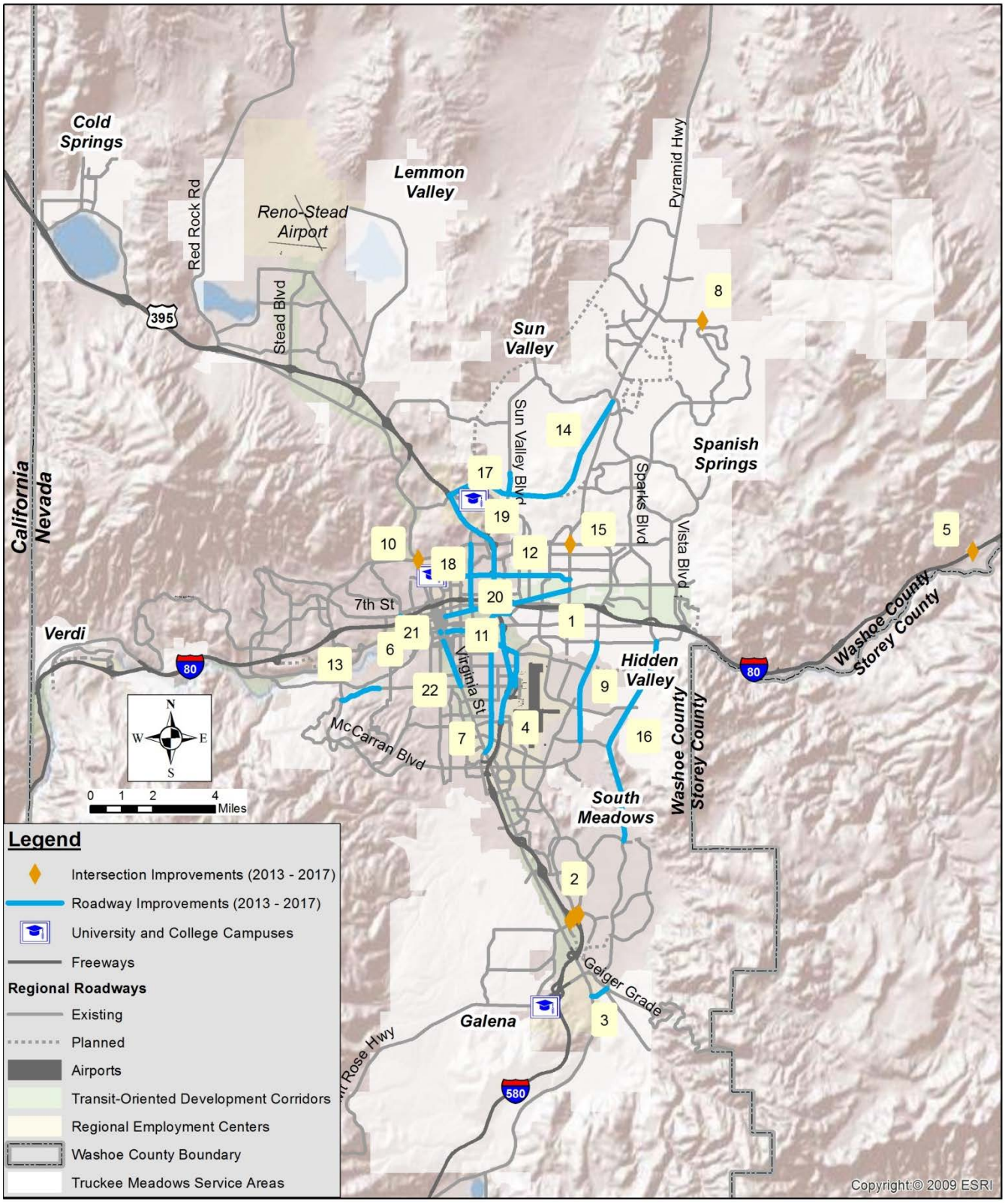
APPENDIX A

Roadway Projects

Appendix A: Roadway Project Listing

The roadway projects in the 2035 RTP are presented in three time periods: the first five years of the plan (2013-2017), the second five years of the plan (2018-2022), and the remaining 12 years of the plan (2023-2035). These projects include a combination of sidewalk accessibility, bicycle and other pedestrian facilities, operations and maintenance, pavement preservation, other multimodal investments to promote safety and livability, and capacity improvements to address long term mobility needs. The projects for each time period are illustrated in a map and described in the following tables. The tables also include the estimated project cost in year of expenditure dollars and anticipated funding sources. The delivery of some projects will occur over multiple years and may be shown in two or more time periods. For example, Phase 1 of the Oddie Boulevard/Wells Avenue improvements would be initiated in the 2013-2017 time period but construction in the corridor would be completed in the 2018-2022 time period. The Pyramid Highway/Sun Valley/US 395 Connector is another example of project phasing over multiple years. This project is currently in the Draft Environmental Impact Statement phase, design and right-of-way acquisition would continue through the first five years of the RTP, some project segments would begin construction in the second five years of the plan, and additional phases of the project would be constructed in the last 12 years of the plan. Because of the complexity of the Pyramid Highway/Sun Valley/US 395 Connector project, a map illustrating the project phasing plan is provided on page A-15.

Roadway Projects: 2013-2017



Regional Road Improvements 2013-2017

	Program	Description	Annual Cost	Year of Expenditure Cost	Potential Funding Source
A	ADA Accessibility Improvements	Spot improvements systemwide based on ADA Transition Plan	$1 million per year	$5,500,000	Federal/Local/State
B	Pedestrian, & Bicycle Facility Improvements	Spot improvements systemwide based on Bike/Ped Master Plan	$1 million per year	$5,500,000	Federal/Local/State
C	Traffic Signals, ITS Operations & Intersections	Systemwide	$2.6 million per year	$14,100,000	Federal/Local/State
D	Pavement Preservation	Systemwide	$18.7 million per year	$101,200,000	Local
E	Debt Service		$25 million per year	$125,000,000	Local
	Project	**Limits**	**Description**	**Year of Expenditure Cost**	**Potential Funding Source**
1	4th St/Prater Way	Evans St to Pyramid Way	Multimodal improvements; corridor study completed; in NEPA / PE	$39,000,000	Federal/Local/State
2	Damonte Ranch Pkwy Intersections	Intersection improvements at I-580, Double R Blvd & Old Virginia St	Add additional turn bays (preliminary traffic analysis completed)	$1,700,000	Local/Private
3	Geiger Grade Realignment	Virginia St to Toll Rd	New 4 lane road; design & ROW (NEPA / PE initiated)	$3,000,000	Federal/Local/State
4	I-580	Moana Ln to Glendale Ave	Pavement rehabilitation & operational improvements	$60,000,000	State/Federal
5	I-80	@ Patrick Interchange	Interchange improvements	$9,100,000	Private
6	Keystone Ave	California Ave to 7th St	Multimodal improvements; corridor study initiated	$9,400,000	Federal/Local

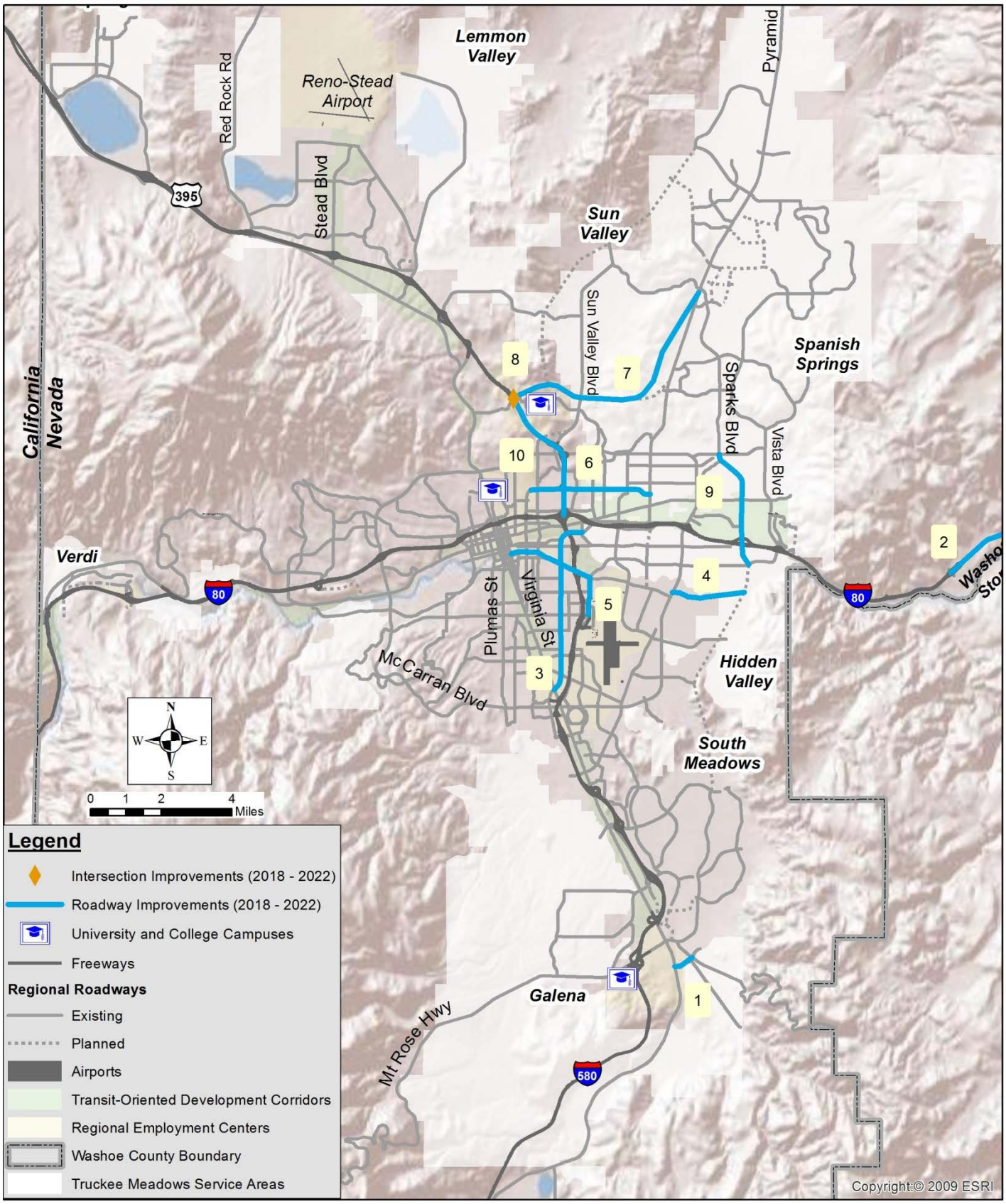
Regional Road Improvements 2013-2017					
7	Kietzke Ln	Virginia St to Galletti Way	Multimodal improvements (corridor study initiated)	$15,600,000	Federal/Local/State
8	La Posada Dr Roundabout	@ Cordoba Blvd	New roundabout (planning study complete)	$2,200,000	Local
9	McCarran Blvd Phase 2	Mira Loma Dr to Greg St	Widen 4 to 6 lanes (final design initiated)	$16,300,000	Federal/Local/State
10	McCarran Blvd	@ N Virginia St	Intersection widening & operational improvements (traffic study complete)	$4,400,000	Federal/Local/State
11	Mill St/Terminal Way	Reno-Tahoe International Airport to Lake St (downtown Reno)	Multimodal improvements, design & ROW (corridor study complete)	$1,100,000	Federal/Local
12	Oddie Blvd/Wells Ave	Kuenzli Ln to Pyramid Way Phase 1 - US 395 to Pyramid Way	Multimodal improvements; corridor study completed	$20,100,000	Federal/Local
13	Plumb Ln	McCarran Blvd to Ferris Ln	Pavement reconstruction & new shared use path; (design initiated)	$6,500,000	Federal/Local
14	Pyramid Hwy/Sun Valley/US 395 Connector Phase 1	@ US 395 and Dandini Blvd	Parr/Dandini service interchange improvements, design & ROW (currently in NEPA/PE)	$32,500,000	Federal/Local/State
15	Pyramid Hwy	@ McCarran Blvd	Improve capacity, safety & multimodal access, NEPA (construction in 2015; currently in NEPA/PE)	$71,400,000	Federal/Local/State
16	SouthEast Connector	South Meadows Pkwy to Greg St	New 6 lane road (CMAR initiated)	$230,000,000	Local
17	Sun Valley Blvd	2nd Ave to Pyramid Hwy/Sun Valley/US 395 Connector	Multimodal improvements (corridor study initiated)	$8,600,000	Federal/Local
18	Sutro St	4th St to McCarran Blvd	Multimodal improvements (construction 2013)	$1,900,000	Federal/Local
19	US 395	I-80 to Parr Blvd	Freeway widening; planning & environmental	$5,500,000	Federal/Local/State

Regional Road Improvements 2013-2017					
20	US 395/I-580/I-80	System wide ramps and freeways ITS	Freeway management/ITS project	$19,000,000	Federal/Local/State
21	Virginia St Bridge Replacement	Truckee River Bridge	Replace existing bridge (NEPA initiated)	$20,600,000	State/Local/Flood District
22	Virginia St Midtown	Plumb Ln to Liberty St	Pedestrian improvements & pavement reconstruction (corridor study initiated)	$13,000,000	Federal/Local/State

Estimated Cost Regional Road Improvements 2013-2017	$842,200,000

Green shading indicates freeway projects

Roadway Projects 2018-2022



Regional Road Improvements 2018-2022

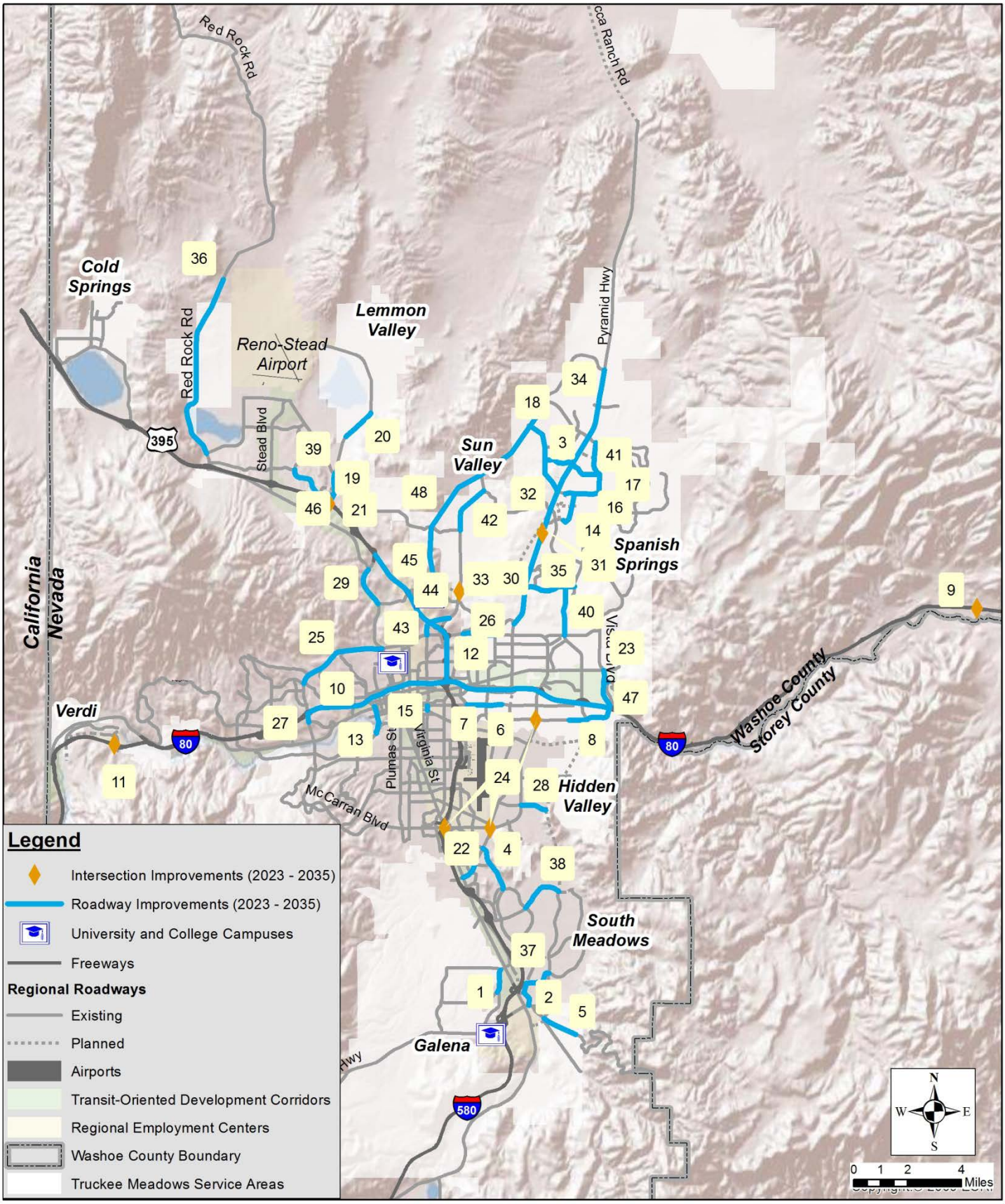
	Program	Description	Annual Cost	Year of Expenditure Cost	Potential Funding Source
A	ADA Accessibility Improvements	Spot improvements systemwide based on ADA Transition Plan	$1 million per year	$6,600,000	Federal/Local/State
B	Pedestrian & Bicycle Facility Improvements	Spot improvements systemwide based on Bike/Ped Master Plan	$1 million per year	$6,600,000	Federal/Local/State
C	Traffic Signals, ITS Operations & Intersections	Systemwide	$2.6 million per year	$17,100,000	Federal/Local/State
D	Pavement Preservation	Systemwide	$18.7 million per year	$123,000,000	Local
E	Debt service		$29.2 million per year	$145,800,000	Local
	Project	**Limits**	**Description**	**Year of Expenditure Cost**	**Potential Funding Source**
1	Geiger Grade Realignment	Virginia St to Toll Rd	New 4 lane road (NEPA/PE initiated)	$59,000,000	Federal/Local/State
2	I-80	East Truckee River Canyon	Safety improvements - add shoulders	$7,000,000	Federal
3	Kietzke Ln	Virginia St to Galletti Way	Multimodal improvements (corridor study initiated)	$8,400,000	Federal/Local/State
4	Mill St Extension	McCarran Blvd to Southeast Connector	New 4 lane road	$18,000,000	Federal/Local
5	Mill St/Terminal Way	Reno Tahoe International Airport to Lake St (downtown Reno)	Multimodal improvements; construction (corridor study complete)	$9,900,000	Federal/Local
6	Oddie Blvd/Wells Ave	Kuenzli Ln to Pyramid Way Phase II - Kuenzli to US 395	Multimodal improvements (corridor study complete)	$24,300,000	Federal/Local

Regional Road Improvements 2018-2022					
7	Pyramid Hwy/Sun Valley/US 395 Connector Phase 2	US 395 to Disc Drive	New 6 lane freeway	$280,300,000	Federal/Local/State
8	Pyramid Hwy/Sun Valley/US 395 Connector Phase 1	@ US 395 and Dandini Blvd	Parr/Dandini service interchange improvements and road construction (Dandini realignment)	$92,100,000	Federal/Local/State
9	Sparks Blvd	Greg St to Baring Blvd	Multimodal improvements & widen 4 to 6 lanes (corridor study initiated)	$15,900,000	Federal/Local
10	US 395	I-80 to Parr Blvd	Widen to accommodate Connector traffic - additional SB lane (NEPA/PE initiated)	$177,700,000	Federal/State

Estimated Cost Regional Road Improvements Plan 2018-2022	$991,700,000

Green shading indicates freeway projects

Roadway Projects 2023-2035



Regional Road Improvements 2023-2035

	Program	Description	Annual Cost	Year of Expenditure Cost	Potential Funding Source
A	ADA Accessibility Improvmenets	Spot improvements throughout the regional network based on ADA Transition Plan	$1 million per year	$28,100,000	Federal/Local/State
B	ADA, pedestrian, & bicycle facility improvements	Spot improvements throughout the regional network based on Bike/Ped Master Plan	$1 million per year	$28,100,000	Federal/Local/State
C	Traffic Signals/ITS Operations	Systemwide based on the ITS Master Plan	$500,000 per year	$21,500,000	Federal/Local/State
D	Pavement Preservation	Systemwide	$18.7 million per year	$455,300,000	Local
E	Debt Service		$13.9 million per year	$318,700,000	Local
	Project	**Limits**	**Description**	**Year of Expenditure Cost**	**Potential Funding Source**
1	Arrrowcreek Pkwy	Wedge Pkwy to Zolezzi Ln	Widen 2 to 4 lanes	$12,200,000	Local
2	Damonte Ranch Pkwy	Veterans Pkwy to Rio Wrangler Pkwy	New 2 lane road	$13,300,000	Federal/Local
3	Delores Dr	Lazy 5 Pkwy (west) to Lazy 5 Pkwy (east)	New 4 lane road	$15,200,000	Federal/Local
4	Double R Blvd	Double Diamond Pkwy to Longley Ln	Widen 4 to 6 lanes	$33,700,000	Local
5	Geiger Grade	Toll Rd to Rim Rock Rd	Widen 2 to 4 lanes	$20,600,000	Federal/Local/State
6	Glendale Ave	Rock Blvd to Industrial Way	Widen 4 to 6 lanes	$19,700,000	Federal/Local/State
7	Glendale Ave	Galletti Way to Rock Blvd	Widen 4 to 6 lanes	$15,400,000	Federal/Local
8	Greg St	Deming Way to I-80	Widen 4 to 6 lanes	$52,100,000	Federal/Local/State
9	I-80	@ Tracy Clark	Construct Interchange	$78,300,000	Private
10	I-80	W McCarran Blvd to Vista Blvd	Add lane in each direction and operational improvements	$535,200,000	Federal/State
11	I-80	@ Garson Rd	Construct Interchange	$78,300,000	Private

Regional Road Improvements 2023-2035					
12	I-80	US 395/I-580 to McCarran Blvd	Operational & capacity improvements - widen to 8 lanes	$560,200,000	Federal/Local
13	Keystone Ave	California Ave to 4th St	Multimodal improvements	$113,300,000	Federal/State
14	Kiley Ranch Rd	Lazy 5 Pkwy to Henry Orr Pkwy	New 2 lane road	$11,100,000	Federal/Local/Private
15	Kirman Ave	Mill St to 2nd St	Widen 2 to 4 lanes	$14,200,000	Federal/Local
16	Lazy 5 Pkwy	David Allen Pkwy to Wingfield Hills Dr	New 2 lane road	$8,600,000	Federal/Local/Private
17	Lazy 5 Pkwy	Delores Dr to Wingfield Hills Dr	Widen 2 to 4 lanes	$11,200,000	Federal/Local/Private
18	Lazy 5 Pkwy	W Sun Valley Arterial to Pyramid Hwy	New 4 lane road	$53,600,000	Federal/Local/Private
19	Lemmon Dr	Sky Vista Pkwy to Military Rd	Widen 4 to 6 lanes	$11,400,000	Federal/Local/State
20	Lemmon Dr	Limber Pine Dr to Deodar Way	Widen 2 to 4 lanes	$15,000,000	Federal/Local
21	Lemmon Dr	US 395 to Sky Vista Pkwy	Widen 4 to 6 lanes	$4,900,000	Federal/Local
22	Longley Ln	S Virginia St to Maestro Dr	Widen 4 to 6 lanes	$24,300,000	Local
23	Loop Rd	Vista Blvd to Eastern Slope Rd	New 2 lane road	$9,000,000	Federal/Local/Private
24	McCarran Blvd	3 intersection improvements	Improved Intersections	$159,200,000	Federal/State
25	McCarran Blvd	7th St to N Virginia St	Widen 4 to 6 lanes	$67,600,000	Federal/Local/State
26	McCarran Blvd	El Rancho Dr to Rock Blvd	Widen 4 to 6 lanes	$28,800,000	Federal/Local/State
27	McCarran Blvd	Sky Mountain Dr to I-80	Widen 4 to 6 lanes	$8,400,000	Federal/Local/State
28	Mira Loma Dr	McCarran Blvd to Southeast Connector	Widen 2 to 4 lanes	$12,000,000	Local
29	N Virginia St	Parr Blvd to Business US 395	Multimodal improvements	$9,700,000	Federal/Local
30	Pyramid Hwy/Sun Valley/US 395 Connector Phase 5 – Pyramid Hwy	Queen Way to US 395 Connector	Widen 4 to 6 lanes	$39,300,000	Federal/Local/State
31	Pyramid Hwy/Sun Valley/US 395 Connector	@ US 395	New system ramps to/from the south	$212,600,000	Federal/Local/State

Regional Road Improvements 2023-2035					
	Phase 3				
32	Pyramid Hwy/Sun Valley/US 395 Connector Phase 4	Disc Dr to Sparks Blvd	New 6 lane freeway	$363,400,000	Federal/Local/State
33	Pyramid Hwy/Sun Valley/US 395 Connector Phase 7	Sun Valley Interchange	New Service Interchange; design & construction	$138,600,000	Federal/Local/State
34	Pyramid Hwy/Sun Valley/US 395 Connector Phase 9	Sparks Blvd to Calle de la Plata	New 6 lane freeway; design /ROW	$18,000,000	Federal/Local/State
35	Pyramid Hwy/Sun Valley/US 395 Connector Phase 6 – Disc Dr	Pyramid Hwy to Vista Blvd	Widen 4 to 6 lanes	$50,200,000	Federal/State
36	Red Rock Rd	Moya Blvd to Evans Ranch Access	Widen 2 to 4 lanes	$47,800,000	Federal/Local
37	Rio Wrangler Pkwy	Damonte Ranch Pkwy to Veterans Pkwy	New 2 lane road	$9,700,000	Federal/Local/Private
38	South Meadows Pkwy	Double Diamond Pkwy to Veterans Pkwy	Widen 4 to 6 lanes	$42,700,000	Local
39	Sky Vista Pkwy	Silver Lake Rd to Lemmon Dr	Widen 2 to 4 lanes	$34,300,000	Federal/Local
40	Sparks Blvd	Baring Blvd to Disc Dr	Multimodal improvements & widen 4 to 6 lanes	$22,700,000	Federal/Local
41	Stonebrook Pkwy	Delores Dr to La Posada Dr	New 2 lane road	$19,700,000	Federal/Local/Private
42	Sun Valley Blvd	7th Ave to Highland Ranch Pkwy	Multimodal improvements	$90,700,000	Federal/Local
43	Sutro St	McCarran Blvd to Sunvilla Blvd	Widen 2 to 4 lanes	$18,700,000	Federal/Local
44	Sutro St Extension	Sunvilla Blvd to Clear Acre Ln	New 2 lane road	$27,000,000	Federal/Local
45	US 395	Parr Blvd to N Virginia St	Widen to 6 lanes - add southbound lane	$98,300,000	Federal/Local/State

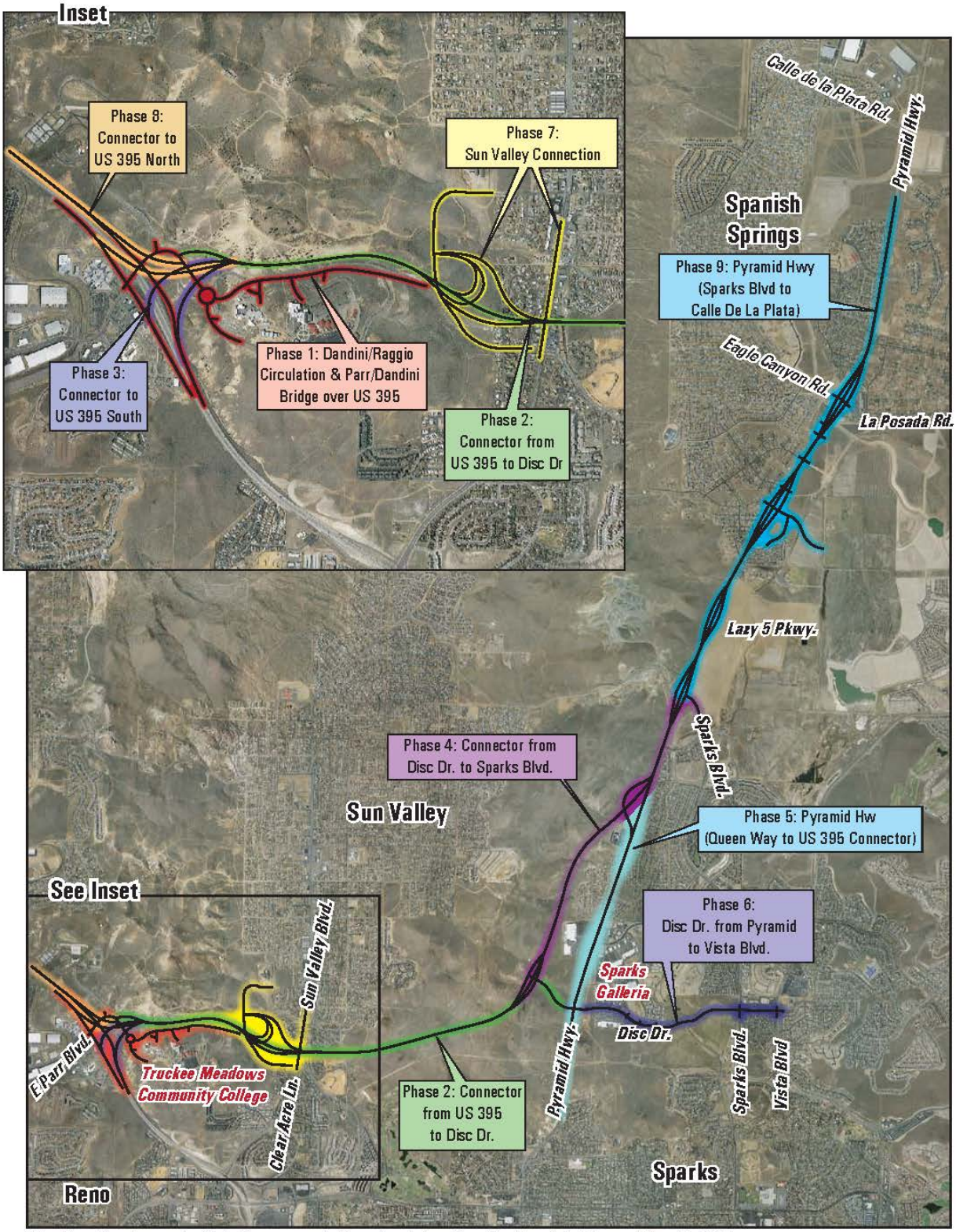
Regional Road Improvements 2023-2035					
46	US 395	@ Lemmon Dr	Improve Interchange	$23,400,000	Federal/Local
47	Vista Blvd	I-80 to Prater Way	Widen 4 to 6 lanes	$18,700,000	Federal/Local
48	West Sun Valley Arterial	Dandini Blvd to Eagle Canyon	New 4 lane road	$96,300,000	Local

Estimated Cost Regional Road Improvements Plan 2022-2035	$4,220,300,000

Green shading indicates freeway projects

RTC PYRAMID HIGHWAY ◆ US 395 CONNECTION

Conceptual Project Phasing



Note: Alternatives shown are for illustrative purposes only. The preferred alternative will be determined at the completion of the NEPA process.

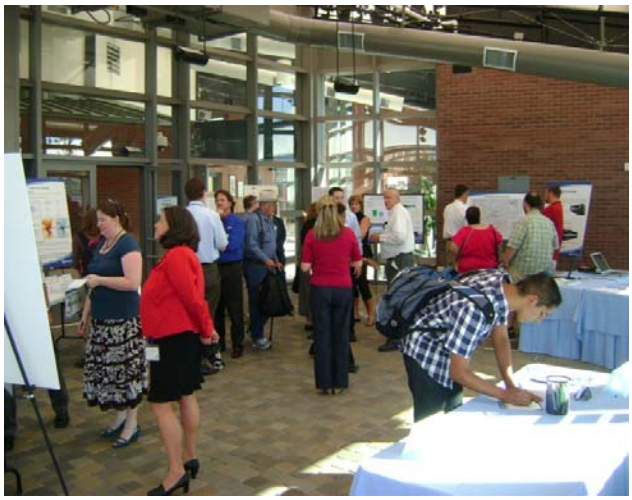
2035 Regional Transportation Plan

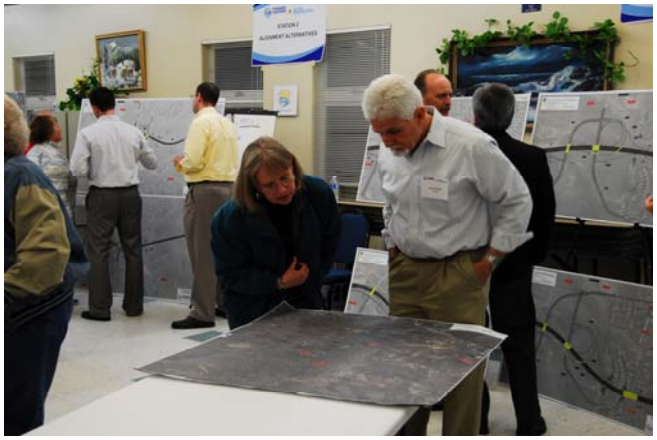
APPENDIX B
Public and Agency Participation Plan

Regional Transportation Plan Update

PUBLIC AND AGENCY PARTICIPATION PLAN

April 15, 2011





Regional Transportation Plan Update

PUBLIC AND AGENCY PARTICIPATION PLAN

April 15, 2011

Contents

1.0 INTRODUCTION 2
2.0 COMMUNITY PLANNING WORKSHOPS 2
3.0 COMMUNITY WORKING GROUP (CWG) 3
4.0 AGENCY WORKING GROUP (AWG) 3
5.0 STAKEHOLDER INFORMATION UPDATES & SPEAKERS BUREAU 5
6.0 COORDINATION WITH ELECTED OFFICIALS, BOARDS, and COMMITTEES 6
7.0 MEDIA OUTREACH 7

1.0 INTRODUCTION

The Regional Transportation Plan (RTP) defines the long range planning policies and priorities for the community's future transportation system. It is the region's blueprint to maintaining access, mobility and clean air for our community. The RTP is a key tool for preserving our quality-of-life including short, safe commutes, a vibrant economy, and clear, blue skies. Under federal regulations, the RTP must be updated every four years. The current RTP is valid until July, 2013.

The purpose of the *Public and Agency Participation Plan* for the RTP is to establish a framework for a broad-based outreach effort with local residents, businesses, partner agencies, and other stakeholders. This plan builds on the 2009 RTC *Public Participation Plan* and includes additional details on efforts targeted specifically toward development of the RTP. Public participation/community involvement is critical throughout the process. The public and agency participation process will involve the following key components:

- Community Planning Workshops
- Community Working Group (CWG)
- Agency Working Group (AWG)
- Stakeholder information updates & speakers bureau
- Coordination with elected officials, boards, and committees
- Media outreach

2.0 COMMUNITY PLANNING WORKSHOPS

Community planning workshops provide an opportunity for the general public to actively participate in the planning process. By providing technical information such as maps and baseline data, RTC staff and other partner agency facilitators can assist local residents in identifying and documenting transportation issues, concerns, alternatives, and priorities. The workshop format allows people to document their ideas, such as on maps or drawings, in a way that technical staff can use in the planning process.

It is important that a series of community planning workshops occur at key decision points during the RTP development, including:

- Developing the vision and goals for the plan
- Identifying alternatives
- Selection of priorities and recommendations

The workshops will be held at locations within each jurisdiction in the RTC planning area. Spanish language translators will be available at meetings. Meeting materials will be available in both English and Spanish.

3.0 COMMUNITY WORKING GROUP (CWG)

The CWG will assist RTC staff and guide the process to update the RTP. The CWG will be comprised of residents appointed by the RTC Board who are interested in multimodal transportation issues. Planning topics will include public transportation, bicycle and pedestrian facilities, the regional street and highway system, and multimodal transportation planning. The group will have 17 members with representation, to the extent possible, from the four quadrants of the region (established by I-80 and US 395/I-580), attempting generally to ensure geographical representation within the region.

Beginning in September 2011, the CWG will meet on the second Thursday of each month at 5:30 pm. The CWG will continue to meet for approximately one year. Meetings will generally last one and one-half hours but may be extended as appropriate. Additional meetings may be called as necessary. The working group will be facilitated by RTC to provide a forum for an effective dialogue about the transportation challenges and potential solutions for the region. Agendas and supporting materials will be mailed electronically to CWG members.

The CWG will assist RTC in addressing key components of the RTP development process. It is anticipated that the topics to be addressed by the CWG will include the following:

- Orientation
- Define RTP Structure
- Identify issues, concerns, and goals
- Establish evaluation criteria
- Integrate transportation issues with land use plans
- Develop concepts and alternatives
- Screen alternatives and set aside options that are not feasible
- Conduct a detailed evaluation of alternatives
- Develop recommendations
- Integrate the input from the public planning workshop
- Review the federal air quality conformity analysis
- Review the Draft RTP document
- Review the Final RTP document

4.0 AGENCY WORKING GROUP (AWG)

The Agency Working Group will be comprised of the RTC's partner agencies in local, state, and federal government. The AWG will work in parallel to the CWG and provide technical input and analysis to the RTC. This group will also collaborate with RTC to ensure that the RTP is consistent with other planning initiatives and policies in the region. The AWG will assist RTC in addressing the key components of the RTP process as described in the Community Working Group section above. The AWG will be an informal committee facilitated by RTC staff. Agendas and supporting material will be mailed electronically to AWG members.

The AWG will consist of the RTC Technical Advisory Committee (shown below denoted by *) and representatives of the following additional agencies:

- City of Reno Community Development*
- City of Reno Public Works*
- City of Sparks Community Development*
- City of Sparks Public Works*
- Washoe County Community Development*

- Washoe County Public Works*
- Nevada Department of Transportation (Headquarters)*
- Nevada Department of Transportation (District II)*
- Washoe County District Health Department/Air Quality Management Division*
- Truckee Meadows Regional Planning Agency*
- Reno-Tahoe Airport Authority*
- Federal Highway Administration*
- Washoe County School District
- Carson City
- Tahoe Regional Planning Agency
- Storey County
- Lyon County
- Reno-Sparks Indian Colony
- Pyramid Lake Paiute Tribe
- Federal Transit Administration
- Environmental Protection Agency
- RIDE
- ACCESS
- University of Nevada, Reno
- Department of Veterans Affairs
- Bureau of Land Management
- Forest Service
- State Historical Preservation Office
- Nevada Department of Environmental Protection
- Nevada Department of Public Safety
- Corps of Engineers
- Nevada Department of Environmental Protection
- Nevada Department of Public Safety
- Nevada Association of Counties (NACO)

5.0 STAKEHOLDER INFORMATION UPDATES & SPEAKERS BUREAU

A contact list of community and business organizations will be maintained so that information about the RTP planning process can be shared effectively. Stakeholder groups will be kept up to date about the issues presented to the CWG and AWG. Stakeholder groups will be invited to participate in discussions that relate to their specific areas of expertise or interest, although they are welcome to participate at any point throughout the process. An email distribution list will be maintained to provide regular updates about the project and opportunities for input and participation. In addition, RTC staff will be available to make presentations to various stakeholder and community groups.

The stakeholder group will be comprised of representatives of the following groups:

Business/Community Groups

Associated General Contractors
Association of Realtors
Downtown Improvement Association
Economic Development Authority of Western Nevada (EDAWN)
Hidden Valley Homeowner's Association
Hispanic Business Network
Keep Truckee Meadows Beautiful
Nature Conservancy
Northern Nevada Builders Association
Northern Nevada Center for Independent Living
Northern Nevada Transportation Collaborative
Other HOA's (to be identified
Pyramid Lake Paiute Tribe
Reno-Sparks Chamber of Commerce
Reno/Sparks Indian Colony
Senior Groups (to be identified)
Sierra Club
Sparks Disability Committee
Northern Nevada Chamber of Commerce
Truckee Meadows Tomorrow
Western Industrial Nevada (WIN)
Reno-Sparks Chamber of Commerce
Northern Nevada Chamber of Commerce
EDAWN
Reno Sparks Cab Company
Whittlesea Taxi
Yellow Cab Company
Terminal Manager/Greyhound Bus Lines
Hispanic Services of Nevada
National Association of Industrial and Office Properties
Union Pacific Railroad
Nevada Motor Transport Association
Retired and Senior Volunteer Program
AARP
Nevada Disability Advocacy and Law Center
Senior Spectrum

Service Clubs

Kiwanis Clubs (to be identified)
Rotary Clubs (to be identified)
Soroptomist Clubs (to be identified)

6.0 COORDINATION WITH ELECTED OFFICIALS, BOARDS, and COMMITTEES

RTC staff will coordinate with local elected officials and provide updates about the RTP process to the RTC Board, Regional Planning Governing Board (RPGB), Truckee Meadows Water Authority (TMWA), Reno City Council, Sparks City Council, and Washoe County Commission. Monthly updates will be provided to the RTC Board. It is anticipated that presentations will be made to RPGB and TMWA at key decision points. It is anticipated that presentations to the Reno and Sparks City Councils and Washoe County Commission would be made two times during the planning process or as requested by RTC Board members or local government staff.

RTC will also provide an update on the RTP planning process to local citizen advisory boards, as listed below:

Citizen Advisory Boards/Committees

City of Reno ACCESS Committee
City of Reno Citizens Traffic Advisory Committee
East Washoe Valley CAB
Galena-Steamboat CAB
Gerlach/Empire CAB
Incline Village/Crystal Bay CAB
North Valleys CAB
Southeast Truckee Meadows CAB
Southwest Truckee Meadows CAB
Spanish Springs CAB
Sparks CAC
Sun Valley CAB
Verdi Township CAB
Warm Springs CAB
West Truckee Meadows CAB
West Washoe Valley CAB
Ward One Downtown NAB
Ward Two Central NAB
Ward Two South NAB
Ward Three Southeast NAB
Ward Four North Valleys NAB
Ward Four Northeast NAB
Ward Five West University NAB
Ward Five Northwest NAB
Sun Valley GID

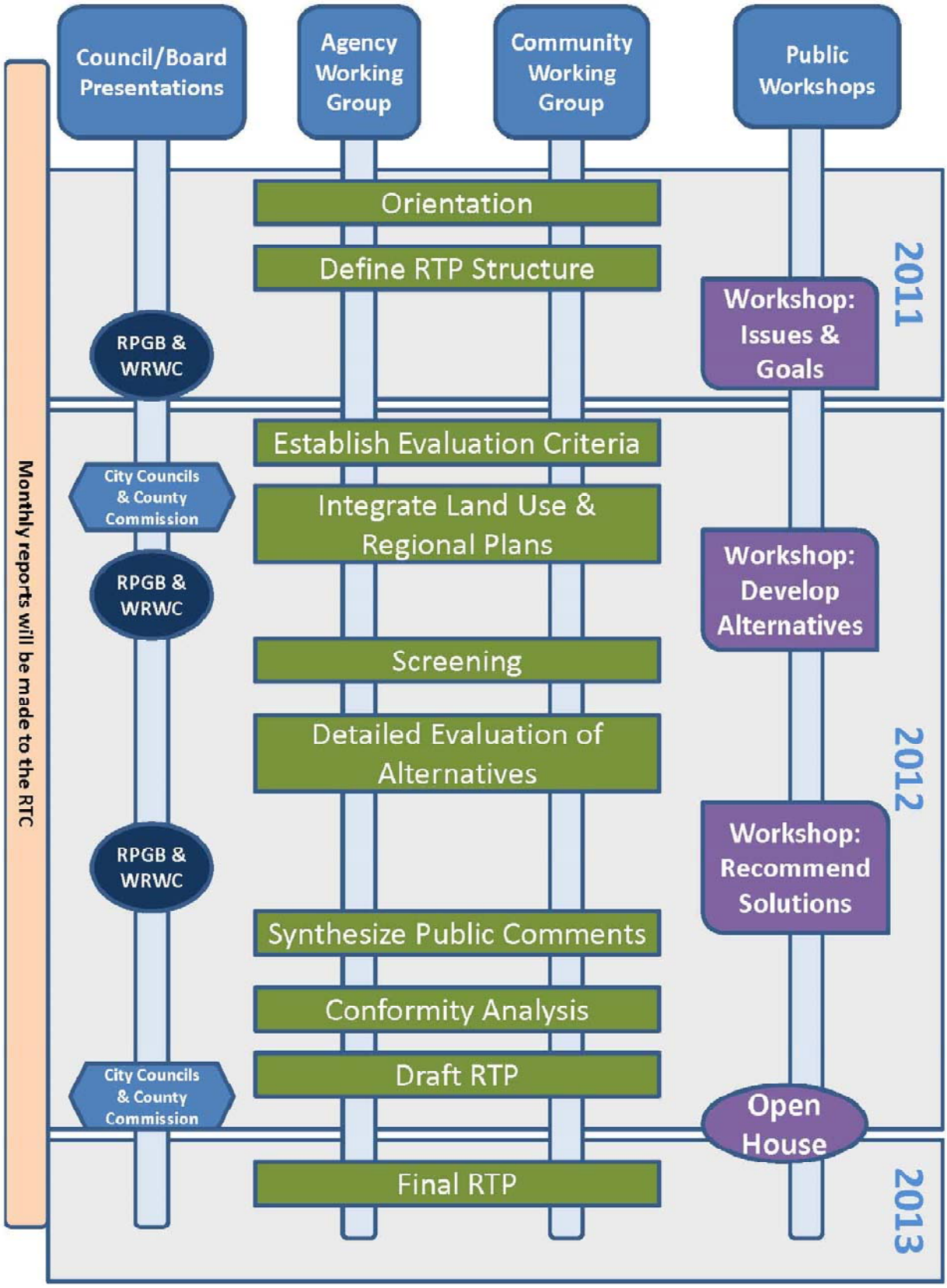
7.0 MEDIA OUTREACH

Media outreach will be used to share information about the RTP planning process with the general public. Among the vehicles to disseminate information are:

- Mainstream and minority newspapers, radio, and television
- Editorial Board meetings with opinion leaders
- Public Affairs programming
- Paid advertising
- News releases, feature stories
- Social media

In addition to traditional media, RTC will develop an electronic/on-line public participation forum. This approach will make project information and feedback opportunities accessible to residents unable to attend meetings in person. Web-based surveys, interactive mapping, social media outlets, and smart phone applications can be used to gather broad-based community input about issues and solutions.

Figure 1: Public and Agency Outreach Schedule



APPENDIX C
Air Quality Analysis and Conformity Determination

AIR QUALITY ANALYSIS AND CONFORMITY DETERMINATION

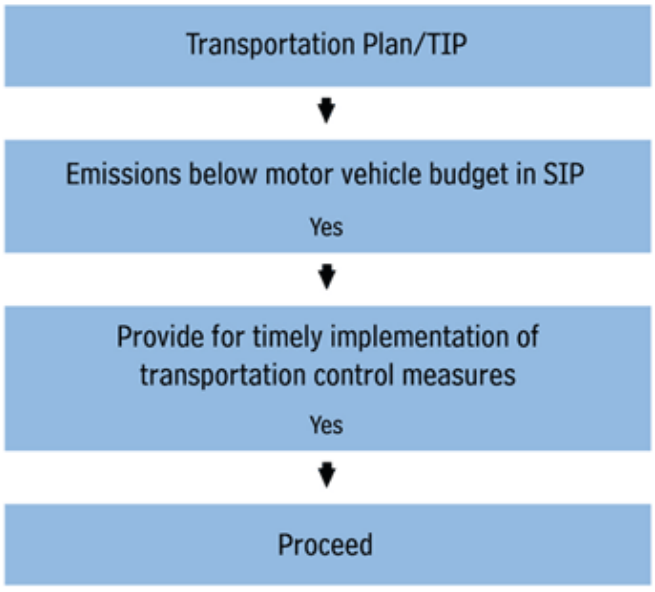
The Clean Air Act Amendments (CAAA) of 1990 require that each state environmental agency develop a State Implementation Plan (SIP). The SIP shows how the state will implement measures designed to improve air quality to meet National Ambient Air Quality Standards (NAAQS) for each criteria air pollutant, according to the schedules included in the CAAA.

Since emissions from motor vehicles make a significant contribution to air pollution, the CAAA also requires that transportation officials make a commitment to programs and projects that will help achieve air quality goals including:

- Providing for greater integration of the transportation and air quality process
- Ensuring that transportation plans, programs and projects conform with the SIP
- Reduction in the growth in vehicle miles traveled (VMT) and congestion in areas that have not attained the Environmental Protection Agency's (EPA) air quality standards.

Conformity for the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP) are demonstrated when projected regional emissions generated by the plan and TIP do not exceed the region's motor vehicle emissions budgets as established by the SIP. While the MPO is ultimately responsible for making sure a conformity determination is made, the conformity process depends on federal, state and local transportation and air quality agencies working together to meet the transportation conformity requirements. The roles and responsibilities of the partner agencies involved in the air quality conformity analysis are defined in the Washoe County Transportation Conformity Plan. The plan was adopted by RTC and the Washoe County Air Quality Management Division in January 2013.

Transportation Conformity



Status of Air Quality Pollutants

Criteria pollutants are considered on a county-wide basis if actual pollutant levels are exceeded outside of the core area of the Truckee Meadows. The core area of the Truckee Meadows is designated as the Hydrographic Area #87. The current status of the various pollutants in Washoe County is listed below:

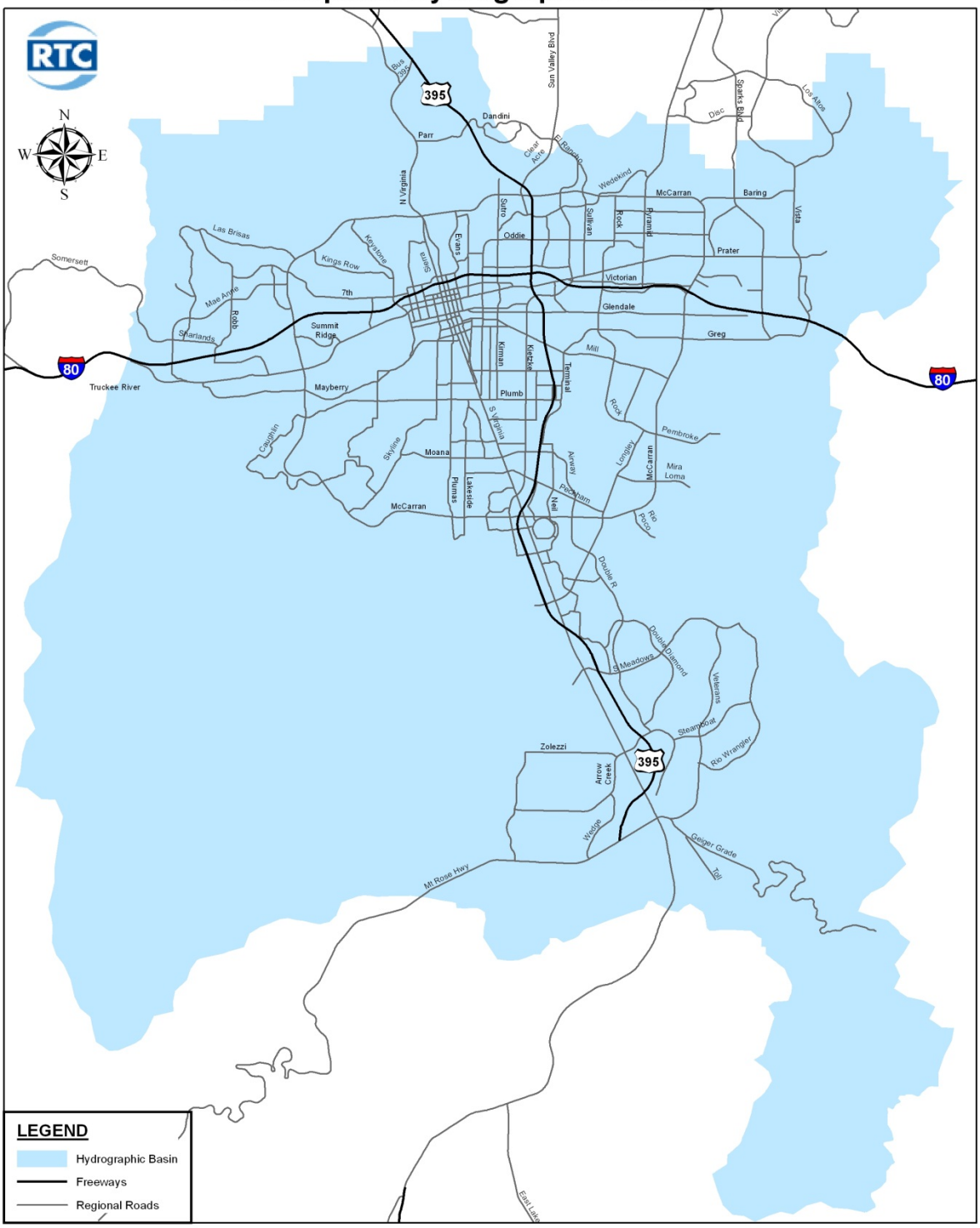
CO (8-hr):	Attainment/ Maintenance for Hydrographic Area (HA) 87
	Attainment/Unclassifiable for the rest of Washoe County
PM10 (24-hr)*:	Serious non-attainment for HA 87
	Attainment/Unclassifiable for the rest of Washoe County

Regional emissions analyses were performed for each pollutant to document conformity with the CAAA as part of the RTP. The Regional Transportation Commission, in collaboration with the local agencies, has also been implementing programs that reduce motor vehicle emissions in the region.

*On April 19, 2011, EPA published a final rule (76 FR 21807) finding that the Truckee Meadows: 1) failed to attain the NAAQS by the applicable date; and 2) is currently attaining the NAAQS based on recent monitoring data (2007-2009). The rule does not change the "serious" nonattainment designation.

Figure C-1

Reno/Sparks Hydrographic Area #87



Travel Forecasting Model and MOVES Emission Model

The Regional Transportation Commission uses the travel forecasting model TransCAD. RTC converted to the TransCAD platform in 2012. The model is calibrated to 2012 population and employment. Washoe County Air Quality Management Division converted to the MOVES emission model in 2012.

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. For the purposes of an air quality determination, the analysis years are 2020, 2025, 2030, 2035. No air quality analysis is required for the illustrative facilities plan (2031-2040). A summary of the other requirements are listed 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 PM_{10} 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 (2035) shall also be an analysis year.

F. For both CO and PM_{10}, the analysis of emissions for the required years cannot exceed the motor vehicle emission budget (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 signal optimization and improvements program to enhance the capacity of the existing system and reduce traffic congestion in the region. This is an ongoing program that will allow nearly 400 intersections in the Truckee Meadows to be coordinated.

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 2035. 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. RTC also received a $5.1 million TIGGER grant for zero emissions (electric) buses and 3 charging stations. The addition of these buses in the fleet will help to reduce emissions and provide infrastructure for the fueling stations.

Trip Reduction Programs

The RTC's trip reduction program include bus pass subsidies, RTC VANPOOL program, RTC RIDESHARE, guaranteed ride home program and park and ride program. The goals of these programs are to promote

trip reduction on a region wide level, improve air quality and reduce VMT. In 2012 the air quality benefits of the program were substantial. Over 100,000 pounds of carbon monoxide was reduced and over 4 million pounds of carbon dioxide were reduced due to participation in the vanpool program.

RTC VANPOOL Air Pollution Reductions		
Volatile organic compounds (VOC)	13,608	lbs
Nitrogen Oxide (NO_x)	7,645	lbs
Carbon Monoxide (CO)	101,292	lbs
Particulate Matter (PM_{10})	54	lbs
Particulate Matter ($PM_{2.5}$)	51	lbs
Carbon Dioxide (CO_2)	4,080,346	lbs

RTC SMART TRIPS program continues to grow and add more participants. In FY 2012 RTC TRIP MATCH, a web-based carpool, bike, bus and walking buddy matching service increased by 19.5% to 1,056 individuals and the RTC VANPOOL program saw a 14% increase. Shared rides through the program eliminated 4,334,459 vehicle miles of travel.

RTC Traffic Model Modifications

The last air quality conformity determination was made in July 2009. To meet the requirements of 40 CFR Section 93 of the air quality conformity regulations, 2020, 2025, 2030, 2035 networks were established for this RTP air quality analysis. The 2013 network consists of the current roadway network, the current transit network and the projects contained in the current RTIP. Each of the remaining networks is comprised of the previous horizon networks and the capacity projects included in the RTP. It should be noted that due to land use considerations and fiscal constraints, many roadways will fail to meet policy LOS by 2035.

Air Quality Analysis

An emission test on both CO and PM_{10} 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 CO and PM_{10} emissions for the required analysis years cannot exceed the motor vehicle emission budget established for HA #87. Analysis is performed for 2020, 2025, 2030 and 2035 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. Average speed by vehicle type is also provided as an input to the MOVES model. 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). Air quality analysis is ongoing and will be reviewed by the Interagency Air Quality Consultation Team on March 4, 2013.

2035 Regional Transportation Plan

APPENDIX D
Access Management

Appendix D: Access Management

Access refers to the entry of vehicles to and from the traveled portion of a roadway. This access can be to/from homes or businesses adjacent to the road, from intersecting streets or from parking on the sides of the roadway. Vehicles need to access the roadway, but they also interrupt the flow of traffic. The greater the number of these interruptions, the more impact they have on flow. Access management controls the amount of these interruptions and is a tradeoff between the need for access and the maintenance of traffic flow. The degree to which access is managed needs to be appropriate to the type of adjacent land uses and volume of traffic.

Access management may typically involve exercising control over the number and location of driveways and turning movements. Related to this is the control of the type of movements allowed into or out of these driveways through such things as signage and medians. Access control may also involve control of parking adjacent to the travel lanes. The degree to which access of all types is controlled can have a huge impact on the ability of a roadway to carry traffic. For example, consider the very limited access allowed on an interstate highway versus a neighborhood street. In sizing the pieces of the street and highway system, the degree of access is an important consideration. All other things being equal, the greater the degree of access control, the greater number of vehicles that can be accommodated per lane. When the degree of actual access significantly exceeds the original planning assumptions, significant unplanned for problems can occur inducing additional congestion.

Access controls also have a direct impact on safety as shown in Table D-1. Minimizing the number of turning movements across lanes of traffic has been demonstrated to reduce crashes.

Table D-1 Effects of Access Management Techniques

Access Management Technique	Treatment Effect
1. Add continuous two way left turn lane (TWLTL)	• 35% reduction in total crashes • 30% decrease in delay • 30% increase in capacity
2. Add nontraversable median	• 55% reduction in total crashes • 30% decrease in delay • 30% increase in capacity
3. Replace TWLTL with a nontraversable median	• 15%-57% reduction in crashes on 4-lane roads • 25%-50% reduction in crashes on 6-lane roads
4. Add a left-turn bay	• 25%-50% reduction in crashes on 4-lane roads

	• Up to 75% reduction in total crashes at unsignalized access • 25% increase in capacity
5. Type of left-turn improvement a) painted b) separator or raised divider	 • 32% reduction in total crashes • 67% reduction total crashes
6. Add right-turn bay	• 20% reduction in total crashes • Limit right-turn interference with platooned flow, increased capacity
7. Increase driveway speed from 5 mph to 10 mph	• 50% reduction in delay per maneuver; less exposure time to following vehicles
8. Visual cue at driveways, driveway illumination	• 42% reduction in crashes
9. Prohibition of on-street parking	• 30% increase in traffic flow • 20%-40% reduction in crashes
10. Long signal spacing with limited access	• 42% reduction in total vehicle-hours of travel • 59% reduction in delay • 57,500 gallons fuel saved per mile per year

Source: TRB *Access Management Manual*

If a street is identified as being a regional road, certain design standards and operational standards (agreed to by implementing jurisdictions) can help facilitate regional trip movements. Additional roadway design access elements that influence safety and traffic flow include the following:

- Number of through lanes
- Minimum signal spacing
- Left turn from a major street onto facility
- Right deceleration lanes at driveways
- Driveway spacing
- Number of signalized intersections per mile
- Design speed
- Bicycle facilities
- Left turn lanes
- Left turn from minor street or driveway
- Median type or existence of median

The Access Management Standards shown Table D-2 below will be used in the design of future improvements to regional roads and the classification of existing improvements for planning purposes.

Table D-2 Access Management Standards

Access Management Standards-Arterials[1] and Collectors							
Access Management Class	Posted Speeds	Signals per mile and Spacing[6]	Median Type	Left From Major Street? (Spacing from signal)	Left From Minor Street or Driveway?	Right Decel Lanes at Driveways?	Driveway Spacing[2]
High Access Control	45-55 mph	2 or less Minimum spacing 2350 feet	Raised w/channelized turn pockets	Yes 750 ft. minimum	Only at signalized locations	Yes[4]	250 ft./500 ft.
Moderate Access Control	40-45 mph	3 or less Minimum spacing 1590 feet	Raised or painted w/turn pockets	Yes 500 ft. minimum	No, on 6- or 8-lane roadways w/o signal	Yes[5]	200 ft./300 ft.
Low Access Control	35-40 mph	5 or less Minimum spacing 900 feet	Raised or painted w/turn pockets or undivided w/painted turn pockets or two-way, left-turn lane	Yes 350 ft. minimum	Yes	No	150 ft./200 ft.
Ultra-Low Access Control	30-35 mph	8 or less Minimum spacing 560 feet	Raised or painted w/turn pockets or undivided w/painted turn pockets or two-way left-turn lane	Yes 350 ft. minimum	Yes	No	150 ft./200 ft. 100 ft./100 ft.[3]

1 On-street parking shall not be allowed on any new arterials. Elimination of existing on-street parking shall be considered a priority for major and minor arterials operating at or below the policy level of service.

2 Minimum spacing from signalized intersection/spacing from other driveways.

3 Minimum spacing on collectors.

4 If there are more than 30 inbound, right-turn movements during the peak-hour.

5 If there are more than 60 inbound, right-turn movements during the peak-hour.

6 Minimum signal spacing is for planning purposes only; additional analysis must be made of proposed new signals in the context of existing conditions, planned signalized intersections, and other relevant factors impacting corridor level of service.

RTC is involved in a dialog with the Nevada Department of Transportation (NDOT), Washoe County, City of Reno, and City of Sparks regarding differences in agency access management standards throughout the region. NDOT anticipates initiating a revision of their access management standards in 2013. RTC and the partner jurisdictions will participate in this effort to bring more consistency to access management standards. The Transportation Research Board (TRB) is currently revising its 2003 *Access Management Manual*. New standards from TRB will be incorporated into this regional dialog.

The regional road system is shown in Table D-3 and includes the limits of the roadway, the class and the access management class as described in Table D-2. The criteria for determining the regional road system includes:

- Arterials that are direct connections between freeways and other arterials, insure continuity throughout the region and generally accommodate longer trips within the region, especially in the peak periods on high traffic volume corridors.
- Collectors that meet one of several criteria including: an ADT level of 5,000 (either currently or in the 2035 time frame); crossing of a significant travel barrier such as the Truckee River, I-80, US 395/I-580; provides access to major existing or future regional facilities.
- An industrial roadway
- A roadway including a transit route

Table D-3 Regional Road System

Street Name	From	To	Class	Access Management Class
1st St	Keystone Ave	Lake St	Arterial	LAC
2nd St	Keystone Ave	Kuenzli St	Arterial	LAC
2nd St	Kuenzli St	Kietzke Ln	Arterial	MAC
4th St	I-80	Prater Way	Arterial	MAC
5th St	Keystone Ave	Sierra St	Arterial	MAC
5th St	Sierra St	Evans Ave	Arterial	ULAC
6th St	Ralston St	Evans Ave	Arterial	ULAC
6th St	Evans Ave	4th St	Arterial	MAC
7th Ave	Dream Catcher Dr	Chocolate Dr	Arterial	MAC
7th Ave	Chocolate Dr	Sun Valley Dr	Arterial	LAC
7th St	Robb Dr	Vine St	Arterial	MAC
9th St	Sierra St	N Virginia St	Collector	LAC
9th St	N Virginia St	Evans Ave	Arterial	LAC
9th St	Wells Ave	El Rancho Dr	Collector	LAC
Airway Dr	Neil Rd	Longley Ln	Arterial	MAC
Arlington Ave	Skyline Blvd	6th St	Arterial	MAC
Arrowcreek Pkwy	Thomas Creek Rd	S Virginia St	Arterial	MAC
Avenida de Landa	Sharlands Ave	Robb Dr	Collector	LAC
Baring Blvd	McCarran Blvd	Vista Blvd	Arterial	MAC
Beaumont Pkwy	Clubhouse Dr	Avenida de Landa	Collector	LAC
Belmar Dr	Los Altos Pkwy	Earthstone Dr	Collector	LAC
Bluestone Dr	E Huffaker Ln	Patriot Blvd	Collector	LAC
Boomtown Garson Rd	I-80	Cabela Dr	Arterial	MAC
Bridge St	US Hwy 40 (Verdi)	S Verdi Rd	Collector	LAC
Brierley Way	Vista Blvd	Salomon Cir	Arterial	MAC
Brinkby Ave	Plumas St	S Virginia St	Collector	LAC
Business 395	US 395	N Virginia St	Arterial	HAC
Cabela Dr	Boomtown Garson Rd	I-80	Arterial	MAC
California Ave	Hunter Lake Dr	S Virginia St	Arterial	LAC

Calle de la Plata Dr	Eagle Canyon Dr	Pyramid Hwy	Collector	LAC
Calle de Oro Pkwy	Cordoba Blvd	Wingfield Springs Pkwy	Collector	LAC
Campus Way	Neil Rd	Sierra Center Pkwy	Arterial	MAC
Cashill Blvd	McCarran Blvd	Skyline Blvd	Collector	LAC
Caughlin Pkwy	McCarran Blvd @ Cashill	McCarran Blvd @ Plumb	Collector	LAC
Center St	S Virginia St	9th St	Arterial	LAC
Clear Acre Ln	Wedekind Rd	Dandini Blvd	Arterial	MAC
Colbert Dr	Maestro Dr	Longley Ln	Collector	LAC
Cordoba Blvd	Calle de Oro Pkwy	La Posada Dr	Collector	LAC
Court St	Arlington Ave	S Virginia St	Arterial	LAC
Damonte Ranch Pkwy	S Virginia St	Veterans Pkwy	Arterial	MAC
Dandini Blvd	US 395	Clear Acre Ln	Arterial	MAC
David Allen Pkwy	Kiley Pkwy	Lazy 5 Pkwy	Arterial	MAC
Del Webb Pkwy E	Somersett Pkwy	Somersett Ridge Pkwy	Arterial	MAC
Del Webb Pkwy W	Somersett Pkwy	Somersett Ridge Pkwy	Arterial	MAC
Delores Dr	Lazy 5 Pkwy (east)	Lazy 5 Pkwy (west)	Arterial	MAC
Disc Dr	Pyramid Hwy	Vista Blvd	Arterial	MAC
Double Diamond Pkwy	Double R Blvd (north)	Double R Blvd (south)	Arterial	MAC
Double R Blvd	Damonte Ranch Pkwy	Longley Ln	Arterial	MAC
Durham Rd	Plumb Ln	Villanova Dr	Arterial	MAC
E Huffaker Ln	Longley Ln	Bluestone Dr	Collector	LAC
Eagle Canyon Dr	Calle de la Plata Dr	Pyramid Hwy	Arterial	MAC
Eastlake Blvd	US 395	S Virginia St	Arterial	MAC
Echo Ave	Moya Blvd	Military Rd	Arterial	LAC
Edison Way	Mill St	Rock Blvd	Arterial	MAC
El Rancho Dr	Victorian Ave	Clear Acre Ln	Arterial	MAC
Enterprise Rd	Evans Ave	Valley Rd	Arterial	MAC
Evans Ave	2nd St	McCarran Blvd	Arterial	LAC
Foothill Rd	Broken Hill Rd	S Virginia St	Collector	LAC
Galleria Dr	Disc Dr	Los Altos Pkwy	Arterial	LAC
Galletti Way	Glendale Ave	4th St	Arterial	MAC
Gateway Dr	Offenhauser Dr	South Meadows Pkwy	Arterial	MAC
Geiger Grade	S Virginia St	Storey County Line	Arterial	MAC
Gentry Way	Terminal Way	Neil Rd	Arterial	MAC
Gentry Way	S Virginia St	Kietzke Ln	Arterial	MAC

Glendale Ave	Kietzke Ln	Meredith Way	Arterial	MAC
Golden Valley Rd	N Virginia St	Dream Catcher Dr	Arterial	MAC
Greenbrae Dr	Rock Blvd	Howard Dr	Collector	LAC
Greg St	Mill St	I-80	Arterial	MAC
Grove St	S Virginia St	Harvard Way	Collector	LAC
Harvard Way	Grove St	Vassar St	Collector	LAC
Highland Ave	Evans Ave	Valley Rd	Collector	LAC
Highland Ranch Pkwy	Sun Valley Blvd	Pyramid Hwy	Arterial	MAC
Holcomb Ave	S Virginia St	Mill St	Arterial	LAC
Howard Dr	Prater Way	Sparks Blvd	Collector	LAC
Hunter Lake Dr	California Ave	Susileen Dr	Collector	LAC
Keystone Ave	California Ave	Coleman Dr	Arterial	MAC
Keystone Ave	Coleman Dr	McCarran Blvd	Arterial	LAC
Kietzke Ln	Neil Rd	McCarran Blvd	Arterial	MAC
Kiley Pkwy	Pyramid Hwy	Lazy 5 Pkwy	Arterial	MAC
Kings Row	McCarran Blvd	Keystone Ave	Collector	LAC
Kirman Ave	Plumb Ln	Mill St	Collector	LAC
Kirman Ave	Mill St	Truckee River	Arterial	MAC
Kuenzli St	2nd St	Kietzke Ln	Arterial	MAC
La Posada Dr	Pyramid Hwy	Cordoba Blvd	Arterial	MAC
Lake St	Truckee River	6th St	Collector	LAC
Lakeside Dr	Ridgeview Dr	Moana Ln	Arterial	MAC
Lakeside Dr	Moana Ln	Plumb Ln	Collector	LAC
Las Brisas Blvd	Robb Dr	McCarran Blvd	Collector	LAC
Lazy 5 Pkwy	W Sun Valley Arterial	La Posada Dr	Arterial	MAC
Lear Blvd	Moya Blvd	Military Rd	Arterial	MAC
Lemmon Dr	N Virginia St	Ramsey Way	Arterial	MAC
Liberty St	Arlington Ave	Holcomb Ave	Arterial	LAC
Lincoln Way	McCarran Blvd	Sparks Blvd	Arterial	LAC
Locust St	Plumb Ln	Ryland St	Arterial	LAC
Longley Ln	S Virginia St	Rock Blvd	Arterial	MAC
Loop Rd	East Terminus	Vista Blvd	Arterial	MAC
Los Altos Pkwy	Pyramid Blvd	Vista Blvd	Arterial	MAC
Los Altos Pkwy	Vista Blvd (north)	Vista Blvd (south)	Arterial	MAC
Lymberry St	Lakeside Dr	Moana Ln	Collector	LAC

Mae Anne / Mesa Park	McCarran Blvd	4th St	Arterial	MAC
Maestro Dr	Sierra Center Pkwy	Double R Blvd	Arterial	MAC
Matley Ln	Plumb Ln	Villanova Dr	Arterial	MAC
Mayberry Dr	W 4th St	California Ave	Arterial	MAC
McCarran Blvd	Entire Length		Arterial	HAC
Meadowood Cir	Entire Length		Arterial	MAC
Meadowood Way	Kietzke Ln	Meadowood Cir	Arterial	MAC
Military Rd	Lemmon Dr	Echo Ave	Arterial	MAC
Mill St	Lake St	Kirman Ave	Arterial	LAC
Mill St	Kirman Ave	McCarran Blvd	Arterial	MAC
Mill St Ext	McCarran Blvd	SouthEast Connector	Arterial	MAC
Mira Loma Dr	Longley Ln	SouthEast Connector	Collector	LAC
Moana Ln	Skyline Blvd	Plumas St	Arterial	LAC
Moana Ln	Plumas St	Neil Rd	Arterial	MAC
Mount Rose St	Arlington Ave	S Virginia St	Arterial	LAC
Mt Rose Hwy	Tahoe MPO Boundary	Timberline Dr	Arterial	MAC
Mt Rose Hwy	Timberline Dr	S Virginia St	Arterial	HAC
Moya Blvd	Red Rock Rd	Echo Ave	Arterial	LAC
N Virginia St	Truckee River	McCarran Blvd	Arterial	LAC
N Virginia St	McCarran Blvd	Business 395	Arterial	HAC
N Virginia St	Business 395	Red Rock Rd	Arterial	MAC
N Virginia St	Village Pkwy	White Lake Pkwy	Arterial	MAC
N Wingfield Pkwy	Wingfield Springs Rd	Vista Blvd	Collector	LAC
Neighborhood Way	Eagle Canyon Dr	North terminus	Arterial	MAC
Neil Ln	Meadowood Cir	Neil Rd	Arterial	MAC
Neil Rd	Kietzke Ln	Gentry Way	Arterial	LAC
Neil Way	Meadowood Cir	Neil Ln	Arterial	MAC
Nichols Blvd	McCarran Blvd	Howard Dr	Arterial	MAC
Nugget Ave	Rock Blvd	McCarran Blvd	Arterial	MAC
Oddie Blvd	Wells Ave	Pyramid Way	Arterial	MAC
Offenhauser Dr	Portman Ave	Gateway Dr	Arterial	MAC
Old US-395	Eastlake Blvd	S Virginia St	Arterial	MAC
Parr Blvd	N Virginia St	US 395	Arterial	LAC
Patriot Blvd	S Virginia St	Bluestone Dr	Arterial	MAC
Peckham Ln	Lakeside Dr	Longley Ln	Arterial	MAC

Pembroke Dr	McCarran Blvd	SouthEast Connector	Collector	LAC
Plumas St	Ridgeview Dr	California Ave	Arterial	MAC
Plumb Ln	McCarran Blvd	Terminal Way	Arterial	MAC
Portman Ave	Bluestone Dr	Offenhauser Dr	Arterial	MAC
Prater Way	I-80 / 4th St	McCarran Blvd	Arterial	LAC
Prater Way	McCarran Blvd	E of Vista Blvd	Arterial	MAC
Prototype Dr	Gateway Dr	Double R Blvd	Arterial	LAC
Putnam Dr	Washington St	Sierra St	Arterial	LAC
Pyramid Hwy	Queen Way	Calle de la Plata Dr	Arterial	HAC
Pyramid Hwy	Calle de la Plata Dr	Winnemucca Ranch Rd	Arterial	MAC
Pyramid Way	Nugget Ave	Queen Way	Arterial	HAC
Pyramid Hwy/US 395 Connector	Pyramid Hwy	US 395	Arterial	HAC
Raggio Pkwy	Dandini Blvd (east)	Dandini Blvd (west)	Arterial	MAC
Ralston St	2nd St	University Terrace	Collector	LAC
Red Rock Rd	N Virginia St	Nevada / California Border	Arterial	MAC
Redfield Pkwy	S Virginia St	Kietzke Ln	Arterial	MAC
Richard Springs Blvd	Lazy 5 Pkwy (future)	Eagle Canyon Dr	Arterial	MAC
Ridgeview Dr	Plumas St	Lakeside Dr	Arterial	MAC
Rio Poco Rd	McCarran Blvd	Reggie Rd	Collector	LAC
Rio Wrangler Pkwy	Damonte Ranch Pkwy	South Meadows Pkwy	Arterial	MAC
Robb Dr	I-80	Las Brisas Blvd	Arterial	MAC
Rock Blvd	McCarran Blvd (east)	Prater Way	Arterial	MAC
Rock Blvd	Prater Way	McCarran Blvd (north)	Arterial	LAC
Ryland St	Holcomb Ave	Mill St	Arterial	LAC
S Virginia St	US 395 @ Bowers Mansion	Mt Rose Hwy	Arterial	HAC
S Virginia St	Mt Rose Hwy	Plumb Ln	Arterial	MAC
S Virginia St	Plumb Ln	Truckee River	Arterial	LAC
Sadlier Way	Valley Rd	Wells Ave	Arterial	MAC
Salomon Cir	Loop Rd	Brierley Way	Arterial	MAC
Sharlands Ave	Mae Anne Ave	Robb Dr	Arterial	MAC
Sierra Center Pkwy	S Virginia St	Maestro Dr	Arterial	MAC
Sierra Highlands Dr	McCarran Blvd	7th St	Collector	LAC
Sierra Rose Dr	Tablot Ln	Kietzke Ln	Arterial	MAC
Silver Lake Rd	Red Rock Rd	Sky Vista Pkwy	Collector	LAC

Silverada Blvd	9th St	Wedekind Rd	Collector	LAC
Sinclair St	Holcomb Ave	Truckee River	Collector	LAC
Sky Vista Pkwy	Lear Blvd	Silver Lake Rd	Collector	LAC
Sky Vista Pkwy	Silver Lake Rd	Lemmon Dr	Arterial	MAC
Skyline Blvd	McCarran Blvd	Arlington Ave	Collector	LAC
Smithridge Dr	Peckham Ln	Meadowood Cir	Arterial	MAC
Somersett Pkwy	Mae Anne Ave	Del Webb Pkwy	Arterial	MAC
Somersett Ridge Pkwy	Del Webb Pkwy	US Hwy 40 (Verdi)	Arterial	MAC
South Meadows Pkwy	S Virginia St	Rio Wrangler Pkwy	Arterial	MAC
SouthEast Connector	South Meadows Pkwy	Greg St	Arterial	HAC
Sparks Blvd	Greg St	Pyramid Hwy	Arterial	MAC
State St	S Virginia St	Holcomb Ave	Arterial	MAC
Stead Blvd	N Virginia St	Echo Ave	Arterial	MAC
Steamboat Pkwy	Damonte Ranch Pkwy	Rio Wrangler Pkwy	Arterial	MAC
Stoker Ave	4th St	7th St	Collector	LAC
Sullivan Ln	Prater Way	El Rancho Dr	Collector	LAC
Summit Ridge Rd	McCarran Blvd	W 4th St	Collector	LAC
Sun Valley Blvd	Dandini Blvd	Highland Ranch Pkwy	Arterial	MAC
Susileen Dr	Hunter Lake Dr	Cashill Blvd	Collector	LAC
Sutro St	Truckee River	US 395	Arterial	MAC
Sutro St Ext	US 395	Clear Acre Ln	Arterial	MAC
Talbot Ln	Redfield Pkwy	Sierra Rose Dr	Arterial	MAC
Terminal Way	Gentry Way	Mill St	Arterial	MAC
Thomas Creek Rd	Mt Rose Hwy	Zolezzi Ln	Collector	LAC
Toll Rd	Geiger Grade	Comstock Estates Dr	Collector	LAC
University Terrace	Vine St	Sierra St	Collector	LAC
US Hwy 40 (Verdi)	I-80 (west)	I-80 (east)	Arterial	MAC
Valley Rd	Enterprise Rd	4th St	Arterial	MAC
Vassar St	S Virginia St	Kietzke Ln	Arterial	LAC
Vassar St	Kietzke Ln	Terminal Way	Arterial	MAC
Veterans Pkwy	South Meadows Pkwy	Geiger Grade	Arterial	HAC
Victorian Ave	Prater Way	McCarran Blvd	Arterial	LAC
Village Pkwy	N Virginia St	North Terminus	Arterial	MAC
Villanova Dr	Harvard Way	US 395	Collector	LAC
Villanova Dr	US 395	Terminal Way	Arterial	LAC

Vine St	2nd St	University Terrace	Collector	LAC
Vista Blvd	I-80	Wingfield Hills Rd (east)	Arterial	MAC
Vista Blvd	Wingfield Hills Rd (east)	Campello Dr	Collector	LAC
W Huffaker Ln	Meadow Vista Ct	S Virginia St	Collector	LAC
W Sun Valley Arterial	Pyramid/US 395 Connector	Eagle Canyon Rd	Arterial	HAC
Washington St	Putnam Dr	2nd St	Collector	LAC
Wedekind Rd	Sutro St	Pyramid Hwy	Collector	LAC
Wedge Pkwy	Mt Rose Hwy	Arrowcreek Pkwy	Arterial	MAC
Wells Ave	S Virginia St	Ryland St	Arterial	LAC
Wells Ave	Ryland St	Oddie Blvd	Arterial	MAC
West St	6th St	5th St	Arterial	MAC
White Lake Pkwy	Village Pkwy	N Virginia St	Arterial	MAC
Windmill Farms Blvd	Pyramid Hwy	Kiley Pkwy	Arterial	MAC
Wingfield Hills Rd	Lazy 5 Pkwy	Vista Blvd (east)	Arterial	MAC
Wingfield Springs Rd	N Wingfield Pkwy	Calle de Oro Pkwy	Collector	LAC
York Way	Rock Blvd	McCarran Blvd	Collector	LAC
Zolezzi Ln	Thomas Creek Rd	Arrowcreek Pkwy	Collector	LAC

APPENDIX E

Congestion Management Process

Appendix E: Congestion Management Process

The purpose of the Congestion Management Process (CMP) is to identify how RTC selects and prioritizes projects to reduce traffic congestion. This process was developed in coordination with the 2035 Regional Transportation Plan (RTP) Agency Working Group and Community Working Group. The process was used to select projects included in this RTP. The CMP is a systematic approach that is collaboratively developed for the region and provides safe and effective management of new and existing transportation facilities.

1. Congestion Management Objectives

Traffic congestion is an impediment to economic activity and has an adverse impact on quality of life in the Truckee Meadows. Traffic congestion on freeway facilities, particularly I-80, has an adverse impact on national freight movement in addition to local traffic operations. Significant proportions of traffic congestion are non-recurring. This type of congestion is caused by crashes, work zones, weather, and special events. The objectives of this CMP are to reduce both recurring and non-recurring traffic congestion. An important component to this process is the implementation of operations and management strategies that improve signal timing coordination and communications between traffic operations engineers at RTC, NDOT, City of Reno, City of Sparks, and Washoe County. The Nevada Traffic Incident Management (NV TIM) is another important program that addresses incident response. A guiding principle of the RTP is to improve safety on area roadways for all users, including pedestrians and cyclists. Selecting projects that reduce crashes on regional roads will also reduce congestion that results from incidents.

The CMP also provides an opportunity to address freight issues. Through the 2035 RTP, RTC has facilitated roundtable discussions that involve regional partners in freight and logistics, economic development, and infrastructure development. RTC will continue these freight and logistics roundtables after completion of the RTP on an annual or semi-annual basis.

2. Identify Area of Application

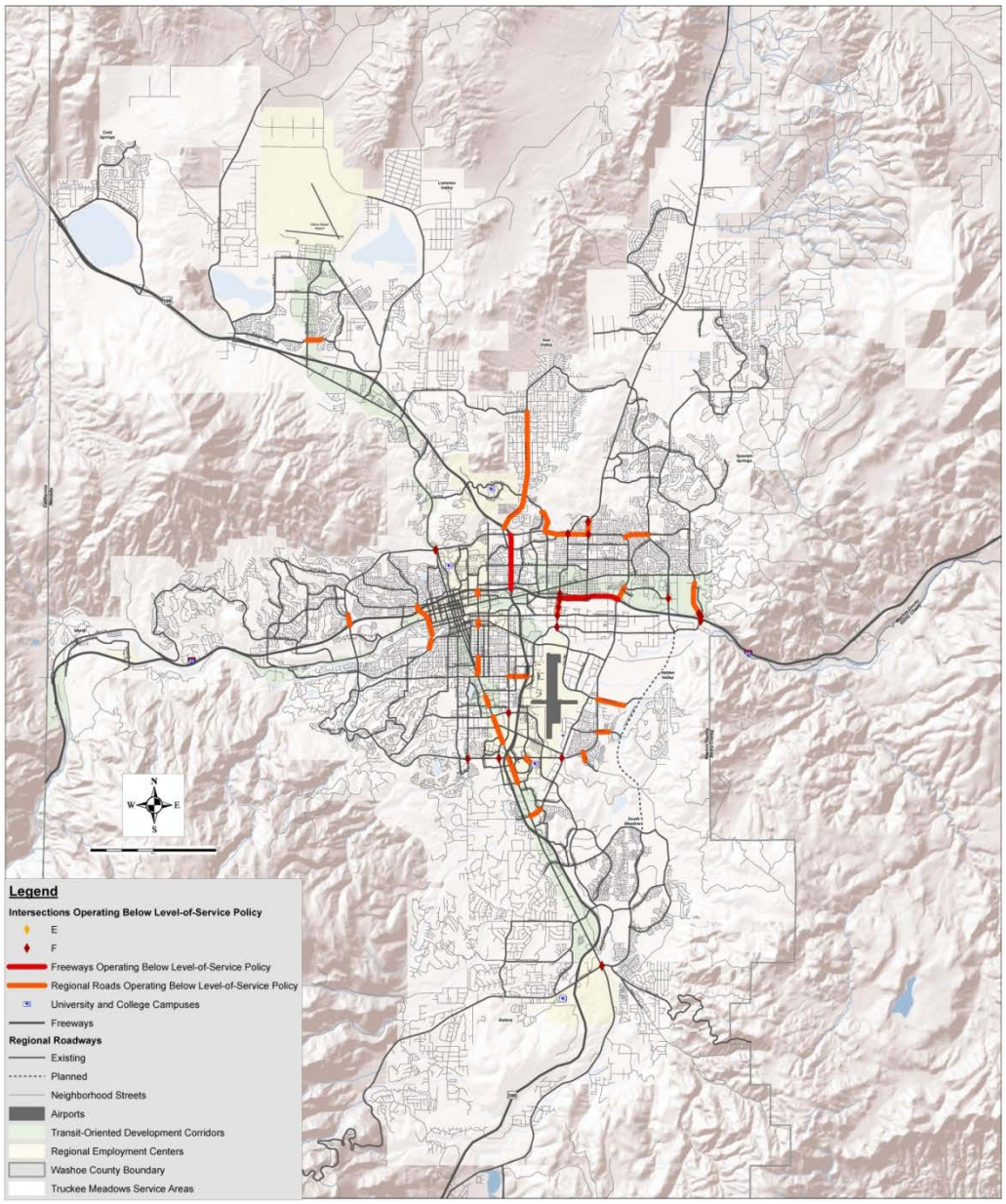
The CMP applies to the Reno-Sparks urbanized area in Washoe County, Nevada. This is the planning area addressed in the 2035 RTP. It addresses project prioritization for roadway capacity, safety, and operations.

3. Define System or Network of Interest

The CMP addresses congestion issues on regional roads in the Reno-Sparks metropolitan area. Regional roads generally include facilities with 5,000+ average daily trips. Roads with fixed-route bus service or corridors identified as industrial roads are also included.

RTC identified existing traffic congestion hotspots using the regional travel demand model, which incorporates the 2012 Consensus Forecasts for population and employment in Washoe County. The Consensus Forecasts were adopted by the Regional Planning Governing Board and Regional Planning Commission, and serve as the basis for infrastructure planning for RTC as well as other agencies and jurisdictions. Existing traffic congestion is shown in Figure E-1.

Figure E-1: Existing Traffic Congestion



4. Develop Performance Measures

MAP-21 creates a data-driven, performance-based multimodal program to address the many challenges facing the U.S. transportation system. Performance management will lead to more efficient investment of transportation funds by focusing on national transportation goals, increasing the accountability and

transparency, and improving decision making. This chapter describes the performance measures and targets to be used in assessing system performance. RTC will develop annual reports to track progress toward achieving these targets and will continue to gather additional community input into the transportation planning process.

The U.S. Secretary of Transportation, in consultation with States, MPOs, and other stakeholders, will establish national performance measures for several areas: pavement conditions and performance for the Interstate and National Highway System, bridge conditions, injuries and fatalities, traffic congestion, on-road mobile source emissions, and freight movement on the Interstate System. MAP-21 provides an 18 month period for the U.S. Department of Transportation, in consultation with State DOTs, MPOs, and other stakeholders, to develop rulemaking that establishes performance measures. States, in coordination with MPOs, will then set performance targets in support of those measures, and state and metropolitan plans will describe how program and project selection will help achieve the targets. While USDOT rulemaking may not occur for another year, RTC has collaborated with the FHWA Nevada Division Office, the Nevada Department of Transportation, and other stakeholder jurisdictions and agencies to develop preliminary performance measures. These performance measures and targets will be updated upon release of national and state performance measures.

The national performance goals for federal highway programs established in MAP-21 include the following:

- **Safety**—To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Infrastructure condition**—To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion reduction**—To achieve a significant reduction in congestion on the NHS.
- **System reliability**—To improve the efficiency of the surface transportation system.
- **Freight movement and economic vitality**—To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental sustainability**—To enhance the performance of the transportation system while protecting and enhancing the natural environment.
- **Reduced project delivery delays**—To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Table E-1 below identifies the national transportation goals that have been identified, how these link to the RTP goals and applicable performance measures. The zero fatalities goal and crash reduction goals are consistent with the *Nevada Strategic Highway Safety Plan*.

Table E-1 Performance Measures

National Goal	RTP Goal	Performance Measures	Performance Target
Safety	Improve Safety	• Preventable transit accidents per 100,000 miles of service • Number of crashes (vehicle, bike, pedestrian) / Number of crashes per vehicle miles travelled (VMT) • Number of serious injuries per VMT • Number of fatalities (vehicle, bike, pedestrian) / Number of fatalities per VMT • Miles of bicycle lanes added & percent of Bicycle Pedestrian Master Plan completed • Miles of sidewalks added or enhanced & percent of ADA Transition Plan completed	• 0 • Reduce by 20% by 2020 • Reduce by 20% by 2020 • 0 • 5% of plan per year • 5% of plan per year
Infrastructure Condition / Transit State of Good Repair	Manage Existing Systems Efficiently	• Pavement Condition Index for Regional Roads • Preventive maintenance of transit rolling stock and facilities • Maintain industry standard vehicle life cycle	• 70 • 100% of transit preventive maintenance performed on time • Varies by vehicle type
Congestion Reduction	• Manage Existing Systems Efficiently • Integrate All Types of Transportation	• Transit passengers per service hour • Traffic congestion delay • Vehicle Miles Travelled per person	• 30 • 25 minutes of traffic delay per person per day • 27 VMT per person per day
System Reliability	Manage Existing Systems Efficiently	• Transit on-time performance • Highway incident response	• 90% transit on-time performance
Freight Movement & Economic Vitality	• Integrate Land Use & Economic Development • Improve Freight & Goods Movement • Focus on Regional Connectivity	• I-80 level of service	• LOS D
Environmental Sustainability	• Promote Healthy Communities & Sustainability • Integrate Land Use & Economic Development • Integrate All Types of Transportation	• Auto emissions • Fleet mix – alternative fueling technologies • Alternative mode share by corridor • Alternative mode share in the transit service area	• Maintain emissions under air quality budget • 100% electric or CNG fleet by 2035 • 30% on Virginia Street; 30% on East 4th Street/Prater Way • 10% by 2035

5. Institute System Performance Monitoring Plan

MAP-21 provides a framework for linking goals and performance targets with project selection and implementation. Performance plans will track the progress toward achieving these targets and will be used to facilitate a community dialog about the track record of the RTC's transportation program. RTC will develop the following performance plans:

- Metropolitan Transportation Plan, to be updated every four years, which will include a discussion of:
  - anticipated effects of the improvement program toward achieving the performance targets,
  - how investment priorities are linked to performance targets
- Annual Metropolitan System Performance Report, which will include:
  - Evaluation of the condition and performance of the transportation system
  - Progress achieved in meeting performance targets
  - Evaluation of how transportation investments have improved conditions
- Annual Transit Performance Report, which will document progress toward meeting performance targets
- Transit Asset Management Plan
- Public Transportation Safety Plan

6. Identify and Evaluate Strategies

RTC gathered information about priorities for operational strategies and capacity improvements from stakeholders, the general public, and partner agencies. This included the 2035 RTP Agency and Community Working Groups, the Technical Advisory Committee, and the Citizens Advisory Committee. Surveys were conducted at meetings of the committees listed above, during the RTP Alternatives Evaluation Workshop, at an RTC Board meeting, and during meetings of the Freight and Logistics Roundtable, Senior and ADA Issues Roundtable, and the Reno Access Advisory Committee. The survey was also available online at www.yourwashoeRTP.com.

7. Implement Selected Strategies and Manage Transportation System

RTC used a wide variety of methods to gather alternative projects for consideration in the 2035 RTP. These sources include the 2008 RTP, RTC corridor studies, solicitation for projects at the RTC Technical Advisory Committee (comprised of local and state agencies), RTC Citizens Advisory Committee, the RTP Working Groups, solicitation for projects at local City Council and Planning Commission meetings, an Alternatives Development Workshop geared toward the general public, and a smart phone application that allows anyone to suggest projects. The projects considered for the RTP included a range of both livability and capacity investments. In addition, the RTP identified system operations as a key priority: this includes technology upgrades that will facilitate enhanced traffic signal coordination and communications.

RTC seeks to implement an integrated multimodal approach to CMP. Table E-2 identifies the criteria that will be used to evaluate new capacity projects. It includes qualitative and quantitative elements.

Table E-2 CMP Evaluation Criteria

	CMP Evaluation Criteria	Rating
1	**Analysis of Transportation Impacts**	
	Addresses area of high traffic congestion	(Yes/No)
	Address a high crash location	(Yes/No)
	Includes safety design improvements	(Yes/No)
	Provides additional non-motorized capacity	(Yes/No)
	Provides additional transit capacity	(Yes/No)
	Provides additional vehicle capacity	(Yes/No)
	Provides operational improvements	(Yes/No)
	Known environmental constraints	(Yes/No)
2	**Community Input**	

8. Monitor Strategy Effectiveness

As described in the RTP, RTC monitors impacts of capacity projects on an on-going basis. Examples include the quarterly safety reports that RTC presents to the RTC Board, which track safety trends at the regional and project-specific levels. RTC also develops before and after studies of specific projects that currently address safety and operations impacts. The regional travel demand model, combined with updates from our traffic count program, will further be used to monitor impacts on regional traffic congestion. An additional tool is the creation of annual progress reports to document implementation of the RTP.

APPENDIX F

Travel Demand Model Conversion and Update

Appendix F: Travel Demand Model Conversion & Update

The regional travel demand model (TDM) is an essential tool for long-range planning, engineering, and public transportation operations. The model projects future travel demand and conditions on regional roads, which is essential data for scenario studies and policy analysis. The update includes demographic data from the 2010 U.S. Census and 2012 Washoe County Consensus Forecasts for population and employment. This data reflects changes in regional trends that resulted from the national economic recession. The new model upgraded the previous traditional 4-step based TDM process on the EMME software platform to a TransCAD activity based model.

RTC worked closely with partner agencies to implement the new travel demand model. The Truckee Meadows Regional Planning Agency (TMRPA), Nevada Department of Transportation (NDOT), Washoe County Health District Air Quality Management Division (AQMD), and Federal Highway Administration (FHWA) were important participants in the update process. Through the shared work program with RTC, TMRPA was able to develop the socioeconomic data that was integrated into the model. This process built upon TMRPA's Community Viz model, which digitized local land use data and allocated future population growth to parcels based on a series of suitability factors such as topography, existing public services, and approved building permits.

The new TDM tool uses the tour-based or Activity-Based travel demand modeling (ABM) approach, which provides better model predictabilities. In contrast to the traditional, aggregated, and 4-step modeling procedures developed beginning in the 1950s Urban Transportation Planning Package, the ABM focuses primarily on trip behaviors and travel patterns of disaggregated individuals.

To better capture and explain regional traffic patterns, ABM incorporates sub-procedures such as choice of travel time of day, destination and mode selection of travel, and choice of activity patterns. Those sub-procedures are based on individual travel characteristics.

As a result, this modeling tool provides better model predictability with more realistic, individual traffic patterns. Also it is well recognized that the model is more sensitive to transportation policy scenarios. RTC is expecting better project performance based on better scenario estimations such as transit routing, fare policy and road construction demand estimations.

To guarantee better model output, this TDM procedure requires a wide variety of data inputs. The major data categories that fed the construction of the model are shown in Table F-1.

Table F-1. Major Input Data Descriptions for the TDM Conversion/Upgrade Project

Data No.	Input Data Description	Main Data Source / Provider
1	Household survey data for 2005	RTC Planning Department
2	Area road network coding data for 2005, 2010, 2015, 2020, 2025, 2030, and 2035	RTC Planning Department
3	EMME program codes	RTC Planning Department
4	Landuse/socio-economic data	TMRPA
5	2005 Washoe County transportation profiles	American Community Survey
6	District/TAZ group information	RTC Planning Department
7	Intersection turn movement volume data	RTC Engineering Department
8	Transit network (2005, 2010) and operations statistics	RTC Public Transportation Department
9	Transit ITS field data (2005, 2010; number of passengers boarding/ alighting per stop, bus stop location)	RTC Public Transportation Department
10	Truck field count data	Nevada Department of Transportation
11	Traffic field count data, location list from HPMS (2005, 2010)	Nevada Department of Transportation
12	Maps of transit oriented development (TOD) and Regional Centers	TMRPA
13	Regional road information	RTC Engineering Department
14	Student, faculty, and employee information (origin-destination information) from UNR (ZIP+4)	University of Nevada, Reno
15	Student, faculty, and employee information (origin-destination information) from TMCC (ZIP+4)	Truckee Meadows Community College
16	Number of workers by origin TAZ (home location)	TMRPA
17	Special events, Ball Park game day, time, and patron origin information	EDAWN, Aces Ballpark
18	Air passenger future demands (Reno-Tahoe & Reno-Stead)	Reno-Tahoe Airport Authority
19	Area type base map for area type road classification	RTC Planning Department
20	School bus schedule	Washoe County School District
21	Truck road (industrial dedicated Road) map & data	City of Reno, City of Sparks, Washoe County

For data item No. 1 in Table F-1, RTC provided the latest, comprehensive and area-wide transportation survey, which was conducted in 2005. The Washoe County Travel Characteristics Study consists of four sub-surveys: Household Travel Survey, Transit On-board Survey, Visitor Travel Survey, and External Station Study. The survey data was utilized as major input data for development of parameters and coefficients of the model calibrations as well as filed data to validation of model estimations.

RTC staff converted current and future EMME road network coding into the GIS-based TransCAD modeling software. In this process, RTC defined six future study years for this RTP; 2010, 2015, 2020, 2025, 2030, and 2035.

TMRPA provided land use and socio-economic data. The agency developed a socio-economic and land use forecasting model to allocate the Consensus Forecast population and employment totals by jurisdiction to parcels and traffic analysis zones. TMRPA provided future estimations of social, economic, and landuse for six future modeling years and base year of 2005 as can be seen in Table B-2.

Table F-2. Socio-Economic Input Data Description for the TDM conversion/Upgrade Project

Data No.	**Data Name**	**Data Description**
1	HH_year	Number of households within the TAZ during the year specified
2	HH_P_year	Number of people (not living in group quarters) within the TAZ during the year specified
3	GQ_P_year	Number of people living in group quarters within the TAZ during the year specified
4	HH_X_year	Number of household of size X within the TAZ during the year specified
5	P_0_year	Number of people in age group 0 to 19 living within the TAZ during the year specified
6	P_20_year	Number of people in age group 20 to 54 living within the TAZ during the year specified
7	P_55_year	Number of people in age group 55 and older living within the TAZ during the year specified
8	ELEM_year	Number of students enrolled in grade school and middle school within the TAZ during the year specified
9	SEC_year	Number of students enrolled in high school within the TAZ during the year specified
10	UNI_year	Number of students enrolled in college (UNR and TMCC) within the TAZ during the year specified
11	LOW_year	Number of household with income in the low range (less than or equal to $35,000) within the TAZ during the year specified
12	MED_year	Number of household with income in the medium range ($35,000 to $75,000) within the TAZ during the year specified
13	HIGH_year	Number of household with income in the high range (greater than $75,000) within the TAZ during the year specified
14	CAT1_year	Number of employees in agriculture, mining and construction employment within the TAZ during the specified year
15	CAT2_year	Number of employees in manufacturing, transportation, communications, utilities, and wholesale employment within the TAZ during the specified year
16	CAT3_year	Number of employees in retail employment within the TAZ during the specified year

Data No.	Data Name	Data Description
17	CAT4_year	Number of employees in service and office employment within the TAZ during the specified year
18	CAT5_year	Number of employees in other employment within the TAZ during the specified year
19	CAT6_year	Number of employees in gaming employment within the TAZ during the specified year

For the first time in the TDM development of this region, RTC included a truck travel demand sub-model into the main model to better understand the freight movement in and out of the region. NDOT collected, processed and summarized daily truck traffic data from the Highway Performance Measurement System. It was combined with truck-dedicated road networks from City of Reno, City of Sparks, and Washoe County, yielding a well-performing truck travel sub-model.

During the project period, RTC continued working with Parsons Brinkerhoff travel demand modeling team, NDOT and the TMRPA. Core members of the advisory team met on a weekly basis to address technical issues and details of the project. Also, the team held monthly stakeholder meetings where they shared general ideas and project updates.

After the final model program was developed, RTC, TMRPA, and NDOT staff validated the model outputs. Also the model output is being utilized for the input data of Motor Vehicle Emission Simulator (MOVES), the air quality conformity analysis modeling tool developed by the U.S. Environmental Protection Agency and used by the Washoe County Health District Air Quality Management District.

RTC continues upgrading the model quality and model usage by initiating Phase II and Phase III of this TDM upgrade project. RTC will focus on improving details of the model procedures, data updates, model maintenance, and training of modeling staff.

RTC is expanding the usage of the TDM by connecting it to a new tool for a micro, local-level traffic simulation study. RTC is undergoing a feasibility study to adopt TransBuilder, a GIS-based, 3-dimentional micro traffic flow simulation model. This modeling platform will make it possible to study more detailed, microscopic traffic pattern studies such as intersection delay, signal, incident management, HOV, and roadway weaving analyses.

APPENDIX G

Revenue Assumptions

Appendix G: Revenue Assumptions

Federal law requires that the 2035 Regional Transportation Plan include a Financial Plan that demonstrates how the Plan can be implemented and is constrained by a reasonable projection of funds expected to be received during the planning period. This document outlines the assumptions used to project these revenues for the Washoe County Region through the year 2035.

Under rules and direction from FHWA and FTA, the financial constraint of the RTP must be shown in Year-of-Expenditure (YOE) dollars. Converting all costs and revenues to YOE dollars assumes a more accurate depiction of all costs, revenues and deficits associated with long-range transportation plans.

ASSUMPTIONS

This document describes the assumptions the Regional Transportation Commission of Washoe County adopted to meet the regulatory requirements as it concerns federal, state, regional and local funding sources and the distribution and use of revenue expected from these sources.

Once the assumptions were determined, an estimate of how much revenue was available for debt service, street and highway routine maintenance and operations, system preservation and highway modernization, facilities, transit and other infrastructure and overhead cost and reserves was developed.

While it is difficult to forecast transportation revenues over a long period of time especially in this time of uncertainty; in developing these projections we examined and relied on historical growth trends of current revenue sources attributable to the Reno-Sparks urban area, considered current conditions, the effects of inflation, changes in population and made thoughtful decisions about what is expected to occur in this region over the next twenty plus years. Using these indicators as a base it seems reasonable to assume that there will be increases in all revenue sources over this plan period and that the program of projects adopted will not exceed these reasonable foreseeable future revenues. Since these plans are reviewed every three to four years, timely adjustments can be addressed when and as needed.

These assumptions were developed with input and collaboration from many parties including the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Nevada Department of Transportation (NDOT), Nevada MPOs, the City of Reno, the City of Sparks, and Washoe County.

FUNDING SOURCES

The Reno-Sparks Regional Financial Plan includes multiple funding sources. As we are acutely aware, the last four years have been challenging nationally and locally; and the outlook for future years is dismal as it relates to federal and state funding availability for transportation projects. There continues to be concern about maintaining the current revenue streams at the federal and state levels. Money that funds the Federal Highway trust fund (includes Highway Account and the Mass Transit Account)

primarily comes from gas tax which has not been increased since 1992. Fuel consumption is declining primarily due to more fuel efficient vehicles. In Washoe County, the fuel tax revenue, which is dedicated by law for street and highway purposes, continues to increase year-over-year due to RTC-5 (Senate Bill 01) indexing that was implemented in January 2010; in spite of the decline in gallons consumed. On the other hand, the primary source of revenue for transit is the local sales tax which moves up and down with the changes in the economy.

The initiatives having the biggest impact on the revenue assumptions are in three critical categories; MAP-21, Indexing and RRIF.

MAP-21

A new two-year transportation authorization entitled Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law on July 6, 2012; took effect on October 1, 2012 and expires on September 30, 2014. This is the first multi-year bill in almost seven years. This bill provides two years of steady funding to maintain and grow the regional transportation infrastructure for both the street and highway and transit system, but there are risks in not having a fully funded program as robust as what we experienced in the 90s. Under MAP-21, for each fiscal year, a lump sum is authorized for all apportioned programs. This lump sum is first distributed among the States based on each State's total FY 2012 apportionments (with an adjustment in FY 2014 to guarantee a 95% return of each State's dollar contribution to the Highway Account of the Highway Trust Fund) and then distributed within each State among the individual apportioned program based on a series of formulas and grants.

At the federal level there is a significant shortfall of funding. This coupled with changes in the regulatory framework means we must use our local resources more sparingly. This financial plan reflects the best currently available data at the time these revenue assumptions were prepared. With the exception of the FTA 5339 program, revenue projections for federal transportation programs were made based on the previous structure of federally funded programs. The base year for revenue projections in this document is FY 2011. While MAP-21 builds on and refines many of the highway, transit, bike and pedestrian programs and policies established in 2005 with the SAFETEA-LU bill, the overall impact to the revenues projected in this document are assumed not to be substantial except as noted above for the FTA 5339 program which is now a formula based.

Indexing

A strong Revenue component of the plan is that local fuel tax rates have been adjusted to inflation when Senate Bill 201 (indexing of local, State and Federal fuel taxes) was approved by the Legislature in June 2009. The Street and Highway program received a substantial revenue boost from this initiative. The purpose is to recapture the lost purchasing power on the federal and state fuel taxes being paid in Washoe County by indexing the federal and state taxes on gas, alternative fuels and diesel. Collections of the PPI indexed fuel taxes began on January 1, 2010. The RTC received the first proceeds in March 2010. It has also allowed the Commission to temporarily deviate from their usual "pay as you go" philosophy and initiate three bonds sales of approximately $90 million each; a fourth bond sale is in the

process of being implemented for the completion of current capacity project needs as well as reconstruction and rehabilitation.

Regional Road Impact Fee (RRIF)

Beginning in 1995, RRIF have been levied on all new development to capture the costs of capacity consumed by new traffic on the defined Regional Road System. An evaluation of this program is currently being conducted. The objective of the review is to evaluate the current practices and to identify potential changes that could improve the system. Given the downturn in the construction industry the revenue generated by this program is minimal and until further direction regarding this program is determined, minimal revenue is being projected in this plan period.

FINANCIAL ASSUMPTIONS - REVENUE SOURCES

Revenue sources relevant to this section are those received from the federal government; received by the State of Nevada; those generated by Regional and Local fuel and sales tax; and other revenue sources related to both the street and highway and the public transportation programs.

STREET AND HIGHWAY REVENUE

Federal Funding Sources

MAP-21 builds on and refines previous transportation laws. While some of the previous programs have been restructured, the new program encompasses most of the activities funded under the previous program (SAFETEA-LU). Also, the difference in the total authorized funding amount is negligible. Therefore, the base year for the federal revenue assumptions is set at FY 2011. In this document, core federal programs including the National Highway Performance Program, The Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) and the Transportation alternatives program are assumed to remain flat for the first 5 years of this plan and then grow at a rate of 2.5% annually. The RTC of Washoe County is projected to receive a proportionate share of the amount allocated to Nevada based taxable gallons of gasoline/gasohol fuel sold. Washoe County's percentage is calculated at 15.4%. In this plan, CMAQ funds are split by applying a ratio of 2/3 to street and highway and 1/3 to public transportation through 2016. Beginning in 2017 this split is changed to 25% to roads and 75% to transit. These funds are flexed between the two programs based on the projects that support the purpose of this funding category requirement.

State Highway Fund Revenue

Projections for future state contributions were based on historic data and forecast trends. RTC staff met with NDOT leadership in January, 2013 to review the assumptions included in this document. Based on this and earlier discussion with NDOT staff, with the exception of gas and diesel tax (see fuel tax section) all state revenue are assumed to remain flat for the first 5 years and then grow at a rate of 1% annually. The principal sources of state transportation funding are:

- Gas Taxes
- Special fuel (diesel) taxes

- Vehicle Registration Fees
- Motor Carrier Fees
- Driver's License Fees
- SBS Petroleum Cleanup funds

Fuel Tax (Local and Indexed)

Per NRS this revenue source must be used exclusively for street and highway projects. The indexed portion of this revenue source was approved by Washoe County voters in November 2008. Key assumptions used to forecast local gas and state gas tax (including diesel) are as follows:

- Continued adjustments to gas tax to recapture buying power lost to inflation at an average annual change in CPI of 3%
- Gasoline use will increase proportionate to population growth based on Washoe County consensus forecast
- Per Capita consumption of gas changes at a rate consistent with Corporate Average Fuel Economy (CAFÉ) standard (54.5 gallons per vmt)
- Vehicle turnover rate of .055. The actual 2010 turnover rate was .061 based on the Clean MPG forum. The rate used is more conservative to account for baby boomer retiring and downsizing of vehicles per household.

Local Jurisdictions Fund Revenue

At the local level, with the exception the gas tax the revenue projections were projected by the City of Reno, the City of Sparks and Washoe County. The sources of this revenue are as follows:

- Gas Tax
- General Fund

Revenue Bonds

RTC has used bond funding to advance and fund the cost of constructing and maintaining certain street and highway projects in the Reno-Sparks urban areas. These bonds are pledged by a local indexed gas tax. Although Bond funding is not a revenue source since it has to be repaid from other revenues it is available to RTC to expedite projects in this planning period. Allowances have been made for debt service payment and legally required reserves. Several projects identified in the program of projects will be accelerated using this funding source. The annual increases are based on a formula (the lesser of 7.8% or a rolling 10-year average of the changes in the Producer Price Index (PPI) for Street and Highway construction). Beyond year 10 an increase of 3% is assumed. The PPI indexes were changed in March 2011 moving from the BHWY index (discontinued) to the BONS index. These indexes measures changes in selling prices for materials and supplies typically sold to the construction sector. The total amount of Bonds funds applied to projects in this plan $180 million.

Sales and Use Tax

- 1/8 % dedicated to either Roads or Transit as approved by voters in 2002. By policy, the RTC Board has authorized at 50/50 split between Roads and Transit
- Based on historic trends, revenue is expected to grow at an annual rate of 5% for the base year of 2011

Other Revenue

- Contributions from the Flood Control Fund and private developers for freeway interchange projects and the Virginia Street Bridge Replacement project are included in this plan.

PUBLIC TRANSPORTATION REVENUE

Federal Funding Sources

FTA Urbanized Area Formula Funds (5307)

Under MAP-21, the basic structure of the urbanized area formula program is maintained but has been consolidated with the Job Access and Reverse Commute (JARC) program. The FTA provides these funds to urban areas to support public transportation planning, capital and operating projects.

These funds are projected to remain flat for the first five years and then grow at a rate of 2.5% annually. For this plan, it is assumed that 70% of these funds will be used for operating assistance and 30% for capital assistance.

FTA Bus and Bus Facilities Program (5339) and State of Good Repair Program (5337)

Under MAP-21 this formerly discretionary bus and bus facilities program is now a formula grant program. The nation-wide authorized funding for this program is substantially lower than what was authorized in the previous authorization bill; that reduction is assumed throughout 2035. These funds are used to primarily fund capital projects.

These funds are projected to levels in MAP 21 for the first five years and then grow at a rate of 2.5% annually.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

CMAQ can only be used on projects that reduce, delay or make significant improvements to overall regional air quality. These funds can be used for both capital and operating assistance and for both street and highway and transit projects.

As previously stated, these funds are assumed to remain flat for the first five years of the plan and then grow at a rate of 2.5% annually. In this plan CMAQ funds are split using a ratio of 2/3 to street and highway and 1/3 to public transportation through 2016. Beginning in 2017, this split changes to 75% to transit and 25% to roads. These funds are flexed between the two programs based on the projects that support the purpose of this funding category requirement

STATE REVENUE

All current funding for public transportation is generated at the federal, regional and local levels with a very small amount from state resources.

REGIONAL REVENUE

Sales and Use Tax

- 1/4 % dedicated to Public Transportation as approved by voters in 1982
- 1/8 % dedicated to either Roads or Transit as approved by voters in 2002. By policy, the RTC Board has authorized at 50/50 split between Roads and Transit
- Based on historic trends, revenue is expected to grow at an annual rate of 5% for the base year of 2011

Passenger Fares

- The first five-years are from the Short Range Transit Plan approved in 2010
- Revenue per passenger is assumed to increase 2.7% annually for both RIDE and ACCESS after 2016, consistent with the 20-year historical trend

Other Revenue Sources

- Other revenue sources include bus advertising revenue; which is calculated based on a fleet of 71 active coaches with a 2.5% annual growth rate
- Other revenue sources also include rental income. The rental income results from leases to outside tenants in the building on Terminal Way. After 2020, this plan assumes RTC will fully occupy the Terminal Way building.

APPENDIX H
Acronyms

ACRONYMS

AADT—Annual Average Daily Traffic

AASHTO—American Association of Street and Highway Transportation Officials

ACEC—Areas of Critical Environmental Concern

ADA—Americans with Disabilities Act of 1990

ADT—Average daily trips

APTA—American Public Transportation Association

AQMD—Air Quality Management Division

AWG—Agency Working Group

BCA—Benefit cost analysis

BLM—Bureau of Land Management

BPAC—Bicycle/Pedestrian Advisory Committee

BRC—Blue Ribbon Committee

BRT—Bus rapid transit

CAC—Citizens Advisory Committee

CALTRANS—California Department of Transportation

CAMPO—Carson Area Metropolitan Planning Organization

CCRTC—Carson City Regional Transportation Commission

CEA— Critical Emphasis Areas

CFR—Code of Federal Regulations

CMAQ—Congestion Mitigation/Air Quality

CMP—Congestion Management Process

CNG—Compressed natural gas

CO—Carbon monoxide

CPI—Consumer Price Index

CWG—Community Working Group

DOT—Department of Transportation

EMP—Emergency Access Management Plan

EPA—Environmental Protection Agency

ETR—Employer Trip Reduction

FAA—Federal Aviation Administration

FHWA—Federal Highway Administration

FRR—Farebox Recovery Ratio

FTA—Federal Transit Administration

GHG—Greenhouse gas

HA #87—Hydrographic Area #87

HOV—High occupancy vehicle

HSIP—Highway Safety Improvement Program

ITS—Intelligent Transportation Systems

JAC—Jump Around Carson

LEED—Leadership in Energy and Environmental Design

LOS—Level of service

LTBMU—Lake Tahoe Basin Management Unit Land Resource Management Plan

MAP-21—Moving Ahead for Progress in the 21st Century Act

MOBILE6.2—Air quality model

MPO—Metropolitan Planning Organization

MUTCD—Manual of Uniform Traffic Control Devices

MVEB—Motor vehicle emission budget

NAAQS—National Ambient Air Quality Standards

NARC—National Association of Regional Councils

NCA—National Conservation Area

NDOT—Nevada Department of Transportation

NDWR—Nevada Division of Water Resources

NEPA—National Environmental Policy Act

NHPP—National Highway Performance Program

NHS—National Highway System

NO_X—Nitrogen oxides

NRS—Nevada Revised Statutes

NV TIM—Nevada Traffic Incident Management

PCI—Pavement condition index

PD&E—Project development and environmental activities

PSAP— Pedestrian Safety Action Plan

$PM_{2.5}$—Particulate matter

PM_{10}—Particulate matter of less than 10 microns

PMS—Pavement management system

POP—Program of projects

PPP—Public Participation Plan

PTAC—Public Transportation Advisory Committee

PTN—Primary transit network

ROW—Right-of-way

RPC—- Regional Planning Commission

RPGB—Regional Planning Governing Board

RRIF—Regional Road Impact Fee

RRIF CIP—Regional Road Impact Fee Capital Improvements Plan

RRS—Regional Road System

RSA—Road Safety Audit

RSBPMP—Reno Sparks Bicycle and Pedestrian Master Plan

RTAA—Reno-Tahoe Airport Authority

RTC—Regional Transportation Commission of Washoe County

RTIP—Regional Transportation Improvement Program

RTP—Regional Transportation Plan

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

SEC—SouthEast Connector

SGR—State of Good Repair

SHSP—Strategic Highway Safety Plan

SIP—State Implementation Plan

SOV—Single occupancy vehicle

SRTP—Short Range Transit Plan

SRTS—Safe Routes to School

STB—State Transportation Board

STIP—State Transportation Improvement Program

STP—Surface Transportation Program

STTAC—Statewide Transportation Technical Advisory Committee

TA—Transportation Alternatives

TAC—RTC Technical Advisory Committee

TART—Tahoe Area Regional Transit

TAZ—Traffic Analysis Zone

TCM—Transportation Control Measure

TDM—Transportation Demand Management

TIP—Transportation Improvement Program

TMA—Transportation Management Association

TMC—Traffic/transportation management center

TMRP—Truckee Meadows Regional Plan

TMRPA—Truckee Meadows Regional Planning Agency

TMWA—Truckee Meadows Water Authority

TOD—Transit-oriented development

TRIC—Tahoe Reno Industrial Center

TRPA—Tahoe Regional Planning Agency

TSM—Transportation System Management

TSP—Transit signal priority

TTD—Tahoe Transportation District

UNR—University of Nevada, Reno

UPRR—Union Pacific Railroad

UPWP—Unified Planning Work Program

USDA—U.S. Department of Agriculture

USDOT—U.S. Department of Transportation

V/C Ratio—Volume to Capacity Ratio

VHD—Vehicle hours of delay

VHT—Vehicle hours of travel

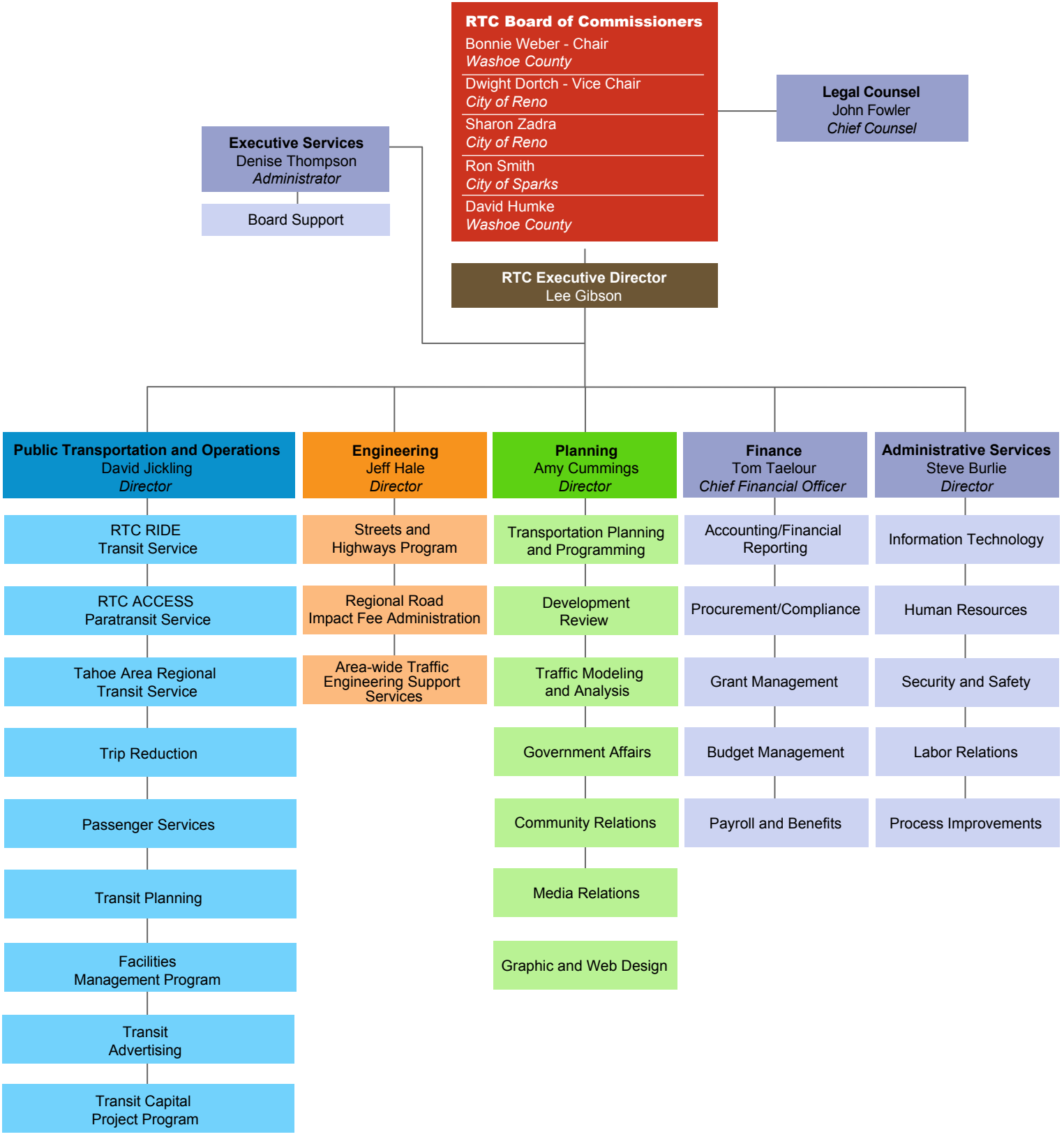
VMT—Vehicle Miles Traveled

VOC—Volatile organic compounds

WCDHD-AQMD—Washoe County District Health Department—Air Quality Management Division

YOE—Year of Expenditure

APPENDIX I
RTC Organizational Chart


RTC Board of Commissioners
Bonnie Weber - Chair
Washoe County
Dwight Dortch - Vice Chair
City of Reno
Sharon Zadra
City of Reno
Ron Smith
City of Sparks
David Humke
Washoe County
Legal Counsel
John Fowler
Chief Counsel
Executive Services
Denise Thompson
Administrator
Board Support
RTC Executive Director
Lee Gibson
Public Transportation and Operations
David Jickling
Director
RTC RIDE
Transit Service
RTC ACCESS
Paratransit Service
Tahoe Area Regional
Transit Service
Trip Reduction
Passenger Services
Transit Planning
Facilities
Management Program
Transit
Advertising
Transit Capital
Project Program
Engineering
Jeff Hale
Director
Streets and
Highways Program
Regional Road
Impact Fee Administration
Area-wide Traffic
Engineering Support
Services
Planning
Amy Cummings
Director
Transportation Planning
and Programming
Development
Review
Traffic Modeling
and Analysis
Government Affairs
Community Relations
Media Relations
Graphic and Web Design
Finance
Tom Taelour
Chief Financial Officer
Accounting/Financial
Reporting
Procurement/Compliance
Grant Management
Budget Management
Payroll and Benefits
Administrative Services
Steve Burlie
Director
Information Technology
Human Resources
Security and Safety
Labor Relations
Process Improvements