The prioritized projects should be presented to the Board periodically for its review and approval.*

Key Concepts

Time Stratification of Projects. Perhaps the best place to start a discussion of project priorities is to identify the “right” time for building a project. Time stratifying projects based upon when they will be needed is a valuable method for identifying reasonable priorities. Without time stratification, it is possible that a project not needed to address congested conditions for 30 years would be given a higher priority over a project that addresses current needs, a result that makes little sense. This is not to ignore the fact that some projects are evolutionary, that is, a project built as an initial phase to meet an immediate need may later be evolved to a higher order facility to meet a future need. Further, a project may need to be broken into components that are executed over many years and must be treated as discrete projects for the purpose of priority setting. For instance, it may make sense to breakout preliminary design and right-of-way acquisition for a large project from the final design and construction so that the project can be in place when needed. The Regional Transportation Plans (RTP) created by the RTC identify needed regional capacity improvements and assign them to time strata typically from 5-10 years in length, with the shorter periods addressing more near-term needs.

Benefit Cost Analysis. Once projects have been time stratified, the next level of analysis is to determine which of the projects in the first time stratum, e.g. 2004-2012, should be built first. Benefit Cost Analysis (BCA), which ranks projects by calculating the ratio of their benefits to costs, is a methodology typically employed for this type of screening. Classical BCA reduces all benefits and costs to dollar values. Variations of classical BCA using other types of units and multiple measures have also been used. While the details of BCA vary depending upon whether it is being used for broad planning purposes or detailed analysis of alternatives for a single project, the principles are the same:

1. Establish objectives
2. Identify constraints and specify assumptions
3. Define the base case and identify alternatives
4. Set analysis period
5. Define the level of effort for screening alternatives
6. Analyze traffic effects
7. Estimate benefits and costs relative to the base case
8. Evaluate risk
9. Compare net benefits and rank alternatives
10. Make recommendations

While application of BCA is theoretically simple, it can quickly become a very complex matter in reality. An almost infinite range of benefits can be identified for any project and each one of these benefits could be analyzed to an infinite level of detail. Typically, only a handful of benefits are really significant and an effective BCA process must focus on cost effectively identifying and quantifying these. To legitimately compare projects using BCA, the benefits considered the level of analysis and the methodology need to be consistent across all the projects.

The types of benefits typically considered in highway projects are:

Benefits and Costs Typically Considered in Benefit-Cost Analysis			
Agency Costs	User Costs/Benefits Associated With Work Zones	User Costs/Benefits Associated With Facility Operations	Externalities (non-user impacts, if applicable)
Design and Engineering Land Acquisition Construction Reconstruction/Rehabilitation Preservation/Routine Maintenance Mitigation (e.g., noise barriers)	Delay Crashes Vehicle Operating Costs	Travel Time and Delay Crashes Vehicle Operating Costs	Emissions Noise Other impacts

Source: Federal Highway Administration

BCA measures the direct benefits and costs that a project causes for highway agencies, travelers (users) and, in the case of externalities, to non-users affected by the project. Direct benefits and costs are the first order or immediate impacts of the transportation project on users and non-users including changes in travel time, crashes, vehicle operating costs, agency construction costs and pollution costs.

Other Considerations in Establishing Priority. As stated above, BCA requires that comparable data be available for all projects being ranked. This does not mean that other factors cannot be considered, but simply that they must be considered outside of the BCA process as part of the larger discussion of establishing priorities. Such considerations include:

Economic impacts. BCA typically does not measure how direct project benefits and costs are converted into indirect effects on the economy, such as changes in employment, wages, business sales or land-use. When appropriate, these indirect effects are typically considered in a separate economic impact analysis. Since economic impact analyses are expensive and time consuming, they are not typically done for every project. Under these circumstances, since data is not available for all projects being compared, the consideration of economic impacts needs to occur outside of the BCA process.

Project funding. Probably the most significant other factor is the type of funding that may be used for a project. Funds for highway projects can come from a variety of local, state and federal sources, each with their own eligibility processes and criteria. A

project that has the highest benefit cost ratio may not be the best fit or even eligible for those funds that are immediately available. It is then prudent, or perhaps necessary, to defer execution of this project until the best fit funding does become available. For example, impact fees cannot be used for making improvements to the mainline freeway. In this case, the project is simply not eligible. While fuel tax funds could be used for a freeway project, this might not be a very good fit since federal or state funds would be more appropriate.

Miscellaneous factors. A high priority project may need to be deferred until major underground utility work is performed. In other cases, the private sector may request a delay to enable better coordination and/or integration of the project with their adjacent development activities.

Practical Considerations

Limits of the RTP Process. While capacity improvements to roadway segments, including intersection and signal improvements within those segments, can be fairly accurately identified through the RTP process, the specific locations of isolated intersection and signal improvements cannot. However, the RTP includes financial placeholders for these anticipated spot improvements. The specific locations of these isolated projects are typically identified empirically in collaboration with the local governments or through intersection traffic counts and subsequently incorporated during the development of the Regional Transportation Improvement Program (RTIP). Spot intersection/signal improvements are also not amenable to the same type of analysis that can be performed on roadway segments by the RTC's traffic forecasting tools and, as a result, the array of benefit data for spot intersection/signal improvements is not comparable to the roadway segment projects. For this reason, separate priority setting tracks have been established for these two categories of projects.

Funding Allocation. As noted above, strictly comparable BCA analyses of road segments and spot intersection/signal improvements is problematic and the relative merit of these projects one to another is difficult to quantify. To insure adequate funding for both vital categories, it is recommended that available local and federal/state capacity funding be allocated to each category of projects based upon the proportion of funding anticipated in the nearest time horizon of the RTP. The current 2004-2012 percentage breakdown for local funding would be 89% to road segments and 11% to spot intersection/signal improvements. The percentages for federal/state funding would be 66% for road segments and 34% for spot intersection/signal improvements. These percentages should be considered a guideline for the time period and may need to be varied from year to year due to lumpiness, project readiness, etc. Similarly, these allocation guidelines should not be applied to each individual source but to the collective funding available.

Limitations of the Data. Application of BCA requires that comparable data be available for all projects. As a practical matter, the need for data must also be balanced against the cost of acquiring it. While having a detailed design for every project would insure greater accuracy in the BCA process, this would cost tens of millions of dollars

and take years to prepare. By the time the later projects were ready to go to construction, many of the plans would be out of date and need to be redone. At this time, data of sufficient quality is available for determining project benefits for travel time reductions, delay time reductions, crashes and emissions for all new roadways or roadway widenings. Some of this data is provided directly from the RTC's traffic forecasting tools and others are derived from other local and national sources. Cost estimates for design, construction, right-of-way (ROW) and maintenance are typically based upon unit historical cost information or, in some cases, estimates from more detailed project studies are available. For spot intersection/signal improvements, the data set available for benefit comparison across all of this type of project is limited to delay reduction; costs data is comparable to that available for road segment projects.

Significance of BCA Benefit Elements. As stated above, a staggering number of different types of "benefits" can be identified. The vast majority of these, however, will have little, if any, impact on the relative outcome of BCA. The literature indicates that for highway projects, the benefits of travel time reduction and delay reduction are typically much greater than any other benefits. Analysis based upon local data indicates that these two benefits typically account for more than 90% of total benefits. Crashes and emissions benefits combined typically account for less than 10% of total benefits and other factors, such as operating costs, fall off dramatically in importance. Based upon this and the cost of acquiring data across all projects, the RTC priority setting process for roadway segments considers only reduced travel time, reduced delay time, crashes and emissions in the BCA. The parallel BCA process for spot intersection/signal improvements considers only delay time. BCA should not be confused with the analysis of benefits that may be undertaken through the National Environmental Policy Act (NEPA) process. In this process, BCA is used to distinguish the relative merits of a group of projects to establish priorities. Further, the factors that are considered in this BCA are limited to travel time reduction, delay time reduction, crashes, emissions and costs. The NEPA process typically identifies reasonable alternatives for a single project and documents their environmental impacts. Also, the NEPA process may look at many more issues than just those being examined in the priority setting process, e.g., wetlands, waters of the US, cultural impacts, etc.

The Meaning of BCA Results. One of the outputs of classical BCA is the benefit cost ratio. The benefit cost ratio is the dollar value of project benefits divided by the dollar value of project costs. Theoretically, a cost benefit ratio greater than 1 indicates that it provides more benefits than it costs and is, therefore, worth doing. There are several significant pitfalls with putting this theory into practice when we are considering large numbers of projects at a planning level of analysis. First, the estimates of benefits and costs are never 100% accurate. Construction and ROW cost estimates are based upon very preliminary information. Secondly, the assumptions made for the value of delay time, crashes emissions, useful life, etc. can make a significant impact on the order of magnitude of the benefit numbers. Finally, other factors not considered in the formal BCA, e.g., economic benefits, may be of sufficient magnitude to justify undertaking a project. Nonetheless, if reasonably consistent data and assumptions are used across the spectrum of projects, the resulting benefit cost ratios are a good indicator of the relative merits of one project compared with another; it simply must be kept in mind that,

at this level of analysis, a benefit cost ratio of less than 1 does not necessarily mean that the project is not worth doing.

Amendment and Consistency of the Capacity Priority Setting Process. The priority setting process will incorporate the best cost data and methodologies available from reputable sources. As better methodologies and data become available or as problems encountered with the practical application of this process dictate the need for adjustments, these may be incorporated into the process by the RTC Director of Planning. The above notwithstanding, in each iteration of the priority setting process, a consistent set of data, assumptions and methodologies will be used in the analytical elements of the process. Appendix A includes information on the cost data and methodologies that are currently being employed.

Priority Setting Process for Roadway Segments

Step 1: Time Stratification of Projects

Based upon the RTP analysis, a list of candidate projects for roadway segment capacity improvement projects would be created from the nearest term time stratum. All projects that were included in any previously prioritized list of capacity priorities would be included in this list unless work had begun on project development and environmental (PD&E) activities. This list would also include any very large projects from later time strata for which, because of their long lead times, it would be advisable to commence PD&E activities, ROW acquisition, etc.

Step 2: Benefit Cost Analysis (BCA)

A formal benefit cost analysis would be performed on each project included in the list created by Step 1. All benefit and cost values will be stated in constant year dollars and the same constant year will be used for all projects when compared.

Benefits. The benefits considered for this step would include travel time reduction, delay reduction, crashes and emissions. Forecasts of the changes in total system travel time, system delay and average daily traffic (ADT) with and without the project (build/no-build) would be made at the nearest future planning horizon year (currently 2012) and the last planning horizon current timing horizon in the plan (currently 2030). These forecasts will be made assuming all other RTP identified improvements and services are in place at the time of need indicated. Total changes in travel time, delay time and ADT will be calculated for a 20-year period by interpolating/extrapolating the forecasting tool outputs. For large projects being considered from later time strata, the time horizons would be adjusted as appropriate to develop the 20-year forecasts.

Unit values or methodology for calculating unit values of the various benefits will be made using the best guidance available from the Federal Highway Administration (FHWA), Environmental Protection Agency (EPA), reliable local information or other statistically/scientifically valid studies. For any BCA iteration, the same data sources and methodology will be used for all projects.

The cumulative 20-year value of benefits for each project in constant year dollars will be summed to create the numerator for the benefit cost ratio for each project.

Costs. The cost elements to be considered in the BCA process are: design (including environmental studies, permitting, etc.), right-of-way acquisition, construction including environmental mitigation, engineering during construction (EDC) and facility maintenance and operations. For design, right-of-way and EDC costs, the unitized cost estimates from the RTP shall be utilized unless more specific engineering studies have been performed that contain estimates of cost deemed more reliable. For maintenance and operations, the annualized unit life cycle costs for facility type and the unit operations costs developed by the local governments in conjunction with Lorick and Associates (or similar successor efforts) will be used.

The cumulative 20-year costs for each project in constant year dollars will be summed to create the denominator for the benefit cost ratio for each project.

Preliminary Project Ranking by Benefit Cost Ratio. Upon completion of the BCA analysis, a preliminary rank ordered project list will be developed based upon the cost benefit ratios.

Step 3: Consideration of “Other” Factors

The projects on the rank ordered BCA list will be examined in light of other factors that may make it appropriate to adjust the relative rankings either up or down. Other factors to be considered include, but are not limited to, the following:

- Relationship to other projects including replacement/expansion of utility infrastructure, rehabilitation or reconstruction of adjacent existing roadways, private projects that may have a significant impact on roadway access, potentially concurrent projects that may have a cumulatively significant impact on access/disruption to a specific neighborhood.
- Special events including major sporting, cultural or civic events that either the lack of a timely completed project or the disruption of an active project might have significant, long-term impacts.
- Economic development: Significant, documented economic benefits or disbenefits to be gained by expediting or postponing a project.
- Project funding incentives: Significant project funding commitments from a reliable source that would tap funds not accessible to the RTC.
- Project impact on achieving other policy objectives of the Regional Transportation Plan, the Truckee Meadows Regional Plan (TMRP) or other agency adopted plans.
- Decisions to adjust priority from the BCA rankings based upon other factors will be documented.

Step 4: Assignment of Projects to “Best Fit” Funding Categories

Following adjustments to the BCA ranked list based upon other factors, projects will be assigned in priority order to their “best fit” funding categories based upon such factors as the type of work, jurisdiction (locally owned roads, state roads, federal-aid highway system, etc.), competitiveness for special program funds at either the state or federal level and other funding source restrictions, limitations and eligibility requirements.

Step 5: Review of Recommended Capacity Priorities by the RTC Technical Advisory Committee (TAC)

The prioritized list of projects assigned to “best fit” funding categories will be presented to the RTC’s Technical Advisory Committee (TAC) for review and a recommendation to the RTC Board. Some complex projects may be broken into components and assigned to multiple funding categories, if deemed prudent.

Step 6: Presentation and Recommendation to the RTC Board of Road Segment Capacity Project Priorities

Prioritized lists of road segment capacity improvement projects matched to “fit funding” will be presented to the RTC Board following the adoption of a new/updated RTP or more frequently, if circumstances warrant. Documentation regarding recommended adjustments to the BCA ranked list based upon “other” factors and the assignment of projects to “best fit” funding categories will be provided along with the recommended priority list.

Step 7: Subsequent Programming Actions

Following action by the RTC Board setting the final priorities, projects shall be programmed at the appropriate time into the various RTC programs of projects (POPs), the Regional Transportation Improvement Program (RTIP), the State Transportation Improvement Program (STIP) and other relevant programmatic documents subject to the availability of funds.

Priority Setting Process for Spot Intersection/Signal Improvements

Step 1: Time Stratification of Projects

A list of candidate projects for spot intersection/signal improvements at locations currently experiencing level of service (LOS) deficiencies or projected to be deficient within the nearest RTC time stratum, e.g. 2004-2012, would be identified through the RTC traffic count program or other comparable analyses. All projects that were included in any previously prioritized list of spot intersection/signal projects would be included in this list unless work had begun on project development and environmental (PD&E) activities. This list would also include any very large projects from later time strata for which, because of their long lead times, it would be advisable to commence PD&E activities, ROW acquisition, etc.

Step 2: Benefit Cost Analysis (BCA)

A formal benefit cost analysis would be performed on each project included in the list created by Step 1. All benefit and cost values will be stated in constant year dollars and the same constant year will be used for all projects when compared.

Benefits. The benefits considered for this step would include delay reduction. Twenty-year estimates of delay reduction compared with a no-build scenario would be made using appropriate intersection operations analysis tools.

Unit values or methodology for calculating the unit value for each hour of delay will be made using the best guidance available from the Federal Highway Administration (FHWA) or other statistically/scientifically valid studies. For any BCA iteration, the same data sources and methodology will be used for all projects.

Costs. The cost elements to be considered in the BCA process are design (including environmental studies, permitting, etc.), right-of-way acquisition, construction, engineering during construction (EDC) and facility maintenance and operations. For design, right-of-way and EDC costs, the unitized cost estimates from the RTP shall be utilized unless more specific engineering studies have been performed that contain estimates of cost deemed more reliable. For maintenance and operations, the annualized unit life cycle costs for facility type and the unit operations costs developed by the local governments in conjunction with Lorick and Associates (or similar successor efforts) will be used.

Preliminary Project Ranking by Benefit Cost Ratio. Upon completion of the BCA analysis, a preliminary rank ordered project list will be developed based upon the cost benefit ratios.

Step 3: Consideration of “Other” Factors

The projects on the rank ordered BCA list will be examined in light of other factors that may make it appropriate to adjust the relative rankings either up or down. Other factors to be considered include the following:

- Intersection safety index as ranked by the Nevada Department of Transportation (NDOT).
- Relationship to other projects including replacement/expansion of utility infrastructure, rehabilitation or reconstruction of adjacent existing roadways, private projects that may have a significant impact on roadway access, potentially concurrent projects that may have a cumulatively significant impact on access/disruption to a specific neighborhood.
- Special events including major sporting, cultural or civic events that either the lack of a timely completed project or the disruption of an active project might have significant, long-term impacts.
- Economic development: Significant, documented economic benefits or disbenefits to be gained by expediting or postponing a project.
- Project funding incentives: Significant project funding commitments from a reliable source that would tap funds not accessible to the RTC.
- Project impact on achieving other policy objectives of the Regional Transportation Plan (RTP), the Truckee Meadows Regional Plan (TMRP) or other agency adopted plans.
- Decisions to adjust priority from the BCA rankings based upon other factors will be documented.

Step 4: Assignment of Projects to “Best Fit” Funding Categories

Following adjustments to the BCA ranked list based upon other factors, projects will be assigned in priority order to their “best fit” funding categories based upon the such factors as the type of work, jurisdiction (locally owned roads, state roads, federal aid highway system, etc.), competitiveness for special program funds at either the state or federal level and other funding source restrictions, limitations and eligibility requirements.

Step 5: Review of Recommended Capacity Priorities by the RTC Technical Advisory Committee

The prioritized list of projects assigned to “best fit” funding categories will be presented to the RTC’s Technical Advisory Committee (TAC) for review and a recommendation to

the RTC Board. Some complex projects may be broken into components and assigned to multiple funding categories, if deemed prudent.

Step 6: Presentation and Recommendation to the RTC Board of Spot Intersection/Signal Capacity Project Priorities

Prioritized lists of spot intersection/signal capacity improvement projects matched to “fit funding” will be presented to the RTC Board following the adoption of a new/updated RTP or more frequently, if circumstances warrant. Documentation regarding recommended adjustments to the BCA ranked list based upon “other” factors and the assignment of projects to “best fit” funding categories will be provided along with the recommended priority list.

Step 7: Subsequent Programming Actions

Following action by the RTC Board setting the final priorities, projects shall be programmed at the appropriate time into the various RTC programs of projects (POPs), the Regional Transportation Improvement Program (RTIP), the State Transportation Improvement Program (STIP) and other relevant programmatic documents subject to the availability of funds.

GLOSSARY

- ADA**—Americans with Disabilities Act
- ADT**—Average daily trips
- AQMD**—Air Quality Management Division
- BCA**—Benefit cost analysis
- BIA**—Bureau of Indian Affairs
- BPAC**—Bicycle/Pedestrian Advisory Committee
- BRT**—Bus Rapid Transit
- CAAA**—1990 Clean Air Act Amendment
- CAC**—Citizens Advisory Committee
- CALTRANS**—California Department of Transportation
- CAMPO**—Carson City Metropolitan Planning Organization
- CFR**—Code of Federal Regulations
- CIP**—Capital Improvements Plan
- CMAQ**—Congestion Mitigation Air Quality
- CMP**—Congestion Management Process
- CMS**—Congestion Management System
- CNG**—Compressed Natural Gas
- CO**—Carbon Monoxide
- EDC**—Engineering during construction
- EMME3**—Travel forecasting model
- EPA**—Environmental Protection Agency

ETR—Employer Trip Reduction

FHWA—Federal Highway Administration

FRR—Farebox Recovery Ratio

FTA—Federal Transit Administration, formerly UMTA

FY—Fiscal year

GRH—Guaranteed ride home

HA #87—Hydrographic Area #87

HOV—High-Occupancy Vehicle

HPMS—Highway Performance Monitoring System

ICA—Interlocal Cooperative Agreement

ISTEA—Intermodal Surface Transportation Efficiency Act of 1991

LOS—Level of Service

MOBILE 6.2.2—Emission model

MPO—Metropolitan Planning Organization

MVEB—Motor vehicle emission budget

NARC—National Association of Regional Councils

NDOT—Nevada Department of Transportation

NEPA—National Environmental Policy Act

NHS—National Highway System

NO_x—Nitrogen oxides

NRS—Nevada Revised Statutes

PD&E—Project development and environmental activities

PM₁₀—Particulate matter of less than 1 microns

POP—Program of projects

ROW—Right-of-way

RRIF—Regional Road Impact Fee

RRIF CIP—Regional Road Impact Fee Capital Improvements Plan

RRS—Regional Road System

RTAA—Reno-Tahoe Airport Authority

RTC—Regional Transportation Commission

RTIP—Regional Transportation Improvement Program

RTP—Regional Transportation Plan

SAFETEA-LU—Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users

SIP—State Implementation Plan

SOV—Single-Occupant Vehicle

STIP—State Transportation Improvement Program

STP—Surface Transportation Program

STTAC—Statewide Transportation Technical Advisory Committee

TAC—RTC Technical Advisory Committee

TART—Tahoe Area Regional Transit

TCM—Transportation Control Measure

TDM—Transportation Demand Management

TEA-21—Transportation Equity Act for the 21st Century

TFM—Travel Forecasting Model

TIP—Transportation Improvement Program

TMA—Transportation Management Area

TMRP—Truckee Meadows Regional Plan

TMRPA—Truckee Meadows Regional Planning Agency

TMW—Transit Management of Washoe, Inc.

TOD—Transit-oriented development

TSM—Transportation Systems Management

UMTA—Urban Mass Transportation Administration

UPWP—Unified Planning Work Program

VMT—Vehicle Miles Traveled

WC-2—Washoe County Ballot Question 2

WCDHD—Washoe County District Health Department