REGIONAL TRANSPORTATION PLAN

2015-2040




WASATCH FRONT REGIONAL COUNCIL

Wasatch Front Regional Council

REGIONAL TRANSPORTATION PLAN

2015 – 2040

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Technical Report Abstract

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ABSTRACT: The Wasatch Front Regional Transportation Plan: 2015 - 2040 (2015 - 2040 RTP) is the Salt Lake City – West Valley City and Ogden – Layton Urbanized Areas' fiscally constrained plan for highway, transit, and other facility improvements to meet projected travel demand over the next 26 years. Developed in accordance with federal guidelines, the 2015 - 2040 RTP includes highway, transit, and active transportation facilities identified by region-wide planners, engineers, elected officials, various transportation committees, stakeholders, state agencies, and the general public that would best serve the needs of the Wasatch Front Region and its two urbanized areas. The planning process and the steps used to develop the 2015 - 2040 RTP are presented, along with an analysis and evaluation of four land use and transportation scenarios that contributed to the final recommendations. Social, economic, and environmental impacts of the 2015 - 2040 RTP planned improvements were examined, analyzed and documented. The Wasatch Front Regional Transportation Plan: 2015 - 2040 also includes recommendations for a regional bicycle network and other active transportation facilities. The financial aspects of the 2015 – 2040 RTP include projected revenues over the next 26 year period to cover the estimated costs for recommended highway and transit improvements.

SUPPORT DOCUMENTS: Transportation Improvement Program: 2015 - 2020
Wasatch Front Regional Transportation Plan: 2015 – 2040 Appendices
Air Quality Memorandum Report Number 32

INTRODUCTION

The Wasatch Front Regional Transportation Plan: 2015 – 2040 (RTP) has been developed to enhance the ability of our Region's transportation networks to meet the anticipated travel demand projected for the next 25 years. The 2015 - 2040 RTP provides programmed capacity improvements and specific recommendations for highway and transit facilities, pedestrian and bicycle paths, park-and ride lots, and airport and freight services for the Salt Lake –West Valley and Ogden - Layton Urbanized Areas. Based on the adopted regional land use and transportation vision, known as the *Wasatch Choice For 2040 Vision* (2040 Vision), the 2015 – 2040 RTP was developed in accordance with federal guidelines, is financially constrained, meets state requirements for air quality conformity, is scheduled to be updated every four years, and reflects a continuous effort by regional planners and engineers to identify and successfully meet existing and expected growth in travel demand throughout the Wasatch Front Region through the year 2040.

Formally created on May 27, 1970, the Wasatch Front Regional Council (WFRC) has been responsible for transportation planning in the Urbanized Areas of the Region since 1973. On December 26 of that year, Utah Governor Calvin L. Rampton designated the WFRC as a Metropolitan Planning Organization (MPO) responsible for developing area-wide long range transportation plans for Salt Lake, Davis, and Weber Counties. **Map 1-1**, on the following page, shows the boundaries of the Metropolitan Planning Area, the Tooele Rural Planning Area, and the Salt Lake – West Valley and Ogden - Layton Urbanized Areas, all located within the Wasatch Front Region.

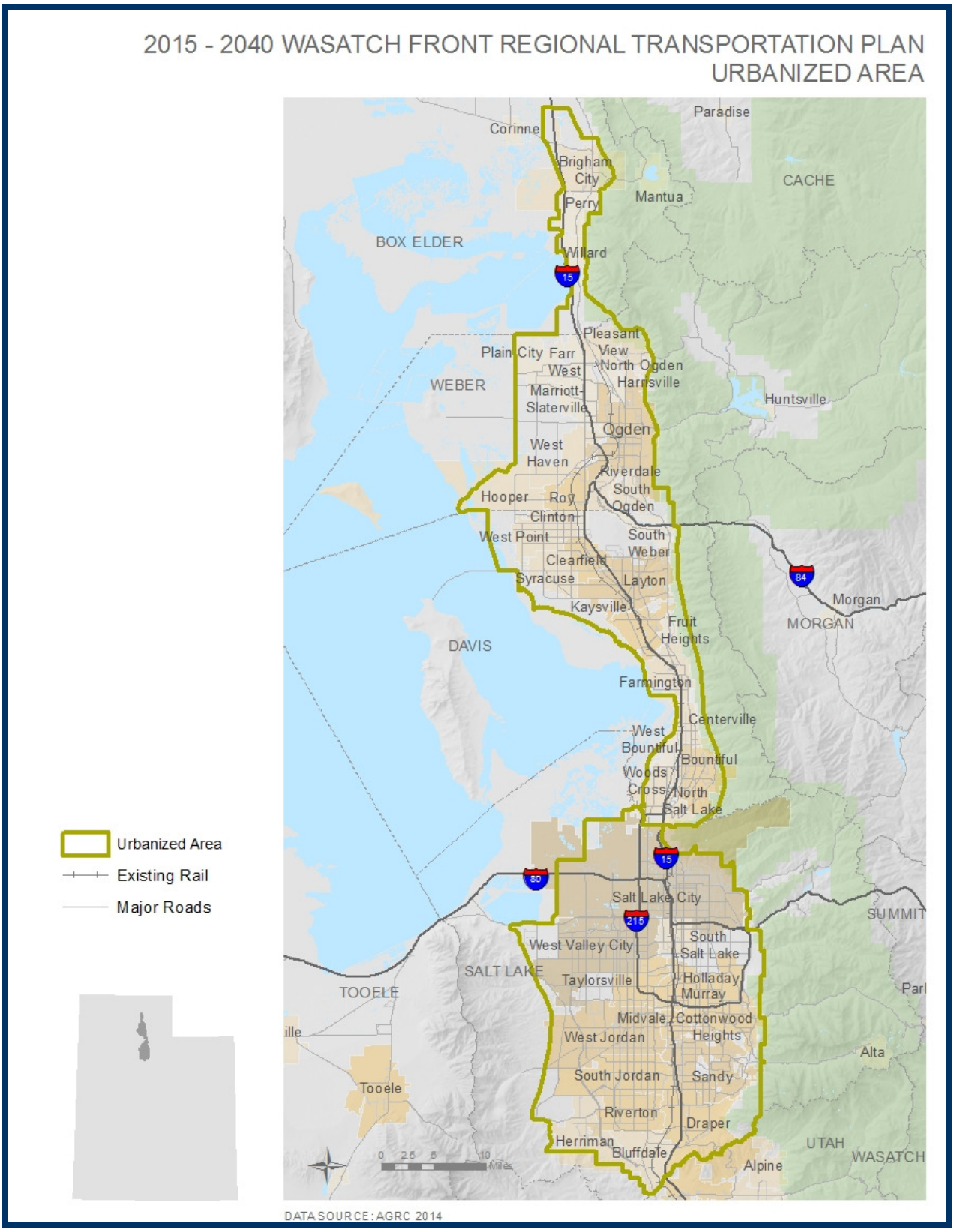
The 2015 RTP was developed in cooperation with representatives from the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA), the Utah Division of Air Quality (DAQ), and the cities and counties throughout the region. The 2015 RTP meets federal government requirements (under Title 23, Part 450 and Title 49, Parts 100 to 300 of the Code for Federal Regulations) for metropolitan areas with a population of 50,000 or greater to develop and adopt a long range transportation plan with a minimum planning horizon of twenty years. The planning policies and recommendations of the 2015 RTP have been prepared under the guidelines of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), adopted by Congress on August 10, 2005. This document, Technical Report 51, details the 2015 - 2040 RTP planning process, lists new recommended capital improvement projects, provides for upgrades to the existing transportation facilities, and identifies both potential impacts and benefits of the 2015 - 2040 RTP. This technical report supersedes its predecessor, entitled *The Wasatch Front Regional Transportation Plan: 2011 - 2040,* Technical Report 50.

OVERVIEW OF THE 2015 RTP PROCESS

Purpose Of The 2040 RTP

Federal regulations governing the development of transportation plans and programs in urbanized areas require MPO's to update their regional transportation plans every four years. *The Wasatch Front Regional Transportation Plan: 2015 - 2040* is based on the latest socioeconomic growth forecasts, projected increases in travel demand for the Region, and changes in the priority of various planned transportation improvement facilities. Periodic updates to the Wasatch Front's regional transportation plan allow for new information to be incorporated and recommended additions to the list of highway, transit, and other projects to be made. The 2015 - 2040 RTP specifies a coordinated system of highways, freeways, arterial streets, transit facilities, transit hubs, intermodal centers, park-and-ride lots, airport facility improvements, freight movement corridors, pedestrian paths, and bicycle routes. A 26-year planning horizon was selected for this latest effort. Thus, the 2015 -2040 RTP covers the planning period from the year 2015 through 2040. The next planned update to the WFRC regional transportation plan is scheduled for 2019.

MAP 1-1


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
URBANIZED AREA
Paradise
Corinne
Brigham City
Perry
Mantua
CACHE
BOX ELDER
Willard
15
Pleasant View
Plain City
Farr West
North Ogden
Harrisville
WEBER
Marriott-Slaterville
Huntsville
Ogden
West Haven
Riverdale
South Ogden
Hooper
Roy
Clinton
West Point
South Weber
Clearfield
Syracuse
Layton
84
Morgan
MORGAN
Kaysville
Fruit Heights
DAVIS
Farmington
Centerville
West Bountiful
Bountiful
Woods Cross
North Salt Lake
15
80
Salt Lake City
215
SUMMIT
West Valley City
South Salt Lake
SALT LAKE
Taylorsville
Holladay
Murray
TOOELE
Midvale
Cottonwood Heights
West Jordan
Alta
South Jordan
Sandy
Tooele
Riverton
Draper
Herriman
Bluffdale
UTAH
WASATCH
Alpine
0 2.5 5 10 Miles
Urbanized Area
Existing Rail
Major Roads
DATA SOURCE: AGRC 2014

Review Of Planning Process

The Wasatch Front Regional Council utilized a 9-step planning process to guide the preparation of the 2015 - 2040 RTP. This process consists of: (1) Overview or Problem Identification; (2) Regional Visioning; (3) System Needs Assessment; (4) Alternatives Development And Evaluation; (5) Project Selection and Phasing; (6) Financial Plan; (7) Programmed Improvements; (8) Plan Impacts and Benefits; and (9) Plan Implementation. This rather simple but effective model not only provides a straightforward approach to the complex task of planning for regional transportation growth and travel demand, but is also used as the format and chapter headings of this report. A series of four land use and transportation scenarios helped to compared different combinations of growth based on the *Wasatch Choice for 2040 Vision* and potential highway and transit projects. Realistic assumptions about funding sources and land development patterns over the next 25 years allowed the WFRC staff to project anticipated revenue streams needed to finance recommended transportation improvements. Finally, a quantifiable means of phasing both highway and transit projects, which took into account available funding for each phase, was implemented. Specific capacity improvement projects were placed into one of three construction and funding phases, or a fourth "unfunded phase" according to their overall evaluation. The planning steps in the 2015 - 2040 RTP are detailed in **Figure 1-1**.

Public And Agency Involvement

The 2015 – 2040 RTP planning process started with a series of meetings with planners and engineers from UDOT and UTA, who helped identify areas of concern and suggestions for specific transportation facility improvements. The information provided by these professionals was compiled and analyzed. Additional meetings were scheduled with local elected officials, and representatives from UDOT, UTA, and many local, state, and federal agencies, including natural resource agencies. An extensive public outreach effort was designed and conducted to solicit and identify regional transportation issues, needs, and concerns from the point of view of the general public and other special interest and environmental justice groups. Additional input was provided by members of both the Salt Lake – West Valley and Ogden – Layton Technical Advisory Committees of the Regional Growth Committee. Throughout the planning process, the Regional Growth Committee and the Wasatch Front Regional Council provided needed guidance and direction.

Regional Vision And Growth Principles

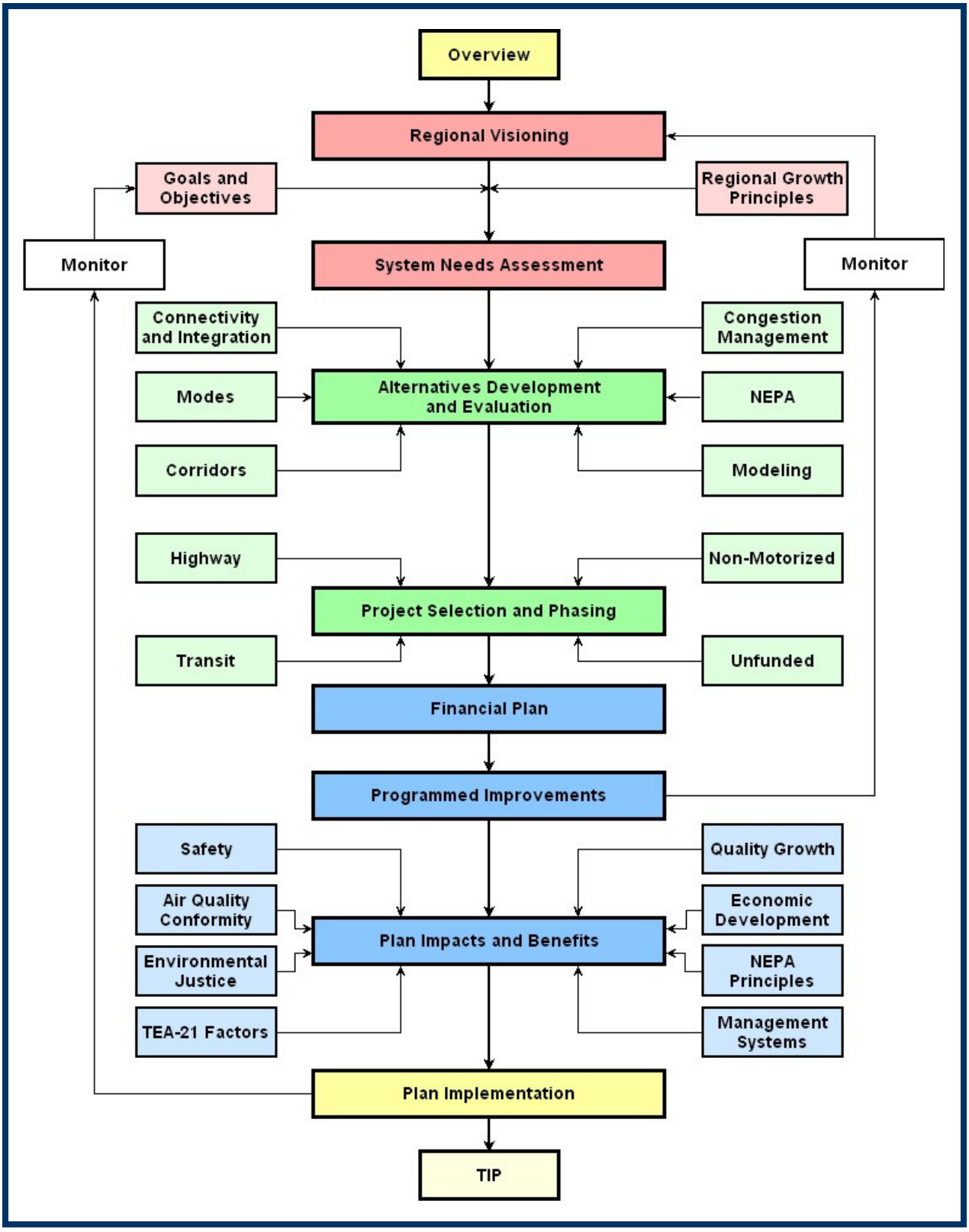
As part of the 2015 – 2040 RTP process, an updated regional land use and transportation vision, known as "Wasatch Choice for 2040," helped further define and clarify how the Region's Growth Principles translate into mixed use corridors, transit oriented developments, and higher density centers. This Regional Vision is an attempt to ensure that the billions of dollars programmed for transportation improvements over the next three decades will directly support and sustain planned land uses. The type of growth patterns and planned transportation investments must be coordinated to create a desired future along the Wasatch Front. The adoption of the 2040 Vision, along with its supporting Growth Principles, provides a framework for key transportation decisions and the revised 2040 Vision map will help guide transportation improvements and land use decisions designed to improve the Region's quality of life.

Socioeconomic Projections

Utilizing population information received from the Governor's Office of Planning and Budget (GOPB), and the Envision Tomorrow Plus (ET+) program as an analytical tool, the WFRC generated population and employment projections for 1,686 traffic zones throughout the Wasatch Front Region. These projections distributed population and employment on the basis of the adopted Wasatch Choice for 2040 transportation and land use Vision. The Wasatch Front Region's socioeconomic projections were reviewed by community planners, engineers, and locally elected officials, allowing for adjustments to be made in this important input to the 2015 – 2040 RTP process. Population projections indicate that the Wasatch Front Region will increase over the next 26 years from approximately 1,700,000 persons to 2,300,000 persons.

FIGURE 1-1

2015 – 2040 RTP PLANNING PROCESS



Transportation Needs Analysis

Regional traffic modeling, utilizing projected 2040 population, employment, and transportation mode choice information, was generated and analyzed. Projected traffic volume and highway capacity ratios were mapped, allowing the WFRC to identify areas of potential concern. Information was also gathered on the Wasatch Region's pedestrian safety and vehicle accident rates. Additional needs analysis steps included an inventory of UTA bus and light rail service areas, ridership, operational frequency, transit park-and-ride locations, and other facilities. Chapter 3, "System Needs Assessment," details the analysis performed.

Strategy Development

The 2015 – 2040 RTP process utilized several regional land use inventory and environmental databases, including Utah's Planning Environmental Linkages (UPEL), developed by BioWest, and UDOT's UPLAN inventories. These databases were helpful in the preparation and analysis of system-wide alternative transportation solutions. Four alternative land use and transportation scenarios, were developed and evaluated by WFRC staff members, local planners and engineers, and UDOT and UTA representatives. Each alternative was based on a different combination of possible growth patterns within urban centers, as defined by the *Wasatch Choice for 2040 Vision* and transportation facilities. These four scenarios were reviewed and refined by local community planners and engineers, elected officials, and the general public.

FEDERALPLANNING REGULATIONS

The United States Congress, through the *Moving Ahead for Progress in the 21st Century Act* (MAP-21), passed on June 6, 2012, identified eight planning factors for consideration in the development of regional transportation plans. MAP-21 also identifies planning strategies, goals, and responsibilities to guide the MPO. Under MAP-21, Metropolitan Planning Organizations are to develop transportation plans and programs in cooperation with the state and public transportation operators through a multi-modal, performance-driven, outcome-based approach to planning. The process is to be continuous, cooperative, and comprehensive. It must engage the public, address at least a 20-year planning horizon, be financially constrained, and be updated at least every four years.

The plans and programs adopted by MPOs provide for the development and the integrated management of regional transportation systems which are coordinated with the National Highway System and local transit facilities. The manner in which the 2015 – 2040 RTP addresses each of the eight MAP-21 planning factors can be found in Chapter 8 of this document. The MAP-21 planning factors are listed below.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase security of the transportation system for motorized and non-motorized users.
4. Increase the accessibility and mobility of people and freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operations.
8. Emphasize the preservation of the existing transportation system.

TRANSPORTATION MODELING AND ANALYSIS TOOLS

The Wasatch Front Regional Council and the Mountainland Association of Governments Travel Demand Model (Travel Model) is a tool for analyzing integrated land-use, transportation, and air quality factors. The travel model estimates the travel patterns of people, based on their demographic characteristics, where they reside and are employed, and transportation facilities available to them. The travel model forecasts where people are likely to travel and by what mode, such as single occupancy autos, local bus, light rail, etc., people are likely to use. It assigns these trips to the travel mode that represents the best route for each particular trip. Travel model output is used to evaluate transportation corridors where future travel demand is likely to exceed the capacity of the facilities in the corridor, to identify and assess projects that meet travel demand, and to analyze air quality impacts of the transportation system.

The model includes several advanced features including improved modeling methodology needed to meet the requirements of MAP-21 and the *Clean Air Act Amendments of 1990*. In addition, several features recommended by the Travel Model Improvement Program (TMIP) of the US Department of Transportation, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Environmental Protection Agency (EPA) are incorporated into the model. The WFRC uses the model to perform comprehensive regional transportation analyses, and to evaluate various transportation and traffic impacts. Some of the most useful model outputs include: origin-destination flows, directional link vehicle volumes, vehicular travel times and speeds, and transit ridership estimates.

The target area considered by the model includes all of the developable portions of Utah, Salt Lake, Davis and Weber Counties. They do not consider the canyons and the mountains to the east of the urbanized areas**.** The model is calibrated to reasonably represent 2011 “base year” travel conditions and patterns, a process in which model output is checked or "validated" against hard data. Trip rates, transit ridership and highway volumes are examples of the types of model outputs that are validated. When the model results do not match the base-year values within an acceptable tolerance, parameters are adjusted until the model is acceptable. For future forecast years, the model output is reviewed for "reasonableness" to validate model results and model sensitivities.

The WFRC maintains a Travel Demand Model (TDM) which forecasts travel demand. The user can input different socio-economic assumptions, as well as test a variety of transportation scenarios. The socio-economic assumptions which were used to model the four scenarios were derived from the ET+ scenarios. The transportation networks used in the model were derived from the scenario planning process, which iterated between the impacts that the transportation system and land use patterns had on each other.

The TDM is updated on approximately a four-year cycle. Each update results in a new version of the model. Version 7 was used for the scenario planning process. A beta version of Version 8 was used for analyzing the phasing of the plan and for subsequent RTP-related modeling, so there may be some inconsistencies when comparing metrics from the final plan to the scenarios. All of the TDM related metrics included in this section were derived using Version 7 of the model. A detailed explanation of the WFRC’s transportation modeling process and analytical tools can be found in **Appendix A** – “Transportation Modeling and Analysis Tools.”

GENERAL AREA CHARACTERISTICS

Geography

The Wasatch Front Urban Area is located in northern Utah and is comprised of the Salt Lake City and Ogden - Layton Urbanized Areas, which encompass the developed portions of Salt Lake, Davis and Weber Counties. In general, the area is bounded by the Great Salt Lake and the Oquirrh

Mountains on the west, the Wasatch Mountains on the east, Utah County on the south and Box Elder County on the north. The geographic features which bound the area on the east and west create a natural growth boundary. The area has a general linear configuration, being over 60 miles from north to south, while only 20 miles east to west at the widest point.

Environment

The Wasatch Front Region's physical environment will affect the type and location of future development, and the transportation system constructed to serve development. The area is situated in a unique environment that presents both opportunities and potential problems for the region.

The Great Salt Lake is the dominant water feature in the area. Depending on the time of year and the drought cycle, the lake covers an average of 2,300 square miles in size. It is relatively shallow with maximum depths of not much greater than 20 feet. Variations in precipitation affect the stream flows and groundwater levels, and thus cause the Lake to fluctuate dramatically in water level and area of coverage. The federal government, the State of Utah, and local governmental jurisdictions recognize that the Great Salt Lake has reached the flood stage when the water level is at an elevation of 4,217 feet. Hence development is restricted to the area above this level.

The greatest and most significant complex of wetlands in the intermountain area can be found adjacent to and surrounding the Great Salt Lake and along the Jordan River. These wetlands provide important marshland habitat to resident wildlife and internationally significant habitat for part of the year to possibly as many as one million migratory shorebirds and waterfowl that make annual migrations across North America. A majority of these wetlands are found on the east side of the lake, where most of the fresh water is received from the streams and river flowing form the Wasatch Mountains.

The steep slopes of the Wasatch Mountain Range were created by the Wasatch Fault, which runs the entire length of the Urbanized Area. The Wasatch Fault and other nearby faults highlight the potential for earthquakes in the area and the need to consider their possible impact on transportation facilities.

OVERVIEW OF REGIONAL SOCIOECONOMICS

Population

The first permanent Anglo settlers in the Wasatch Region arrived in the Salt Lake Valley in 1847. They soon began settling other parts of the region. In the 1850 Census, the population of Davis, Salt Lake, and Weber Counties was 8,471 or 75 percent of the state total. According to the 2010 Census, the combined population had increased to 1,576,370 persons, but the share had dropped to 57 percent of the state total. The Utah State Governor's Office of Management and Budget (GOMB) predicts the population of the Wasatch Front Region to grow to 2.3 million by 2040, with the share dropping even further, to 51 percent of the state total. Much of the growth is projected to occur in western Salt Lake County, northern Davis County, and western Weber County. Even with most of the projected growth in these areas, there will be significant infill and redevelopment in the currently urbanized areas. **Map 1-2** on the following page shows the projected population densities in the Wasatch Front Region in 2040. Land supply in Salt Lake and Davis Counties may also come into play in this planning horizon, as these two counties may approach "build-out" population during this time frame.

Employment

In the past, the regional economy was heavily dependent on a limited number of industrial sectors, particularly mining (Kennecott Utah Copper Corporation), government (Internal Revenue Service), and military (Hill Air Force Base). In the past 30 years, the Region's economy has diversified - no longer so dependent on mineral extraction and the military sectors, the economy is now based on the service sector with major activities such as health care, education, and local government.

Agricultural industries continue to decline in importance at the regional scale. **Map 1-3** graphically displays anticipated employment densities in the Wasatch Front Region by 2040

New commercial development is projected in South Jordan City, Riverton City, Sandy City, Tooele County, and along the I-15 corridor. Additionally, dispersed areas of significant commercial activity have developed, such as the Fort Union area, Cottonwood Corporate Center, and Jordan Landing in the Salt Lake Valley. Smaller pockets of neighborhood scale commercial development are emerging throughout the Wasatch Region and, with minor accommodations, could make neighborhoods more pedestrian-friendly. Large employment centers, such as Hill AFB, University of Utah, Salt Lake City International Airport, and downtown central business districts will need to be served with an appropriate transportation system. The distribution of commercial and industrial development will remain much as it is today. Detailed Population and Employment forecasts can be found in **Appendix B** – "Socioeconomic Forecasts."

SUMMARY OF PUBLIC INVOLVMENT EFFORTS

For the 2015 – 2040 update to the Regional Transportation Plan, the Wasatch Front Regional Council engaged in a pro-active public involvement and outreach program including the maintenance of a modern, interactive website, a list of 3,212 stakeholders who are sent invitations and updates on transportation issues, sponsorship of the annual Wasatch Choice for 2040 Consortium meeting at the Salt Palace (all of which had in excess of 350 attendees), regular news media contact, public open houses, small area meetings for area elected officials and staff, individual outreach to numerous environmental justice organizations and participation in numerous other studies and committees.

The WFRC solicited public participation and integrated oral and written comments received into the development of the four alternative land use and transportation scenarios, the draft 2015 – 2040 RTP, and the final adopted 2015 – 2040 RTP. Input for the 2015 – 2040 RTP was sought from various groups including freight hauling organizations, Transit Workers Union, Native American groups, advocates for people with limited incomes, minority organizations, senior citizens groups, community councils, city councils, local councils of governments, other government agencies (especially natural resource agencies), environmental groups, disabled rights advocates, chambers of commerce, state legislators, the Utah Congressional Delegation, and the general public. The WFRC considered comments received from these groups and individuals in the scoping, alternatives, draft and final document phase of Plan development. A summary of the public review process and a record of public involvement in the 2015 – 2040 RTP can be found in **Appendix C** – "Public Involvement Summary."

Special Interest Outreach

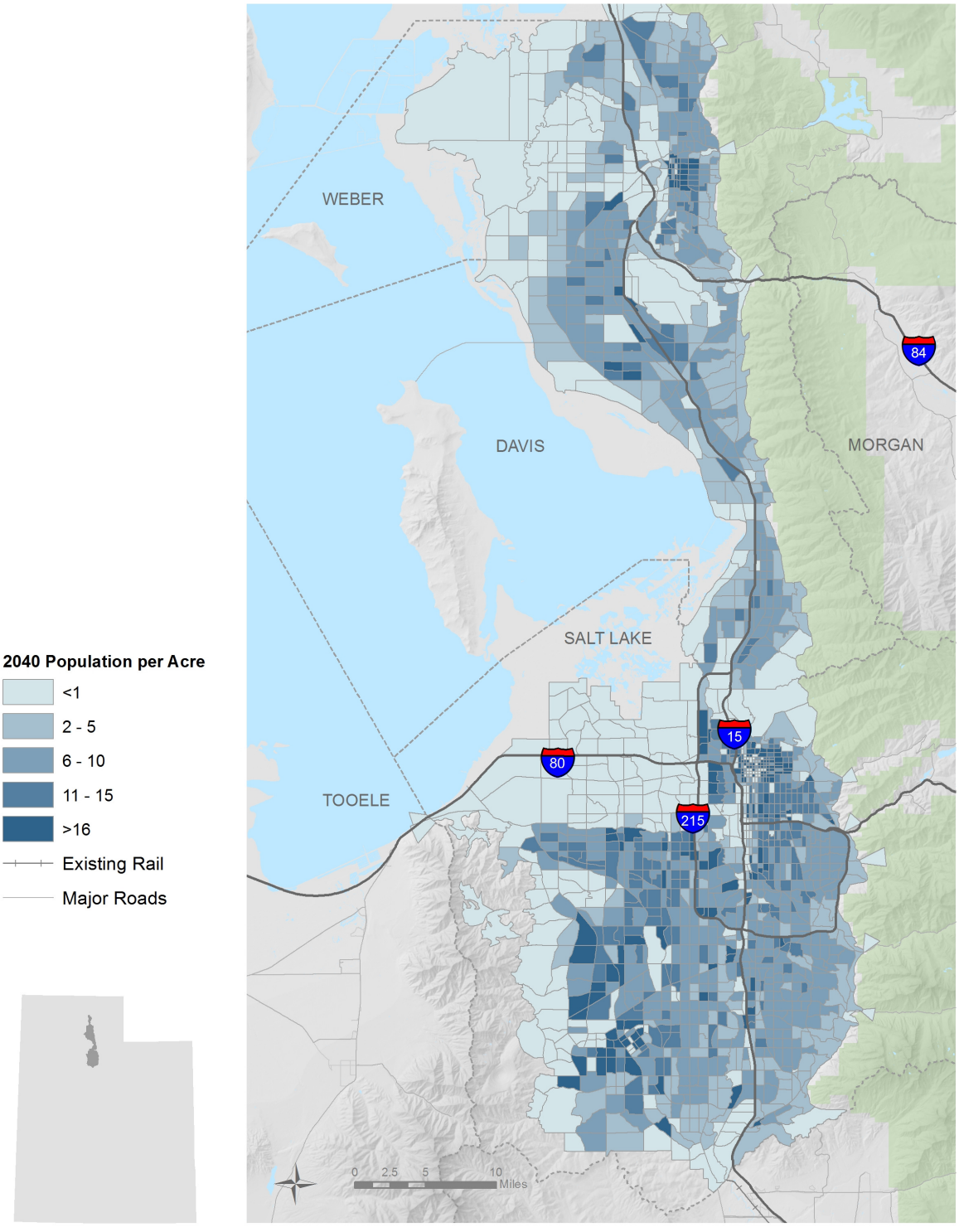
WFRC staff members made dozens of visits to private citizens and environmental justice groups, and other organizations in order to identify transportation related problems and issues, receive input on possible solutions to growing travel demand, seek input to use in developing four alternative land use and transportation scenarios, and to solicit general comment on the draft 2015 – 2040 RTP document. This was done in the scoping, alternatives and draft phases of RTP development. Also, notification was made on the WFRC website that materials in Spanish are available upon request. Lastly, notice of open houses and other events were published in the local Spanish language newspapers.

Visioning Process

In 2005, the WFRC, in partnership with the Mountainland Association of Governments and Envision Utah, engaged the public in an 18 month visioning process to establish *Wasatch Choices 2040 – A Four County Land-Use and Transportation Vision.* This was an extensive process with thirteen workshops, four open houses and over 1,000 participants from all parts of the greater community and relevant government agencies. The result of the process was a set of nine Growth Principles

MAP 1-2

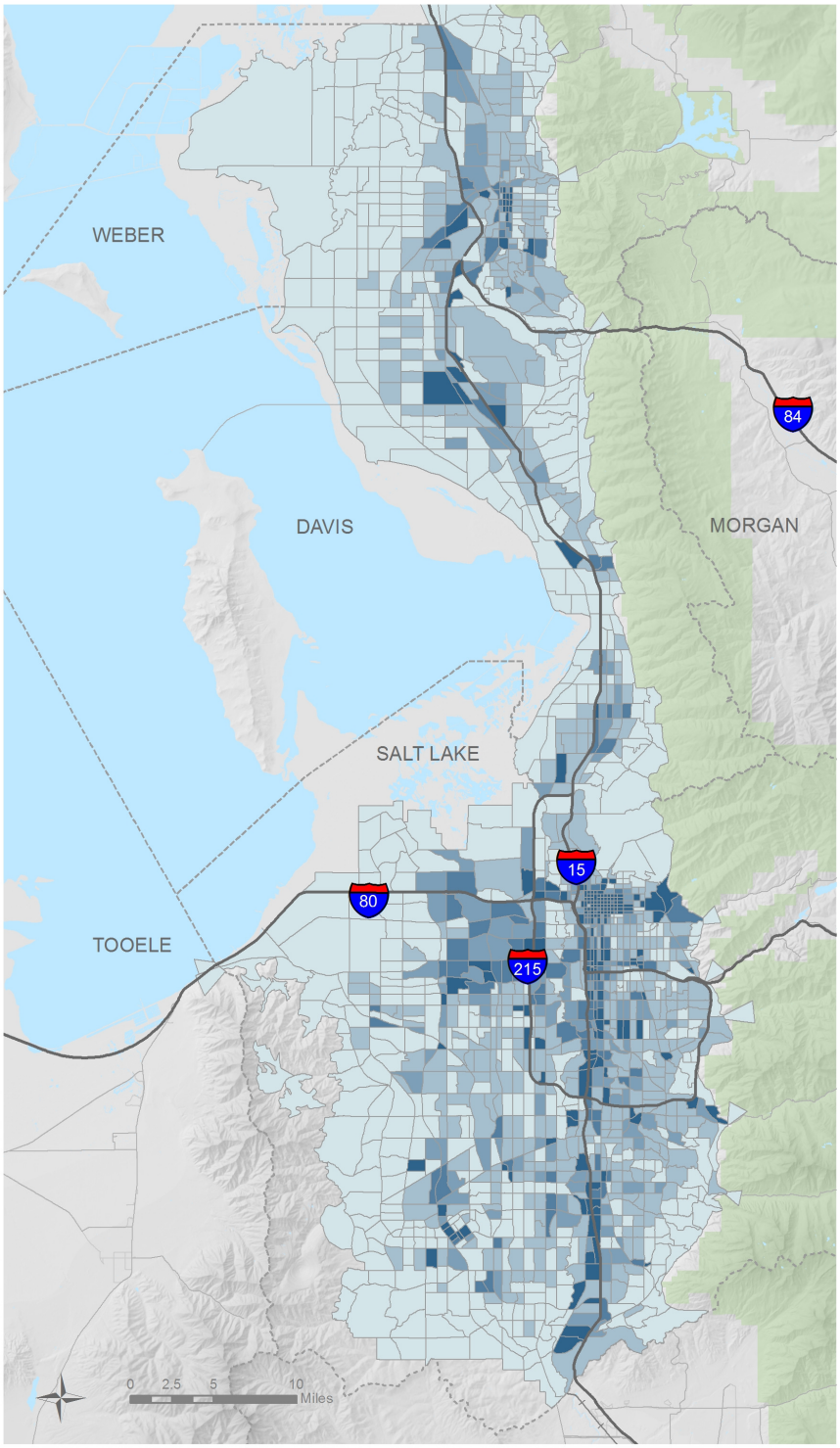
2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
POPULATION DENSITY



DATA SOURCE: AGRC 2014

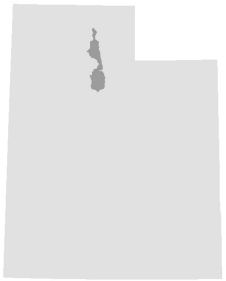
MAP 1-3

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
EMPLOYMENT DENSITY



2040 Jobs per Acre

- <1
- 2 - 5
- 6 - 10
- 11 - 15
- >16
- Existing Rail
- Major Roads



DATA SOURCE: AGRC 2014

derived by consensus and adopted by the Wasatch Font Regional Council and most of its member entities. These Growth Principles continued to guide the development of the 2015 – 2040 RTP and are an excellent example of how the public involvement process influences policy. The Regional Council staff has now made it a point in all 2015 - 2040 RTP presentations that the Wasatch Choice for 2040 Vision is the foundation of all regional transportation planning.

Small Area Meetings

For the current update to the 2015 – 2040 RTP, the Regional Council reviewed the 2040 Vision with local elected officials and city planners in a series of small area meetings. In the first of these small area meetings attendees indicated where and how the 2040 Vision was being implemented on a local level and to what degree they foresaw additional development based on the Vision. This information helped guide specific project choices made by WFRC planners for the 2015 – 2040 RTP.

In the second series of small area meetings, Regional Council staff members presented the draft financially unconstrained 2015 – 2040 RTP to area mayors, other elected officials, and city and county staff members. There were numerous comments made which assisted and influenced the WFRC staff in prioritizing proposed transportation projects in the RTP.

The third and final series of small area meetings presented the draft, financially constrained and phased plan to area elected officials and city and county planning staff. There were some small changes made as a result of the comments received during these meetings. However, most issues of concern to these local leaders had already been resolved in previous small area meetings, thus minimizing the need for any large changes to the draft 2015 – 2040 RTP.

Public Open Houses

Three series of open houses regarding the 2015 – 2040 RTP were held in Salt Lake, Davis and Weber Counties. The first series of these meetings helped identify the region's transportation needs and were held in October 2012. The second series was held for the Alternatives Phase in July/August 2013 and the third for the draft 2015 – 2040 RTP were held in January/February 2015. All public open houses were announced through notices and advertisements in local newspapers including those in the Spanish language. Many local newspapers also ran news articles announcing the open houses and some ran articles on the open houses themselves. Also, approximately 3,000 e-mails were sent to interested stakeholders on the WFRC mailing list who received electronic notice of the upcoming open houses with an invitation to attend, along with notice on the WFRC website.

The public open houses served as a forum to receive input and to gauge public opinion concerning the 2015 – 2040 RTP and its underlying planning process. All comments from the open houses and other sources were summarized and responded to by the WFRC staff. The WFRC staff carefully considered and compiled written comments and summarized verbal comments received from the public after each open house. They then prepared a written response to each concern. All comments were made available to the members of the Regional Council and the public at large. A general summary of comments received was also made available.

Electronic Communication

All 2015 – 2040 RTP documents, comments, responses, and maps were made available on the WFRC website. Interested parties were invited to visit the website, review the documents posted there, and comment as desired. In addition, meeting packets for the Regional Growth Committee and the Regional Council were sent electronically. These same packets were made available to the members of the public. Lastly, thousands of e-mails and newsletters were sent out soliciting public review and comment.

Media Relations

Regular efforts to include the news media in WFRC meetings resulted in many news articles about Regional Council planning efforts. This was made possible because the WFRC cultivates and enjoys

generally good relations with area news reporters. The Regional Council and the WFRC staff members were quoted at length in numerous newspaper and magazine articles and radio and TV interviews during the RTP development process. Lastly, personal visits were made to the area Spanish language newspaper to introduce the Regional Council and the draft 2015 – 2040 RTP.

Formal Public Comment Periods

In January and February 2015, the WFRC staff prepared the draft supporting document, entitled *The Wasatch Regional Transportation Plan: 2015 – 2040* for distribution to interested public agencies, elected officials, local communities and the general public. A formal public review period was held during January/February 2015. Interested persons and groups were invited to review and offer comments on the draft 2015 – 2040 RTP in either formalized public open houses or individually at their convenience. Based on comments received from the first formal comment period and certain changes made in the draft document, it was decided that a second formal comment period was desired. The second comment period was held in April and May 2015. All comments from the first and second comment periods were reviewed by the WFRC staff. A summary of the comments, along with a WFRC staff response for each, was prepared and presented to the Wasatch Front Regional Council in May 2015.

The final document was reviewed and approved by the Wasatch Front Regional Council in May 2015. An electronic copy of the final adopted version of the 2015 – 2040 RTP is available on the WFRC website (www.wfrc.org).

PLANNING ORGANIZATIONS AND COMMITTEES

The development of the 2015 – 2040 RTP required the involvement, cooperation and coordination of various federal, state, local, and public organizations and committees. The WFRC worked closely with a number of agencies and organizations to ensure that the 2015 – 2040 RTP serves the needs and values of the region for which it is developed. The 2015 – 2040 RTP planning process utilized input and recommendations from the following groups:

Federal Agencies

Federal Highway Administration
Federal Transit Administration
Federal Aviation Administration
U.S. Environmental Protection Agency
U.S. Army Corp of Engineers
U.S. Bureau of Land Management
U.S. Fish & Wildlife Service
U.S. Forest Service

State Agencies and Organizations

Utah Department of Transportation
Utah Division of Air Quality
Utah Division of Parks & Recreation
Utah Division of State Lands, Fire, and Forestry
Utah State Historic Preservation Office
Utah State Department of Natural Resources
Governor's Office of Planning and Budget
Governor's Office of Economic Development

Local Governments

Wasatch Front Regional Council
Regional Growth Committee
Transportation Coordination Committee

Utah Transit Authority
Salt Lake County Council of Governments
Davis County Council of Governments
Weber Area Council of Governments
Salt Lake Area Transportation Technical Advisory Committees
Ogden - Layton Area Transportation Technical Advisory Committees
Municipal and County Planners and Engineers
Local school and water districts

Environmental Justice Groups

Coalition de La Raza
NAACP
Disability Rights Action Coalition
Disability Law Center
Salt Lake City Accessibility Services Council
Indian Walk-In Center
Salt Lake Community Action Program
Ogden-Weber Community Action Program
Weber Area Association of Human Service Organizations
Davis County Coalition Against Domestic Violence
Regional Coordinating Council (for the transportation disadvantaged)
Senior Citizen Concerns / Willowood Senior Housing
Utah Indian Housing Council
Salt Lake Area Authority on Aging
League of Women Voters
Utahns for Better Transportation (a coalition of environmental groups)

Other Organizations

Envision Utah
Transit Workers Union
General Public Open Houses
University of Utah City and Metropolitan Planning Department
Kennecott Lands
Property Reserve, Incorporated
Suburban Land Reserve, Incorporated
Farmland Reserve, Incorporated
Urban Land Institute
FFKR Architects
Survey of Mobility Needs for Transportation Disadvantaged (900 respondents)

Natural Resource Agencies

In addition to the above organizations, the WFRC presented the financially unconstrained draft of the 2015 – 2040 RTP to the Utah State Resource Development Coordination Committee, which is an association of federal and state environmental and natural resource agencies on May 8, 2014. Agencies participating in the Committee include the Utah State Department of Natural Resources, the Utah Public Lands Policy Coordination Office, Utah State Lands and Forestry, Utah State Parks, Utah Division of Wildlife Resources, U.S. Forest Service, U.S. Fish and Wildlife, and the U.S. Bureau of Land Management. A separate meeting for local and regional water agencies was held on April 17, 2014. These natural resource agencies provided early identification of key concerns, mitigation strategies, and solution development for project included in the draft 2015 – 2040 RTP.

Other groups included in the Regional Council's outreach program included presentations to various committees of the Utah State Legislature, chambers of commerce, real estate groups, community councils, urban planning groups, university classes, multiple open houses sponsored by the WFRC and other transportation agencies for members of the general public.

Finally, the WFRC was assisted in developing the 2015 – 2040 RTP by its two Regional Growth Committee (RGC) Technical Advisory Committees (TAC), whose membership is made-up of the Wasatch Front Region's municipal and county planners. The Wasatch Front's Regional Growth Committee (RGC) and the Transportation Coordination Committee (Trans Com), each with its respective TACs, were key participants in the RTP process. Timely input from the TACs helped to guide the 2015 – 2040 RTP planning process and identify various issues and concerns.

UTAH'S UNIFIED PLAN

As the state population increases, travel demand in Utah will grow and continue to pose significant demands on the transportation system. Utah faces the substantial challenge of meeting travel demands with limited financial resources to maintain, preserve, improve, and expand transportation infrastructure. To coordinate these demands, UDOT, Cache Metropolitan Planning Organization (Cache MPO), Wasatch Front Regional Council, Mountainland Association of Governments (MAG), and the Dixie Metropolitan Planning Organization (Dixie MPO) have developed Utah's Unified Transportation Plan.

Utah's Unified Transportation Plan has been revised and updated as part of the 2015 RTP process. This revision will follow the same general process that was established during the development of the 2007 – 2030 and 2011 – 2040 Regional Transportation Plans. The Wasatch Choice for 2040 Vision was used as a basis for the Urbanized Area of the Wasatch Front. The Regional Vision, along with its supporting Regional Growth Principles, have been formally adopted by the Wasatch Front Regional Council and a majority of its member cities and counties. Statewide transportation planning efforts are now much more closely coordinated then in the past and the updated Unified Plan for 2015 continues this tradition.

Historically, prior to the adoption of the WFRC's 2007 – 2030 RTP in May, 2007, UDOT and the state's four MPOs did communicate to a degree and notified each other of their planning efforts. However, there was no real effort made to coordinate certain aspects, such as the timing for adoption of various MPO regional transportation plans, among the five agencies. Each planning organization used different financial assumptions, planning cycles, baseline date, priority-setting procedures, formats, etc. As the Unified Plan process has evolved, many of these inconsistencies have been resolved. Each of the MPOs has accepted responsibility for preparing a transportation plan for their respective urbanized areas. Utah's Unified Plan contains the essence of these plan and reflects a common approach and planning schedule, uniform financial assumptions and inflation factors, consistency in document organization, a common public involvement approach, consistent criterion for project selection and prioritization processes, and standard performance measures by which to evaluate RTPs. With this Unified Plan, many of the criticisms and inconsistencies that were apparent in the past have been overcome and interactions with the Utah State Legislature on transportation priorities and funding issues will continue to be productive.

Joint Policy Advisory Committee

The WFRC and the Mountainland Association of Governments agreed in 2004 to form a joint committee to look at areas of common interest in transportation planning. The urbanized areas of Utah County and Salt Lake County have essentially grown together and creation of the Joint Policy Advisory Committee (JPAC) was in response to the recognized need for a coordinated planning process. The Utah State Legislature has also mandated cooperation between adjacent metropolitan planning organizations. JPAC has grown to include senior representatives form UDOT, UTA, WFRC, MAG, the Cache MPO, and the Dixie MPO. Important topics of discussion include the statewide and regional transportation planning process, smart growth concepts, adoption of the Wasatch Choice for 2040 Vision, and the development of Utah's Unified Transportation Plan.

INTRODUCTION

Traditionally, transportation investments are made in reaction to local development patterns as proposed in community land use plans. More housing anticipated in one part of the region and more employment in another, affects where and what transportation facilities should be built. And yet, ironically, land use patterns and indeed local plans in turn react to transportation plans and investments. Developers recognize that improvements to access, say from a freeway interchange or a light rail stop, will increase the desirability of retail shopping, offices, and housing. Homebuyers are attracted to housing in areas due to the promise of shorter commutes. Shoppers are interested in locations that benefit from high-speed transportation access and businesses seek to relocate where they have good access to their workforce. Local governments are simultaneously reacting to increased developer interest that stems from transportation investment, and they also hope to capitalize on improved access by maximizing retail development, among other things. In short, there is a natural interaction between transportation and land use.

WASATCH CHOICE FOR 2040

Because development patterns and transportation improvements affect each other, it makes sense for local governments and regional transportation agencies to closely coordinate planning efforts. The important question is, "How can we work together to produce the outcomes that optimize the long-term quality of life for communities and the overall metropolitan area?" This was the impetus behind the development of our Region's shared vision, the Wasatch Choice for 2040.

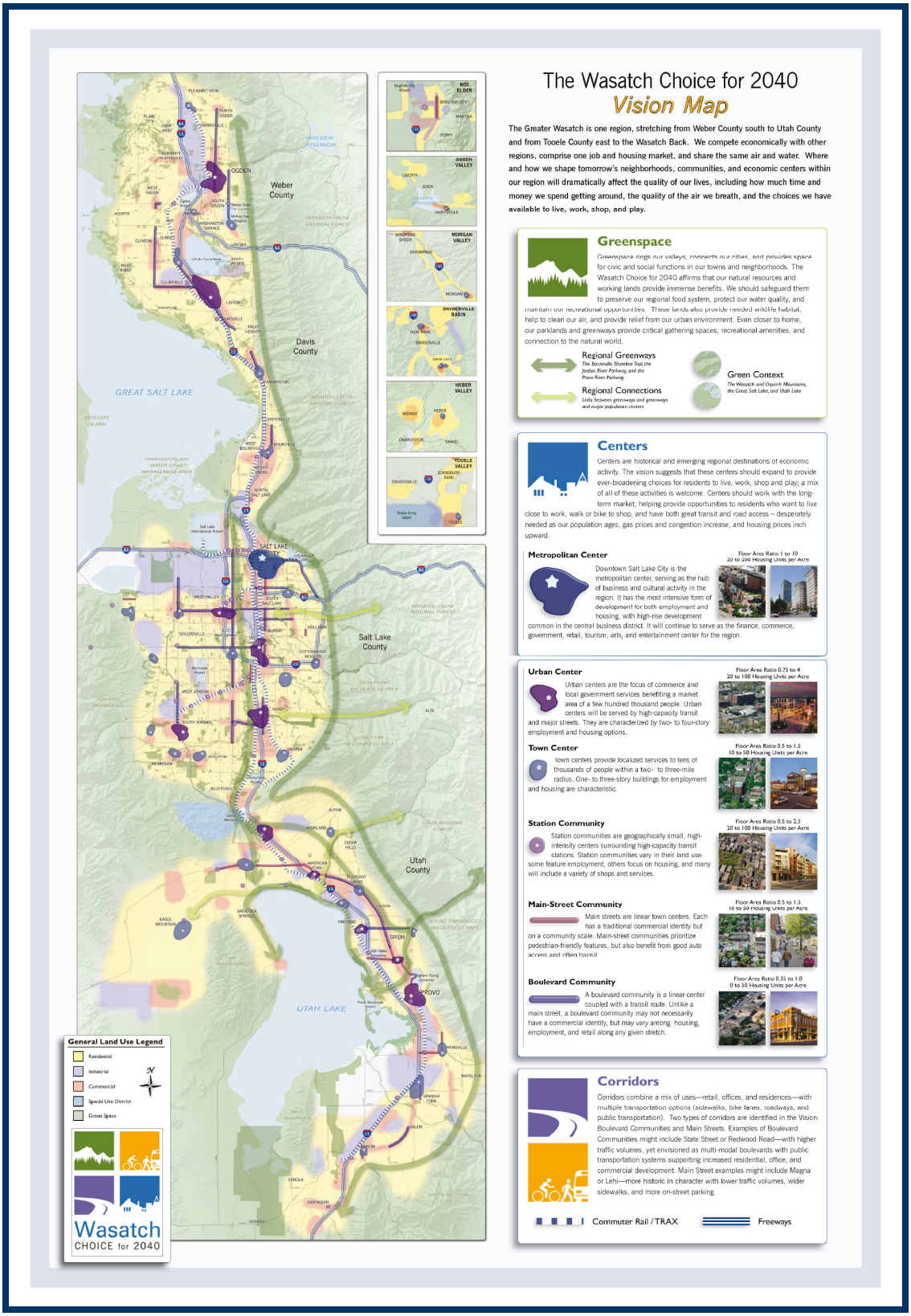
The type of growth that is occurring, how the Region is served by the transportation system, and the availability of open space, has a big impact on our quality of life. Together, these factors, along with other related conditions, affect our cost of living, time spent commuting, the air we breathe, how we enjoy our time with family and friends, and the neighborliness of the communities in which we live. The Wasatch Choice for 2040 Vision considers how growth, transportation, and open space can be shaped for the next few decades in such a manner as to have positive impacts on the lives of residents in the greater Wasatch Front area. In short, we need to consider our joint goals for the long term, and then we can each individually consider the choices we want to make in the near term. This is especially important in our Region, where we anticipate well over a million more residents by 2040. The Wasatch Choice for 2040 Vision is the end product of the thoughts expressed by thousands of voices. Beginning with the Envision Utah effort, which led to the Quality Growth Strategy in 1999, residents from across the Region came together to explore a variety of potential futures and the benefits and disadvantages associated with each. Through additional workshops and public input, that vision was refined to a more specific vision for the Wasatch Front Region. Through this process, participants coalesced upon nine Principles for Growth, and a Vision Map, that focuses on a few distinct strategies for growth. The final product, known as "The Wasatch Choice For 2040 Regional Vision" is shown as **Map 2-1**.

Center-Focused Growth

Growth within centers is one of the key strategies of the Vision. As it turns out, strategic changes to a small percent of our metropolitan area -- places like downtowns, main streets and station area communities -- can yield huge benefits. These centers can become the focus of a strong market for accessible jobs and moderately priced and/or downsized housing units. Thus, these centers will grow where they do the most good for everyone – in centrally located areas and places with great transportation access. Centers have so many benefits. Centers can:

- Help ensure all people have a selection of homes to meet their needs;
- Reduce the time, distance and money it takes for people to reach many of their destinations;
- Enable people to reach more of those destinations by foot, bike and transit in addition to car;
- Help businesses reach more consumers and employees to have a greater selection of jobs;

Map 2-1


The Wasatch Choice for 2040
Vision Map
The Greater Wasatch is one region, stretching from Weber County south to Utah County and from Tooele County east to the Wasatch Back. We compete economically with other regions, comprise one job and housing market, and share the same air and water. Where and how we shape tomorrow's neighborhoods, communities, and economic centers within our region will dramatically affect the quality of our lives, including how much time and money we spend getting around, the quality of the air we breath, and the choices we have available to live, work, shop, and play.
Greenspace
Greenspace rings our valleys, connects our cities, and provides space for civic and social functions in our towns and neighborhoods. The Wasatch Choice for 2040 affirms that our natural resources and working lands provide immense benefits. We should safeguard them to preserve our regional food system, protect our water quality, and maintain our recreational opportunities. These lands also provide needed wildlife habitat, help to clean our air, and provide relief from our urban environment. Even closer to home, our parklands and greenways provide critical gathering spaces, recreational amenities, and connection to the natural world.
Regional Greenways
The Bonneville Shoreline Trail, the Jordan River Parkway, and the Provo River Parkway
Regional Connections
Links between greenways and greenways and major population centers
Green Context
The Wasatch and Oquirrh Mountains, the Great Salt Lake, and Utah Lake
Centers
Centers are historical and emerging regional destinations of economic activity. The vision suggests that these centers should expand to provide ever-broadening choices for residents to live, work, shop and play; a mix of all of these activities is welcome. Centers should work with the long-term market, helping provide opportunities to residents who want to live close to work, walk or bike to shop, and have both great transit and road access – desperately needed as our population ages, gas prices and congestion increase, and housing prices inch upward.
Metropolitan Center
Floor Area Ratio 1 to 10
20 to 200 Housing Units per Acre
Downtown Salt Lake City is the metropolitan center, serving as the hub of business and cultural activity in the region. It has the most intensive form of development for both employment and housing, with high-rise development common in the central business district. It will continue to serve as the finance, commerce, government, retail, tourism, arts, and entertainment center for the region.
Urban Center
Floor Area Ratio 0.75 to 4
20 to 100 Housing Units per Acre
Urban centers are the focus of commerce and local government services benefiting a market area of a few hundred thousand people. Urban centers will be served by high-capacity transit and major streets. They are characterized by two- to four-story employment and housing options.
Town Center
Floor Area Ratio 0.5 to 1.5
10 to 50 Housing Units per Acre
Town centers provide localized services to tens of thousands of people within a two- to three-mile radius. One- to three-story buildings for employment and housing are characteristic.
Station Community
Floor Area Ratio 0.5 to 2.5
20 to 100 Housing Units per Acre
Station communities are geographically small, high-intensity centers surrounding high-capacity transit stations. Station communities vary in their land use some feature employment, others focus on housing, and many will include a variety of shops and services.
Main-Street Community
Floor Area Ratio 0.5 to 1.5
10 to 50 Housing Units per Acre
Main streets are linear town centers. Each has a traditional commercial identity but on a community scale. Main-street communities prioritize pedestrian-friendly features, but also benefit from good auto access and often transit.
Boulevard Community
Floor Area Ratio 0.35 to 1.0
0 to 30 Housing Units per Acre
A boulevard community is a linear center coupled with a transit route. Unlike a main street, a boulevard community may not necessarily have a commercial identity, but may vary among housing, employment, and retail along any given stretch.
Corridors
Corridors combine a mix of uses—retail, offices, and residences—with multiple transportation options (sidewalks, bike lanes, roadways, and public transportation). Two types of corridors are identified in the Vision: Boulevard Communities and Main Streets. Examples of Boulevard Communities might include State Street or Redwood Road—with higher traffic volumes, yet envisioned as multi-modal boulevards with public transportation systems supporting increased residential, office, and commercial development. Main Street examples might include Magna or Lehi—more historic in character with lower traffic volumes, wider sidewalks, and more on-street parking.
Commuter Rail / TRAX
Freeways
Weber County
Davis County
Salt Lake County
Utah County
GREAT SALT LAKE
UTAH LAKE
OGDEN
SALT LAKE CITY
PROVO
OREM
General Land Use Legend
Residential
Industrial
Commercial
Special Use District
Green Space
Wasatch
CHOICE for 2040

- Help improve the air quality;
- Create walkable communities;
- Reduce growth pressure on the "Wasatch Back;"
- And reduce demand for scarce water.

Regional Growth Principles

The Wasatch Choice for 2040 Vision is embodied in nine Regional Growth Principles. These embody many of the values held by the people of Utah and were adopted after reviewing input from community workshops, open houses, committee deliberations, surveys and polling. The Growth Principles are intended to promote quality growth throughout the region. The WFRC, along with many other organizations and local governments, use these shared Growth Principles to provide a foundation for the organization's plans and programs. Together with other required transportation factors, the Growth Principles provide the framework for developing performance criteria, such as those regarding environmental quality, economic growth, cost effectiveness, enhanced mobility, safety, and related criteria. These criteria will then be used as a tool in identifying projects for the 2015 – 2040 RTP that best fulfill the objectives of the Growth Principles. The framers of these Growth Principles recognize that collaboration will be needed among the Region's local governments, and other decision-making groups, if these Principles are to be implemented and their potential benefits realized. These Regional Growth Principles are intended to assist the many entities involved in making plans for the future by providing a context that applies to the Region as a whole. As a consequence, it is hoped that the Wasatch Front Region's transportation and other services will become more efficient, and that its quality of life, largely identified in the Principles, will be enhanced. The regional growth principles and objectives are provided below.

Principle: Provide Public Infrastructure that is Efficient and Adequately Maintained

- Promote redevelopment to better utilize existing infrastructure.
- Optimize use and maintenance of existing infrastructure. Promote compact development consistent with market demand. Encourage contiguous growth to reduce infrastructure expenses.
- Develop long term funding sources for infrastructure development and maintenance.
- Encourage cooperation and coordination in the use of transportation and utility corridors and rights-of-way.

Principle: Provide Regional Mobility through a Variety of Interconnected Transportation Choices

- Develop a balanced, multi-modal transportation system.
- Coordinate transportation with regional employment, housing, educational and activity centers.
- Encourage future commercial and residential areas within close proximity of each other to reduce travel distances.
- Encourage a balance of jobs and housing in each part of the region to reduce travel distances.
- Support actions that reduce growth in per capita vehicle miles of travel.

Principle: Integrate Local Land-Use with Regional Transportation Systems

- Land-use planning and decisions remain a function of local communities.
- Preserve corridors for future infrastructure needs.
- Coordinate regional transportation with centers of development.
- Coordinate transportation decisions with schools and educational centers.
- Make land-use and transportation decisions based on comprehensive understanding of their impact on each other.

Principle: Provide Housing for People in all Life Stages and Incomes

- Encourage an adequate supply of moderately priced housing near regional job centers.

- Encourage land use and housing policies to accommodate the need for a variety of housing types throughout the region.
- Encourage housing and other development near transit to maximize the efficiency of the public transportation system.

Principle: Ensure Public Health and Safety

- Encourage communities to develop transportation facilities that promote physical activity and healthy living.
- Encourage accessibility of housing to other destinations to enable the routine use of walking and bike paths.
- Provide for a safe and adequate water supply for culinary, sanitation and fire protection needs.
- Promote interconnected streets to reduce travel distances.
- Provide efficient police and emergency access.
- Provide safe access to, and use of, all modes of transportation.

Principle: Enhance the Regional Economy

- Improve mobility to foster a robust economy.
- Use transportation investments and land use decisions to develop the regional economy.
- Transportation and land use decisions should lead to improved quality of life to help retain and recruit businesses and labor.
- Transportation and land use decisions should help keep our region an affordable place to live and do business.

Principle: Promote Regional Collaboration

- Encourage collaboration among government, business, education, civic and community organizations.
- Coordinate development and maintenance of regionally significant utilities and transportation facilities.
- Include a broad base of involvement in the planning process.
- Coordinate local and regional planning efforts.
- Promote the sharing of information and expertise.

Principle: Strengthen Sense of Community

- Preserve environmental, cultural, and historical assets.
- Promote unity and cohesiveness while valuing diversity.
- Avoid physically dividing communities.
- Use transportation to bolster town centers.

Principle: Protect and Enhance the Environment

- Protect and enhance the natural environment.
- Enhance the aesthetic beauty of our built environment.
- Promote conservation of energy, water, and regionally significant critical lands.
- Enhance air and water quality.
- Encourage conservation of open space and irreplaceable natural resources in land use decisions.
- Create and enhance access to areas of natural beauty and recreation.
- Encourage community trails coordinated with regional/state trail systems.

WFRC GOALS FOR TRANSPORTATION PLANNING

The Regional Transportation Plan is a goal driven process. The seven goals established by the Wasatch Front Regional Council inform each major step of the planning process. The seven goals are as follows:

- Safety and Health
- Infrastructure Preservation
- Mobility
- Cost Efficiency
- Economic Vitality
- Environmental Stewardship
- Community and Sustainable Urban Form

These seven goals crystallize the key issues and concerns of the public as voiced in the Wasatch Choice for 2040 Growth Principles while also reflecting the goals of our federal, state, and regional transportation partners. **Figure 2-1** provided a side-by-side comparison of these various goals.

The Wasatch Choice for 2040 Growth Principles, from which the 2015 – 2040 RTP goals are derived, are the distillation of years of public comments from thousands of participants. They are the values that the public care about. The Growth Principles are a key product of the innovative and award winning grassroots Envision Utah outreach effort launched in 1999. The Growth Principles have been adopted by the WFRC and many of the local governments in the metropolitan area.

The 2015 – 2040 RTP transportation planning goals are also reflective of federal statute. A key feature of the MAP-21 funding authorization was performance based planning. MAP-21 lays out a set of national goals and planning strategies to pursue with the objective of providing "... a means to the most efficient investment of federal transportation funds by refocusing on national transportation goals, increasing accountability and transparency... and improving project decision-making..." [§1203; 23 USC 150(a)] Again, **Figure 2-1** summarizes the national goals and planning strategies and demonstrates how they are reflected in the WFRC transportation planning goals. This figure also paraphrases UDOT and UTA goals and demonstrates how they relate to the WFRC transportation planning goals.

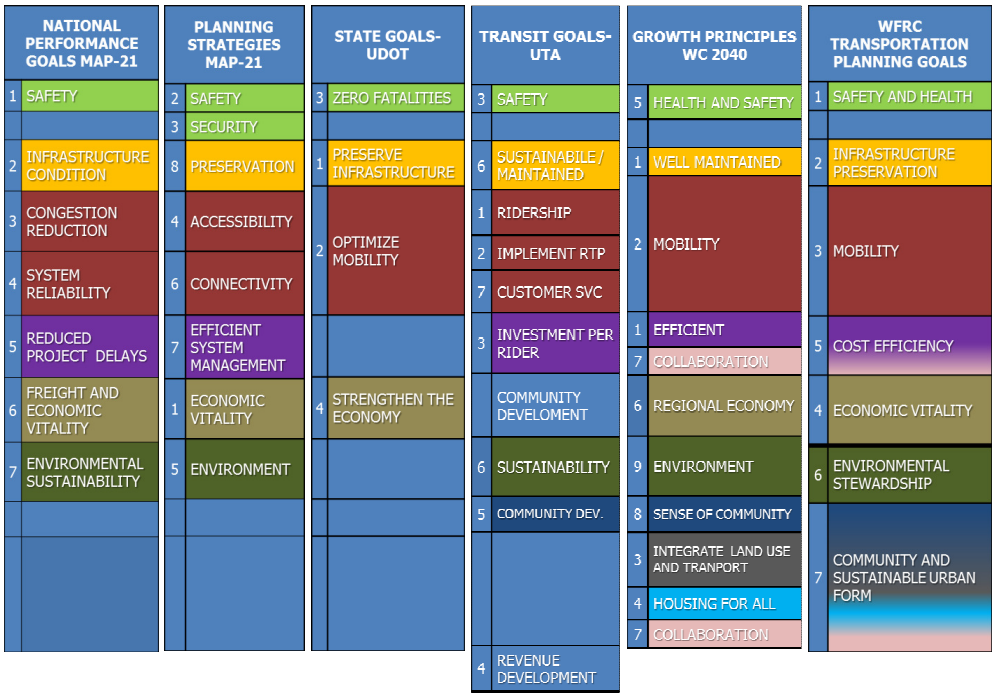
Finally, the WFRC Transportation Planning Goals directly relate to the Strategic Goals of the Utah Department of Transportation and to overarching goals articulated by the Utah Transit Authority. The Utah Department of Transportation and Utah Transit Authority are key transportation partners in that they own, operate, and maintain the vast majority of the regionally significant transportation infrastructure in the Region.

The 2015 - 2040 RTP required the establishment of seven transportation planning goals. These goals inform each major step of the planning process. The Region's transportation goals were then translated into specific performance measures which allows the WFRC staff to determine to what degree we are meeting our goals and facilitates the discussion of trade-offs inherent in planning. The 2015 - 2040 RTP planning process steps using performance measures are: visioning; preferred scenario development; project refinement; and project phasing.

The regional visioning process used performance measures and considerations reflecting the Growth Principles. In 1999, the Envision Utah process, upon which the 2040 Vision was initiated, offered four growth scenarios to the public. With each scenario was a "report card' illustrating how each of the four scenarios might perform on key measures developed from the Growth Principles.

FIGURE 2-1

FEDERAL, STATE, AND REGIONAL GOAL COMPARISON



Among other places, the scenarios and accompanying report cards were published in a full-page format in local newspapers. Thousands of people participated. Subsequent updates to the 2040 Vision have also utilized performance measures based upon the Growth Principles. These Growth Principles are now reflected in the seven 2015 – 2040 RTP transportation planning goals.

The draft 2015 - 2040 RTP preferred scenario was also developed using a set of performance measures. All four future land use and transportation scenarios were evaluated. Each scenario represented a relatively modest variation in land use accompanied by a set of broadly, cost-constrained transportation facility investments. The four scenarios were evaluated using measures reflecting the seven goals. The performance of each of the scenarios, ultimately including the preferred scenario, was compared side-by-side for each performance measure. This data informed the development of the preferred scenario and was provided to our stakeholders. A listing of the performance measures and selected findings are available in **Appendix D** - "Performance Measure Findings**."**

Projects from the initial preferred scenario were also refined and selected using performance measures tied to the seven Goals. Projects were reviewed based upon a high-level consideration of potential opportunities to avoid impacts and optimize benefits. Flagged projects were considered for revision or removal, in consultation with the project sponsor, based upon discussions of the totality of the benefits and impacts. Projects completing this process were selected for the final Preferred Scenario which defines non-fiscally constrained project needs. A listing of the considerations is provided in **Chapter 4** – System Alternatives Development and **Chapter 6** – Project Selection and Phasing.

Lastly, projects from the final Preferred Scenario were rated in order to inform project phasing using performance measures representing the seven Goals. With a few exceptions road and transit projects used the same high-level performance measures such as "travel time reduction" but different data sets and methods to evaluate project performance. Detailed descriptions of road and transit project performance measures are found in **Chapter 4** – System Alternative Development and **Chapter 8** – Plan Impacts and Benefits.

INTRODUCTION

As the Wasatch Front Region grows and the impact of development patterns emerge, the travel demand for all transportation modes will increase and the need to manage all elements of the transportation system will become much more pronounced. This chapter describes the system-wide needs the WFRC has identified through analysis of current and future travel patterns, and other means.

Major Future Travel Demand Corridors

In order to fully identify transportation system needs, future travel demand must be quantified. The regional travel demand model facilitates analyses to provide this information. A detailed documentation of this modeling process is provided in **Appendix A** – "Transportation Modeling and Analysis Tools." The projected 2040 desire lines of travel are displayed in **Figure 3-1**, the width of the line indicating the magnitude of the travel flows. The largest intra-county 2040 travel flows are shown in addition to each of the north-south, urban inter-county flows. The magnitude of the inter-county travel flow arrows illustrates the interconnected economy of the Wasatch Front Region. Based upon regional district to district trip estimates, illustrated in **Map 3-1** on the following page, it appears that the primary travel flows, in order of magnitude, is indicated below:

- East / West flow between northwestern and northeastern Salt Lake County
- North / South flow across the Salt Lake / Utah County line
- North / South flow between southwestern and northwestern Salt Lake County
- North / South flow across the Davis / Weber County line
- East / West flow between southeastern and southwestern Salt Lake County
- North / South flow across the Salt Lake / Davis County line
- East / West flow between western and southeastern Weber County

A review of more detailed travel demand forecasts for 2040 indicated that the following six major corridors will experience the most serious mobility deficiencies.

- I-15 along the Wasatch Front in Weber, Davis and Salt Lake Counties
- East / West flow in the southwest quadrant of Salt Lake County (between 6200 South and 14600 South)
- East / West flow in the central west portion of Salt Lake County (between 3100 South and 6200 South)
- North / South flow in southern and western Salt Lake County
- North / South and East / West flow in northwestern Davis County
- East / West flow in western Weber County

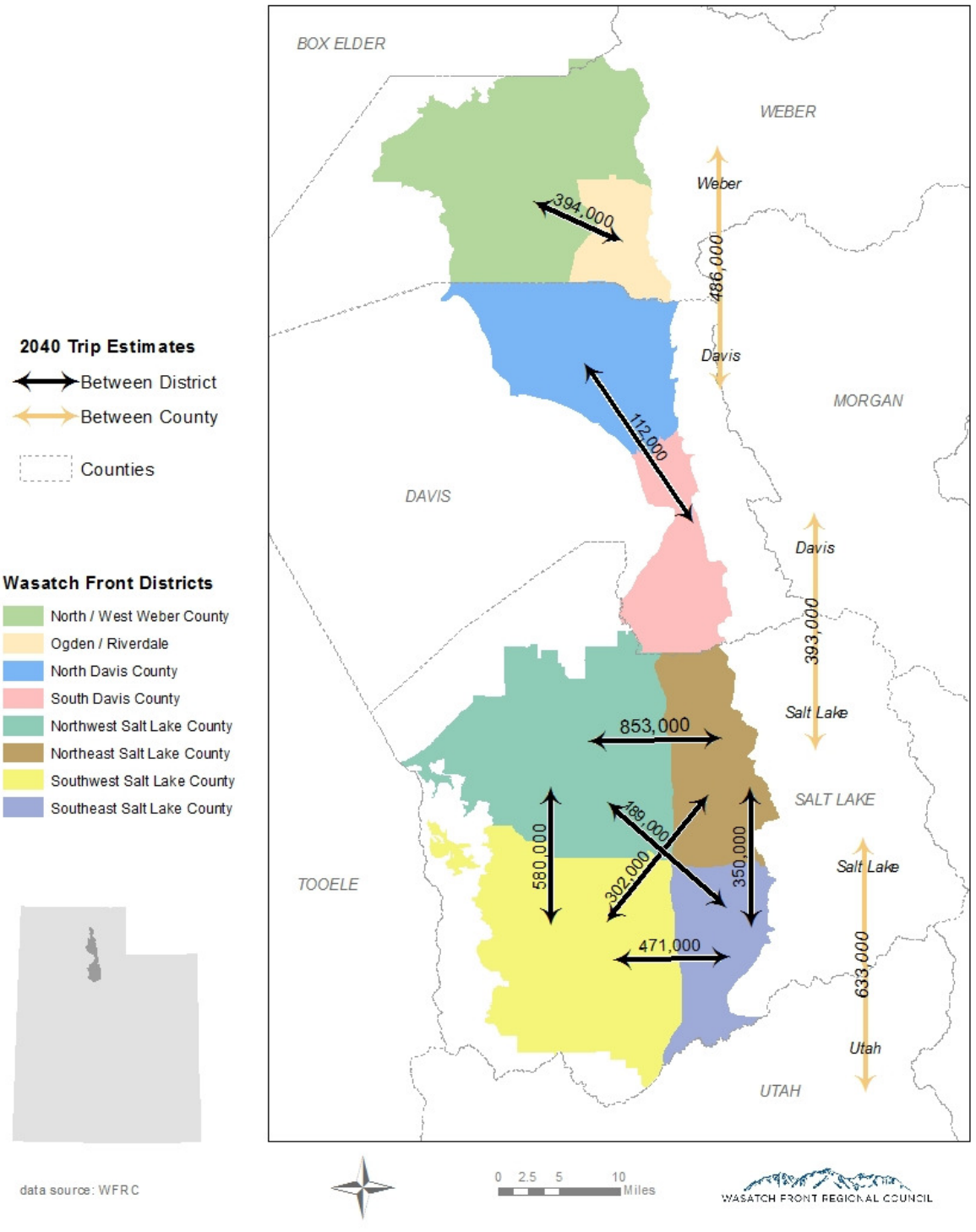
Traffic Congestion

Often in high growth areas, new capacity (supply) seems to be prematurely congested by recurring commuter traffic and non-recurring accidents and construction. In "supply" and "demand" terms, the travel "demand" is the number of vehicles (drivers) wanting to use the roads and the "supply" is the volume of vehicles that a road can carry in the peak period. The highway system provides exceptional mobility until it breaks down because of daily congestion at choke points or irregular incidences such as crashes. Congestion then is compounded because, as demand increases in the peak periods, supply declines when speeds are reduced.

When freeways reach capacity, they lose up to thirty percent of their ability to move traffic efficiently. For example, a 10-lane freeway can carry about 21,000 vehicles going at a speed of 60 miles per hour. When the situation degrades to an average speed around 20 mph, the 10-lane freeway can only carry about 15,000 vehicles. Transit, on the other hand, can be expanded by adding passenger cars to peak hour trains without reducing the service speed. Regional transit is better suited to the

MAP 3-1

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN DISTRTICT TO DISTRICT TRIP ESTIMATES



peak hour travel demand and will best succeed where access, travel time, convenience, cost and comfort are attractive when compared with congested auto travel.

The auto / highway system will remain the dominant mode in the Region through 2040. However, creative strategies are needed to avoid compounding highway congestion. At its most fundamental level, highway congestion results from the lack of mechanisms to efficiently manage use of highways. Therefore, this needs analysis will consider new policy choices and innovative solutions including congestion pricing measures and intelligent transportation systems (ITS) to manage the peak period demand.

The Role of Regional Growth Principles

The growth principles adopted by the Regional Council, and described in more detail in the *Wasatch Choice for 2040 Vision*, are important for protecting the quality of life in the Wasatch Front Region, even with respect to relieving congestion. For example, when regional land use patterns foster closer proximity between housing and jobs, the origins of most work trips are less dispersed, trip lengths to places of employment are reduced and vehicle miles of travel decrease. Thus, there will be less congestion and more opportunities for transit to offer viable alternatives.

The following sections in this chapter explore more specific needs in the greater Wasatch Front Region for highways, transit, and other modes of transportation. Managing the transportation system is also discussed further, including a review of safety and security conditions.

HIGHWAY SYSTEM REVIEW

As part of the Congestion Management Process (CMP), the WFRC reviewed projected highway congestion conditions and identified a number of locations where congestion mitigation is or will be needed. The CMP involves an evaluation of Transportation System Management (TSM) strategies, such as signal coordination, intersection widening, and access management; and Transportation Demand Management (TDM) strategies, include ridesharing, high occupancy vehicle (HOV) lanes, and telecommuting, as potential solutions to regional congestion rather than increasing highway capacity. Locations have been identified where TSM and TDM strategies can delay or eliminate the need for new capacity. Where these strategies cannot meet the projected travel demand, the need for new capacity is noted. Whenever additional capacity is added, TDM efforts to reduce demand should be employed, and the transportation system made as efficient as possible in order to maximize the effectiveness of the new capacity and minimize the need for future capital investments in highways.

For 2015 – 2040 RTP development purposes, congestion is considered to occur when level of service (LOS) “E” conditions are reached. Traffic operating at LOS “E” is characterized by operations that are very unstable at significantly reduced speeds and when there are virtually no gaps in the traffic stream. Level of service is based on volume to capacity ratios (V/C) in the case of freeways, and operating speeds in the case of arterials. The WFRC continues to support the actual design of facilities to meet a LOS “D” in urban areas when reasonably possible. Traffic operating at LOS “D” is characterized by reduced speeds and restricted ability to maneuver within the traffic stream. Any incident disrupting the traffic flow at LOS “D” will immediately result in LOS “E” conditions or worse. For a more complete discussion of level of service, see Sections 15-II and 23-II of the *Highway Capacity Manual*.

The process for identifying congestion needs for the 2015 – 2040 RTP begins with a computer model of existing highway and transit facilities plus major capacity projects in the Transportation Improvement Program (TIP), which are committed to be built. This transportation network is then assigned projected 2040 traffic demand and the resulting travel model is identified as the “2040 No Build” scenario. The “2040 No Build” scenario is then further modified with a series of TSM and TDM strategies, plus the fully implemented transit program recommended in the previous 2011 – 2040

RTP, with peak-period headways optimized to 10 minutes for buses and 15 minutes for light rail service. The resulting modeled transportation network is identified as the "2040 Congestion Management Process" scenario. The specific TSM and TDM strategies that can be represented in the 2040 CMP model are limited to signal coordination, access management, pedestrian and bicycle facilities, and a combined factor for flextime, telecommuting, and growth management. The WFRC selected these specific TSM and TDM strategies because reasonable quantitative assumptions can be made about the impact of these measures on speeds or capacity. The benefits of ITS, incident management and ramp metering are already included in model assumptions for highway capacities. Likewise, the mode choice algorithms in the model already account for the trip reductions achieved by modeling the 2040 preferred transit and rideshare program.

Once the TSM and TDM strategies are applied in the model, locations where level of service (LOS) "E" conditions still remain in the PM peak period are evaluated. Average weekday traffic volumes for 2015 and 2040 are also considered. **Table 3-1** below identifies guidelines for Average Weekday Traffic (AWKDT) Volumes, which supplements the evaluation of LOS "E" conditions identified by the CMP model run. Since the travel model is regional in nature, individual facility volumes may reveal differences between modeled and observed base year volumes and these discrepancies are considered when evaluating future traffic conditions. Historical growth rates can also provide reasonableness checks.

TABLE 3-1

AVERAGE WEEKDAY TRAFFIC VOLUME GUIDELINES

NUMBER OF LANES NEEDED	FREEWAYS (vehicles)	ARTERIALS (vehicles)
4	< 90,000	20,000 – 40,000
6	90,000 - 140,000	40,000 – 60,000
8	> 140,000	> 60,000

CMP Identified Capacity Needs

A list of RTP recommended projects and priorities is found in **Appendix E** – "Congestion Management Process Projects." One of the criteria in this table is CMP Justification, which indicates whether or not a project recommended in the 2015 – 2040 RTP was also recommended based on the CMP analysis. All capacity increasing projects listed in **Appendix E** have been identified with at least one of the recommendations from the Congestion Management Process listed in **Table 3-2**.

TRANSIT SYSTEM REVIEW

Transportation demand in the region has grown substantially in recent years and is projected to continue to grow as population in the Wasatch Front Region nearly doubles. The primary way the Region has chosen to address this growth challenge is through the implementation of the Wasatch Choice for 2040 Vision, which calls for centered development served by high frequency transit. Transit performs a unique role in serving the transportation needs of a maturing region. Roads will generally degrade in their capacity to meet travel demand, whereas transit can thrive in such conditions. The evaluation of the Region's transit system needs draws upon the 2011 - 2040 RTP's transit system review and other recent and related evaluations.

State of Good Repair

State of Good Repair (SOGR) refers to maintenance, overhaul, and replacement of assets like rail and bus vehicles, railroad track and Bus Rapid Transit lanes, railroad crossings, and station platforms. The SOGR is a challenge for transit systems nationwide. As physical assets fall into disrepair, they decrease transit reliability, attractiveness, and safety. Proper maintenance of assets also costs less than replacement. SOGR policies are specifically listed in the *UTA Strategic Plan*.

TABLE 3-2

CONGESTION MANAGEMENT PROCESS RECOMMENDATIONS

CMP RECOMMENDATION	CMP IMPROVEMENT DESCRIPTION
Phase 1	Phase 1 – capacity need based on LOS "E"
Phase 2	Phase 2 – capacity need based on LOS "E"
Phase 3	Phase 3 – capacity need based on LOS "E"
TSM – Phase 1, 2, or 3	No capacity increase recommended. Transportation System Management improvement recommended in the Phase indicated
Trucks	Concentration of trucking activity justifies a capacity increase
Safety	Known safety concerns justifies a capacity increase
Network	A gap in the regional grid network of highways that leads to circuitous travel justifies a capacity increase (usually a new facility that completes a missing segment of the network.)
Bottleneck	A bottleneck or a short highway segment that has higher existing capacity (more lanes) on either end, justifies a capacity increase to eliminate recurring delays.
Operational	Traffic operation improvements are recommended without additional through-lane capacity
ROW	Right-of-way acquisition recommended

Between 1996 and 2014, the Wasatch Front Region undertook one of the most aggressive rail construction programs in the country. During this time, 134 miles of rail were built along the Wasatch Front at a cost of approximately $4.7 billion in current year (2015) dollars. The Utah Transit Authority now has nearly 1,100 buses / vans, 200 rail vehicles, and multiple operations and administrative facilities with related equipment. These investments as well as new projects added in the 2015 – 2040 RTP need to be maintained in order to preserve ridership, safety, and avoid enormous replacement costs in the future.

- In 2014, UTA reported a $200 million backlog in rail SOGR.
- The UTA Central Bus Maintenance Facility is operating at over 125 percent of its design capacity. The UTA indicates that it needs to be replaced due to aging infrastructure and functional deficiencies.
- The latest federal reauthorization of transportation funding legislation requires transit agencies to develop an asset management plan. The Utah Transit Authority is developing such a plan. A programmatic line item was established as part of the 2015 – 2040 RTP with funding set aside for SOGR and asset management.

Span of Service

Span of Service (SOS) refers to the hours of the day, days of the week, and holidays during which transit service is provided. Span of service is a substantial element in UTA's strategy to increase levels of transit service by 50 percent. Good SOS is essential to effective transit oriented development and to disadvantaged communities. These are communities that, by choice or by necessity, are dependent upon transit service for a broad array of their travel needs. Members of disadvantaged communities are also more likely to have work or educational travel needs outside of the commute periods. The Region's development goals, as embodied in the Wasatch Choice for 2040 Vision, are largely dependent upon centered growth near transit lines. To succeed, the transit serving these centers need to have consistently good transit SOS. Nonetheless, transit managers need to weigh the benefits of increased SOS for transit dependent people and against other transit priorities.

- TRAX hours of service are approximately 5:00 A.M. to 11:00 P.M. on weekdays; 6:30 A.M. to 10:30 P.M. on Saturdays; and 10:00 A.M. to 7:00 P.M. on Sundays. No service is offered on several holidays. Although service hours on some segments of the Salt Lake-Sandy and Mid-Jordan Corridors is limited to between 12:00 A.M. and 5:00 A.M., due to Federal Railroad Administration regulations regarding joint corridor use with freight rail operations, substantial span of service improvements are desirable.

- UTA FrontRunner hours of service are approximately 5:00 A.M. to 10:30 A.M. on weekdays and 8:00 A.M. to 11:00 P.M. on Saturdays with no service provided on Sundays. Similar to light rail, no service is offered on several holidays. Several transit oriented developments in Davis and Weber Counties are dependent upon UTA's FrontRunner service. Thus, SOS improvements in these counties would be particularly desirable. Service hours on some segments of the FrontRunner corridor are also limited due to Federal Railroad Administration regulations regarding joint corridor use with freight rail operations.

- Bus hours of service vary dramatically by route and by day of the week. **Figure 3-1** on the following page illustrates the proportion of UTA routes starting service by various times of morning. The three pie charts compare weekday and weekend service, including routes not in operation. Similarly, **Figure 3-2** illustrates the proportion of UTA routes going out of service at the end of their respective runs during evening hours. Please note that these are the times when the vehicles are at the start or end of their route and not when riders can first arrive at their destination or could catch the last bus home. The typical end-to-end travel time for a transit vehicle on a route is about 45 minutes.

Frequency of Service

Frequency of Service (FOS) refers to the span of time between the arrival and departure of transit vehicles along a route during both the peak and off-peak time periods. FOS is a substantial element in UTA's strategy to reduce the average customer trip time by 25 percent. Frequency improvements will feature prominently in meeting the goal of increasing levels of transit service by 50 percent. Good FOS is also essential to fostering effective transit oriented development and system connectivity. Frequency is often conversely related to transfer wait times which can be the most taxing part of the transit experience for the rider. While waiting, the transit user is exposed to the elements and may experience some concern that they might have missed their connection. A generally accepted threshold for level of service for line-to-line transfer and for transit oriented developments is frequencies of 15 minutes or better during work hours. Improved service frequency must be balanced against potential ridership gains, transit oriented development benefits, and other factors to most effectively use limited resources.

- Light Rail (TRAX) frequencies are generally every 15 minutes on weekdays and every 20 minutes on weekends.

- UTA FrontRunner frequencies are generally 30 minutes service in the peak periods and 60 minutes in the off peak.

- Bus frequencies very substantially. UTA operates several levels of bus frequency. The Route 35 Bus Rapid Transit (MAX BRT) on 3500 South operates on full TRAX frequencies over the course of each day. Fifteen minute peak period service is offered on 15 core routes in northern Salt Lake County and in Ogden. Thirty minute peak period service is offered on the majority of the remainder of its routes with the exception of its inter-county service and some flex routes.

FIGURE 3-1

BUS ROUTE START TIMES

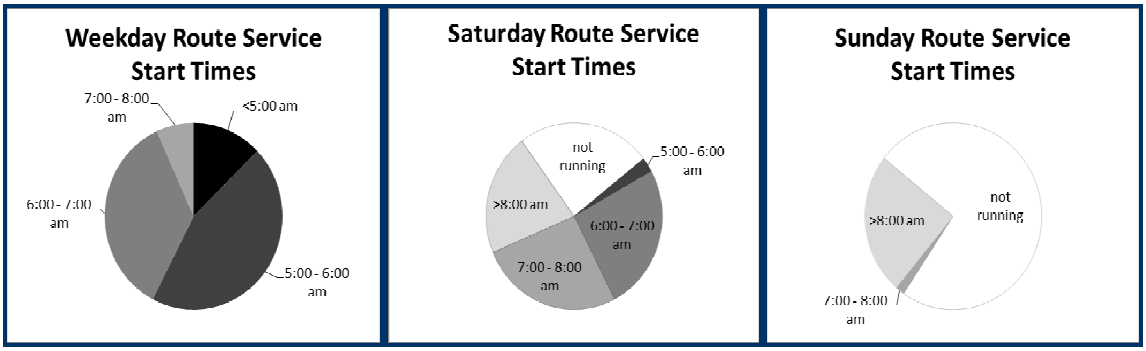
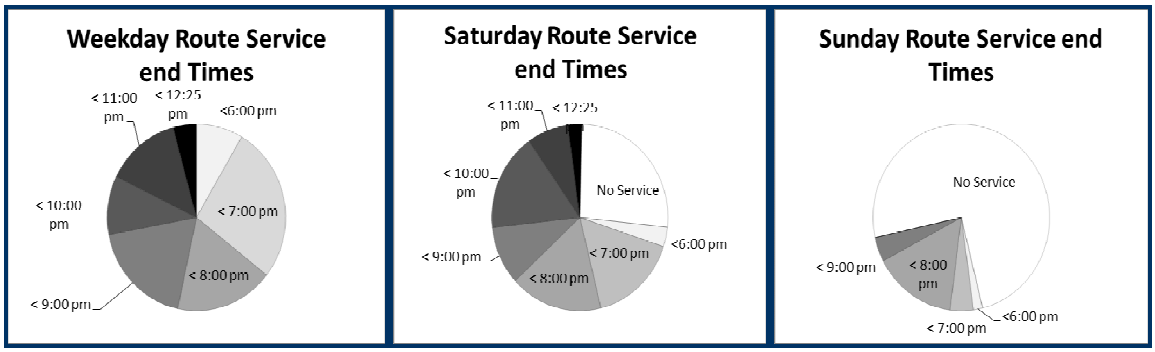


FIGURE 3-2

BUS ROUTE END TIMES



Service Reliability and Capacity

Service reliability refers to a predictable, dependable, and time-sensitive operation. Transit riders have been found to be more sensitive to unpredictable delay than transit speed or frequency of service. Repeated unreliability may prompt a transit planner to schedule extra time into a route resulting in low speeds even when street conditions would permit otherwise.

Nearly all of UTA's bus service is impacted by highway congestion. In order to keep its current service schedule in the face of increasing vehicle delays, several improvements will need to be made to the highway system in order to preserve existing bus system operations. Enhanced Bus and Bus Rapid Transit improvements include signal priority and queue jumpers at select traffic signals in order to maintain reliability. Bus Rapid Transit lines further improve reliability through the use of transit lanes along substantial portions of the project. **Table 3-3** lists existing candidates for preservation of operations improvements including some with poor reliability, slow speeds, and standing loads.

Service Coverage and Accessibility

Service coverage refers to the general proximity of transit to homes and businesses and service accessibility, also known as "first / last mile accessibility," refers to the more enhanced accessibility of each transit stop via foot or bike. The latter takes into account physical barriers between a transit stop and the surrounding neighborhoods. Service coverage and accessibility is embodied in UTA's strategy to "find and attract new markets for ridership" and to "develop a fully integrated first / last mile strategy".

TABLE 3-3

EXISTING CANDIDATES FOR PRESERVATION OF OPERATION IMPROVEMENTS

ROUTE NUMBER	ROUTE NAME	ISSUES AND OPPORTUNITIES
603	Ogden - Weber State University	High Ridership
612	Washington Boulevard	High Ridership
470	Ogden – Salt Lake Intercity	High Ridership, Low Reliability, Standing loads
2	"2 the U"	High Ridership, Standing Loads
200	State Street North	Highest Ridership, Low Speed,
217	Redwood North	High Ridership, Low Reliability
227	2700 West	Slow Speeds
232	3200 West	Low Reliability

- Currently approximately 85 percent of the population and 96 percent of the employment in the WFRC area are within a half mile of a bus route or rail station. Nonetheless, areas without transit coverage continue to exist. Efforts to find and serve appropriate markets within areas without transit coverage should continue.

- Community design in the latter half of the last century frequently resulted in people and jobs being located in lower-density, effectively walled subdivisions and business parks that limit people's access to goods, services and each other. This has also created huge barriers to transit use and has fostered greater dependence on personal vehicles. More dependence upon autos has in turn resulted in wider, more heavily trafficked, and polluted roads, which become disincentives to transit use in a vicious cycle. The WFRC and UTA seek to develop a fully integrated first/ last mile strategy to allow greater access between transit and adjacent communities by first integrating first/ last mile strategies into the siting of new major transit investments and opening up access to existing high frequency bus and rail lines.

OTHER TRANSPORTATION MODE NEEDS

In addition to highways and transit, other modes are part of the Region's transportation system. These other non-motorized modes serve important functions, such as bicycle and pedestrian on and off-street paths that provide alternative transportation choices and opportunities conducive to healthy life styles and further the goals of the Wasatch Choice for 2040 Vision. Reliable movement of goods is addressed in part by the highway system, but railroads also play a vital role. The needs of these other modes, including truck freight are discussed in this section.

Pedestrians / Bicycles

According to the Utah Household Travel Survey conducted in 2012, about 1.7 percent of the trips in the Region were made by bicycle and 7.8% of the trips were made on foot. When diving deeper into this data, about 14% of the bike trips were made for the purpose of school or work. While bicycle and pedestrian trips are not the majority transportation modes, they are noticeably increasingly throughout the region as these modes gain popularity, accessibility and additional facilities.

More importantly, providing the option of walking and biking for residents, particularly for connecting shorter trips that are less than two miles, is critical to support the continued growth of alternative transportation modes. The data from the 2012 Regional Household Travel Survey supports this as over 57 percent of the bike trips in our region comprise of less than two miles in distance.

Throughout the Wasatch Front, the demand for appropriate bicycle and pedestrian facilities has been rapidly growing as seen in numerous planning efforts. To address the needs of growing numbers of bicyclists and pedestrians, the WFRC recommends building upon the existing network and that state and local governments provide new on and off street facilities such as on east / west routes, providing access across I-15 and other major roadways, connections to transit stations and the connectivity of existing routes.

To date, the Utah Collaborative Active Transportation Study (UCATS) has established a regional priority network along the Wasatch Front. This study looked to address a systematic region-wide need for active transportation and to prioritize bicycle and pedestrian facilities based off the analysis. The study conducted a latent demand model analysis that included Salt Lake, Davis, Box Elder and Weber Counties for two modes, both walking and biking. The latent demand model took into account specific factors of population and employment density, intersection density, current land use mix, proximity to schools, distance to parks, universities, proximity to bus stops, fixed rail stations, demographic equality with poverty level, households with no automobile ownership, the location of limited-mobility age cohorts, and the presence of existing bike facilities. The analysis examined reasonable true walking and biking distance, which is the most accurate type of analysis. The latent demand measurement is quantified with a score of 1 to 100. The higher the score, the more likely there is to be demand for bicycling and walking activity. This map of the analysis for bike demand for Weber and Davis Counties is **Map 3-2** and for Salt Lake County is **Map 3-3** on the following page and highlights key hot spots for bicycle facility need in blue and green. This map of the analysis for bike demand for Weber and Davis Counties is **Map 3-4** and for Salt Lake County is **Map 3-5** on the following page and highlights key hot spots for bicycle facility need in blue and green.

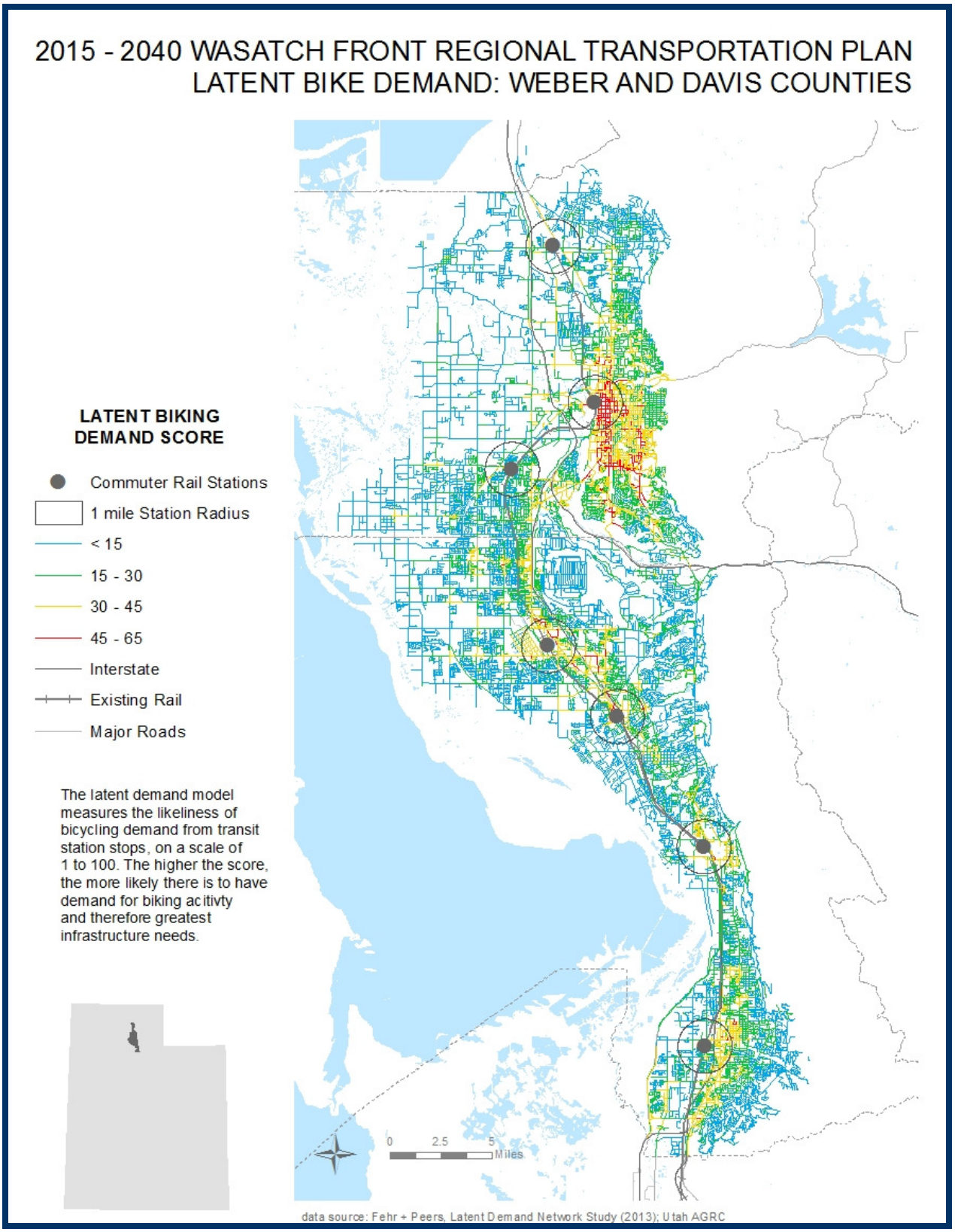
Also part of the Utah Collaborative Active Transportation Study analysis on need included an accessibility study of current bike facilities to existing transit stations. The distance one could travel on the current roadway trail network as the crow flies to the existing bike and pedestrian network is included in the attached map on the following page. The higher the percentage, the more accessible the station is therefore both the need to connect to highly accessible transit stations combined with stations that did not have any service is highlighted.

Other significant areas of considerable bicycle and pedestrian travel and need are secondary schools, the two of our Region's major urban centers of Salt Lake Central Business District, and the Ogden Central Business District. For a more comprehensive picture of school locations, see **Map 3-6**. One of the primary considerations in planning for the needs of pedestrians and bicyclists must be safety. To be safe, pedestrians need adequate sidewalks and street crossing opportunities. For bicyclists, a system is needed of separated bikeways and designated routes on safe streets that allow free movement throughout the Wasatch Front Region. School children represent a special class of pedestrians and bicyclists who require unique facilities to ensure their safety.

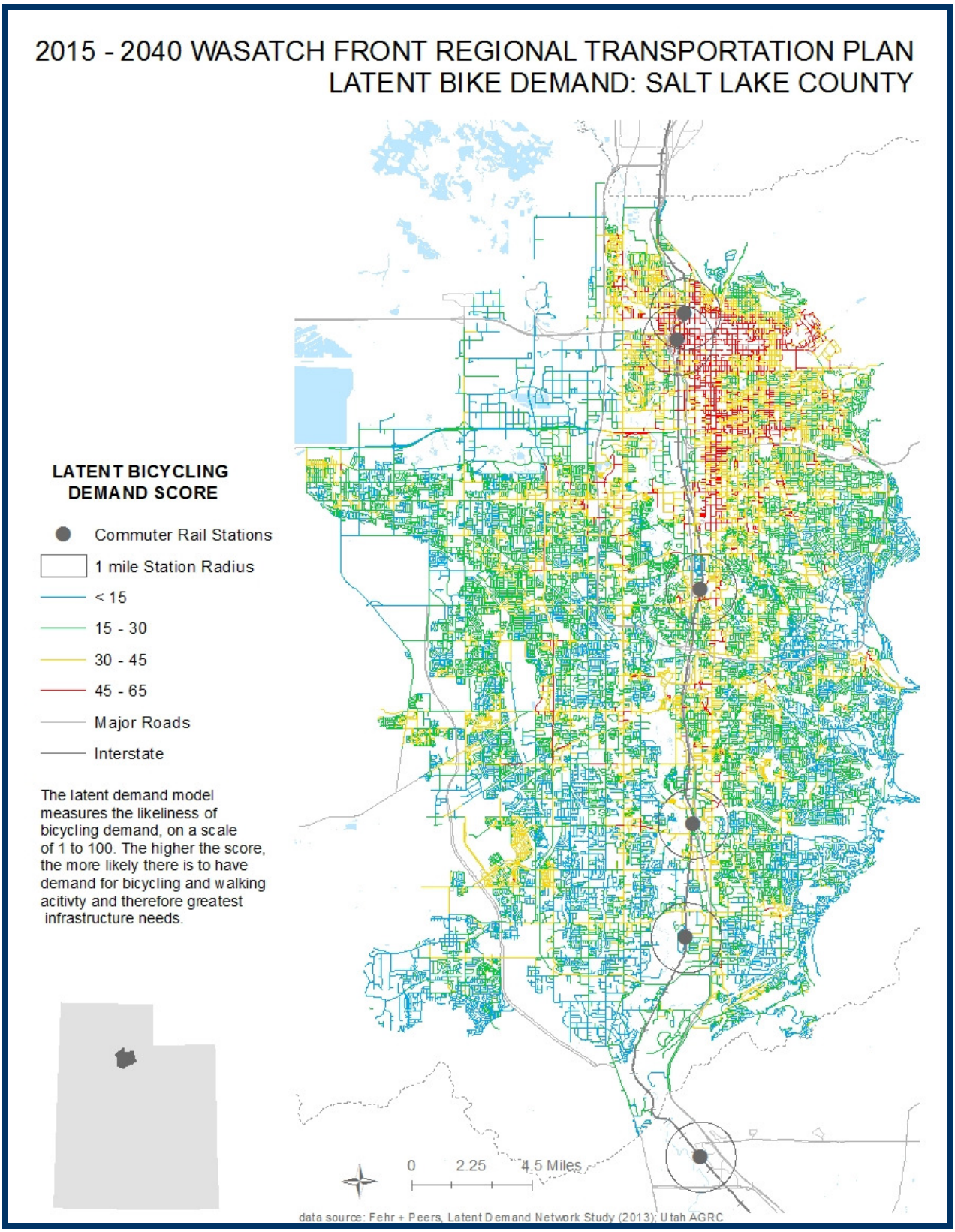
FREIGHT NEEDS

Each year, over 200 million tons of freight is shipped by or received by Utah manufacturers and businesses with an estimated value of nearly $134 billion. Trucks account for almost 70 percent of Utah's freight tonnage, with railroads hauling approximately 25 percent. These numbers do not reflect the considerable freight tonnage passing through Utah. With the recent completion of a *Utah State Rail Plan*, establishment of the Utah Freight Mobility Group (Statewide Freight Planning Group) and discussions with trucking associations and others in the freight industry, the following trucking and railroad related needs have been identified. **Map 3-7** on the following page shows the Wasatch Front Region's major freight facilities.

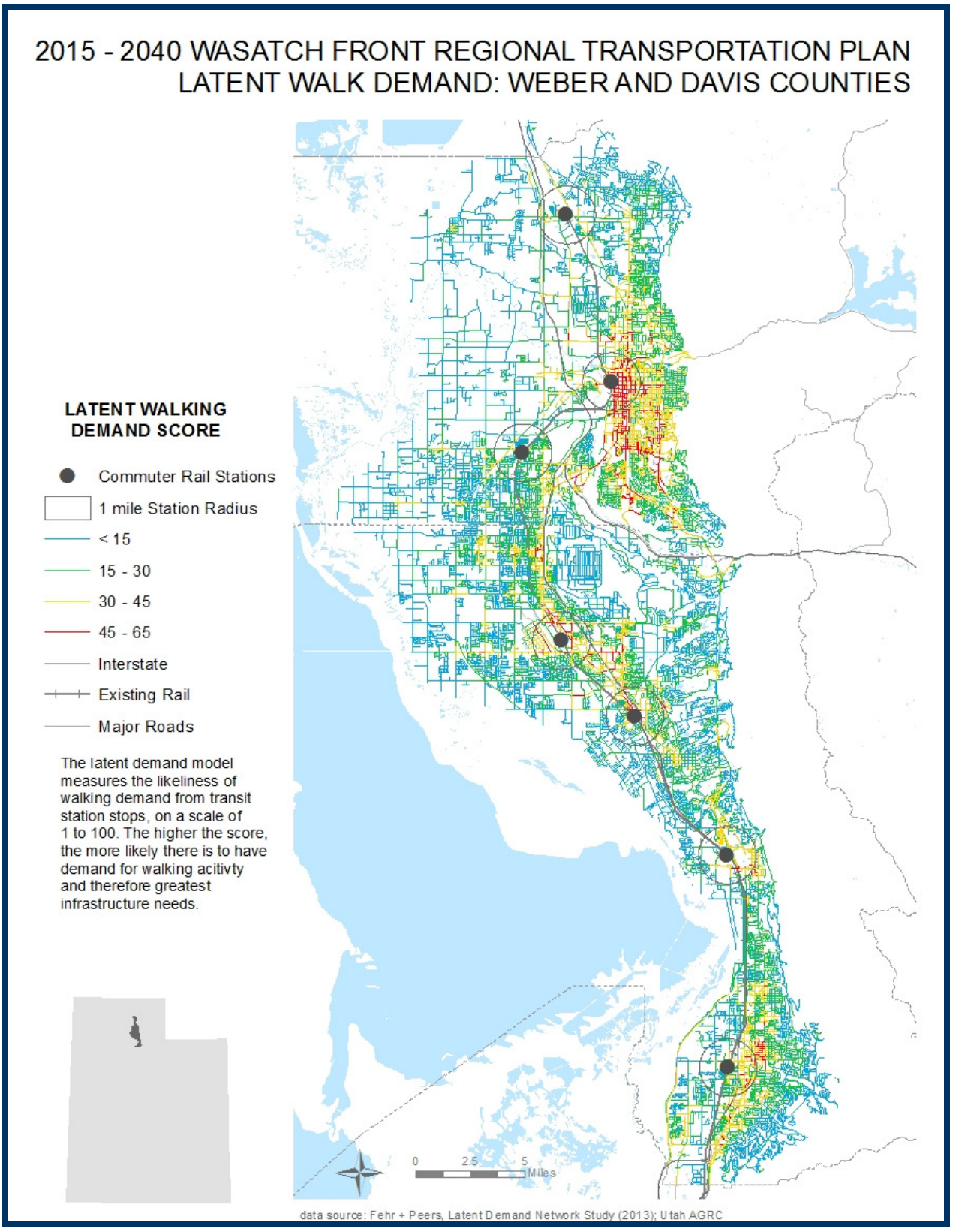
MAP 3-2


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
LATENT BIKE DEMAND: WEBER AND DAVIS COUNTIES
LATENT BIKING DEMAND SCORE
Commuter Rail Stations
1 mile Station Radius
< 15
15 - 30
30 - 45
45 - 65
Interstate
Existing Rail
Major Roads
The latent demand model measures the likeliness of bicycling demand from transit station stops, on a scale of 1 to 100. The higher the score, the more likely there is to have demand for biking acitivty and therefore greatest infrastructure needs.
0
2.5
5
Miles
data source: Fehr + Peers, Latent Demand Network Study (2013); Utah AGRC

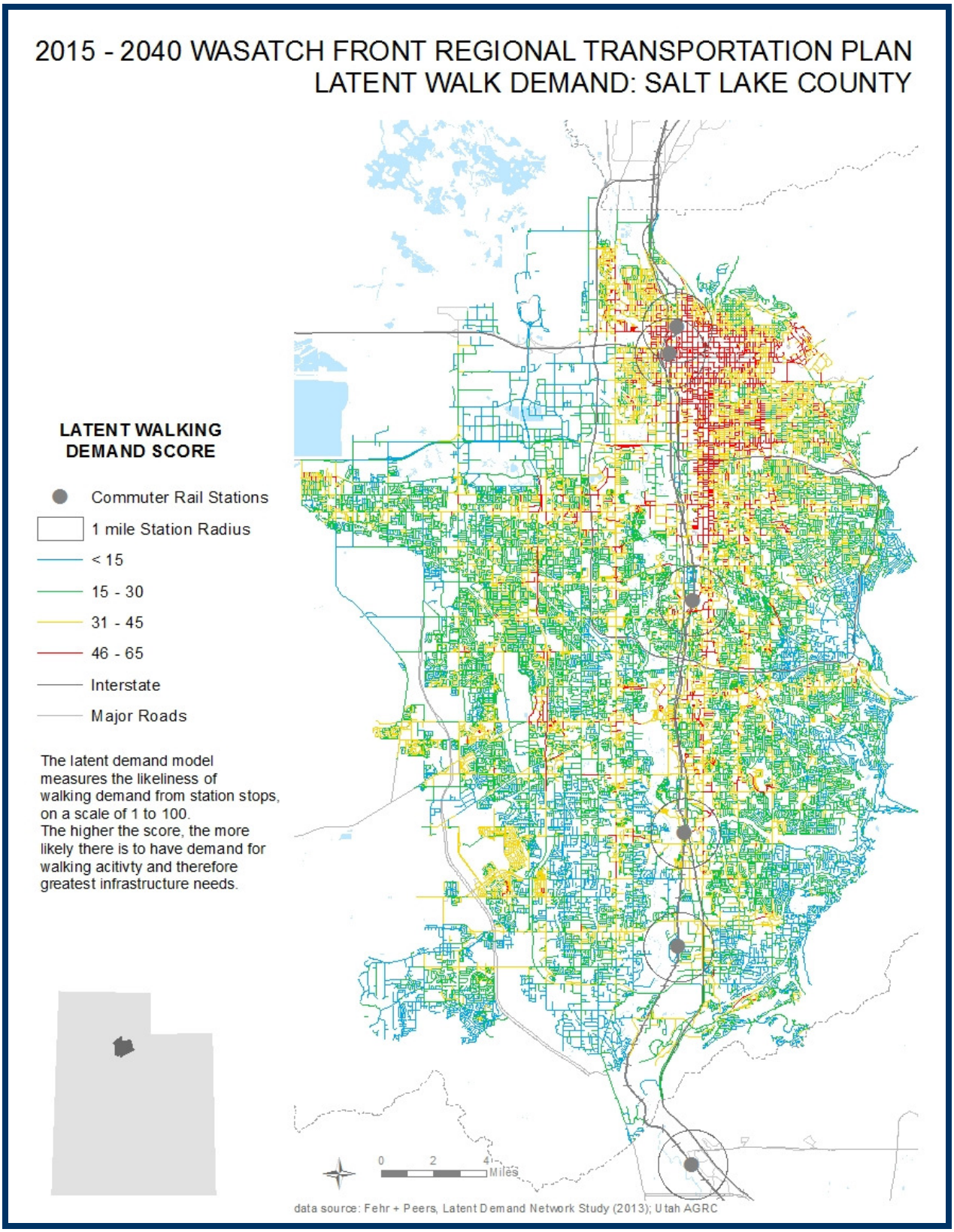
MAP 3-3


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
LATENT BIKE DEMAND: SALT LAKE COUNTY
LATENT BICYCLING DEMAND SCORE
Commuter Rail Stations
1 mile Station Radius
< 15
15 - 30
30 - 45
45 - 65
Major Roads
Interstate
The latent demand model measures the likeliness of bicycling demand, on a scale of 1 to 100. The higher the score, the more likely there is to have demand for bicycling and walking acitivty and therefore greatest infrastructure needs.
0
2.25
4.5 Miles
data source: Fehr + Peers, Latent Demand Network Study (2013); Utah AGRC

MAP 3-4

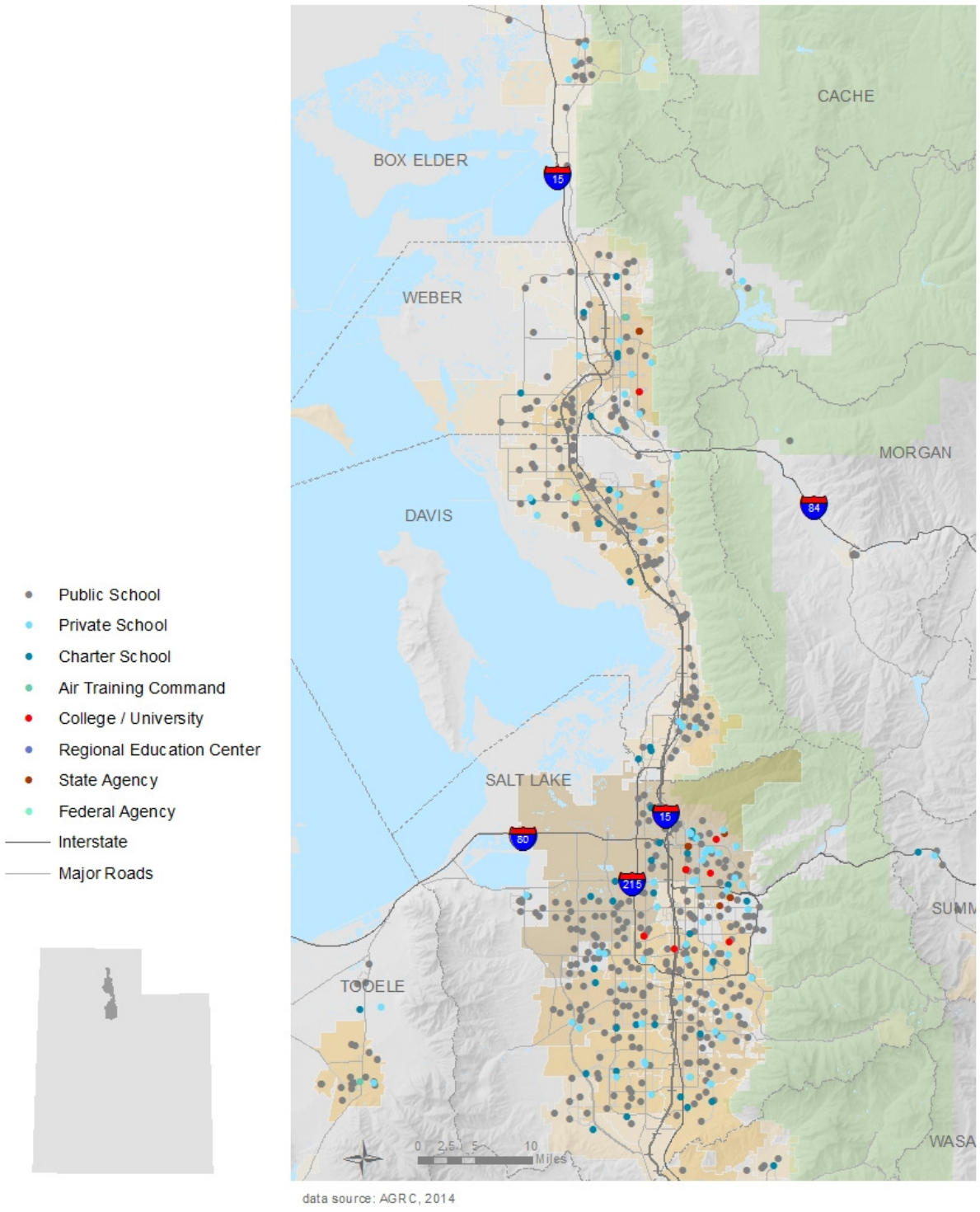

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
LATENT WALK DEMAND: WEBER AND DAVIS COUNTIES
LATENT WALKING DEMAND SCORE
Commuter Rail Stations
1 mile Station Radius
< 15
15 - 30
30 - 45
45 - 65
Interstate
Existing Rail
Major Roads
The latent demand model measures the likeliness of walking demand from transit station stops, on a scale of 1 to 100. The higher the score, the more likely there is to have demand for walking acitivty and therefore greatest infrastructure needs.
0
2.5
5
Miles
data source: Fehr + Peers, Latent Demand Network Study (2013); Utah AGRC

MAP 3-5


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
LATENT WALK DEMAND: SALT LAKE COUNTY
LATENT WALKING DEMAND SCORE
Commuter Rail Stations
1 mile Station Radius
< 15
15 - 30
31 - 45
46 - 65
Interstate
Major Roads
The latent demand model measures the likeliness of walking demand from station stops, on a scale of 1 to 100.
The higher the score, the more likely there is to have demand for walking acitivty and therefore greatest infrastructure needs.
0
2
4
Miles
data source: Fehr + Peers, Latent Demand Network Study (2013); Utah AGRC

MAP 3-6

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
URBAN AREA SCHOOLS



Trucking

- Interchange and intersection improvements at key locations near warehouses, oil refineries and other truck facilities to provide turning radii sufficient for trucks to move through unimpeded
- Turn lanes of adequate length and signal timing at intersections with high truck volume
- Road widening near the largest concentrations of industrial parks and warehouses
- Advance signal warning systems on high speed expressways
- Improved access to industrial parks and oil refineries, including staging / parking facilities and signalization

Railroads

- Improvements to allow trains to move through the urban area more rapidly and decrease their adverse impact on vehicular mobility and neighborhoods
- Railroad crossing improvements, including grade separations to increase safety

Intermodal Freight Connectivity

- Address inadequate highway capacity on SR-172 (5600 West) serving the Union Pacific intermodal facility located between SR-201 and I-80
- Grade separated crossing at SR-172 (5600 West) and the Union Pacific rail crossing at 750 South
- Improve highway access to all Salt Lake Area oil refineries and the Pioneer Pipeline terminal for both standard and longer combination (LCV) oil tank trucks
- Improve access off 900 West in South Salt Lake City to the Union Pacific automobile transload facility at Roper Yard.

AIR TRANSPORTATION NEEDS

This section shows the relationship between Regional airports to the multi-modal transportation system of the Wasatch Front Region. International, national, regional, and military airports are essential transportation facilities similar in character to the interstate highway system. Like the network of roadways, the system of airports in the Wasatch Front Region facilitates the quick and efficient movement of people and goods. **Map 3-8**, entitled, "2015 – 2040 Wasatch Front Regional Transportation Plan Airports," graphically displays the Region's airport facilities.

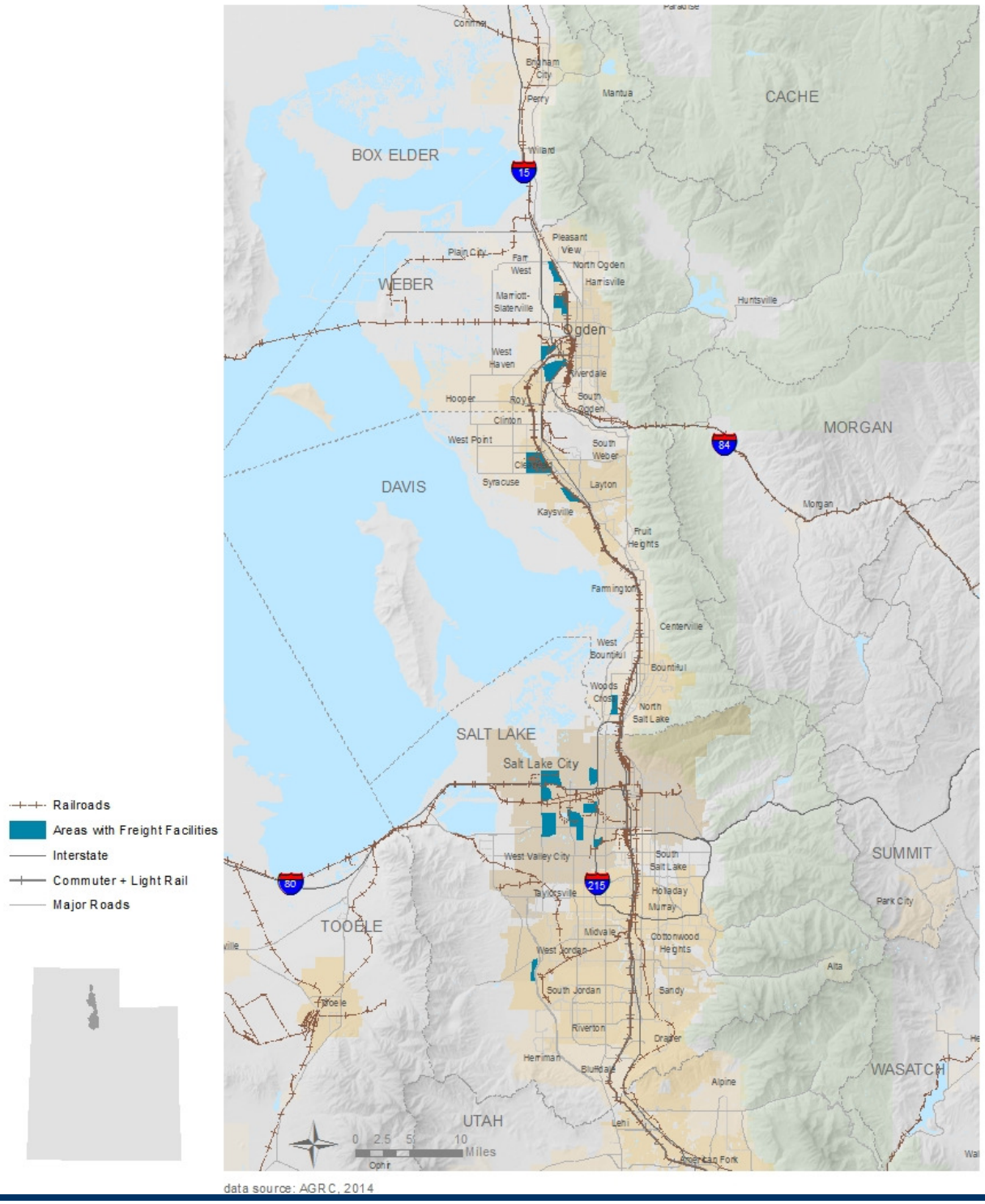
Airports are a key catalyst of economic activity by facilitating rapid passenger travel between distant locations. In addition to passenger travel, the air transportation system is used to move high value, time sensitive goods such as documents and technical equipment to remote locations. Airports also often play a key role in facilitating the transportation of passengers and equipment during emergency medical and natural disaster situations. Wasatch Front airports play key roles in the Utah economy and must continue to be developed and protected in order for the region to preserve its quality of life and achieve maximum economic potential. Airports must be in a position to take advantage of new technology and new facilities in order to continue to serve the air transportation and economic needs of the Region, while minimizing impacts on surrounding communities.

System Planning

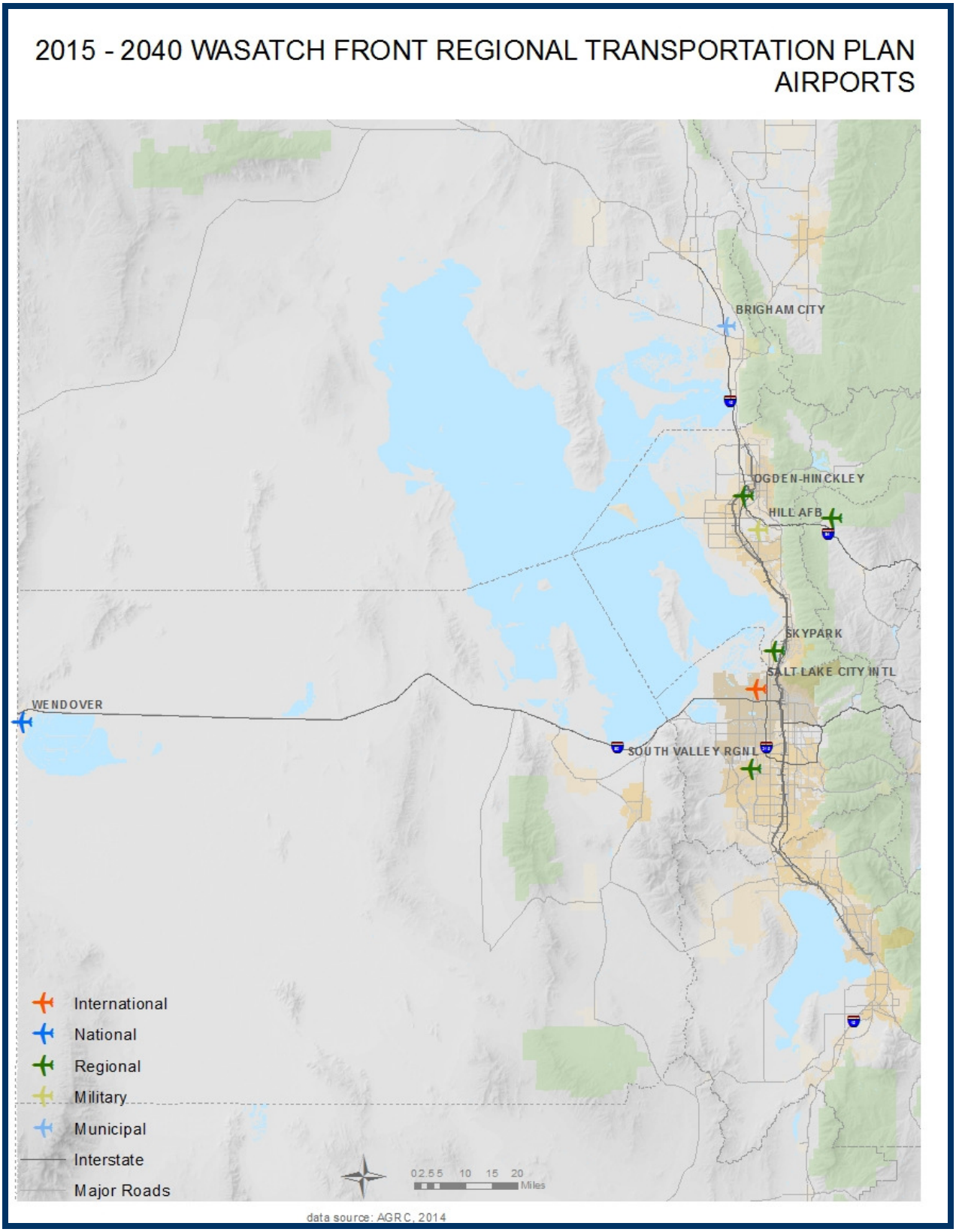
Airport system planning is intended to identify current and future aviation related trends and the impact those trends could have on the Region's airports. The information also functions to bring aviation planning into congruence with other long range planning efforts. Long range system-wide planning is crucial for metropolitan airports because rapid growth and demand for services can quickly outgrow capacity. System plans assure efficient use of scarce airport resources and optimize the use of public funds. They complement individual airport plans and ensure the needs of all airport and airspace users are considered. System planning links individual airport plans, state and national

Map 3-7

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
MOTOR FREIGHT FACILITIES AND RAILROADS



MAP 3-8


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
AIRPORTS
BRIGHAM CITY
OGDEN-HINCKLEY
HILL AFB
SKYPARK
SALT LAKE CITY INTL
WENDOVER
SOUTH VALLEY RGNL
International
National
Regional
Military
Municipal
Interstate
Major Roads
0 2.5 5 10 15 20
Miles
data source: AGRC, 2014

airport plans, and local surface transportation plans. System planning also prevents the unnecessary duplication of facilities within the airport system by ensuring that airports with similar roles serve geographically distinct regions.

Previous System Planning Efforts

The Wasatch Front Regional Council prepared the *2003 Metropolitan Airports System Plan* in accordance with the Federal Aviation Administration (FAA) Planning Grant Program. The most recent update of the statewide system plan, or the *Utah Continuous Aviation System Plan* (UCASP), was completed in 2007. In the UCASP, airport specific needs were assessed using a system of state-specific roles. Typically, state-specific roles are developed through consideration of many different factors including geography, demographic characteristics, economic development potential, and the demand for aviation services. A combination of these factors established what role each airport should play within the airport system, given existing and projected future demand for airport facilities. The roles established by the UCASP for the airports in the WFRC region are presented in the **Map 3-8**. For the purposes of this document, a new role, "Military," has been added for Hill Air Force Base.

Airspace, Air Traffic Control, and Flight Operations

Proper management of the regional airspace is critical to future growth and development of airports within the region. Since the Metropolitan Area is essentially bounded by mountains, available operational airspace is limited. The controlled airspace, or Class B airspace, associated with the Salt Lake City International Airport (SLCIA) covers a substantial portion of the Region, limiting airspace available for uncontrolled visual flight rules (VFR) flying of smaller general aviation (GA) aircraft.

The FAA is in the process of implementing a new air traffic control system known as "NextGen." NextGen is transforming air traffic control from a ground-based radar system to a GPS satellite-based system. This advancement is anticipated to provide significant safety, efficiency and environmental benefits to the nations' aviation system. It is anticipated that NextGen technologies and procedures will increase capacity and safety and reduce fuel burn, carbon emissions and noise by providing more efficient air routes and procedures.

Locally, the FAA is currently in the process of redesigning the Salt Lake City Class B airspace structure. This process is primarily being undertaken to fully contain and protect existing operations arriving and departing the SLCIA. The proposed changes will create additional uncontrolled airspace thereby increasing the amount of navigable airspace available for GA users operating at airports surrounding the SLCIA, particularly the South Valley Regional and Bountiful (Skypark) Airports. It is expected that these improvements will enhance safety and access to these airports while having little or no effect on airport operations in the local area.

Aviation Activity Projections

In order for the airport system to be ready to meet future demand, projections of future activity have been prepared. These projections are used to determine infrastructure needs and evaluate the ability of the airport system to accommodate the needs of the Wasatch Front Region. Demand at individual airports was analyzed using FAA based aircraft operations, aircraft data from 2009, and county population growth rate projections. National aviation forecasts are based on FAA projections and consider a 20-year horizon. These national projections indicate aviation activity will continue to grow over the long term despite previous economic downturns. Even with the numerous challenges the airline passenger industry has faced over the last ten years, the number of passenger travelers has increased and will undoubtedly continue to do so. The FAA's 20-year forecast for fiscal years 2010 - 2030 predicts domestic passenger enplanements would increase by 0.5 percent in 2010, and then grow by an average of 2.5 percent per year during the remaining forecast period. The total number of operations at airports were forecasted to decreased 2.7 percent to 51.5 million in 2010, and then grow at an average annual rate of 1.5 percent reaching 69.6 million in 2030. At the nation's 35 busiest airports, operations were expected to increase 60 percent from 2010 to 2030. Locally, aviation activity within the Wasatch Front Region is expected to continue to grow more quickly than

the nation as a whole. Projections of aviation activity at individual airports can be found in **Appendix F** – "Aviation Activity By Individual Airport."

SYSTEM MANAGEMENT REVIEW

In order to maximize the life and effectiveness of transportation systems, careful management is required. Pavement management extends the life of roadways. System management preserves the capacity of roadways. Demand management improves the effectiveness of the transportation system by reducing the number of vehicle miles traveled (VMT). These three management strategies are discussed in this section.

Pavement Management

One of the Regional Growth Principles is to "provide public infrastructure that is efficient and adequately maintained." This principle is in line with UDOT's strategic goal to "preserve infrastructure." One of the best ways to accomplish these objectives is through pavement management. The Utah Department of Transportation and most municipalities and counties in the Region employ effective techniques to maintain their roadways.

Pavements represent the largest capital investment in any modern highway system. Maintaining and operating pavements on a large highway system typically involves complex decision-making process to determine how and when to resurface or apply other treatments to keep roadways performing and operating costs at a reasonable level. Traditional methods left these decisions up to a road supervisor who would select treatments based on extensive knowledge and experience. This practice is still widely used, especially in smaller communities, and works well in low-traffic areas or where repair / restoration funds are relatively unlimited. However, in most cases, this is not the situation. Rarely are there enough funds to complete all required road repairs. Secondly, high traffic volumes severely restrict when roads can be closed for maintenance. Pavement management brings more science into this process. A pavement management system consists of three major components as shown below.

- A procedure to regularly collect highway condition data
- A computer database to sort and store the collected data
- An analysis program to evaluate repair or preservation strategies and to suggest cost effective projects and timing to maintain optimal highway conditions

In most agencies, these components are combined with needs identified in the planning process and other considerations to develop annual highway repair / preservation programs.

System Management / Demand Management

Part of providing efficient public infrastructure is to ensure that unnecessary obstacles to mobility are identified and removed from the transportation system. The congruence between the Regional Growth Principles and UDOT's strategic goals is again demonstrated as the third goal is to "optimize mobility." By providing effective transit service, the Utah Transit Authority also works to achieve this goal. Fortunately, local governments within the Wasatch Front Region give vital support to both transportation system management (TSM) and transportation demand management (TDM) efforts.

Among others, transportation system management strategies include incident management, ramp metering, high occupancy vehicle / high occupancy toll (HOV / HOT) lanes, signal coordination, access management, and application of intelligent transportation system (ITS) elements. Most of these strategies are currently followed to some degree, but need to be expanded or enhanced to ensure better performance of the transportation system. Implementing such congestion mitigation measures helps preserve the original design capacity of the facility so that it can accomplish its intended purpose of moving a given volume of traffic. For example, a highway lined with a high density of heavily used driveways will experience diminished capacity due to side friction, crashes,

and reduced speeds. This may lead to an apparent need for additional capacity, when in reality, if access management was in place, the roadway would function as intended.

Transportation demand management strategies include transit service in all its forms (bus, light rail, commuter rail, bus rapid transit (BRT 3), and enhanced bus (BRT 1)), ridesharing, flextime, telecommuting, pedestrian and bicycle accommodations, growth management, and congestion pricing. Most of these strategies are currently utilized in the existing transportation network. Increased implementation of these strategies is needed to provide a full range of options to the traveling public, as well as to decrease congestion levels on highways. The environmental, social, and financial consequences of only building and widening highways further point to the need to reduce the demand for single-occupant vehicle travel.

A variety of TSM and TDM strategies offer many benefits to the transportation system at a relatively low cost when compared to adding more travel lanes or other new facilities. The benefits of TSM and TDM include improved operating efficiency, preserving design capacity of existing facilities, increased safety, reduced energy consumption, and reduced emissions. These benefits stem from the improved operation of existing facilities when TSM strategies are implemented and from the reduction in vehicle trips as TDM strategies are applied.

Intelligent Transportation Systems

"Non-recurring" congestion, such as that caused by vehicular crashes, highway construction, or weather conditions, has been estimated to account for around 50 percent of traffic congestion in the Wasatch Front Region. Intelligent transportation systems (ITS) are a vital tool to manage the effects of non-recurring congestion. One element of these systems includes dynamic message signs to alert motorists of incidents on the road ahead so that they can take an alternate route. Communications systems to speedily alert emergency management providers, traffic control centers, dispatch, incident management personnel, the media, and others about incidents are also part of ITS. Detectors and cameras further aid in verifying and managing these incidents. The ability to implement pre-packaged signal timing plans to respond to traffic changes resulting from incidents is another aspect of ITS.

ITS can also be used to better manage recurring congestion, associated with weekday peak commuting times. This is accomplished through means such as signal timing plans on arterial streets and ramp metering to improve freeway traffic flow. Coordinating signals can reduce delays by 20 to 30 percent. Ramp metering also has significant effects in decreasing delay.

Another way in which ITS addresses both non-recurring and recurring highway congestion is by improving the efficiency and convenience of the transit system, thus increasing ridership and reducing single-occupant vehicle travel. Riders can be notified in "real-time" of bus and rail travel schedules and connecting transit service through electronic signs, the internet, phone systems, and other means. The transit fleet can be better managed in response to changing traffic conditions. Voice enunciators and "smart card" payment systems are also part of transit ITS.

If ITS applications are to be expanded in the Wasatch Front Region, more funding is needed. The majority of the existing system was funded as part of the major reconstruction of I-15 in Salt Lake County during the late 1990s. Original equipment is quickly becoming obsolete, reducing the potential effectiveness of the system. Consequently, a priority need for ITS is to maintain and update the existing systems already implemented in the Region. Without a continued effort to update signal timing plans and to keep equipment working, the ability to effectively move people on the transportation system by providing readily available information will suffer. A key component of these systems is the ability to disseminate both real-time and historical travel time information and other relevant highway and transit facts. The need to continue to improve and expand these capabilities will persist. As discussed above, there is a great need to reduce travel demand, and ITS improvements implemented in the transit system play an important role in meeting this need.

Congestion Pricing

The largest traffic volumes are found on freeways. The need to manage freeways is vital because their ability to move traffic is dramatically reduced as volumes approach capacity and speeds plummet. Congestion pricing on freeways prevents speeds from dropping by increasing the cost to the traveler to use the facility. If fully implemented, congestion pricing will increase the cost to use the facilities, based on congestion during peak periods. In order for businesses to prosper and the regional economy to be sustained, impediments to freeway travel must be minimized. Congestion pricing can be an effective tool for addressing this need. Other facilities or locations can also benefit from congestion pricing. For example, establishing fees for single-occupancy vehicular travel in central business districts has proven effective for managing traffic in some large cities.

PUBLIC INPUT ON TRANSPORTATION NEEDS

A critical element of needs assessment for the RTP is public involvement/engagement. Over the four years of the RTP update process, thousands of public comments on the draft plan were received and documented. These comments were then carefully considered by the WFRC planning staff resulting in adjustments to the draft RTP in many instances.

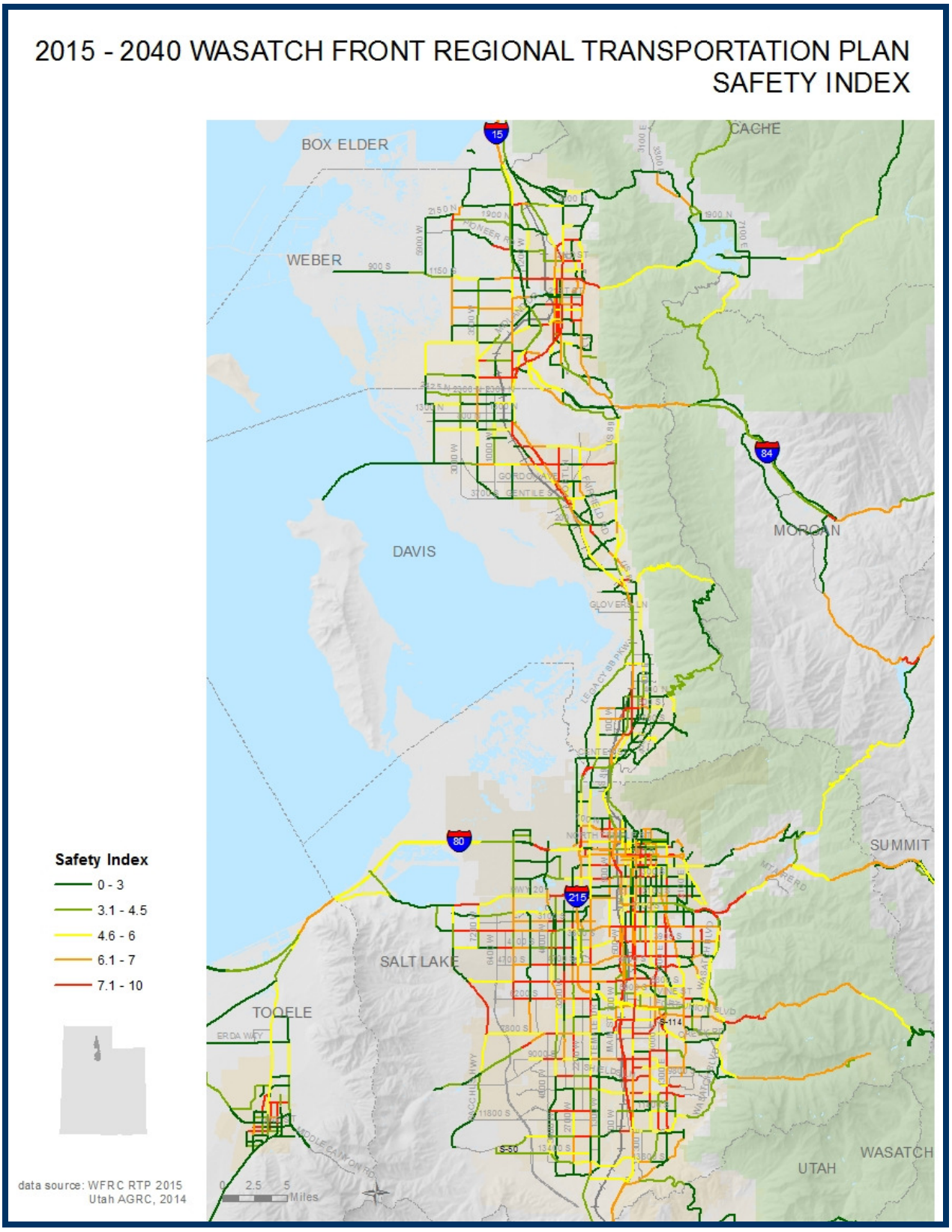
In order to solicit and receive the many public comments on the draft RTP noted above, the Regional Council has maintained a robust public outreach and involvement process including participation in dozens of open houses including 9 sponsored by WFRC, specific mention of the Regional Council in hundreds of news stories, 36 small area meetings for city mayors and other local officials to weigh in on the draft RTP during its various stages of development, 7 newsletters sent to the WFRC master mailing list of over 3,200 recipients, a new, professionally produced website including an interactive map for the draft RTP, 22 visits to environmental justice groups to ascertain their needs, 29 visits to other special interest groups, 6 consortium meetings with over 350 participants each, a strong social media presence, several visits with other government agencies including those focused on natural resources, the local transit workers union and many other activities to engender public input to the draft RTP. More complete summaries of Regional Council public involvement/engagement efforts are included in Chapter 1 of this document and in **Appendix C** - “Public Involvement Summary.”

SAFETY NEEDS

The Utah Department of Transportation collected data on highway crashes from 2009-2011 and reported this in the form of a “safety index.” The index considers the severity of the crash and highlights those areas that have a higher rate of crashes into a single numeric value. The safety index provides a starting point for identifying where safety improvements are needed. The safety index for the Wasatch Front area is shown as **Map 3-9**. The needs analysis emphasizes highway segments with a safety index ranging from 7.0-10.0 are shown in black and a visual inspection focusing on these segments reveals some interesting patterns about highway safety. In general, higher volume arterial facilities with unrestricted access tend to have the highest safety Index. This is to be expected because these facilities have the most conflict points with at-grade intersections and unrestricted commercial and residential access along the route. Conflict points increase even more where arterials streets access freeway interchanges. While freeways, in general, tend to be safer facilities, arterial streets at the interchanges tend to have a higher safety index than other portions of the arterial. For an explanation of safety needs analysis, refer to **Appendix G –** “Safety Index Calculations.”

A few freeway segments also display a number of black segments denoting a high safety index. These freeway locations are I-215/Legacy Parkway interchange, SR-201 near 7200 West, and I-15 south of 5400 South. The Utah Department of Transportation has already remedied some safety concerns with the vertical profile of I-215 and Legacy Parkway as the road transitions to the grade of

MAP 3-9

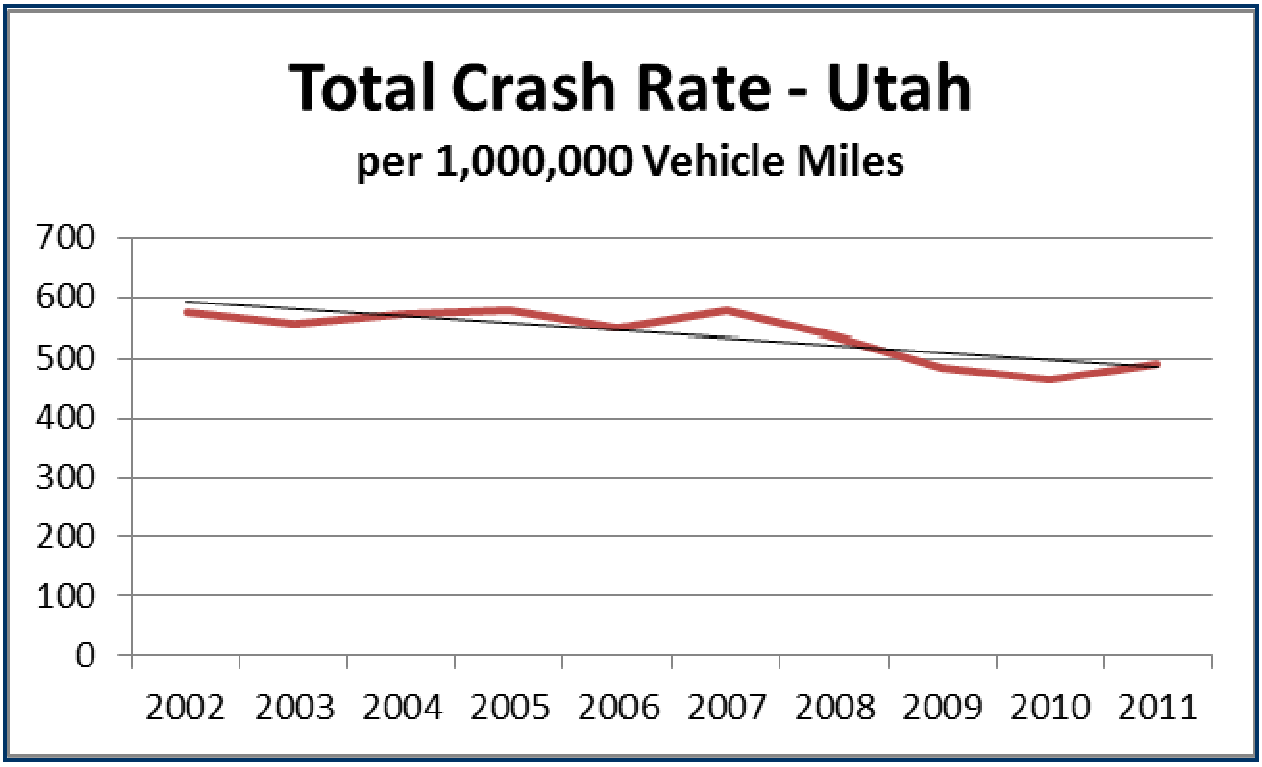

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
SAFETY INDEX
BOX ELDER
CACHE
WEBER
DAVIS
MORGAN
SUMMIT
SALT LAKE
TOOELE
WASATCH
UTAH
Safety Index
0 - 3
3.1 - 4.5
4.6 - 6
6.1 - 7
7.1 - 10
data source: WFRC RTP 2015
Utah AGRC, 2014
0 2.5 5
Miles

several bridge structures. Another potential issue in this area is the amount of storage for the I-215 northbound off-ramp to Redwood Road. The SR-201 facility transitions from a grade separated facility to an at-grade facility in the vicinity of 7200 West. SR-201 also has some elevated safety index scores between the interchanges with Bangerter Highway and I-215. The Utah Department of Transportation has already begun a project to upgrade the SR-201 facility in this area. The third freeway area to highlight for safety concerns is I-15 in Salt Lake County in various sections south of 5300 South due to high volumes and numerous weaving sections.

Figure 3-3 below shows the trend of highway crashes per million vehicle miles, or crash rate, for the State of Utah from 2002-2011. Traffic officials are encouraged that the crash rate is on a declining trend. What is also encouraging is that the total number of crashes, as shown in **Figure 3-4** is also declining over the same time period even though the vehicle miles traveled has been increasing.

FIGURE 3-3

UTAH HIGHWAY CRASH RATES PER MILLION VEHICLES



Another safety factor is the severity of injuries to crash victims. An examination of injury severity by mode of travel highlights some stark, but not unexpected, comparisons. For crash victims afforded some protection while riding in a vehicle, about 93 percent will likely walk away with no reported injuries. But for unprotected crash victims traveling on foot, bicycle, or motorcycle only 32-38% will be injury free. With the increase in bicycle travel for recreation and employment, the increase in pedestrians accessing transit service, and the increase in motorcycle use (in some cases as a response to rising fuel prices), there is concern that the increased exposure of this vulnerable group of travelers can lead to an increase in injuries and fatalities. **Figure 3-5** shows the severity of crashes by vehicle type.

FIGURE 3-4

UTAH HIGHWAY TOTAL CRASHES BY YEAR

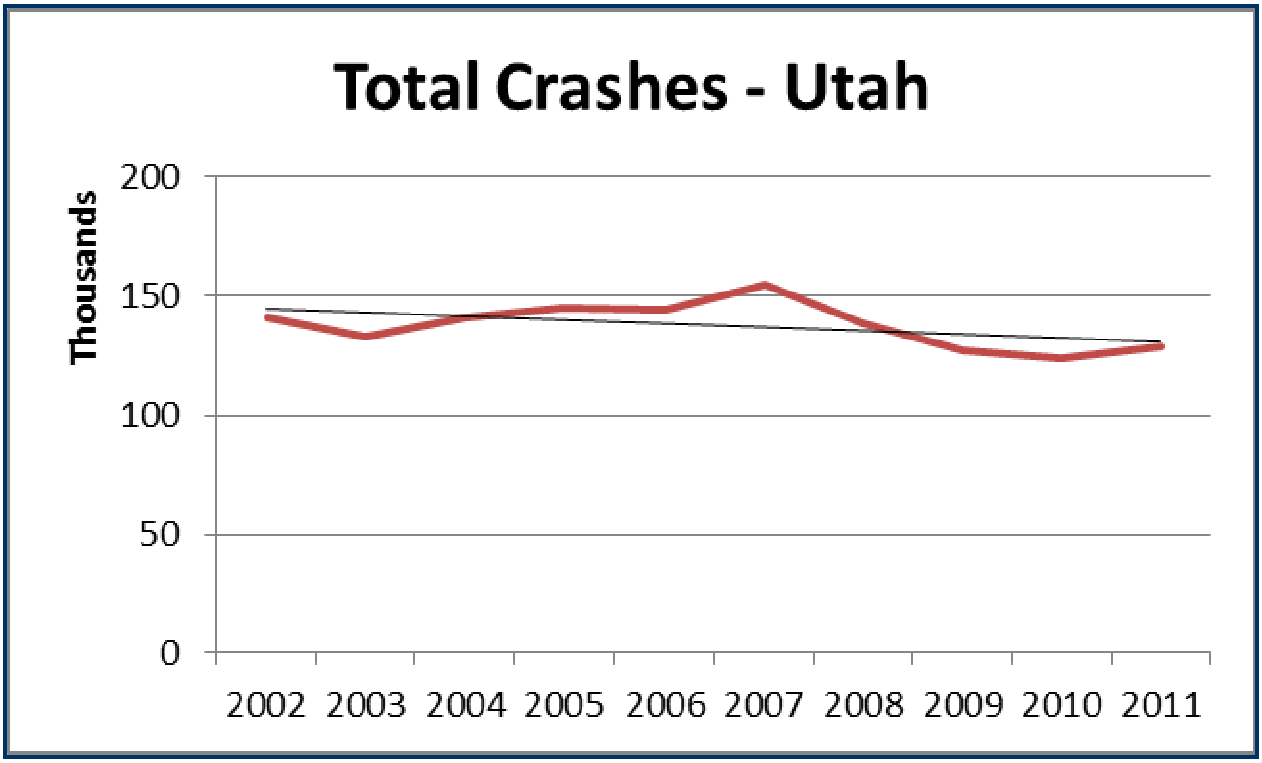
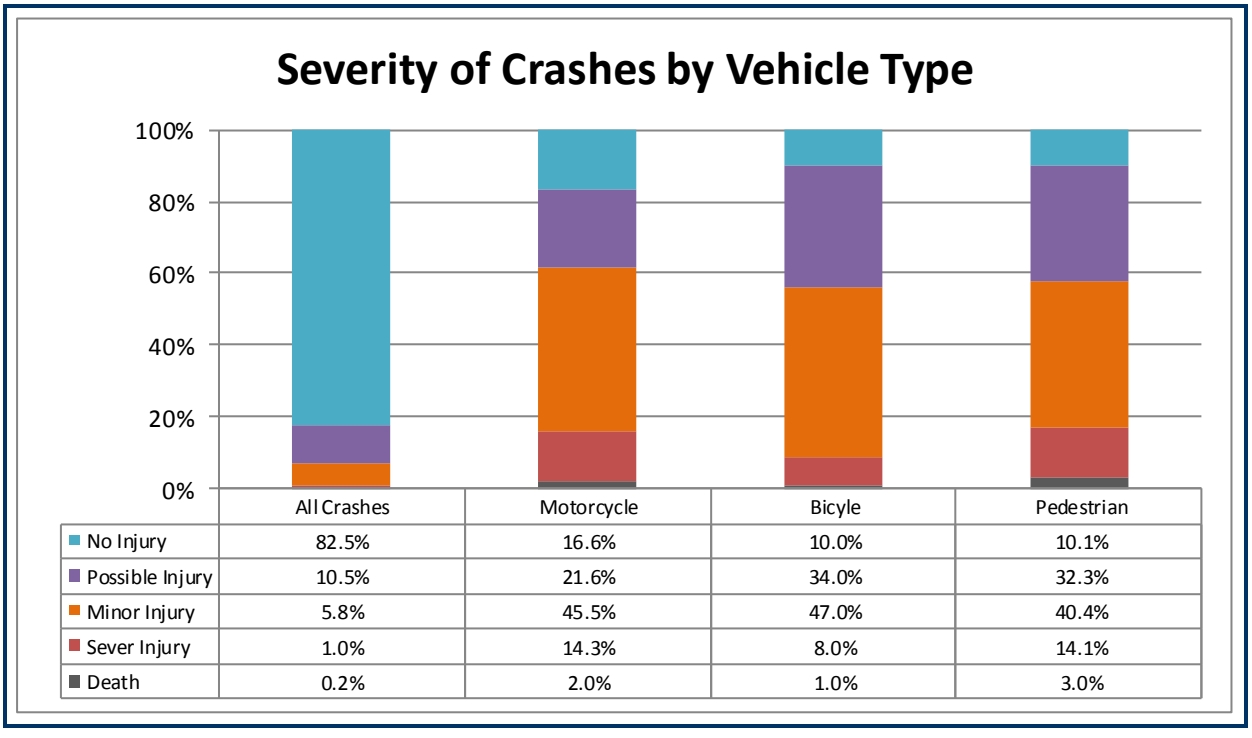


FIGURE 3-5

UTAH SEVERITY OF CRASHES BY VEHICLE TYPE



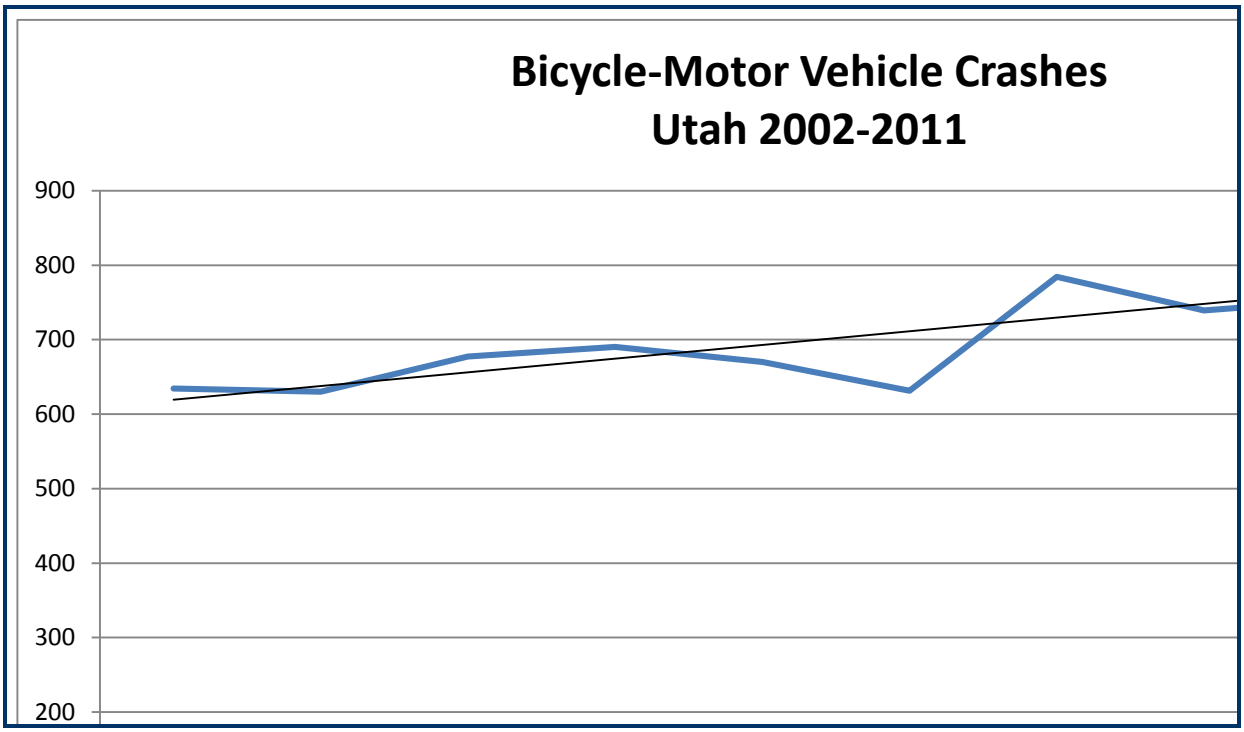
	All Crashes	Motorcycle	Bicyle	Pedestrian
No Injury	82.5%	16.6%	10.0%	10.1%
Possible Injury	10.5%	21.6%	34.0%	32.3%
Minor Injury	5.8%	45.5%	47.0%	40.4%
Sever Injury	1.0%	14.3%	8.0%	14.1%
Death	0.2%	2.0%	1.0%	3.0%

Figure 3-6 bears out this trend for crashes involving bicycles from 2002 - 2011. Separate bicycle facilities, improved markings for bike lanes, and improved vehicle operator awareness are a few measures that can help to mitigate the rise in bicycle fatalities. However, as the number of bicycles increases in the traffic mix, none of these mitigating measures or changing the laws of the road can change the laws of physics. All parties involved need to strive for a safer traveling environment. While vehicle operators bear most of the legal responsibility to watch for pedestrians, cyclists, and motorcycles, travelers of these unprotected modes need to be vigilant and recognize that they are less visible to vehicle operators due primarily to their size and that they can appear in the traffic stream at locations not expected.

Safety needs are also considered in planning the public transit system. Safety is UTA's highest priority. UTA is committed to ensure that facilities, vehicles, and job sites are safe, free from hazards that contribute to accidents and injuries. The Utah Transit Authority is also conscious of the need to maintain safe working conditions. In 2011/2012, UTA undertook numerous efforts to improve safety around the transit system. A new chief safety officer was appointed and the number of rail safety administrators in the company doubled. Moreover, new pedestrian treatments and standards were set and are now being installed on new lines. Safety education opportunities and requirements for UTA employees have been increased; and safety infractions more strictly sanctioned.

FIGURE 3-6

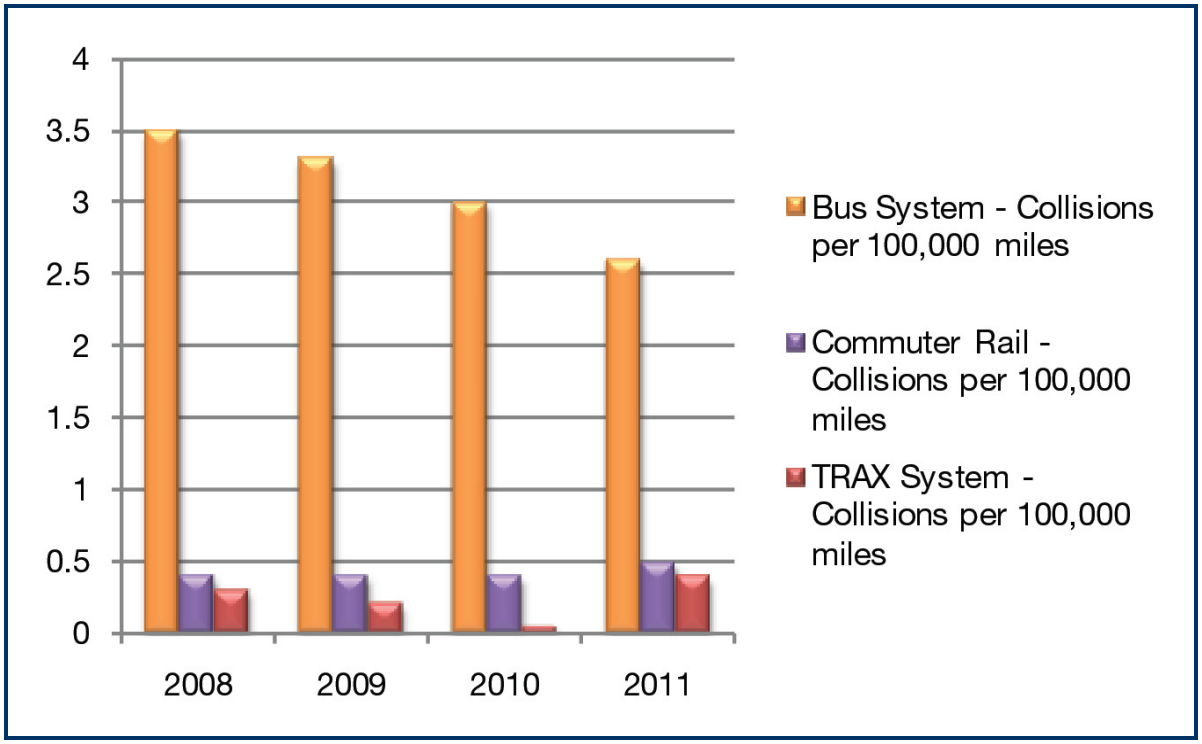
BICYCLE-MOTOR VEHICLE CRASHES



In 20111, as shown in **Figure 3-7**, collisions on the UTA bus system decreased by 13 percent, while commuter rail collisions increased slightly to 0.5 collisions per 100,000 miles. From 2010 to 2011, light rail collisions increased from 0.1 to 0.4 collisions per 100,000 miles. This increase was due in part to the opening of 15.2 new miles on two TRAX lines, increasing not only service levels and ridership, but risk and exposure.

FIGURE 3-7

UTA SYSTEM COLLISIONS PER 100,000 MILES



HOMELAND SECURITY NEEDS

The Wasatch Front Region is often times referred to as the “Crossroads of the West”. Because the Rocky Mountains bisect the entire western portion of the United States (north-south), there are only five interstate facilities that allow east-west travel across this portion of the country. Of those facilities, I-80 is the most centrally located running through Salt Lake City and connecting New York - Chicago - Omaha - Salt Lake and San Francisco. Similarly, I-15 is one of only three north-south interstate facilities west of the Mississippi River, which extends to the northern and southern borders of the United States. Designated the Canadian - Mexican (CanaMex) Transportation Corridor, I-15's regional impacts along the Wasatch Front are ever increasing. Paralleling the Rocky Mountains, it too passes through the Wasatch Front Region intersecting I-80 in the Salt Lake Valley.

The aviation and railroad systems experience a convergence equivalent to that of the interstate highways. The Trans-Continental Railroad continues to be the major east-west rail connection across the United States. Aviation, like rail, targets a specific transportation market and has considerable influence on the Inter-Mountain Region. The Salt Lake City International Airport is a major hub for Delta Airlines and cargo airlines. It serves a major portion of the Intermountain West, in as much as the next closest major commercial service airport is over 300 miles away.

In developing a regional transportation plan, the distinctive topography of the Region must be taken into account. I-15, I-80 and I-84 all enter and exit the Region through narrow corridors constrained by the natural topography. On the northern end of the Region, the I-15 transportation corridor narrows to less than one mile. This condition also occurs in the city of Centerville, in Davis County, and at the southern border of Salt Lake County. All three of these constrained locations include I-15, railroad lines (freight and passenger), a power corridor, frontage road(s) and one or two parallel arterials. The east-west corridors are similarly constrained by high mountain passes and the Great Salt Lake. Weber Canyon is located in eastern Weber County. At 400 feet wide it is constrained by

rock cliffs and the Weber River, and is the route of I-84 and a railroad corridor. To the east in Salt Lake County is Parley's Canyon, which narrows to 200 feet wide, constrained by cliffs and is the route of I-80. At Lake Point Junction on the western edge of Salt Lake County the corridor, constrained by the Oquirrh Mountains and the Great Salt Lake is just one-quarter mile wide and contains I-80, a railroad corridor, a power corridor and a frontage road.

The distinctive regional topography constraining the transportation network has a conspicuous impact on the entire Wasatch Front Region in the form of natural hazards. Potential hazards include earthquakes, landslides, wildfires, dam failures, flood and severe weather. With a prominent geological fault paralleling the foothills of the Wasatch Mountains throughout the Region and extending through the Great Salt Lake and into north-central Salt Lake County, the effects of an earthquake or other natural disasters including severe weather condition on the transportation system must also be taken into consideration.

The air corridors are also severely restricted as access to the Salt Lake International Airport is limited to north-south approaches. These approaches are further impacted by the confined air space bounded by mountains on the east and west. The restrictive natural topography or "pinch points" affecting surface transportation in all cardinal directions from Salt Lake City and the availability of limited air space are the basis of the need for more redundancy within the transportation system throughout the Region.

In considering the convergence of two interstate highways, the Transcontinental Railroad and an international airport along the Wasatch Front, it becomes very evident that the regional transportation facilities have national significance. This importance is further increased when consideration is given to the physical constraints of the topography and potential for natural disasters. These conditions quickly raise awareness and concerns about the possible impact disruptions in the Region's transportation systems could have not only on local and regional populations but the national transportation industry and security interests as well.

The national significance of this "Crossroads of the West," geographic notion, coupled with restrictive topography, potential for natural disasters and demonstrated need for additional regional transportation facilities to serve increasing regional travel demands. It bolsters the rationale for long range transportation planning, adding new capacity and improvement of current facilities, and elimination of choke points in transportation corridors. In order to effectively address regional security needs, a concerted effort must continue at all levels of government and industry within the Wasatch Front Region to develop an awareness of the potential dangers that exist to transportation systems. A consensus must be reached on what elements of security incident prevention and mitigation, including consideration and implementation of specific projects, strategies, and services will best address the security needs of the transportation system for motorized and non-motorized users. Well defined and agreed upon strategies should be incorporated into the state and metropolitan area's transportation planning processes.

Regional security goals at the metropolitan planning level are based, in-part, on improved communication and coordination between the increasing number of agencies involved with security and emergency preparedness. As a component of the coordination effort, several plans should be considered for review and update. These plans include but are not limited to a public transit emergency management operations and recovery plan; a fuel shortage plan; and emergency operations plans at local, regional and state levels. Conducting simulations and exercising these plans is needed to determine their operational benefits and shortfalls.

At the operational level, intelligent transportation systems should be improved to facilitate the expansion and responsiveness of the UDOT Traffic Operations Center (TOC) and the UTA Dispatch Operations. These major components would help to preserve the reliability, robustness, and resiliency of the transportation infrastructure system and to maintain essential services needed to preserve confidence in the transportation system in the event of a man caused or natural disaster.

INTRODUCTION

Based on current population growth, the Wasatch Front can expect well over 1 million people will be added to our Region's population by 2040. Much must be done to prepare for this growth. What will it mean for transportation, housing, employment, and how do we maintain our high quality of life?

To consider how best to plan for growth and explore how it might unfold in our Region, the WFRC and its member local governments came together to explore a range of different potential futures or growth scenarios. There are excellent reasons to start a regional transportation plan based on scenarios. One reason is that planners do not know how this growth will unfold. Exploring a variety of plausible future outcomes helps us plan for an uncertain future. Scenarios are also a means to help explore how potential transportation decisions affect, are affected by, and ultimately serve different development patterns. When a road or rail line is built, it affects where people want to live and work, and thus the location of new development. In addition, when a community grows more in one area than another, more people will travel to that location, and growth can change what transportation solutions are needed. Overall, growth scenarios are important tools that can be used to explore the interplay between transportation and land use as Regional officials and those they serve consider how best to accommodate transportation needs over the coming decades. Lastly, exploring how transportation and land use decisions might be coordinated - with an eye toward long-term impacts on the quality of life - helps decision-makers understand what plans need to put in place today to maintain our Region's high quality of life.

OVERVIEW OF FOUR SCENARIOS

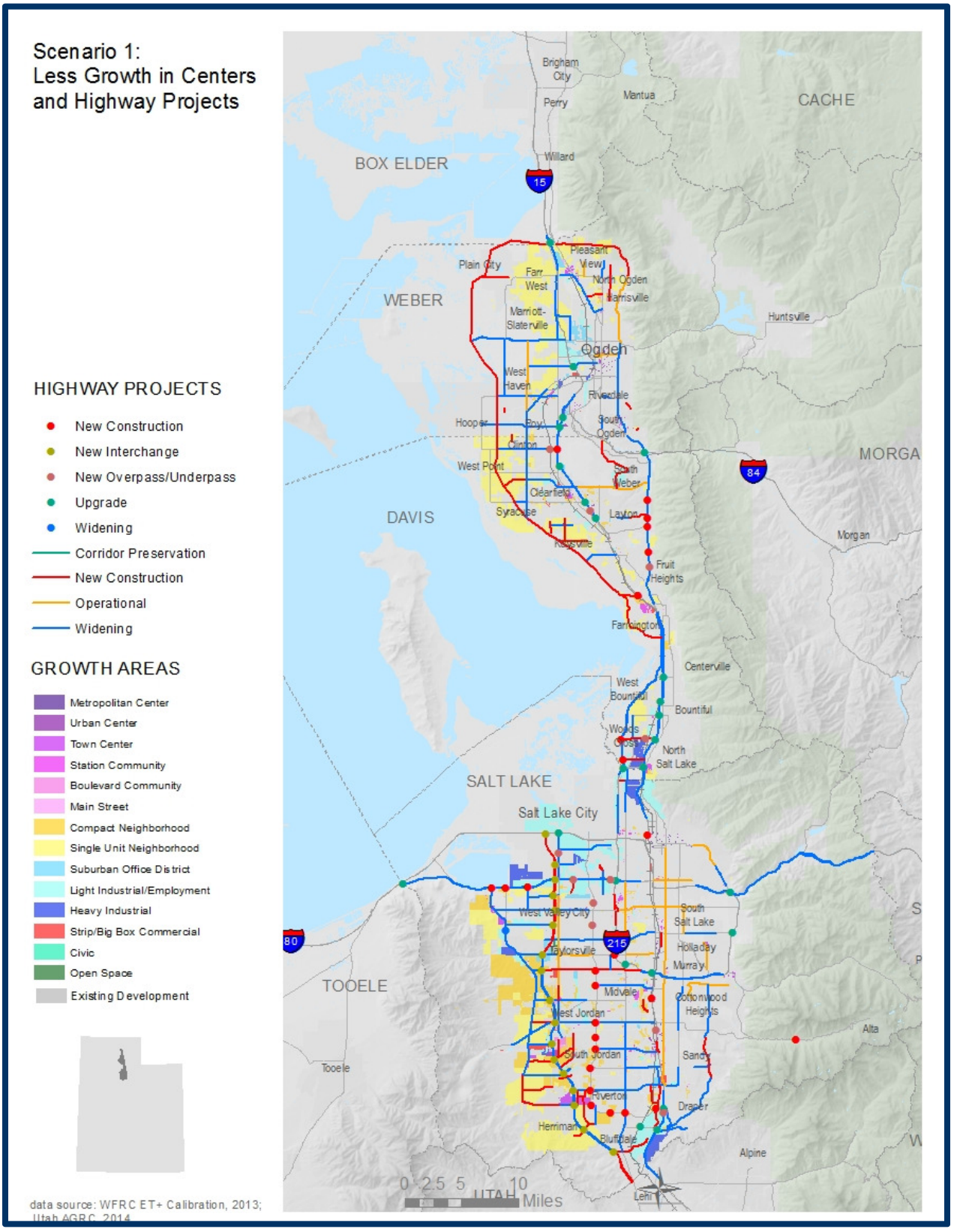
The transportation planning process takes place within the context of the Region's shared Wasatch Choice for 2040 Vision. This Vision was developed through a broad grassroots process that began in 2005 with input and direction from over 1,000 residents from Weber, Davis, Salt Lake, and Utah Counties. This visioning process explored how growth and transportation might work together to in order to maximize the investment in transportation facilities. A key ingredient of the Wasatch Choice for 2040 Vision is providing multiple incentives to encourage robust growth centered in such areas as central business districts, main streets, and major office parks, especially when centers are coordinated with light rail, commuter rail, highways, and major arterial streets. Centers near intersections of major transportation facilities help people get to more destinations in less time.

The 2015 – 2040 RTP scenarios represent a range of land use and transportation combinations explored within the context of the Wasatch Choice for 2040 Vision. In general terms, the scenarios can be described as follows:

- Scenario 1 is less dependent on the centers concept than the currently adopted 2011-2040 RTP;
- Scenario 2 is consistent with the 2011 – 2040 RTP;
- Scenario 3 is more centered than 2; and
- Scenario 4 is the most centered of all the scenarios.

How much growth which happens in identified centers is the most notable differences among the four scenarios. It is important to note that each scenario was developed using the same number of people, jobs, and the general amount of money spent on regional transportation. As stakeholders decided which scenario they prefer, they were able to distinguish their relative advantages and disadvantages not to the amount of money or amount of growth, but rather to how transportation and development patterns unfold together. **Maps 4-1** through **4-8** show the four scenarios. Each of the fours scenarios are broken out by their individual highway and transit projects.

MAP 4-1


Scenario 1:
Less Growth in Centers
and Highway Projects
HIGHWAY PROJECTS
New Construction
New Interchange
New Overpass/Underpass
Upgrade
Widening
Corridor Preservation
New Construction
Operational
Widening
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibration, 2013;
Utah AGRC, 2014
BOX ELDER
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Plain City
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Pleasant View
North Ogden
Harrisville
Marriott-Slaterville
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Hooper
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Fruit Heights
Farmington
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West Bountiful
Bountiful
Woods Cross
North Salt Lake
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West Valley City
South Salt Lake
Taylorsville
Holladay
Murray
Midvale
Cottonwood Heights
West Jordan
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Riverton
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Bluffdale
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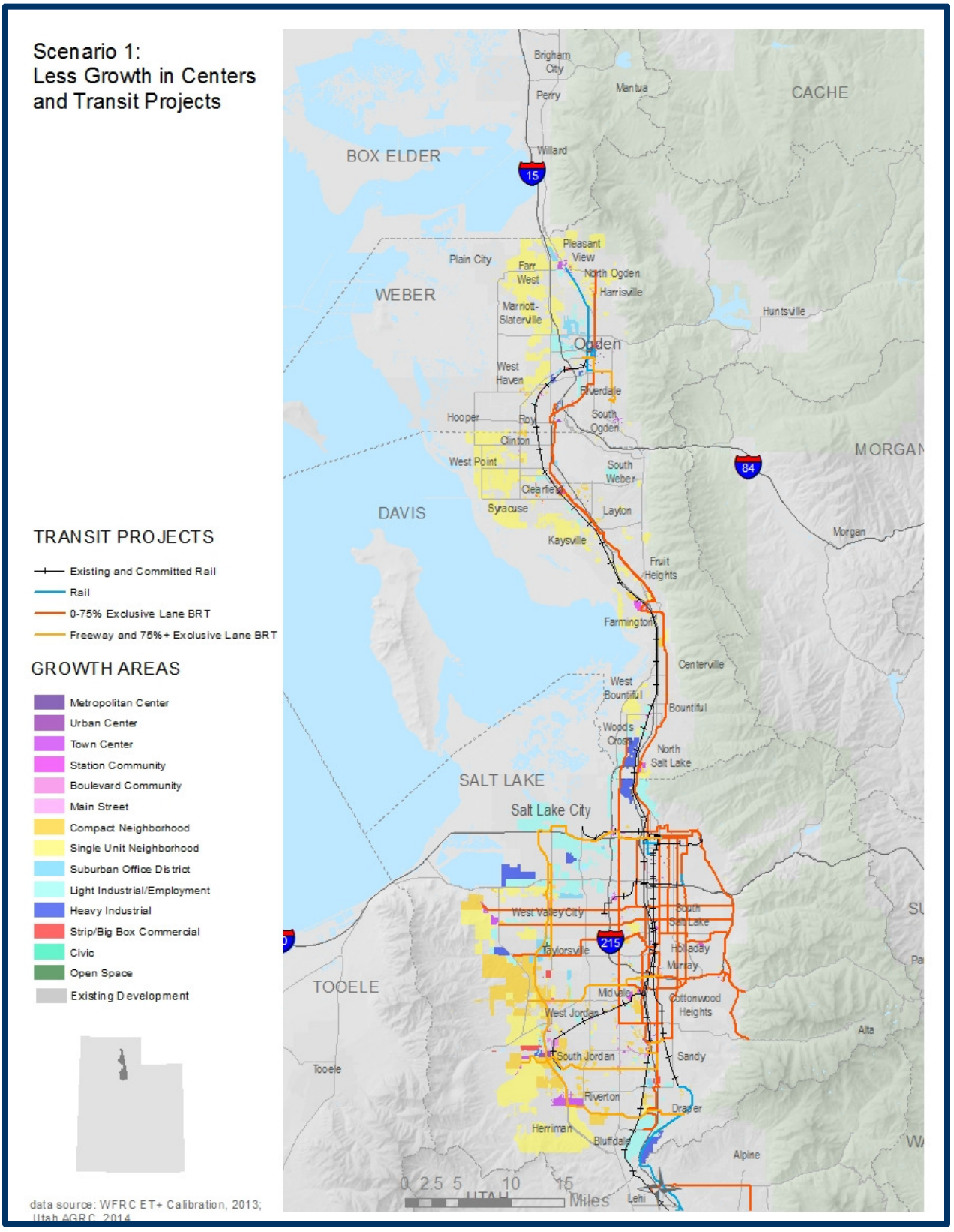
MAP 4-2


Scenario 1:
Less Growth in Centers
and Transit Projects
TRANSIT PROJECTS
Existing and Committed Rail
Rail
0-75% Exclusive Lane BRT
Freeway and 75%+ Exclusive Lane BRT
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibration, 2013;
Utah AGRC, 2014
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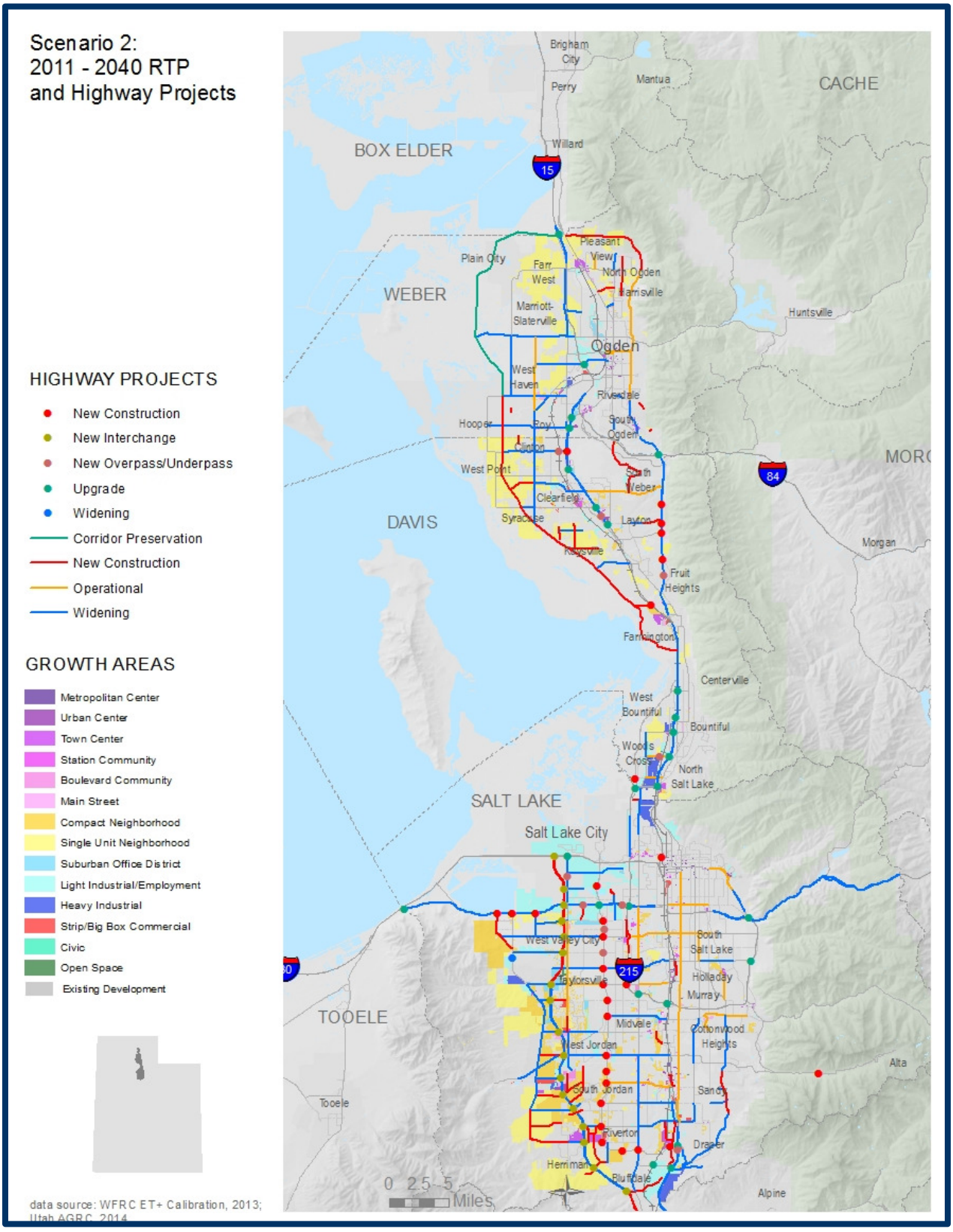
MAP 4-3


Scenario 2:
2011 - 2040 RTP
and Highway Projects
HIGHWAY PROJECTS
New Construction
New Interchange
New Overpass/Underpass
Upgrade
Widening
Corridor Preservation
New Construction
Operational
Widening
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibration, 2013;
Utah AGRC, 2014
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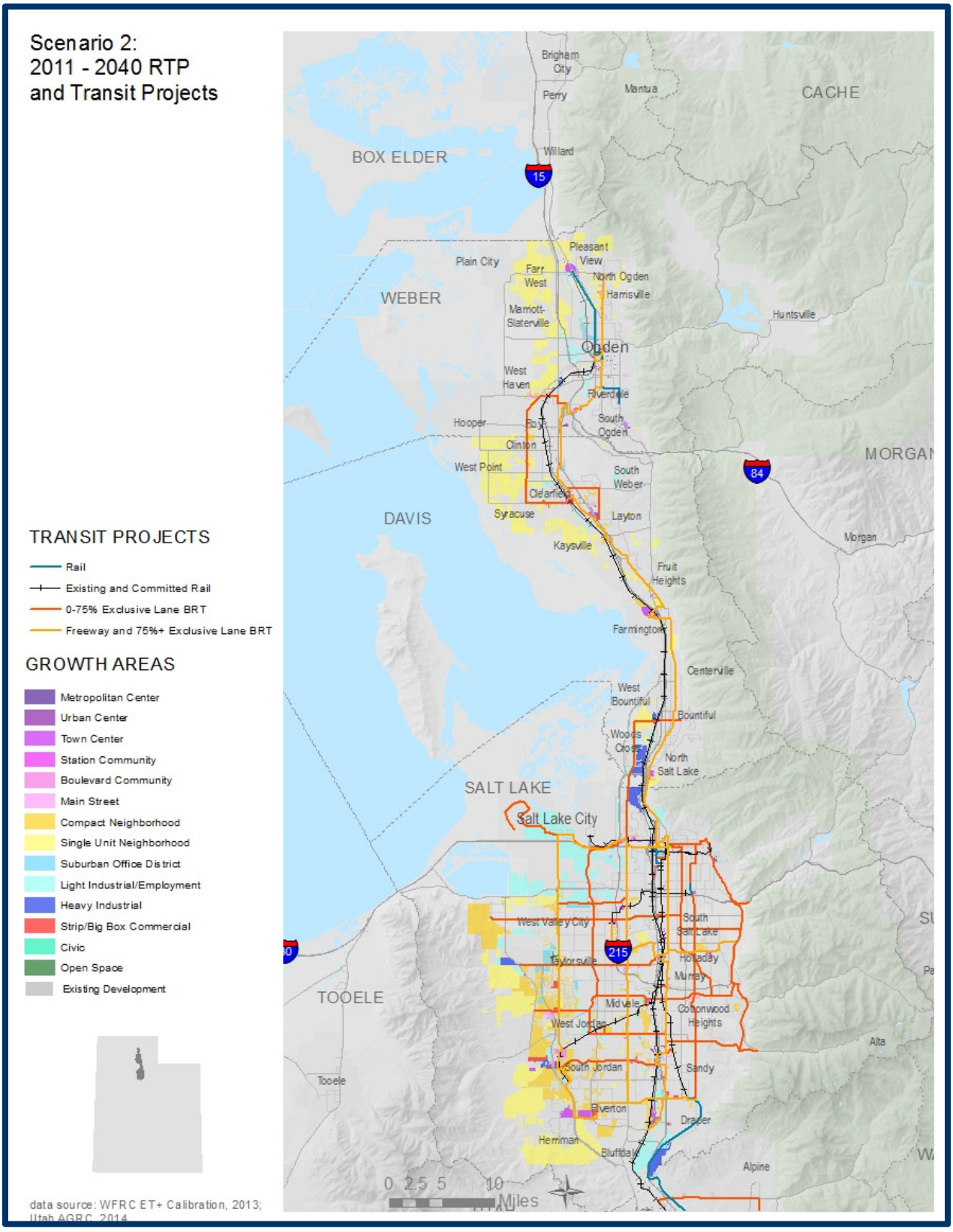
MAP 4-4


Scenario 2:
2011 - 2040 RTP
and Transit Projects
TRANSIT PROJECTS
Rail
Existing and Committed Rail
0-75% Exclusive Lane BRT
Freeway and 75%+ Exclusive Lane BRT
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibration, 2013;
Utah AGRC, 2014
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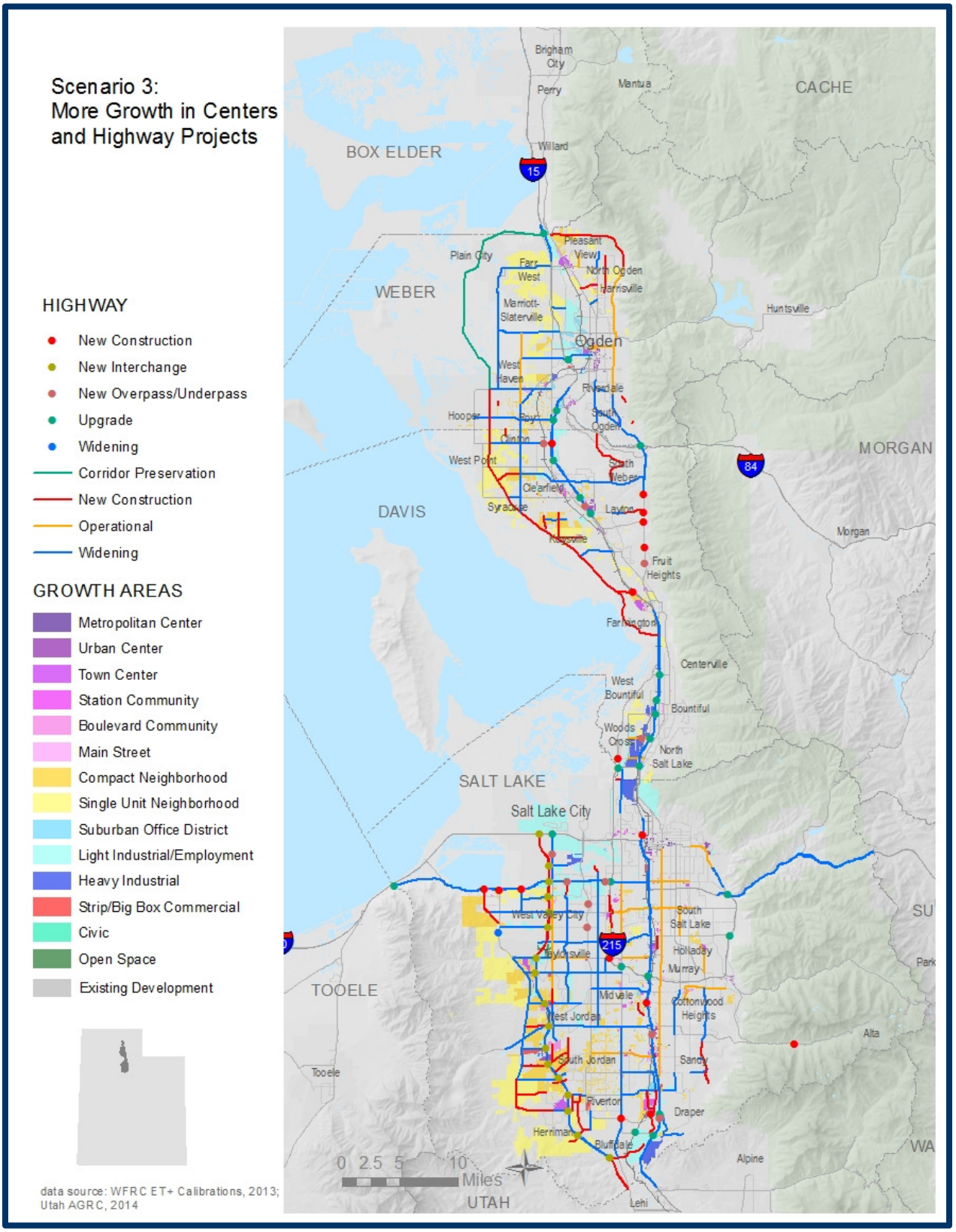
MAP 4-5


Scenario 3:
More Growth in Centers
and Highway Projects
HIGHWAY
New Construction
New Interchange
New Overpass/Underpass
Upgrade
Widening
Corridor Preservation
New Construction
Operational
Widening
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibrations, 2013;
Utah AGRC, 2014
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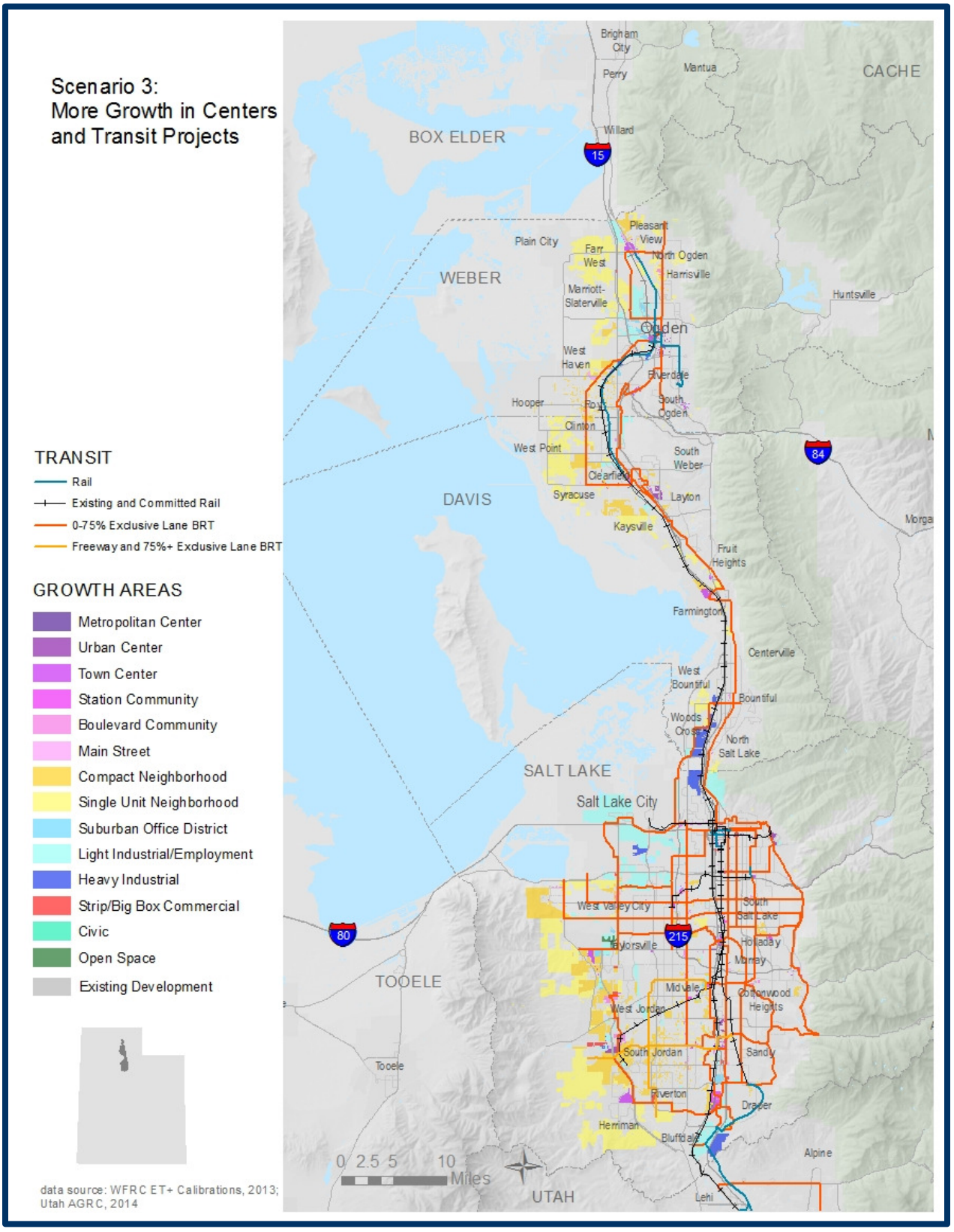
MAP 4-6


Scenario 3:
More Growth in Centers
and Transit Projects
TRANSIT
Rail
Existing and Committed Rail
0-75% Exclusive Lane BRT
Freeway and 75%+ Exclusive Lane BRT
GROWTH AREAS
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibrations, 2013;
Utah AGRC, 2014
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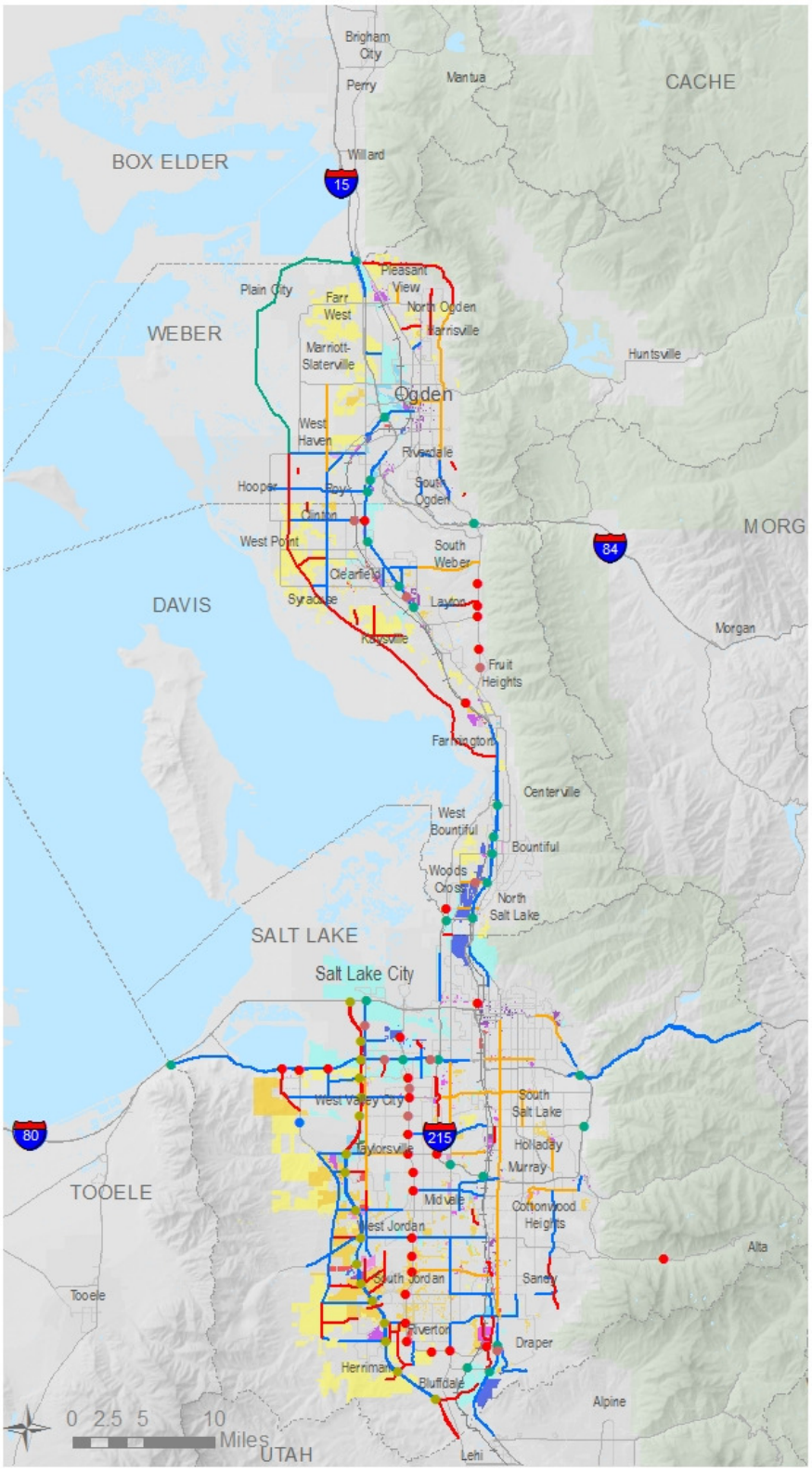
MAP 4-7

Scenario 4:
Most Growth in Centers and Highway Projects

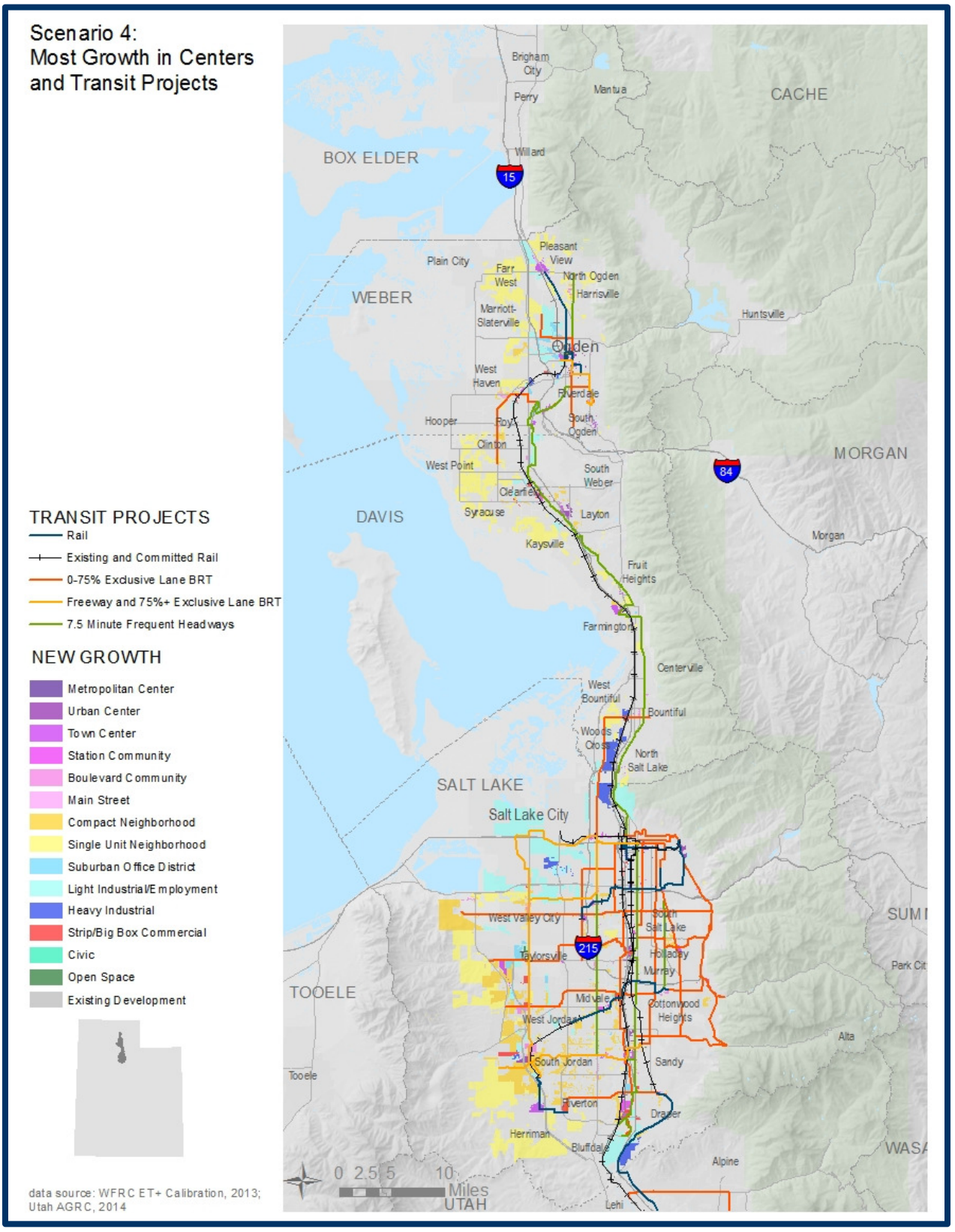


HIGHWAY PROJECTS
- New Construction
- New Interchange
- New Overpass/Underpass
- Upgrade
- Widening
- Corridor Preservation
- New Construction
- Operational
- Widening

NEW GROWTH
- Metropolitan Center
- Urban Center
- Town Center
- Station Community
- Boulevard Community
- Main Street
- Compact Neighborhood
- Single Unit Neighborhood
- Suburban Office District
- Light Industrial/Employment
- Heavy Industrial
- Strip/Big Box Commercial
- Civic
- Open Space
- Existing Development

data source: WFRC ET+ Calibration, 2013; Utah AGRC, 2014

MAP 4-8


Scenario 4:
Most Growth in Centers and Transit Projects
TRANSIT PROJECTS
Rail
Existing and Committed Rail
0-75% Exclusive Lane BRT
Freeway and 75%+ Exclusive Lane BRT
7.5 Minute Frequent Headways
NEW GROWTH
Metropolitan Center
Urban Center
Town Center
Station Community
Boulevard Community
Main Street
Compact Neighborhood
Single Unit Neighborhood
Suburban Office District
Light Industrial/Employment
Heavy Industrial
Strip/Big Box Commercial
Civic
Open Space
Existing Development
data source: WFRC ET+ Calibration, 2013; Utah AGRC, 2014
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Kaysville
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Farmington
Centerville
West Bountiful
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North Salt Lake
Salt Lake City
West Valley City
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Holladay
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Midvale
Cottonwood Heights
West Jordan
South Jordan
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Riverton
Draper
Herriman
Bluffdale
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THE IMPORTANCE OF CENTERS

Centers are historical and emerging Regional destinations of economic activity and importance. The Wasatch Choice for 2040 Vision suggests that these centers should absorb some of the expected growth and expand to provide ever-broadening choices for resident to live, work, shop, and recreate. A mixture of other activities is also welcome. Center should work with the long term market, helping provide opportunities to residents who want to live close to work, walk or bike to shop, and have both great transit and road access, which is needed as our population ages, gas prices and congestion increase, and housing prices inch upward. The Wasatch Choice for 2040 Vision identified six different types and intensity of Regional centers which are described below.

Metropolitan Center
Downtown Salt Lake City is the metropolitan center, serving as the hub of business and cultural activity in the Region. It has the most intensive form of growth and expansion for both employment and housing, with high-rise development common in the central business district. It will continue to serve as the finance, commerce, government, retail, tourism, arts, and entertainment center for the Region. Building floor area ratios vary from 1 to 10 and the number of housing units range from 20 to 200 per acre.

Urban Center
Urban centers are the focus of commerce and local government services benefiting a market area of a few hundred thousand people. Urban centers are ideal areas to be served by high-capacity transit and major streets. They are characterized by two- to four-story employment and housing options. Building floor area ratios vary from .75 to 4 and the number of housing units range from 20 to 100 per acre.

Town Center
Town centers provided localized services to tens of thousands of people within a two- to three-mile radius. One- to three-story buildings for employment and housing are typical. Building floor area ratios vary from .5 to 1.5 and the number of housing units range from 10 to 50 per acre.

Station Community
Station communities are geographically small, high-intensity centers surrounding high-capacity transit stations. Station communities vary in their land use form and intensity, as some feature employment locations while others focus on housing. Many will include a variety of shops and services. Building floor area ratios vary from .5 to 2.5 and the number of housing units range from 20 to 100 per acre.

Main Street Community
Main streets are linear town centers. Each has a traditional commercial identity but on a community scale. Main street communities prioritize pedestrian-friendly features, but also benefit from good auto access and often transit. Building floor area ratios vary from .5 to 1.5 and the number of housing units range from 10 to 50 per acre.

Boulevard Community
A boulevard community is a linear center coupled with a transit route. Unlike a main street, a boulevard community may not necessarily have a commercial identity, but may vary among housing, employment, and retail along any given stretch. Building floor area ratios vary from .35 to 1 and the number of housing units range from 0 to 50 per acre.

A variety of centers will develop in the future that are similar to places in our Region today – place like downtown Salt Lake City, Provo, Ogden, and emerging downtowns like Sandy City. Centers can also be places like Station Park in Farmington, the Fireclay District in Murray, Cottonwood Corporate

Center, and other similar concentration of housing and employment that are growing with market demand for living and working in accessible locations throughout the Wasatch Front.

In general terms, the different land uses represented in the scenarios can be described as variations on the Wasatch Choice for 2040 Vision. One of the more notable differences between the scenarios is the "centeredness" of the new growth. The term "centeredness" describes both how much of the forecasted new growth is anticipated to take place within identified areas of the Wasatch Choice for 2040 Vision and how much is allowed to take place in suburban locations throughout the Region. Two additional ways of understanding the differences among these four land use and transportation scenarios is (1) the amount of new growth allocated to infill and redevelopment areas and (2) the mix of new housing units.

Growth in Centers

"Centeredness" refers to the degree to which development is clustered within strong nodes of urban growth rather than being of a uniform density. Centering growth, as in historic downtown Ogden, emerging suburban downtowns like Sandy, main streets like Bountiful City's Main Street, or transit-oriented development like Murray's Fireclay District reduces the footprint of urban development and, by bringing some destinations closer together, lends itself to walking and bicycling. The Wasatch Choice for 2040 goes further to promote "centered growth" in strategic locations – coordinated with high-capacity public transportation and available in each part of the metropolitan area. Strategically located centers enable more people to easily use transit, and tend to reduce travel distances in general.

Infill and Redevelopment

Over time, it is generally expected that more growth will happen through infill in the Wasatch Front counties as urban development in the Region is becomes increasingly constrained by physical barriers, such as lakes and mountain ranges. The Wasatch Front will experience more infill and new development even as additional growth takes place in adjacent valleys at the same time, like the Tooele Valley, Morgan County, and Box Elder County. The question the scenarios explored is how much of the new growth might and should be infill and redevelopment and how much of it might and should spread to the adjacent valleys. Generally speaking the amount of infill and redevelopment correlates to the "centeredness" of each of the four land use scenarios.

Mix of New Housing

The housing mix also varies among the four scenarios. Today, two-thirds of our housing consists of relatively larger lot, single-family homes. As Regional planners consider future housing needs, they must be aware of anticipate changes in demographic groups. One of these changes will be the retirement of the large "baby boom" generation. In the coming years, most baby boomers will choose to downsize the size of their homes. We know that this will change the demand for housing across the Region, but planners are unsure exactly how this will affect future housing preference. Thus, the four scenarios explored a range of housing ideas, such as the possibility of 30 percent of new dwelling units being small lot, single-family, condominiums, and townhomes in Scenario 1. In contrast, Scenario 4 requires 60 percent of the homes to be small lot, single-family, condominiums, and townhomes. All four land use and transportation scenarios are plausible, given the significant demographic shifts anticipated in the metropolitan area.

Land Use And Transportation Network Connections

The type and degree of centeredness affects transportation in a variety of ways. Growth that takes place as infill and redevelopment is generally able to make better use of the Region's existing infrastructure than greenfield growth. Frequently the transportation system in these locations is sufficient to handle additional growth, especially in locations where the historical grid pattern of streets is still in existence, frequent transit service is already shown to be viable, and considerable highway and transit investments have been made.

The amount of growth that takes place in identified Wasatch Choice for 2040 centers, both in the Region's core and in its more suburban areas, have reduced negative impacts on the Wasatch Front's transportation system than new growth outside of these centers. They help residents and employees access public transportation without an auto. Centers typically feature a mix of uses, walkable design, and thereby encourage more bike, pedestrian, and transit trips that result in fewer auto trips. With a complementary mix of uses, they have the potential to bring together popular destinations within an easy walk. They also promote combining trips and facilitate transit use as daily travel needs are simplified. With walkable street design centers provide safe and inviting streets that further enhance the viability and desirability of walking and bicycling trips. Wasatch Choice for 2040-designatedcenters should be considered as appropriate locations for enhanced transportation planning efforts such as a well-connected local streets (like a historic grid), appropriate access to major highway and transit facilities, and attractive and safe walk and bicycle facilities.

Both infill and redevelopment within Wasatch Choice for 2040 centers help reduce the demand for urban expansion into suburbia which, in turn, reduces new local and regional infrastructure. These expenses typically outpace the construction costs and ongoing tax revenues from greenfield developments.

DEVELOPMENT OF A PREFERRED SCENARIO

The preferred scenario identifies the regional transportation projects needed in the Wasatch Front Region between now and 2040 and represents a hybrid, or combination of the four scenarios that were developed to explore different land use and transportation alternatives. Each of the four scenarios used the same population projections, the same number of jobs, and roughly the same amount of funding for future transportation improvements, varying only in the type and intensity of future growth assigned to Wasatch Choice 2040 centers. The draft preferred scenario is not fiscally constrained, nor are specific highway and transit projects assigned a construction phase. The final scenario, which was used as the basic for the Wasatch Front's 2015 – 2040 Regional Transportation Plan and evolved from a development process described below.

The first step in the preferred scenario process was to determine four possible future land use patterns based on the Wasatch Choice 2040 Vision. The first round of meetings in 2013 provided general direction on how to plan the transportation system. The WFRC staff discussed the general direction on how to plan the Region's transportation system, offering four possible growth and development scenarios to local governments, communities, and key partners regarding how and where transportation and corresponding development might take place. A series of small area outreach and one-on-one meetings, held in June of 2013 with municipal administrators, engineers, and planners, provided important input and direction on each community's anticipated land use and specific transportation needs. The WFRC staff also presented, discussed, and received critical feedback on the four possible growth and development scenarios from key planning partners, such as FHWA, UDOT, UTA, and other stakeholders.

At these meetings, solicitation of input focused on how and where future highway and transit improvements would work together with anticipated corresponding development – both with an eye toward regional market demand and quality of life impacts. Using the Envision Tomorrow Plus (ET+) analysis tool, a scenario planning model that allows users to allocate different land uses across the Region. Each of the four land use scenarios was modeled and a number of variables were evaluated. ET+ outputs were then added to base year data to for the official socioeconomic forecasts and comments were incorporated into the development of the preferred scenario.

Next, the WFRC modeling staff ran the four land use scenarios through the travel demand model and outputs, such as volume over capacity, access to Wasatch Choice 2040 centers, environmental impacts, transit ridership, freight mobility, and other concerns, were analyzed and evaluated. Based on modeling outputs and numerous comments from the small area meetings, the WFRC staff

prepared a new growth and transportation scenario known as the draft preferred scenario. The preferred scenario's land use pattern and transportation networks were a compilation of the best ideas of the four scenarios and not one of the four. In other words, the preferred scenario was a hybrid of the four alternatives that examined different levels of growth within identified Wasatch Choice 2040 centers and the transportation connections to serve such.

A second series of small area outreach meetings, held in January and February of 2014 highlighted the draft preferred scenario. Communities, stakeholders, the general public and transportation partners reviewed the draft preferred scenario and the WFRC staff refined it based on that input. After finalizing the preferred scenario, which was adopted by the Regional Council in May 2014, the WFRC identified financial constraints based on anticipated funding, and prioritized projects into phases. This phased, financially constrained preferred scenario became the basis for the 2015 – 2040 Regional Transportation Plan and is discussed in more detail in the next sections.

Scenario Development Process

The land use pattern in each of the four scenarios is a representation of the Wasatch Choice 2040 Vision map. The land use pattern for each of the four scenarios were developed using the Envision Tomorrow Plus (ET+) analysis tool. ET+ is a scenario planning tool that allows the user to distribute a variety of development types parcel by parcel across the region and evaluate a variety of outputs across scenarios. Model outputs include water and energy consumption, infrastructure needs, and tax revenues. The attributes of each the scenarios' land use patterns including housing units, commercial and retail space, public facilities, and center intensity. Each scenario land use pattern was carefully reviewed by the cities and counties as part of the June 2013 series of small area meetings. Comments from these local officials and technicians were incorporated into the final land use scenario and socioeconomic forecasts. As anticipated by the WFRC staff planners, the preferred scenario was a combination of the best of the four scenarios, not one of the four.

Scenario Roadway Network Development

The WRFC staff ran the four land use scenarios through the regional transportation demand model. The staff examined a variety of model outputs, such as volume and congestion, along with considerations for the Wasatch Choice for 2040 centers, wetlands, freight, and other sensitive or "special needs" areas and developed project lists, which were then run through the model. For example, some facilities had high congestion, but passed through centers that are planned to be more walkable and well served by transit, so staff planners didn't recommend widening. The WFRC staff also added some projects that were plausible, but maybe not likely, so that each of the four scenarios could stretch people's ideas of what was possible and create more differentiation and distinction between the four scenarios. One example of a plausible project would be a freeway near 6200 South on the west side of Salt Lake County. Staff planners and engineers also considered past stakeholder input and previous regional transportation plans. At least two modeling iterations, and sometimes three or four, were performed for each of the four scenarios.

Scenario Transit Network Development

The transit networks for each of the four scenarios were developed using a multi-step process. The steps were as follows:

1. Develop a long list of potential transit corridors;
2. Package the long list of corridors into a network for each scenario;
3. Forecast the relative ridership potential of each corridors; and,
4. Assign transit modes and project extents of each corridor.

The list of potential transit corridors was developed with UTA staff input from a long list of potential projects. This list of projects were derived from the 2011-2040 RTP, from studies completed in the four years since the 2011-2040 RTP was completed, suggestions from stakeholders, and a high level review of potential transit corridors in each of the scenarios. Each potential project was reviewed for its relationship to several measures of success, including proximity to scenario activity

centers, existing transit markets, system connectivity, and current corridor ridership. Those projects that meet a specific transit need, with substantial stakeholder interest or a reasonable possibility of success, were kept in the list of corridors.

The list of potential transit corridors were then packaged into four initial corridor networks, which were designed to best fit the land use and highway networks of each of the respective scenarios. All projects, unless dictated by the physical make-up of the corridor, were tested as Bus Rapid Transit without any local bus in the background in order to best ascertain the relative transit corridor markets. The Regional travel demand model was then used to estimate the 2040 ridership potential of each segment of each corridor. Each of the four transit corridor networks were modeled on each of the land use and roadway scenarios. Efforts were employed to minimize the potential of screening a good project out of the final analysis, based upon variations in the land use or highway elements of a particular scenario.

Finally, the resulting ridership forecasts along with high level finance caps, input from UTA and UDOT staff, and from the municipalities was used to create the final transit network for each of the four scenarios. All transit projects included a placeholder alignment, end points, and technology. Each technology was assumed to have uniform characteristics, such as station spacing, that are tied to cost. The combined land use alternatives, roadway networks, and transit networks comprised each scenario. The population, employment, and transportation construction costs were held constant among the four scenarios in order to facilitate a comparative assessment.

Scenario Modeling and Analysis

Each of the four scenarios, their networks and their individual projects, were assessed for project selection as part of the draft preferred scenario. Among the tools that were used to complete this assessment was a system-wide report card comparing each of the four scenarios. The report card compared each of the four alternatives, the draft preferred scenario, and current conditions using a variety of important performance measures. The performance measures were carefully chosen to give decision-makers the opportunity to compare how well each scenario supports the WFRC's adopted goals. The bar charts on the following pages, **Figures 4-1** through **4-11**, represent select performance measures used in the analysis of the four scenarios. Information relevant to the interpretation of these charts is as follows:

- The primary target goal of the measure is provided in the upper left corner. A brief description of the measure is included under each graph.
- The orange graph bars indicate that higher measures are better and blue graph bars which indicate that lower measures are better.
- On some bar graphs, the "Current" scenario bar represents 2016 conditions, whereas the remainder of the scenarios represents 2040 conditions.
- The "Draft Preferred Scenario" in some of the charts represents the draft preferred scenario as of January 2014. Potentially significant changes to both the transportation and urban form elements of the scenario have occurred since then.

The factors influencing destination accessibility are (1) the proximity of households and employment or education opportunities in relationship to each other, (2) the speed of movement through transportation facilities, and (3) the placement of these facilities to serve the job and higher education commutes. The draft preferred alternative did not significantly increase the average distance traveled or the average travel time by car, indicating that the significant increase in accessibility by auto and by transit was due to the placement of the projects in a way that better serves the job and higher education commute.

Transit use and travel time by car are both representative measures of mobility. Transit use varies somewhat among the four scenarios and all the alternatives are substantial improvements over current transit market share. This may reflect both increases in transit service and higher concentrations of activity along established transit lines.

Average travel time by car gradually improves (is reduced) in each of the four scenarios, with the draft preferred scenario performing the best. However, all of the scenarios have significantly longer average travel times for autos as compared with the current year. The average distance traveled by auto per household climbs by about the same amount as the travel time, indicating that longer trips rather than increased delay may be the cause.

Several of the evaluated performance measures such as destination accessibility, travel time, and air quality (mobile emissions) relate to economic vitality. In addition, one of the most direct measures is truck freight travel times from seventeen of the Regions' largest freight centers to nearby freeways. The draft preferred scenario significantly decreases the total travel time to local freeway because these routes were specifically targeted for improvements when warranted by delay. The WFRC staff will continue to monitor these routes and seek to keep them uncongested in an effort to improve our Region's economic vitality.

Cost efficiency is a key measure for the 2015 – 2040 RTP. Transportation needs are substantial and on-going and the ability to meet transportation needs will always be limited by available and projected funds. All of these measures help the WFRC staff prioritize investments. Cost efficiency is a summary measure of how effective the RTP is meeting our objectives. Two key objectives are providing (1) timely transportation access to employment centers and higher education opportunities and (2) transit ridership. Therefore, cost efficiency includes destination access by auto and transit ridership as the numerators (the benefit side of the equation) for these performance measures. Other objectives were also assessed on a cost basis. Although not discussed here, these correlate to destination accessibility and transit ridership. In general, the draft preferred scenario is generally more cost effective than the other four scenarios, with the exception of Scenario 4, which has the most centered land use. More centered land use helps improve cost efficiency by making use of the existing transportation system and limiting the need for new, low-use facilities on the urban fringe.

Foremost among causes of auto emissions in the Region is the number of auto trips taken regardless of length traveled. The beginning of a trip, when the cars' catalytic converter is not warmed up and functioning, is called a cold start. As much as 80 percent of a trip's emissions can take place in the first few miles after a cold start. Other, causes of travel emissions include idling, the number of vehicle miles traveled, travel speed, and stop-and-go driving (acceleration). Speed and VMT effects are captured by the regional travel and air quality models and are reflected in the emissions and energy use bar graph above. The draft preferred scenario provides significant improvements in energy use and modeled travel-related emissions. Although not forecastable, attention was paid to limiting the potential for cold starts when developing the 2015 – 2040 RTP. For example, transit close to origins and destinations is far preferable to transit that requires even a short park-and-ride trip.

Transportation projects can directly impact natural resources such as wetlands and habitat for endangered species. Transportation projects can also indirectly impact these resources by increasing the access to, and therefore the development pressure upon, the sites of these resources if they are not otherwise protected. The WFRC staff assessed both direct and indirect impacts of transportation projects to the Regions' significant natural resource areas.

FIGURE 4-1

ACCESSIBILITY – WORK AND COLLEGE BY CAR

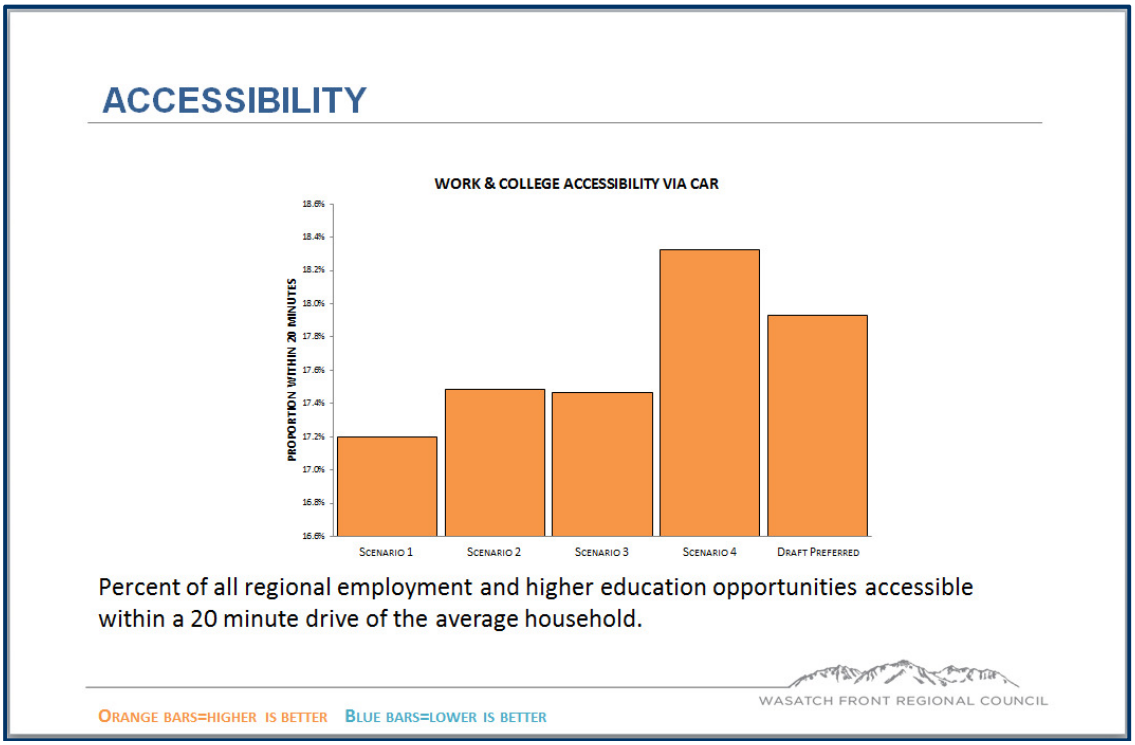


FIGURE 4-2

ACCESSIBILITY – WORK AND COLLEGE BY TRANSIT

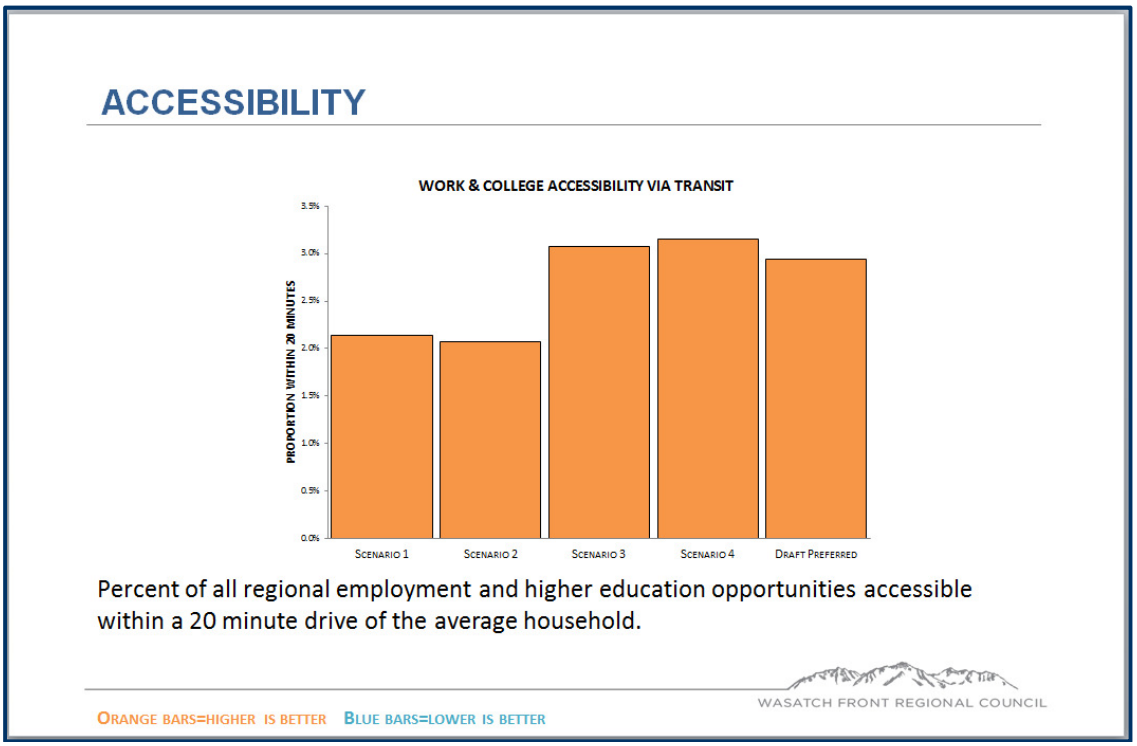


FIGURE 4-3

MOBILITY – TRANSIT USE

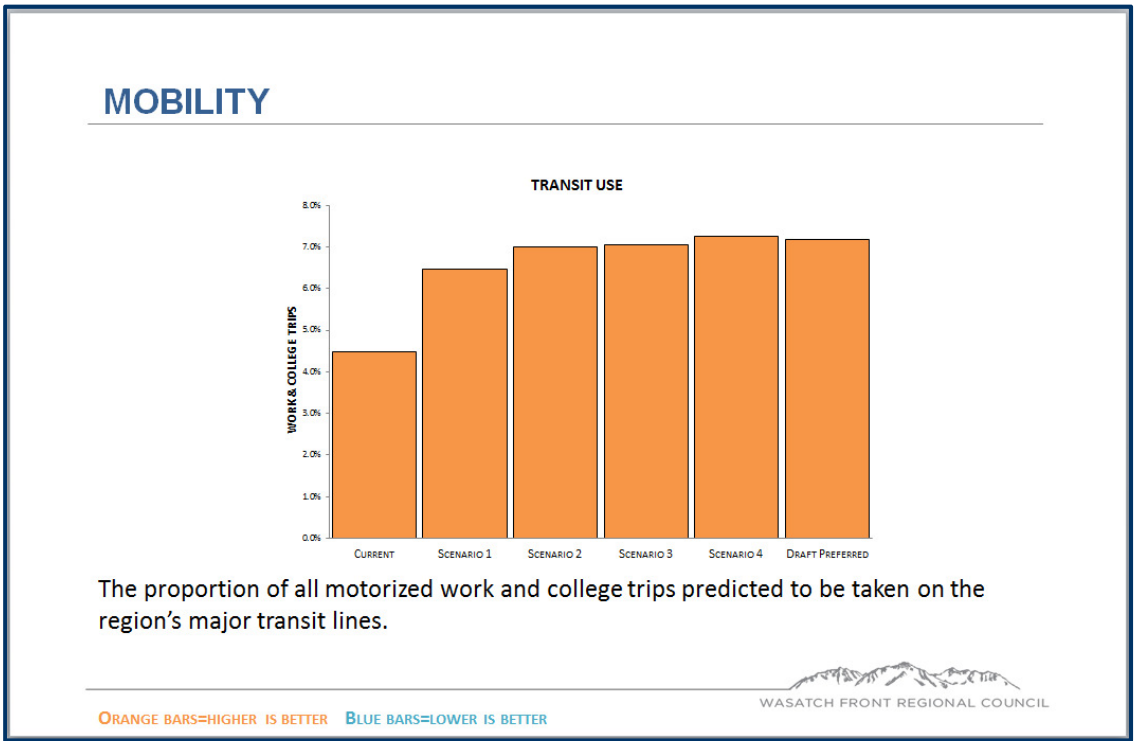


FIGURE 4-4

TRAVEL – TRAVEL TIME BY CAR

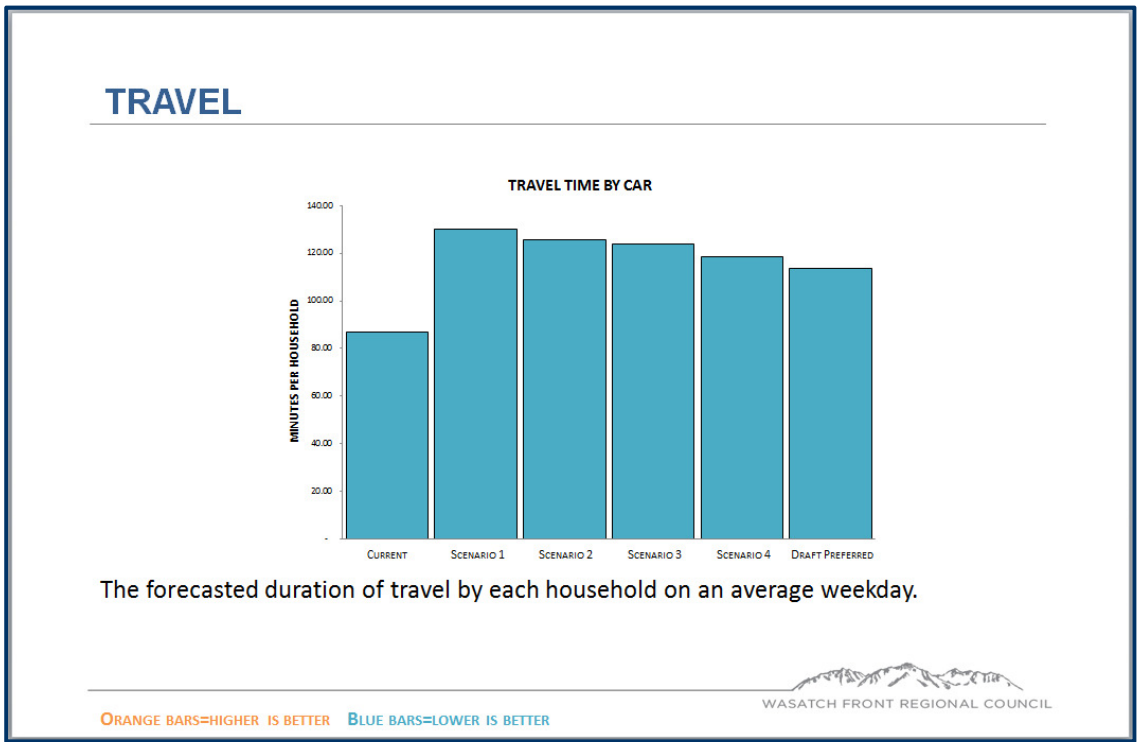


FIGURE 4-5

ECONOMIC VITALITY – TRUCK FREIGHT TRAVEL TIME

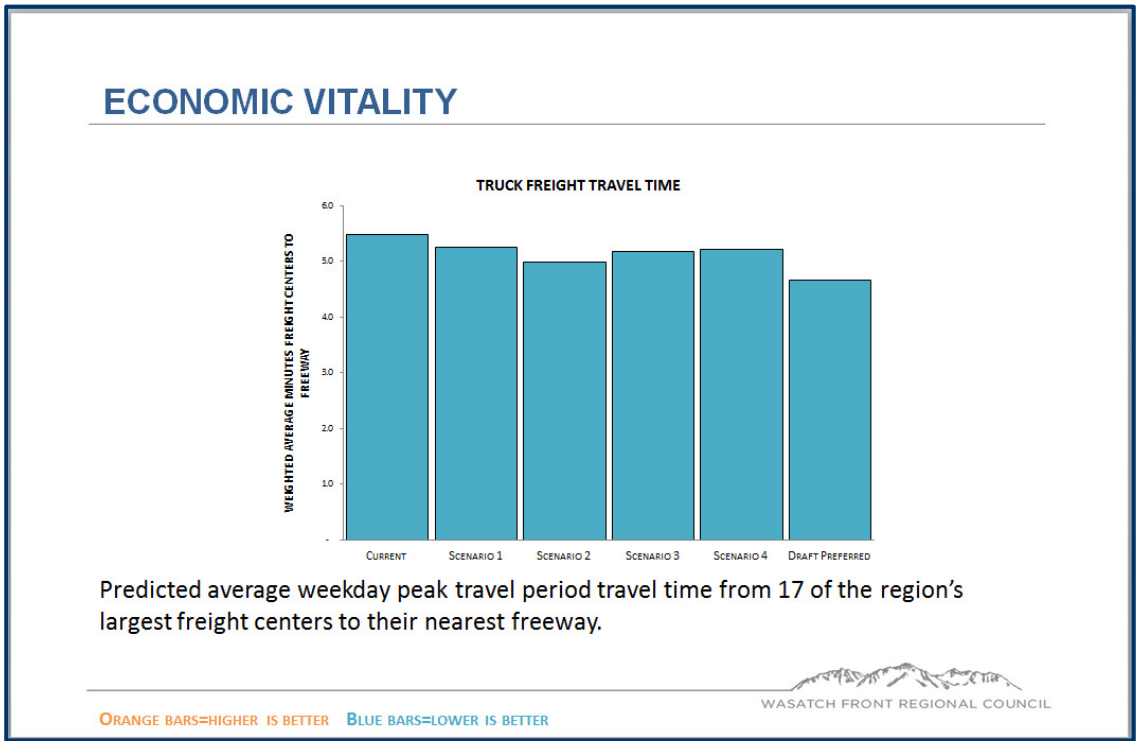


FIGURE 4-6

COST EFFICIENCY – MAJOR ROAD CONSTRUCTION

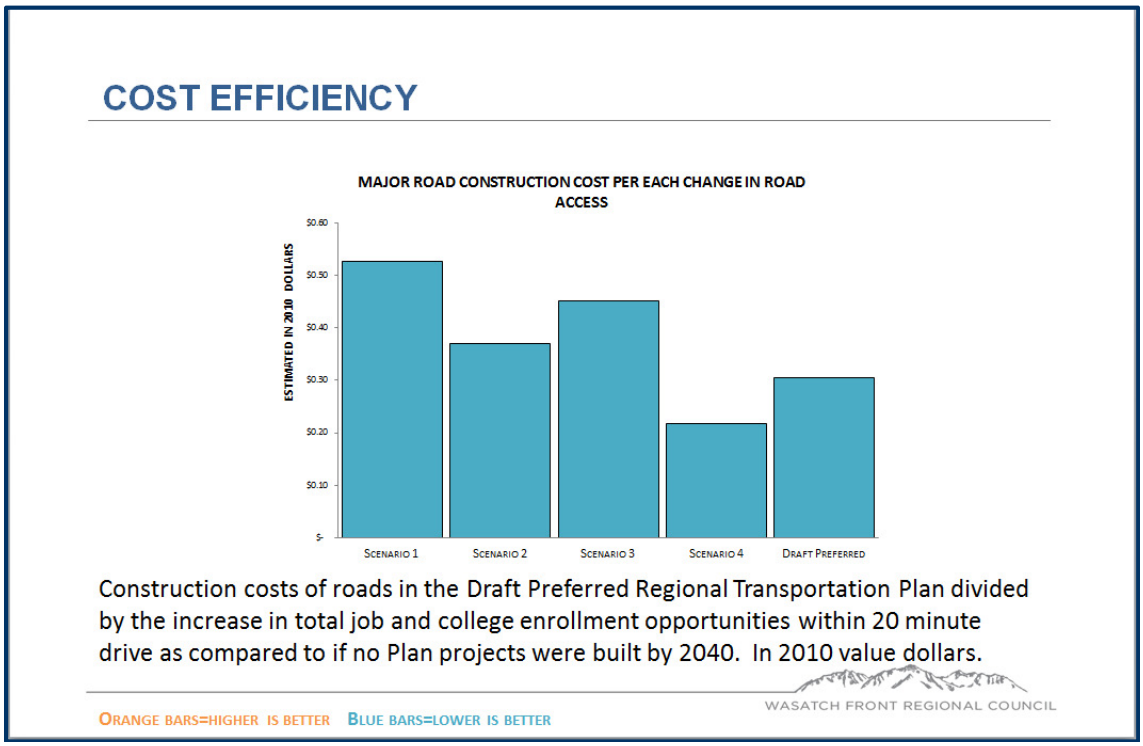


FIGURE 4-7

COST EFFICIENCY – MAJOR TRANSIT CONSTRUCTION

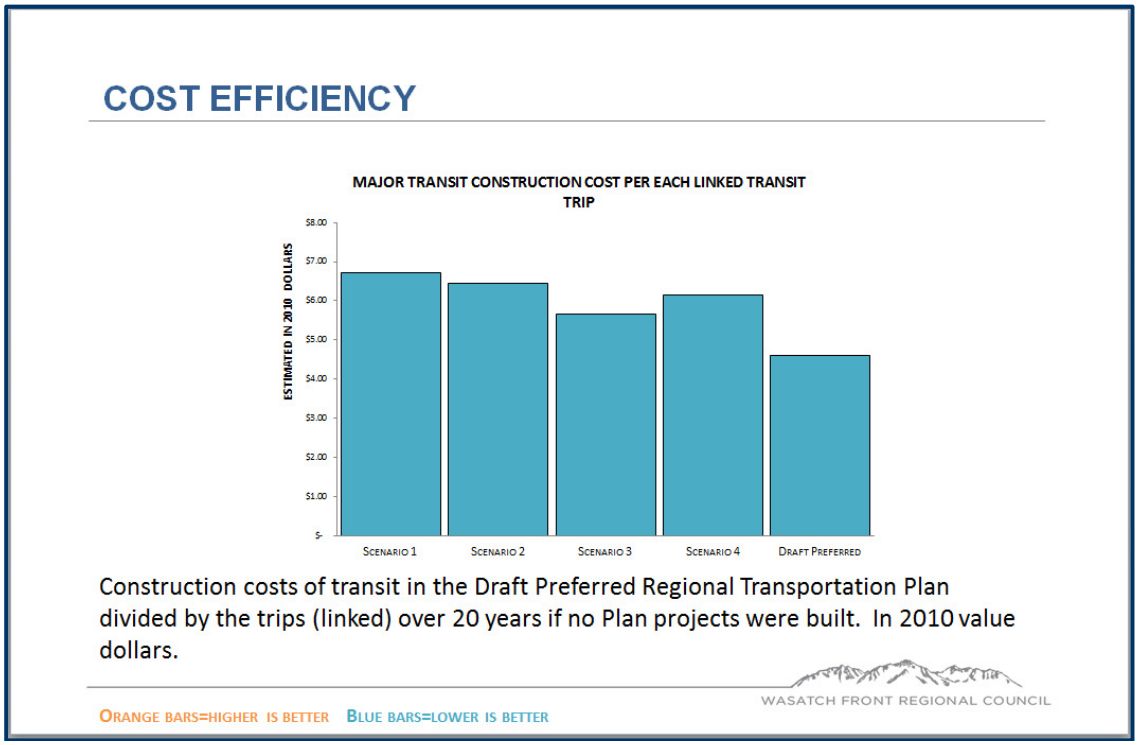


FIGURE 4-8

HEALTH AND SAFETY – MOBILE EMISSIONS

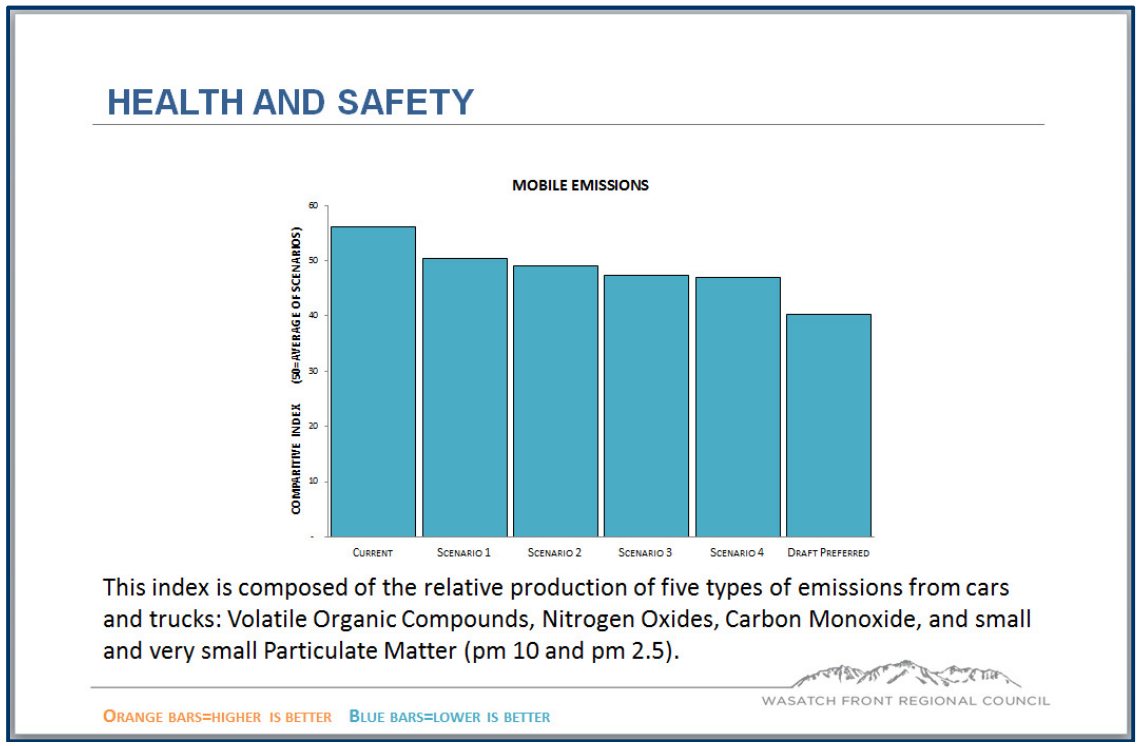


FIGURE 4-9

ENVIRONMENT – ENERGY USE

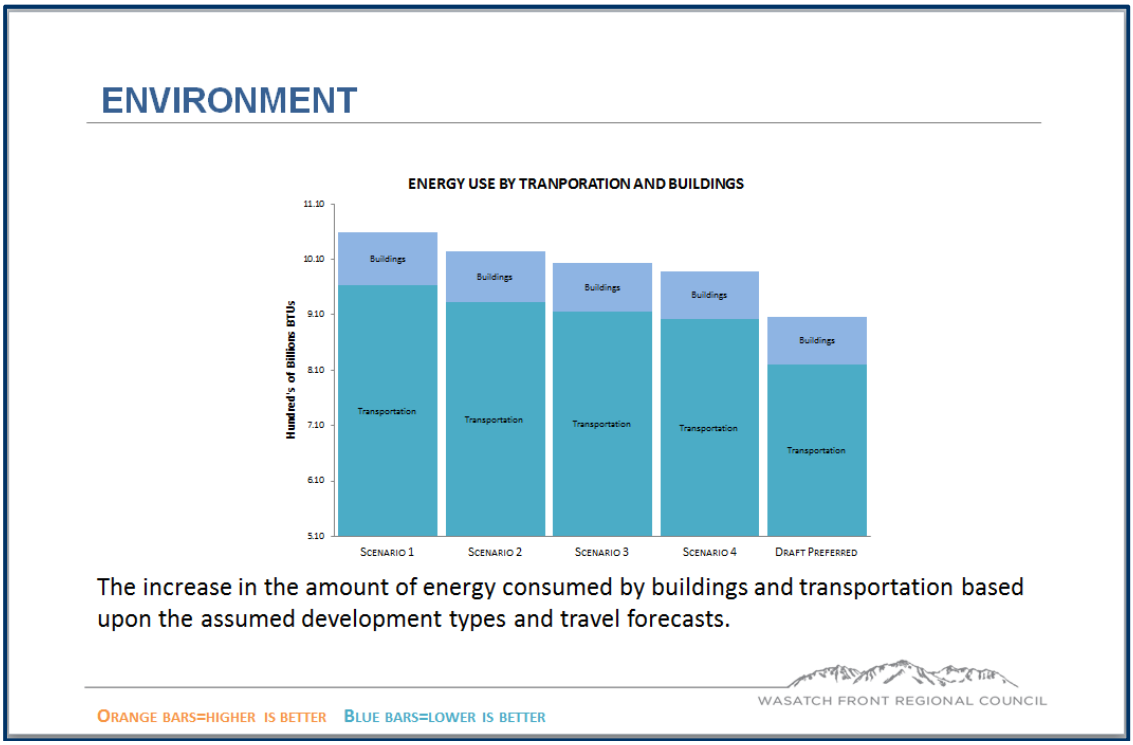


FIGURE 4-10

ENVIRONMENT – INDIRECT NATURAL RESOURCE IMPACTS

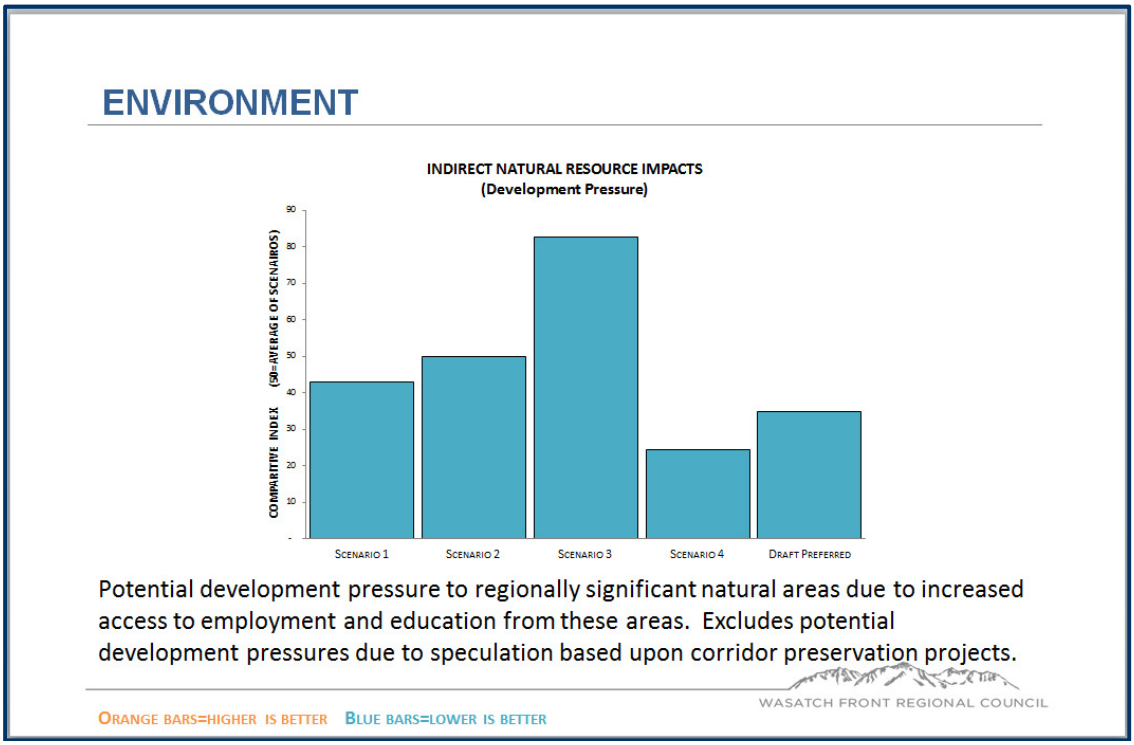
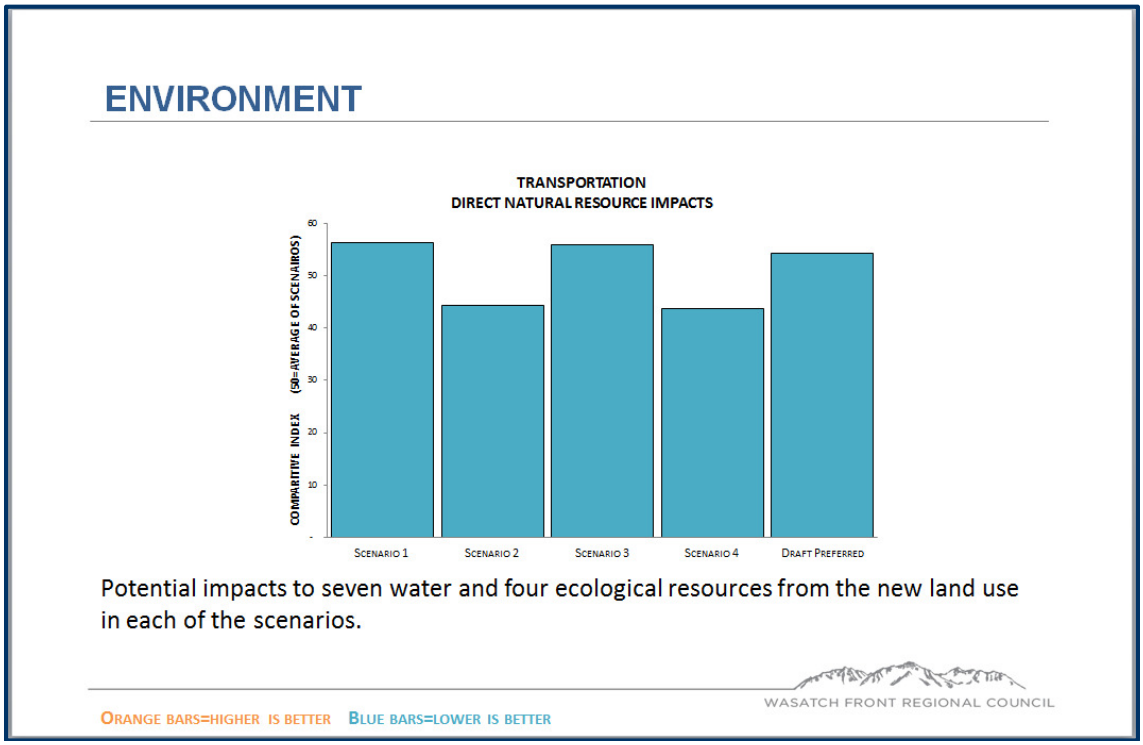


FIGURE 4-11

ENVIRONMENT – DIRECT NATURAL RESOURCE IMPACTS



The direct impacts were estimated using a computer mapping of identified natural resources and the preliminary project locations. Direct impacts can frequently be reduced based upon specific project locations. Major projects, especially those that might potentially impact natural resources, undergo extensive environmental impact analyses to determine if the impacts can be reduced or even eliminated at that time of construction. The indirect impacts of each of the transportation scenarios were estimated by first identifying the major unprotected, natural resource areas in the Region, using computer mapping, and then by using the travel demand model to assess the increase in access to, and therefore the development pressure upon, these resource areas.

The draft preferred scenario fell within the middle of the four scenarios in terms of direct and indirect natural resource impacts. Additional work was done after the January 2014 version of the draft preferred scenario to identify which projects were impacting these regionally significant natural resource areas and consider modifying those projects to decrease their direct impacts. Chapter 8, “Plan Impacts And Benefits,” discusses the natural resource impacts of the 2015 – 2040 RTP.

Description of Envision Tomorrow Plus

Envision Tomorrow Plus (ET+) is a scenario planning tool that allows the user to “paint” a variety of development types and compare a variety of metrics across scenarios. Metrics include water and energy consumption, infrastructure needs, and tax revenues. WFRC used ET+ to paint four regional scenarios.

Description of TDM

The WFRC maintains a travel demand model (TDM) which forecasts travel demand. The user can directly input different socio-economic assumptions, along with corresponding land use types, allowing for a variety of highway and transit alternatives to be tested. The socio-economic assumptions which were used to model the four 2015 – 2040 RTP scenarios were derived from the ET+ scenarios. The transportation networks used in the model were

developed from the scenario planning process, which iterated between the impacts that the transportation system and land use patterns had on each other. The TDM is updated and recalibrated every four years. Each update results in a new version of the model. Version 7 was used for the scenario planning process. A beta version of Version 8 was used for analyzing the phasing of the plan and for subsequent RTP-related modeling, so there may be some inconsistencies when comparing metrics from the final plan to the scenarios. All of the TDM related metrics included in this section were derived using Version 7 of the model.

Congestion Management
The congestion management process (CMP) identified capacity increasing projects necessary to meet future traffic demand in cases where system management and demand management strategies alone are inadequate. Projects identified as potential capacity increasing projects by the CMP were included in at least one of the four scenarios. After evaluating the various alternatives, a preferred alternative was recommended. A review of the preferred alternative was made to assure that only capacity increasing projects identified through the CMP were included in the preferred scenario.

PUBLIC INVOLVEMENT

The leaders and staff members of the Wasatch Front Regional Council engaged in a proactive public outreach and education program for the Regional visioning effort in preparation for the update to the 2015 – 2040 RTP. This outreach effort included multiple e-mails to stakeholders detailing the four alternative growth scenarios described above and inviting their comment, a formal public comment period, three well-advertised public open houses, and eleven meetings for city and county leaders to comment on the scenarios. Over this process, which lasted several months, hundreds of comments were received and catalogued. These comments were then carefully considered by the WFRC planning staff in preparation for development of the projects within the 2015 – 2040 RTP and responded to individually.

Worthy of additional discussion in this review were the eleven small area meetings for city and county leaders, planners, and engineers. Significant effort was made to ensure that each city was represented at their respective meetings. The four alternative growth and transportation scenarios were then explained in detail and an electronic poll was taken asking two questions: (1) which scenario is most likely to actually be built given present trends and (2) which scenario is most desirable for your local community? The results of the poll are reflected in the comment summary **Table 4-1** below.

TABLE 4-1

SCENARIO PREFERENCE POLL RESULTS

COUNTY	WHICH SCENARIO IS LIKELY TO BE BUILT?	WHICH SCENARIO IS PREFERRED?	COMPOSITE (1/3RD FROM THE "LIKELY RESPONSES, 2/3RDS FROM THE "PREFERRED RESPONSE)
Weber	2.1	3.0	2.7
Davis	2.1	2.8	2.6
Salt Lake	2.6	3.4	3.1

As noted in the above table, results from county to county in terms of anticipated development and desired development were remarkably similar. The more densely populated areas of Salt Lake County showed a slight preference for more intense development than the rural areas of western Weber County for example. However, the survey results do indicate a relative homogenization of attitudes and expectations for development across the Region.

At the end of the small area meetings, the attendees were invited up to the four scenario maps and requested to write directly on the maps any changes they felt were needed. The maps were marked with recommended changes from the city and county leaders. Comments, such as there should be more or less density in a particular development, the growth boundaries should be shifted in some manner, and the type of development should be different for this particular area, were noted. Again, these comments were carefully gathered and reviewed by the WFRC staff prior to settling on a preferred growth scenario. The comments did have a dramatic effect in numerous instances as to the type and location of growth recommended in the preferred scenario. Even though these scenarios and associated meetings and comment periods were designed to elicit public engagement on growth issues affecting the Wasatch Front, there were numerous comments received on specific highway, transit, and active transportation projects. These comments, along with those received on the four growth scenarios, were carefully catalogued and reviewed by the WFRC staff and shared with the Regional Council.

Meeting Comment Summary

During the month of June, the WFRC staff held a series of eleven meetings for representatives from all city and county jurisdictions within the Region regarding four proposed growth and development scenarios. These representatives included county commissioners, city mayors, city and county planners, and engineers. The four scenarios were presented to the meeting attendees who then commented on and made recommendations on the same. The meetings were generally well attended and most cities and all counties had representatives at the meetings. Most comments were specific to the respective cities or counties and would be difficult to summarize. Nevertheless, some general observations and the results of a poll conducted at the meetings are noted below.

- There is an understanding that in some built out areas the only way to grow is up.
- Urban renewal is becoming a concern.
- New growth pays for new projects, not the rehabilitation of existing areas.
- Housing preferences among millennials and retirees are shifting toward multi-unit housing.
- There has been a shift in attitudes toward higher density housing in the more urbanized areas, less so in the outlying areas.
- There is a lack of multi-family housing, especially for seniors.
- There is a demand for housing between starter housing and higher end single family homes.
- There is a strong desire for active transportation as an element of the overall transportation plan.
- Maintaining what we have is becoming a problem.
- The more rural areas want to remain rural.
- There comes a point where it is difficult to widen the roads anymore and transit must carry a larger portion of travel demand.
- Roads will continue to carry the heavy majority of trips and cannot be ignored.
- Telecommuting is more prevalent now.
- We need to get a more regional view of the bicycle system, especially along the canals.
- There are some key safety issues for bicycles that need to be addressed to help usage.
- The real problem is east / west travel and how to meet that demand.

INTRODUCTION

The *Intermodal Surface Transportation Efficiency Act* of 1991 (ISTEA) was the first federal transportation act to require that long range transportation plans developed by metropolitan planning organizations include a financial plan to demonstrate how recommended highway and transit facility improvements would be funded. ISTEA also required that long range plans be "fiscally constrained," meaning that only those new facilities and recommended improvements which could be funded using existing and reasonably anticipated revenue streams could be included in MPO long range transportation plans. The *Transportation Equity Act for the 21st Century* (TEA-21), the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU), and the *Moving Ahead for Progress in the 21st Century Act* (MAP-21), the most current federal transportation legislation, also requires that a financial plan be part of a region's overall long range transportation plan. The purpose of this requirement is to ensure that planned improvements included in the RTP can be funded and that air quality benefits assumed for the implementation of the plan are realistic. These realistic estimates of emissions reductions are needed for the air quality conformity analysis required by MAP-21 and the Clean Air Act amendments of 1991.

Federal guidelines on preparing financial plans state: "The financial plan should compare the annual revenue from existing and proposed funding sources that are dedicated to transportation uses, and the annual costs of constructing, maintaining and operating the transportation system over the period of the long range plan. The annual revenue by existing revenue source (at the local, state, and federal level) dedicated to transportation improvements should be calculated and any shortfalls identified. Proposed new revenues should cover all forecasted capital, operating, and maintenance costs. All cost and revenue projections should be based on the best available data and trends. This requirement does not preclude MPO's and states from also developing unconstrained 'needs' plans."

Finally, MAP-21 allows for unfunded highway and transit projects to be included as part of a regional long range transportation plan. These unfunded projects are those which cannot be included in a fiscally constrained long range plan, but which would be included if a viable future funding sources could be identified. The Wasatch Front's 2015 – 2040 RTP includes a number of unfunded (illustrative) projects that are not covered by current funding sources identified in this financial plan. However, if prospective regional funding sources can be identified to pay for these projects in the future, they will then be included as part of future regional transportation plans.

Potential funding sources are summarized in this chapter and reasonable estimates of future revenues that can be derived from these sources are made for the 2015 – 2040 RTP. Estimates are made of the amounts required to meet the projected needs of the Regional Transportation Plan through the year 2040. Cost estimates not only include the amount of funding that will be required to pay for each capacity improvement project, but also the operation, maintenance, and preservation of the existing transportation network. **Appendix H** – "Revenue And Cost Assumptions" contains more detailed information that was used to determine the resources and expenditures used in the development of the 2015 – 2040 RTP financial plan.

OVERVIEW OF REVENUE ASSUMPTIONS

Early in the preparation of the 2015 – 2040 RTP, the Wasatch Front Regional Council, UDOT, UTA, the Mountainland Association of Governments (MAG), the Dixie Metropolitan Planning Organization (Dixie MPO), the Cache Metropolitan Planning Organization (CMPO), and the FHWA formed a Financial Subcommittee to the Utah's Unified Transportation Plan Policy Committee. The Subcommittee's role was to developed estimates of potential revenues based on projected sources for transportation improvements through the year 2040. Included in these revenue estimates are federal, state and local sources authorized for both highway and transit improvements. Assumptions were made concerning revenue growth and new or increased sources of funds. The projections and

assumptions agreed upon by all affect groups are discussed in the balance of this section. These assumptions were organized in a statewide financial model and used by each agency. A more detailed description of potential federal, state, and local revenue sources for the Wasatch Front Regional Transportation Plan: 2015 – 2040 has been provided in **Appendix I**.

HIGHWAY REVENUE SOURCES

The WFRC assumed that federal, state, and local government revenues will, in fact, be available for the recommended highway improvements found in the Wasatch Front Regional Transportation Plan: 2015 – 2040. These revenues were estimated for the years 2015 through 2040. Separate estimates have been made for those funds that will be available to UDOT and other funding amounts that will be available for local governments.

Revenue sources for UDOT estimates include both federal and state funds. The WFRC staff assumed that federal funds would grow by approximately 1.5 percent each year. Based on historic trends, the staff also assumed that motor fuel tax revenues would increase at 1.5 percent for the first four years and then at 1.71 percent for each year thereafter. Special fuel tax revenues are expected to increase at 1.5 percent for the first four years and then at 4.32 percent beginning in the fifth year. In addition, the WFRC staff assumed that a five cent per gallon increase in the motor and special fuel tax will be adopted by the Utah State Legislature in 2015, 2025, and 2035. Finally, it is assumed that state vehicle registration revenues will increase by $10.00 in 2018, 2028, and 2038.

The Transportation Investment Fund (TIF) is currently supported with a portion of Utah State auto-related sales tax up to 17 percent. The TIF is also funded using a 1/64 sales tax, a portion of the Utah State vehicle registration fee, part of the state fuel tax, and general fund monies. The TIF was created and funded by the Utah State Legislature in 2005. In 2010, the TIF was combined with the Centennial Highway Fund (CHF). The Centennial Highway Fund was enacted in 1997 and funded, in part, with appropriations from state and federal funds set aside for use in building capacity-increasing transportation projects. The current TIF bonds are projected to be paid off by 2029.

The main sources of assumed revenue available for local roads of regionally significance projects are:

- Federal funds from the Salt Lake City – West Valley City Urbanized Area and Ogden – Layton Urbanized Area Surface Transportation Programs (STP) and the Congestion Mitigation / Air Quality Programs (CMAQ);
- Class B and C Funds allocated to municipalities and counties from state highway user revenues;
- Local option sales taxes in Salt Lake and Weber Counties;
- Local option vehicle registration fees for corridor preservation in Salt Lake, Davis and Weber Counties;
- Allocations from the general funds of local governments;
- Future increases in local option sales taxes for transportation projects in Salt Lake, Davis, Weber, and Box Elder Counties in 2017;
- Future vehicle registration fees in Salt Lake, Davis, and Weber Counties in 2020, 2030, and 2040; and
- Future adoptions, county by county, of a local option fuel taxes in 2027.

STATEWIDE HIGHWAY REVENUES

The Utah's Unified Plan Finance Subcommittee, in coordination with UDOT, developed estimates of projected revenues that will be available to UDOT between 2015 and 2040. These existing and new revenues come from federal and state transportation funds, the TIF, and as presented below.

Federal Revenue

The Intermodal Surface Transportation Efficiency Act (ISTEA), adopted in 1991, established written guidelines for the use of federal funds for highway improvements sponsored by UDOT. TEA-21, enacted in 1998, SAFETEA-LU, enacted in 2005, and MAP-21, the current federal transportation bill, continued these programs at higher funding levels. These programs include the Interstate Maintenance, National Highway System, Any Area Surface Transportation, STP Safety and Enhancement, and Bridge Replacement programs. A modest growth rate of 1.5 percent per year for each program was assumed between 2015 and 2040. The WFRC urbanized area is expected to receive approximately $1,680,000,000 in current dollars for UDOT Federal expenditures related to preservation and other non-capacity programs.

State Funds

Revenues provided by the State of Utah for transportation are primarily generated through highway user fees. These fees include motor fuel tax, special fuel tax, motor vehicle registration, proportional registration, temporary permits, special transportation permits, highway use permits, motor vehicle control fees, and miscellaneous fees. In the past, the Utah State Legislature has also programmed state general funds to support UDOT projects. To project future revenues, historical growth rates of 4.04 percent were used for each of the sources listed above, with the exception of 1.71 percent for motor fuel tax and 4.32 percent for special fuel tax after 2019. In addition to State revenues mentioned above, the Utah Department of Transportation collects additional funding, including sales and aviation fuel taxes, a 1/16 percent sales tax, a 0.025 percent sales tax, other sales and aviation fuel taxes, federal contracts and grants, Department collections, investment income, and miscellaneous. To project future revenues, historical growth rates of 5 percent for the first three sources were used, 1.5 percent for the federal contracts and grants, and 5.64 percent for UDOT collections. From these various sources, the State will generate approximately $10,413,000,000, in current dollars, between 2015 and 2040 for use in the WFRC urbanized areas. It should be noted that these funds will be used for preservation, capacity, operations, and a variety of other uses.

State revenue projections also assume future increases in State of Utah fuel and special fuel tax. The latest increase was five cents per gallon, approved in 1997, dedicated to the CHF program and carried over to the TIF program. In 2005, the State Legislature approved the use of approximately half of the State's sales tax revenue associated with auto-related sales, approximately 8.3 percent of the total, for highways. These funds initially were to be used to retire the CHF bonds. In 2011, the State Legislature, through Senate Bill 229, allowed for portions of increases in the State sales tax revenues to be used in the TIF program. Senate Bill 229 capped the amount of sales tax revenue collected to correlate to the proportion associated with auto-related purchases at 17 percent. Sales tax revenues related to the Critical Highway Needs Fund (CHNF) have also been rolled into the TIF – one of these additions was a set amount and the other was fixed at 0.025 percent. A growth rate of about four percent per year until 2018, and then five percent per year until 2040, was used for sales tax related revenue sources in the TIF program. The Finance Subcommittee to the Utah's Unified Transportation Plan Policy Committee assumed that after the TIF bonds are paid for, the auto-related and general funds dedicated to that purpose will be available for future TIF programs. These funds will generate approximately $6,434,000,000 statewide, in current dollars, from 2015 to 2040 for future transportation projects after TIF expenditures in the WFRC urbanized areas.

During the development of the 2015 – 2040 RTP, current trends indicate that it is reasonable to expect the Utah State Legislature to continue to raise revenues for highways every five to ten years. The 2015 – 2040 RTP assumes the equivalent of a five cents per gallon of gasoline and special fuel tax increase in the years 2015, 2025, and in 2035. An increase in vehicle registration fee is assumed

in 2018, 2028, and 2038. These new revenues are estimated to generate approximately $1,014,000,000 statewide in current dollars for the WFRC urbanized areas.

On March 12, 2015, the Utah State Legislature passed House Bill 362, entitled "Transportation Infrastructure Funding." Governor Gary Herbert signed it into law on March 27th. Representative Johnny Anderson, Chair of the House Transportation Committee, sponsored the bill and Senator Al Jackson, Chair of the Senate Transportation Committee, served as the floor sponsor. The law has two main provisions affecting transportation funding.

The first provision is a reform of the fuel tax from 24.5 cents per gallon to a 12 percent tax on motor and special (diesel) fuels. The conversion to a percentage tax will be effective January 1, 2016 and equates to an immediate 4.9 cents per gallon increase in the state fuel tax, with potential growth overtime as the price of fuel rises. To limit price volatility the rate the tax is calculated has a floor set at $2.45 and a ceiling set at $3.33 on the wholesale price of fuel. This rate is recalculated annually based on the three year average of the wholesale price of fuel.

The second provision is a .25% general sales tax for transportation. The law authorizes counties to enact the sales tax after voter approval. If approved by voters, 0.10% of the funds would be allocated directly to the transit provider, 0.10% to cities, towns and unincorporated county areas, and 0.05% to the county. In areas without transit service, 0.10% of the funds would be allocated to cities, towns and unincorporated county areas and 0.15% to the county. The funds would be distributed via a 50/50 point of sale/population formula among all of the counties who enact the tax.

Not all of the highway user revenues are available to UDOT. These expenditures, transfers and diversions are discussed in another section of this document. **Table 5-1** summarizes the amount of statewide highway revenue projected through the year 2040.

TABLE 5-1

PROJECTED UDOT HIGHWAY REVENUE
WFRC URBANIZED AREA 2015 – 2040

SOURCE	AMOUNT (In current dollars)
Federal Revenue	
UDOT Federal Expenditures Related to Preservation and other non-capacity projects	$1,680,000,000
State Revenue	
Highway User Funds	$10,413,000,000
Transportation Investment Fund (TIF)	$6,434,000,000
New Revenue	$1,014,000,000
Total Statewide Revenue Available	**$19,541,000,000**

For financial planning purposes, the Utah's Unified Plan Finance Subcommittee has allocated state revenues for capacity projects by population between MPOs and the rural state. The population within the Salt Lake City – West Valley City and Ogden – Layton Urbanized Areas is currently 57.3 percent of the State's population but declines to 51.4 percent by 2040.

LOCAL HIGHWAY REVENUES

The main sources of local revenues for transportation projects are: (1) federal funds allocated for the Salt Lake City – West Valley City Urbanized Area and Ogden – Layton Urbanized Area Surface Transportation Program and the Congestion Mitigation / Air Quality Program; (2) Class B and C funds from Utah State highway user revenues designated for counties and municipalities; (3) local entity general funds; and (4) local option taxes. The following section describes the various funds that are available to local municipalities within the Wasatch Front Region.

Federal Funds

The *Intermodal Surface Transportation Efficiency Act* of 1991 established new or reformulated federal spending programs which the WFRC administers to fund highway improvements in urban areas. The *Transportation Equity Act for the 21st Century*, SAFETEA-LU, and MAP-21 continued these programs at higher funding levels. These programs are the Salt Lake City – West Valley City Urbanized Area and Ogden – Layton Urbanized Area Surface Transportation Programs (STP) and Congestion Mitigation / Air Quality Programs (CMAQ). As with the other federal program revenues, a modest growth rate of 1.5 percent per year for each program was assumed for the period between 2015 and 2040. These funds can be used for projects on the state highway system, as well as on local streets. Based on past trends, the 2015 – 2040 RTP assumes that approximately 60 percent of STP and CMAQ funds will be used for state facilities and the other 40 percent will be used for locally owned facilities of regional significance. The STP funds, based on historical trends, assumed 43 percent will be used for capacity improvements, 28 percent for preservation costs, and the remaining 29 percent for operations and miscellaneous projects. The CMAQ funding, based on historical trends, assumes all the funding will be used for operations and other types of projects. Approximately $449,000,000 is projected to be available for STP and approximately $144,000,000 is projected to be available for CMAQ between 2015 and 2040 for the WFRC urban area, in current dollars.

Class B And C Funds

Class B and C road funds are allocated from the State's highway user fees revenue. Currently, 70 percent of the highway user fees are directed to UDOT and 30 percent are diverted to the Class B and C funds. These monies are then divided between counties and municipalities based on a formula that uses population and road miles for calculations. The distribution of Class B and C funds, based on a local survey, assumed 15 percent would be used for capacity improvements, 70 percent for system preservation, and the remaining 15 percent for operations and other types of projects. Although the allocation formula may change in the future, the current percentage was used for the projection of funding from this category for the implementation of the 2015 – 2040 RTP. Approximately $1,208,000,000, in current dollars, is projected to be generated between 2015 and 2040 for the WFRC urban area.

General Funds

Counties and municipalities along the Wasatch Front program a significant amount of their general funds for local road maintenance and improvements. Many of these roads are part of the Region's highway system. Current and past general fund spending on regionally significant roadways was examined to project future revenues. Based on the information provided by the Utah League of Cities and Towns, local governments in the Wasatch Front urbanized area are projected to spend about $88,456,000 on highway improvements in 2015. These local expenditures are projected to grow by 0.73 percent per year through 2040, for a total of approximately $1,842,000,000, in current dollars.

Local Option Funds

As approved by voters in Salt Lake County in November 2000, UDOT was to have received a one-quarter of the one-quarter cent (0.625 percent) share of the transit sales tax in Salt Lake County in perpetuity for the construction of highways. The State Legislature made clear that UDOT was not to use this increase in revenue to supplant funds that would have otherwise been spent in Salt Lake

County. The one-sixteenth of a cent (.0625 percent) local option sales tax was designated for State highway projects in Salt Lake County by later action of the State Legislature. The WFRC is estimating that this sales tax levy will generate approximately $410,000,000 between 2015 and 2040, in current dollars. The State Legislature has authorized the use of local option sales taxes for both highways and transit. Based on the Salt Lake County Council of Governments (COG) ranking and rating process for the third quarter sales tax revenue, UDOT will receive a portion of the one-quarter cent sales tax approved in Salt Lake County in 2006. Approximately a 20 percent of the one-quarter percent (.05 percent) sales tax is projected to be used for roadways from this local option sales tax, this is projected to generate approximately $328,000,000 by 2040, in current dollars. Weber County passed their third quarter local option sales tax in 2008. Local officials have not designated an amount or percentage that will be spent on highway or transit projects, but the majority is currently to be used on local and state roadways. For planning purposes, the WFRC has made the assumption that all funding derived from this source will be used on roads until 2017 and then about half of the one-quarter percent (.125 percent) sales tax will be used for roadway projects through the year 2040. These sources will generates approximately $141,000,000, in current dollars, for state and local roads in Weber County between 2015 and 2040. Box Elder County's existing local option quarter cent sales tax only funds transit. The 2015 – 2040 RTP also assumes that an additional one-half cent sales tax will be approved in all three Counties in 2017, with about .125 percent for highways available in Salt Lake and Weber Counties. The new sales tax revenues would generate approximately $759,000,000, in current dollars, for roadways in Salt Lake County and $122,000,000, in current dollars, for roadways in Weber County through 2040. The 2015 – 2040 RTP also assumes that an additional three-quarter cent local option sales tax would be approved in Davis and Box Elder County, with .25 percent being used for roadways. This would generate approximately $295,000,000 for roads in Davis County and $39,000,000 for roads in Box Elder County by 2040, in current dollars. The remaining increases in local option sales taxes would be directed towards transit. **Table 5-2**, provides a more detailed allocation of the local option sales tax. Revenues from the local option sales taxes in the WFRC urbanized areas are projected to grow at 4.42 percent per year.

Additionally, a portion of the $10 vehicle registration fee for corridor preservation, approved in Salt Lake County in 2006, and approved in Davis and Weber Counties in 2007, could be used for Utah state and local facilities. Vehicle registrations were projected to grow at about 4.04 percent per year through 2040, existing local option vehicle registrations will generate approximately $242,000,000 in Salt Lake County, $70,000,000 in Davis County, and $55,000,000 in Weber County, all in current dollars. The local option vehicle registration fee is assumed to be increased by $5 per vehicle in 2020, 2030, and 2040. This new local option vehicle registration fee could generate approximately $154,000,000 in Salt Lake County, $44,000,000 in Davis County, and $35,000,000 in Weber County in current dollars.

The WFRC assumes that a local option motor fuel and special fuel tax will be adopted by Salt Lake, Davis, and Weber Counties in 2027. The local option fuel tax is projected to be levied at five cents per gallon. This new local option fuel tax would generate approximately $215,000,000 in Salt Lake County, $71,000,000 in Davis County, and $38,000,000 in Weber County in current dollars. **Table 5-3** summarizes the amount of regional and local highway revenue projected through 2040.

TABLE 5-2

LOCAL OPTION SALES TAX – SPLIT BY MODE

QUARTERS	YEAR	TRANSIT	HIGHWAY	TOTAL
Salt Lake County				
1st, 2nd, and 3rd	Existing	0.6875	0.1125	0.80
4th and 5th	2017	0.375	0.125	0.50
Total		1.0625	0.2375	1.30

QUARTERS	YEAR	TRANSIT	HIGHWAY	TOTAL
Davis County				
1st and 2nd	Existing	0.55	0.00	0.55
3rd, 4th, and 5th	2017	0.50	0.25	0.75
Total		1.05	0.25	1.30
Weber County				
1st, 2nd, and 3rd	Existing	0.675	0.125	0.80
4th and 5th	2017	0.375	0.125	0.50
Total		1.05	0.25	1.30
Box Elder County				
1st	Existing	0.30	0.00	0.30
2nd, 3rd, 4th and 5th	2017	0.75	0.25	0.75
Total		1.05	0.25	1.05

TABLE 5-3

PROJECTED REGIONAL AND LOCAL HIGHWAY REVENUE 2015 – 2040

SOURCE	AMOUNT (In current dollars)
Regional and Local Revenue	
Surface Transportation Program (STP)	$449,000,000
Congestion Mitigation / Air Quality (CMAQ)	$114,000,000
Class B and C Program Funds	$1,208,000,000
Local General Fund Contributions	$1,842,000,000
Salt Lake County Existing Local Option Sales Tax (.1125 percent)	$738,000,000
Weber County Existing Local Option Sales Tax (.125 percent)	$141,000,000
Salt Lake County Sales Tax (2017 - .125 percent)	$759,000,000
Davis County Sales Tax (2017 - .25 percent)	$295,000,000
Weber County Sales Tax (2017 - .125 percent)	$122,000,000
Box Elder County Sales Tax (2017 - .25 percent)	$39,000,000
Salt Lake County Existing $10 Vehicle Registration	$242,000,000
Davis County Existing $10 Vehicle Registration Fee	$70,000,000
Weber County Existing $10 Vehicle Registration Fee	$55,000,000
Salt Lake County $5 Vehicle Registration Fee (2020, 2030, and 2040)	$154,000,000
Davis County $5 Vehicle Registration Fee (2020, 2030, and 2040)	$44,000,000
Weber County $5 Vehicle Registration Fee (2020, 2030, and 2040)	$35,000,000
Salt Lake County Local Option Fuel Tax (2027 - $.05 per gallon)	$215,000,000
Davis County Local Option Fuel Tax (2027 - $.05 per gallon)	$71,000,000
Weber County Local Option Fuel Tax (2027 - $.05 per gallon)	$38,000,000
Total Regional and Local Highway Revenue	**$6,631,000,000**

TRANSIT REVENUE SOURCES

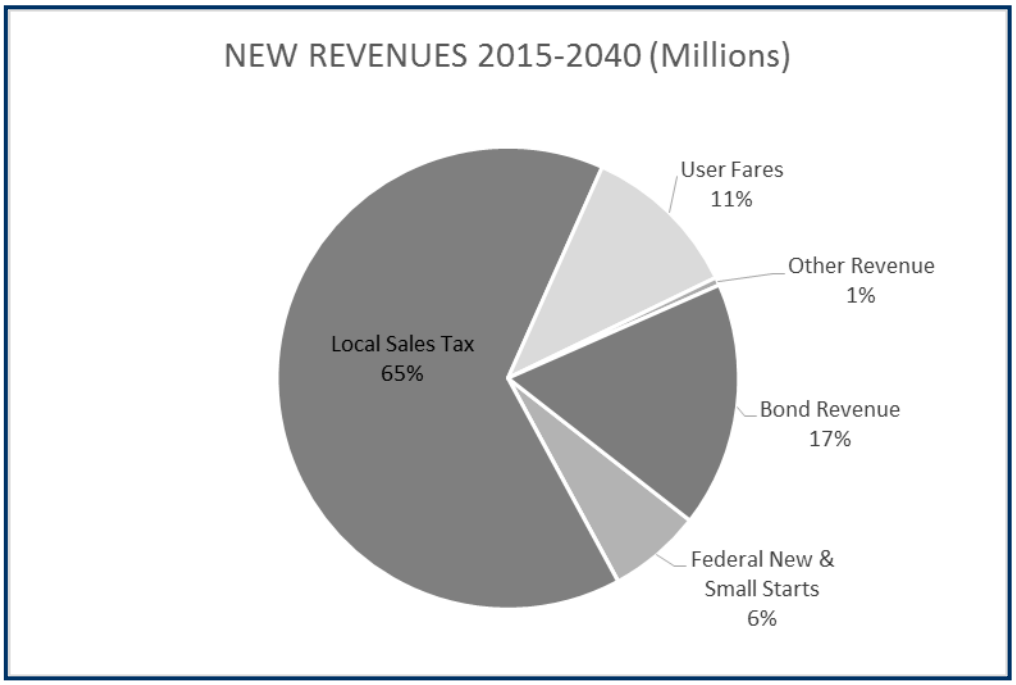
The Utah Transit Authority expanded tremendously during the previous two decades. The Authority is still in the process of absorbing the increased operation and maintenance costs associated with the expansion. The revenues forecasted to be derived from existing sources are anticipated only to cover the costs of operating, maintaining and administering the system as it exists today. None of the new, proposed 2015 – 2040 RTP projects can be funded with the forecasts for existing revenue streams and will require new sources of revenue such as the following:

- Increases in local option sales tax for transit or its equivalent
- Fares forecasted from the increased transit ridership tied to the proposals
- Bond revenues
- Competitive federal grants awarded noteworthy projects
- Increases in federal formula grants that are tied in part to the proposed service increases

Project funding for transit represents a $6,000,000,000 increase, or 35 percent increase over the $11,200,000,000 existing revenue. **Figure 5-1** provides a graphical representation of the new funding from the major sources assumed to be available to pay for transit improvements in the 2015 – 2040 RTP. With the exception of federal formula grants, each source will be discussed below. All values are shown in current dollars rather than inflated, year of expenditure dollars unless otherwise stated.

FIGURE 5-1

NEW REVENUE BY ASSUMED SOURCES



Local Sales Tax Revenue

Local option sale tax revenue, or the equivalent, represents 65 percent of anticipated new transit funding for the 2015 – 2040 RTP. In the recent past, support for additional transit funding by local governments, the business community, citizens, and the Utah State legislators have resulted in significant new local option sales tax being approved for transit expansion. In the 2015 Legislative Session a local option sales tax increase was authorized and current polls indicate a majority of the citizenry are in favor of it. The 2015 – 2040 RTP, similar to the 2011 – 2040 RTP, assumes that by

2017 the local sales tax revenues will increase to about 1.05 percent of each dollar of sales throughout the UTA service area. These revenues are assumed to grow in line with UTA forecasts for current sales tax revenues. Overall, an average annual growth rate of 5 percent is anticipated.

The Utah Transit Authority uses the above outlined growth assumptions for the preparation of its annual budget, in demonstrating financial capacity to federal officials, and for proving credit worthiness to bond rating agencies. Total local sales tax revenue, derived from the existing sales tax levels through 2040, is projected to be $6,900,000,000. Future receipts from the increased local sales tax rates for this period are projected to be $3,900,000,000, again representing 65 percent of all RTP revenue. **Table 5-4** summarizes the annual and total transit revenue amounts derived from local option sales tax funds for the period between 2015 and 2040.

Fare Revenue

The WFRC anticipates that 11 percent of the new revenues called for in the 2015 – 2040 RTP will be generated from fares which patrons will pay to use new transit services. These estimates of future fare revenues are based on the WFRC travel model, UTA ridership elasticity, and UTA assumptions regarding fare increases. The WFRC travel demand model is the regionally and federally recognized computer model which is used to forecast highway and transit use. The UTA ridership elasticity values, and UTA assumptions regarding fare increases, are derived from the master financial spreadsheet. The spreadsheet is used by UTA for annual budget preparation, to demonstrate financial capacity to the federal officials for New Starts Projects, and to demonstrate its credit worthiness to bond rating agencies.

The Utah Transit Authority's ridership will increase as transit projects proposed in the 2015 – 2040 RTP are implemented and service is improved. Total ridership is projected to be about 214,000 linked trips starting in the WFRC area each weekday in 2040. As for fare increases, UTA anticipates that it will need to increase the average fare per boarding of approximately two percent per year over the period of time covered by the RTP. Between 1999 and 2013, the average fare per boarding increased by 5.2 percent per year. To summarize, new fare revenues generated from ridership on UTA services will net $675,000,000 over the next 26 years.

Project Construction Bonds

Approximately 17 percent of anticipated new transit revenues for the 2015 – 2040 RTP are loans that UTA would secure in the form of bonds issued in order to accelerate the transit program. The

TABLE 5-4

TRANSIT LOCAL OPTION SALES TAX
YEAR OF EXPENDITURE DOLLARS

QUARTERS	YEAR	TRANSIT	MID PLAN ANNUAL REVENUE	TOTAL 2015 - 2040 REVENUE
Salt Lake County				
1st, 2nd, and 3rd	Existing	0.6875	$260m	$7,500m
4th and 5th	2017	0.3750	$137m	$3,600m
Total		1.0625		
Davis County				
1st and 2nd	Existing	0.55	$39m	$1,100m
3rd, 4th, and 5th	2017	0.50	$37m	$946m
Total		1.05		
Weber County				
1st, and 2nd	Existing	0.55	$32m	$936m

QUARTERS	YEAR	TRANSIT	MID PLAN ANNUAL REVENUE	TOTAL 2015 - 2040 REVENUE
	Allocations*			
3rd*, 4th and 5th	2017*	0.50	$29m	$778m
Total*		1.05		
Box Elder County				
1st	Existing	0.30	$3m	$74m
2nd, 3rd, 4th and 5th	2017	0.75	$2m	$61m
Total		1.05		
Tooele County				
1st	Existing	0.30	$3m	$77m
2nd, 3rd, 4th and 5th	2017	0.75	$7m	$175m
Total		1.05		
*It is assumed that Weber County will begin allocating funding from the 2008 sales tax to transit in 2017				

Utah Transit Authority has the authority to bond, provided that the total anticipated net agency revenues available for debt service and capital purchases exceed the bond payments by at least 14.5 percent. Additionally, UTA requires that its debt load not exceed 3 percent of its total asset value. Currently, UTA has no additional bonding capacity beyond that which has already been used. However, some bonding capacity is anticipated starting at the end of the first phase of the 2015 – 2040 RTP. The cost of bonding is dependent upon how attractive a bond offer is to investors. The municipal bond market traditionally offers low risk, tax free income for investors.

Federal Competitive Grants

The WFRC anticipated that 6 percent of new revenues for the 2015 – 2040 RTP are federal grants awarded to noteworthy projects. These types of grants are competed for on a nationwide basis and they typically pay about 50 percent of the construction costs of awarded projects. Nominated projects need to meet specified requirements. The award selection process is guided by a rigorous planning process and a set of selection criteria. Historically, the U.S. Congress authorizes about $1,500,000,000 each budget year for “new starts” programs. Sequestration affects these funding sources and is still in effect. However, the 2015 – 2040 RTP anticipates the receipt of $396,000,000 from these sources over the course of the next 26 years.

The various new transit revenue sources assumed for the 2015 – 2040 RTP have been broken out into the three phases identified for the regional transportation plan. The following figures, **Figure 5-2**, **5-3**, and **5-4** show the dollar amounts in current year dollars and percentage for each source of revenue.

FIGURE 5-2

PHASE 1 - PROJECTED NEW TRANSIT REVENUES BY SOURCE

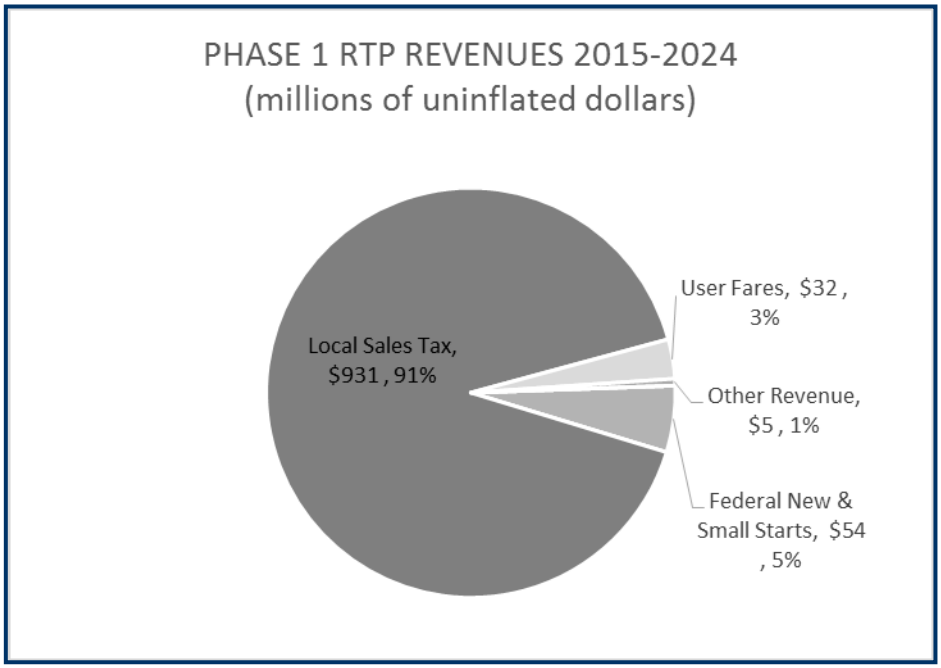


FIGURE 5-3

PHASE 2 - PROJECTED NEW TRANSIT REVENUES BY SOURCE

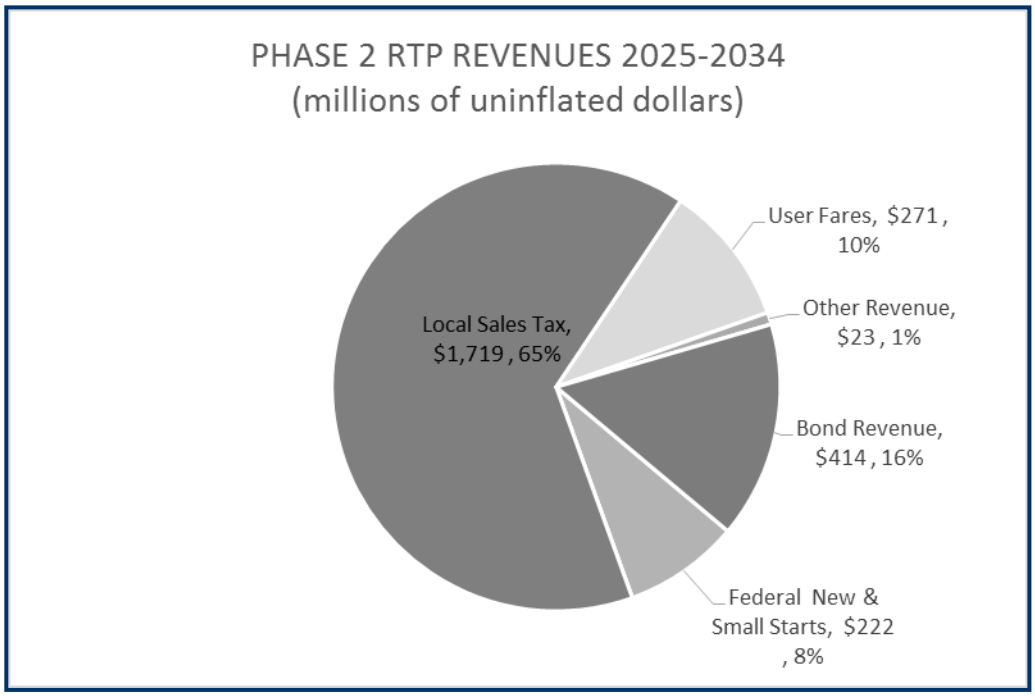
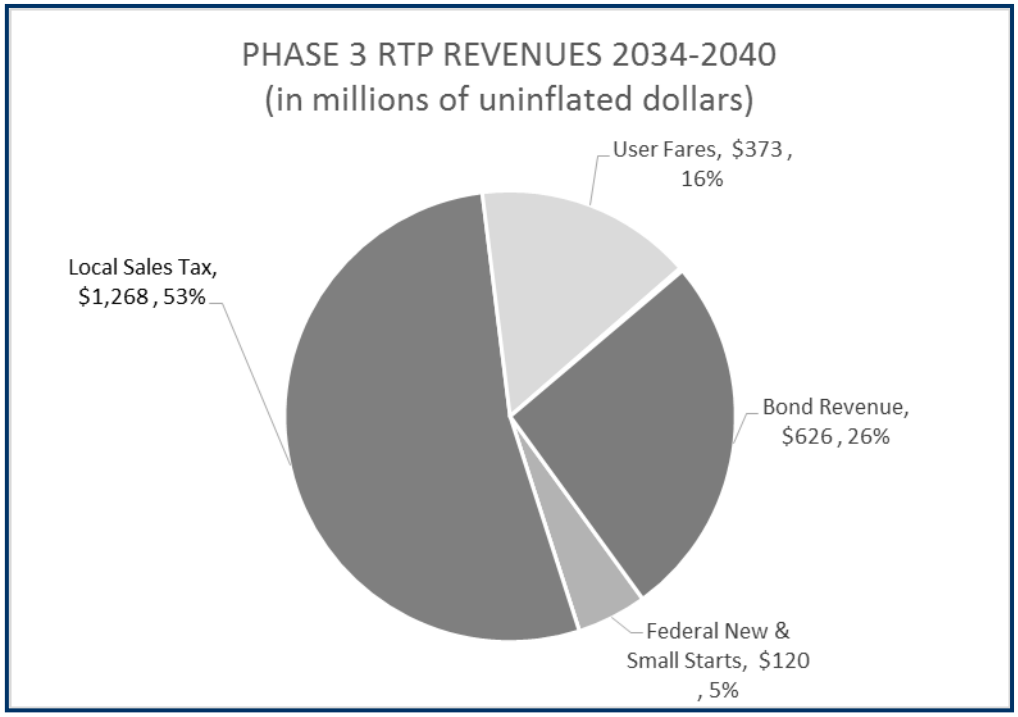


FIGURE 5-4

PHASE 3 - PROJECTED NEW TRANSIT REVENUES BY SOURCE



PROJECTED COSTS OVERVIEW

The costs for making needed improvements for both highways and transit, as identified by the 2015 – 2040 RTP, were analyzed by the WFRC, UDOT, UTA and the other local MPOs. Costs include those required to meet the specific system needs identified in the 2015 – 2040 RTP, as well as cost estimates for general administration, operations, maintenance, and preservation of the existing transportation system. Projected costs for highway improvements have been adjusted at an annual 4 percent inflation rate, while the projected costs for transit operations and maintenance have been adjusted at an annual 2.3 percent rate.

STATEWIDE HIGHWAY COST ESTIMATES

For purposes of the 2015 – 2040 RTP, the Utah Department of Transportation has estimated the current costs to operate, maintain and preserve, and administer the Utah State highway system. In addition, through its asset management program, UDOT has estimated the future level of funding needed to maintain UDOT's system. For planning purposes the Financial Subcommittee of the Utah's Unified Plan Executive Committee assumes that future construction projects will include system maintenance and preservation, with an annual growth rate of 4.5 percent for both categories.

Though UDOTs asset management program, interstate rehab, interstate preservation, National Highway System (NHS) Rehab, NHS Preservation, Surface Transportation Program Rehab, and STP Preservation costs were identified using the current condition of the roadway, maintenance and preservation requirements, and other factors. Costs were based on conditions of individual facilities and then summarized by planning area. Within the Wasatch Front Region's urbanized areas, it is projected that $1,423,000,000 is needed for all UDOT pavement needs in the WFRC Urbanized Areas.

The Utah Department of Transportation has identified various "other costs" categories including pipe culvert replacement, traffic signal maintenance, traffic management replacement, barrier replacement, lighting, sign modification, safety spot improvement, traffic signals replacement, and maintenance spot improvement. Based on UDOT assumptions, about $132,000,000 will be required for other expenditures from 2015 through 2040 in the WFRC urbanized areas.

As part of the planning process, UDOT estimated its statewide costs for bridge maintenance and replacement activities. Based on UDOT assumptions, about $438,000,000 is needed for bridge preservation and replacements between 2015 and 2040 in the WFRC urbanized areas.

The Utah Department of Transportation's expenditures include support services, engineering services, maintenance management (Operations), construction management, region management, equipment management, aeronautics, share-the-road, B and C distribution, safe sidewalks, mineral lease, corridor preservation, toll way, counties of the 1st and 2nd class, highway projects within counties, and non-appropriated. Transfers and diversions of UDOT funds include sales of capital assets, transfers to and from the Transportation Investment Fund, and other transfers. These operations and other expenses total $11,001,000,000 over the next 25 years, in current dollars for the WFRC urbanized area. For the planning purposes of the 2015 – 2040 RTP, some of these expenditures and transfers were not specifically allocated to the WFRC, but were kept at a statewide level. The majority of these funds is simply passed through to other state agencies or is not specific to Wasatch Front region. Thus, they are more suited to be kept at a statewide level. The Utah Department of Transportation estimates that the future amount of diversions to other government agencies will continue at the same rate as in previous years – approximately 3.24 percent. **Table 5-5** summarizes the amount of statewide highway operation and preservation costs projected from 2015 to 2040.

Capacity needs and the selection process for projects in the 2015 – 2040 RTP will be explained in more detail in Chapter 6 and 7, but total approximately $9,100,000,000 for UDOT project in the WFRC area.

The total UDOT projected needs for the Wasatch Front Region totals $22,094,000,000. All costs are projected to grow at 4.5 percent per year, including 4 percent for construction inflation and .5 percent for growth in the roadway system.

TABLE 5-5

PROJECTED STATEWIDE HIGHWAY COSTS 2015 – 2040

UDOT EXPENDITURES	AMOUNT (In current dollars)
Roadway Preservation Needs	$1,423,000,000
Other Needs	$132,000,000
Bridge Needs	$438,000,000
Operations and Various Needs	$11,001,000,000
Capacity Needs	$9,100,000,000
Total UDOT Costs, Expenditures, and Transfers	**$22,094,000,000**

LOCAL HIGHWAY COST ESTIMATES

Estimates were made for municipalities and counties with assistance from the Utah League of Cities and Towns (ULCT), the Utah Association of Counties (UAC), the Utah Foundation, and the Utah Local Technical Assistance Program (Utah LTAP). These assumptions are based on a survey of

local agency highway expenses, various studies, and available data. Growth and inflation assumptions were applied to these cost totals for the period 2015 through 2040. **Table 5-6**, entitled "Projected Local Highway Cost 2015 – 2040" is shown on the following page.

Administration / Traffic Operations And Safety / and Other Costs

Administration costs are expenditures associated with managing transportation agencies and the transportation divisions of larger local public works departments. These costs include expenditures for staff, planning activities, preliminary engineering, etc. Traffic operations activity includes signing, marking, and signal installation and maintenance. Safety improvements include hazard elimination, intersection upgrades, railroad crossing improvements, and similar projects. It is estimated that these items will cost about $458,000,000 between 2015 and 2040, in current dollars.

Maintenance and Preservation Needs

Local highway maintenance activities include snow removal, sweeping, weed control, crack sealing, pothole repair, etc. Pavement preservation actions are surface treatments for streets and highways, which are more extensive than routine maintenance. These treatments range from chip seal work to full reconstruction and major resurfacing. It is estimated that during the period 2015 – 2040, local governments maintenance and preservation need will be approximately $3,659,000,000 on maintenance and preservation activities.

Capacity needs for local roads of regional significance and the selection process for these projects in the 2015 – 2040 RTP will be explained in more detail in Chapter 6 and 7, but total approximately $2,422,000,000 for local project in the WFRC area. Locally classified roads capacity needs will be approximately $582,000,000 by 2040. These total $3,004,000,000 of local capacity needs.

The total local projected needs for the Wasatch Front Region totals $22,094,000,000. All costs are projected to grow at 4.5 percent per year, including 4 percent for construction inflation and .5 percent for growth in the roadway system.

TABLE 5-6

PROJECTED LOCAL HIGHWAY COSTS 2015 – 2040

EXPENDITURES	AMOUNT
Administration / Traffic Operations and Safety / Other Needs	$458,000,000
Maintenance And Preservation Needs	$3,659,000,000
Capacity Needs	$3,004,000,000
Total Local Highway Costs	**$7,121,000,000**

TRANSIT COST ESTIMATES

The Wasatch Front's Regional Transportation Plan for 2015 – 2040 must be cost constrained. Only projects tied to reasonable funding assumptions can be included in the RTP. Costs were estimated for the new transit service and projects in the 2015 – 2040 RTP in order to determine which could be included in each of the RTP's three funded phases. Construction, operation, maintenance, administration, facility, and debt service costs were all estimated for the RTP's recommended services and projects. The first portion of this section will briefly discuss how cost figures of the 2015 – 2040 RTP were estimated and total costs are summarized at the end of this section. The RTP's transit costs fall into the following three general categories:

- Large Project Costs and Debt Service
- Service Increases/Programmatic Line Items
- Inflation

All costs are reported in uninflated, current year, dollars in order to portray their order of magnitude.

Large Project Costs and Debt Service

The Utah Transit Authority has substantial experience with building and operating transit systems. The Wasatch Front Regional Council took advantage of this experience by working closely with UTA to estimate costs. Large project capital cost estimates include construction, acquisition of vehicles, and vehicle maintenance facilities. Large project operating costs include the direct operations, administration costs, daily maintenance and some major repairs. Directly related to project capital costs but handled separately is the Debt Service and vehicle replacement associated with the projects.

Project Costs were estimated using generic unit costs unless specific studies have produced cost estimates more specific to the subject question. Where specific studies have resulted in more refined cost estimates, these costs were used. All generic costs are presented in uninflated, 2015 dollars. The project list, located in Chapter 7, Planned Improvements, provides individual project capital and operating costs. A more detailed breakdown of the unit costs is provided in **Appendix J**.

Rail

The total cost of 2015 – 2040 RTP rail project construction and new operations is $971,000,000. No typical commuter rail, line upgrade, or light rail capital costs were used in the 2015 – 2040 RTP. All Commuter Rail and line upgrade capital costs were individually assessed by UTA's Capital Development Department and the cost of the Draper South TRAX extension, the only funded light rail line, was obtained from its specific study. Corridor preservation projects for future UTA commuter rail and light rail projects on existing, fully dedicated, fixed guideways were estimated to cost $1,100,000 and $1,000,000 a mile, respectively.

Typical streetcar capital costs were estimated to be $44,900,000 per mile. This includes, among other things, $14,700,000 for track and right-of-way, a $316,000 per mile allotment for maintenance facility construction, four stations per mile at $450 million each, and a 30 percent contingency. Operating and maintenance costs for streetcar lines are calculated as $370,581 per year per mile. This estimate is based on information provided by the National Transit Database as reported by UTA.

Bus Rapid Transit

The total cost of 2015 – 2040 RTP new Bus Rapid Transit (BRT II) project construction and operations is $1,976,000,000. Typical BRT II capital costs were estimated to be $15,500,000 per mile. This includes, among other things, $6,500,000 for exclusive lanes and right-of-way, a $250,000 per mile allotment for maintenance facility construction, four stations per mile at $450 million each, and a 30 percent contingency. Operating and maintenance costs for BRT II are calculated at $348,566 per year per mile, based upon cost National Transit Database costs as reported by UTA. Corridor preservation projects for BRT on existing, independent transit guideways were estimated to cost $1,100,000 per mile.

Enhanced Bus (BRT1)

The total cost of 2015 – 2040 RTP Enhanced Bus (BRT I) project construction and operations is $913,000,000. Typical Enhanced Bus (BRT I) capital costs were estimated to be $2,200,000 per mile. Capital costs includes among other things, $800,000 for stations, signal priority, $131,500 for a maintenance facility, and 30 percent for contingencies. If a transit project is constructed at the same time as a roadway project, overall costs were assumed to be reduced by approximately 10 percent, or $2,000,000 per mile. Operating and maintenance expenses for Enhanced Bus (BRTI) are calculated as $348,566 per year per mile based upon National Transit Database costs as reported by UTA for local bus.

Other Projects

Other projects in the 2015 - 2040 RTP include park and ride lots, transit hubs, and vehicle maintenance facilities or Garages. These are in addition to the "minor capital projects" in UTA's Transit Development Program. The total cost of 2015 – 2040 RTP 'other projects' construction is $97,200,000. The majority of these costs is from the Depot District/Central Garage project at an estimated cost of $50,200,000. Next terms of cost is the Mt. Ogden Garage at an estimated cost of $15,000,000. Typical park and ride facilities and transit hubs costs were estimated to be about $2,500,000 each. More complex park and ride and hub costs are naturally cost more. The Layton FrontRunner Station parking structure was estimated to cost about $4,500,000 and the 200 South Transit hub stretching from 650 West to 200 East about $5,000,000.

Bonding

Bonding can generally be used to accelerate the implementation of larger projects. The 2015 – 2040 RTP recommends an aggressive transit project schedule. This strategy will requires incurring additional debt and debt payments above that which UTA has already entered into for commuter rail construction and other past capital development programs. Additional debt service for the 2015 – 2040 RTP major capital projects is anticipated to be as follows: $0 in the first phase; $120 million in the second phase; and $431,000,000 in the third phase. An additional $700,000,000 in debt will be outstanding at the end of 2040. Interest payments after 2040 will amount to $420,000,000, of which $220,000,000 would have been incurred for 2015 – 2040 RTP transit projects.

Service Increases/Programmatic Line Items

Programmatic line items are groups of small projects that would not typically be addressed in a regional transportation plan, but are of special interest to the Region's transportation agencies. Funded programmatic line items in the transit project list are: (1) Asset Management / State of Good Repair; (2) Intelligent Transportation Systems; and (3) Local Bus and Existing Rail System Span of Service Increases. Each of these line item types are detailed below. All of the programmatic line item costs are estimated using a UTA master spreadsheet. This planning tool is used by UTA to guide its annual budgeting efforts, to meet federal requirements, and to demonstrate financial stability to bonding agencies.

Asset Management / State of Good Repair

Asset Management / State of Good Repair (AM/SOGR) refers to maintenance, overhaul, and replacement of assets like rail and bus vehicles, railroad track and Bus Rapid Transit lanes, railroad crossings, and station platforms. AM/SOGR is identified in the 2015 – 2040 RTP both for the management of existing assets and for the management of future assets constructed as part of the 2015 – 2040 RTP.

AM/SOGR for existing transit facilities is a substantial portion of total future transit costs. Between 1996 and 2014, 134 miles of rail were built along the Wasatch Front at a construction cost of about $4,700,000,000 in current year (2015) dollars. The Utah Transit Authority also has nearly 1,100 buses and vans, 200 rail vehicles, and multiple administrative facilities with related equipment. Often it is more costly to conduct repairs to a facility than it cost to build it in the first place in part because it is in use while you are making the repairs.

The latest federal reauthorization of transportation funding requires transit agencies to develop an asset management plan. The Utah Transit Authority's state of good repair practices were recognized by FTA in the January 2, 2015, Transit Asset Management Newsletter as noteworthy in the development of a state of good repair evaluation process. The UTA's Capital Development Department has conducted a preliminary analysis of state of good repair for the 2015 – 2040 RTP. The costs attributed to the management and state of good repair of current assets are directly from this UTA effort. The UTA analysis was reviewed by Lewis, Young, Robertson, and Burningham, Inc., which is an independent municipal securities firm. These total costs amount to $2,466,000,000.

The AM/SOGR for future assets constructed as part of the 2015 – 2040 RTP is a relatively minor portion of total future transit costs. This is because a substantial portion of the capital facilities are proposed for initial construction well into the RTP planning horizon and would not be anticipated to need major reconstruction until after the 2015 – 2040 RTPs 2040 planning horizon. Forecasts for future project AS/SOGR were based by UTA upon a portion of the initial project capital costs and the project life-cycle. These total costs amount to $208,000,000.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) refers to electronic applications which aid in management of transit facilities such as vehicles and parking garages and which provide the traveler information in real time with which their behavior can be influenced or their trip can be more pleasant. Potential benefits include better preventative maintenance, more rapid response to vehicle breakdowns, direction to available parking spaces, or real time vehicle arrival information. Costs for these types of improvements are programmed to continue at current levels through 2040 in the 2015 – 2040 RTP.

Local Bus and Existing Rail System Span of Service Increases

Refers to service increases that improve the hours and days of service, the frequency of service for existing local bus and rail or the geographic coverage of bus service. About $1,000,000 is programmed in the 2015 – 2040 RTP for these costs.

Inflation

As stated previously, unless stated otherwise, all the costs in the 2015 – 2040 RTP are provided in 2015 dollars. The vast majority of transit costs in the 2015 – 2040 RTP were initially estimated in 2015 dollars and were then inflated to year of expenditure dollars using a 2.3 percent annual rate. This rate of inflation was derived from the national Consumer Price Index and has been adopted by the UTA Board of Directors for use in their master spreadsheet. This spreadsheet is used to calculate the costs of construction projects and operating and maintenance costs.

Cost Summary

Costs associated with projects in the 2015 – 2040 RTP, by general category of expenditure, are graphically displayed in **Figure 5-5**. These same costs are broken out by the 2015 – 2040 RTP's three funded phases in **Figures 5-6, 5-7, and 5-8**.

FIGURE 5-5

TRANSIT COST BY GENERAL CATEGORY OF EXPENDITURE

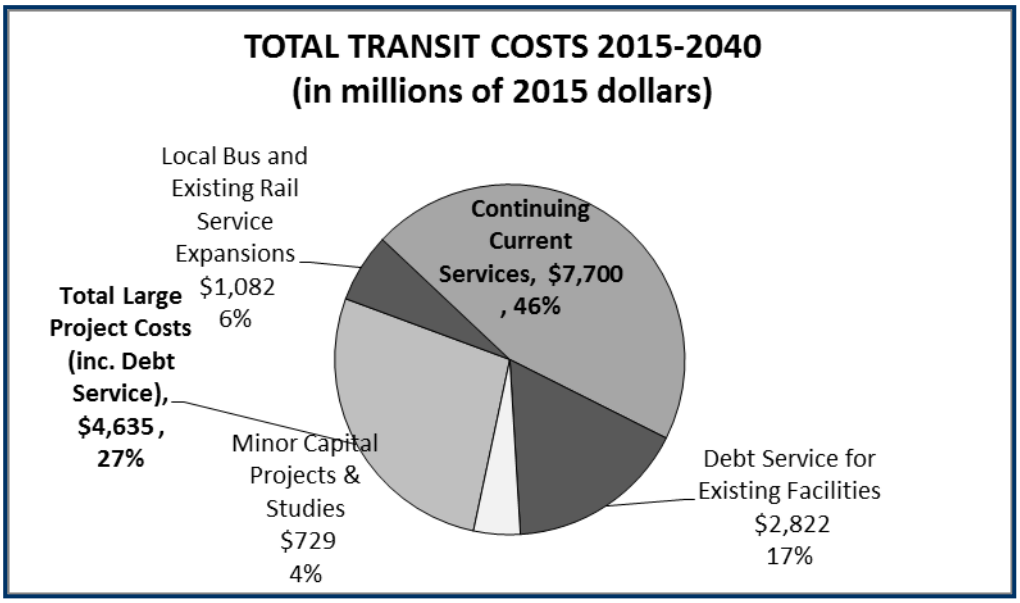


FIGURE 5-6

PHASE 1 - PROJECTED TRANSIT COSTS BY CATEGORY OF EXPENDITURE

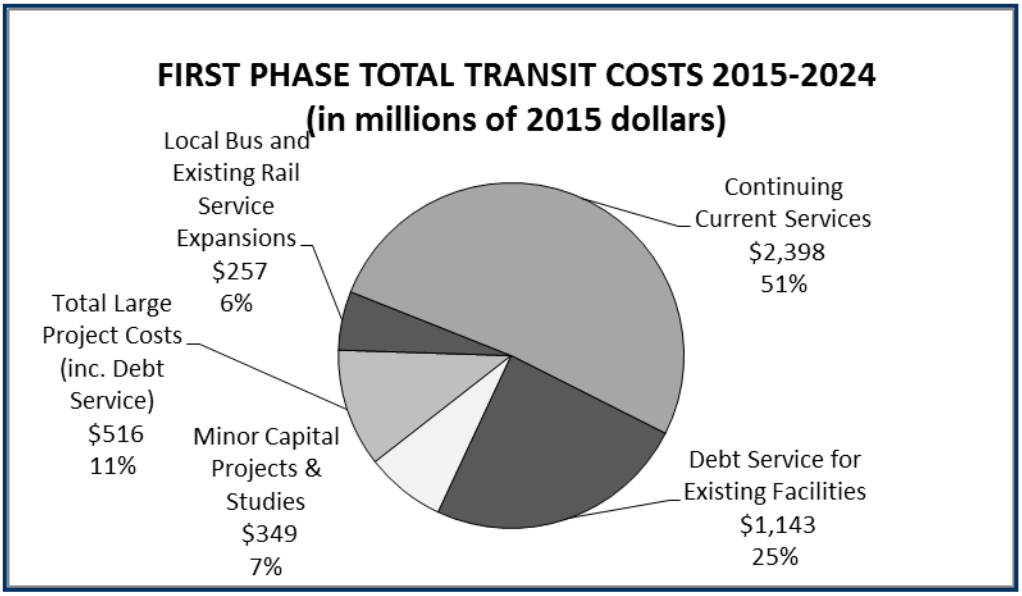


FIGURE 5-7

PHASE 2 - PROJECTED TRANSIT COSTS BY CATEGORY OF EXPENDITURE

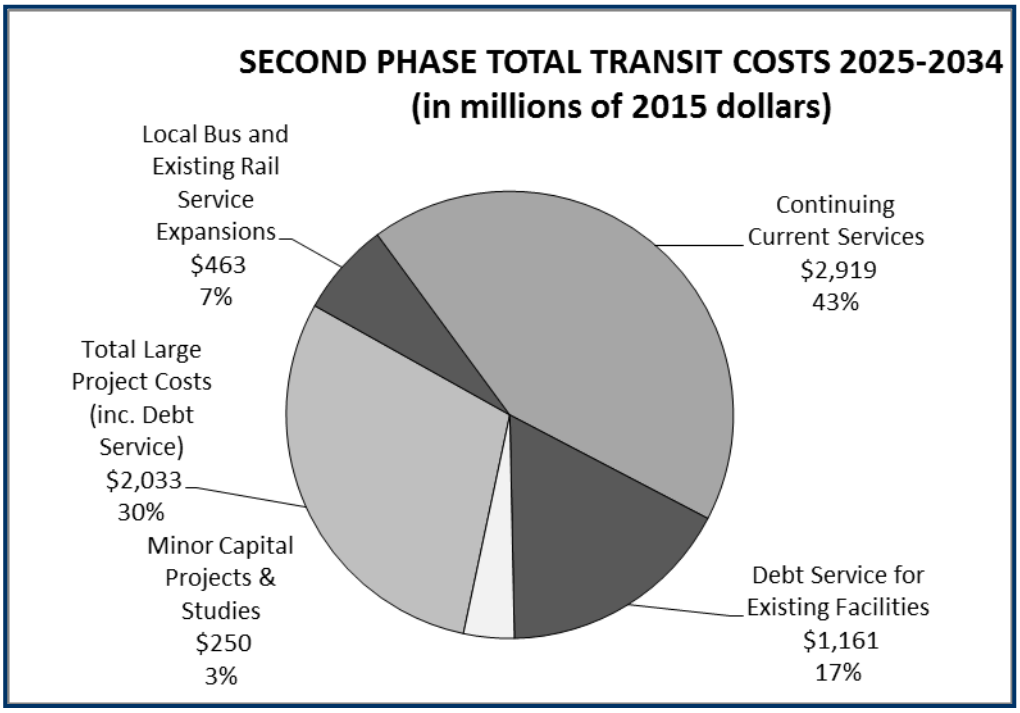
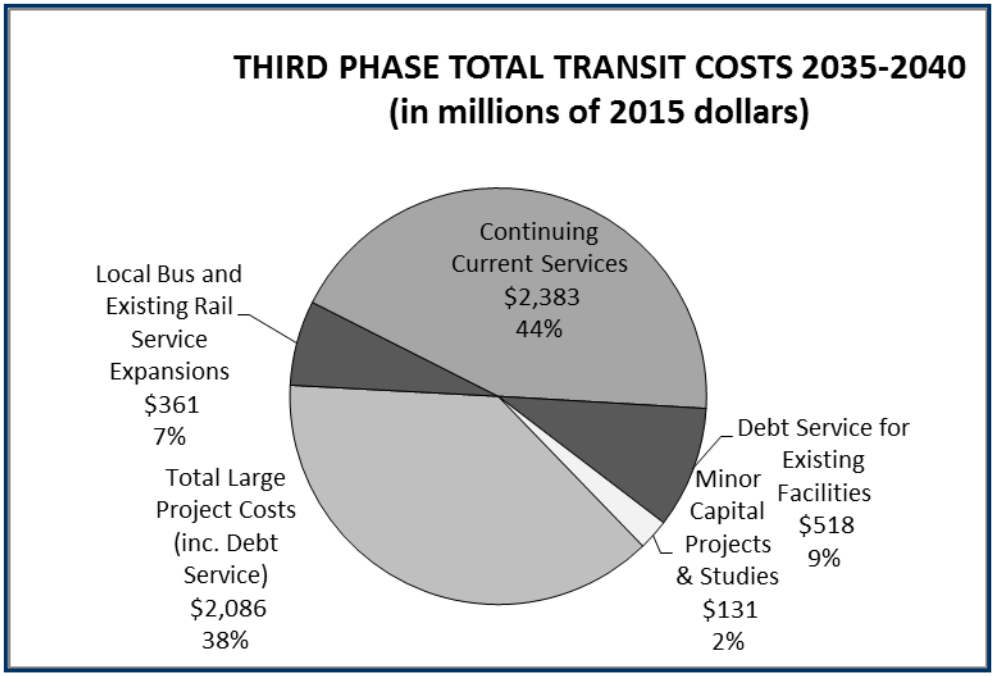


FIGURE 5-8

PHASE 3 - PROJECTED TRANSIT COSTS BY CATEGORY OF EXPENDITURE



BICYCLE COST ESTIMATES

To arrive at a cost per mile, every state facility that had a planned bike facility on the UCATS network was assessed for shoulder width. Using the known shoulder widths as derived from the UDOT lidar data, an additional width needed to add a bike facility in the range of 4-6 feet depending on speeds and traffic data was determined. Then costs for additional pavement and base depending on pavement type were used to calculate a total cost for the system based on width needed. The total cost was then divided by the number of miles of remaining planned bike facilities to determine a cost per mile estimate.

This cost estimate was applied to all proposed bike lane projects, less those that lie on widening or new construction highway projects in the Regional Transportation Plan, as bicycle facility considerations are assumed to be included in these project scopes. Additionally, projects outside the urbanized boundary are assumed to not lie on the road system and will have different costs associated; these routes were therefore excluded. The cost estimate was multiplied by the number of miles of remaining planned bike facilities, for both the Priority and Base Networks.

Table 5-7 explains Base Bicycle Network Cost Methodology. See below for step-by-step methodology process to estimate bicycle costs for the base network. The total cost estimate for the base bicycle network is $244,015,000.

TABLE 5-7

BASE BICYCLE NETWORK COST METHODOLOGY

1: Select proposed projects in Base Bike Network.

COUNTY	NUMBER OF SEGMENTS; LENGTH
Salt Lake County	765 bike lane segments; 590 miles
Davis County	333 bike lane segments; 327 miles
Weber County	656 bike lane segments; 631 miles
Box Elder County	106 bike lane segments; 118 miles
Total	**1860 bike lanes segments; 1666 miles**

2: Eliminate bike routes which overlap widening and new construction highway projects; exclude trails outside Urbanized Area boundary.

COUNTY	REMAINING LINES; LENGTH
Salt Lake County	688 remaining lines; 480 miles
Davis County	293 remaining lines; 270 miles
Weber County	539 remaining lines; 465 miles
Box Elder County	98 remaining lines; 104 miles
Total	**1618 remaining lines; 1319 miles**

3: Apply cost estimate to bike network mileage.

COUNTY	LENGTH x COST; TOTAL COST
Salt Lake County	480 miles x 185k/mile = $ 88,800,000
Davis County	270 miles x 185k/mile = $ 49,950,000
Weber County	465 miles x 185k/mile = $ 86,025,000
Box Elder County	104 miles x 185k/mile = $ 19,240,000
Total	**1319 miles x 185k/mile = $244,015,000**

The cost estimate for the Regional Priority Bicycle Network follows the same cost assumptions as the base bicycle cost estimate. The total cost estimate for the Regional Priority Bicycle Network is $113,775,000The following methodology was used.

(1) Select proposed routes in the Priority Bike Network. Result: 801 bike lane segments.

(2) Select bike routes which overlap widening and new construction highway projects (168 selected), eliminate these routes. Result: 633 remaining lines; 615 miles.

(3) Apply cost estimate to remaining bicycle network.

SUMMARY

Statewide funding available to UDOT for capacity enhancement projects is divided among Utah's four MPOs based on each organization's proportion of the State's population. The 2015 – 2040 RTP assumes that the Wasatch Front Regional Council will receive 57.3 percent of available State

funding in 2015. After that date, the percentage decrease each year until it reaches 51.4 percent by 2040.

Summarized below, and in **Tables 5-8, 5-9, and 5-10**, are revenues to be used for enhancing capacity, preservation and maintenance, operations, and meet the needs of state and local roads of regional significance. The cost for highway projects to meet capacity needs, by RTP phase, is presented when the project is needed. All revenues and costs in previous section of this chapter are presented in future values. The net present values were used to financially constrain the 2015 – 2040 RTP.

TABLE 5-8

STATE AND LOCAL HIGHWAY CAPACITY FUNDING ALLOCATIONS
2015 – 2040

CAPACITY (NPV)				
State Roads	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	1,450,350,788	3,130,720,112	2,009,563,440	6,590,634,339
New Revenues	165,921,743	297,691,557	239,390,680	703,003,979
Financing	1,219,188,538	(644,810,957)	(474,436,681)	99,940,900
Needs	3,776,538,307	3,797,136,197	1,526,592,587	9,100,267,091
Unfunded Capacity Needs	**(941,077,239)**	**(1,013,535,485)**	**247,924,851**	**(1,706,687,873)**
Local Roads of Regional Significance	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	579,093,164	546,009,655	318,547,953	1,443,650,772
New Revenues	233,346,632	432,843,442	300,830,967	967,021,041
Financing				
Needs	1,217,166,296	645,225,952	559,447,120	2,421,839,368
Unfunded Capacity Needs	**(404,726,500)**	**333,627,146**	**59,931,799**	**(11,167,555)**
Local Roads	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	135,253,342	129,233,567	76,111,280	340,598,189
New Revenues	58,336,658	108,210,861	75,207,742	241,755,260
Financing				
Needs	193,590,000	237,444,427	151,319,022	582,353,449
Unfunded Capacity Needs	**-**	**-**	**-**	**-**

TABLE 5-9

STATE AND LOCAL HIGHWAY PRESERVATIOIN FUNDING ALLOCATIONS
2015 – 2040

PRESERVATION (NPV)				
State Preservation	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	561,726,515	588,190,708	308,360,498	1,458,277,721
New Revenues	70,032,860	131,405,576	109,229,028	310,667,464
Financing				
Needs	736,156,106	773,965,786	482,514,071	1,992,635,963
Unfunded State Preservation Needs	**(104,396,732)**	**(54,369,502)**	**(64,924,544)**	**(223,690,778)**
Regional and Local Preservation	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	974,101,223	807,265,114	416,495,388	2,197,861,724
New Revenues	291,683,290	541,054,303	376,038,708	1,208,776,301
Financing				
Needs	1,353,489,942	1,419,987,575	885,263,919	3,658,741,437
Unfunded Local Preservation Needs	**(87,705,430)**	**(71,668,158)**	**(92,729,824)**	**(252,103,412)**

TABLE 5-10

STATE AND LOCAL OPERATIONS FUNDING ALLOCATIONS
2015 – 2040

	OPERATIONS (NPV)			
State/County/Local Operations	**2015-2024**	**2025-2034**	**2035-2040**	**2015 - 2040**
Existing Revenues	5,039,173,184	4,203,250,615	2,216,463,697	11,458,887,495
New Revenues				
Needs	5,039,173,184	4,203,250,615	2,216,463,697	11,458,887,495
Unfunded Operation Needs	**-**	**-**	**-**	**-**

Highway Capacity Improvement

It is projected that approximately $6,591,000,000, resulting from existing funding sources, is available for capacity improvements to state highways, about $703,000,000 of funding will come from new revenue sources and $100,000,000 from bonding in the WFRC Urbanized Area, in current dollars. Of the approximate $9,100,000,000 of capacity project needs, there will only be about $7,394,000,000 of funding, in current dollars. This results in over $1,700,000,000 of unfunded statewide roadway projects that are needed between 2015 and 2040.

Revenues for increasing the capacity of local roads of regional significance in the Wasatch Front - locally owned roads with a classification between arterial and collector street – are estimated at $1,444,000,000 from existing revenues sources and $967,000,000 from new revenues sources. There will be about $2,410,000,000 of funding for local roads of regional significance capacity projects. Financial planners assumed there will be adequate funding through existing and new revenues. Hence, no bonding will be needed and there are no unfunded local highway projects of regional significance.

Funding for local road capacity improvements within Wasatch Front Region is approximately $341,000,000 from existing revenues, and $242,000,000 from new revenues, in current dollars. This totals about $582,000,000 available for locally classified capacity project costs in net present value. The 2015 – 2040 RTP assumes that developer contributions and impact fees will also contribute to the local roadway network and these projects will be built with the development.

Highway Preservation And Maintenance

Preservation and maintenance funds for the state roadways is estimated to be approximately $1,458,000,000 through existing revenues and $311,000,000 from new revenues for the Wasatch Front Region. It is projected that there is about $1,993,000,000 of preservation needs, leaving about $224,000,000 of unfunded preservation and maintenance projects in the Wasatch Front between 2015 and 2040.

Funding available for preservation for the local roads within the Wasatch Front Region – both local roads of regional significance and locally classified - is approximately $2,197,000,000 from existing revenues and $1,209,000,000 from new revenues. There is approximately $3,659,000,000 of preservation and maintenance needs, in current dollars. There will be about $252,000,000 of unfunded local roads projects that are needed between 2015 and 2040.

Operations

Funding available for operations for UDOT and the local communities is approximately $11,459,000,000 from existing revenues, with no funding assumed new revenues sources. Existing funding sources are projected to meet all operation needs between 2015 and 2040.

Transit Revenues and Costs

Transit improvements recommended for the 2015 – 2040 RTP are fiscally constrained. The existing revenue streams, as outlined in UTA's Transit Development Program, are sufficient to construct, operate, and maintain the existing transit system. The increases to local bus and existing rail as well

as the new projects in the Regional Transportation Plan need to be funded through the new revenue sources such as those shown in **Tables 5-2** through **5-4**. **Table 5-11** below shows projected transit revenues and cost estimations for the 2015 – 2040 RTP.

TABLE 5-11

TOTAL 2015 – 2040 PROJECTED TRANSIT REVENUES AND COSTS
(Millions of 2015 Dollars)

	2015-2024	2025-2034	2035-2040	TOTAL
Existing Revenues	$3,863	$4,273	$3,019	$11,154
Transit Development Program Needs (Existing Service Operation & Preservation, Small Projects, and Reserve)	$3,863	$4,273	$3,019	$11,154
Transit Development Program Balance	**$0**	**$0**	**$0**	**$0**
2015 - 2040 RTP Assumed New Revenues	$1,022	$2,648	$2,392	$6,062
Financing Costs	$0	$120	$431	$552
2015 - 2040 RTP Costs (Major Projects and Local Bus/Existing Rail Service Improvements)	$903	$2,414	$2,019	$5,335
Regional Transportation Plan Balance	$119	$114	$-58	$175

*Includes bond revenues and debt service through 2040
**$700,000,000 in debt still outstanding at the end of 2040

Bicycle Costs

Bicycle Costs were estimated for the Base Bicycle Network and the Regional Priority Bicycle Network. There are approximately 1319 miles of Base Bicycle routes with an estimated cost of $244,015,000. Approximately 615 miles of Regional Priority routes will cost nearly $113,775,000. **Table 5-12** below summarizes the Regional Priority and Base Bicycle Network costs.

TABLE 5-12

REGIONAL PRIORITY AND BASE BICYCLE NETWORK COSTS

BIKE NETWORK	LENGTH; COST
Base Bicycle Network	1319 Miles; $244,015,000
Regional Priority Bicycle Network	615 Miles; $113,775,000

INTRODUCTION

All highway and transit projects are selected and assigned construction phases based on need and financial constraints. The criteria and methodology that Wasatch Front planners used to select projects and the time phase during which they will be implemented differs slightly by mode. For this reason, highway and transit criteria and methodology will be presented separately. Non-motorized facilities were not refined, ranked, or phased because a constrained funding source for these projects has yet to be identified. Among the elements incorporated into the needs phase of the 2015 – 2040 Regional Transportation Plan will be programmatic line Items, including: existing rail / local bus service, state of good repair / asset management, bike system, and first and last mile solutions. The three time period, or phases, including the unfunded portion of the 2015 – 2040 RTP are as follows:

Phase 1	2015 to 2024
Phase 2	2025 to 2034
Phase 3	2035 to 2040
Unfunded	Beyond 2040 (Projects lacking a confirmed funding source)

The general objectives of the project selection and phasing task of the 2015 – 2040 RTP include the following, in the order shown:

(1) Refine the regional preferred scenario to a list of defined projects
(2) Identify the RTP phase in which each project is needed
(3) Place each project into one of three financially constrained phases or “time horizons”

Preferred Scenario

A draft preferred scenario, derived from the elements found in the four land use and transportation scenarios and was refined with comments and suggestions made by representatives of local governments, transportation partners, and the general public. The preferred scenario includes a complete list of roadway and transit network needs through the year 2040. The character of the projects in the preferred scenario, such as the roadway width or transit technology desired, was developed through extensive scenario evaluation, analysis, and stakeholder involvement. The preferred scenario, and how it was evaluated, is presented in Chapter 4, “System Alternatives Development.”

Project Phasing Based on Need

All highway and transit projects identified in the preferred scenario are needed by 2040. A process was established to compare and evaluate all projects or project by mode. This process placed projects into one of three phases based on priority. Criteria were developed based upon goals and principles developed by the Wasatch Front Regional Council and the United State Department of Transportation, The goals and objectives for the 2015 – 2040 RTP were identified in Chapter 2, “Regional Visioning.” These goals and objectives were vetted with our planning partners and ultimately adopted by the Wasatch Front Regional Council used in prioritizing projects.

Project Phasing Based on Financial Constraints

After highway and transit projects were prioritized by need, they were then assigned phases in the 2015 – 2040 RTP based upon these priorities and the amount of funding assumed to be available. Once again, the adopted phasing criteria and a variety of other factors were used in this process. The financial plan, including revenue and costs assumptions for the next 26 years, was presented and can be reviewed in Chapter 5. A highway or transit project is considered “phased’ in the 2015 – 2040 RTP when its construction start date falls in one of the three phases. There were more needed projects than anticipated revenue could fund. Therefore, some projects were placed into the “unfunded” category.

HIGHWAY PROJECT SELECTION AND PHASING

Highway projects were placed into phases based on factors including:

- Wasatch Front Regional Council highway phasing criteria
- Congestion Management Process (CMP) evaluation
- inclusion in the Transportation Improvement Program (TIP)
- inclusion in the 2011 – 2040 RTP – Phase 1 Inclusion
- network connectivity – connections with phase 1 projects
- collaborative with planners at the Utah Department of Transportation
- collaborative with planners at the Utah Transit Authority
- input from a variety of other key stakeholders including local government representatives and members of the general public

Individual Project Measures

The individual measures considered in defining the highway projects as follows:

- projected traffic volume to existing highway capacity ratios
- the extent to which the project promotes the use of interconnected streets
- any known regionally significant relocations or community impacts
- any known serious hazardous materials or natural disaster exposures
- any other known critical natural or cultural impacts
- access to regionally significant priority growth areas
- highway project width, length, and functional classification
- general alignment and interchange location

Highway Phasing Criteria

The WFRC developed criteria to provide a score for each proposed highway project. There are nine criterion with a total possible score of 100. Due to the availability and nature of some of the data, Phase 1 need and Phase 2 need scores were able to be calculated for three of the criteria. The three scores that were calculated for the Phase 1 and Phase 2 highway projects were based on: (1) travel time reduction; (2) benefit / cost ratio; and (3) asset management. The variance in these scores helped place highway projects into the proper phase. **Appendix K**, entitled "Highway Evaluation And Scoring Criteria" provides detailed results of this analysis.

More detailed descriptions of the data used to provide evaluation scores are provided below. **Table 6-1** shows the goals, objectives, and measures for each of the nine evaluation criterion used for highway project phasing.

TABLE 6-1

HIGHWAY PROJECT PHASING CRITERIA SUMMARY

CRITERIA 1. TRAVEL TIME REDUCTION – 25 points possible		
Goal	Mobility & Accessibility	
Objective	Reduced vehicle hours of delay from traffic congestion	
Phase 1 Measure	Volume hours per mile using the 2024 socioeconomics on the 2015 – 2020 Transportation Improvement Plan	Score: 0 - 25 points
Phase 2 Measure	Volume hours per mile using the 2034 socioeconomics on phase 1 needed projects	Score: 0 - 25 points

CRITERIA 2. ACCESS TO OPPORTUNITY – 10 points possible		
Goal	Economic Vitality	
Objective	Access to low income households, multiple-family dwelling units, and/or zero car households is improved and connections to major medical facilities and education centers is improved	
Measure 1	Access to low income households, multiple-family dwelling units, and/or zero car households	Score: 0 or 5 points
Measure 2	Connections to major medical facilities and education centers	Score: 0 or 5 points

CRITERIA 3. URBAN FORM – 10 points possible		
Goal	Urban Form and Community	
Objective	Supports the Wasatch Choice for 2040 and revitalizes the economy	
Measure 1	Connections to WC 2040 Centers	0 or 5 points
Measure 2	Access or connections to infill areas and/or redevelopment areas	0 or 5 points

CRITERIA 4. MULTIMODAL – 10 points possible		
Goal	Cost Efficiency	
Objective	Multiple modes of transportation are considered and coordinated	
Measure 1	Bike lane is on the 2011 bike map	0 - 2 points
Measure 2	Bike route is considered a UCATS priority bike route	0 - 4 points
Measure 3	Corridor includes a transit project in the RTP	0 – 4 points
Measure 4	Entity has an Active Transportation or Complete Streets Policy	0 or 1 point

CRITERIA 5. PROJECT READINESS – 10 points possible		
Goal	Cost Efficiency	
Objective	Ready to proceed immediately	
Measure 1	Project is in General Plan	0 or 2.5 points
Measure 2	Project is part of a planning/environmental study	0 or 2.5 points
Measure 3	Efforts underway to preserve the project's corridor	0 or 2.5 points
Measure 4	Engineering or design work is complete	0 or 2.5 points

CRITERIA 6. BENEFIT / COST RATIO – 15 points possible		
Goal	Cost Efficiency	
Objective	Considers cost effectiveness	
Phase 1 Measure	Benefit = (Phase 1 delay reduction) + (access to opportunity) + (urban form) + (multimodal) + (safety) + (Phase 1 asset management) + (freight) / 2015 Total Project Cost in millions	0 – 15 points
Phase 2 Measure	Benefit = (Phase 2 delay reduction) + (access to opportunity) + (urban form) + (multimodal) + (safety) + (Phase 2 asset management) + (freight) / 2015 Total Project Cost in millions	0 – 15 points

CRITERIA 7. SAFETY – 10 points possible		
Goal	Health, Safety & Security	
Objective	Mitigates safety issues	
Measure 1	UDOT's safety index average	0 – 10 points

CRITERIA 8. ASSET MANAGEMENT – 5 points possible		
Goal	State of Good Repair	
Objective	Mitigates deficient bridges	
Phase 1 Measure	Project replaces deficient interstate or national highway systems bridges based on bridge rating	0, 3 or 5 points
Phase 2 Measure	Project replaces deficient interstate or national highway systems bridges based on bridge rating	0, 3, or 5 points

CRITERIA 9. FREIGHT – 5 points possible		
Goal	Mobility & Accessibility	
Objective	Enhances Freight Centers and Connections	
Measure 1	Project connects to a freight center and/or is on the freight plan	0 or 5 points

Criterion 1 - Travel Time Reduction

Travel time reduction was determined by using projected 2024 travel demand modeled on the 2015 – 2020 TIP network in order to determine the hours of delay per mile. Then, the travel time reduction was projected for 2034 socioeconomics of the volume hours of delay per mile on the projects needed in Phase 1 (the result of the first step). The sum of the delay for individual segments of each project was used to calculate the total delay for the project. Delay is calculated by taking the inverse of the PM peak speed from the model output and subtracting the inverse of the free flow speed, multiplied by the length of the project, multiplied by the PM peak period traffic volume. The total project delay was then divided by the project length to arrive at a score.

> **Scoring** - Scores ranged from 0 to 25 points, where a score of 25 offered the most reduction in travel time.

Criterion 2 – Access To Opportunity

Five points were awarded to projects that improved access to low-income households, multiple-family dwelling units, and/or zero car households. Additionally, 5 points were awarded to projects that connected to major medical facilities and/or education centers. The trip origin data identified current low income households, zero car households, minorities, and multiple family housing units per acre by 2010 Census Track. The destination data identified current health care workers, projected 2024, 2034, and 2040 college enrollment by TAZ, and 2024, 2034, and 2040 total employment by TAZ. All the data sets were normalized: the origin data sets were normalized to the average minority density (largest average) and the destination data sets were normalized to the average employment density (largest average). After summing all the origin and destination data, all tract sums were factored in order to place the highest density origin and destination track as 100. Adjusted ranges, until distinct areas appeared, used greater than or equal to 15 for both sets. Google Earth was used to identify half mile radius circles around weighted centers for both origin and destination areas.

> **Scoring** – A weighted raw score was established for each center based on the raw scored for each tract. Planners then estimated the proportion of each tract in each circle. If the project was within three-quarter mile of the origin then it received 5 points. If the project was within three-quarter mile of the destination then it received 5 points. Projects were awarded a score of 0, 5, or 10 points. A score of 10 had the most "access to opportunity."

Criteria 3 – Urban Form

Five points were awarded to projects that connected Wasatch Choice for 2040 centers or areas with increased housing and employment opportunities. Additionally, 5 points were awarded to projects that provided access or connection to infill areas and / or redevelopment areas. The "Metropolitan Centers," "Urban Centers", and "Town Centers" were identified from the Wasatch Choice for 2040 Vision. Other centers were designated by identifying TAZ's (households / acre) + (1.2 employment /

acre), selecting areas that are at least a half mile wide, drawing half mile circles around all these centers, grouping all the TAZ's that are mostly within each circle, and identifying each land use center with a name. Additionally, 50-plus acre infill and / or redevelopment areas were identified using the Wasatch Choice for 2040 Vision and confirming that they have not been developed in recent years.

> **Scoring** – If the project was within three-quarter mile to a Wasatch Choice for 2040 center, it received 5 points. If the project was within three-quarter mile of an infill or redevelopment area, it received 5 points. Projects were awarded a score of 0, 5, or 10 points. A score of 10 had the most access or connection to urban centers and redevelopment areas.

Criteria 4 - Multimodal

Projects that are coordinated with planned bicycle routes and / or transit facilities are awarded points. Also, highway projects that reference or have an active transportation and / or complete streets policy were awarded points.

> **Scoring** - If a highway project included all or part of a bicycle lane that is identified on the 2011 Bicycle Map then it was awarded 1-2 points. If the project included all or part of a bicycle route that is identified as a UCATS priority bike route, then it was awarded 1-2 points. If the project corridor included all or part of a transit project identified in the 2015 – 2040 RTP, it was awarded 1-4 points. If a jurisdiction has an active transportation or complete streets policy, the project was awarded 1 point. Highway projects had the opportunity to receive a score ranging from 0 to 10 points.

Criteria 5 – Project Readiness

Those highway projects that are ready to be constructed before other projects received more points. The WFRC staff delivered an electronic survey to all agencies and organizations with potential highway and transit projects on the 2015 – 2040 RTP. The survey asked representative of these agencies how soon they could begin and complete their project using the four measurements described below. Additionally, survey respondents were asked whether or not their project had an active transportation or complete streets policy in order to receive more points.

> **Scoring** - If a highway project is identified in the jurisdiction's general plan, it was awarded 2.5 points. If the project is part of a planning or environmental study, it was awarded 2.5 points. If efforts are underway to preserve a corridor for the project, then it was awarded 2.5 points. Lastly, if the engineering or design work had been completed, it was awarded 2.5 points. Projects were awarded a score of 0, 2.5, 5, 7.5, or 10 points. A score of 10 was the most 'ready'.

Criteria 6 – Benefit / Cost Ratio

Projects were awarded up to 15 points depending on the extent to which the benefits outweighed the costs. The benefit was identified by adding the scores from the travel time reduction, access to opportunity, urban form, multimodal, safety, asset management, and freight together and then dividing this score by the 2015 – 2040 RTP total project cost.

> **Scoring** – Projects were awarded a score that ranged from 0 to 15, where a project with 15 points would be the most beneficial in proportion to the cost.

Criteria 7 - Safety

Projects were awarded up to 10 points depending on their UDOT Safety Index score, which range in value from 1 to 10 points. The higher the index the greater the need or opportunity was to address safety concerns. New highway projects, those without a Safety Index score, were assigned the 80th percentile for like facilities.

Scoring – Projects were awarded a score that ranged from 0 to 10 points - a project scoring 10 points having the most potential to reduce crashes.

Criteria 8 – Asset Management

Projects were awarded 0, 3, or 5 points if they replace deficient Interstate or National Highway Systems bridges. Bridge deficiencies were identified using bridge ranking information provided by UDOT.

Scoring – Projects were awarded a score of 0, 3, or 5 points. For Phase 1 needs, a project awarded 5 points replaced a structure that had a rating between 50 and 80. Three points were awarded if the bridge rating was between 80 and 90 for the Phase 1 needs. Finally, Phase 2 projects received 5 points if their ratings were between 50 and 90.

Criteria 9 - Freight

Projects were awarded 5 points if they connected to one of the freight centers identified in UDOT's Freight Plan.

Scoring – Projects were awarded a score of 0 or 5 points. Projects that were awarded 5 points connected directly to an identified freight center.

Planning And Engineering Judgement

The highway evaluation criteria benefited from the WFRC staff's understanding of the need for a particular project, the staff's overall planning and engineering judgment, and sound regional knowledge and experience. Phasing considerations included input from the 2015 – 2020 TIP, the 2011 – 2040 RTP, local officials, the Regional Growth Committee's Technical Advisory Committees, and UDOT engineers from Region One and Two.

Ultimately, the 2015 – 2040 RTP did not rank projects but only placed them in phases. In establishing a phase for highway projects the WFRC weighed the results of the Congestion Management Program, the WFRC evaluation criteria results, and other project specific factors to derive an understanding of the relative value of each project in each phase. Financial constraints were then applied in order to place the highway projects into the three funded phases or the unfunded phase. The other factors taken into account while phasing projects included: connectivity, local and regional support and input, and UDOT support and input. Each of these scoring methods will be discussed independently.

In order to increase connectivity and support multi-modal projects, the WFRC staff worked internally to determine if the phase in which some highway and transit projects were placed could be adjusted to allow them to be put on the same construction schedule, or in the same phase. Three screening factors used to identify coordination opportunities were: (1) are projects on the same street or crossing street; (2) are both projects in Phase 1 or 2; or (3) could the projects directly support one another. **Table 7-3,** in **Chapter 7** - Planned Improvements, lists all highway projects by the three funded phases and the unfunded phase.

TRANSIT PROJECT SELECTION AND PHASING

As presented in the introduction to this Chapter, transit and roadway projects identified as 2040 needs in the adopted preferred scenario were assigned to three funded phases, or time horizons, in the 2015 – 2040 RTP. Other highway and transit projects were assumed to be unfunded, based upon Regional priority and assumed funding availability. Determination of transit project phasing was based on adopted criteria and other factors including the following:

- Potential for joint roadway and transit projects;
- Phasing assumed in the 2011 – 2040 RTP,

- Collaboration with Utah Transit Authority and the Utah Department of Transportation; and
- Constructive dialog with stakeholders including local government officials and the general public

This section will discuss the process and criteria used for prioritizing transit projects, some of which parallels that of the highway prioritization process.

Transit Phasing Process

Transit projects fall into three main categories: line projects, point projects, and programmatic line items. Each of these three categories was assessed in a slightly different manner.

Line Projects - are defined as major transit improvements, which include a construction and operations element such as light rail, bus rapid transit or enhanced bus. Each segment in a transit line project, which are included in the Preferred Scenario, was individually assessed and then they were compared with other segments. This procedure allowed a single project identified in the Preferred Scenario to be placed in more than one phase, depending upon availability of funding and varying levels of productivity. For example, the SLC – Foothill Drive – Wasatch Drive Corridor was listed as a single project extending the length of the Salt Lake Valley. However, various project segments had very different levels of productivity and readiness. Consequently this project was placed in the first and unfunded phase. Corridor preservation projects for rail and BRT lines thought to have separate transit rights-of-way were often placed in the first phase of the plan.

Point Projects - are major investments projects such as transit hubs, park and ride lots independent of a line project, and transit offices and vehicle maintenance facilities. Although many point projects were also assessed and compared to each other using the eight main transit criteria, great deference was given to the Utah Transit Authority's stated needs. The productivity of line and point projects were assessed for the beginning of the 2015 – 2040 RTP phase in which they were being considered. For example, ridership was assessed for each route segment for all RTP phases using the population and employment and highway network assumed to be in place at the beginning of that phase.

Programmatic Line Items - are projects representing funding for collective groups of similar projects which are of special interest to the Region although none of the individual projects are regionally significant. Two examples of programmatic lines items for transit are maintenance of assets and local bus and existing rail system service increases. These projects were not evaluated using the eight main criteria. However, but were funded based upon relevance to regional goals and the understanding of current needs. Some projects were not funded in the 2015 – 2040 RTP due to lack of current information. It is anticipated that they will be funded in the next 2019 - 2050 RTP.

Transit Phasing Criteria

The eight main criteria discussed below in **Table 6-2**. In the phase selection process, each of the main criteria and their sub-criteria are weighted. The total maximum possible score is 100. Many of these criteria are similar to those used in the 2011 – 2040 RTP.

Ridership

The ridership criterion is composed of two questions: "What is the corridor's demonstrated ability to support high frequency operations?" and "What is the forecasted number of transit riders using this project segment each day?" The Utah Transit Authority's service planners were utilized to ascertain a corridor's demonstrated ability to support a major transit investment. The planners drew upon their combined experience in rating each segment's potential to produce enough riders to support transit service with the same frequency, hours of service, and days of service as an existing TRAX line. These planners thoroughly discussed each line corridor and collectively rated them a 1 to 10 scale. A score of 10 was possible only if a particular corridor demonstrated a strong possibility to support with frequency, hours, and days of service similar to TRAX. These scores were factored to result in a high score of seven.

TABLE 6-2

SUMMARY OF TRANSIT PROJECT PHASING CRITERIA

MEASURES	DEFINITION*	WEIGHT
Ridership	What is the corridor's demonstrated ability to support high frequency operations?	7%
	What is the forecasted number of transit riders using this project segment each day?	13%
Air Quality	How many riders are forecasted to reduce their car emission reductions by walking to this transit?*	10%
Activity Center Support	How significant are the activity centers that this proposed transit is to serve?	10%
Ladders of Opportunity	Does the project serve areas with large concentrations of disadvantaged people?	5%
	Does the project link people to regionally significant job, education, and health care centers?	5%
Transit User Delay Avoidance	How much total congestion delay will transit users on this project segment avoid?	5%
Multi-modal Support	How much access to bike facilities will the project have?	3%
	Are the policies of sponsoring entity supportive of Complete Streets?	2%
Cost Effectiveness	The composite cost score from the above criteria divided by the project capital cost.	30%
Project Readiness	Is the project segment in the Municipalities' Planning Documents?	2.5%
	Is there a completed corridor specific study for this project? **	2.5%
	Is there a completed environmental study based upon an adopted planning study recommendation?	2.5%
	Is land being preserved for this project segment in order to control costs?	2.5%

*Walking or biking to transit can result in emission reductions of 80 percent as compared to 20% for driving to transit
**Partial points are awarded for a study in process

The projected ridership for each transit segment was forecasted using the regional travel demand model. The regional travel model forecasted the total number of riders traveling through the segment (line load) on all the transit projects in each of the three phases. The forecasted scenario assumed only the availability of these transit lines without local bus service. This approach has several advantages over calculating segment boardings in a transit scenario that includes local bus. Among the advantages are the following:

- using line load is like using traffic volume in that it accounts for a segment's use regardless of whether the trip originated from that segment or not;
- consolidating the ridership from all the lines on the project segment accounts for the ability of one transit investment, a transit lane for example, to serve multiple lines; and

- forecasting transit project ridership without local bus in the scenario eliminates the variable of local bus support for, or competition with, the proposed major transit investment when it is unclear how that local bus service will look in the future.

Air Quality

The Air Quality criterion is based upon a single question that drives the vast majority of the potential reductions of mobile emissions available through transit: "How many riders are forecasted to walk to this transit project segment?" The reason this question is so important is because the vast majority, up to 80 percent, of automobile emissions are emitted when the vehicle's engine is cold and the catalytic converter has yet to start working to its potential. Therefore, completely eliminating an automobile trip of any length provides the highest benefit. A walk to a transit station or stop is equivalent of walking and biking to transit because it is most easily forecasted.

Activity Center Support

Transit and activity centers are mutually supportive and can create a virtuous cycle resulting in benefits for the public. Transit supports higher density development because of its ability to transport many people to and from the center in a relatively small space. Transit can thrive in dense, multiple use centers because of the market potential that higher density provides and the greater ability patrons have to care for small errands without the use of single-occupant vehicles. This criterion asks, "How significant are the activity centers that this proposed transit is designed to serve?"

The location and regional significance of the activity centers served was assessed using a two-step process. Center locations were highlighted using a composite map of employment and households per acre. Employment density was weighted heavier by 20 percent to account for customer activity that frequently accompanies employment. Centers of one half mile or more were identified, and very large centers of one square mile or more were identified as two or more centers, even if contiguous. The regional significance of each center was measured based upon its 'market exposure,' which is a factor of both raw household and employment densities, and of intersection density. The greater the intersection density the more direct a walking path would be for patrons trying to access transit. Office employment was weighted more heavily in this calculation because of a greater propensity on the part of office workers to use transit. Undeveloped centers were assumed to have average intersection densities.

Ladders of Opportunity

Transit can service as the only way to reach economic and health care opportunities for the economically disadvantaged. Therefore, transit has been referred to in the US Department of Transportation as a "ladder of opportunity." The Ladder of Opportunity criterion is composed of two questions: "Does the project serve areas with large concentrations of disadvantaged people?" and "Does the project link people to regionally significant job, education, and health care centers?" Areas with large concentrations of disadvantaged people were identified and scored using current densities of low income households, zero car households, minorities, and multifamily housing units. Regionally significant centers were identified and scored for this measurement based upon: (1) current health care workers to surrogate for health care opportunities; (2) forecasted public college enrollment; and (3) forecasted employment. Both disadvantaged neighborhoods and opportunity areas of one half mile or more were identified and very large areas of one square mile or more were identified as two or more areas even if contiguous. Also, for each of these areas, densities were normalized in order to not weight one of the factors higher than the others.

Transit User Delay Avoidance

Transit that can avoid roadway congestion can be a great benefit to its users. This criterion asks "How much total congestion delay will transit users on this project segment avoid?" This is a factor of how many users are forecasted for the transit project segment, if the project provides

amenities such as a separate rights-of-way to avoid congestion, and how much congestion delay is forecast in that corridor. The Regional Travel Demand Model was used to forecast both ridership and roadway delay for the auto user in each of the phases.

Multi-Modal Support

Transit and bike facilities can create a virtuous cycle resulting in more transit use and more biking. Additionally, Complete Streets like policies and plans can yield direct and indirect benefits for transit. Direct benefits, such as Complete Street policies, can lead a city to plan ahead for transit, making it easier to construct. Indirect benefits include safer and more convenient opportunities for walking and biking to transit. The Multi-Modal Support criterion is composed of two questions: "How much access do bicycle facilities have to the project?" and "Are the sponsoring entities' policies supportive of Complete Streets?"

Access to bicycle facilities was determined by measuring the length of existing and UCATS proposed bicycle lane-like facilities within a half mile of the transit project segment, including parallel and crossing facilities. The amount of support provided by the sponsoring entity's policies was established based upon a survey administered to each of the Regions' planners. Survey questions solicited information regarding both direct support of active transportation and Complete Streets policies.

Cost Effectiveness

Cost effectiveness asks the question "How well are we employing scarce resources?" The 2015 – 2040 RTP recognizes the elasticity of transit revenue. Each project built and operated has an opportunity cost. That money cannot be used to build or operate other projects. The RTP is the only region-wide analysis of competing transit projects. This score was calculated using the sum of the above criteria divided by the project capital cost to determine ranking.

Project Readiness

Project Readiness asks the following questions:

- **Is the project segment in the municipalities' planning documents?** In other words, 'is the sponsoring entity preparing for the project?' The project is less likely to have opposition if it has been on local general plans for a considerable length of time. As new property owners come into the area, they will know that a project is being planned and sensitive land uses can be steered away from properties adjacent to the project.

- **Is there a completed corridor specific study for this project? And, is there a completed environmental study based upon an adopted planning study recommendation?** In other words, is there official consensus in support of the project is and how detailed are the project plans? The more detailed the project plans the more likely the sponsor is to implement it. For example, the more firm the plans for a transit station are, the more likely it is that local government officials will permit higher densities next to proposed sites, that building openings will be properly oriented to the future station, and that sidewalks and bicycle lanes will compliment them. All these actions improve ridership and increase the likelihood that the project could receive adequate federal funding.

- **'Is land being preserved for this project?** A project is likely to be less expensive when the right-of-way is being preserved, developers are active participants in accommodating the project, and local governments and UDOT are considering the ultimate needs for transit when infrastructure is constructed in the corridor. Proper placement of utilities within a corridor can save as much as 20 percent of the construction costs of light-rail transit.

Need Scores And Findings

As is the case with the highway projects, the 2015 – 2040 RTP did not ultimately rank transit projects but only placed them in phases or construction "time frames." These scores were used as guidelines and many other considerations were also factors in the phasing decisions. Chief amongst the other considerations was funding availability and regional significance. Points for projects such as, transit hubs and park- and-ride lots were assessed separately because the evaluation criteria seemed to favor them. The total scores for each of the assessed projects are found in **Appendix L,** entitled "Transit Evaluation And Criteria".

NON-MOTORIZED SELECTION CRITERIA

The 2015 – 2040 RTP has two distinct bicycle plans that address the needs of active transportation, a Regional Priority Bicycle Network and a Bicycle Base Network. The process to develop and select these routes and connections is extensive with numerous stakeholder involvement, analysis and collaboration.

The 2040 Bicycle Base Network

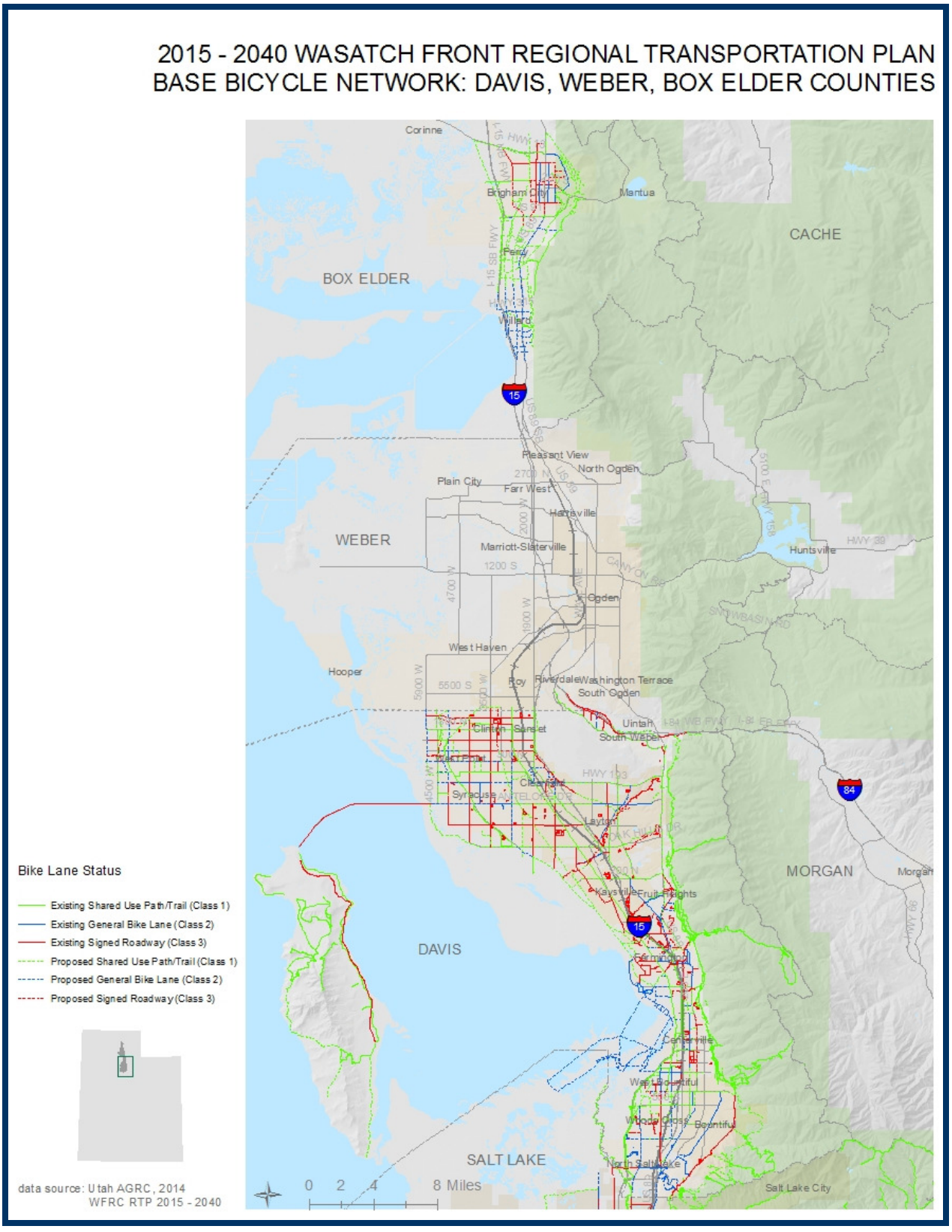
The Bike Base Network includes both the existing and proposed routes for both on and off street connections throughout the Wasatch Front. The bicycle base network looks to be an inclusive plan for all users ranging from recreation to commuter users by all non-motorized type of transportation. This regional network looks to include encompass all connections adopted by local governments and plans adopted by respective counties. This network demonstrates the local needs and also highlights the regional significance to the overall network.

To develop this network, WFRC worked with every County to reach out and get updates or newly created networks from every municipality within the jurisdiction. For Box Elder County, the urban planning group called Box Elder Planning Association (BEPA), consisting of all the urban planners in Box Elder and Ogden Layton Urbanized area provided updates and guidance on the routes to include in this base network. Within Weber County, a technical group called the Weber Active Transportation Committee provided updates and reviewed the network under the direction of Weber County. In Davis County, the Davis County Active Transportation Committee provided trail and on street updates to both the County and WFRC. For Salt Lake County, through the Planners Technical Advisory Committee, (PlanTAC) formerly known as the County Cooperative Plan Meetings updates were given. Municipal and county governments in Salt Lake, Davis, and Weber Counties through their respective trails and bicycle committees have reviewed and updated the previous bike plans. Locations of TRAX stations, FrontRunner stations, future transit stations, and major college or university campuses have been were also taken into consideration so that routes needed to reach these destinations were identified. Additional updates to this network were also given by the Regional Growth Committee Technical Advisory Committee (RGC TAC) meetings. This completed network are shown on **Map 6-1** and **Map 6-2**.

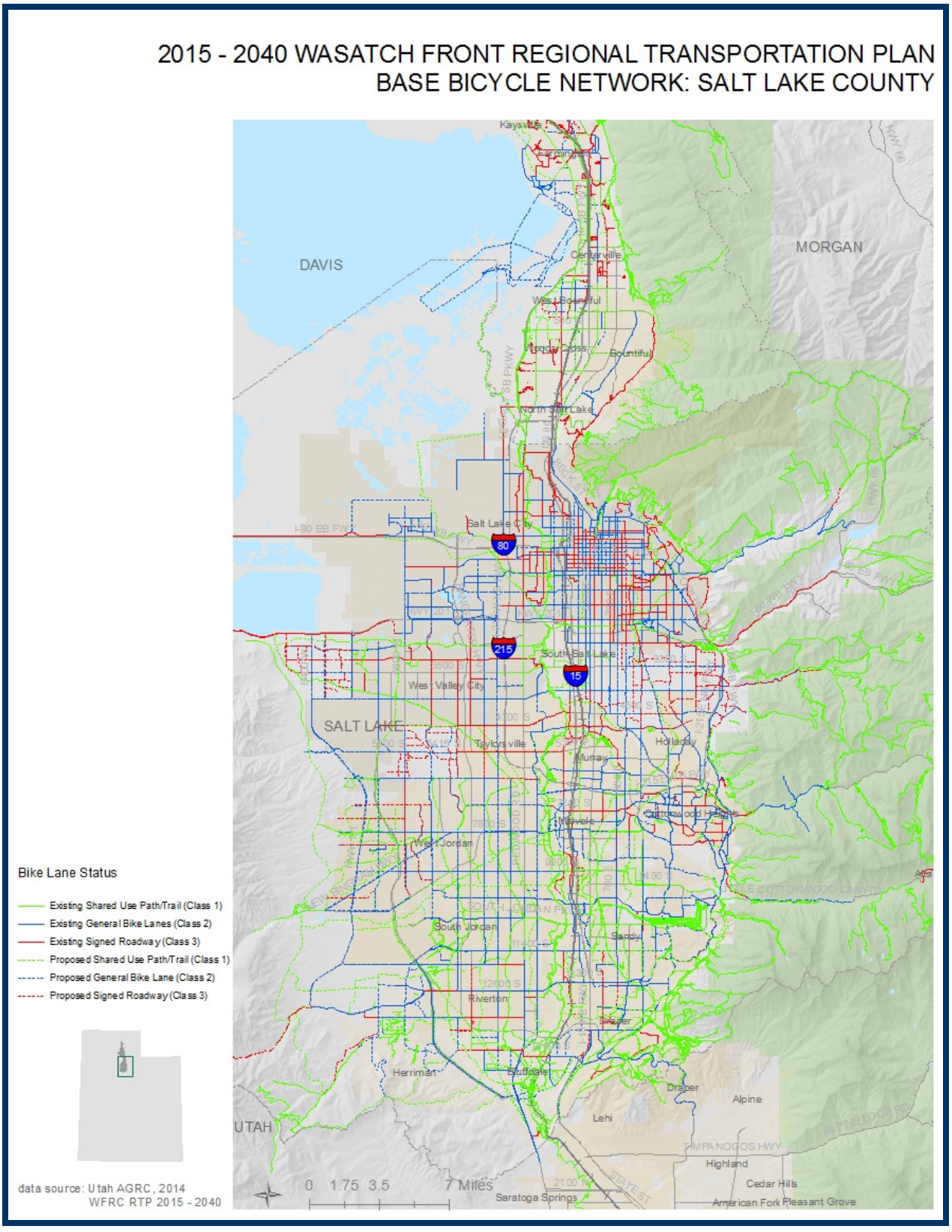
The 2040 Regional Priority Bicycle Network

In previous plans, WFRC has identified a priority network for active transportation, but this is the first time the WFRC priority plan has been the same as numerous partner agencies. This collaboration was a result of Utahns, planners, elected officials and many other key leaders in the region vocalizing the need for a distinct and unified regional priority bicycle network. Therefore representatives from the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA), the Mountainland Association of Governments (MAG), Salt Lake County, Davis County, Box Elder County, Weber County, and the Wasatch Front Regional Council (WFRC), came together for a vertical collaboration of a priority network called the Regional Priority Bicycle Network. This network was originally born out of the work completed from the Utah Collaborative Active Transportation Study (UCATS).

Map 6-1


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
BASE BICYCLE NETWORK: DAVIS, WEBER, BOX ELDER COUNTIES
Bike Lane Status
Existing Shared Use Path/Trail (Class 1)
Existing General Bike Lane (Class 2)
Existing Signed Roadway (Class 3)
Proposed Shared Use Path/Trail (Class 1)
Proposed General Bike Lane (Class 2)
Proposed Signed Roadway (Class 3)
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles
BOX ELDER
CACHE
WEBER
DAVIS
MORGAN
SALT LAKE
Corinne
Brigham City
Mantua
Perry
Willard
Pleasant View
North Ogden
Plain City
Farr West
Harrisville
Marriott-Slaterville
Huntsville
Ogden
West Haven
Hooper
Roy
Riverdale
Washington Terrace
South Ogden
Uintah
South Weber
Clinton
Sunset
Clearfield
Syracuse
Layton
Kaysville
Fruit Heights
Farmington
Centerville
West Bountiful
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
Morgan

Map 6-2

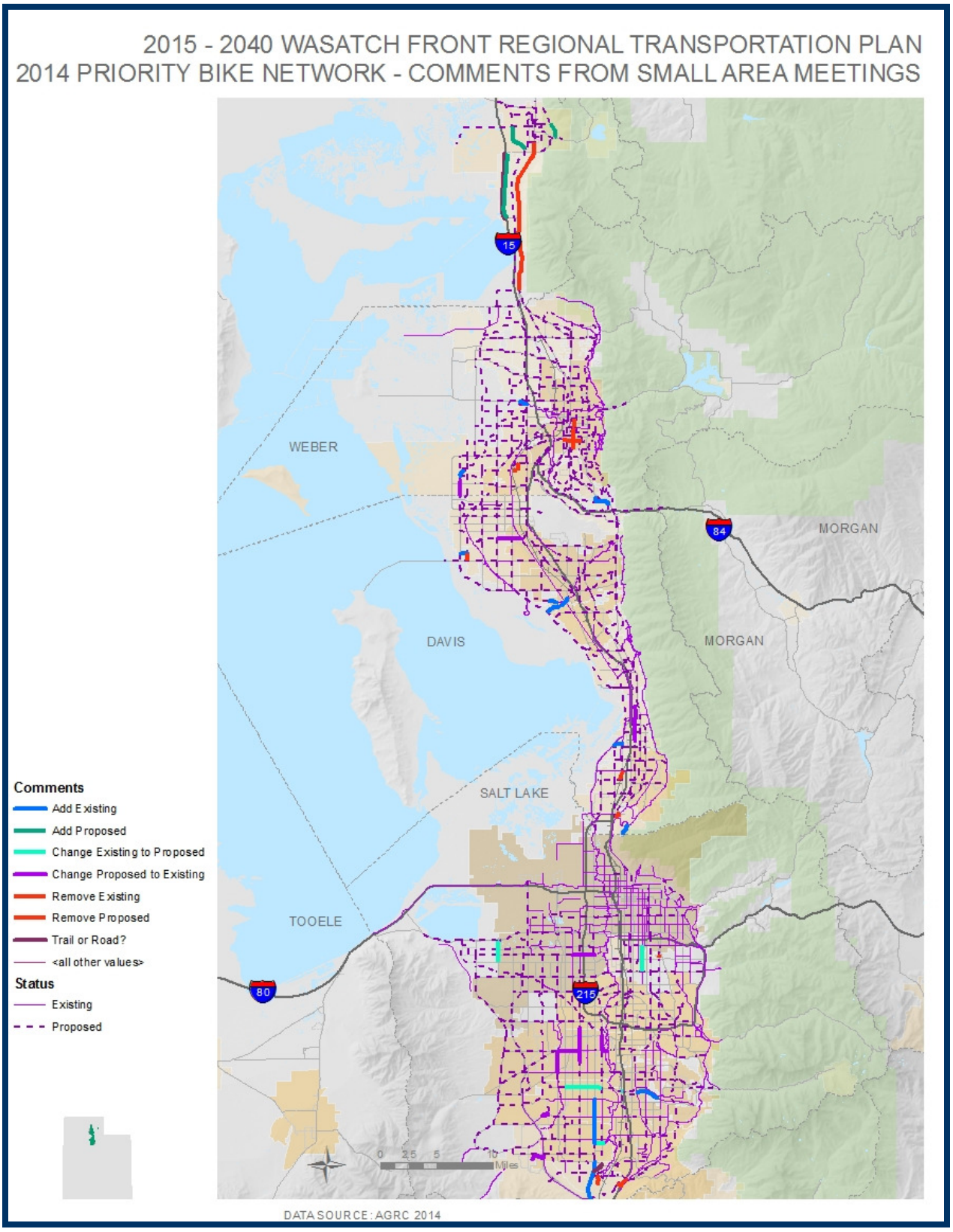

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
BASE BICYCLE NETWORK: SALT LAKE COUNTY
DAVIS
MORGAN
SALT LAKE
UTAH
Centerville
West Bountiful
Bountiful
North Salt Lake
Salt Lake City
West Valley City
Taylorsville
Murray
Holladay
Cottonwood Heights
Midvale
West Jordan
South Jordan
Sandy
Riverton
Draper
Herriman
Bluffdale
Lehi
Alpine
Highland
Cedar Hills
American Fork
Pleasant Grove
Saratoga Springs
Bike Lane Status
Existing Shared Use Path/Trail (Class 1)
Existing General Bike Lanes (Class 2)
Existing Signed Roadway (Class 3)
Proposed Shared Use Path/Trail (Class 1)
Proposed General Bike Lane (Class 2)
Proposed Signed Roadway (Class 3)
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 1.75 3.5 7 Miles

This study began in 2012, built upon previous WFRC RTP Priority Bicycle networks and began under the premise that a multi-agency priority network would lay the groundwork for criteria and establish a regional systematic approach to prioritize bicycle routes. The main objective for the priority route would propose ways to connect pedestrian and bicycle infrastructure to transit and continue to enhance the existing regional network. The goals of the selection criteria when establishing the priority network included demonstrating quality of life benefits, enhance connections to fixed rail transit, and lay the foundation for a regional bike network. The collective group of agencies developed two tiers of project selection criteria to identify the goals of this network. Tier one criteria: took into account the existing urban bike network and the opportunities to enhance active transportation connections to fixed rail transit. The secondary criteria of for selecting projects including a Tier two criteria analysis, consisting of the Latent Demand Modal, capturing the "interested but concerned cyclists," the route was proposed on existing local or regional plans, and if this project would hold economic development or significance.

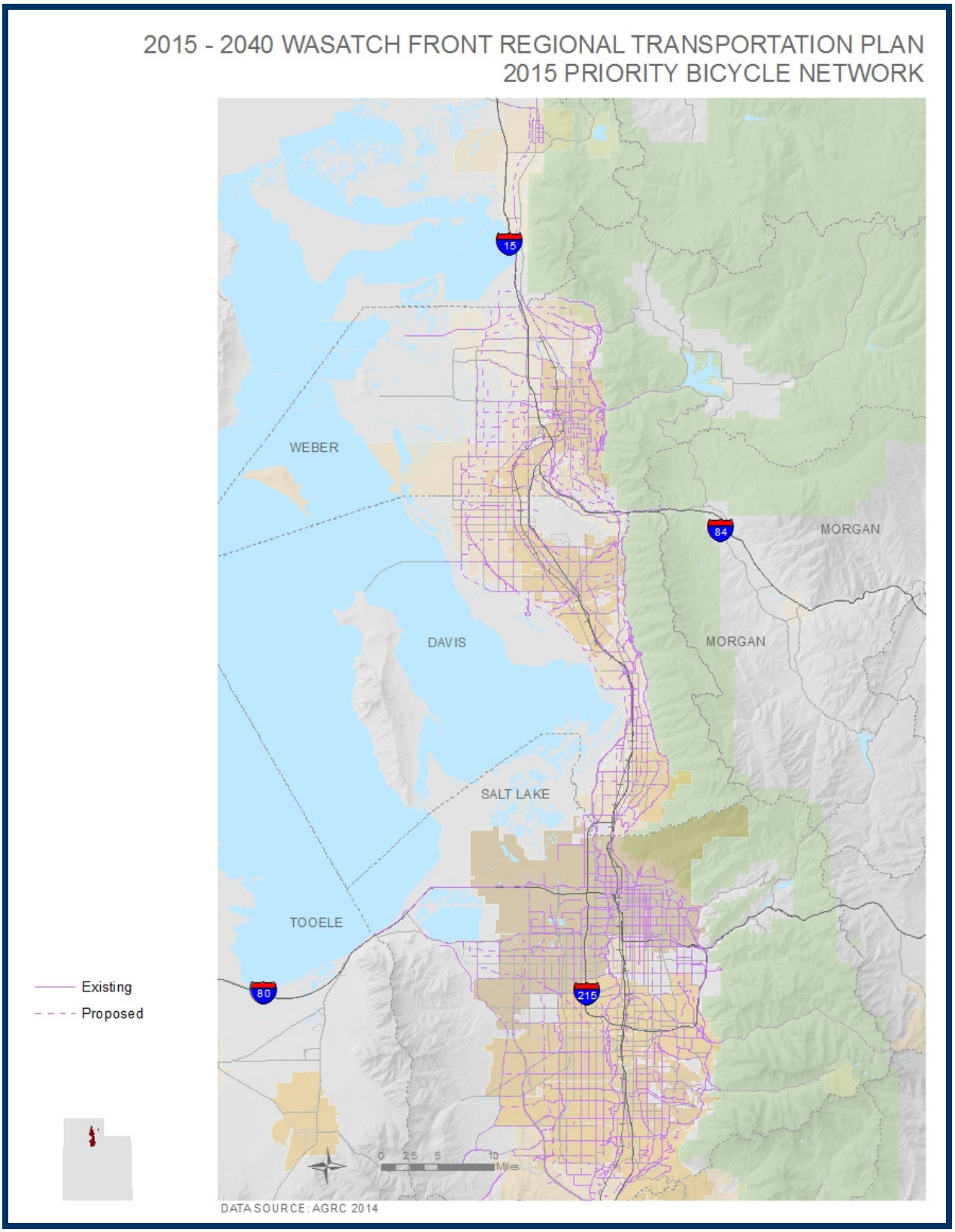
This draft network was developed in 2012, which WFRC took the initial recommended priority network to key stakeholders and the to all local government members along the Wasatch Front. The work since then includes the extensive approach WFRC did to the update to these two networks to reflect the needs of all local government members in the region. Through the series of three small area meetings, which included representatives from all local governments and county staff, the WFRC staff received numerous comments and updates to many segments of the network, which are shown on **Map 6-3**. WFRC staff worked closely with County representatives to make recommended updates to the Regional Priority Network. A proposed update was recommended positively based on how it evaluated to this criteria 1. The regional significance of the segment to the overall network, 2. If the segment enhanced or made additional connections to transit and 3. Was on the County base bike network, simplified an adopted trail by a community. All these final updates were then taken to the agencies involved in the regional priority plan. If one of the proposed updates was on a UDOT state road, it was taken to the respective UDOT Regions to review. The recommendations pulled all together create the completed 2040 Regional Priority Bicycle Network, shown on **Map 6-4**. This extensive and inclusive process was necessary for this network to reflect all the needs of every agency and to have a comprehensive Regional Priority Bike Network.

The WFRC recognizes that the 2015 – 2040 RTP will be revisited in four years, although updates may take place at earlier dates. The updated Salt Lake County map can be found at www.slco.org, an updated Davis County map can be found at www.daviscountyutah.gov, and an updated Box Elder County map can be found at http://www.boxeldercounty.org and an updated Weber County map can be found at www.co.weber.ut.us.

Map 6-3


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
2014 PRIORITY BIKE NETWORK - COMMENTS FROM SMALL AREA MEETINGS
WEBER
DAVIS
SALT LAKE
TOOELE
MORGAN
MORGAN
15
84
80
215
Comments
Add Existing
Add Proposed
Change Existing to Proposed
Change Proposed to Existing
Remove Existing
Remove Proposed
Trail or Road?
<all other values>
Status
Existing
Proposed
0 2.5 5 10 Miles
DATA SOURCE: AGRC 2014

Map 6-4


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
2015 PRIORITY BICYCLE NETWORK
WEBER
DAVIS
SALT LAKE
TOOELE
MORGAN
MORGAN
15
84
80
215
Existing
Proposed
0 2.5 5 10
Miles
DATA SOURCE: AGRC 2014

INTRODUCTION

The purpose of the 2015 – 2040 RTP is to document a comprehensive list of planned improvements to the regional transportation system designed to meet the travel needs of Wasatch Front Region residents for the next 26 years. The planning process evaluated long-range capacity needs and developed a list of planned highway, transit, and other improvements needed by the year 2040. The process considered the Wasatch Front's travel demand, examined various transportation alternatives, designated transportation improvements, and provided proper construction phasing. The 2015 – 2040 RTP relied on extensive public review and input that helped generate recommended projects that can be implemented using estimated available funding between 2015 and 2040. The 2015 – 2040 RTP also recommends general policies for transportation systems, enhancements, regional freight movement, bicycle routes, pedestrian amenities, multi-purpose trails, safety, and homeland security.

OVERVIEW OF PLANNED IMPROVEMENTS

As part of the 2015 – 2040 RTP process, the WFRC staff developed, refined, and modeled four land use and transportation scenarios. These scenarios helped identified needed capacity improvements for the Wasatch Front Region's highways, arterial streets, and transit network. The preferred scenario also helped form the basis for the recommended transportation improvements found in the draft 2015 – 2040 RTP. Once the preferred alternative was selected, as discussed in Chapter 4, the WFRC staff further refined recommended improvements to the region's transportation system by selecting those projects that best meet projected travel needs. This planning process focused on individual highway and transit projects, their type, length, width, class, phasing, technology, corridor alignment, station spacing, and other important characteristics.

On December 18, 2014, the WFRC staff presented the 2015 – 2040 RTP phased highway and transit projects lists, along with corresponding maps and other documentation, to the Wasatch Front Regional Council for review and comment. Project lists and maps were also distributed to other elected officials, regional planners and engineers, and interested members of the general public. Briefings on the draft 2015 – 2040 RTP projects were presented to the WFRC Transportation Coordination Committee and its Technical Advisory Committees, the Regional Growth Committee and its Technical Advisory Committees, the Salt Lake, Davis and Weber County Councils of Governments, and individual city planners and engineers. As a result of this effort, the WFRC staff received comments regarding the recommended capacity improvements for the highway and transit networks. In a number of cases, changes to the phased 2015 – 2040 RTP projects list and maps were made to include facilities that are felt to be needed as part of the region's overall plan.

Central Corridor Study

The Wasatch Front Central Corridor Study is a collaborative effort among the Utah Department of Transportation (UDOT), Utah Transit Authority (UTA), Wasatch Front Regional Council (WFRC) and the Mountainland Association of Governments (MAG). The study will produce potential transportation solutions for the I-15 and FrontRunner corridor between now and 2050. Results will be incorporated into the 2019 – 2050 Regional transportation plans of WFRC and MAG.

The primary study area extends north to south from Southern Davis County to Northern Utah County. East and west, the study area extends along I-15 approximately three to four miles wide (Redwood Road to 700 East). The study area links the majority of the state's population, as well as the majority of car, transit and freight traffic. Beyond the primary study area, the study team will also consider the larger region's influence on and benefit from potential transportation solutions. The study team is seeking to produce an integrated transportation solution. This means the study will evaluate all potential strategies. That includes transit, roadway, operations, policy, active

transportation and connectivity (meaning freeway-surface street, transit-roadway and transit-pedestrian-bike connectivity).

Highway Improvements

Programmed highway improvements in the 2015 – 2040 RTP include a balance of freeway, highway, arterial and collector road projects. The projects add needed capacity through the construction of new facilities or the widening of existing roads. Two new freeways are planned: the Mountain View Corridor and West Davis Corridor. One principle arterial is proposed to be converted to a freeway – the Bangerter Highway. These large scale projects will help offset the growing travel demand throughout the Region. The need for approximately 182 miles of additional capacity on existing freeways, such as I-15, SR-201, I-215, I-80, and US-89 is also recognized and addressed.

The 2015 – 2040 RTP includes new or expanded arterial streets and freeway improvements required to serve the existing and developing areas of the Wasatch Front Region. Approximately 592 miles of capacity improvements are proposed for construction over the next 26 years. Highway facilities that will be constructed or improved include approximately 182 miles of freeway, 185 miles of principal arterials, 95 miles of minor arterials, and 129 miles of collector roads. Major projects in the 2015 – 2040 RTP include the construction of the West Davis Corridor through Davis and Weber Counties, the widening of US Highway 89 in Davis County, improvement of portions of I-15 in Salt Lake, Davis, and Weber Counties, the completion of the Mountain View Corridor in Salt Lake County, and the reconstruction of I-80 from 1300 East to the mouth of Parleys Canyon. Due to financial constraints, not all of the new capacity projects recommend for construction by 2040 can be met by the 2015 – 2040 RTP. However, by identifying expected highway revenue and expected construction and maintenance costs, the WFRC staff has developed a list of new capacity highway projects for which funding will likely be available beginning in 2015 and continuing through 2040.

Transit Investments

The 2015 – 2040 RTP first assumes the funding of UTA's Transit Development Program (TDP) which includes costs such as the continuation of current services, maintaining current facilities, continued payment of debt service for existing facilities and some additional minor projects and studies in the region. Collectively these costs amount to about 68 percent of all 2015 - 2040 costs. The transit improvements beyond UTA's TDP comprise the 2015 – 2040 RTP. Programmed in the 2015 – 2040 RTP is a mix of funding for local bus and existing rail service expansions, and major transit projects. These represent 6 percent and 26 percent of all 2015 – 2040 transit funding respectively and are intended to improve reliability of service, hours of service, days of service, and service coverage in the region. The transit facilities that will be constructed include approximately $1 billion for local bus and existing rail service expansions, $1 billion for Enhanced Bus projects, $1 billion for rail projects and $2 billion for Bus Rapid Transit projects.

Highway And Transit Project Phasing

In the spring of 2014, the RGC and the WFRC reviewed and approved specific evaluation criteria for the phasing of recommended projects. These criteria were used to evaluate and rank each project and help identify their proper phase in the RTP. A detailed overview of the criteria for highway projects included (1) travel time reduction, (2) access to opportunity, (3) urban form, (4) multimodal use, (5) project readiness, (6) benefit / cost ratio, (7) safety, (8) asset management, and (9) freight. In addition to the criteria referred to above, transit projects also took into consideration current ridership, forecasted ridership, and air quality. Other important phasing considerations for both highway and transit projects included whether or not the project is part of the current 2015 – 2020 Transportation Improvement Program (TIP), the previous 2011 – 2040 Regional Transportation Plan; and input received from local officials, UDOT and UTA representatives, and Technical Advisory Committee members. Finally, ranked highway and transit projects were placed into one of four different implementation phases**.** These phases coincide with the availability of anticipated financing and revenue sources and are listed below:

- Phase 1 2015 to 2024
- Phase 2 2025 to 2034
- Phase 3 2035 to 2040
- Unfunded Beyond 2040 (Projects lacking a confirmed funding source)

During January and February of 2014, a series of small area meetings were held in which the WFRC staff focused on further refining recommended highway and transit projects with input provided by local planners, engineers, elected officials, and the general public. The 2015 – 2040 RTP was developed within the constraints of financial feasibility. Thus, the list of highway and transit facility improvements contains only those projects that can be realistically funded over the next 26 years. Reasonable assumptions were made concerning both future revenues for transportation improvements and the estimated costs of programmed highway and transit facilities as discussed in **Chapter 5** - Financial Plan.

PROJECTS COMPLETED OR UNDER CONSTRUCTION

During the four years since the previous RTP was adopted in 2011, a number of regional highway projects have been completed, deleted or are currently under construction. Highway improvements and new construction projects within the Wasatch Front Region that have been completed, deleted, modified, or are currently under construction are listed in **Table 7-1**.

TABLE 7-1

HIGHWAY PROJECTS COMPLETED, DELETED, OR UNDER CONSTRUCTION FROM THE 2011 – 2040 RTP

ID#	PROJECT	DESCRIPTION		STATUS
Salt Lake County, East-West Facilities				
S-2	700 South / 500 South 5600 West to 2700 West	Widening: 2 to 4 lanes ROW: 2007 - 50 ft / 2040 - 99 ft	COL / 3.6 miles / Local Bike Class: 2	Deleted
S-16	4700 South 6400 West to 5600 West	Widening: 2 to 4 lanes ROW: 2007 – 80 ft / 2040 – 110 ft	PA/ 1.0 miles / Local Bike Class: 3	Deleted
S-23	5400 South 5600 West to Bangerter Highway	Operational	MA / 2.3 miles / UDOT Bike Class: Priority 2 and 3	Completed
S-27	6200 South Mountain View Corridor to 5600 West	Widening/New Construction: 2/0 to 4 ROW: 2007 - 0 ft / 2040 - 110 ft	MA / 0.3 miles / Local Bike Class: 2	Under Construction
S-43	11400 South 11800 South / 5600 West to Valdania Street (5200 West)	Widening: 2 to 4 lanes ROW: 2007 - 80 ft / 2040 - 110 ft	MA / 1 miles / Local Bike Class: Priority 2	Deleted
S-44	11400 South Bangerter Highway to I-15	Widening : 4 to 6 lanes ROW: 2007 - 106 ft. / 2040 - 123 ft	MA / 4.7 miles / UDOT Bike Class: Priority 2	Deleted
S-51	13400 South Mountain View Corridor to Bangerter Highway	Widening: 4 to 6 lanes ROW: 2007 - 66 ft / 2040 - 100 ft	COL / 1.7 miles / Local Bike Class: 2	Completed
S-176	13400 South 7300 West to 6700 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Collector / 0.6 miles / Local Bike Routes: None	Deleted
S-50	13400 South 6400 West to 5600 West (Rosecrest Road)	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Minor Arterial / 1.0 miles / Local Bike Routes: Priority	Deleted
S-52	Juniper Crest 4800 West to Mountain View Corridor	New Construction: 0 to 6 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Collector / 0.9 miles / Local Bike Routes: Priority	Under Construction
S-53	Juniper Crest Mountain View Corridor to 4570 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Collector / 0.5 miles / Local Bike Routes: Priority	Under Construction
Salt Lake County, North-South Facilities				
S-59	7200 West SR-201 to 3500 South	Widening: 2 to 4 lanes ROW: 2007 - 66 ft. / 2040 - 86 ft.	MA / 2.5 miles / Local Bike Class: 3	Completed
S-62	Mountain View Corridor 4100 South to 5400 South	New Construction: 0 to 4 lanes ROW: 2007 - 0 ft. / 2040 - 328 ft.	PA / 2.2 miles / UDOT Bike Class: Priority 1	Under Construction
S-63	Mountain View Corridor 5400 South to Redwood Road	New Construction: 0 to 4 lanes ROW: 2007 - 0 ft. / 2040 - 328 ft.	PA / 14.4 miles / UDOT Bike Class: Priority 1 and None	Completed
S-79	5600 West 11800 South to 13100 South	New Construction: 0 to 2 lanes ROW: 2007 - 0 ft. / 2040 - 86 ft.	COL / 3.2 miles / Local Bike Class: 2	Completed
S-87	3200 West California Avenue to 1820 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 99 ft.	Minor Arterial / 0.5 miles / Local Bike Routes: Base	Completed
S-88	3200 West 1820 South to Parkway Boulevard (2700 South)	Widening: 2 to 4 lanes ROW: 2007 - 0 ft. / 2040 - 110 ft.	COL / 1.3 miles / Local Bike Class: 2	Deleted
S-97	1200 West 3100 South to 3300 South	New Construction: 0 to 4 lanes ROW: 2007 - 0 ft. / 2040 - 86 ft.	COL / 0.5 miles / Local Bike Class: 3	Completed
S-104	I-15 12300 South to Bangerter Highway	Widening: 7+HOV to 8+HOV lanes ROW: 2007 - 328 ft. / 2040 - 328 ft.	FWY / 1.6 miles / UDOT Bike Class: None	Under Construction
S-105	I-15 Bangerter Highway to Utah County Line	Widening: 6 to 7+HOV to 8+HOV lanes ROW: 2007 - 328 ft. / 2040 - 328 ft.	FWY / 3.9 miles / UDOT Bike Class: None	Under Construction

ID#	PROJECT	DESCRIPTION		STATUS
S-106	I-15 Bangerter Highway to Utah County Line	Widening: 8+HOV to 10+HOV lanes ROW: 2007 - 328 ft. / 2040 - 328 ft.	FWY / 3.9 miles / UDOT Bike Class: None	Under Construction
S-185	Monroe Street 10000 South to 10200 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 0.4 miles / Local Bike Routes: None	Completed
Salt Lake County, Spot Facilities				
S-128	SR-111 Rail Road Structure @ 4300 South	Widening: 2 to 4 lanes	PA / UDOT Bike Class: Priority 2	Completed
S-153	2700 West Overpass @ SR-201	New Construction: 0 to 2 lanes	COL / Local Bike Class: Priority 2	Deleted
S-131	4800 West Overpass @ SR-201	New Construction: 0 to 2 lanes	COL / Local Bike Class: Priority 2 and 3	Deleted
S-142	Bangerter Highway Interchange @ 7800 South	New Construction	FWY / UDOT Bike Class: Priority 2	Completed
S-150	Bangerter Highway Interchange @ Redwood Road	New Construction	FWY / UDOT Bike Class: Priority 2	Under Construction
S-160	I-15 Interchange @ 14600 South	Upgrade	FWY / UDOT Bike Class: Priority 2	Under Construction
Davis County, East-West Facilities				
D-4	SR-193 Extension 2000 West to State Street	New Construction: 0 to 4 lanes ROW: 2007 - 0 ft / 2040 - 110 ft	MA / 2.9 miles / UDOT Bike Class: Priority 2	Completed
D-5	SR-193 Extension 2000 West to I-15	Widening: 4 to 6 lanes ROW: 2007 – 0 ft / 2040 – 120 ft	MA / 3.4 miles / UDOT Bike Class: Priority 2	Deleted
D-8	Antelope Drive Oak Forest Drive (2500 East) to US-89	New Construction: 0 to 2 lanes ROW: 2007 - 0 ft / 2040 - 86 ft	MA / 0.3 miles / Local Bike Class: Priority 2	Under Construction
D-9	Gordon Avenue (1000 North) Fairfield Road to 1600 East	Widening: 2 to 4 lanes ROW: 2007 - 66 ft / 2040 - 86 ft	COL / 0.7 miles / Local Bike Class: None	Deleted
D-14	2600 South / 1100 North Redwood Road to I-15	Operational	MA / 1.4 miles / Local Bike Class: Priority 2	Completed
Davis County, North-South Facilities				
D-19	3000 West 6000 South (Weber County) to 2300 North	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 75 ft.	Collector / 0.5 miles / Local Bike Routes: Priority	Under Construction
D-26	I-15 US-89 (Farmington) to I-215	Widening: 8 to 8+HOV lanes ROW: 2007 - 328 ft / 2040 - 328 ft	FWY / 10.6 miles / UDOT Bike Class: None	Under Construction
Davis County, Spot Facilities				
D-35	I-15 Interchange @ Hill Field Road	Upgrade	FWY / UDOT Bike Class: None	Under Construction
D-39	I-15 Interchange @ 500 South	Upgrade	FWY / UDOT Bike Class: Priority 2	Under Construction
D-40	I-15 Interchange @ 2600 South	Upgrade	FWY / UDOT Bike Class: Priority 2	Under Construction
Weber County, East-West Facilities				
W-11	2550 South I-15 to 3500 West	Widening: 2 to 4 lanes ROW: 2007 - 60 ft / 2040 - 86 ft	COL / 3 miles / Local Bike Class: Priority 3	Deleted
W-16	Riverdale Road (SR-26) 1900 West (SR-126) to I-84	Widening: 4 to 6 lanes ROW: 2007 - 99 ft / 2040 - 120 ft	PA / 1 miles / UDOT Bike Class: 3	Completed
Weber County, North-South Facilities				
W-23	4700 West 1200 South to 4000 South	Widening: 2 to 4 lanes ROW: 2007 - 82 ft / 2040 - 110 ft	MA / 3.8 miles / Local Bike Class: 1, 2, and None	Deleted
W-31	600 West Elberta Drive to 2600 North	Operational	COL / 0.9 miles / Local Bike Class: 3	Completed
W-32	Adams Avenue US-89 / Washington Boulevard to Washington Terrace City Limits	Widening: 2 to 4 lanes ROW: 2007 - 86 ft / 2040 - 99 ft	MA / 0.6 miles / Local Bike Class: None	Completed
Weber County, Spot Facilities				
W-42	I-15 Interchange @ Riverdale Road (SR-26)	Upgrade	FWY / UDOT Bike Class: None	Completed

Transit

In a similar manner to the highways projects listed above in **Table 7-1**, the status of several of major transit projects recommended in the previous *Regional Transportation Plan: 2011 – 2040* have changed. **Table 7-2** lists the transit projects from the 2011 – 2040 RTP that have been complete, have been deleted, or significantly modified in the 2015 – 2040 RTP. Many other projects have been modified in terms of the extent and location of Enhanced Bus (BRTI) versus Bus Rapid Transit (BRTII), the BRT/Rail designation has been eliminated in favor of a more specific designation, or their phase of construction has changed. Additionally, the 2011 – 2040 RTP assumed that many project would be incrementally built. This Plan does not assume that this will be the case. These types of changes are not included in the chart. Changes to the project alignment or mode are only shown if they significantly change the nature of the project.

TABLE 7-2

TRANSIT PROJECTS COMPLETED, DELETED, MODIFIED, OR UNDER CONSTRUCTION FROM THE 2011 – 2040 RTP

COUNTY	PROJECT	DESCRIPTION
Salt Lake	1300 East Corridor	Significant modification to the alignment on the south end
Salt Lake	State Street Corridor	Segment south of South Towne unfunded
Salt Lake	Draper TRAX Extension to Draper Town Center	Completed
Salt Lake	Draper TRAX Extension to Utah County	Unfunded
Salt Lake	Redwood Road Corridor	Significant modification to the alignment on the south end
Salt Lake	5600 South Corridor	Truncated alignment on the north end,
Salt Lake	Mid-Jordan Corridor	unfunded
Salt Lake	3300 South / 3500 South Corridor	Eastern half realigned
Salt Lake	4500 South / 4700 South Corridor	Eastern segment unfunded
Salt Lake	Cottonwood Kearns Corridor (approx.. Ft. Union-7000 South)	Western portion unfunded
Salt Lake	East Sandy / Daybreak Corridor (approx.. 9400 South – 10600 South)	Unfunded
Salt Lake	Draper Town Center – Riverton Corridor (approx.. 12600 South)	Unfunded

Committed Projects

Projects identified in the 2015 – 2040 RTP are implemented through the programming of federal, state, local, and other highway and transit funds as part of the annually updated Transportation Improvement Program (TIP) process. The TIP is a short-range, six year plan that directly matches funding sources with Phase 1 projects, as well as other smaller projects that do not require inclusion in the RTP. During the TIP development process, projects from the current RTP are evaluated, along with projects from various management systems, such as pavement and congestion management systems. As part of the TIP process, the State Air Quality Implementation Plan (SIP) is reviewed for recommended Traffic Control Measures.

Eligible projects are identified for each of the highway and transit funding categories. Projects are evaluated and priorities are set within each funding category. The projects receiving the highest priority within each category are then combined to form the TIP. The WFRC, in consultation with UDOT and UTA, is responsible for developing the Salt Lake City – West Valley City Urbanized Area and the Ogden - Layton Urbanized Area Transportation Improvement Programs.

The current 2015 – 2020 TIP is a compilation of prioritized projects for which funding has been committed from various federal, state, and local programs. The goal is to involve all the municipalities and counties in the urbanized portion of the Wasatch Front Region, as well as the UDOT and UTA. Projects included in the TIP will implement proposed improvements in the 2015 – 2040 RTP, helping to satisfy short range needs of both Urbanized Areas, and provide for the maintenance, operation and preservation of the existing transportation system.

HIGHWAY SYSTEM IMPROVEMENTS

The 2015 - 2040 RTP includes both new or widened freeway and arterial streets throughout the Wasatch Front region. The region's two major metropolitan centers of Salt Lake City and Ogden City attract a growing number of work, shopping and entertainment related trips originating in Davis County. Travel between Salt Lake City and Ogden City is channeled through a geographically constrained area bordered by the Great Salt Lake on one side and the Wasatch Mountains on the

other. Salt Lake, Davis and Weber Counties continue to experience considerable population growth and the need for improved north-south transportation capacity will become more apparent over the next 26 years. Upgrades of existing highways and the construction of new facilities will be needed to meet anticipated demand.

The 2015 – 2040 RTP is financially constrained making reasonable assumptions on existing and new revenue, noted in Chapter 5 – Financial Plan. **Table 7-3** represents the financial constraint, revenues and costs for state roads and local roads of regional significance by phase in current dollars.

TABLE 7-3

2015 – 2040 HIGHWAY FINANCIALLY CONSTRAINED AMOUNTS

CAPACITY (NPV)					
State Roads	**2015-2024**	**2025-2034**	**2035-2040**	**Unfunded**	**2015 - 2040**
Revenues	2,835,461,068	2,783,600,712	1,774,517,438		7,393,579,218
RTP Projects	2,833,084,947	2,774,243,976	1,773,574,221	1,719,363,947	9,100,267,091
Unfunded Capacity Needs	**2,376,121**	**9,356,736**	**943,217**	**(1,719,363,947)**	**(1,706,687,873)**
Local Roads of Regional Significance	**2015-2024**	**2025-2034**	**2035-2040**	**Unfunded**	**2015 - 2040**
Revenues	812,439,796	978,853,098	619,378,919		2,410,671,813
RTP Projects	847,343,256	940,835,712	633,660,400		2,421,839,368
Unfunded Capacity Needs	**(34,903,460)**	**38,017,386**	**(14,281,481)**		**(11,167,555)**

Highway Projects List

The 2015 – 2040 RTP's Highway Project List identified segments of corridors which will require new construction, widening or upgrades, or operational improvements. Each project description includes the project number, project name, project length, the type of improvement, number of lanes, current right-of-way width, proposed 2040 right-of-way width, functional classification, length of improvement, category of bicycle improvement, facility owner, when the project is needed, financially constrained phase, current cost, and phased cost. The 2015 – 2040 RTP Highway Projects List is shown as **Table 7-4**.

Highway Project And Phasing Maps

The 2015 – 2040 RTP identifies highway improvement projects that increase capacity to meet travel demand by either adding new travel lanes to existing roadways or through the construction of new highways. Highway improvements fall into one of three categories. Highway improvement projects with identified funding sources that will best satisfy the Wasatch Front Region's immediate travel demand, are scheduled in Phase 1, or the time period between the years 2015 and 2024. Phase 2 highway projects and improvements are those scheduled between 2025 and 2034. Finally, Phase 3 improvements are proposed for constructed between 2035 and 2040. Phase 1 highway improvements include projects listed on the current Wasatch Front Regional Council's Transportation Improvement Program for 2015 - 2020. Phase 2 and Phase 3 projects also have identified funding sources. Recognizing that a financially constrained plan will not address all new capacity needs, the federal reauthorization act, entitled MAP-21, allows for illustrative or non-funded projects and facilities to be identified in regional transportation plan documents. Unfunded projects, shown as grey lines on the map, represent proposed facilities that meet identified regional travel demand needs, but remain unfunded for the period of 2015 - 2040. The 2015 RTP would include these highway projects if adequate funding sources could be identified. Highway projects in the Ogden / Layton Urbanized Area are graphically illustrated by types of improvement on **Map 7-1**, and by project implementation phase on **Map 7-2**. The recommended highway improvements for the Salt Lake / West Valley Urbanized Area are shown on **Map 7-3** and the phasing of these projects can be found on **Map 7-4**.

TABLE 7-4

2015 - 2040 RTP HIGHWAY PROJECT LIST

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
SALT LAKE COUNTY, EAST-WEST FACILITIES					
S-1	**Sports Complex Boulevard (2400 North)** I-215 East Frontage Road to Redwood Road	New Construction: 0 to 2 lanes ROW:2015 - 0 ft./2040 - 66 ft.	Collector / 0.5 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $4,400,000 Phased - $5,300,000
S-3	**California Avenue** Mountain View Corridor to 4800 West	Widening: 2 to 4 lanes ROW:2015 - 110 ft./2040 - 110 ft.	Minor Arterial / 1.3 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $10,000,000 Phased - $24,700,000
S-4	**I-80** 1300 East to I-215 (East)	Widening: 6 to 8 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 3.3 miles / I-80 Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $181,500,000 Phased - $326,900,000
S-5	**I-80** I-215 (East) to Lambs Canyon	Widening: 3 EB to 4 EB lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 8.0 miles / I-80 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $36,900,000 Phased - $44,900,000
S-6	**2100 South** I-15 to 1300 East	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 2.6 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $6,500,000 Phased - $11,700,000
S-7	**SR-201** I-80 (West) to SR-111 Bypass	Widening: 4 to 6 lanes ROW:2015 - 300 ft. / 2040 - 300 ft.	Freeway / 9.0 miles / SR-201 Bike Routes: None/Priority	Needed Phase - 2 Funded Phase - 2	2015 - $198,000,000 Phased - $356,600,000
S-8	**SR-201** SR-111 Bypass to Mountain View Corridor	Widening: 4 to 6 lanes ROW:2015 - 300 ft. / 2040 - 300 ft.	Freeway / 4.6 miles / SR-201 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $101,200,000 Phased - $182,300,000
S-9	**SR-201** Mountain View Corridor to I-15	Widening: 6 to 6+HOT lanes ROW:2015 - 300 ft. / 2040 - 300 ft.	Freeway / 6.0 miles / SR-201 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $132,000,000 Phased - $237,700,000
S-164	**2400 South** 7200 West to 6750 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.5 miles / Local Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $6,100,000 Phased - $11,000,000
S-165	**2400 South** 6400 West to 5600 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.3 miles / Local Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,900,000 Phased - $19,400,000
S-166	**2400 South** 3200 West to 2700 West	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.5 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $6,100,000 Phased - $11,000,000
S-10	**Parkway Boulevard (2700 South)** 7200 West to 5600 West	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 2.0 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,400,000 Phased - $18,700,000
S-11	**3300 South/ 3500 South** I-215 (West) to Highland Drive	Operational ROW:2015 - 126 ft. / 2040 - 126 ft.	Principal Arterial / 5.2 miles / SR-171 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 2	2015 - $13,000,000 Phased - $23,400,000
S-12	**3500 South** SR-111 Bypass to 7200 West	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 100 ft.	Principal Arterial / 2.2 miles / SR-171 Bike Routes: Base/Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $20,900,000 Phased - $51,500,000
S-13	**3500 South** 7200 West to Mountain View Corridor	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 100 ft.	Principal Arterial / 1.8 miles / SR-171 Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $17,100,000 Phased - $30,800,000
S-14	**3500 South** Mountain View Corridor to 4000 West	Widening: 2/4 to 6 lanes ROW:2015 - 80 ft. / 2040 - 100 ft.	Principal Arterial / 2.2 miles / SR-171 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $19,300,000 Phased - $23,400,000
S-15	**4100 South** 7200 West to 5600 West	Widening: 2 to 4 lanes ROW:2015 - 76 ft. / 2040 - 99 ft.	Minor Arterial / 2.0 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $37,800,000 Phased - $93,200,000
S-16	**4700 South** 5600 West to 4000 West	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 110 ft.	Principal Arterial / 2 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $38,600,000 Phased - $69,500,000
S-17	**4700 South** 4000 West to I-215	Widening / Operational: 4 to 6 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 1.8 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $12,300,000 Phased - $15,000,000
S-18	**4500 South / 4700 South** Redwood Road to I-15	Widening: 4 to 6 lanes ROW:2015 - 150 ft. / 2040 - 150 ft.	Principal Arterial / 2.0 miles / SR-266 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $29,600,000 Phased - $53,300,000
S-19	**4500 South** 900 East to Highland Drive	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 110 ft.	Principal Arterial / 1.3 miles / SR-266 Bike Routes: Base	Needed Phase - 2 Funded Phase - 3	2015 - $12,100,000 Phased - $29,700,000
S-20	**5400 South** SR-111 to Mountain View Corridor	Widening: 2 to 4 lanes ROW:2015 - 70 ft. / 2040 - 100 ft.	Minor Arterial / 1.6 miles / SR-173 Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $14,900,000 Phased - $26,800,000
S-21	**5400 South** SR-111 to Mountain View Corridor	Widening: 4 to 6 lanes ROW:2015 - 70 ft. / 2040 - 100 ft.	Minor Arterial / 1.6 miles / SR-173 Bike Routes: Base	Needed Phase - 3 Funded Phase - Unfunded	2015 - $14,900,000 Phased - $36,600,000
S-22	**5400 South** Mountain View Corridor to 4800 West	Widening: 4 to 6 lanes ROW:2015 - 65 ft. / 2040 - 100 ft.	Minor Arterial / 2.0 miles / SR-173 Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $39,100,000 Phased - $70,400,000
S-24	**5400 South** Redwood Road to State Street	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Minor Arterial / 2.7 miles / SR-173 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $6,800,000 Phased - $8,200,000
S-25	**6200 South** SR-111 to Mountain View Corridor	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Minor Arterial / 0.7 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $9,500,000 Phased - $11,500,000
S-26	**6200 South** SR-111 to Mountain View Corridor	Widening: 4 to 6 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Minor Arterial / 0.7 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $9,500,000 Phased - $23,300,000
S-167	**6200 South** Mountain View Corridor to Redwood Road	Widening: 4 to 6 lanes ROW:2015 - 86 ft. / 2040 - 110 ft.	Minor Arterial / 5.6 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $50,200,000 Phased - $90,400,000
S-168	**Winchester Street** 1300 West to State Street	Widening: 2 to 4 lanes ROW:2015 - 68 ft. / 2040 - 86 ft.	Collector / 2.1 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $50,200,000 Phased - $90,300,000
S-169	**6200 South** 3000 East to Wasatch Boulevard	Widening : 4 to 6 lanes ROW:2015 - 125 ft. / 2040 - 125 ft.	Principal Arterial / 0.5 miles / SR-190 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $3,900,000 Phased - $9,500,000
S-28	**7000 South** Bangerter Highway to Redwood Road	Widening: 3 to 4 lanes ROW:2015 - 80 ft. / 2040 - 99 ft.	Minor Arterial / 2.0 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $17,400,000 Phased - $21,200,000
S-29	**7000 South / 7200 South** Redwood Road to Bingham Junction Boulevard	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 123 ft.	Principal Arterial / 1.3 miles / SR-48 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $25,000,000 Phased - $30,400,000
S-30	**7000 South / 7200 South** Bingham Junction Boulevard to I-15	Widening: 4 to 6 lanes ROW:2015 - 123 ft. / 2040 - 123 ft.	Principal Arterial / 0.5 miles / SR-48 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $44,400,000 Phased - $54,000,000
S-31	**Fort Union Boulevard** Union Park Boulevard to 3000 East	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 2.8 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $7,000,000 Phased - $8,500,000
S-32	**7800 South** SR-111 to New Bingham Highway	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 120 ft.	Minor Arterial / 3.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $40,800,000 Phased - $49,600,000
S-33	**New Bingham Highway** 10200 South to 9000 South	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Principal Arterial / 3.0 miles / SR-48 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $30,100,000 Phased - $74,100,000
S-34	**9000 South** SR-111 to New Bingham Highway	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Principal Arterial / 1.2 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $16,200,000 Phased - $29,200,000
S-35	**9000 South** 5600 West to Bangerter Highway	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 123 ft.	Principal Arterial / 2.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $25,000,000 Phased - $45,100,000
S-36	**9000 South** Bangerter Highway to Redwood Road	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 123 ft.	Principal Arterial / 1.9 miles / SR-209 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $31,100,000 Phased - $55,900,000
S-198	**9000 South** Redwood Road to I-15	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 123 ft.	Principal Arterial / 2.0 miles / SR-209 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $23,200,000 Phased - $28,300,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
S-170	**9000 South** I-15 to 700 East	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 1.6 miles / SR-209 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
S-171	**9400 South** Monroe Street to State Street	Widening: 2 to 4 lanes ROW:2015 - 76 ft. / 2040 - 110 ft.	Collector / 0.4 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,200,000 Phased - $5,200,000
S-172	**9400 South** State Street to Ski Connection Road	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 1.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $3,800,000 Phased - $4,600,000
S-173	**Little Cottonwood Road** Eastdale Drive to Wasatch Boulevard	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 1.6 miles / SR-209 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $4,000,000 Phased - $7,200,000
S-37	**10200 South** SR-111 to Mountain View Corridor	Widening: 2 to 4 lanes ROW:2015 - 82 ft. / 2040 - 110 ft.	Collector / 1.6 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $14,700,000 Phased - $36,200,000
S-38	**South Jordan Parkway (11000 South)** SR-111 to Mountain View Corridor	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Minor Arterial / 1.8 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $24,300,000 Phased - $43,800,000
S-39	**South Jordan Parkway (11000 South)** Mountain View Corridor to 5600 West	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Minor Arterial / 0.3 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,100,000 Phased - $4,900,000
S-40	**10600 South / 10400 South** Bangerter Highway to Redwood Road	Widening: 4 to 6 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 2.0 miles / SR-151 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $27,400,000 Phased - $49,300,000
S-199	**10600 South / 10400 South** Redwood Road to I-15	Widening: 4 to 6 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 2.1 miles / SR-151 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $18,500,000 Phased - $22,500,000
S-41	**10600 South** 1700 East to Highland Drive	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 0.5 miles / Local Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $3,900,000 Phased - $6,900,000
S-42	**11800 South** Bacchus Highway to 6000 West	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 99 ft.	Minor Arterial / 1.9 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $17,900,000 Phased - $32,300,000
S-45	**11400 South** 1300 East to Highland Drive	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 99 ft.	Minor Arterial / 1.1 miles / Local Bike Routes: None/Priority	Needed Phase - 3 Funded Phase - 3	2015 - $9,600,000 Phased - $23,600,000
S-46	**Herriman Parkway (12600 South)** 7300 West to 6000 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Principal Arterial / 1.7 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $23,000,000 Phased - $27,900,000
S-47	**12600 South** Mountain View Corridor to Bangerter Highway	Widening: 4 to 6 lanes ROW:2015 - 123 ft. / 2040 - 123 ft.	Principal Arterial / 1.1 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $1,400,000 Phased - $1,700,000
S-174	**12600 South** Bangerter Highway to Redwood Road	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 2.4 miles / SR-71 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $6,000,000 Phased - $10,800,000
S-48	**12300 South / 12600 South** Redwood Road to I-15	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 2.6 miles / SR-71 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $52,000,000 Phased - $93,700,000
S-197	**12300 South / 12600 South** I-15 to 700 East	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 1.0 miles / SR-71 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $7,700,000 Phased - $9,400,000
S-175	**Herriman Main Street** 7300 West to 6200 West	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 1.4 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $3,500,000 Phased - $6,300,000
S-49	**Riverton Boulevard** 4570 West to 13400 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 89 ft.	Collector / 0.9 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $11,200,000 Phased - $13,600,000
S-177	**14600 South** 1000 West to Porter Rockwell Road	Widening: 2 to 4 lanes ROW:2015 - 76 ft. / 2040 - 110 ft.	Minor Arterial / 1.0 miles / SR-140 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $9,500,000 Phased - $23,400,000
S-54	**Traverse Ridge Road** Highland Drive to Mike Weir Drive	Widening: 2 to 4 lanes ROW:2015 - 89 ft. / 2040 - 99 ft.	Minor Arterial / 1.3 miles / Local Bike Routes: Base	Needed Phase - 3 Funded Phase - 3	2015 - $10,700,000 Phased - $26,400,000
S-55	**Porter Rockwell Road** Mountain View Corridor to 14600 South / 1-15	New Construction/Widening: 0/2 to 6 lanes ROW:2015 - 0 ft. / 2040 - 167 ft.	Principal Arterial / 2.9 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $75,700,000 Phased - $92,100,000
SALT LAKE COUNTY, NORTH-SOUTH FACILITIES					
S-56	**SR-111 Magna Bypass** SR-201 to SR-111	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 113 ft.	Principal Arterial / 2.6 miles / SR-111 Bike Routes: None/Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,400,000 Phased - $94,600,000
S-57	**SR-111 / Bacchus Highway** 5400 South to South Jordan Parkway (11000 South)	Widening: 2 to 4 lanes ROW:2015 - 106 ft. / 2040 - 113 ft.	Principal Arterial / 7.4 miles / SR-111/Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $67,900,000 Phased - $122,200,000
S-58	**7300 West** South Jordan Parkway (11000 South) to 13100 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 113 ft.	Collector / 2.9 miles / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $42,800,000 Phased - $105,500,000
S-178	**SR-111 / 8400 West** SR-201 to 2700 South	Widening: 2 to 3 lanes ROW:2015 - 72 ft. / 2040 - 113 ft.	Principal Arterial / 0.5 miles / SR-111 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $5,500,000 Phased - $9,900,000
S-179	**Prosperity Road** Crimson View Drive (10400 South) to 11800 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.8 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $22,000,000 Phased - $39,700,000
S-180	**6400 West** 11800 South to Herriman Main Street	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.6 miles / Local Bike Routes: None/Base	Needed Phase - 1 Funded Phase - 1	2015 - $19,600,000 Phased - $23,800,000
S-60	**Mountain View Corridor** I-80 to SR-201	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 328 ft.	Principal Arterial / 3.2 miles / SR-85 Bike Routes: None	Needed Phase - 2 Funded Phase - 3	2015 - $660,000,000 Phased- $1,626,700,000
S-61	**Mountain View Corridor** SR-201 to 4100 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 328 ft.	Principal Arterial / 3.1 miles / SR-85 Bike Routes: None/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $410,000,000 Phased - $498,800,000
S-64	**Mountain View Corridor** Porter Rockwell Road to Utah County Line	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 328 ft.	Principal Arterial / 2.4 miles / SR-85 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $105,000,000 Phased - $127,700,000
S-65	**Mountain View Corridor** I-80 to SR-201	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 3.2 miles / SR-85 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $195,000,000 Phased - $480,600,000
S-66	**Mountain View Corridor** SR-201 to 4100 South	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 3.1 miles / SR-85 Bike Routes: None/Priority	Needed Phase - 2 Funded Phase - 2	2015 - $215,000,000 Phased - $387,200,000
S-67	**Mountain View Corridor** 4100 South to 5400 South	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 2.2 miles / SR-85 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $70,000,000 Phased - $126,100,000
S-68	**Mountain View Corridor** 5400 South to 9000 South	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 4.7 miles / SR-85 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $193,300,000 Phased - $348,000,000
S-69	**Mountain View Corridor** 9000 South to 10200 South	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 1.6 miles / SR-85 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $65,800,000 Phased - $162,200,000
S-70	**Mountain View Corridor** 10200 South to Porter Rockwell Road	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 8.9 miles / SR-85 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $366,000,000 Phased - $902,000,000
S-71	**Mountain View Corridor** Porter Rockwell Road to Utah County Line	Widening and Interchanges: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 2.4 miles / SR-85 Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $41,300,000 Phased - $74,400,000
S-72	**Mountain View Corridor** SR-201 to Utah County Line	Widening: 6 to 6+HOT lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 26 miles / SR-85 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $86,700,000 Phased - $213,600,000
S-73	**5600 West** I-80 to SR-201	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 150 ft.	Principal Arterial / 2.8 miles / SR-172 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $34,100,000 Phased - $41,500,000
S-74	**5600 West** SR-201 to 6200 South	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 6.0 miles / SR-172 Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
S-76	**5600 West** 6200 South to New Bingham Highway	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Minor Arterial / 3.1 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $7,800,000 Phased - $14,000,000
S-75	**5600 West** 7800 South to New Bingham Highway	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 100 ft.	Minor Arterial / 1.1 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $9,600,000 Phased - $11,700,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
S-77	**5600 West** New Bingham Highway to Old Bingham Highway	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 100 ft.	Minor Arterial / 1.4 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase – 2	2015 - $13,300,000 Phased - $23,900,000
S-78	**5600 West** Old Bingham Highway to South Jordan Parkway	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.2 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $14,700,000 Phased - $17,900,000
S-80	**5600 West Connection** 5600 West to 11800 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 0.7 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $6,100,000 Phased - $7,500,000
S-181	**Fort Herriman Parkway** Herriman Main Street to 13400 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.8 miles / Local Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $9,500,000 Phased - $17,200,000
S-81	**4800 West** SR-201 Frontage Road to Lake Park Boulevard	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.0 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $12,200,000 Phased - $14,900,000
S-82	**4800 West** Kestrel Rise Drive (10900 S.) to Mountain View Corridor	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 0.9 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $10,100,000 Phased - $12,200,000
S-83	**4570 West** 12600 South to 13400 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 89 ft.	Collector / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $12,400,000 Phased - $15,100,000
S-84	**4570 West** 13400 South to Juniper Crest	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 89 ft.	Collector / 1.5 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $18,600,000 Phased - $33,500,000
S-85	**4150 West** 12600 South to Riverton Boulevard	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 89 ft.	Collector / 0.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $6,200,000 Phased - $7,500,000
S-200	**4000 West / 4150 West** 12600 South to Riverton Boulevard	New Construction/Widening: 2/0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 89 ft.	Collector / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $12,400,000 Phased - $15,100,000
S-86	**3600 West** 13400 South to 14400 South	Widening: 2 to 4 lanes ROW:2015 - 73 ft. / 2040 - 86 ft.	Collector / 1.3 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $10,900,000 Phased - $26,900,000
S-182	**2700 West** 5400 South to 6200 South	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 1.0 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $7,700,000 Phased - $13,900,000
S-89	**I-215** Redwood Road to I-80	Widening / Operational: 6 to 8 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 4.8 miles / I-215 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $76,400,000 Phased - $92,900,000
S-183	**I-215** SR-201 to 4700 South	Operational ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 3.1 miles / I-215 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $15,500,000 Phased - $18,900,000
S-90	**I-215 Frontage Road** SR-201 to 4700 South	New Construction: 0 to 1 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 7.4 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $65,000,000 Phased - $117,100,000
S-91	**Redwood Road** Davis County Line to 1000 North	Widening: 2 to 4 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 2.3 miles / SR-68 Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $29,700,000 Phased - $53,500,000
S-92	**Redwood Road** 1000 North to 6200 South	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 10.5 miles / SR-68 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $26,200,000 Phased - $31,900,000
S-93	**Redwood Road** 9000 South to Bangerter Highway	Widening: 4 to 6 lanes ROW:2015 - 66 ft. / 2040 - 100 ft.	Principal Arterial / 6.0 miles / SR-68 Bike Routes: None/Base/Priority	Needed Phase - 2 Funded Phase - 3	2015 - $57,000,000 Phased - $140,400,000
S-94	**Redwood Road** 9000 South to 11400 South	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 3.0 miles / SR-68 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 2	2015 - $7,500,000 Phased - $13,500,000
S-95	**Redwood Road** 12600 South to Bangerter Highway	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 123 ft.	Principal Arterial / 1.5 miles / SR-68 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $17,700,000 Phased - $21,600,000
S-96	**Redwood Road** Bangerter Highway to Porter Rockwell Road	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 123 ft.	Principal Arterial / 2.7 miles / SR-68 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $27,000,000 Phased - $66,600,000
S-184	**1300 West** 5400 South to 9400 South	Widening: 2 to 4 lanes ROW:2015 - 60 ft. / 2040 - 86 ft.	Collector / 5.0 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $45,400,000 Phased - $111,800,000
S-98	**Bingham Junction Boulevard** 7800 South to 8400 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.0 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $12,200,000 Phased - $14,900,000
S-99	**Galena Park Boulevard** 12300 South to 13490 South	Widening: 2 to 4 lanes ROW:2015 - 70 ft. / 2040 - 89 ft.	Collector / 1.6 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $13,900,000 Phased - $16,900,000
S-100	**Lone Peak Parkway** 11400 South to 12650 South	Widening: 2 to 4 lanes ROW:2015 - 65 ft. / 2040 - 99 ft.	Minor Arterial / 1.2 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $11,400,000 Phased - $20,500,000
S-101	**Lone Peak Parkway** 12650 South to Bangerter Highway	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 99 ft.	Minor Arterial / 1.9 miles / Local Bike Routes: None/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $24,600,000 Phased - $29,900,000
S-102	**600 West** Bangerter Highway to 14600 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Minor Arterial / 1.4 miles / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $14,000,000 Phased - $34,500,000
S-103	**I-15 Collectors and Distributors** 7800 South to 10600 South	New Construction: 0 to 1 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 7.3 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $73,000,000 Phased - $131,400,000
S-186	**I-15** Davis County Line to Utah County Line	Operational ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 26.5 miles / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $66,300,000 Phased - $80,600,000
S-187	**I-15 HOT with Ramps** 600 North to Bangerter Highway	Widening: 8+2 HOT to 8+4 HOT lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 19.8 miles / I-15 Bike Routes: None	Needed Phase - 2 Funded Phase - 3	2015 - $356,400,000 Phased - $878,400,000
S-202	**Monroe Street** 9000 South to 10000 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $11,000,000 Phased - $13,400,000
S-107	**Cottonwood Street** 4500 South to Vine Street	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.9 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $10,000,000 Phased - $12,200,000
S-188	**Cottonwood Street** Vine Street to Winchester Street	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 2.4 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $6,000,000 Phased - $10,800,000
S-108	**State Street** 600 South to I-215	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 8.6 miles / SR-89 Bike Routes: None/Base	Needed Phase - 1 Funded Phase - 2	2015 - $21,500,000 Phased - $38,700,000
S-109	**State Street** I-215 to 12300 South	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 7.3 miles / SR-89 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $18,300,000 Phased - $32,900,000
S-110	**State Street** 8000 South to 9000 South	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 1.2 miles / SR-89 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $9,200,000 Phased - $11,200,000
S-189	**State Street** 10600 South to 11400 South	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 1.0 miles / SR-89 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $7,700,000 Phased - $9,400,000
S-111	**900 East** 3300 South to 4500 South	Operational ROW:2015 - 66 ft. / 2040 - 66 ft.	Collector / 1.8 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,500,000 Phased - $5,500,000
S-112	**900 East / 700 East** Fort Union Boulevard to 9400 South	Widening: 4 to 6 lanes ROW:2015 - 106 ft. / 2040 - 123 ft.	Principal Arterial / 3.0 miles / SR-71 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $29,100,000 Phased - $71,700,000
S-113	**700 East** 11400 South to 12300 South	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 110 ft.	Principal Arterial / 1.2 miles / SR-71 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $11,100,000 Phased - $20,100,000
S-190	**1300 East** 1300 South to Van Winkle Expressway	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 5.7 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $14,300,000 Phased - $17,300,000
S-114	**Union Park Boulevard / 1300 East** Fort Union Boulevard to 7800 South	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 1.2 miles / Local Bike Routes: None/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $3,000,000 Phased - $3,600,000
S-115	**Highland Drive** 3900 South to Van Winkle Expressway	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 3.4 miles / Local Bike Routes: None/Base	Needed Phase - 1 Funded Phase - 2	2015 - $8,500,000 Phased - $15,300,000
S-116	**2000 East**	Widening: 4 to 6 lanes	Principal Arterial / 3.1 miles / Local	Needed Phase - 3	2015 - $27,300,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
	Fort Union Boulevard to 9400 South	ROW:2015 - 114 ft. / 2040 - 114 ft.	Bike Routes: Priority	Funded Phase - 3	Phased - $67,200,000
S-117	**Highland Drive** 9400 South to 9800 South	Widening: 2 to 4 lanes ROW:2015 - 114 ft. / 2040 - 114 ft.	Principal Arterial / 0.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $5,300,000 Phased - $6,400,000
S-118	**Highland Drive** 9800 South to Draper City Limit	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 114 ft.	Principal Arterial / 2.9 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $6,3000,000 Phased - $113,400,000
S-119	**Highland Drive** Draper City Limit to 14600 South	Widening: 2 to 4 lanes ROW:2015 - 106 ft. / 2040 - 114 ft.	Principal Arterial / 5.6 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $51,600,000 Phased - $127,300,000
S-120	**Highland Drive Connection** Traverse Ridge Road to 13800 South	Widening: 2 to 4 lanes ROW:2015 - 106 ft. / 2040 - 110 ft.	Principal Arterial / 1.3 miles / Local Bike Routes: Base	Needed Phase - 3 Funded Phase - 3	2015 - $10,300,000 Phased - $25,300,000
S-191	**3000 East** 6200 South to 7000 South	Widening: 2 to 4 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Collector / 0.8 miles / Local Bike Routes: None/Priority	Needed Phase - 3 Phased - 3	2015 - $6,200,000 Phased - $15,200,000
S-121	**500 South / Foothill Boulevard** 1300 East to 2300 East	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 2.4 miles / SR-186 Bike Routes: None/Base	Needed Phase - 1 Funded Phase - 1	2015 - $6,000,000 Phased - $7,300,000
S-122	**Foothill Boulevard** 2300 East to I-80	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 1.5 miles / SR-186 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $11,600,000 Phased - $14,100,000
S-192	**Wasatch Boulevard** 4500 South to 6200 South	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 3.2 miles / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $24,600,000 Phased - $60,700,000
S-193	**Wasatch Boulevard** Bengal Boulevard to Little Cottonwood Canyon	Widening: 2 to 4 lanes ROW:2015 - 150 ft. / 2040 - 150 ft.	Principal Arterial / 2.7 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $23,800,000 Phased - $42,800,000
SALT LAKE COUNTY, SPOT FACILITIES					
S-123	**SR-201 Interchange** @ I-80	Upgrade	Freeway / SR-201 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
S-124	**SR-201 Interchange** @ SR-111 Bypass	New Construction	Freeway / SR-201 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-125	**SR-201 Interchange** @ 8400 West	New Construction	Freeway / SR-201 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-126	**SR-201 Interchange** @ 7200 West	New Construction	Freeway / SR-201 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
S-127	**SR-201 Interchange** @ I-215	Upgrade	Freeway / SR-201 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $107,000,000 Phased - $192,700,000
S-129	**I-80 Interchange** @ 5600 West	Upgrade	Freeway / I-80 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $15,000,000 Phased - $37,000,000
S-130	**5600 West Railroad Crossing** @ 750 South	New Construction: 2 to 4 lanes	Minor Arterial / SR-172 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $20,000,000 Phased - $24,300,000
S-132	**Bangerter Highway Interchange** @ California Avenue	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-133	**Bangerter Highway Interchange** @ SR-201	Upgrade	Freeway / SR-154 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $107,000,000 Phased - $192,700,000
S-134	**Bangerter Highway Interchange** @ Lake Park Boulevard (2700 South)	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-135	**Bangerter Highway Overpass** @ 3100 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $20,000,000 Phased - $49,300,000
S-136	**Bangerter Highway Interchange** @ 3500 South	New Construction	Freeway / SR-154 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-137	**Bangerter Highway Interchange** @ 4100 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-138	**Bangerter Highway Interchange** @ 4700 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
S-139	**Bangerter Highway Interchange** @ 5400 South	New Construction	Freeway / SR-154 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-140	**Bangerter Highway Interchange** @ 6200 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $38,000,000 Phased - $93,700,000
S-141	**Bangerter Highway Interchange** @ 7000 South	New Construction	Freeway / SR-154 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-143	**Bangerter Highway Interchange** @ 9000 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-144	**Bangerter Highway Interchange** @ 9800 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
S-145	**Bangerter Highway Interchange** @ 10400 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-146	**Bangerter Highway Interchange** @ 11400 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-147	**Bangerter Highway Interchange** @ 12600 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
S-148	**Bangerter Highway Interchange** @ 13400 South	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
S-149	**Bangerter Highway Interchange** @ 2700 West	New Construction	Freeway / SR-154 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
S-151	**Bangerter Highway Interchange** @ 600 West	New Construction	Freeway / SR-154 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $38,000,000 Phased - $46,200,000
S-152	**Bangerter Highway Interchange** @ I-15	Upgrade	Freeway / SR-154 Bike Routes: None	Needed Phase - 2 Funded Phase - Unfunded	2015 - $107,000,000 Phased - $263,700,000
S-154	**I-215 Interchange** @ 5400 South	New Construction	Freeway / I-215 Bike Routes: Base	Needed Phase - 3 Funded Phase - Unfunded	2015 - $45,000,000 Phased - $110,900,000
S-155	**I-215 Interchange** @ Redwood Road (South)	Upgrade	Freeway / I-215 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
S-156	**I-15 Interchange** @ 100 South (HOT Ramps)	New Construction	Freeway / I-15 Bike Routes: Base	Needed Phase - 3 Funded Phase - Unfunded	2015 - $45,000,000 Phased - $110,900,000
S-157	**I-15 Interchange** @ I-215 (South)	Upgrade	Freeway / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $107,000,000 Phased - $130,200,000
S-194	**I-15 Interchange** @ 7200 South	Upgrade	Freeway / I-15 Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
S-195	**I-15 Interchange** @ 9400 South	New Construction	Collector / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $45,000,000 Phased - $54,700,000
S-196	**I-80 Interchange** @ State Street	Upgrade	Freeway / I-80 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $15,000,000 Phased - $18,200,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
S-158	**13800 South Overpass** @ I-15	New Construction: 0 to 2 lanes	Collector / Local Bike Routes: Priority	Needed Phase - 3 Funded Phase - 3	2015 - $20,000,000 Phased - $49,300,000
S-159	**14600 South Rail Road Structure** @ D&RGW	Upgrade: 1 to 2 lanes	Minor Arterial / SR-140 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $20,000,000 Phased - $49,300,000
S-161	**I-80 Interchange** @ I-215 to Foothill Drive	Upgrade	Freeway / I-80 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $107,000,000 Phased - $192,700,000
S-162	**I-215 Interchange** @ 4500 South	Upgrade	Freeway / I-215 Bike Routes: Base	Needed Phase - 2 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
S-201	**I-215 Interchange** @ 6200 South	Upgrade	Freeway / I-215 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $15,000,000 Phased - $37,000,000
S-163	**Avalanche snow shed over Little Cottonwood Canyon Road @ Whitepine Chutes**	New Construction	Minor Arterial / SR-210 Bike Routes: Base	Needed Phase - 3 Funded Phase - Unfunded	2015 - $20,000,000 Phased - $49,300,000
DAVIS COUNTY, EAST-WEST FACILITIES					
D-1	**1800 North** West Davis Corridor to 2000 West	Widening: 2 to 4 lanes ROW:2015 - 80 ft. / 2040 - 120 ft.	Minor Arterial / 2.0 miles / SR-37 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $21,800,000 Phased - $39,300,000
D-2	**1800 North** 2000 West to SR-126	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 120 ft.	Minor Arterial / 2.0 miles / SR-37 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $23,300,000 Phased - $28,400,000
D-3	**SR-193 Extension** West Davis Corridor to 3000 West	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Principal Arterial / 0.7 miles / SR-193 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $9,500,000 Phased - $17,000,000
D-70	**SR-193 Extension** 3000 West to 2000 West	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Principal Arterial / 1.0 miles / SR-193 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $13,500,000 Phased - $16,400,000
D-50	**SR-193** I-15 to Hill Field Road (SR-232)	Widening: 4 to 6 lanes ROW:2015 - 110 ft. / 2040 - 150 ft.	Principal Arterial / 1.5 miles / SR-193 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $16,400,000 Phased - $29,500,000
D-6	**SR-193** Hill Field Road (SR-232) to US-89	Operational ROW:2015 - 150 ft. / 2040 - 150 ft.	Principal Arterial / 3.4 miles / SR-193 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $8,500,000 Phased - $15,300,000
D-51	**Antelope Drive (SR-127)** 4500 West to West Davis Corridor	Widening: 2 to 4 lanes ROW:2015 - 60 ft. / 2040 - 86 ft.	Minor Arterial / 1.7 miles / SR-127 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $15,400,000 Phased - $38,000,000
D-7	**Antelope Drive (SR-127)** West Davis Corridor to 2000 West	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Minor Arterial / 0.8 miles / SR-127 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $8,000,000 Phased - $9,800,000
D-10	**Gordon Avenue (1000 North)** 1600 East to US-89	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 1.3 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $15,900,000 Phased - $28,700,000
D-11	**West Hill Field Road** 3650 West (Layton) to 2200 West (Layton)	Widening: 2 to 4 lanes ROW:2015 - 60 ft. / 2040 - 110 ft.	Minor Arterial / 1.5 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase – 3	2015 - $15,500,000 Phased - $38,200,000
D-52	**Gentile Street** Main Street to Fairfield Road	Widening: 2 to 4 lanes ROW:2015 - 68 ft. / 2040 - 86 ft.	Minor Arterial / 1.1 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $29,500,000 Phased - $53,200,000
D-12	**Layton Parkway** West Davis Corridor / 2700 West to 1700 West	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Minor Arterial / 1.0 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $12,200,000 Phased - $14,900,000
D-13	**200 North (Kaysville)** West Davis Corridor to I-15	Widening: 2 to 4 lanes ROW:2015 - 60 ft. / 2040 - 99 ft.	Minor Arterial / 2.3 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $22,400,000 Phased - $27,300,000
D-53	**Shepard Lane** West Davis Corridor to I-15	New Construction: 0 to 2/4 lanes ROW:2015 - 0 ft. / 2040 - 100 ft.	Minor Arterial / 1.2 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,600,000 Phased - $19,000,000
D-15	**Center Street** Legacy Parkway to US-89	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 1.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
DAVIS COUNTY, NORTH-SOUTH FACILITIES					
D-16	**West Davis Corridor** Weber County Line to Antelope Drive (SR-127)	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 320 ft.	Freeway / 4.8 miles / SR-67 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $79,700,000 Phased - $143,500,000
D-17	**West Davis Corridor** Antelope Drive (SR-127) to I-15/US-89/Legacy Parkway	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 320 ft.	Freeway / 14.2 miles / SR-67 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $500,000,000 Phased - $608,300,000
D-18	**West Davis Corridor** Weber County Line to Antelope Drive (SR-127)	Corridor Preservation ROW:2015 - 0 ft. / 2040 - 320 ft.	Freeway / 4.8 miles / SR-67 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $24,300,000 Phased - $29,600,000
D-20	**2000 West (SR-108)** Weber County Line to 300 North	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Principal Arterial / 2.5 miles / SR-108 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $65,900,000 Phased - $80,200,000
D-54	**2000 West (SR-108)** 300 North to Antelope Drive (SR-108)	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Principal Arterial / 2.0 miles / SR-108 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $52,700,000 Phased - $64,200,000
D-21	**2000 West** Antelope Drive (SR-108) to West Davis Corridor	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 99 ft.	Collector / 1.4 miles / Local Bike Routes: Base	Needed Phase - 3 Funded Phase - 3	2015 - $13,200,000 Phased - $32,600,000
D-55	**1000 West** 800 North to Antelope Drive	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 2.5 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $6,300,000 Phased - $7,600,000
D-56	**500 West** Antelope Drive to 1980 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 84 ft.	Collector / 0.5 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $6,100,000 Phased - $7,400,000
D-57	**500 West** 1980 South to Gordon Avenue (2700 South)	Operational ROW:2015 - 84 ft. / 2040 - 84 ft.	Collector / 0.5 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $1,300,000 Phased - $1,500,000
D-22	**3650 West (Layton)** 700 North to Gentile Street	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 99 ft.	Collector / 0.8 miles / Local Bike Routes: Base	Needed Phase - 3 Funded Phase - 3	2015 - $10,300,000 Phased - $25,500,000
D-23	**2700 West (Layton)** 650 North to Layton Parkway	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 99 ft.	Collector / 1.2 miles / Local Bike Routes: None/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,500,000 Phased - $18,900,000
D-58	**Main Street / State Street (SR-126)** 300 North to Layton Parkway	Operational ROW:2015 - 100 ft. / 2040 - 100 ft.	Principal Arterial / 5.5 miles / SR-126 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $13,800,000 Phased - $16,700,000
D-59	**1000 East** SR-193 to Antelope Drive	Operational ROW:2015 - 66 ft. / 2040 - 70 ft.	Collector / 1.0 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $6,500,000 Phased - $7,900,000
D-25	**I-15** Weber County Line to Hill Field Road (SR-232)	Widening: 6 to 6+HOT lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 6.3 miles / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $109,600,000 Phased - $133,300,000
D-60	**University Park Boulevard** SR-193 to Antelope Drive	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $2,500,000 Phased - $4,500,000
D-27	**Church Street Extension** I-84 to SR-193	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Minor Arterial / 4.6 miles / Local Bike Routes: Base	Needed Phase - 3 Funded Phase - 3	2015 - $100,400,000 Phased - $247,500,000
D-61	**Redwood Road** Center Street (North Salt Lake) to Salt Lake County Line	Widening: 2 to 4 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 1.4 miles / SR-68 Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $10,800,000 Phased - $13,100,000
D-24	**Redwood Road** 500 South to 2600 South	Widening: 2 to 4 lanes ROW:2015 - 100 ft. / 2040 - 110 ft.	Principal Arterial / 1.6 miles / SR-68 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $13,200,000 Phased - $23,700,000
D-69	**1250 West / 650 West** 1900 North to 1275 North	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $8,800,000 Phased - $10,700,000
D-28	**US-89** I-84 to Antelope Drive	Widening: 4 to 6 lanes ROW:2015 - 120 ft. / 2040 - 150 ft.	Freeway / 5.5 miles / US-89 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $107,700,000 Phased - $265,500,000
D-29	**US-89** Antelope Drive to I-15 (Farmington)	Widening: 4 to 6 lanes ROW:2015 - 120 ft. / 2040 - 150 ft.	Freeway / 8.9 miles / US-89 Bike Routes: Base/Priority	Needed Phase - 2 Funded Phase - 3	2015 - $174,300,000 Phased - $429,600,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
D-71	**US-89** Oak Hills Drive to Nicholls Road	New Construction: 0 to 2 lanes ROW:2015 - 60 ft. / 2040 - 60 ft.	Freeway / 2.5 miles / US-89 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $13,300,000 Phased - $16,100,000
D-62	**Farmington Frontage Road Connection** Lagoon Drive to 200 West (SR-227)	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 0.1 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $1,000,000 Phased - $1,800,000
DAVIS COUNTY, SPOT FACILITIES					
D-30	**1800 North Overpass** @ 500 West Railroad Crossing	New Construction: 2 to 4 lanes ROW:2015 - ft. / 2040 - ft.	Minor Arterial / SR-37 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $20,000,000 Phased - $24,300,000
D-31	**I-15 Interchange** @ 1800 North	New Construction	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $45,000,000 Phased - $54,700,000
D-32	**I-15 Interchange** @ 650 North	Upgrade	Freeway / I-15 Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
D-63	**I-15 Interchange** @ SR-193	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $45,000,000 Phased - $54,700,000
D-33	**I-15 Interchange** @ Antelope Drive	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
D-34	**1200 North Overpass (Layton)** @ I-15	New Construction: 0 to 4 lanes	Collector / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $20,000,000 Phased - $24,300,000
D-36	**I-15 Interchange** @ Shepard Lane	New Construction	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase – 1	2015 - $45,000,000 Phased - $54,800,000
D-37	**I-15 Interchange** @ Parrish Lane	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
D-64	**Porter Lane Overpass** @ I-15	New Construction: 0 to 2 lanes	Collector / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $20,000,000 Phased - $49,300,000
D-38	**I-15 Interchange** @ 500 West	Upgrade	Freeway / I-15 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $15,000,000 Phased - $37,000,000
D-65	**500 South** @ 800 West Railroad Crossing	New Construction	Minor Arterial / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
D-41	**2600 South / 1100 North** @ 1050 West Railroad Crossing	New Construction	Minor Arterial / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
D-42	**Legacy Parkway Interchange** @ Center Street	New Construction	Freeway / SR-67 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $38,000,000 Phased - $93,700,000
D-66	**Center Street** @ 300 West Railroad Crossing	New Construction	Collector / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
D-43	**I-215 Interchange** @ Legacy Parkway	Upgrade	Freeway / I-215 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $107,000,000 Phased - $263,700,000
D-67	**I-215 Interchange** @ Redwood Road	Upgrade	Freeway / I-215 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,000,000 Phased - $18,200,000
D-44	**I-215 Interchange** @ I-15 / US-89	Upgrade	Freeway / I-215 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $107,000,000 Phased - $263,700,000
D-68	**I-215 Interchange** @ I-15 / US-89	Intermediate Int. Improvements	Freeway / I-215 Bike Routes: None	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
D-45	**US-89 Interchange** @ Antelope Drive	New Construction	Freeway / US-89 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
D-46	**US-89 Interchange** @ Gordon Avenue	New Construction	Freeway / US-89 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $38,000,000 Phased - $68,400,000
D-47	**US-89 Interchange** @ Oak Hills Drive (SR-109)	New Construction	Freeway / US-89 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $33,000,000 Phased - $59,400,000
D-48	**US-89 Interchange** @ 400 North (Fruit Heights)	New Construction	Freeway / US-89 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $33,000,000 Phased - $40,100,000
D-49	**Nicholl's Road Overpass** @ US-89	New Construction: 0 to 2 lanes	Collector / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $15,000,000 Phased - $18,200,000
WEBER COUNTY, EAST-WEST FACILITIES					
W-1	**Skyline Drive (North)** US-89 to 450 East	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 3.2 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $39,200,000 Phased - $47,700,000
W-2	**Skyline Drive (North)** 450 East to 2600 North	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 3.1 miles / Local Bike Routes: Base/Priority	Needed Phase - 2 Funded Phase - 2	2015 - $37,900,000 Phased - $68,300,000
W-45	**2700 North** 4200 West to I-15	Operational ROW:2015 - 80 ft. / 2040 - 80 ft.	Minor Arterial / 3.2 miles / SR-134 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $8,000,000 Phased - $14,400,000
W-67	**2700 North** I-15 to US-89	Widening ROW:2015 - 106 ft. / 2040 - 106 ft.	Principal Arterial / 0.9miles / SR-134 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $7,900,000 Phased - $9,600,000
W-46	**2550 North** US-89 to Washington Boulevard/400 East	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 1.7 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $4,300,000 Phased - $5,200,000
W-3	**1700 North** US-89 to Washington Boulevard/400 East	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 1.1 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $9,700,000 Phased - $17,400,000
W-4	**Larsen Lane** US-89/Wall Avenue to Washington Boulevard/400 East	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 89 ft.	Minor Arterial / 0.5 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $4,500,000 Phased - $5,400,000
W-47	**Pioneer Road (400 North)** 4700 West to I-15	Operational ROW:2015 - 88 ft. / 2040 - 88 ft.	Collector / 3.9 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $9,800,000 Phased - $17,600,000
W-5	**Pioneer Road (400 North)** I-15 to 1200 West	Re-stripe: 2 to 4 lanes ROW:2015 - 110 ft. / 2040 - 110 ft.	Collector / 0.9 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $0 Phased - $0
W-48	**North Street** 530 West to Monroe Boulevard	Operational ROW:2015 - 70 ft. / 2040 - 70 ft.	Collector / 1.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
W-49	**1200 South** 11000 West to West Weber Corridor	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 4.9 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $12,300,000 Phased - $14,900,000
W-6	**1200 South** West Weber Corridor to 4700 West	Widening: 2 to 4 lanes ROW:2015 - 76 ft. / 2040 - 110 ft.	Principal Arterial / 2.3 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $33,800,000 Phased - $41,200,000
W-7	**1200 South (SR-39)** 4700 West to I-15	Widening: 2 to 4 lanes ROW:2015 - 76 ft. / 2040 - 110 ft.	Principal Arterial / 4.0 miles / SR-39 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $50,000,000 Phased - $60,800,000
W-50	**17th Street** 1200 West to Wall Avenue	Operational ROW:2015 - 70 ft. / 2040 - 70 ft.	Collector / 1.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
W-8	**20th Street** Wall Avenue to Harrison Boulevard	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 1.6 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
W-9	**21st Street** Wall Avenue to Adams Avenue	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Minor Arterial / 0.6 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $1,500,000 Phased - $1,800,000
W-10	**24th Street** I-15 to Lincoln Avenue	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 110 ft.	Minor Arterial / 1.6 miles / SR-53 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $114,300,000 Phased - $205,900,000
W-51	**2550 South**	Operational	Collector / 4.6 miles / Local	Needed Phase - 1	2015 - $11,500,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
	4700 West to I-15	ROW:2015 - 89 ft. / 2040 - 89 ft.	Bike Routes: Priority	Funded Phase - 1	Phased - $14,000,000
W-52	**3300 South** 4700 West to Midland Drive	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 3.4 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $8,500,000 Phased - $10,300,000
W-13	**4000 South (SR-37)** West Weber Corridor to Midland Drive	Widening: 2 to 4 lanes ROW:2015 - 86 ft. / 2040 - 110 ft.	Minor Arterial / 2.8 miles / SR-37 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $25,100,000 Phased - $30,500,000
W-53	**4000 South (SR-37)** Midland Drive to 1900 West (SR-126)	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Minor Arterial / 1.2 miles / SR-37 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $3,000,000 Phased - $3,600,000
W-12	**Country Hills Drive** Adams Avenue to Gramercy Avenue	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 99 ft.	Minor Arterial / 0.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $5,700,000 Phased - $6,900,000
W-15	**4400 South** 1900 West (SR-126) to 700 West	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Collector / 1.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
W-17	**5600 South / 5500 South** West Weber Corridor to 3500 West	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 86 ft.	Principal Arterial / 2.1 miles / SR-97 Bike Routes: Base/Priority	Needed Phase - 2 Funded Phase - 2	2015 - $18,400,000 Phased - $33,100,000
W-18	**5600 South** 3500 West to 1900 West (SR-126)	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 86 ft.	Principal Arterial / 2.0 miles / SR-97 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $37,500,000 Phased - $67,600,000
W-54	**5600 South** 1900 West (SR-126) to I-15	Widening: 5 to 6 lanes ROW:2015 - 106 ft. / 2040 - 106 ft.	Principal Arterial / 0.2 miles / SR-97 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $1,500,000 Phased - $1,900,000
W-55	**Falcon Hill Road Connector** I-15 to 1150 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 2.4 miles / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $29,400,000 Phased - $72,400,000
WEBER COUNTY, NORTH-SOUTH FACILITIES					
W-19	**West Weber Corridor** I-15 (North) to 4000 South	Corridor Preservation ROW:2015 - 0 ft. / 2040 - 220 ft.	Freeway / 14.8 miles / SR-67 Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $51,600,000 Phased - $62,700,000
W-20	**West Weber Corridor** 4000 South to Davis County Line	Corridor Preservation ROW:2015 - 0 ft. / 2040 - 220 ft.	Freeway / 2.7 miles / SR-67 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $9,400,000 Phased - $11,400,000
W-21	**West Weber Corridor** 4000 South to 5500 South	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 220 ft.	Freeway / 1.8 miles / SR-67 Bike Routes: Priority	Needed Phase - 2 Funded Phase - Unfunded	2015 - $13,900,000 Phased - $34,200,000
W-22	**West Weber Corridor** 5500 South to Davis County Line	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 220 ft.	Freeway / 1.0 miles / SR-67 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $16,600,000 Phased - $29,900,000
W-24	**4700 West** 4600 South to 4800 South	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 110 ft.	Collector / 0.3 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $4,100,000 Phased - $4,900,000
W-66	**4700 West** 4800 South to 5500 South	Operational ROW:2015 - 66 ft. / 2040 - 66 ft.	Collector / 0.9 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $23,000,00 Phased - $2,700,000
W-25	**3500 West** 1200 South to Midland Drive	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Collector / 4.6 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $11,500,000 Phased - $20,700,000
W-56	**Midland Drive (SR-108)** I-15 to 1900 West (SR-126)	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Minor Arterial / 1.4 miles / SR-108 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $17,100,000 Phased - $20,800,000
W-14	**Midland Drive (SR-108)** 1900 West (SR-126) to Hinkley Drive (SR-79)	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Principal Arterial / 0.9 miles / SR-108 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $23,700,000 Phased - $42,700,000
W-26	**3500 West / Midland Drive (SR-108)** 4275 South to Davis County Line	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 110 ft.	Principal Arterial / 2.5 miles / SR-108 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $65,900,000 Phased - $80,200,000
W-27	**1900 West / 2000 West (SR-126)** 2700 North to 1200 South	Widening: 2 to 4 lanes ROW:2015 - 66 ft. / 2040 - 150 ft.	Principal Arterial / 4.3 miles / SR-126 Bike Routes: Priority	Needed Phase - 2 Funded Phase - Unfunded	2015 - $56,900,000 Phased - $140,300,000
W-28	**1900 West (SR-126)** Riverdale Road to 5600 South	Widening: 4 to 6 lanes ROW:2015 - 100 ft. / 2040 - 150 ft.	Principal Arterial / 0.4 miles / SR-126 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $4,600,000 Phased - $5,600,000
W-29	**I-15** Box Elder County Line to 2700 North	Widening: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 2.4 miles / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $13,700,000 Phased - $16,700,000
W-30	**I-15** I-84 to Davis County Line	Widening: 6 to 6+HOT lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 2.9 miles / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $50,400,000 Phased - $61,400,000
W-57	**1200 West** 12th Street to 17th Street	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 0.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $1,300,000 Phased - $1,500,000
W-58	**1200 West** 17th Street to 21st Street	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.6 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 2	2015 - $7,300,000 Phased - $13,200,000
W-59	**150 East** 2700 North to Larsen Lane	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 2.5 miles / Local Bike Routes: None	Needed Phase - 2 Funded Phase - 3	2015 - $25,000,000 Phased - $61,600,000
W-60	**400 / 450 East** Skyline Drive to 3700 North	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 70 ft.	Collector / 0.4 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $4,000,000 Phased - $4,900,000
W-33	**400 / 450 East** 3300 North to 2600 North	Widening: 2 to 4 lanes ROW:2015 - 68 ft. / 2040 - 89 ft.	Collector / 0.8 miles / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 1	2015 - $7,000,000 Phased - $8,600,000
W-61	**Washington Boulevard** 12th Street to Riverdale Road	Operational ROW:2015 - 150 ft. / 2040 - 150 ft.	Principal Arterial / 3.1 miles / SR-89 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 2	2015 - $7,800,000 Phased - $14,000,000
W-34	**Monroe Boulevard** 3100 North to 1300 North	New Construction: 0/2 to 4 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Minor Arterial / 2.4 miles / Local Bike Routes: None/Base	Needed Phase - 2 Funded Phase - 2	2015 - $29,400,000 Phased - $52,900,000
W-35	**Harrison Boulevard / Mountain Road** 2600 North to 12th Street	Operational ROW:2015 - 86 ft. / 2040 - 86 ft.	Collector / 4.7 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $11,800,000 Phased - $14,300,000
W-36	**Harrison Boulevard** 12th Street to Country Hills Drive	Operational ROW:2015 - 110 ft. / 2040 - 110 ft.	Principal Arterial / 3.9 miles / SR-203 Bike Routes: None/Base/Priority	Needed Phase - 1 Funded Phase - 1	2015 - $9,800,000 Phased - $11,900,000
W-37	**Harrison Boulevard** Country Hills Drive to US-89	Widening: 4 to 6 lanes ROW:2015 - 99 ft. / 2040 - 123 ft.	Principal Arterial / 2.3 miles / SR-203 Bike Routes: Base/Priority	Needed Phase - 2 Funded Phase - 2	2015 - $23,200,000 Phased - $41,700,000
W-38	**US-89** Harrison Boulevard to I-84	Widening: 4 to 6 lanes ROW:2015 - 120 ft. / 2040 - 150 ft.	Freeway / 1.7 miles / US-89 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $33,300,000 Phased - $60,000,000
W-39	**Skyline Drive** 1. Quail Run Drive to 4600 South 2. Ogden City Limits to Megan Circle	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Collector / 0.5 miles / Local Bike Routes: Base/Priority	Needed Phase - 1 Funded Phase – 1	2015 - $6,400,000 Phased - $7,700,000
WEBER COUNTY, SPOT FACILITIES					
W-62	**I-15 Interchange** @ 2700 North	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $15,000,000 Phased - $37,000,000
W-63	**I-15 Interchange** @ Pioneer Road	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $15,000,000 Phased - $37,000,000
W-64	**400 North** @ 530 West Railroad Crossing	New Construction	Collector / Local Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
W-41	**I-15 Interchange** @ 24th Street	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $45,000,000 Phased - $54,700,000
W-65	**4000 South** @ 2500 West Railroad Crossing	New Construction	Minor Arterial / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
W-43	**I-15 Interchange** @ 5600 South	Upgrade	Freeway / I-15 Bike Routes: Base	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
W-44	**US-89 Interchange**	Upgrade	Freeway / US-89	Needed Phase - 3	2015 - $107,000,000

ID#	PROJECT	DESCRIPTION		PHASE 1: 2015-2024 PHASE 2: 2025-2034 PHASE 3: 2035-2040	COST
	@ I-84		Bike Routes: Priority	Funded Phase - Unfunded	Phased - $263,700,000
BOX ELDER COUNTY, EAST-WEST FACILITIES					
B-1	**Wilson Lane (1500 North)** Promontory Road (SR-13)/Watery Lane to 950 West	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 86 ft.	Minor Arterial / 1.0 miles / Local Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $12,200,000 Phased - $14,900,000
B-2	**1200 South** Commerce Way to US-89	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 0.5 miles / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $4,400,000 Phased - $10,800,000
BOX ELDER COUNTY, NORTH-SOUTH FACILITIES					
B-3	**2400 West** Promontory Road (SR-13) to Forest Street	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 80 ft.	Collector / 2.0 miles / Local Bike Routes: None	Needed Phase - 3 Funded Phase - 3	2015 - $51,000,000 Phased - $125,800,000
B-14	I-15 3000 North to US-91	Widening: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 5.4 miles / I-15 Bike Routes: None	Needed Phase - 3 Funded Phase - Unfunded	2015 - $97,200,000 Phased - $239,600,000
B-4	**I-15** US-91 to Weber County Line	Widening: 4 to 6 lanes ROW:2015 - 328 ft. / 2040 - 328 ft.	Freeway / 9.5 miles / I-15 Bike Routes: None	Needed Phase - 1 Funded Phase - 1	2015 - $54,300,000 Phased - $66,000,000
B-5	**I-15 Frontage Road** US-91 to 750 North (SR-315)	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 60 ft.	Collector / 5.1 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $63,200,000 Phased - $113,800,000
B-6	**1200 West** Promontory Road (SR-13) to Forest Street	Widening: 2 to 4 lanes ROW:2015 - 106 ft. / 2040 - 106 ft.	Collector / 1.7 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 2	2015 - $41,000,000 Phased - $73,900,000
B-7	**1200 West** Forest Street to US-91	New Construction: 0 to 4 lanes ROW:2015 - 0 ft. / 2040 - 106 ft.	Collector / 1.8 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $39,600,000 Phased - $48,200,000
B-8	**Perry Street** 3600 South to 750 North (SR-315)	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 1.5 miles / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 1	2015 - $13,200,000 Phased - $16,000,000
B-9	**Highland Boulevard** Karleen Drive to US-89 / US-91	New Construction: 0 to 2 lanes ROW:2015 - 0 ft. / 2040 - 66 ft.	Collector / 0.8 miles / Local Bike Routes: Priority	Needed Phase - 2 Funded Phase - 3	2015 - $19,000,000 Phased - $46,900,000
BOX ELDER COUNTY, SPOT FACILITIES					
B-10	**I-15 Interchange** @ Promontory Road (SR-13)	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $15,000,000 Phased - $27,000,000
B-11	**Forest Street Overpass** @ 900 West Railroad Crossing	New Construction	Minor Arterial / Local Bike Routes: Priority	Needed Phase - 1 Funded Phase - 2	2015 - $20,000,000 Phased - $36,000,000
B-12	**US-89 / US-91 Interchange** @ 200 South (SR-90)	Upgrade	Principal Arterial / SR-91 Bike Routes: Priority	Needed Phase - 3 Funded Phase - Unfunded	2015 - $45,000,000 Phased - $110,900,000
B-13	**I-15 Interchange** @ SR-126	Upgrade	Freeway / I-15 Bike Routes: Priority	Needed Phase - 2 Funded Phase - Unfunded	2015 - $15,000,000 Phased - $37,000,000

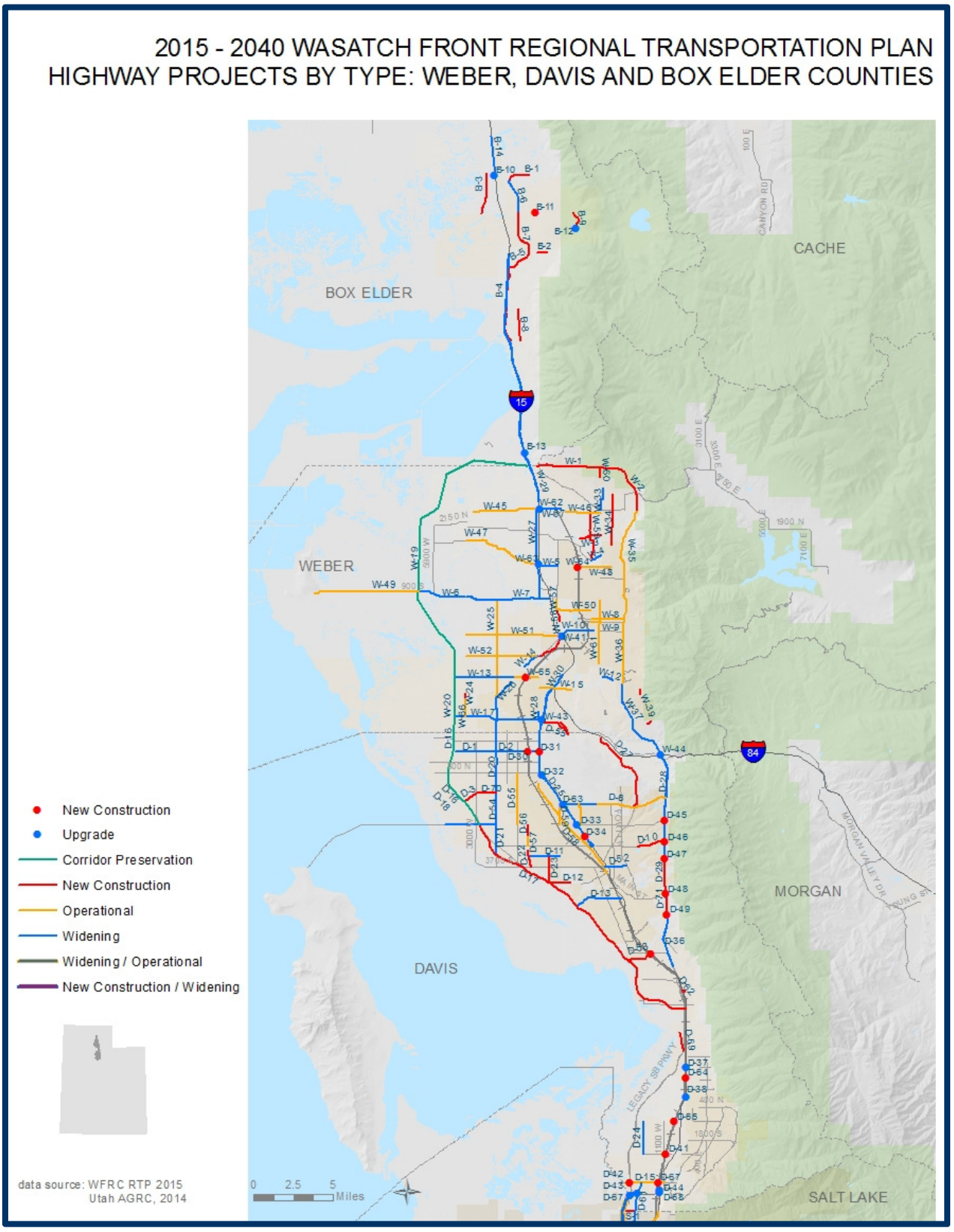
Future Right-Of-Way Map

The 2015 - 2040 RTP also identified a future right-of-way street and highway system that will serve the anticipated travel demand of the Wasatch Front Region beyond the year 2040. The comprehensive plans of individual municipalities and counties along the Wasatch Front were gathered and reviewed to obtain information concerning existing and future highway and street networks within their jurisdictional boundaries. This information was compiled and mapped by the WFRC staff and presented in graphical form. The 2015 - 2040 RTP includes recommendations of future right-of-way widths for all existing and proposed freeway, principal arterials, minor arterials, and collector streets. Recommended right-of-way widths vary from community to community and are shown as a range. For example, principal arterials are identified as facilities that will eventually be widened to widths of 126 to 150 feet. The Wasatch Front's future right-of-way information is presented on **Map 7-5**.

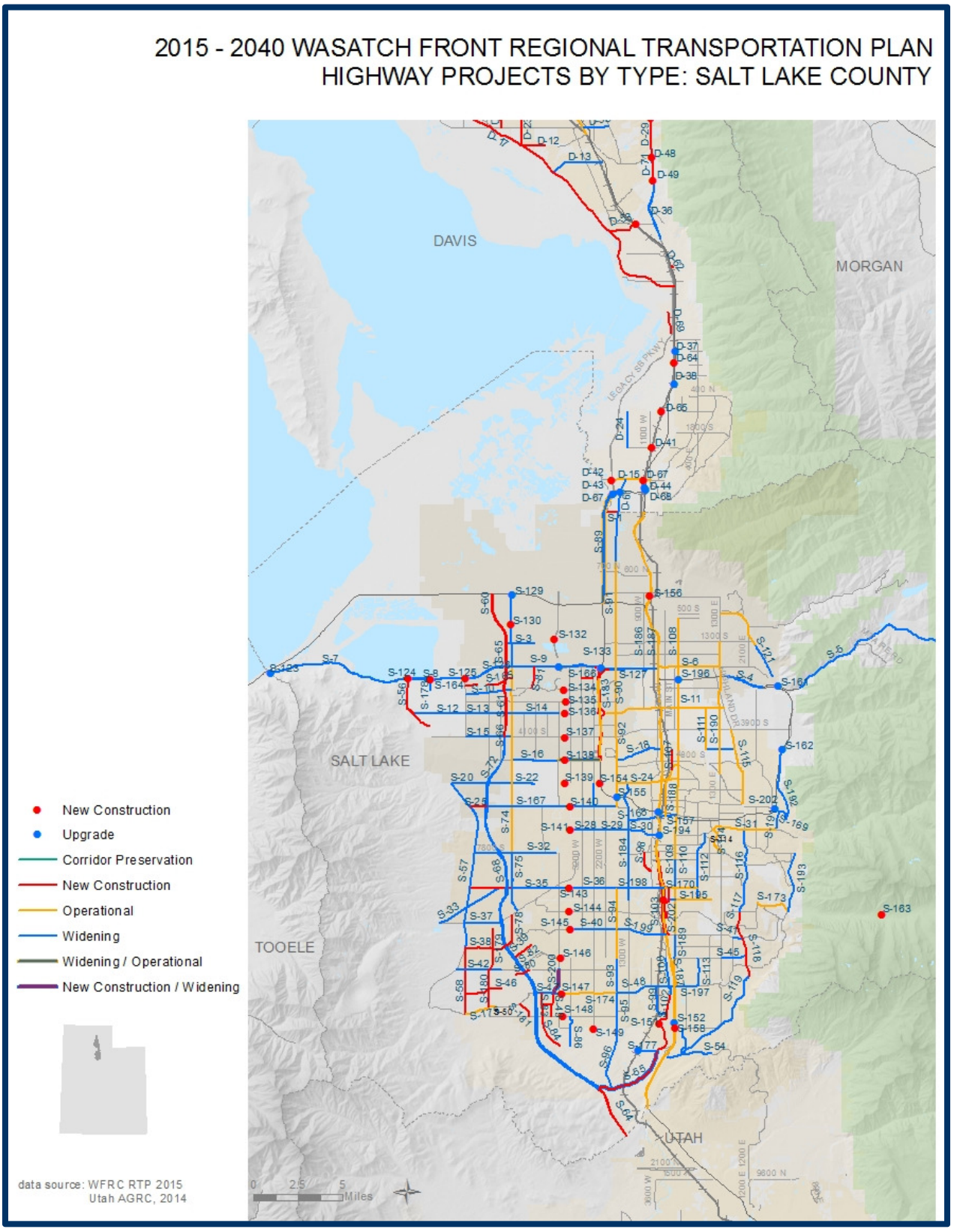
Highway Functional Classification Map

The 2015 - 2040 RTP's "Wasatch Front Urban Area Future Functional Classification," shown as **Map 7-6**, graphically illustrates the Wasatch Front Region's (1) freeways, (2) principal arterials, (3) minor arterials, and (4) collector streets. Freeway systems are the largest traffic facilities built with complete control of access and high design speeds and provide the greatest mobility for regional traffic. Principal arterial streets serve the major centers of activity of a metropolitan area and the longest projected trips. Minor arterials interconnect with and augment the urban principal arterial system and provide for trips of moderate length at a somewhat lower level of travel mobility than principal arterials. These facilities place more emphasis on land access to adjoining or nearby properties than freeways or major arterials, and offer movement within communities. However, ideally they should not penetrate identifiable neighborhoods. Finally, collector streets provide for both land access service and movement for local traffic within residential, commercial, and industrial areas. This particular road classification may penetrate neighborhoods distributing trips form arterial streets through developed areas to ultimate destinations. Conversely, collector roads can also be expected to collect traffic from local streets and channel it onto the arterial system. **Appendix M** – "Street Functional Classification" provides a more complete description of various highway and street classification types.

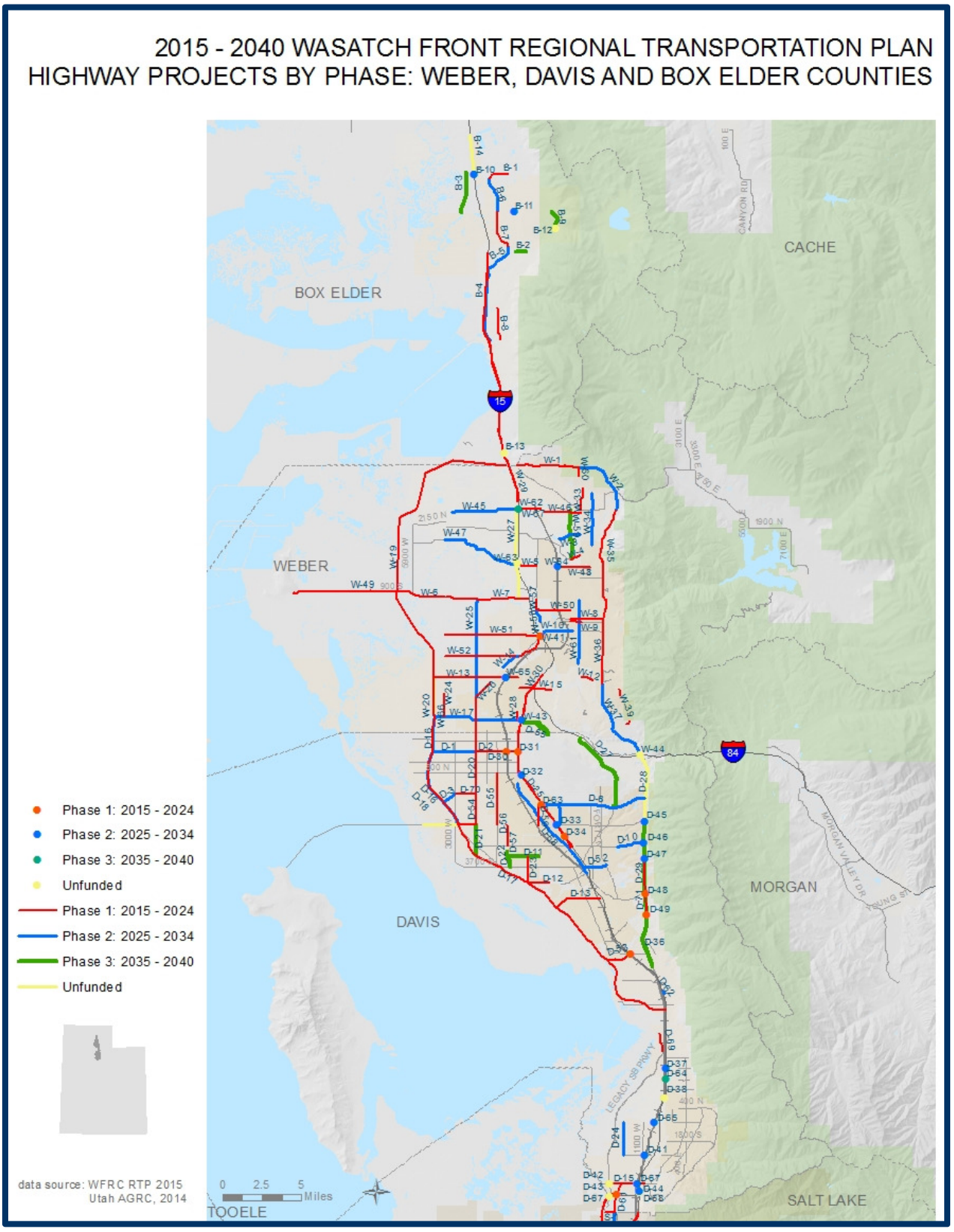
MAP 7-1


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
HIGHWAY PROJECTS BY TYPE: WEBER, DAVIS AND BOX ELDER COUNTIES
BOX ELDER
CACHE
WEBER
DAVIS
MORGAN
SALT LAKE
New Construction
Upgrade
Corridor Preservation
New Construction
Operational
Widening
Widening / Operational
New Construction / Widening
data source: WFRC RTP 2015
Utah AGRC, 2014
0 2.5 5 Miles

MAP 7-2

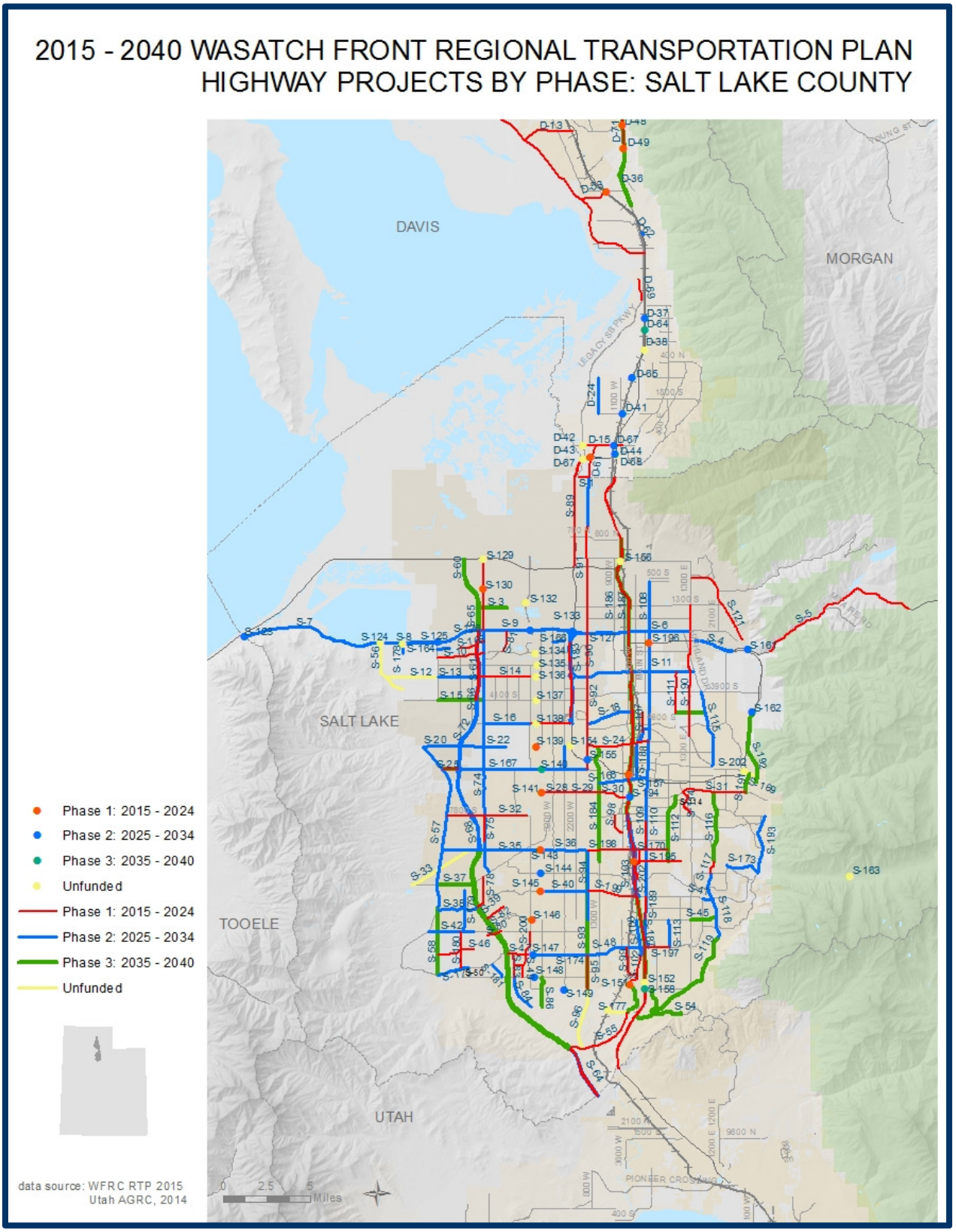

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
HIGHWAY PROJECTS BY TYPE: SALT LAKE COUNTY
DAVIS
MORGAN
SALT LAKE
TOOELE
UTAH
New Construction
Upgrade
Corridor Preservation
New Construction
Operational
Widening
Widening / Operational
New Construction / Widening
data source: WFRC RTP 2015
Utah AGRC, 2014
0 2.5 5 Miles

MAP 7-3


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
HIGHWAY PROJECTS BY PHASE: WEBER, DAVIS AND BOX ELDER COUNTIES
BOX ELDER
CACHE
WEBER
DAVIS
MORGAN
SALT LAKE
TOOELE
Phase 1: 2015 - 2024
Phase 2: 2025 - 2034
Phase 3: 2035 - 2040
Unfunded
Phase 1: 2015 - 2024
Phase 2: 2025 - 2034
Phase 3: 2035 - 2040
Unfunded
data source: WFRC RTP 2015
Utah AGRC, 2014
0 2.5 5 Miles

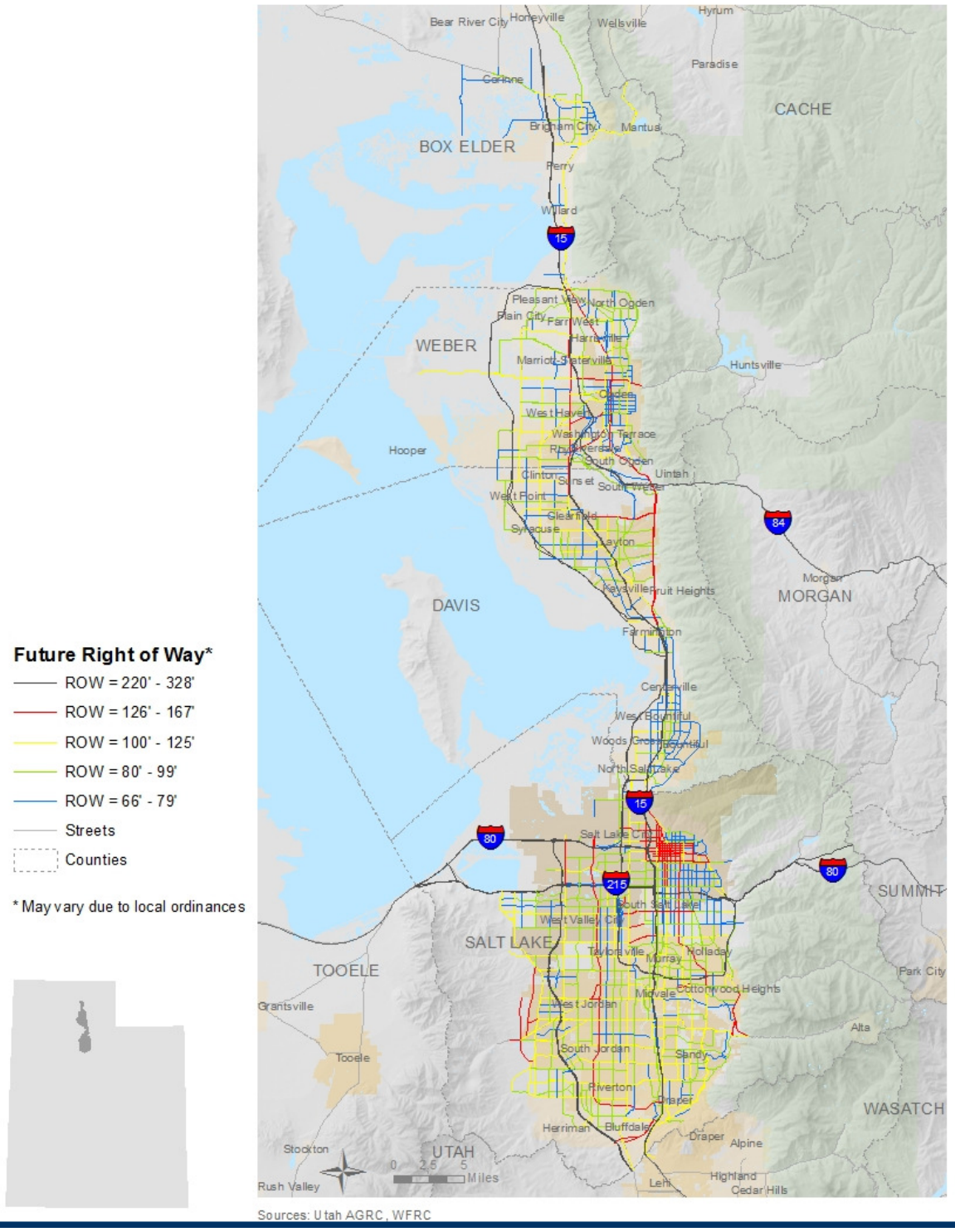
MAP 7-4

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
HIGHWAY PROJECTS BY PHASE: SALT LAKE COUNTY



MAP 7-5

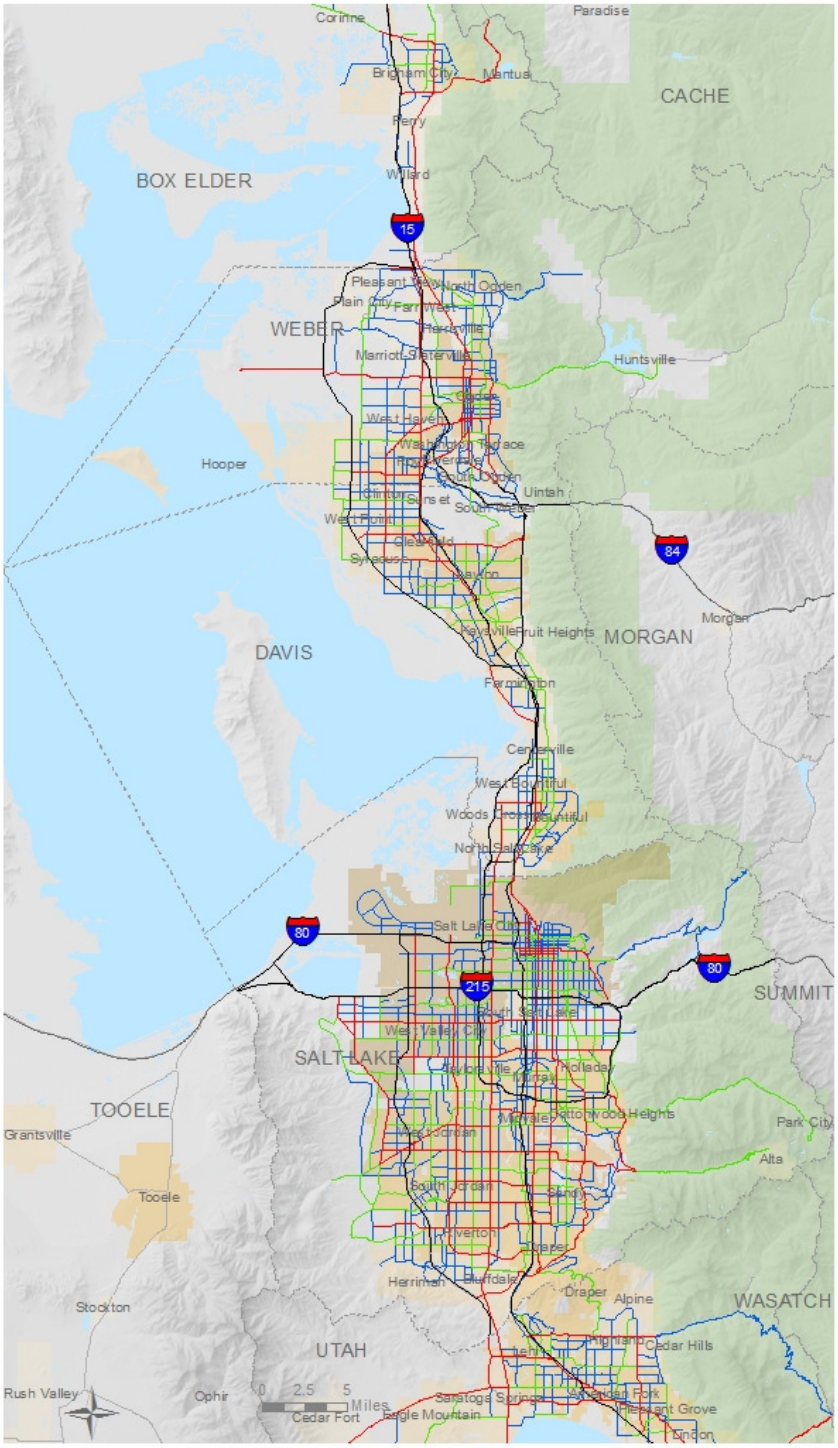
2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
FUTURE RIGHT-OF-WAY



Sources: Utah AGRC, WFRC

MAP 7-6

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
FUTURE FUNCTIONAL CLASSIFICATION



Future Classification*

- Principal Arterial
- Minor Arterial
- Collector
- Freeway
- Streets
- Counties

* May vary due to local ordinances

Data Source: UDOT, WFRC

TRANSIT SYSTEM IMPROVEMENTS

A variety of transit system improvements are included in the 2015 – 2040 RTP. This section highlights some of the objectives met by the RTP, explains the modes included in the RTP, identifies the projects, and maps them. **Figure 7-1** below highlights the objectives used.

FIGURE 7-1

WASATCH FRONT URBAN AREA
TRANSIT PLAN OBJECTIVES FOR THE 2015 - 2040 RTP

First Phase Objectives

Preserve transit rights-of-way for future use

Substantially expand days and hours of service on existing high use local bus and rail service. This will, among other things, improve the ability of transit to support transit oriented development taking place along the existing rail lines.

Increase accessibility of existing major transit service adjacent neighborhoods

Double track, slightly extend, and increase frequency on the existing S-Line

Improve the travel time and safety of the FrontRunner in keeping with Federal statute.

Improve existing high use transit connections linking the FrontRunner, central business districts and universities in Ogden and Ogden. (Projects 10 and 22) Further extend the Salt Lake Central/Medical Center Enhanced Bus/Bus Rapid Transit to Reserarch Park, Foothill Drive, and East Millcreek as a joint project with UDOT.

Connect South Davis to Downtown Salt Lake via Bus Rapid Transit

Support the development of the Mountain View Corridor as a Joint highway/transit corridor in compliance with the Mountain View USDOT Record of Decision.

Second and Third Phase Objectives

Expand upon the existing and Phase 1 transit network where appropriate to create a network of high quality transit corridors quality; including convenient hours of operations, frequency of service, reliability, competitive travel time, comfort, and aesthetic urban design.

Minimize congestion delay upon the transit system through the extensive use of Traffic Signal Priority, short transit lanes bypassing stopped traffic at traffic signals, and/or continuous transit lanes as warranted and feasible.

Invest in transit corridors with proven markets and further connect regional activity centers in support of the Wasatch Choice for 2040.

Provide for maximum transit system interoperability, avoiding forced transfers.

Transit Project Modes

Various forms of transit are planned in the 2015 – 2040 RTP. For planning purposes, each type of transit has a specific definition, package of amenities, and costs. However, in practice, both rail and Bus Rapid Transit offer a broad continuum of characteristics and each individual project will be tailored to fit the individual circumstances. This section outlines broad definitions of each transit technology type. The specific amenities that were assumed to be part of the various forms of transit technologies are listed in the Financial Chapter.

Streetcar

- ¼ mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Electric rail based vehicles
- 15 minute headways, 18 hours a day
- Potential traffic signal priority and/or queue jumping lanes at major traffic signals
- $30-50 million cost per mile, $45 million assumed

Enhanced Bus (BRTI)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Branded Bus or Specialized Vehicles
- 15 minute headways, 18 hours a day
- Potential traffic signal priority and/or queue jumping lanes at major traffic signals
- $1-2 million cost per mile, $2 million assumed

Bus Rapid Transit (BRTII)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Specialized Vehicles
- 15 minute headways, 18 hours a day
- Potential for roadway improvements including exclusive-shared HOV lanes or peak hour shoulder lanes on up to 75% of the designated alignment. Also, traffic signal prioritization, potential queue jumping lane at major traffic signals
- $7-15 million cost per mile, $13 million assumed

Light Rail Transit (LRT)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, park-and-ride at most stations
- Electric rail based vehicles
- 10-15 minute headways
- Traffic Signal Priority and exclusive lanes with potential gated crossings
- $40-70 million cost per mile, $60 million assumed

Commuter Rail

- 5 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, park-and-ride at most stations
- Diesel rail vehicles which can operate with freight rail trains
- 20-60 minute headways

- exclusive lanes or freight shared track with gated crossings
- $10-30 million cost per mile, $26 million assumed

The 2015 - 2040 RTP recommends a variety of transit services providing different types of travel choices in much the same way as freeways, arterials, collectors, and local streets serve different types of travel choices for the automobile traveler. However, more critical to the user of transit than for the automobile traveler are efficient transitions from one system to another. Smooth transitions are facilitated in transit through intermodal centers, transit hubs, and intercept park-and-ride lots. When fully implemented, transit riders will be able to identify specific facilities where they can make quick and easy transfers from one type of transit mode, such as commuter rail, to another. Transit hubs, intermodal centers, and park-and-ride lots allow for greater flexibility of destination and increased convenience to system patrons. The RTP recommends the construction of transit hubs, transfer centers, and regional park-and-rides facilities not associated with a major investment line.

Transit Hubs

Transit hubs are specifically designed to connect regional and inter-regional transit services with passengers originating from areas with lower trip densities but with collector and local transit services. Transit hubs provide passengers with scheduled transfers to express or limited stop transit modes not otherwise directly available to them. Unlike park-and-ride lots or other transit connections, local buses serving each hub would be scheduled to depart when all of the scheduled buses have arrived. Logical places for transit hubs are commuter rail stations, light rail stations, large employment centers, and major commercial nodes

Transit Park-And-Ride System

A number of park-and-ride lots are currently in use throughout the Wasatch Front Region. The Utah Transit Authority's current park-and-ride lots allow transit riders to park their automobiles and commute to their destination. Nearly all of the FrontRunner and TRAX stations are provided with park-and-ride facilities and UTA has shared use agreements with several lot owners including the Church of Jesus Christ of Latter-day Saints which owns many lots not in use during the work week. Additional park-and-ride lots, will need to be identified, contracted for, or constructed as opportunity arises. Most park-and-ride lots are generally not regionally significant and need not be identified in the Regional Transportation Plan. However, additional park-and-ride lots should be sought out along major investment corridors and expanded as needed. This is especially true in outlying areas where densities do not justify regular transit route coverage. Such locations include the outer fringes of the developing urban area and smaller, distant towns. General locations for three park-and-ride lots have been identified in the 2015 - 2040 RTP.

Typical Cross Sections

A typical cross section for transit facilities with exclusive rights-of-way would be about 30 feet of right-of-way width between stations flaring out to about 44 feet of right-of-way width at stations. Station structures would be 8 feet in width. An additional 11-foot wide lane to the curb side of each station would allow for both through and right hand turning vehicular traffic flow. This type of transit station and lane configuration would accommodate a BRT, light-rail line or a streetcar line. For a BRTII line, this width of right-of-way would accommodate two 11.5-foot transit lanes and allow 8 feet for curbs, gutter and landscaping as shown in **Figures 7-2** and **7-3**. For a streetcar or light-rail transit line, about 30 feet of right-of-way width would accommodate two rail lanes, curbs and space for the electrical catenary poles with two feet to spare as shown in **Figure 7-4**.

FIGURE 7-2

TYPICAL TRANSIT FACILITY CONFIGURATION

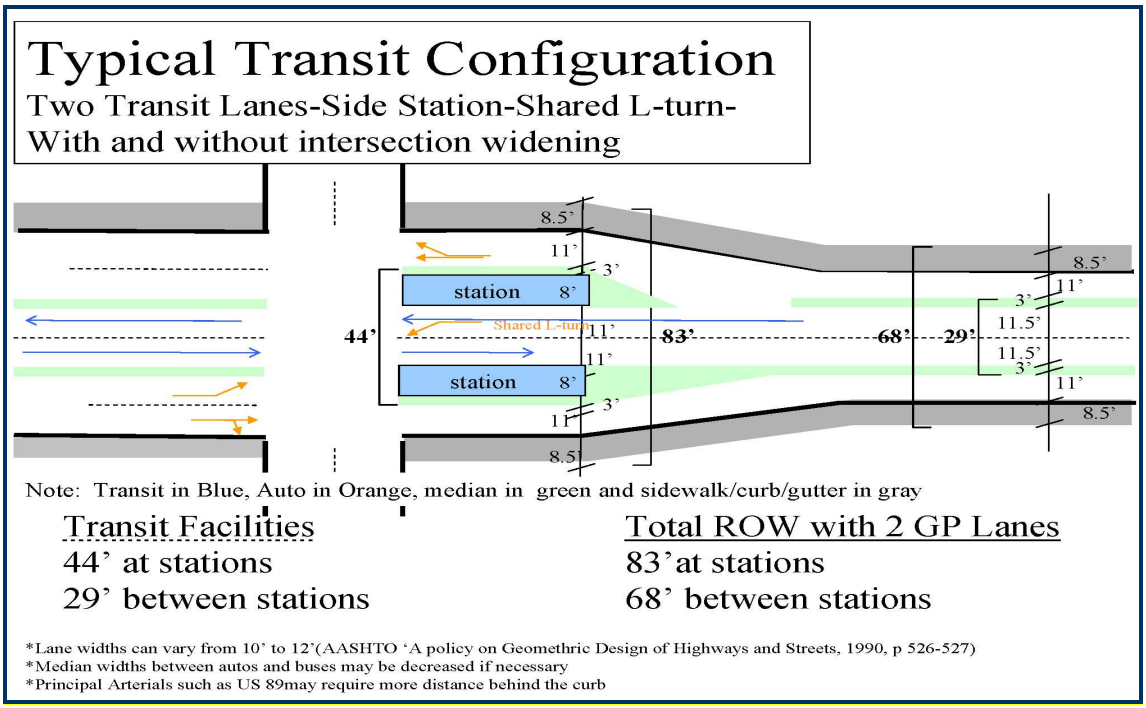
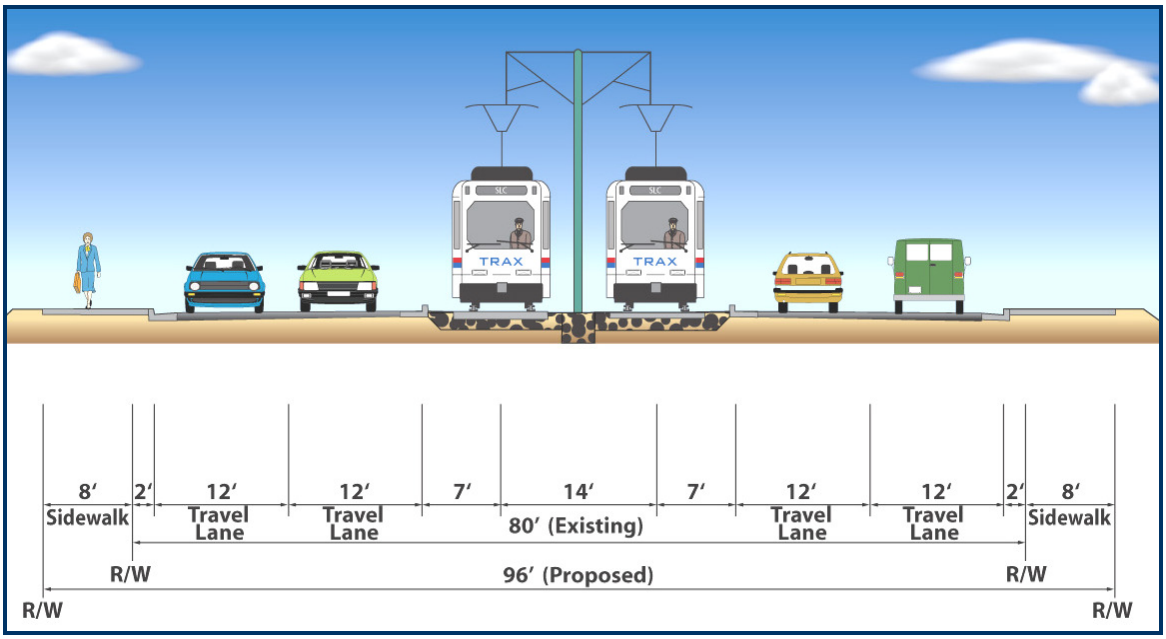


FIGURE 7-3

TYPICAL BUS RAPID TRANSIT FACILITY

FIGURE 7-4

TYPICAL MINOR ARTERIAL WITH IN-STREET LIGHT RAIL CROSS SECTION



Transit Projects List and Maps

The 2015 - 2040 RTP identifies transit improvement projects that increase service to meet exiting and new transit markets. These projects are provided in both list form in **Table 7-4** and in map form in **Maps 7-7** through **7-14**.

The 2015 – 2040 RTP Transit Projects are separated into three proposed implementation time frames based upon need and available funding. Phase 1 is the time period between 2015 and 2024. Phase 2 is the time period between 2025 and 2034. Phase 3 is 2035 through 2040. The new revenue assumed by the RTP is calculated to be sufficient to build and operate these projects based on current cost estimates starting in each of these phases through 2040. Recognizing that a financially constrained plan will not address all new capacity needs, the federal reauthorization act, entitled MAP-21, allows for illustrative or non-funded projects and facilities to be identified in regional transportation plan documents.

The "2040 RTP Transit Project List" is shown as **Table 7-5.** The transit project header provides the name of the transit line and the general corridor the line is to serve highlighting major milestones along the project line. Underneath the header is information about each segment of the placeholder project alignment divided by color into what was funded, what was determined to be needed, and what was in the previous plan. Project costs are provided in both uninflated, 2015 value dollars, and in year of expenditure dollars to better inform the reader. Due to the limited space available many abbreviations are used. A section of notes at the bottom of the last page of **Table 7-5** contains an explanation of the abbreviations used and other pertinent details.

The phasing, transit technology, and placeholder alignment of each project is portrayed in **Maps 7-7** through **7-14**. **Map 7-7 and Map 7-8** shows all 2015 - 2040 RTP transit projects anticipated to be implemented colored by project type, with unfunded projects in yellow. **Maps 7-9 through 7-14** show those transit projects to be implemented in each of the three phases of the 2015 – 2040 RTP.

TABLE 7-5

2015-2040 RTP TRANSIT PROJECT LIST

Phase[1]	Mode[2]	Project Extents	Capital Costs (millions 2015$)[3]	Capital Costs (millions YOE$)[4]	Annual Operations Costs (millions 2015$)[5]	Operations Costs 2015 thru 2040 (millions YOE$)[6]	Need Phase[1]	Need Mode[2]	Capital Costs (millions 2015$)[3]	Annual Operations Costs (millions 2015$)[5]	2011 RTP Phase[7]	2011 RTP Mode[2]
			2015-2040 Funded Project Descriptions				2015-2040 Needed Project Descriptions[8]				2011-2040 RTP Project Descriptions[9]	
Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
INTERCOUNTY PROJECTS												
1. Pleasant View – Brigham City Corridor -- Corridor Preservation & Mode Undetermined												
Pleasant View FrontRunner Station - Brigham City												
/U	CP/MU	Pleasant View Frontrunner Station to Box Elder County Line	$17	$21	$01	N/A	1	MU/BRT	$188	$4.9	3	CP
1/U	CP/MU	Box Elder County Line to Forest Street/900 W					1	MU/BRT			N/A	CP
2. West Weber - West Davis Corridor -- Enhanced Bus & BRT												
Ogden Intermodal Center - Ogden CBD - Newgate Mall - Riverdale - Ogden Airport - Roy FrontRunner Station - West Haven - Clinton - West Point - Syracuse - Clearfield FrontRunner Station - Hill AFB South Gate Transit Hub - Layton Hills - Layton FrontRunner Station												
3	EB	Ogden Hub to 27th St./Washington Blvd.	$42	$68	$8.3	$56.7	2	EB	$99	$8.3	2	EB
3	BRT	27th St./Washington Blvd. to 30th St./Washington Blvd.					2	BRT			2	BRT
3	BRT	30th St./Washington Blvd. to 40th St./Riverdale Rd.					2	BRT			3	BRT
3	EB	40th St./Riverdale Rd. to 4400 S/Bamberger Rail Line					2	EB			3	BRT
3	EB	4400 S/Bamberger Rail Line to 3500 W/Midland Dr.					2	EB			3	BRT
3	EB	3500 W/Midland Dr. to Clearfield FrontRunner Station					1	EB			2	EB
3	EB	Clearfield Front Runner Station to Hill Field Rd./SR-126					2	EB			2	EB
3	BRT	Hill Field Rd./SR-126 to Layton FrontRunner Station					2	EB			3	BRT
3a. North Ogden - Salt Lake Corridor (N. Ogden-Bountiful) – Corridor Preservation, BRT & Enhanced Bus												
North Ogden - Washington Blvd - Ogden Intermodal Center - Washington Blvd - Newgate Mall - Riverdale - Ogden Airport - Falcon Hill Transitway - Hill South Gate - Clearfield FrontRunner Station - Layton Main Street - Layton FrontRunner Station - Kaysville - Fruit Heights - Farmington Station - Downtown Farmington - Centerville - Bountiful Main Street												
2	EB	2700 N/Washington Blvd. to 12th St./Washington Blvd.	$392	$573	$13.2	$155.1	1	EB	$392	$13.2	2	EB
2	EB	12th St./Washington Blvd. to Ogden Hub					1	EB			2	BRT
2	EB	Ogden Hub to 27th St./Washington Blvd.					1	EB			1	EB
2	BRT	27th St./Washington Blvd. to 40th St./Riverdale Rd.					1	BRT			1	BRT
1/2	CP/BRT	40th St./Riverdale Rd. to 4400 S/Bamberger Rail Line					2	BRT			2	EB
1/2	CP/BRT	4400 S/Bamberger Rail Line to HAFB West Gate					2	BRT			2	BRT
2	BRT	HAFB West Gate to Clearfield FrontRunner Station					2	BRT			1	BRT
2	BRT	Clearfield FrontRunner Station to Farmington FrontRunner					1	BRT			3	BRT
2	EB	Farmington FrontRunner Station to 500 S/Main St. (Bountiful)					1	EB			3	EB
2	EB	500 S/Main St. (Bountiful) to Woods Cross FrontRunner Station					1	EB			3	EB
3b. North Ogden - Salt Lake Corridor (Davis-SLC Community Connector) -- BRT & Enhanced Bus												
Bountiful Main Street - Woods Cross - North Salt Lake - 400 West SLC - 200 South Transit Center												
1	EB	Woods Cross FrontRunner Station to 500 S/Main Street. (Bountiful)	$75	$90	$3.3	$84.1	1	EB	$158	$3.3	N/A	N/A
1	EB	500 S/Main St. to US-89/200 West Eagle Ridge Dr. (Bountiful)					1	EB			2	BRT
1	BRT	US-89/200 West to Eagle Ridge Dr.					1	BRT			1	BRT
1	BRT	US-89/Eagle Ridge Dr. (Bountiful) to Davis/Salt Lake County Line					1	BRT			1	BRT
1	BRT	Davis/Salt Lake County Line to US 89/400 W					1	BRT			2	BRT
1	EB	US 89/400 W to 200 S./400 W					1	EB			2	EB
1	EB	200 S/400 W to 200 S Transit Center					1	EB			3	EB
4. Six FrontRunner Park and Ride Lot Expansions												
Existing Ogden, Clearfield, Farmington, Salt Lake Central & Murray Central Station areas												
U	P&R	Existing Ogden, Clearfield, Farmington, Salt Lake Central & Murray Central Station areas	U	U	U	U	3	N/A	$5	$0	N/A	N/A
5. FrontRunner Line Upgrades												
Select siding locations TBD on Ogden to Utah County Segment												
1	LU	3 miles of siding in the Bluffdale/Draper area and Positive Train Control	$47	$51	$0	$0	3	LU	$47	$0	N/A	N/A
6. North Redwood (Davis County) Corridor -- Enhanced Bus & BRT												
Lakeview Hospital - Bountiful - Woods Cross FrontRunner Station - West Bountiful - North Salt Lake - Rose Park - East Airport Transit Hub - Salt Lake Central - 200 South Transit Center												
2	EB	500 S/Orchard Drive to Davis/Salt Lake County Line	$27	$40	$5.6	$73.1	2	EB	$71	$5.6	2	EB
2	EB	Davis/Salt Lake County Line to North Temple/1950 W TRAX Station					2	EB			3	EB
2	BRT	North Temple/1950 W TRAX Station to Redwood Road/I-80					2	BRT			3	EB
2	EB	Redwood Road/I-80 to 1-80/600 S Off Ramp					2	EB			3	EB
2	BRT	I-80/600 S Off Ramp to 600 W/200 S					2	BRT			3	EB
2	EB	600 W/200 S to 200 S Transit Center					2	EB			3	EB
7. Tooele Corridor - Enhanced Bus												
Downtown Tooele - SR201 - 5600 West - Salt Lake International Center - Downtown Salt Lake City - 200 South Transit Center												
U	EB	Vine Street to 200 S Transit Center	U	U	U	U	3	EB	$143	$12.9	N/A	N/A
BOX ELDER COUNTY PROJECTS												

Phase[1]	Mode[2]	Project Extents	Capital Costs (millions 2015$)[3]	Capital Costs (millions YOE$)[4]	Annual Operations Costs (millions 2015$)[5]	Operations Costs 2015 thru 2040 (millions YOE$)[6]	Need Phase[1]	Need Mode[2]	Capital Costs (millions 2015$)[3]	Annual Operations Costs (millions 2015$)[5]	2011 RTP Phase[7]	2011 RTP Mode[2]
			2015-2040 Funded Project Descriptions				2015-2040 Needed Project Descriptions[8]				2011-2040 RTP Project Descriptions[9]	
Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
8. US-91 Park and Ride												
I-15 near State Route 91												
2	P&R	I-15 near State Route 91	$3	$4	$0	$0	1	PR	$3	$0	N/A	N/A
9. Promontory Road Park and Ride I-15												
I-15 near Promontory Road												
2	P&R	I-15 near Promontory Road	$3	$4	$0	$0	2	PR	$3	$0	N/A	N/A
WEBER COUNTY PROJECTS												
10. Ogden - Pleasant View FrontRunner Corridor – Corridor Preservation & Line Upgrade												
Downtown Ogden - Pleasant View FrontRunner Station												
1/U	CP/LU	Downtown Ogden to Pleasant View FrontRunner Station	$7	$7.9	N/A	N/A	2	LU	$7	$1.1	2	LU
11. Ogden - Weber State University Corridor -- Mode Undetermined												
Ogden Intermodal Center - Ogden CBD - 30th St. - Harrison - WSU Transitway - McKay Dee Hospital												
1	MU/EB	Ogden Intermodal Hub to 27th Street/Washington Blvd.	$41	$47	$1.7	$48.1	1	MU/EB	$41	$1.7	2	SC
1	MU/BRT	27th Street/Washington Blvd. to 30th Street/Washington Blvd.					1	MU/BRT			2	SC
1	MU/EB	30th Street/Washington Blvd. to Harrison Blvd./Edvalson Street					1	MU/EB			2	SC
1	MU/BRT	Harrison Blvd./Edvalson Street to McKay-Dee Hospital					1	MU/BRT			2	SC
12. West Weber - WSU Corridor -- BRT & Enhanced Bus												
W. Haven - Roy FrontRunner Station - Ogden Airport - Riverdale - Newgate Mall - 40th Street - McKay Dee Hospital - WSU Transitway												
U	EB	3500 W/Midland Drive to 4400 S/Bamberger Rail Line	U	U	U	U	2	EB	N/A	N/A	N/A	N/A
U	BRT	4400 S/Bamberger Rail Line to Harrison Blvd./Edvalson Street					2	BRT			N/A	N/A
13. Mt. Ogden Maintenance Facility												
Near 17th Street and Wall Avenue												
2	FACL	Existing Mount Ogden UTA maintenance facility near 17th and Wall Avenue	$15	$19	$0	$0	2	FAC	$15	$0	N/A	N/A
14. Ogden Valley Park and Ride												
SR-39 near Pineview Dam												
2	P&R	SR-39 near Pineview Dam	$3	$4	$0	$0	2	PR	$3	$0	1	P&R
15. Ogden Canyon Mouth Park and Ride												
12th Street and Harrison Boulevard												
2	P&R	Harrison Blvd. near 12th Street	$3	4	$0	$0	1	PR	$3	$0	N/A	N/A
DAVIS COUNTY PROJECTS												
16. Falcon Hill - Hill AFB West Transit Hub												
Falcon Hill - Hill AFB West Gate												
2	HUB	Hill Air Force Base West Gate	$3	$4	$0	$0	2	HUB	$3	$0	1	HUB
17. Layton Park and Ride Lot Expansion												
Layton FrontRunner Station												
1	P&R	Existing Layton FrontRunner Station area	$5	$5	$0	$0	1	N/A	$5	$0	N/A	N/A
SALT LAKE COUNTY SMALL AREA PROJECTS												
18. Airport TRAX Reconfiguration												
SLIA Terminals												
1	LU	SLIA Terminals	$50	$55	$0	$0	3	LU	$50	$0	N/A	N/A
19. Airport High Speed Rail Station												
SLIA												
U	HUB	Salt Lake International Airport	U	U	U	U	NA	N/A	$3	$0	N/A	N/A
20. University of Utah Transit Hub												
Fort Douglas												
1	HUB	Fort Douglas area	$3	$3	$0	$0	1	HUB	$3	$0	N/A	N/A
21. 200 South Transit Hub												
200 South between 650 W and 200 E												
2	HUB	200 S/200 E to 200 S/650 W	$3	$7	$0	$0	2	HUB	$3	$0	1	HUB
22. Depot District/Central Garage Project												
200 S 669 W												
1	FACL	200 S 669 W	$50	$55	$0	$0	1	FAC	$50	$0	N/A	N/A
23. Interstate 80 / Downtown Bus Ramps												
South and 600 South freeway on and off ramps												
2	RMP	500 South I-15 and I-80 On-Ramp	$3	$4	$0	$0	1	RMP	$3	$0	2	RMP
2	RMP	600 South I-15 and I-80 Off-Ramp	$3	$4	$0	$0	1	RMP	$3	$0	2	RMP
24. East Airport Transit Hub												
1950 W/Redwood Rd												
2	HUB	Near 1950 W and North Temple	$3	$4	$0	$0	1	HUB	$3	$0	1	HUB

Phase[1]	Mode[2]	Project Extents	Capital Costs (millions 2015$)[3]	Capital Costs (millions YOE$)[4]	Annual Operations Costs (millions 2015$)[5]	Operations Costs 2015 thru 2040 (millions YOE$)[6]	Need Phase[1]	Need Mode[2]	Capital Costs (millions 2015$)[3]	Annual Operations Costs (millions 2015$)[5]	2011 RTP Phase[7]	2011 RTP Mode[2]
			2015-2040 Funded Project Descriptions				*2015-2040 Needed Project Descriptions[8]*				*2011-2040 RTP Project Descriptions[9]*	
Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
25. Cottonwood Transit Hub												
Highland Drive – Murray-Holladay Road												
3	HUB	Near Highland Drive and Murray-Holladay Road	$3	$4	$0	N/A	N/A	N/A	$3	$0	N/A	N/A
26. Fort Union Transit Hub												
Union Park Avenue/Ft Union Blvd.												
2	HUB	Near Union Park Avenue and Fort Union Blvd.	$3	$4	$0	$0	2	HUB	$3	$0	1	HUB
SALT LAKE COUNTY, NORTH-SOUTH PROJECTS												
27. SLC - Foothill Drive - Wasatch Drive Corridor -- Enhanced Bus & BRT												
Salt Lake Central - 200 S Transit Center - U of U - Medical Center - Mario Capecchi to Research Park Transitway - Research Park - Foothill Blvd. - Interstate 215 - Wasatch Blvd. - Cottonwood Corporate Center - Big Cottonwood Canyon Park and Ride												
1	EB	Salt Lake Central to 200 S/1300 E	$96	$115	$3.7	$94.0	1	EB	$96	$3.7	2	BRT
1	BRT	200 S/1300 E to Mario Capecchi Drive/Research Road (New Road Intersection)					1	BRT			2	BRT
1	BRT	Mario Capecchi Drive/Research Road (New Road Intersection) to Wakara Way/Arapeen Drive (New Road Intersection)					1	BRT			2	BRT
1	BRT	Wakara Way/Arapeen Drive (New Road Intersection) to I-80/I-215/Foothill Drive Interchange					2	BRT			1	BRT
1	EB	I-80/I-215/Foothill Drive Interchange to I-215 Ramp/3300 S					2	EB			U	EB
1	EB	I-215 Ramp/3300 S to I-215 Ramp/3900 S					2	EB			3	BRT
U	EB	I-215 Ramp/3900 S to I-215 Ramp/6200 S	U	U	U	U	2	EB	N/A	N/A	U	EB
U	BRT	I-215 Ramp/6200 S to Big Cottonwood Canyon Park and Ride					2	BRT			U	BRT
U	EB	Big Cottonwood Canyon Park and Ride to Little Cottonwood Canyon					2	EB			U	EB
28. Highland Drive Corridor -- Enhanced Bus, BRT, & Mode Undetermined												
Salt Lake Central - 200 S Transit Center - U Stadium - Sugar House - Millcreek - Holladay - Cottonwood Heights - Sandy Civic Center - South Jordan FrontRunner Station												
3	EB	Salt Lake Central to Highland Drive/Richmond Street (1300 E)	$26	$49	$7	$48.0	2	EB	$64	$7.0	N/A	N/A
3	EB	Highland Drive/Richmond Street (1300 E) to State Street/9400 S					2	EB			N/A	N/A
3	EB	State Street/9400 S to Sandy Civic Center TRAX Station					2	EB			N/A	N/A
3	BRT	Sandy Civic Ctr TRAX Statn to South Jordan FrontRunner Statn					2	EB			N/A	N/A
29. 1300 East Corridor -- BRT & Enhanced Bus												
Salt Lake Central - 200 S Transit Center - U Stadium - Sugar House - Millcreek - Holladay - Murray - Fort Union Transit Center - Fort Union Blvd. - Bingham Junction TRAX Station (Red Line)												
2	EB	Salt Lake Central to 200 S/900 E	$156	$215	$5.3	$92.6	1	EB	$162	$5.3	3	EB
2	EB	200 S/900 E to 200 S/1300 E					1	EB			U	BRT
2	EB	200 S/1300 E to 2800 S/Highland Drive					I	EB			U	BRT
2	BRT	2800 S/Highland Drive to 4500 S/1300 E					1	BRT			U	BRT
2	BRT	4500 S/1300 E to Murray Holladay Road/1300 E					1	BRT			U	BRT
2	BRT	Murray Holladay Road/1300 E to Fort Union Blvd./900 E					1	BRT			U	BRT
2	BRT	Ft Union Blvd./900 E to Red Line (Bingham Jct) TRAX Station					2	BRT			N/A	N/A
30. 900 East Corridor -- Enhanced Bus & BRT												
Salt Lake Central - 200 S Transit Center - 900 E - Millcreek - Murray - Fort Union Transit Center - Midvale - Bingham Junction TRAX Station (Red Line)												
2	EB	Salt Lake Central to 200 S/900 E	$24	$36	$5.0	$65.2	1	EB	$73	N/A	N/A	N/A
2	EB	200 S/900 E to Fort Union Blvd./900 E					1	EB			N/A	N/A
2	BRT	Ft Union Blvd./900 E to Red Line (Bingham Jct) TRAX Station					2	BRT			N/A	N/A
31. 500 East Corridor -- Enhanced Bus & BRT												
Salt Lake Central - 2 South Transit Center - 500 E - South Salt Lake - Millcreek - Murray - Fireclay TRAX Station (4400 S) - Downtown Murray - Intermountain Medical Center - Murray Central Station												
2	EB	Salt Lake Central to 200 S/500 E	$15	$21	$3.3	$57.7	1	EB	$42	$3.3	N/A	N/A
2	EB	200 S/500 E to 4500 S/State Street					1	EB			N/A	N/A
2	BRT	4500 S/State Street to Murray Central TRAX Station					1	BRT			N/A	N/A
32. State Street Corridor – BRT & Enhanced Bus												
Salt Lake Central – 2 South Transit Center – State Street – South Salt Lake – Millcreek – Downtown Murray – Intermountain Medical Center – Murray Central Station -5300 S – Fashion Place – Midvale – Sandy – Sandy Civic Center TRAX Station – Sandy/South Jordan Transitway – South Jordan Front Runner – Draper FrontRunner												
2	EB	Salt Lake Central to 200 S/State Street	$273	$401	$5.6	$73.6	1	EB	$251	$5.6	2	BRT
2	BRT	200 S/State Street to Vine Street/State Street					1	BRT			2	BRT
2	EB	Vine Street/State Street to Cottonwood St/Woodward St.					1	EB			2	BRT
2	BRT	Cottonwood St/Woodward St. to Sandy Civic Center TRAX Station					1	BRT			3	BRT
2	BRT	Sandy Civic Center TRAX Station to South Jordan FrontRunner Station					2	BRT			3	BRT
U	BRT	South Jordan FrontRunner Station to Draper FrontRunner Station	U	U	U	U	1	BRT	$67	$1.4	3	BRT
33. Draper Line (South) – TRAX Extension												
TRAX Blue Line Extension Draper Town Center TRAX Station – Utah Co												
3	LR	Draper Town Center TRAX Station to Salt Lake/Utah County Line	$461	$742	$2.5	$17.2	3	LRT	$360	$2.5	3	LR
34. West Draper Connector – Mode Undetermined												
14600 S Future Blue Line TRAX Station – Draper FrontRunner Station												
1/U	CP/MU	14600 S TRAX Station to Draper FrontRunner Station	$3	$3.3	U	U	3	MU/BRT	$36	$0.8	N/A	N/A
35. Redwood Road Corridor -- BRT & Enhanced Bus												

Phase[1]	Mode[2]	Project Extents	Capital Costs (millions 2015$)[3]	Capital Costs (millions YOE$)[4]	Annual Operations Costs (millions 2015$)[5]	Operations Costs 2015 thru 2040 (millions YOE$)[6]	Need Phase[1]	Need Mode[2]	Capital Costs (millions 2015$)[3]	Annual Operations Costs (millions 2015$)[5]	2011 RTP Phase[7]	2011 RTP Mode[2]
			2015-2040 Funded Project Descriptions				2015-2040 Needed Project Descriptions[8]				2011-2040 RTP Project Descriptions[9]	
Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
200 South Transit Center - Salt Lake Central - Interstate 80 - East Airport Transit Center - Redwood Road - Glendale - Redwood Junction TRAX Station (Green Line) - West Valley - Taylorsville - West Jordan City Center TRAX Station - South Jordan - 10600 South - South Jordan FrontRunner Station - Sandy/South Jordan Transitway - Sandy Civic Center TRAX Station												
2	EB	200 S Transit Center to 600 W/200 S	$213	$293	$8.2	$142.7	1	EB	$233	$8.2	3	BRT
2	BRT	600 W/200 S to 600 W/500 S					1	BRT			3	BRT
2	EB	600 W/500 S to Redwood Road/I-80					1	EB			3	BRT
2	BRT	Redwood Road/I-80 to Parkway Blvd./Redwood Road					1	BRT			3	BRT
2	BRT	Parkway Blvd./Redwood Road to 7000 S/Redwood Road					1	BRT			2	BRT
2	EB	7000 S/Redwood Road to 10400 S/Redwood Road					1	EB			2	BRT
2	EB	10400 S/Redwood Road to South Jordan FrontRunner Station					1	EB			N/A	N/A
2	BRT	South Jordan FrontRunner Station to Sandy Civic Center TRAX Station					2	BRT			N/A	N/A
36. 2700 West Corridor -- Enhanced Bus												
200 South Transit Center - Salt Lake Central - 400 S - 900 W - 900 S - 2700 W - West Valley Interstate 80 - Airport Transit Center - Redwood Road - Glendale - Redwood Junction TRAX Station (Green Line) - West Valley Central - Salt Lake Community College Redwood Campus												
2	EB	200 S Transit Center to 600 W/200 S	$24	$33	$4.3	$75.2	1	EB	$29	$4.3	N/A	N/A
2	EB	600 W/200 S to 2700 W/4700 S					1	EB			N/A	N/A
2	EB	2700 W/4700 S to Redwood Road/Teakwood Drive					1	EB			N/A	N/A
37. 5600 West Corridor -- BRT & Enhanced Bus												
Salt Lake International Airport - International Center - West Valley City - Kearns -West Jordan - South Jordan – Daybreak												
3	EB	Salt Lake International Airport to Interstate 80/5600 West	$86	$200	$3.9	$12.8	2	EB	$86	$3.9	U	LR
1/3	CP/BRT	Interstate 80 / 5600 W to SR-201/5600 W					2	BRT			U	LR
1/3	CP/BRT	SR-201/5600 W to Parkway Blvd./5600 W					2	BRT			U	LR
1	BRT	Lake Park Blvd./5600 W to 6200 S/5600 W	$136	$163	$1.6	$41.2	2	BRT	$78	$1.6	U	LR
1/3	CP/BRT	6200 S/5600 W to Daybreak Parkway TRAX Station	$95	$125	$2.5	$8.1	2	BRT	$95	$2.5	U	LR
38. Mid-Jordan Extension – Corridor Preservation & Light Rail												
TRAX Daybreak South - Herriman Town Center - Riverton PRI Development												
1/U	CP/LR	Daybreak Parkway TRAX Station to 12600 South/Bangerter Hwy	$5	$6	U	U	3	LRT	$301	$1.6	2	BRT
SALT LAKE COUNTY, EAST-WEST PROJECTS												
39. Salt Lake Loop (S Line Upgrade & Extensions) – Streetcar												
1300 E/100 S – 200 S Transit Center – Salt Lake Central – Granary – 900 S TRAX Station – TRAX interline – Upgraded Existing S Line – 1100 East – 900 E/400 S												
3	SC	100 S/1300 E to 100 S/500 E	$135	$198	$1.0	$13.6	2	SC	$135	$1.0	N/A	N/A
2	SC	100 S/500 E to 200 S/200 E					2	SC			N/A	N/A
2	SC	200 S/200 E to 200 jS/600 W					2	SC			1	SC
3	SC	200 S/600 W to 800 S/400 W	$54	$95	$1.2	$8.4	2	SC	$54	$1.2	U	SC
3	EXISTS	800 S/400 W to 2100 S TRAX Station					2	SC			U	EXISTS
1	LU	2100 S TRAX Station to Highland Drive/2100 S	$18	$22	$0.2	$53.6	1	SC	$18	$0.7	1	SC
2	SC	Highland Drive/Sugarmont Drive to 1100 E/1700 S	$48	$76	$0.4	$2.5	2	SC	$48	$0.4	3	SC
40. University TRAX Line to SL Central TRAX Connection -- Light Rail												
Existing Track from University Hospital – U of U - 400 S - Central Library - New track from 400 S/Main - Salt Lake Central												
2	EXISTS	U of U Medical Center TRAX Station to 400 S/Main Street	$79	$116	$1.7	$22.8	1	LRT	$79	$1.7	2	LR
2	LR	400 S/Main Street to 200 S/600 W					1	LRT			2	LR
41. 2100 S/1700 S Corridor -- Enhanced Bus and BRT												
1300 E 200 S - U of U Medical Center - Mario Capecchi to Research Park Transitway - Research Park - Foothill Blvd. - 2300 E - 2100 S - TRAX Central Point - Glendale - 1700 S - Redwood Road - Decker Lake - Lake Park - West Valley City – Kearns												
2	BRT	1300 E/200 S to 2100 E/Foothill Drive	$30 U	$42 U	$5.7	$99.5	1	BRT	$85	$5.7	N/A	N/A
2	EB	2100 E/Foothill Drive to 2100 S TRAX Station					1	EB			N/A	N/A
2	EB	2100 S TRAX Station to Redwood Road/1700 S					2	EB			N/A	N/A
2	EB	Redwood Road/1700 S to 5600 W/Parkway Blvd.					2	EB			N/A	N/A
U	BRT	5600 W/Parkway Blvd. to 5600 W/6200 S					2	BRT	$62	$1.3	N/A	N/A
42. 3300 S/3500 S Corridor -- BRT, Existing, & Enhanced Bus												
Wasatch Park & Ride - East Mill Creek - South Salt Lake - West Valley - Magna												
2	EB	I-215 Ramp (Eastside)/3300 S to 1300 E/3300 S	$96	$141	$0	$26.8	1	EB	$147	$2.1	N/A	N/A
2	BRT	3300 S to 1300 E/3300 S to Millcreek TRAX Station					1	BRT			N/A	N/A
2	BRT	Millcreek TRAX Station to 3600 W/3500 S					1	EX			3	BRT
2	BRT	3600 W/3500 S to 6000 W/3500 S					1	BRT			1	BRT
2	EB	6000 W/3500 S to 8400 W/3500 S					1	N/A			2	BRT
43. 3900 S/4100 S Corridor -- Enhanced Bus												
Wasatch Park & Ride - East Mill Creek - South Salt Lake - West Valley - 5600 W												
2	EB	I-215 (Eastside Ramp)/3900 S to Meadowbrook TRAX Station	$26	$38	$3.9	$51.6	1	EB	$26	$3.9	3	EB
2	EB	Meadowbrook TRAX Station to 5600 W/4100 S					1	EB			N/A	N/A
44a. 4500 S/4700 S Corridor (East Millcreek-Murray Segment) -- Enhanced Bus												
East Millcreek - Murray Holladay Rd - 4500 S - Downtown Murray - Intermountain Medical Center - Murray Central Station												
U	EB	4500 S/I-215 (Eastside) to 1300 E/Murray Holladay Road	U	U	U	U	3	EB	$9	$1.4	2	EB
2	BRT	1300 E/Murray Holladay Road to 1300 E/4500 S	$13	5	$0.8	$10.2	3	EB	$13	$0.8	2	EB
2	EB	1300 E/4500 S to State Street/4500 S					1	EB			2	EB
44b. 4500 S/4700 S Corridor (Taylorsville-Murray Segment) -- Enhanced Bus & BRT												

Phase[1]	Mode[2]	Project Extents	Capital Costs (millions 2015$)[3]	Capital Costs (millions YOE$)[4]	Annual Operations Costs (millions 2015$)[5]	Operations Costs 2015 thru 2040 (millions YOE$)[6]	Need Phase[1]	Need Mode[2]	Capital Costs (millions 2015$)[3]	Annual Operations Costs (millions 2015$)[5]	2011 RTP Phase[7]	2011 RTP Mode[2]
Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
2015-2040 Funded Project Descriptions							*2015-2040 Needed Project Descriptions[8]*				*2011-2040 RTP Project Descriptions[9]*	
Murray Central Station - Sorensen Research Park - SLCC Redwood												
1	BRT	State Street/4500 S to Murray Central TRAX Station	$34	$42	$1.5	$38.2	1	EB	$29	$1.5	3	BRT
1	EB	Murray Central TRAX Station to 4530 S/Riverboat Road					1	EB			3	BRT
1	BRT	4530 S/Riverboat Road to 4700 S/Redwood Road					1	BRT			3	BRT
44c. 4500 S/4700 S Corridor (Taylorsville-5600 West Segment) -- Enhanced Bus												
SLCC Redwood - Kearns - 4700 S - 5600 W												
2	EB	4700 S/Redwood Road to 4700 S/5600 W	$10	$13	$1.5	$29.7	1	EB	$10	$1.5	N/A	N/A
45. Cottonwood Kearns Corridor -- Enhanced Bus & BRT												
Little Cottonwood Canyon - Big Cottonwood Canyon Park and Ride - Cottonwood Corporate Center - Fort Union Transit Center - Fort Union Blvd. - Bingham Junction TRAX Station (Red Line) - Redwood Road - 6200 S - Kearns - Mid Jordan TRAX Line - 7000 S - 6200 S - 5600 W												
U	EB	Little Cottonwood Canyon to Big Cottonwood Canyon Park and Ride	U	U	U	U	2	EB	$8	$1.3	3	BRT
3	BRT	Big Cottonwood Canyon Park and Ride to Fort Union Transit Center	$78	$126	$2.8	$18.9	3	BRT	$131	$2.8	3	BRT
3	BRT	Fort Union Transit Center to 900 E/Fort Union Blvd.					2	BRT			3	BRT
3	BRT	900 E/Fort Union Blvd. To State Street/Fort Union Blvd.					3	BRT			3	BRT
3	BRT	State Street/Fort Union Blvd. To Red Line (Bingham Junction) TRAX Station					2	BRT			3	BRT
U	BRT	Red Line (Bingham Junction) TRAX Station to 7000 S/Redwood Road	U	U	U	U	2	EB	$46	$2.2	3	EB
U	BRT	7000 S/Redwood Road to Bennion Blvd./Redwood Road					2	BRT			N/A	N/A
U	EB	Bennion Blvd./Redwood Road to Bennion Blvd./5600 W					3	EB			N/A	N/A
46. East Sandy Daybreak Corridor -- Enhanced Bus and BRT												
Little Cottonwood Canyon - 9400 S - Sandy - Sandy Civic Center TRAX Station - Sandy/South Jordan Transitway - South Jordan Front Runner - 10600 S - South Jordan - Daybreak - West Bench												
U	EB	Little Cottonwood Canyon to 9400 S/State Street	U	U	U	U	2	EB	$55	$5.9	3	BRT
U	EB	9400 S/State Street to Sandy Civic Center TRAX Station					3	EB			3	BRT
U	BRT	Sandy Civic Center TRAX Station to South Jordan FrontRunner Station					3	BRT			3	BRT
U	EB	South Jordan FrontRunner Station to South Jordan Parkway TRAX Station					2	EB			3	EB
U	EB	South Jordan Parkway TRAX Station to Bacchus Highway (UT-111)					3	EB			3	EB
47. Draper Town Center - Riverton Corridor -- Enhanced Bus												
Draper Town Center TRAX Station- Draper FrontRunner Station - 12600 S - 3600 W - Riverton PRI Development												
1/U	CP/EB	Draper Town Center TRAX Station to 12300 S/Lone Peak Parkway	$7.4	$8.3	U	U	2	EB	$22	$3.4	U	BRT
1/U	CP/EB	12300 S/Lone Peak Parkway to PRI Property					2	EB			3	BRT
48. Big Cottonwood Corridor -- Mode Undetermined												
Mouth of Big Cottonwood Canyon - Brighton Ski Resort												
U	EB	Mouth of Big Cottonwood Canyon to Brighton Ski Resort	U	U	U	U	3	EB	$32	$4.9	U	BRT
49. Little Cottonwood Corridor -- Mode Undetermined												
Mouth of Little Cottonwood Canyon – Alta Ski Resort												
U	EB	Mouth of Little Cottonwood Canyon to Alta Ski Resort	U	U	U	U	3	EB	$18	$2.7	U	BRT
50. Alta – Summit Co. Connector -- Mode Undetermined												
Alta Ski Resort to Summit County Line												
U	MU	Alta Ski Resort to Brighton Ski Resort	U	U	U	U	N/A	N/A	N/A	N/A	N/A	N/A
U	MU	Brighton Ski Resort to Summit County Line	U	U	U	U	N/A	N/A	N/A	N/A	N/A	N/A
PROGRAMMATIC PROJECTS												
51. Maintenance of Assets												
1/2/3	PLI	**State of Good Repair**: 35% rail non-vehicle assets, 29% buses, 26% rail vehicles, 7% maintenance for new RTP assets, 4% facilities, locations TBD	$2,677		$4,033		1/2/3		N/A		1/2/3	Part
1/2/3	PLI	**Other Major Capital Maintenance**: 36% miscellaneous, 24% rail maintenance, 23% information technology, 17% facilities/equipment, Locations TBD	$474		$636		1/2/3		N/A		1/2/3	Part
52. Intelligent Transportation Systems												
1/2/3	PLI	A Broad array of technologies improving customer service and system efficiency, locations TBD	$110		$143		1/2/3		$130		N/A	Part
53. First/Last Mile & Bike System												
Assorted access improvements near transit stops, locations TBD												
U	PLI	Assorted access improvements near transit stops, locations TBD	$0		$0		1/2/3		$212		N/A	N/A
54. Local Bus and Existing Rail System Span of Service Increases												
Largely expansion of the days and hours of service on existing services, specifics TBD												
1/2/3	PLI	**Illustrative increases**: **Local Bus**--30% increase in first phase, 5% increase in second and third phases; **TRAX**—27% increase in first phase; **FrontRunner SLC to Ogden**—59% in first phase. These rail increases would extend current weekday service to Saturday and extend current Saturday service to Sunday.	$1,083		$1,553		1/2/3		$1,533		1/2/3	30% BUS increase

Notes

1**2015-2040 Draft RTP Phases: Phase 1** 2015-2024; **Phase 2** 2025-2034; **Phase 3** 2035-2040

2**Project Abbreviations: U**=Not Funded, **CP**=Corridor Preservation, **EB**=Enhanced Bus, **BRT**=Bus Rapid Transit, **SC**=Streetcar (e.g. S-Line), **LRT**=Light-rail (TRAX), **CR**=Commuter Rail (FrontRunner), **LU**= Line Upgrade, **MU/x**=Mode Undetermined/mode used for cost assumptions, **P&R**=Park and Ride, **HUB**=Transit Hub or Center, **FACL**=Vehicle Maintenance Facility, **PLI**=Group of generally small projects of regional interest with yet to be determined locations

3**Capital Costs (2015$):** Project Construction and vehicle costs in millions of uninflated/2015 dollars. Capital costs reflect a specific order of construction as some project costs are constructed by other projects. Project costs include proportional cost of new Maintenance Facilities for the required new vehicles.

4**Capital Costs (YOE$):** Project Construction and vehicle costs in millions of uninflated/2015 dollars. Capital costs reflect a specific order of construction as some project costs are constructed by other projects. Project costs include proportional cost of new Maintenance Facilities for the required new vehicles.

5**Operating Costs (2015$):** Direct and indirect costs (administration and support) for the proposed project for one year at TRAX-like frequencies, hours of service, and days of service. Costs are in millions of uninflated dollars.

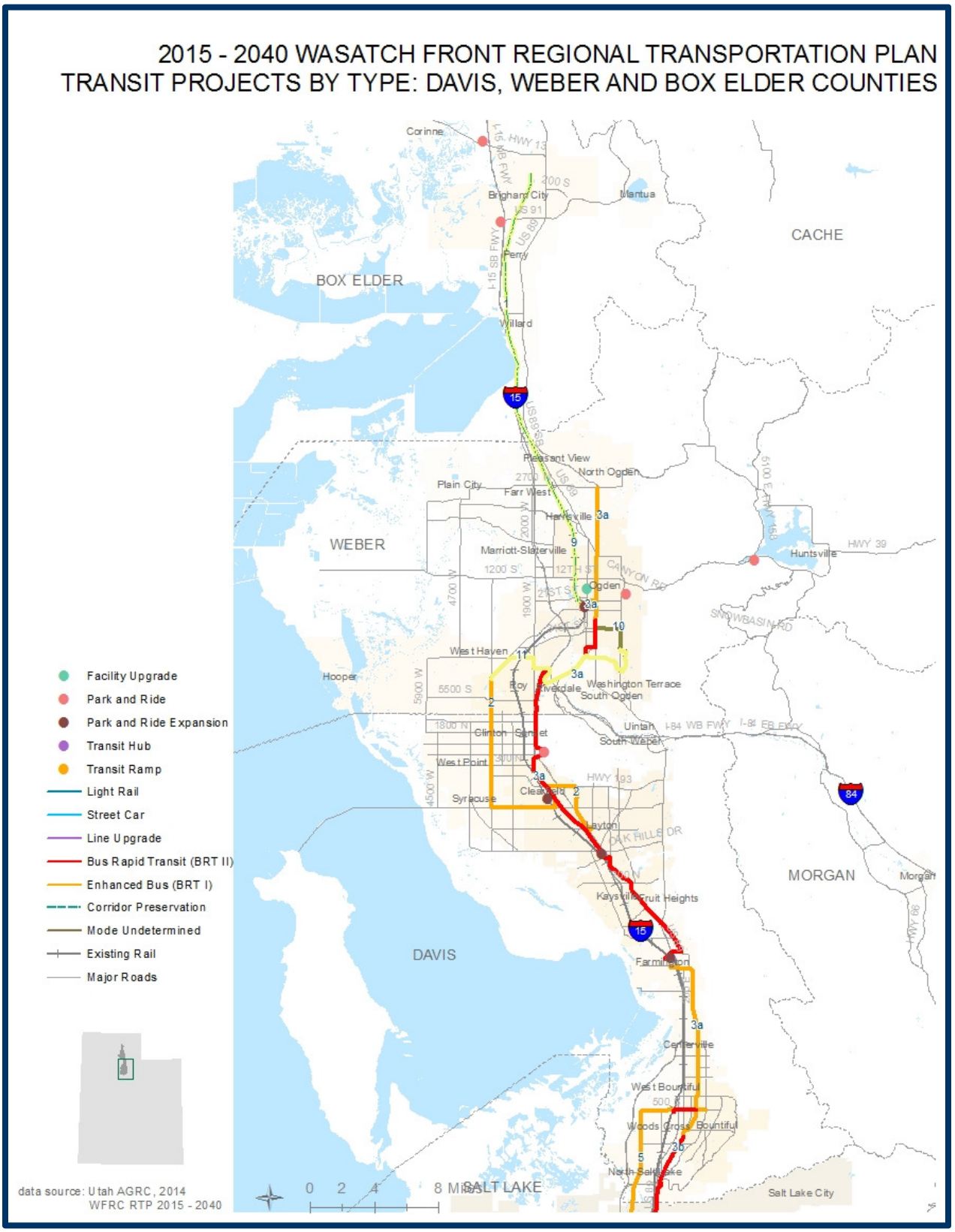
6**Operating Costs (YOE$):** Total direct and indirect costs (administration and support) for the proposed project for the time frame assumed in the RTP at TRAX-like frequencies, hours of service, and days of service. Costs are in millions of uninflated dollars.

7**2011-2040 Final RTP Phases: Phase 1** 2011-2020; **Phase 2** 2021-2030; **Phase 3** 2031-2040

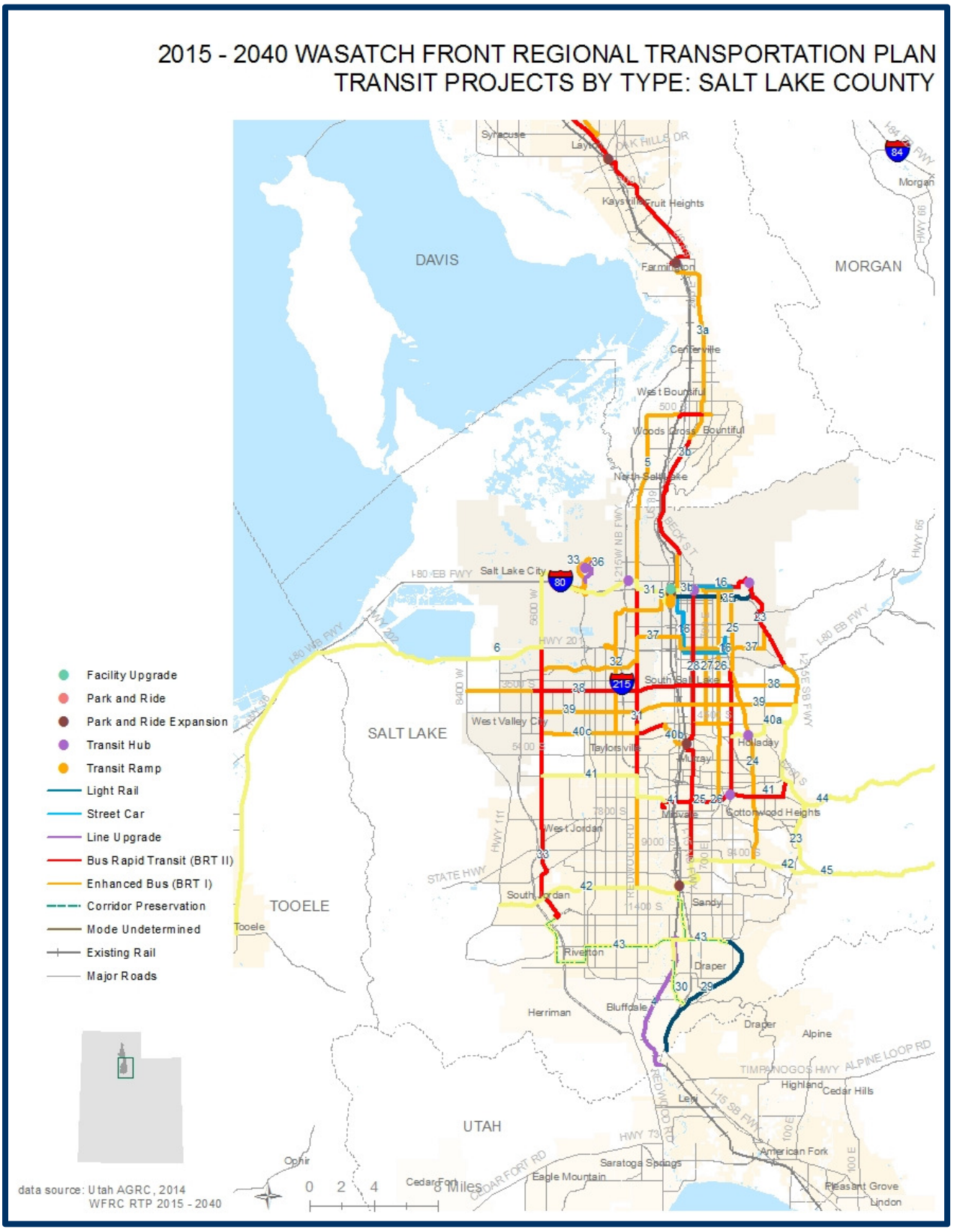
8**2015-2015 Needed Project Descriptions:** These projects reflect the Preferred Scenario from the scenario planning process and are not cost constrained to 2040 financial assumptions. Projects were placed into phases based in part on project scores and capital costs as follows: 40% phase 1, 40% phase 2, 20% phase 3.

9**2011-2040 Final RTP Descriptions:** These projects are from the cost constrained Regional Transportation Plan adopted in 2011.

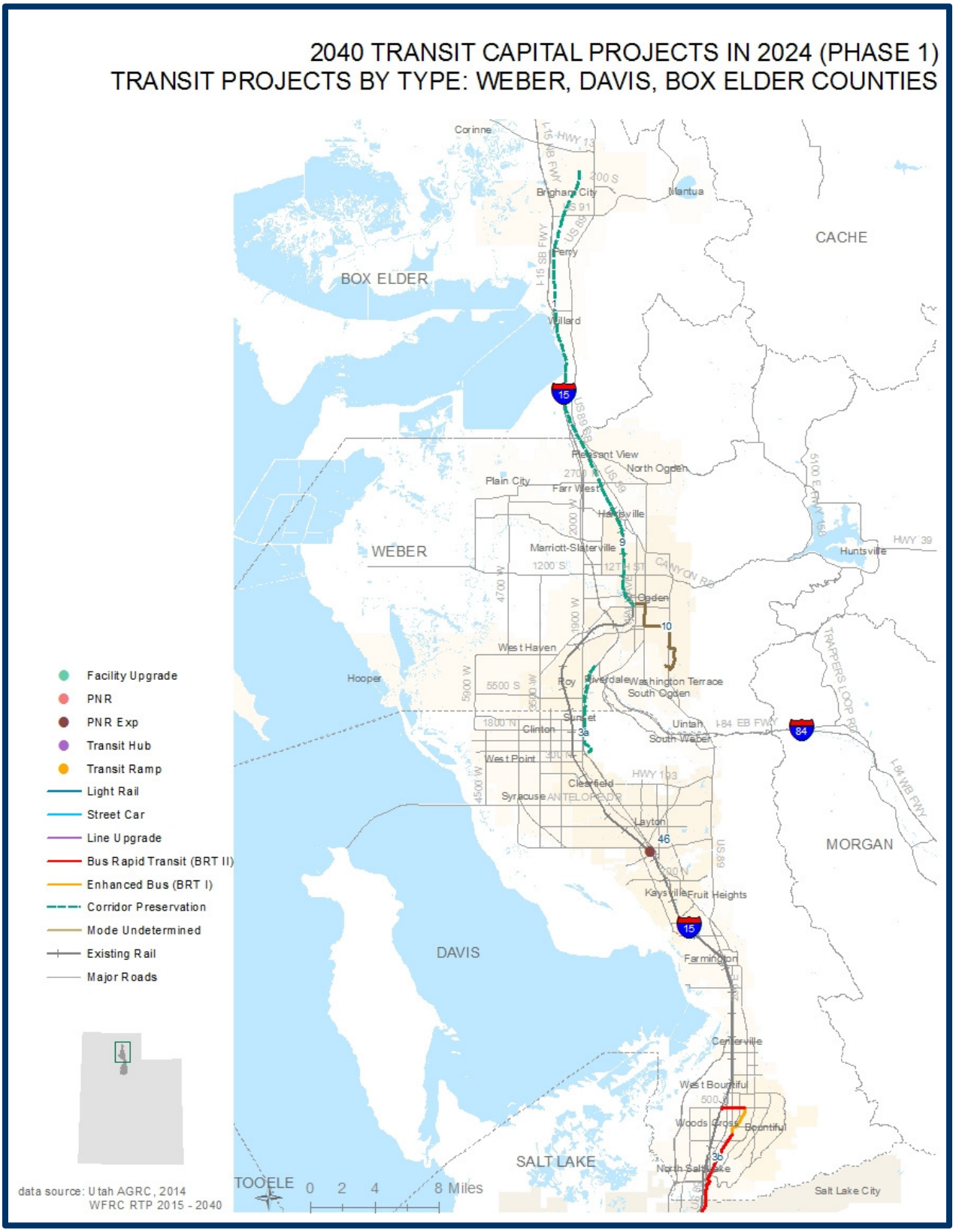
MAP 7-7


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
TRANSIT PROJECTS BY TYPE: DAVIS, WEBER AND BOX ELDER COUNTIES
Facility Upgrade
Park and Ride
Park and Ride Expansion
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles
BOX ELDER
WEBER
DAVIS
SALT LAKE
CACHE
MORGAN
Corinne
Brigham City
Perry
Willard
Mantua
Pleasant View
North Ogden
Plain City
Farr West
Harrisville
Marriott-Slaterville
Ogden
Hooper
West Haven
Roy
Riverdale
Washington Terrace
South Ogden
Clinton
Sunset
Uintah
South Weber
West Point
Syracuse
Clearfield
Layton
Kaysville
Fruit Heights
Farmington
Centerville
West Bountiful
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
Huntsville
Morgan

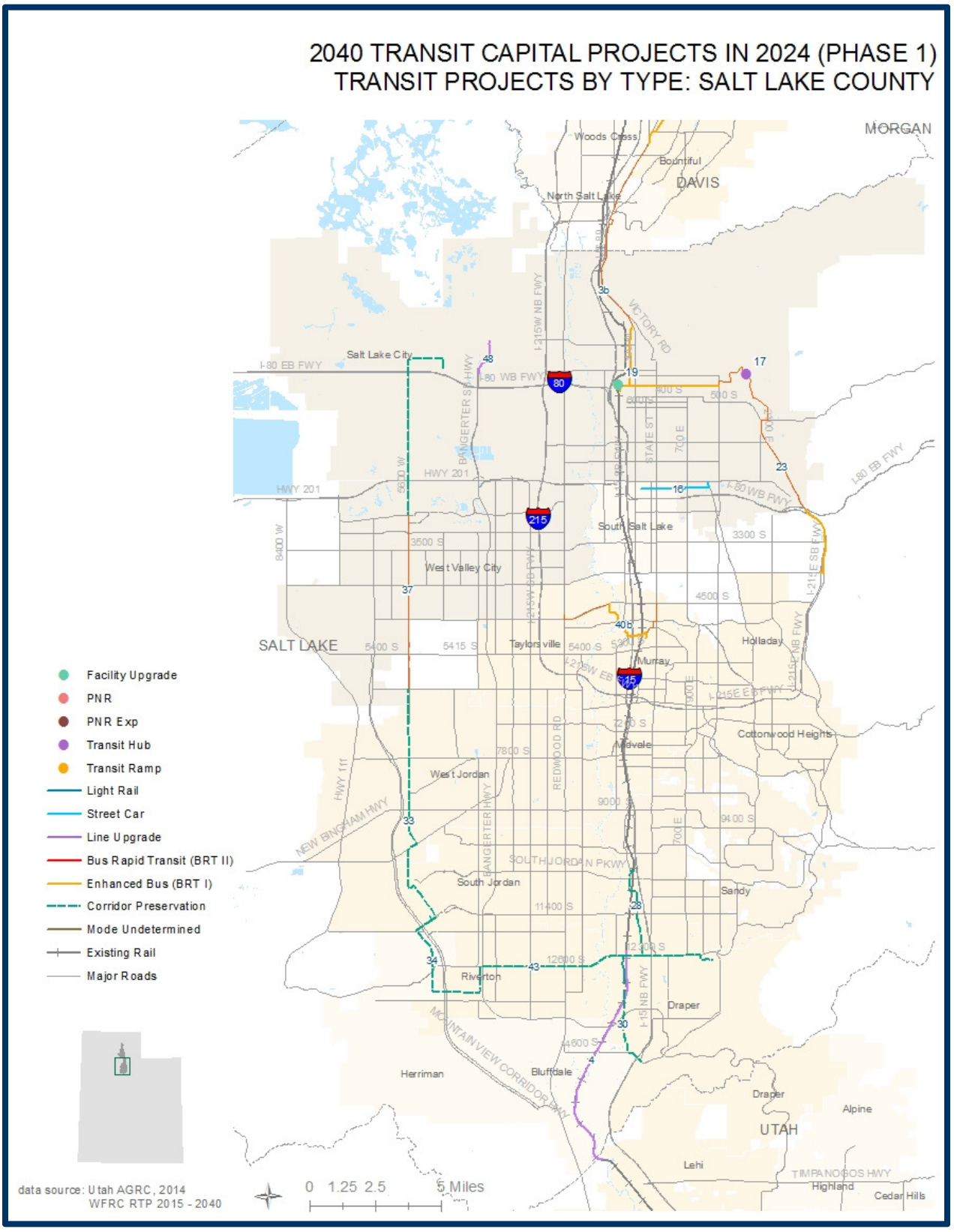
MAP 7-8


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY
Facility Upgrade
Park and Ride
Park and Ride Expansion
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
DAVIS
MORGAN
SALT LAKE
TOOELE
UTAH
Salt Lake City
West Valley City
South Salt Lake
Murray
Sandy
West Jordan
South Jordan
Draper
Riverton
Herriman
Bluffdale
Farmington
Centerville
West Bountiful
Bountiful
Woods Cross
North Salt Lake
Layton
Kaysville
Fruit Heights
Syracuse
Morgan
Holladay
Cottonwood Heights
Midvale
Taylorsville
Tooele
Ophir
Cedar Fort
Saratoga Springs
Eagle Mountain
Lehi
American Fork
Pleasant Grove
Orem
Alpine
Highland
Cedar Hills
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles

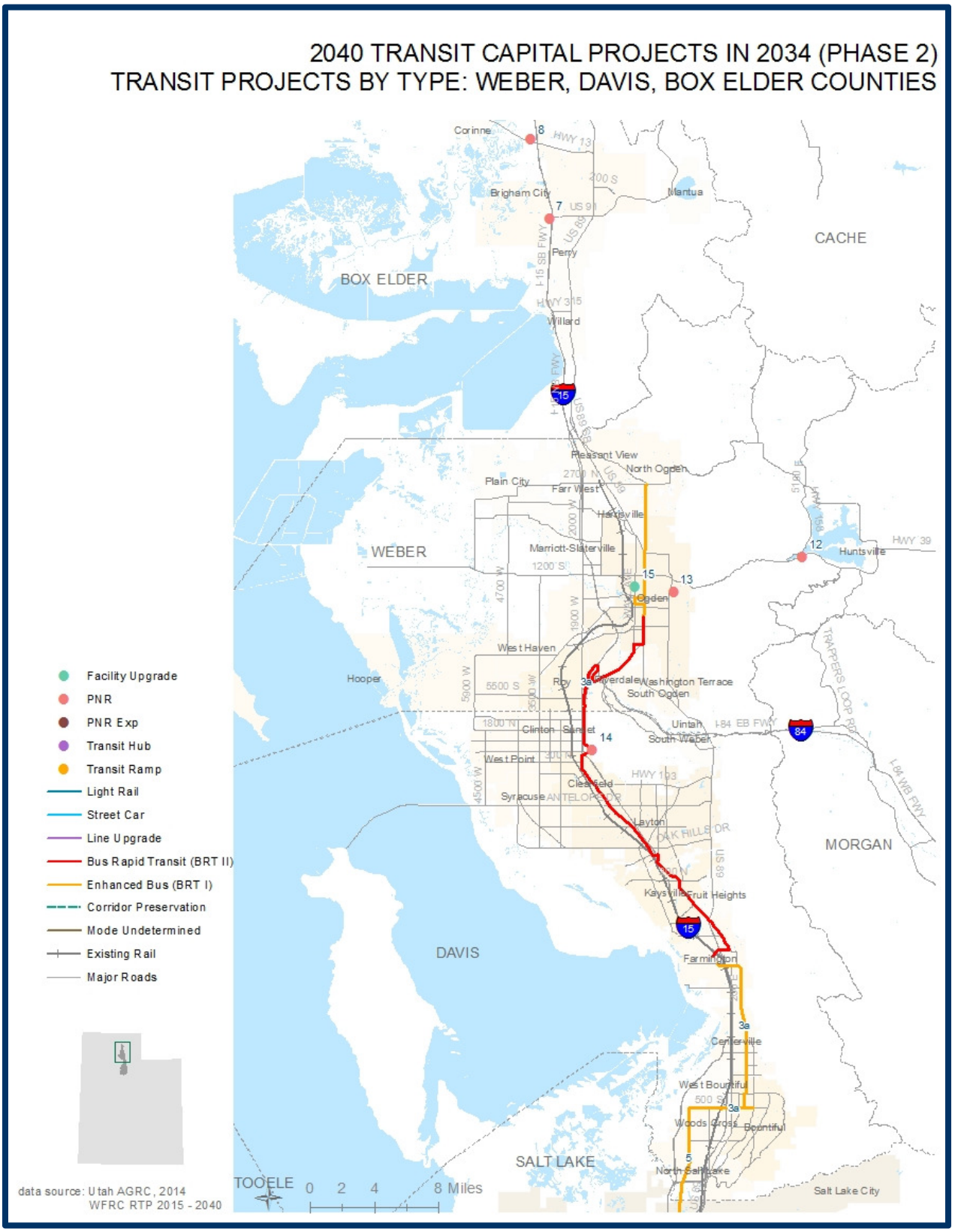
MAP 7-9


2040 TRANSIT CAPITAL PROJECTS IN 2024 (PHASE 1)
TRANSIT PROJECTS BY TYPE: WEBER, DAVIS, BOX ELDER COUNTIES
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles
BOX ELDER
WEBER
DAVIS
SALT LAKE
TOOELE
CACHE
MORGAN
Corinne
Brigham City
Mantua
Perry
Willard
Pleasant View
North Ogden
Plain City
Farr West
Harrisville
Marriott-Slaterville
Ogden
West Haven
Hooper
Roy
Riverdale
Washington Terrace
South Ogden
Sunset
Clinton
Uintah
South Weber
West Point
Clearfield
Syracuse
Layton
Kaysville
Fruit Heights
Farmington
Centerville
West Bountiful
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
Huntsville

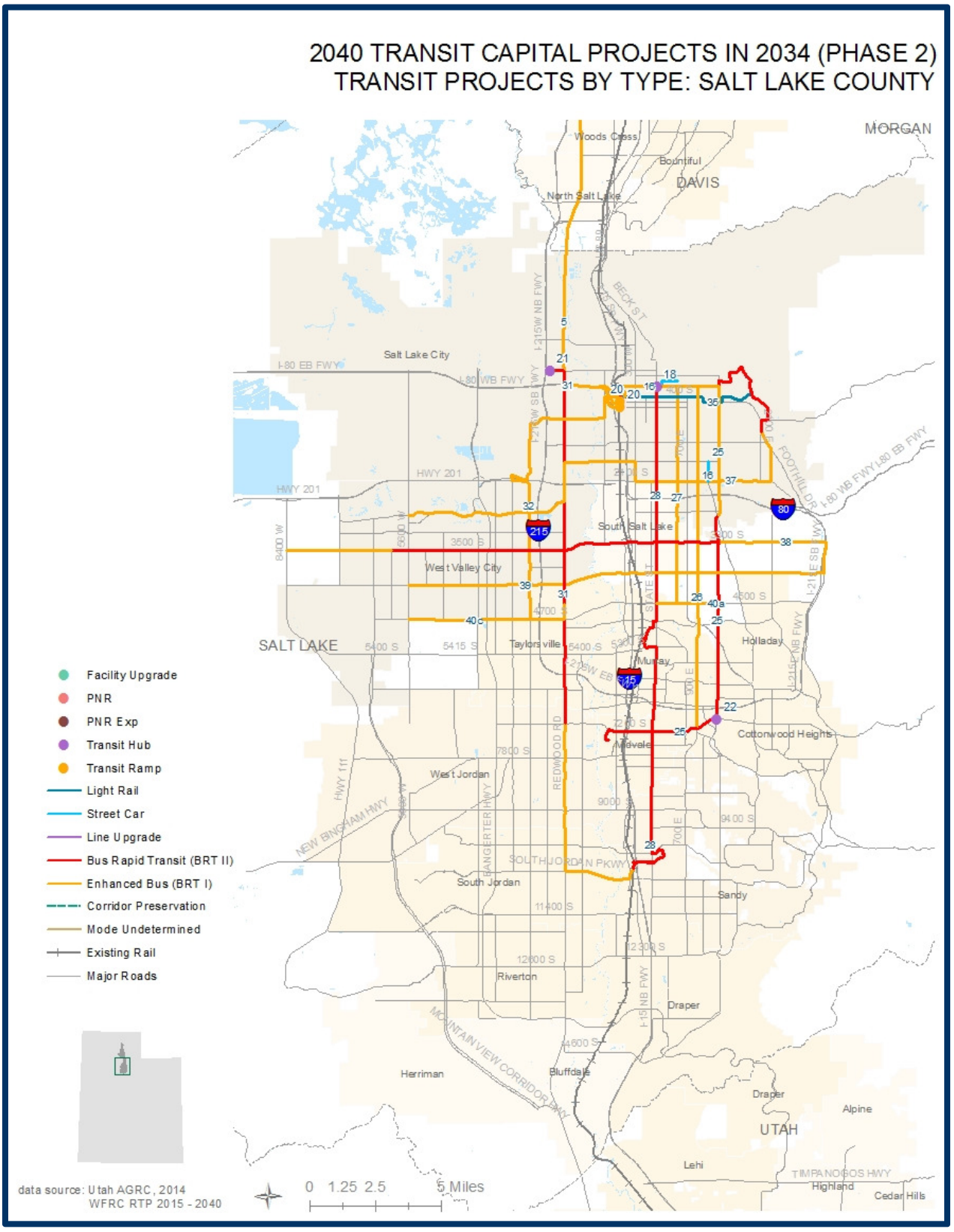
MAP 7-10


2040 TRANSIT CAPITAL PROJECTS IN 2024 (PHASE 1)
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 1.25 2.5 5 Miles
MORGAN
DAVIS
SALT LAKE
UTAH
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
West Valley City
South Salt Lake
Taylorsville
Murray
Holladay
Cottonwood Heights
Midvale
West Jordan
South Jordan
Sandy
Riverton
Draper
Herriman
Bluffdale
Alpine
Lehi
Highland
Cedar Hills

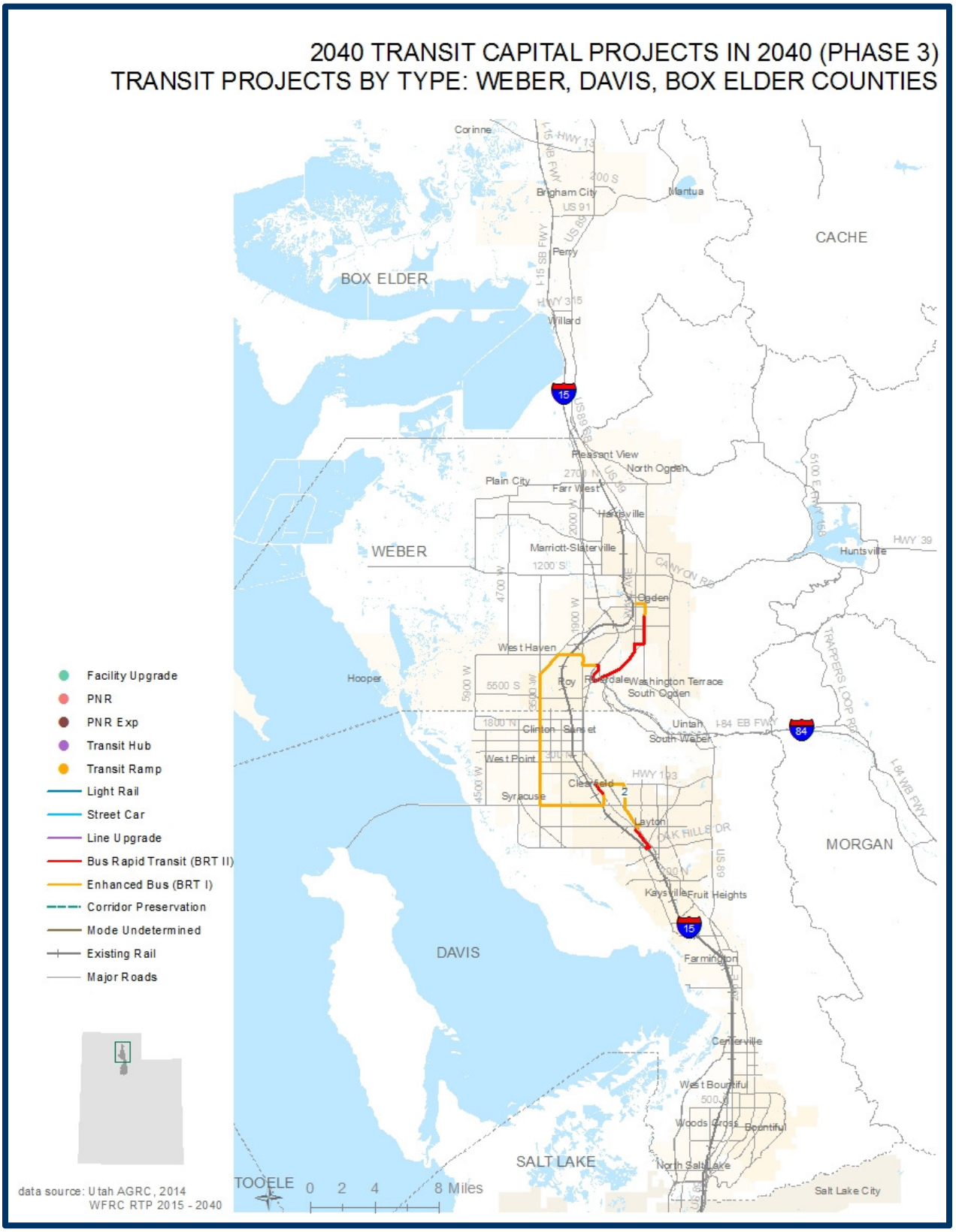
MAP 7-11


2040 TRANSIT CAPITAL PROJECTS IN 2034 (PHASE 2)
TRANSIT PROJECTS BY TYPE: WEBER, DAVIS, BOX ELDER COUNTIES
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles
BOX ELDER
WEBER
DAVIS
SALT LAKE
TOOELE
CACHE
MORGAN
Corinne
Brigham City
Perry
Willard
Mantua
Pleasant View
North Ogden
Plain City
Farr West
Harrisville
Marriott-Slaterville
Ogden
West Haven
Hooper
Roy
Riverdale
Washington Terrace
South Ogden
Uintah
South Weber
Clinton
Sunset
West Point
Clearfield
Syracuse
Layton
Kaysville
Fruit Heights
Farmington
Centerville
West Bountiful
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
Huntsville

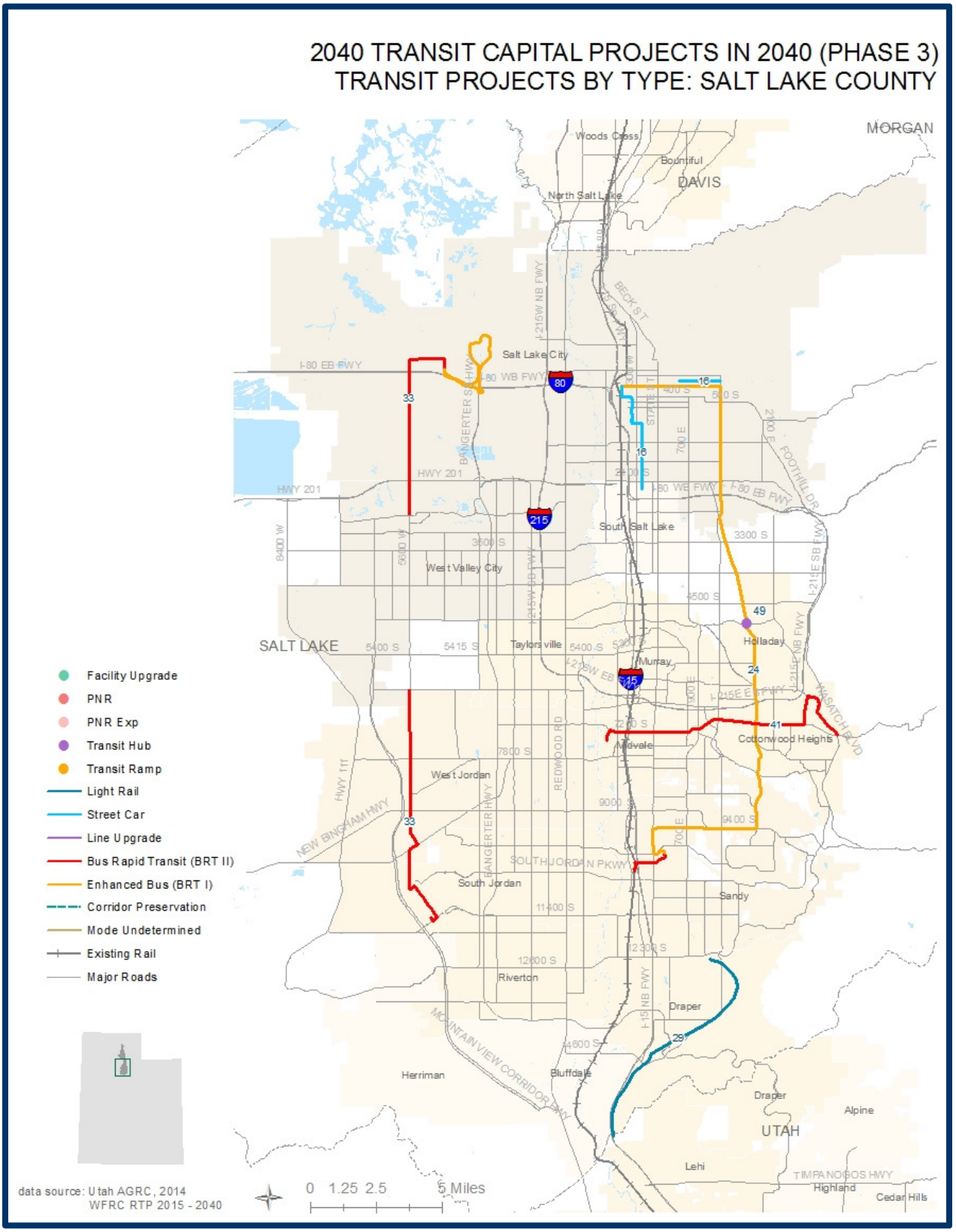
MAP 7-12


2040 TRANSIT CAPITAL PROJECTS IN 2034 (PHASE 2)
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 1.25 2.5 5 Miles
MORGAN
DAVIS
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
SALT LAKE
West Valley City
South Salt Lake
Taylorsville
Murray
Holladay
Cottonwood Heights
Midvale
West Jordan
South Jordan
Sandy
Riverton
Draper
Herriman
Bluffdale
Alpine
UTAH
Lehi
Highland
Cedar Hills
I-80 EB FWY
I-80 WB FWY
I-215W NB FWY
I-215W SB FWY
I-215E NB FWY
I-215E SB FWY
I-15 NB FWY
HWY 201
HWY 111
REDWOOD RD
BANGERTER HWY
NEW BINGHAM HWY
SOUTH JORDAN PKWY
MOUNTAIN VIEW CORRIDOR PKWY
TIMPANOGOS HWY
FOOTHILL DR
BECK ST
STATE ST
3500 S
4500 S
5400 S
7800 S
9000 S
9400 S
11400 S
12600 S
700 E
900 E
6400 W
8400 W

MAP 7-13


2040 TRANSIT CAPITAL PROJECTS IN 2040 (PHASE 3)
TRANSIT PROJECTS BY TYPE: WEBER, DAVIS, BOX ELDER COUNTIES
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 2 4 8 Miles
BOX ELDER
WEBER
DAVIS
SALT LAKE
TOOELE
CACHE
MORGAN
Corinne
Brigham City
Mantua
Perry
Willard
Pleasant View
North Ogden
Plain City
Farr West
Harrisville
Marriott-Slaterville
Ogden
West Haven
Hooper
Roy
Riverdale
Washington Terrace
South Ogden
Uintah
South Weber
Clinton
Sunset
West Point
Syracuse
Clearfield
Layton
Kaysville
Fruit Heights
Farmington
Centerville
West Bountiful
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
Huntsville

MAP 7-14


2040 TRANSIT CAPITAL PROJECTS IN 2040 (PHASE 3)
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY
Facility Upgrade
PNR
PNR Exp
Transit Hub
Transit Ramp
Light Rail
Street Car
Line Upgrade
Bus Rapid Transit (BRT II)
Enhanced Bus (BRT I)
Corridor Preservation
Mode Undetermined
Existing Rail
Major Roads
data source: Utah AGRC, 2014
WFRC RTP 2015 - 2040
0 1.25 2.5 5 Miles
MORGAN
DAVIS
SALT LAKE
UTAH
Woods Cross
Bountiful
North Salt Lake
Salt Lake City
South Salt Lake
West Valley City
Taylorsville
Murray
Holladay
Cottonwood Heights
Midvale
West Jordan
South Jordan
Sandy
Riverton
Draper
Herriman
Bluffdale
Alpine
Lehi
Highland
Cedar Hills

OTHER TRANSIT SYSTEM IMPROVEMENTS

Mobility Management

The Human Service Transportation Coordination Presidential Executive Order (13330 - 24 FEB 04) recognized the critical role of transportation in providing access to employment, medical and health care, education, and other community services and amenities. It is noted that the development, implementation, and maintenance of responsive, comprehensive, coordinated community transportation systems is essential for persons with disabilities, persons with low incomes, and older adults who rely on transportation to fully participate in their communities. These populations are collectively referred to as the Transportation Disadvantaged.

Federal transit law requires that projects funded from the Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) Program be derived from a locally developed, coordinated public transit-human services transportation plan ("coordinated plan"). A coordinated plan should maximize coverage and efficiency by minimizing duplication of services. Further, a coordinated plan should be developed through a process that includes representatives of public, private and non-profit transportation and human services providers, and participation by the public. Federal transit law further states that Sections 5311 and 5307 also require coordination with transportation assistance under other Federal programs.

The WFRC partnered with MAG and UTA in 2009 to develop a coordinated mobility plan that included the entire UTA service area (Davis, Morgan, Salt Lake, Tooele, Utah, and Weber counties, and the southern portion of Box Elder County). The planning process included extensive public outreach and collaboration with coordination planning partners including transportation providers, passengers and advocates, human service providers, and representatives from local/regional governments. This plan was updated in 2013 and named the Wasatch Mobility Plan. The full Wasatch Mobility Plan is included in **Appendix N**.

The Utah Transit Authority is now leading the effort to implement this Plan and administers the large urban portion of the 5310 Program in the State of Utah. Key strategies included in the Plan are as follows:

- Expand partner collaborations to coordinate services
- Develop a one click software application to link providers and disadvantaged populations to a single centralized database
- Provide open source scheduling and dispatching software
- Secure additional funding resources
- Promote public transit usage
- Promote accessibility and livability

Route Deviation Flex Routes

UTA's route deviation flex route service, called "The Lift," has been designed and implemented to help meet transportation service gaps in lower density areas. The system allows bus drivers, upon request, to deviate from the published route by up to ¾ mile, upon request, in order to provide curb-side pick-up or drop-off service. UTA currently operates The Lift in American Fork/Alpine, Brigham City, Draper, Grantsville, Herriman, Riverton, Sandy, Syracuse/Hooper, and Tooele City. The Lift is available to all UTA passengers and provides paratransit riders with an additional transportation option. Building on the successes of existing routes, UTA will continue to expand The Lift to help meet transportation service gaps.

Paratransit System

For eligible riders who have a transportation disability that prevents them from making some or all of their trips on UTA's fixed route buses and TRAX light rail services, the UTA offers a comparable,

curb-to-curb paratransit service which in the Salt Lake Area is referred to as Flextrans. This service is compliant with provisions found in the American with Disabilities Act of 1990 (ADA) and is provided as part of UTA's efforts to meet the requirements of this Act.

Paratransit service must be reserved at least one day in advance. The service can be provided using either ramp-equipped minibuses, lift-equipped vans, a 15-passenger van or by a taxi service that has been scheduled through UTA's paratransit office. Paratransit service operates in the same areas and during the same days and hours as local all-day fixed route bus and TRAX light rail services. The service can be used for any trip purpose. All of UTA's existing vehicles and facilities are ADA accessible. All future vehicles and facilities will also be ADA accessible. UTA's paratransit system will expand in parallel with the transit system improvements defined by the 2015 - 2040 RTP, creating broader coverage for persons with disabilities.

OTHER TRANSPORTATION MODE RECOMMENDATIONS

In addition to highway and transit system improvements, the 2015 - 2040 RTP also encourages the further development of other transportation modes for moving people throughout the Wasatch Front Region. Other transportation modes, such as bicycle and pedestrian travel, are an integral part of the 2015 - 2040 RTP recommendations. The seamless interfacing of other modes with highway and transit services will be a key element of to the future of an integrated transportation system.

Residents are more likely to walk in areas with sidewalks and cyclists are more likely to bike with safe bike facilities. We have seen progress and an increase in use for non-motorized travel, yet significant work can be done to equip streets with adequate facilities for pedestrians, bicyclists, or transit users. The WFRC is working to create additional strategies to support this type of travel, and this may include continuous network of sidewalks that are wide enough for pedestrians to share with bikes, to accommodate transit users or their way to stations or stops, and that are accessible to those in wheelchairs. Also of concern are streets that are too wide to be safely crossed.

Although specific design decisions about the cross section of streets and highways are made during project development, broad decisions such as right-of-way width, functional classification, and the desirability of bikeways and transit lanes can be made early in the planning process. The WFRC has developed a Complete Streets Policy template and a workshop process for interested members. This then helps to decide which of the elements to include and selecting the appropriate dimensions within these ranges should reflect the needs of the Region and be in line with relevant federal guidelines. The most appropriate design of a public right-of-way balances the mobility needs of the people using the facility (motorists, pedestrians, bicyclists, or transit) with the physical constraints of the corridor within which the facility is located.

These "alternative modes" of transportation have the potential to yield large congestion and air quality benefits. Given that much of the mobile source pollution we experience comes from the first few minutes of vehicular travel when catalytic converters are not fully functioning, it follows that shifting short trips to walking and biking could significantly improve air quality.

Many existing and new collector and arterial streets have been identified as bicycle routes within the 2015 - 2040 RTP Bike Plans, and they highlight where highway "shoulders" are, or are planned to be, wide enough to accommodate bicycle travel. The routes in the Plan are intended to serve major activity centers, such as Salt Lake City's Central Business District, the University of Utah, Weber State University, the Salt Lake Community College's several campuses, major employment centers, transit stations, and, on a more local level, numerous public schools. Legally defined as vehicles, bicycles are allowed on all streets except where specifically prohibited, such as urban interstate highways and some high speed principal arterials (Bangerter Highway). Therefore, all streets, other than those types described above, should be designed to accommodate the bicycle mode of travel

where possible. Also, the Regional Bicycle Plan identifies other bicycle trails or paths that have their own rights-of-ways.

The 2015 - 2040 RTP Bicycle Base Network identifies several specific facility improvements. Class I bicycle facilities provide for bicycle travel on a ROW completely separated from the travel lanes and shoulders of any street or highway. Class I facilities may be paved or unpaved, could have steep grades, and can be shared with pedestrians. Class II bicycle facilities provide a striped and signed lane for one-way bike travel on a street, usually one with a wider shoulder to accommodate the bicycle lane. Finally, Class III bicycle facilities provide a "sign only" for designated bicycle travel on a roadway shared with motor vehicles. It is recommended that the *AASHTO Guide for the Development of Bicycle Facilities, 1999,* be referenced when designing a bicycle path or trail. An updated AASHTO Guide for the Development of Bicycle Facilities should be available in 2011.

As with bicycle facilities, pedestrian facilities, primarily sidewalks, are also local in nature. Pedestrians should be accommodated by providing sidewalks on all local, collector and arterial streets. Where neighborhood pedestrian travel patterns have been or could be disrupted by busy arterial streets, expressways, and freeways, grade separated pedestrian walkways and/or other facilities should be considered. Pedestrian facilities should be designed with safety in mind, especially for facilities that are heavily used by both pedestrian and vehicular traffic.

Program Policies

As the result of previous bicycle planning efforts, policies were recommended to help with establishing priorities. These policies provide a basis for describing the role of bicycle facilities and trails in the 2015 - 2040 RTP. As part of the 2015 - 2040 RTP, these policies were recently reviewed to determine their relevance, considering current and projected needs and conditions. The bicycle and trails policies are as follows:

- Bicycle paths and pedestrian facilities will be included in the Transportation Plan;
- Regional planning should focus on a continuous regional system of trails, bikeways or paths, bicycle routes and lanes;
- Wherever possible, projects must be consistent with local trails plans, general plans, and AASHTO design guidelines, whenever possible. Planning and project funding should recognize as a primary goal safety for pedestrians, bicyclists, and motorists;
- Projects will be prioritized and implementation phased over the period of the 2015 - 2040 RTP based on need, safety, funding, and other considerations. Projects will be coordinated with local governments, Counties, the WFRC, UDOT, UTA, etc.;
- Major activity centers, such as shopping centers, office and industrial employment centers, transportation centers, parks, community centers and libraries, and schools and universities, should be accessible to bicyclists and pedestrian from surrounding residential areas;
- Sidewalks providing pedestrian access to transit vehicles should be available along all transit routes within the urbanized area;
- Barrier crossings (rivers, railroads, expressways, freeways, etc.) within urbanized areas should have provisions for both bicycle lanes and pedestrian sidewalks;
- Priority consideration within the "congested corridors" should be given to implementing bicycle and pedestrian projects and programs that most clearly increase the potential benefits from these facilities and activities and that combine well with related congestion management strategies;
- Priority consideration for bicycle and pedestrian facilities should also be directed to areas of the Wasatch Front Region experiencing the early stages of urbanization in order to ensure that adequate provisions for non-motorized travel are incorporated in the transportation system as facilities are constructed or upgraded;
- The public should become better informed of the beneficial effects and personal well-being resulting from non-motorized travel;

- Provisions for bicycle and pedestrian travel will be incorporated into congestion management programs where feasible and appropriate; and
- The reasons and concerns members of the public expressed for lack of interest in using non-motorized modes, such as safety, traffic, barriers, lack of facilities, and other concerns, should be addressed in order to encourage higher usage of these modes.

Specific pedestrian facilities were not identified as part of the 2015 - 2040 RTP. However, general pedestrian friendly land use and development policy recommendations for pedestrian facilities and amenities are being proposed as a guide for local governments within the Wasatch Front Region to consider as transportation facilities are planned and implemented. These policy recommendations are oriented towards local government officials who control the regulation of land use and development for their communities. Local governments are encouraged to follow pedestrian friendly urban design, site planning and subdivision design principles in evaluating new development proposals, and to incorporate pedestrian facilities in existing developments wherever practicable. Neighborhood pedestrian access can be enhanced by creating trails, connecting cul-de-sacs with walkways, and providing other pedestrian facilities.

Funding - Adequate funding is a key factor for successful implementation of pedestrian and bicycle projects. Traditionally, pedestrian and bicycle improvements have been required to compete with other projects that may have a higher priority. In many instances, whenever there is a widening, reconstruction, or some other street improvement, provisions for pedestrian and bicycle facilities are considered and funded as a part of the street improvement and for the first time ever included in the 2015 - 2040 RTP project lists. The new UDOT Active Transportation Policy is helping to tackle some of these concerns. In other instances, the project may be specific to a pedestrian and/or a bicycle facility. All federal funding programs created under SAFETEA-LU include pedestrian and bicycle facilities as eligible activities

UDOT Statewide Active Transportation Program

The Utah Department of Transportation is committed to ongoing assessment of the state's transportation system and the evaluation of public input regarding accommodations for bicycles and pedestrians. To that end, UDOT develops studies, programs, policies, procedures and projects to address active transportation.

Collaboration

Along with public input, collaboration with other agencies and organizations has been instrumental in moving active transportation forward in Utah--and along the Wasatch Front. In order to meet ever increasing transportation demands and extend the reach of active transportation, UDOT promotes the concept of "integrated transportation." This concept focuses on planning, designing and building infrastructure that takes into account all transportation modes, including transit. By working together and emphasizing integration, state and local transportation organizations and agencies can efficiently utilize resources to develop a state and regional transportation system that meets the needs of all users.

Utah Collaborative Active Transportation Study

In 2012, the Utah Department of Transportation launched a strategic effort in cooperation with the Utah Transit Authority, Salt Lake County, Wasatch Front Regional Council and Mountainland Association of Governments to plan bicycle and pedestrian infrastructure in the metropolitan areas of the Wasatch Front. The study prioritized routes in order to create a comprehensive primary network for bicycles with pedestrian links to transit. The Utah Collaborative Active Transportation Study (UCATS) gathered and mapped all available bicycle/pedestrian infrastructure inventories, plans and projects in the study area, and analyzed the information to identify critical gaps and important transit connections. Phase 2 of the UCATS Project, which began in early 2015 included additional partners from Weber and Davis County combined with the original partners, will devise performance

measures and a process to keep the UCATS primary bicycle network updated and new infrastructure comes online.

UDOT Region Bike Plans
The Utah Department of Transportation has built on the UCATS effort by using the bicycle system developed under the study as the basis for Bike Plans in each of the participating UDOT Regions. The Region 1, 2 & 3 Bike Plans will be expanded into rural areas and counties outside of the Wasatch Front. The Region 4 Bike Plan, which was developed separately, will also be expanded. Together, these plans comprise Utah's State Bike Plan.

UDOT Active Transportation Policy
The Utah Department of Transportation's policies and procedures have undergone change and clarification. These changes have resulted in an increased emphasis on active transportation. New policy guidelines calling for the accommodation of active transportation in all project phases, from planning through maintenance, were approved in December 2013. Implementation procedures for the new Bike Plans are being developed as each Region reviews the application of the new policy.

Road Respect Communities
Utah's Road Respect program, which began as a multi-agency sponsored on-road safety campaign, has been expanded to include the Road Respect Community program, which is managed by UDOT. Road Respect Community is designed to help cities and towns build their local bicycle programs with an emphasis on effective planning and safety. Road Respect Community will continue to grow as additional counties, cities and towns join the program.

TravelWise
Other active transportation-related activities include UDOT's TravelWise program, which promotes the advantages of using active transportation, including reduced traffic congestion and energy consumption, clean air and healthy lifestyles. The Department's Safe Routes to School Program encourages Utah's children to walk and bike to school. Collaboration with other organizations and agencies, and communication with stakeholders are key components in UDOT's active transportation program. Both of these elements will continue to inform Department in its active transportation-related activities.

TRANSPORTATION SYSTEM RECOMMENDATIONS

Transportation System Management And Transportation Demand Management

The Congestion Management Process involves an evaluation of Transportation System Management and Transportation Demand Management strategies as potential mitigation to congestion instead of increasing highway capacity. Corridors have been identified where TSM and TDM strategies can delay the need for new capacity. Where these strategies cannot meet the travel demand, new capacity recommendations are made (See Highway System Improvements Section). TSM and TDM strategies are also recommended for incorporation into new capacity projects in order to maximize the effectiveness of the new capacity as well as to minimize the need for even more highways.

A comparison of level of service with and without implementing TSM and TDM strategies has been made in the travel demand model to identify any roadways where these strategies could be applied to delay the need for new highway capacity. These facilities are listed in **Table 7-6**. The objective was to improve LOS from "E" or "F" to "D" or better by applying TSM and TDM. Instances where this could be accomplished were limited. Rather than successive links in a corridor showing improvement, TSM and TDM benefits as measured by the model tend to be in isolated segments. This is not to suggest TSM and TDM should be ignored. On the contrary, there are real benefits to be gained and the costs in most cases are marginal, but there is a need to be realistic with

expectations about the resulting improvements in transportation system performance. Rapid growth along the Wasatch Front makes it difficult to keep up with demand by pursuing TSM and TDM alone.

TABLE 7-6

TSM AND TDM STRATEGY RECOMMENDATIONS TO DELAY NEW CAPACITY ADDITIONS

RECOMMENDED TSM PROJECTS			
ROUTE	**FROM**	**TO**	**IMPROVEMENT**
Salt Lake-West Valley Area			
2100 South	I-15	1300 East	Operational
3300 South / 3500 South	I-215 (West)	Highland Drive	Operational
5400 South	Redwood Road	State Street	Operational
Fort Union Boulevard	Union Park Boulevard	3000 East	Operational
9000 South	I-15	700 East	Operational
9400 South	State Street	Ski Connection Road	Operational
Little Cottonwood Road	Eastdale Drive	Wasatch Boulevard	Operational
12600 South	Bangerter Highway	Redwood Road	Operational
Herriman Main Street	7800 West	6200 West	Operational
5600 West	2700 South	6200 South	Operational
5600 West	6200 South	New Bingham Highway	Operational
Redwood Road	SR-201	4700 South	Operational
Redwood Road	9000 South	11400 South	Operational
State Street	600 South	I-215	Operational
State Street	I-215	12300 South	Operational
900 East	3300 South	4500 South	Operational
Union Park Boulevard / 1300 East	Fort Union Boulevard	7800 South	Operational
Highland Drive	Murray Holladay Boulevard	Van Winkle Expressway	Operational
500 South / Foothill Drive	1300 East	2300 East	Operational
Ogden-Layton Area			
SR-193	I-15	US-89	Operational
2600 South / 1100 North	Redwood Road	I-15	Operational
Center Street	Redwood Road	US-89	Operational
20th Street	Wall Avenue	Harrison Boulevard	Operational
21st Street	Wall Avenue	Adams Avenue	Operational
3500 West	1200 South	Midland Drive	Operational
600 West	Elberta Drive	2600 North	Operational
Harrison Boulevard	2600 North	12th Street	Operational
Harrison Boulevard	12th Street	Country Hills Drive	Operational

The modeling only included those TSM and TDM strategies that are readily quantifiable. The modeled TSM strategies include signal coordination, ramp metering, incident management, the use of other intelligent transportation systems, and access management. Strategies that were not modeled are traditional intersection and interchange improvements, as well as more innovative approaches, such as single point urban interchanges and continuous flow intersections. Application of all of these strategies is recommended where appropriate system-wide. For the new capacity projects in the RTP, TSM strategies are provided during concept development as specific project improvements.

Modeled TDM strategies include ridesharing, vanpools, public transit service in its various modes; plus flextime, telecommuting, and growth management. Other TDM strategies recommended for use throughout the Region include park-and-ride facilities, HOV lanes, car sharing, and adding pedestrian and bicycle facilities. Much of the new capacity identified in the RTP is needed to address peak period demand. At other times this additional capacity is underused. Managing peak period demand can be a cost effective solution to address the imbalanced use of the transportation system.

Intelligent Transportation Systems

The tools to preserve capacity of highway and transit facilities involve the usage of intelligent transportation systems (ITS). These tools include technologies such as ramp metering, incident management, signal coordination, automated transit vehicle location, and passenger counting. As demand for transportation facilities continues to outpace the ability to provide them, it becomes more and more critical to implement ITS strategies. Additionally, in order to responsibly operate facilities that are constructed and maximize their usefulness, it is essential to plan for ITS. This section will review benefits of current ITS technologies, discuss potential future technology, and provide recommendations for implementing ITS strategies.

As indicated in **Table 7-7**, significant savings have been achieved by implementation of ITS in Utah. The delay reduction benefits value the time saved conservatively at about $12 per hour. The crash reduction benefits are based on Federal Highway Administration estimates. Incident Management Teams (IMT) in the Salt Lake-West Valley and Ogden-Layton Urbanized Areas are able to reduce incident blockages by 15 to 35 minutes, with time savings generally increasing with the severity of the accident. Dynamic Message Signs (DMS) help alert drivers to traffic accidents as well as construction and inclement weather conditions. Traffic lights at freeway on-ramps improve the traffic flow on the freeways during peak periods.

While continuous green traffic lights are not possible, significant delay reduction results from coordinating and updating signal timings. Closed-circuit television cameras support each of the other ITS components by facilitating real-time responses to changing conditions. In addition to the delay and safety benefits, annual savings in fuel consumption, vehicle stops, and pollutant emissions total about $35 million. The overall benefit to cost ratio is over 17:1, which translates to a very cost-effective investment.

TABLE 7-7

ITS COST SAVING BENEFITS IN SALT LAKE COUNTY

ITS COMPONENT	ANNUAL DELAY BENEFIT	ANNUAL SAFETY BENEFIT	ANNUAL ENVIRONMENTAL BENEFIT
Incident Management Team	$7,400,000	$700,000	$0
Dynamic Message Signs	$2,900,000	$0	$0
Ramp Metering	$5,800,000	$3,300,000	$0
Signal Coordination	$100,000,000	$23,300,000	$0
Sub Total	$116,100,000	$27,300,000	$35,000,000
Total		**$178,400,000**	

Source: UDOT; values are approximate

The benefits cited above are from the ITS system in Salt Lake County. Proportional benefits are accruing in Davis, Utah, and Weber Counties where ITS has more recently been deployed and the system is not as mature. In all of these counties, local government, UTA, and UDOT have worked cooperatively so that intelligent transportation is a seamless, integrated statewide system. The systems described above benefit not only private vehicles but also bus riders. There are also intelligent transportation systems that even more directly benefit transit system users. Automated

Vehicle Location (AVL), smart card systems, and other communications improvements are among ITS applications designed specifically for the transit system. Studies have demonstrated 10 to 90 percent improvements in on-time schedule performance resulting from implementing AVL. Significant decreases in fare evasion and revenue increases results from the use of smart card systems. These and other transit ITS improvements lead to increases in ridership by making transit more efficient and convenient.

Another benefit not quantified above is the ability of ITS to provide travel information via means other than dynamic message signs. For example, even before leaving for a trip, a traveler can learn about congestion levels, transit travel times, road conditions, or construction activity through the UDOT Traffic website, via cell phone alerts, or by calling 511. Individual travel times can thus be reduced by obtaining travel information through these various technologies.

Turning attention to technologies becoming available for broader implementation in the near future, the federal government is beginning to make commitments to support "Vehicle Infrastructure Integration" (VII). This public-private initiative would provide roadside and in-vehicle technology to enable drivers to receive route guidance needed to avoid congestion. In addition, their vehicles would be equipped with crash avoidance systems. Some of these technologies are currently available on a limited basis. Within a decade or so, widespread use of these technologies could render some existing ITS technologies, such as dynamic message signs, obsolete.

Given that intelligent transportation systems are very cost-effective and essential to reducing both recurring and non-recurring congestion, thus making both transit and highway systems more reliable, it is recommended that more funding be provided to achieve the following objectives:

- Upgrade equipment and increase numbers of trained personnel to sustain and improve maintenance and operation of ITS along the Wasatch Front;

- Include the potential for Vehicle Infrastructure Integration in ITS project plans and designs;

- Continue steady, sustainable expansion of ITS, such as;
  - Connecting more signals and CCTVs to the Central System
  - Equipping more buses and trains with AVL
  - Improving accessibility of real-time and historical travel information, and
  - Increasing freeway management abilities in proportion to traffic growth.

Pavement Management

The existing street and highway system is a critical asset to the communities of the Wasatch Front Region and must be maintained in a serviceable condition. Failure to do so results in significant additional private vehicle maintenance costs to the traveling public and can compromise safety. A pavement management system is defined as a set of tools or methods that assist decision makers in finding cost effective strategies for maintaining the state roadway system in serviceable condition. The detailed structure of a pavement management system is separated into two levels: (1) system or network; (2) and project levels.

Network level management (administrative) decisions affect the programs for the entire roadway system. The management system considers the needs of the network as a whole and provides information for a Region-wide program of new construction, maintenance, and rehabilitation. The goal of the network level is to optimize the use of funds over the entire system. The managers at this level compare the benefits and costs for several alternative programs and then identify the program/budget that will have the greatest benefit/cost ratio over the analysis period. Project level pavement management makes technical decisions for specific projects. At this level, detailed consideration is given to alternative design, construction, maintenance and rehabilitation activities for specific projects. This is accomplished by comparing benefit / cost ratios of several design

alternatives, and selecting the alternative that provides the desired benefits for the least total cost over the projected life of the project. Since system level analysis provides targets for maintenance, rehabilitation, reconstruction treatments, and costs, it is necessary for the project level management system to provide additional information before designs are finalized.

Pavement maintenance is a planned program of treating pavement to maximize its overall useful life. A renewed emphasis on pavement preservation calls for privates industries and federal, state and local agencies to work together to provide highway users with an increased level of quality and cost-effectiveness. Pavement preservation takes the maintenance process one step further by carefully prioritizing and coordination maintenance activities to extend the life of a pavement. It includes preventive maintenance, corrective maintenance, and both minor and major rehabilitation. **Figure 7-5** shows the relationship between the costs and benefits of a pavement preservation program. **Figure 7-6** demonstrates the strategies of a pavement preservation program and the relationship between the serviceability over time of a section of pavement utilizing a preservation program.

All pavements require some form of maintenance due to the effects of traffic and the environment on the exposed materials. Applying a surface treatment to a pavement under light to moderate distress can greatly increase the life of that pavement. Active pavement preservation program benefits will include the following benefits:

- the extension of the life of the pavement;
- lower costs over time - Studies have shown that for every additional dollar spent on preventive maintenance treatments, up to $4, $6, or even $10 may be saved, if more drastic rehabilitation is required at a later date due to delays;
- more predictable costs - If regular treatments are scheduled and pavements maintained, planners will be better able to predict and budget future expenditures;
- better utilization of resources - Planning and regularly scheduling treatments allows better use of resources, including the efficient scheduling of contractors and equipment;
- fewer premature pavement failures - Many premature pavement failures are caused by pavement damage that goes untreated, such as water seeping into open cracks;
- better pavement conditions – Regularly scheduled monitoring and pavement treatments keep pavements in better overall condition than random or insufficient maintenance; and
- reduced user delays and user costs - The more extensive damage a pavement has been subjected to, the longer drivers will be delayed due to repair or reconstruction. Pavements that are in good condition reduce daily “wear and tear” on vehicles.

The Wasatch Front Regional Council, in cooperation with the Utah Department of Transportation and its member local governments, have estimated funding amounts to maintain the existing pavement system. The WFRC will continue to work with UDOT and local agencies to identify a process to obtain the most accurate information (pavement, safety/ crash, access, etc.) available to make the best use of the limited amount of available funding. The pavement data will be used by the WFRC to identify and evaluate projects for urban Surface Transportation Program (STP) funding. The next step will be to determine what data is available and the type of future data that collection is necessary as to ensure a useful process.

FIGURE 7-5

PAVEMENT PRESERVATION PROGRAM COST BENEFIT

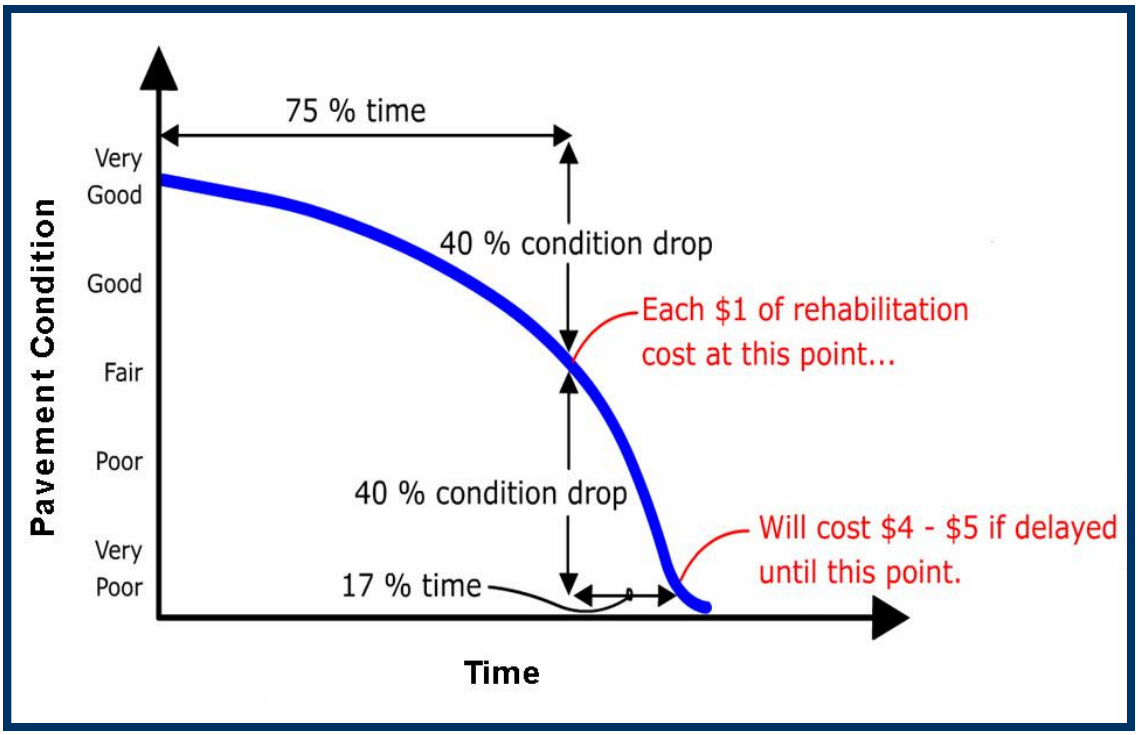
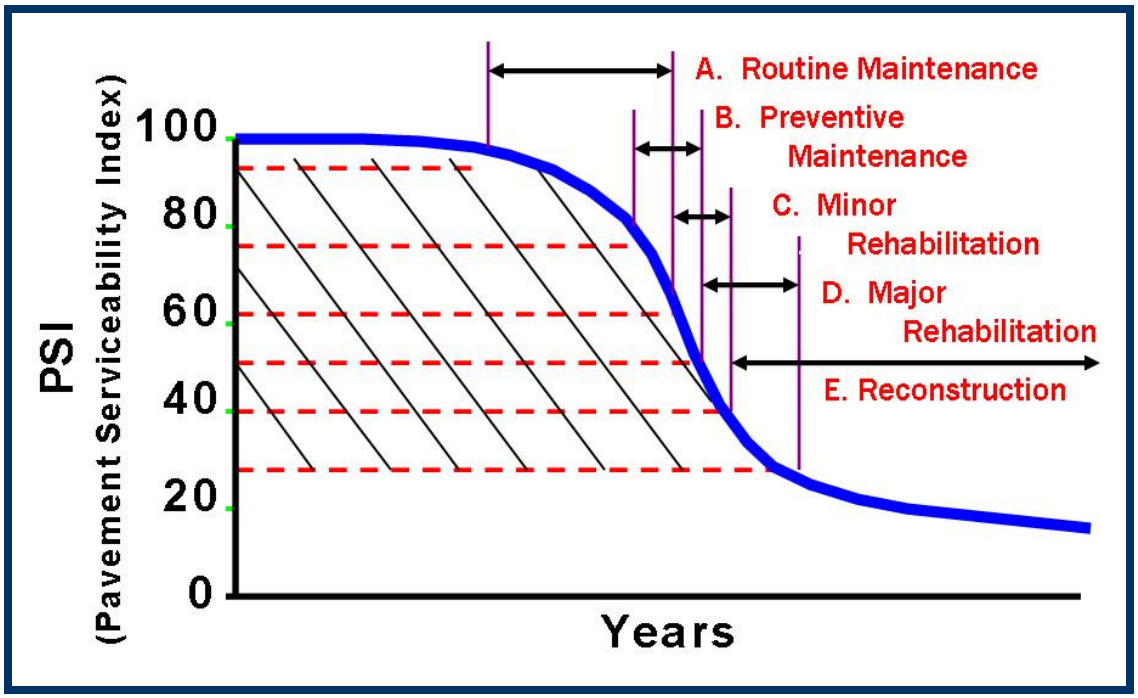


FIGURE 7-6

PAVEMENT SERVICEABILITY INDEX



Access Management

Roads serve two primary purposes. The first is to provide mobility. The second is to provide access. Mobility is defined as the efficient movement of people and goods. Access is moving people and goods to specific properties. Access management is a comprehensive approach to the regulation of driveways, medians, median openings, traffic signals, and freeway interchanges. The goal of access management is to limit and separate traffic conflict points. By reducing conflict, managers can increase the levels of safety and traffic operations.

With fewer new arterial roadways being constructed, the need for effective systems management strategies is greater than ever before. Improving access management is particularly attractive to planners as it offers a variety of benefits to a broad range of stakeholders. By managing roadway access, government agencies can increase public safety, extend the life of major roadways, reduce traffic congestion, support alternative transportation modes, and even improve the appearance and quality of the urban environment. Without adequate access management, the function and character of major roadway corridors can deteriorate rapidly. Failure to manage access is associated with the following adverse social, economic, and environmental impacts.

- An increase in vehicular crashes
- More collisions involving pedestrians and cyclists
- Accelerated reduction in roadway efficiency
- Unsightly commercial strip development
- Degradation of scenic landscapes
- More “cut-through” traffic in residential areas, due to overburdened arterials
- Homes and businesses adversely impacted by a continuous cycle of widening roads
- Increased commute times, fuel consumption, and vehicular emissions as numerous driveways and traffic signals intensify congestion and delays along major roads

Not only are these adverse impacts costly for government agencies and the public, but they also negatively impact businesses located in corridors with poor access management. Closely spaced and poorly designed driveways make it more difficult for customers to safely enter and exit businesses. Access to corner businesses may be blocked by queuing traffic. Customers begin to patronize businesses with safer, more convenient access and avoid businesses in areas with poor access design. Gradually the older developed areas begin to deteriorate, in part due to access and aesthetic problems, and investment moves to newer and better managed corridors.

After access problems have been created, they are difficult to solve. Reconstructing an arterial roadway is costly and disruptive to the public and abutting homes and businesses. Shallow property depth, multiple owners, and rights-of-way limitations common to older corridors generally preclude effective redesign of access and site circulation. In some cases, new arterial or bypass roads must be constructed to replace functionally obsolescent roadways and the process begins again in a new location. Better access management can help stop this cycle of functional obsolescence, thereby protecting both public and private investment in major roadway corridors.

REGIONAL FREIGHT MOVEMENT

The efficient movement of freight is a critical component of a healthy economy and a key indicator of a well-planned transportation system. As a crossroads area for several modes of transportation, the Wasatch Front Region plays a major role in the movement of freight across the United States. Each year, approximately 96.4 million tons of freight valued at $42.3 billion is shipped from Utah via all modes of freight transportation. Conversely, a total of 87.7 million tons of freight arrives in Utah annually with a value of $54.4 billion. This makes for a yearly total of 184.1 billion tons of freight shipped to and from Utah valued at $96.7 billion. Trucks account for almost 70 percent of the

Region's freight tonnage, with railroads hauling approximately 25 percent. Pipelines move about 4 percent of the remainder. Air cargo, including parcel and courier service, accounts for less than one percent of the total freight volume moved to and from Utah. **Map 7-15** shows the location of major freight terminals and railroad lines in the Wasatch Front Region.

Trucking

The trucking industry is the dominant mover of regional freight. This dominance is the result of the State's highway system, the CANAMEX Corridor, and the many freight distribution centers found at the crossroads of three Interstate highways in the northern Wasatch Front Region. Truck transportation works in conjunction with railroads, pipelines and air freight to provide efficient multi-modal transportation to Utah shippers. The Wasatch Front region is impacted by the following conditions.

- 100 percent of air cargo shipments to and from the Salt Lake City International Airport enter and leave the airport by truck. Trucking gives high-speed air cargo and next-day parcel shipments the flexibility to reach markets across the state.
- Each day 160,000 barrels of crude oil and 42,000 barrels of finished product (gasoline, diesel, etc.) arrive via pipelines at the Wasatch Front Region's five oil refineries. Of this daily total of 202,000 barrels, 95,000 leave the refineries in the North Salt Lake and Woods Cross area by truck each day. This amounts to about 500 truckloads of petroleum products being transported daily on Utah's highways.
- 100 percent of the 400 to 600 intermodal containers and "piggyback" trailers which arrive and depart daily at the Union Pacific Intermodal Terminal, in Salt Lake City by train, are transported by truck to and from their points of origin and destination in Utah. Union Pacific provides the "long haul" service while trucks provide the door-to-door pick-up and delivery.
- Nearly 80 percent of all Utah communities depend exclusively on truck transportation to supply their goods.
- In 2001, 44 million tons, or 72.3 percent of all manufactured freight was transported to and from Utah by truck.
- In 2000, trucking and truck-related warehousing employed 61,844 people in Utah: this employment accounts for one out of every 17 jobs in the state.
- In 2000, the trucking industry activity contributed 4.5 percent to the State Gross Product.
- Truck usage accounted for 2.6 billion miles on Utah's public roads in 2000. This figure amounts to about 12 percent of all roadway use in the State.

Recommendations

Trucking industry representatives are quick to point out that roads designed primarily for automobile traffic will rarely be adequate for moving freight by truck. However, highways designed to move freight safely and efficiently will successfully meet the needs of motorists. Representatives of the trucking industry have identified the following specific design, recommendations to facilitate the movement of freight through the Wasatch Front Region.

- Install advanced warning for signal changes on US Highway 89 between I-15 and I-84.
- Upgrade interchanges on I-15 in North Salt Lake, Bountiful and Woods Cross to better accommodate truck traffic.
- Install a traffic signal at Redwood Road and North Pointe Drive to better accommodate truck traffic.
- Widen 5600 West to five lanes between SR-201 and I-80.
- Reconfigure the right turn radii at California Avenue and I-215.
- Lengthen merge / acceleration lanes on I-84 eastbound to I-80 westbound.
- Construct additional truck parking and staging areas in Salt Lake City's Westside industrial parks.

Railroads

Since the completion of America's first transcontinental railroad at Promontory, Utah, on May 10, 1869, railroads have played a major role in the transportation of freight in Utah and along the Wasatch Front. By 1909, when the last major segment of the nation's east/west rail infrastructure was completed, the Western Pacific and Rio Grande Railroad line between Salt Lake City and San Francisco, Utah was firmly established as the logistical "Crossroads of the West." Although still an important rail center in the 21st Century, the Wasatch Front's overall position as the west's premier rail crossroads has been greatly diminished by changes in the rail industry including the mergers of Western America's once-numerous railroad companies into two large systems. The continuing impact of this transition in Utah's rail industry on the state's economy and transportation systems is considerable.

An almost complete lack of rail competition is the most serious problem facing Utah rail service and those who depend on it. The railroad industry's inability to meet its own capital needs is a nation-wide challenge affecting rail service. As a result of these, and other rail-service-related issues, a number of key Utah industries have been diverting an increasing amount of their freight traffic away from rail and onto trucks. This rail-induced increase in truck traffic is beginning to impact a number of key highway segments across the state. The advantages of railroad transportation are fuel efficiency, labor costs, privately owned and maintained infrastructure, a good safety record, and relatively low cost, especially for bulk commodities. The Wasatch Front Region has been and will continue to be impacted by the following railroad related factors. **Map 7-15** shows the major railroad lines within the Wasatch Front Region.

- Daily truck traffic to and from the Salt Lake City International Airport averages 140 trips each weekday.
- The average freight train carries 6,000 tons. Assuming an average carrying capacity of 35 tons for trucks, it would take 171 trucks to equal one standard freight train.

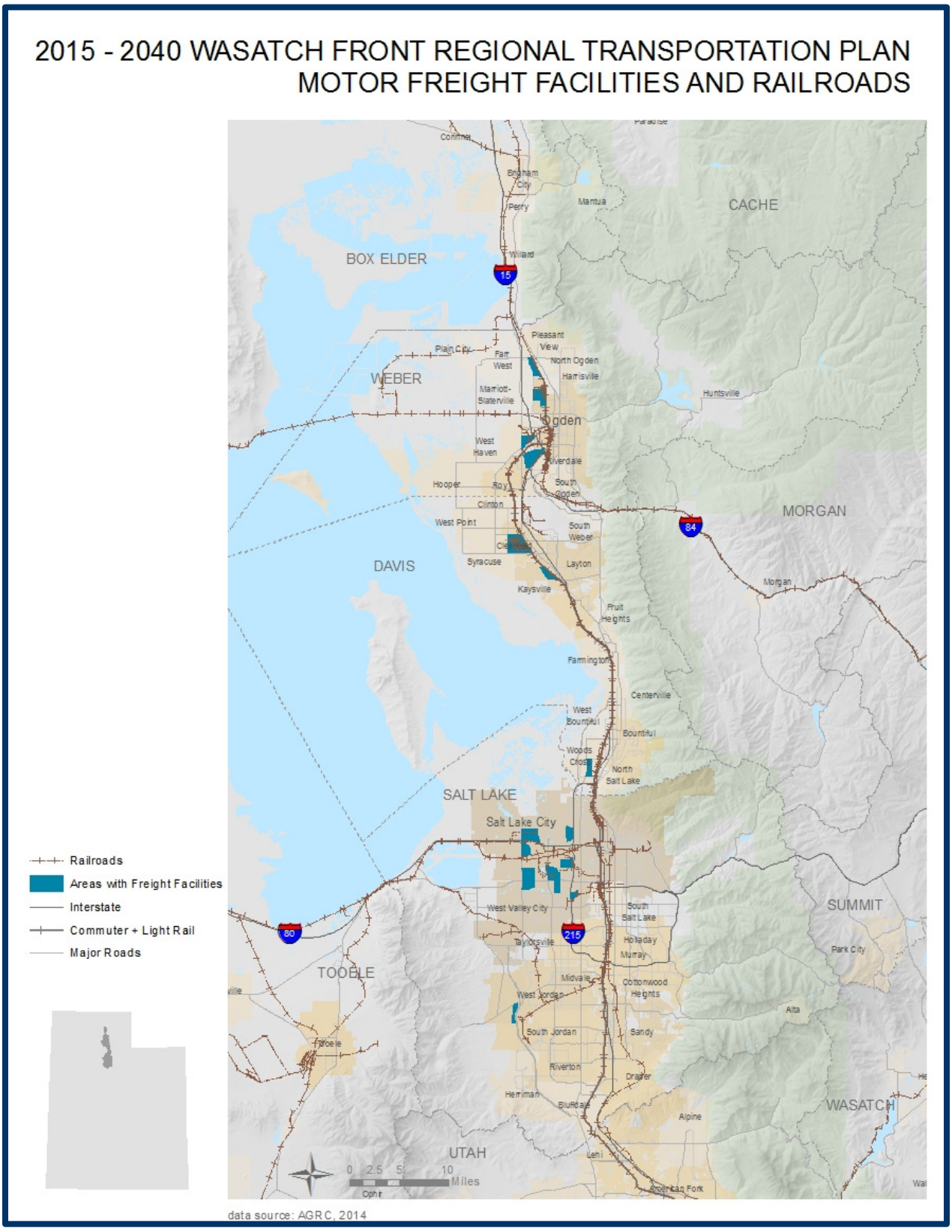
- Unit trains (i.e. one commodity trains that are not broken up to be switched en-route), which are common in Utah, can carry up to 12,000 tons of coal, not counting the weight of the cars and locomotives. The largest coal truck on Utah highways has a total carrying capacity of 43 tons; therefore it would take 279 of those oversize coal haulers to equal one unit train.

Pipelines

Pipelines work in conjunction with trucking and railroad tank car service and have a major positive impact on Utah's economy. Pipelines primarily carry liquid commodities such as crude oil and refined petroleum products. These products include gasoline, diesel and jet fuel. Solid materials, such as phosphate, can be mixed with water and also transported via slurry pipelines. Like the railroads, the pipeline industry owns, operates and maintains its own infrastructure, with no state or federal involvement in the construction and maintenance thereof. However, they are subject to regulations regarding safety, environmental protection, etc. Important issues relative to the pipeline industry in the Wasatch Front region are as follows.

- Crude oil pipelines converge on the Wasatch Front and supply five local oil petroleum refineries from oil fields as far distant as Alberta, Canada. Major sources of production are fields in Colorado, Wyoming, Montana and eastern Utah.
- Finished petroleum products also link Wasatch Front energy facilities with refineries as far away as Wyoming and Montana.
- Refined fuel products leave the Wasatch Front refineries via a pipeline extending northwest through Idaho and Oregon, terminating in Spokane, Washington. A second pipeline is nearing completion between Salt Lake City and Las Vegas.
- Pipelines, working with railroad tank car service, eliminate the need for nearly 2,100 trucks that would otherwise be traveling daily on some of Utah's busiest highways. The pipelines support the state's industrial economy and tax base.

MAP 7-15


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
MOTOR FREIGHT FACILITIES AND RAILROADS
BOX ELDER
CACHE
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
TOOELE
WASATCH
UTAH
Ogden
Salt Lake City
Railroads
Areas with Freight Facilities
Interstate
Commuter + Light Rail
Major Roads
0 2.5 5 10
Miles
data source: AGRC, 2014

Air Freight

Air cargo is the smallest component of the freight transportation system serving the Wasatch Front Region. The Salt Lake City International Airport (SLCIA) is a major hub for Delta Airlines. Service is also provided by nine other scheduled airlines as well as three air freight/cargo carriers. In calendar year 2001, a combined total of 238,798 tons of mail and cargo enplaned and deplaned at the SLCIA.

There are two terminals designated for air cargo. One is the main cargo and mail terminal which is nearly co-located with the US Post Office at the southern end of the SLC International Airport and accessed via I-80. The second is the north terminal which is accessed via I-215. The primary users of these facilities are United Parcel Service at the north terminal and Federal Express and the United States Postal Service operations at the south terminal. Air freight/parcel traffic to and from the SLCIA is concentrated during the Monday to Friday work week, with far less traffic on weekends and holidays.

Air freight's primary advantage is speed. Therein lies the reason why Salt Lake City, with its abundant room for terminal expansion, is not a far larger air freight center. Most of the major air freight/air parcels distribution facilities are in the Central or Eastern Time Zones because most parcel movements are between the major cities in the eastern third of the nation. FedEx shipments must travel to and from their distribution center in Memphis, Tennessee each night, while UPS operates out of a hub in Louisville, Kentucky. Salt Lake City is in the wrong time zone to be attractive to air freight/air parcel shippers desirous of centralizing their operations close to major markets.

- UPS averages 30 trucks per day to and from their SLC Airport facility via Exit 25 on I-215
- Federal Express and the United States Postal Service, together, average 110 trucks to and from the SLC International Airport via Exit 115 on Interstate I-80.

Intermodal Freight Connectivity

The transferring of different types of commodities from one transportation mode to another is an important activity of the Wasatch Front Region's freight movement system. Known as "break-of-bulk" points, these locations are where goods are transferred from one type of carrier to another, such as trailers loaded off flat cars to be pulled by trucks to their final destinations. The efficient intermodal connectivity of freight within the Wasatch Front Region will continue to increase in importance throughout the period of time considered in the 2015 – 2040 RTP. Suggested improvements to freight connectivity facilities are expressed in the following recommendations.

Recommendations

- Increase highway capacity on 5600 West serving the Union Pacific Intermodal Facility located between SR-201 and I-80.
- Improve highway access to all Wasatch Front oil refineries and the Pioneer Pipeline terminal for both standard and long combination (LCV) oil tank trucks.
- Improve access off 900 West in South Salt Lake City to the Union Pacific automobile transload facility at Roper Yard.

METROPOLITAN AIRPORTS SYSTEM

The Salt Lake City Metropolitan Airports System covers approximately 14,200 square miles, encompassing eight counties, approximately 18 percent of the land area, and 82 percent of the State's population. The system is composed of 13 airports that are home to 83 percent of the active pilots and 74 percent of the State's General Aviation airplanes. This section of the RTP provides recommendations for both the Wasatch Front Regional Aviation System (WFRAS) as a whole, and for individual airports within the WFRAS. Within the context of the 2015 - 2040 RTP process, this section documents aviation related policy and regulatory recommendations for compatible development.

Compatible Development

The primary responsibility for integrating airport considerations into the local land use planning process rests with local land use planning agencies and local governments. Coordination across multiple jurisdictions to achieve airport land use compatibility is vital for successful protection and promotion of compatible development surrounding the regions airports.

As airports grow, aircraft operations increase in frequency, and the types of operations diversify. Airports grow and develop in response to increases in demand for aviation facilities and services. Airports expand to the limits of their historic boundaries, so there is less distance between aviation uses and adjacent development. At the same time, the metropolitan area has continued to grow and demand for land has resulted in previously rural uses being converted into urban level of development, so that an airport previously located near farm fields may suddenly be adjacent to a housing development or other incompatible use.

Planning and development authority for airports in the region is distributed between a large variety of participants, ranging from rural county governments to the Department of Defense. Most airports are publicly owned and operated by a local city or county who have the authority over local land use and control of the types of development possible. Notable exceptions include Bountiful Skypark and Hill Air Force Base. Both Tooele and South Valley Regional are extra-territorial parcels owned by the Salt Lake City Department of Airports. As a result, establishing compatible land uses can be a complicated inter-jurisdictional process. It is recommended that airport sponsors and entities with land use control around airports engage in cooperative aviation planning as part of the general regional planning process.

In the "Compatible Land Use Planning Guide for Utah Airports", a planning template was developed to aid identification of sensitive lands near the airport. The 'General Planning Diagram' from that report has been reproduced here as **Figure 7-7**.

The 'Approach Surface', depicted in light green, is the FAA Part 77 approach surface, an imaginary ramp that designates the slope aircraft follow when approaching or departing the runway. The 'No Development' area, depicted in red, extends to the end of the runway protection zone (RPZ) and is the width of the Approach Surface at its intersection with the horizontal surface. The 'Limited Development' area, depicted in blue, extends either 3,200 feet, 5,300 feet, or 7,700 feet depending on approach type, beyond the end of the runway. The width is the length of the airports longest runway. The 'Controlled Development' area, depicted in dark green, is the area inside the FAR Part 77 Horizontal Surface for each airport. It extends 5000 feet from small airports or 10,000 feet from large airports.

Further detail regarding the geometry for each zone can be found in the "Compatible Land Use Planning Guide for Utah Airports" prepared by the Wasatch Front Regional Council. Maps for each airport in the region, based on these zones, are presented in **Appendix O**, entitled “Airport And Land Use Compatibility Zones”.

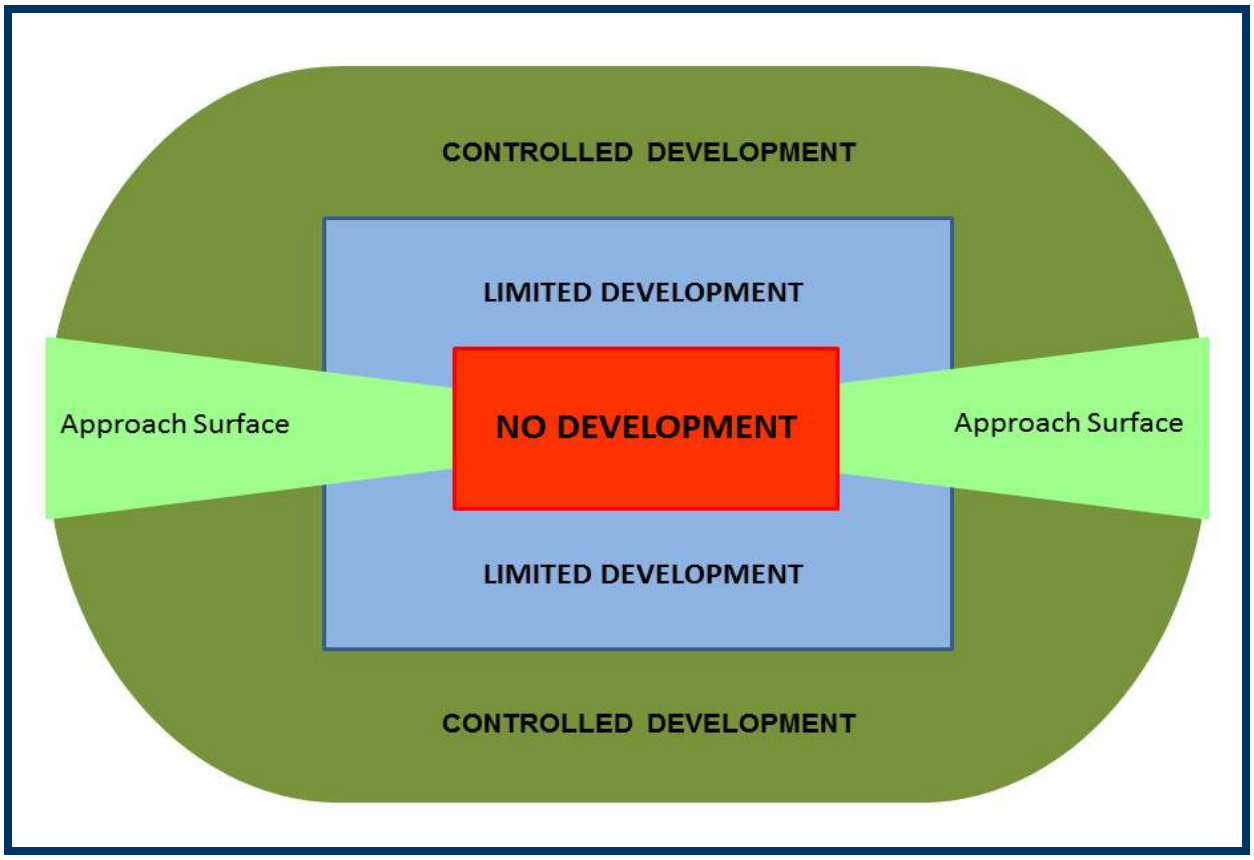
Compatible Land Use

Ideally, airports should have fee simple ownership of all areas in the 'No Development' zone, However at many airports in the region this is not possible or practical. In these cases airports rely on local zoning ordinances to provide protection from incompatible development.

While zoning is the least effective way to ensure airport compatible land use, it is also the least expensive. When zoning for airport compatible land use, best practices include the use of a specific 'Airport Overlay' zone as well as changing the underlying zoning to an airport compatible use. When developing airport compatible zoning, the potential for airport expansion should also be considered. The most severe land use conflicts emerge between airports and incompatible uses when airport facilities are expanded.

FIGURE 7-7

AIRPORT GENERAL PLANNING DIAGRAM



It is strongly recommended that airport compatible zoning be established within the 'Limited Development' area, with a focus on providing airport compatible land uses; either uses affiliated with the airport, or uses not sensitive to airport noise. Residential uses should be avoided within this zone, with a strong preference to limiting the number and size of structures developed in the area along the extended runway center-line.

The area represented by the 'Controlled Development' overlay exceeds that which can reasonably be regulated to aviation compatible, and is provided largely as an indication of the relative extent of an airports traffic pattern airspace. In addition, FAA regulations strictly limits the development of structures over 150' tall in this area, such as cell phone towers or wind-mills.

Individual Airport Recommendations Summary

To ease coordination with other transportation planning activities, the existing conditions, planned improvements, and projected outlook has been summarized for each airport in the WFRAS below. Each individual airports entry begins with a short description of the airport including the location, owner, and basic facility description. Current aviation activities are described, including estimates of based aircraft, aircraft operations and planned and recommended improvement. Each airport has then been assessed in terms of surface transportation access, future ability to grow/expand, land use compatibility and general outlook. Changes in aviation uses have also been predicted.

Salt Lake City International Airport

An international commercial service airport, Salt Lake City International Airport (SLCIA) is located approximately five miles west of downtown Salt Lake City near the intersection of I-215 and I-80. SLCIA is owned by Salt Lake City and is operated by the Salt Lake City Department of Airports. It has two - four runways; two used primarily for air carrier operations, one used primarily for GA operations, and an infrequently used crosswind runway. The SLCIA serves the commercial air services needs of the majority of Utah and portions of the surrounding states of Nevada, Idaho, Wyoming, and Colorado. SLCIA also serves as an air cargo hub and accommodates a significant number of General Aviation business aircraft operations. It also has substantial business GA activity.

According the FAA 5010 data, as of 2010 SLCIA has about 366 based aircraft, of which 250 are single engine aircraft, 55 multi-engine aircraft, 46 jets, and 15 helicopters. In 2009 there were 383,838 operations, about half of which were air carrier operations. There were only 8,468 local GA operations, compared to 58,352 itinerant GA operations.

Airport surface access is easy and efficient for a large hub airport. SLCIA is served by I-80 for commercial flights and by I-215 for general aviation activities. Transit service to the airport terminal includes light rail which connects the Salt Lake City Intermodal Center along North Temple and I-80. UTA also provides bus service to SLCIA with two commuter buses to Tooele and Grantsville (453 & 454), an hourly bus to Salt Lake City Inter-modal Center (Route 550) and an hourly bus to the West Valley City Intermodal Center (Route 236).

At present, cargo facilities at the SLCIA exist on both the north and south ends of the airport. Access for air cargo facilities on the south is via the same access points as air passengers. Access to the air cargo facilities on the north is via I-215 and 2200 North. All future expansion of cargo facilities at the SLCIA is planned for the north end of the airport, and roadway access to this area of the airport is excellent. The majority of air cargo passing through the airport does not have a local origin or destination, rather it is transferred from aircraft to aircraft. As a result increases in air cargo volume have a limited impact on the surface transportation system.

SLCIA's ability to grow and expand to meet future demand remains good. Future growth will be fueled by continued growth of the regions local population, tourism and its role as a regional and international hub for Delta airlines.

Ogden Hinckley Airport

The Ogden Hinckley Airport is a Regional GA airport located approximately two miles southwest of the Ogden City center and adjacent to I-15. The airport is owned and operated by the City of Ogden. It is a regional airport that provides direct access to nearby manufacturing and recreational sites, and is a popular refueling stop for cross country flight. The airport's service area includes Ogden and surrounding Weber and Davis Counties. It also serves as a reliever for Salt Lake City International Airport. The Ogden Hinckley Airport has three runways and an air traffic control tower which make it an ideal location for recreational, training and business flying. Finally, it supports Williams International, a firm that designs and manufactures small turbine engines for a variety of purposes, including aircraft.

According the FAA 5010 data, as of 2010 Ogden Hinckley has 289 based aircraft, of which 231 are single engine aircraft. There are an estimated 33 multi-engine, and 9 jet aircraft based at Ogden, as well as 13 helicopters and 3 gliders. Kemp Aviation recently completed a private airport along the south side of the airport, which has significantly expanded basing capacity. In 2009, there were an estimated 88,300 aircraft operations. The majority of these operations were conducted by GA aircraft.

Surface access to the airport is excellent. I-15 runs adjacent to the airport, and direct access is provided via Hinckley Drive. The Airport can also be accessed easily from a number of arterial

streets in the area, including 1900 West in Roy and Riverdale Road. Planned surface transportation improvements in the area include I-15 widening, and extending Hinckley Driver between 1900 West and Midland drive.

Ogden has excellent capability to continue to grow and expand. There is sufficient available property for the development of additional apron and hangers. The area beyond the runway for the Ogden Hinckley Airport are located over roadways and interchanges, as well as some light industrial. The Monte Vista development is near the south end of Runway 3-21, and may begin to suffer noise issues if jet traffic increases.

Hill Air Force Base
A military airport, Hill Air Force Base (HAFB) is a major United State Department of Defense facility located in Davis County, approximately 20 miles north of Salt Lake City. Hill AFB is operated by the United States Air Force as a major Air Logistics Center, which is dedicated to the maintenance, repair, and testing of aircraft, including both fighter jets and transportation aircraft. It makes heavy use of the Utah Test and Training Range for these purposes. Hill AFB is the center of Utah's $1.4 Billion defense industry, and among its top five employers, with an estimated 10,000 to 15,000 employees.

Because of HAFB's role as a maintenance and repair depot, both basing and operations fluctuate in response to the need for repair and testing. There are approximately 85 F-15's assigned to its current tenant units, some of which are currently deployed. There were an estimated 40,000 operations in 2009.

HAFB has been experiencing increasingly severe congestion over the past few years. As a secure facility, there are only a limited number of access points to the base, concentrating traffic onto roads leading to these points. As a result, there are significant roadway improvements planned near HAFB. These include operational improvements along SR-193 to the south, a new North-South road to the east of the base connecting 3000 N with I-84, and substantial widening along I-15 to the west. The I-15 widening includes an interchange connecting the base to I-15 at 1800 North in Sunset City. An enhanced bus service connecting the Clearfield Front Runner Station and the Layton Front Runner station to the south gate has also been planned.

A private developer has broken ground on the Falcon Hill aerospace research park, a new commercial facility along the western side of the base constructed on 550 acres, leased from the Department of Defense. When completed, it will include new facilities for over 6,000 of HAFB's employees, and include over 2 million square feet of new office and commercial space.

HAFB is forecast to continue to be the Air Forces' repair facility for the foreseeable future. It enjoys strong local support and access to an almost unparalleled amount of military airspace. In 2010, the United States Air Force has selected HAFB as one of the preferred sites for 3 squadrons of the new F-35 Lightning. The base has sufficient property to be able to continue to grow and expand, and a continued mission to provide training and testing facilities for combat aircraft.

Military jet aircraft are significantly louder than civilian jet aircraft. Beyond the north end of the runway, there is still significant base property, for the extended flight path which continues over the Weber River and I-84. In contrast, the blast zone at the south end of the runway is near the edge of base property. However, the Layton City General Plan map show it as an easement area, and the zoning map as agricultural uses.

Bountiful Skypark Airport
Bountiful Skypark Airport is a privately owned, public-use Regional GA airport, located on Redwood Road in Woods Cross City. The airport is six miles north-northeast of SLCIA with a single runway that serves the general aviation needs of northern Salt Lake County and Davis County. Skypark

Airport provides an economical and convenient niche for a large number of single engine GA aircraft, relieving congestion at other WFRAS airports. It has become a major center for business GA Training, business basing, helicopter operations and aircraft maintenance is also present.

According the FAA 5010 data, as of 2010 Bountiful Skypark had over 200 based aircraft, including 12 multi-engine aircraft and 10 helicopters. In 2009, there were an average of 135 operations a day, (about 50,000 annual operations). Barring 500 military operations, all were performed by GA aircraft. Approximately 60% of operations are by transient GA aircraft. If local business development continues in this area of Davis County, basing demand at Bountiful Skypark Airport could exceed airport capacity within the next 10 years.

Primary access is via Redwood Road, which connects to I-215 south of the Skypark Airport, and can be easily accessed by the recently constructed Legacy Parkway. It can also be accessed from I-15 via the 2600 South exit in Woods Cross. Access to the east side of the airport is supplied by 1560 West, by way of 1100 N.

Planned surface transportation improvements near the airport include widening Redwood Road from 1100 North in North Salt Lake to 500 South in West Bountiful and grade separating the railroad crossings at 500 South and 2600 South. UCASP recommendations for Bountiful Skypark include the installation of Medium Intensity Runway Lighting (MIRL), and the construction of 50 additional Tie-downs.

Bountiful Skypark has limited potential to expand as it is restricted on all sides by urban development. The proximity of hangers and other development to the runway limit the airport ability to expand to accommodate larger aircraft and wetlands issues constrain its ability to build additional hangers on the west side of the runway. However, the airports proximity to a large metropolitan population suggests that demand for its facilities will continue to grow. Because of the constraints, no changes in aviation uses are predicted.

South Valley Regional Airport

South Valley Airport is a Regional GA airport located in West Jordan, approximately nine miles south of SLCIA, and is an FAA designated Reliever airport. It is a publicly owned, public use airport managed by the Salt Lake City Department of airports. It has a single North-South runway.

Existing aviation uses include business-related flying, law enforcement/fire/rescue flying services, recreational flying, flight training, and air charters. The Utah Army National Guard Aviation support facility is based at the airfield, and has expanded and become more active in recent years. According the FAA 5010 data, as of 2010 there were 240 based aircraft. In 2007, this included 20 multi-engine planes, 5 jet aircraft, 5 helicopters, and 24 military aircraft. According to the Salt Lake City Department of Airports, there are currently four corporate hangars, 18 'twin' hangars, 95 'single' hangars, and 42 shade hangars.

Surface access to the airport is improving. 7800 South, which was congested during peak times has recently been widened and a new interchange at 7800 South and Bangerter Highway has been completed. 6200 South remains highly congested, and due to significant resident opposition, seems likely to continue to be for the near future. However, the intersections of Banger and 6200 South has been converted to a Continuous Flow Intersections (CFI), which has substantially improve traffic flow along and across Bangerter Highway.

Recommended development identified in the UCASP include additional hangers, a runway extension, substantial taxiway development, and perimeter fencing. The 2007 Airport Layout Plan calls for a future Runway protection zone easement, a future MALSR (Medium-intensity Approach Lighting System with Runway alignment indicator lights), and future hangers on the west side of the airport, north of the existing corporate hangers. Future surface transportation improvements are

limited. Future development plans also include general maintenance and rehabilitation of existing pavements and expansion of aircraft basing facilities to accept more general aviation airplanes from SLCIA. The WFRC 2015 - 2040 RTP includes additional widening for 7000 South as it connects into Jordan Landing Boulevard, a new interchange at 7000 and Bangerter and enhanced bus service along 6200 South.

South Valley Regional is suffering from urban encroachment. It is surrounded by residential subdivisions on all sides. The massive Jordan Landing commercial development located east of the airport buffers the southernmost extent of the airport, but there are large parcels of developable land on all sides of the airport. Similar parcels have been developed at higher than normal density.

As demand for Air Carrier runway capacity at SLCIA increases, so does the need to separate GA aviation from commercial air carriers. The Salt Lake City Department of Airports has been meeting this need by increasing GA capacity at South Valley Regional. Because of it's proximity to users, there is strong demand for aviation services at South Valley Regional.

The air carrier approach to SLCIA overlays South Valley Regional, making business jets ability to use its GPS approach uncertain. On this basis, South Valley Regional is unlikely to expand as a business jet center, and can be expected to continue as a non-jet GA airport.

Wendover Airport
Wendover Airport is a National GA airport located along I-80, approximately 1 mile south east of the city of Wendover. It is a former WWII era military base which maintains two functional runways. Wendover serves as a stopover point for cross-country aircraft and the West Wendover Casinos also charter Express flights.

According the FAA 5010 data, as of 2010 there were 7 based aircraft, including 5 jet aircraft. There were an estimated 5,482 aircraft operations, of which itinerant GA composed about 65%, Local GA another 20%, and Air Taxi about 13%.

The City of Wendover is located just off I-80, and the Wendover airport can be reached almost directly by following Airport Way. The condition of the surface access road to the airport (Airport Way) is an issue of concern, and likely to require reconstruction. According the UCASP, in order to fulfill its role in the Utah Airport System, Wendover needs a runway extension, a full parallel taxiway, a MALSR, and GVGIs. Planned development is listed in the UCASP as a precision approach, a new terminal, full perimeter fencing, and extensive taxiway construction.

Wendover Airport is anticipated to continue to be able to meet increasing demand for aviation facilities as West Wendover continues to grow as a vacation and resort destination. The airport has sufficient property to grow and develop and there are currently no land use conflicts off the end of either runway.

Morgan County Airport
Morgan County Airport is a Regional GA airport located approximately 8 miles north-west of Morgan City. It is a publicly owned and operated airport, with a single runway. Morgan County serves as a regional center for gliders and ultralight aircraft.

According the FAA 5010 data, as of 2010, the Morgan airport had 76 based aircraft, including 2 multi-engine aircraft and 19 gliders. Many of the based aircraft registered at Morgan County are kit-built and experimental aircraft. There were an estimated 13,258 operations in 2009, for an average of 36 operations a day, of which 75% were local GA operations. There is also extensive glider and ultra-light activity at the airport. Surface access is provided by Cottonwood Canyon Road (5700 N) and by Willow Creek Road. Both roads reach I-84 via SR-30. As the nearby Mountain Green area continues to grow and develop, SR-30 will probably become increasingly congested, interfering with

airport access. A rebuild is included in the 2011-2016 Utah Department of Transportation Surface Transportation Improvement Plan, but not widening.

UCASP recommended improvements for Morgan County Airport to match its designated role were a runway extension, a runway widening, an increase in pavement strength, a parallel taxiway, GVGI's and REILs. Recommended improvements consistent with Morgan County Airports UCASP role are not consistent with its actual development potential. Due to surrounding terrain and development, expansion of airside facilities is not feasible. Geographic constraints limited the potential approach speed (and thus size) of aircraft using that facility. As a result, the Morgan County Airport's ability to develop and handle larger planes is limited and the facility is expected to continue as a local GA airport specializing in recreational flying.

Planned improvements included additional tie-downs and additional fencing. The airport has recently developed additional hangers south of the runway on the west end of the airport.

Morgan County is experiencing increasingly severe land-use conflicts as the previously rural area becomes a desirable location for second homes. Development in the foothills along Willow Creek Road includes several low density residential subdivision in close proximity to the runway. Continued expansion in airport operations is in conflict with expanding residential development in nearby area. The Runway Protection Zone for the south end of the runway cross the road, requiring a displaced threshold. There is existing storage and light industrial off the south end of the runway.

Tooele Valley Airport (Bolinder Field)
Tooele Valley is a Regional GA airport located five miles north-west of Tooele, Utah, and south of Highway 138. It is a public-use airport owned and operated by the Salt Lake City Department of Airports and has a single North-South runway.

Located outside the Salt Lake City Class B airspace, it is heavily used for training flights. Tooele also serves as a fuel stop for itinerant aircraft. Significant skydiving activity is also present. According the FAA 5010 data, as of 2010 there were 24 based aircraft, including one multi-engine aircraft. There were an estimated 18,744 operations in 2009, of which 2/3 were itinerant GA, and another 1/3 were local GA, for an average of about 51 operations a day.

Surface access is provided off airport road via Erda Way via Highway 36. In the future surface access to the airport may be improved with a connector from Highway 138 north of the airport. The Tooele Valley has become the preferred location for urban development spilling over from the Wasatch Front. As a result, there has been a substantial and growing need for transportation improvements, and extensive new construction is planned.

UCASP recommended improvements for Tooele Valley Airport to match its designated role were a runway extension, a rental or courtesy car, upgraded terminal and pilots lounge, and a FBO (Fixed Base Operator). Programmed capital development includes a taxi-lane, T-hangers and associated infrastructure. The airport has sufficient property to continue to grow and expand, including sufficient room for hanger development.

As demand for Air Carrier capacity at SLCIA increases, so does the need to separate GA aviation from commercial air carriers. The Salt Lake City Department of Airports has been meeting this need by increasing GA capacity at Tooele Valley. In addition, facilities have been developed to accommodate larger GA aircraft, including the installation of an ILS (Instrument Landing System).

While Tooele Valley airport lies within the SLCIA Mode-C veil, it is outside the Class B airspace. The less congested airspace and ILS approach procedure make the airport an excellent location for pilot training, flight training and related touch-and-go operations which will likely remain a regular aviation use for the foreseeable future.

Air Cargo

While Air Cargo carries only a fraction of a percent of the total freight tonnage, it fills a special niche in Utah's freight system. Air cargo's primary advantage is speed. Air cargo makes it possible to get mail and cargo to distant locations in a matter of hours rather than in days. From urgently needed replacement parts for mining equipment to fresh fish, air freight is a key component in Utah's supply chain. According to the Economic Development Corporation of Utah (EDCU), Utah air cargo volumes have been growing at an average annual rate of 9%.

According the Federal Aviation Administration (FAA) data domestic air cargo Revenue Ton Miles declining over 17 percent in 2009, partially as a result of new security restrictions. However, the FAA forecasts air cargo demand to continue to grow in synch with economic growth. According to the FAA Forecast Fact Sheet (FY '10-'30), the cargo fleet increases from 854 aircraft in 2009 to 1,531 aircraft in 2030, an average increase of 2.8 percent a year. However, this increase is contingent, assuming that the shift from air cargo to truck relay has stopped. In response to increased security measures for air cargo, a specialized system of ground transportation based on truck relays has become an important cargo mode, one that is nearly as fast as air cargo, but at a lower price.

Utah Air Cargo Commodities

In addition to mail and contract traffic, air cargo includes a wide variety of additional commodities. According Utah Department of Transportation's 'Freight Report' an estimated total of 198,490 tons of air cargo transited to or from Utah airports in 2007. Of this cargo 125,995 tons were outbound (exports from the state) while 72,494 tons were inbound (imports to the state). The tons of air cargo inbound to the state is 58 percent higher than the tons of air cargo leaving Utah. Only three tons of cargo are estimated to travel within the State of Utah by air. **Table 7-8** lists the inbound, outbound, and total tons of air cargo commodities by type for Utah in 2007.

TABLE 7-8

2007 AIR CARGO TONS BY COMMODITY IN UTAH

COMMODITY	INBOUND TONS	OUTBOUND TONS	TOTAL TONS	% OF TOTAL
Mail \ Contract Traffic	18,706	23,249	41,956	21%
Chemical Products	7,157	20,990	28,146	14%
Misc Mixed Shipments	9,517	13,051	22,568	11%
Machinery	12,569	7,650	20,219	10%
Transportation Equipment	5,023	11,327	16,350	8%
Electrical Equipment	3,635	10,679	14,313	7%
Farm Products	1,438	8,130	9,568	5%
Pulp\Paper Products	1,672	9,008	10,680	5%
Instruments, Photo\Optical Equipment	1,558	6,717	8,275	4%
Printed Matter	3,042	5,544	8,586	4%
All Other	8,178	9,651	17,829	9%
Totals	**72,495**	**125,996**	**198,490**	**100%**

Note: *Percentage totals may not total 100% due to rounding.*

In 2007, the 'Mail or Contract Traffic' commodity constituted the largest tonnage for both inbound and outbound traffic. 'Machinery' was the only category where inbound tons exceeded outbound tons. The 'Pulp\Paper Products' commodity had the highest ratio of inbound to outbound tons. **Table 7-9** shows projected changes in commodity tonnages for the State of Utah and the projected percent of total tonnages in 2040.

TABLE 7-9

PROJECTED 2040 AIRP CARGO TONS BY COMMODITY IN UTAH

Commodity	INBOUND TONS	OUTBOUND TONS	TOTAL TONS	% OF TOTAL
All Other	14,479	19,258	412,603	50%
Machinery	67,947	15,774	83,721	10%
Misc Mixed Shipments	32,318	48,279	80,597	10%
Chemicals Or Allied Products	14,475	35,301	49,777	6%
Electrical Equipment	24,543	23,224	47,768	6%
Instruments, Photo Equip, Optical Equip	8,482	34,641	43,123	5%
Mail Or Contract Traffic	14,329	20,834	35,163	4%
Pulp, Paper or Allied Products	2,202	20,729	22,931	3%
Transportation Equipment	10,564	11,824	22,389	3%
Farm Products	0	13,878	13,878	2%
Printed Matter	7,200	6,057	13,257	2%
Total	**196,539**	**249,799**	**825,207**	**100%**

Note: *Percentage totals may not total 100% due to rounding.*

Air cargo transported within Utah is projected to grow at an average rate of over 4 percent annually and the types of commodities carried are expected to become more varied. In 2007, the top three commodities were estimated to account for 46 percent of air cargo, while in 2040 they are projected to account for only 26 percent. The percent of air cargo falling under the 'All Other' category is projected to increase from 9 percent in 2007 to 50 percent in 2040. 'Mail or Contract Traffic' made up 21 percent of Utah air cargo tonnage in 2007, while in 2040, it is project to fall to only 4% of the total. The inbound tonnages of 'Instruments, Photo Equipment, Optical Equipment' and 'Machinery' are projected to grow over 400%, and over 500% for 'Electrical Equipment'. The 'Instruments, Photo Equipment, Optical Equipment' commodity is projected to increase outbound tons by a much larger percentage than any other commodity.

Salt Lake City International Airport Air Cargo

Convenient air freight service from the Salt Lake City International Airport puts shippers within hours of any point in the nation, Canada and Mexico. The FAA 'All-Cargo Data' shows the SLCIA handled over 449,267 tons of cargo in 2009.

Currently within the US, the majority of parcel movements are between the major cities in the eastern third of the nation and as a result, major air freight/parcels shippers located distribution centers in close proximity to their markets. For example, FedEx shipments must travel to and from their distribution center in Memphis, Tennessee each night, while UPS operates out of a hub in Louisville, Kentucky. However, as inter-mountain west and west coast cities continue to grow and develop, it is likely that demand for air cargo facilities in the west, including the SLCIA will continue to increase.

There are two terminals designated for air cargo, one at the south end of the airport, and one at the north end of the airport. The southern air cargo terminal serves is primarily devoted to air mail and serves Federal Express (Fed-Ex) and the United States Postal Service (USPS). Federal Express and the United States Postal Service, together, average 110 trucks to and from the SLCIA via Exit 115 on Interstate I-80. The northern terminal is primarily used by the United Parcel Service (UPS). It is accessed by I-215. UPS averages 30 trucks per day via Exit 25 on I-215. The vast majority of air freight/parcel traffic to and from the SLCIA is concentrated during the Monday to Friday work week.

SAFETY RECOMMENDATIONS

The 2015 - 2040 RTP supports the goals and objectives of the Strategic Highway Safety Plan prepared by the Utah Department of Transportation in March 2013. The goal of the SHSP is to reduce serious injury crashes and fatalities. The SHSP analyzes highway crash data for the State of Utah and identifies contributing factors and mitigation strategies related to highway crashes. UDOT identified 11 principles as areas of emphasis to reduce serious injury crashes and fatalities.

The 11 principles below each have an element of driver behavior so it is fitting that the first principle identified is Public Outreach and Education. The second principle identified is Roadway Departure Crashes and research shows that these crashes are predominantly in the rural areas of the State. The remaining principles listed, however, are very much a concern in the urbanized areas covered by the 2015 - 2040 RTP. Promoting education to the driving public about the crash related driving behaviors listed below can have a significant impact at improving highway safety.

- Public Outreach and Education
- Roadway Departure Crashes
- Use of Safety Restraints
- Impaired Driving
- Aggressive Driving
- Drowsy Driving
- Distracted Driving
- Intersection Safety
- Teen Driving Safety
- Motorcycle Safety
- Speed Management

HOMELAND SECURITY RECOMMENDATIONS

Similar to safety, security plays a significant role in the development of a regional transportation plan. While many improvements to the transportation system will impact both safety and security the Regional Transportation Plan more directly addresses security of the transportation system in several ways. The recommended plan includes improvements at choke points, increased multimodal redundancies within the system, capacity expansion, enhancement of the Intelligent Transportation System program and continued coordination, training and exercising of regional emergency preparedness plans. The 2015 - 2040 RTP recommends choke point improvements on I-80 and SR-201 in Salt Lake County and on the I-15 corridor in Box Elder, Weber, Davis and Salt Lake Counties. In Box Elder and Weber Counties the RTP calls for two additional freeway lanes to be added to I-15 and an additional HOV lane to be added in north Davis and South Weber Counties. In Salt Lake County, as well as adding collector–distributor facilities to I-15 from 7800 to 10600 South and operational improvements for the length of the county, it is recommended that capacity improvements be implemented on eastbound I-80 and westbound SR-201.

To increase the redundancy and multimodal aspect of the transportation system the RTP recommends a considerable increase in transit. High capacity transit is extended north from Ogden to Brigham City and planned for within Ogden City, Streetcar service is planned for Salt Lake City and Sugarhouse and an LRT extension proposed from Draper City into Utah County to the south. Bus Rapid Transit lines are included in the RTP for the Ogden Central Business District, and extend south from Weber County through Davis County to Salt Lake County. The BRT lines will connect growth centers, employment areas and residential neighborhoods. BRT is also planned to serve several other major corridors throughout the Region.

System capacity expansions have also been recommended in the RTP. As mentioned above, capacity has been added to the system with the expansion on I-15 in Box Elder, Davis and Weber Counties and in Salt Lake County with operational improvements. Freeway capacity improvements are also included for State Route 201 and I-80 in Salt Lake County and US-89 in Davis County. A new four lane north-south facility paralleling I-15 is planned for the west side of Weber and Davis Counties, as is an eight lane facility (Mountain View Corridor) for the west side of Salt Lake County. Additionally, improvements are recommended for 20 significant east-west corridors and 10 north-south corridors in the Region.

Planned improvements for the Intelligent Transportation System (ITS) program are certainly a vital component to maintaining and improving the security of the regional transportation system. The RTP recommends expansion of variable message signs and closed-circuit television (CCTV) coverage across the Region and includes continued improvements to ITS communications networks for both highway and transit.

In addition to the physical transportation infrastructure the 2015 - 2040 RTP recommends continued collaboration with the State Department of Public Safety Division of Homeland Security, UDOT, UTA, municipalities and counties, and private sector organizations throughout the Wasatch Front Region in the development, coordination, refinement, training and exercise of emergency preparedness plans.

TOOELE COUNTY

In November, 2004 Grantsville City, Tooele City, and Tooele County established the Tooele Valley Rural Planning Organization (RPO) in order to cooperatively plan transportation system improvements and priorities for the eastern portion of the County. UDOT has funded most of the work of the WFRC staff in assisting the local jurisdictions in developing plans and establishing priorities. Both UDOT and UTA have been active participants in the RPO process. One of the principal products of this effort is the *Tooele Valley Regional Long Range Transportation Plan*, completed in October, 2006. This plan addresses highway and transit capacity needs and also contains recommendations related to bicycle facilities, safety, and intelligent transportation system improvements. An extensive needs assessment was conducted, including input from the general public and elected officials. Also, several alternatives were evaluated in determining how best to serve traffic moving to and from Salt Lake County. **Map 7-16** on the following page includes both project type and phase of the highway projects recommended in the *Tooele Valley Regional Long Range Transportation Plan*.

Recommendations
The Tooele Valley Plan includes the following specific recommendations:

- Construct an additional north-south high-speed facility in the Tooele Valley to address the demand for travel to and from Salt Lake County. An environmental study of the preferred corridor is currently underway
- Triple peak period transit service between the Tooele Valley and Salt Lake County
- Construct several other highway capacity improvements called for in the Plan to address travel demand within the Valley
- As population and employment reach sustainable thresholds within Tooele Valley, increase local bus service

MORGAN COUNTY

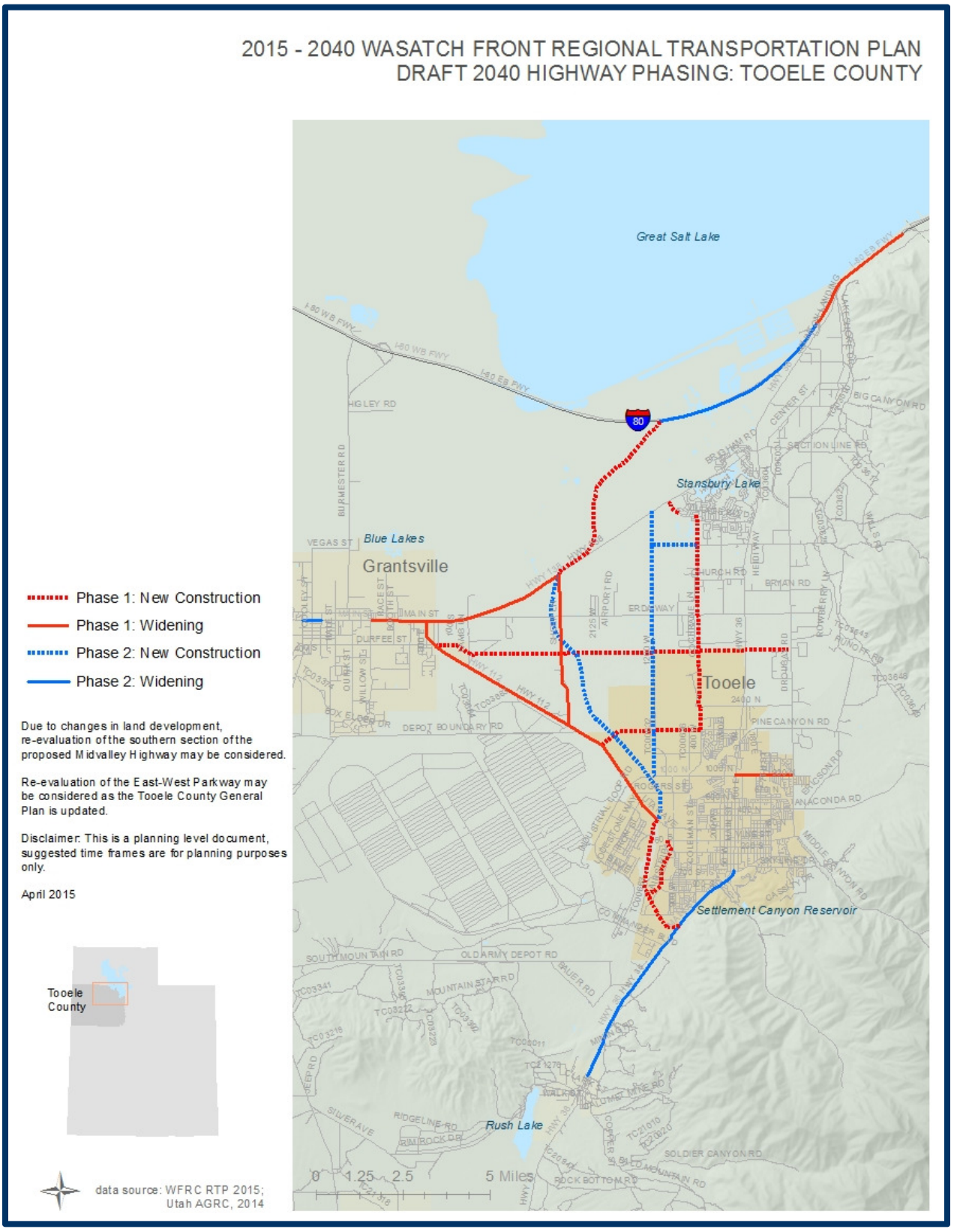
With the support of the Morgan County Council and the Morgan City Council, the Regional Council began a study of transportation needs in Morgan County in July 2006. With the assistance of City, County and UDOT staff, the Regional Council prepared a comprehensive review of transportation needs and proposed improvements. Since that time, the Regional Council has helped fund, and provided staff support for a visioning process to help guide growth in Morgan County. Subsequently, in 2010, the Regional Council gave financial support for an update of the Morgan County Master Plan, based on the visioning process completed earlier. The following is a list of recommendation from the Morgan Visioning Study.

Recommendations

The Morgan County Plan includes the following specific recommendations:

- Maintain a long-term, regional perspective to ensure quality of life for future generations.
  - Prioritize and coordinate implementation activities
  - Measure the progress of Envision Morgan implementation
  - Update county and city general plans to ensure consistency with Envision Morgan
  - Develop specific ordinances to implement the Vision
  - Guide growth into preferred locations, specifically in already established town centers
  - Work toward focused resort centers that make the most of Morgan County's natural amenities without unduly sacrificing them
- Guide growth into efficient patterns emphasizing complete streets and walkable communities
  - Create water efficient landscaping standards
  - Require an impact analysis of proposed real estate development projects.
  - Determine acceptable impact standards
- Conserve open lands for future generations through the creation of a complete data set identifying existing open lands, soils, wetlands, geologic hazards, historically or culturally significant areas, the proximity to land already preserved by federal, state or local or other conservation agencies, and other significant evaluation criteria
- Focus growth in mixed-use neighborhoods and communities
  - Create zoning ordinances that encourage blending a variety of uses and housing types in Morgan City and the unincorporated community of Mountain Green
  - Create neighborhood centers and focus growth around them
- Create a variety of housing options to meet the needs of people of all income levels, family types and stages of life
  - Create flexible zoning codes that encourage a range of housing sizes and types
  - Replace minimum lot sizes requirements with net density standards
  - Consider incentivizing major developments to provide affordable housing
- Use growth tools that allow for real estate development while permanently preserving open lands
  - Adopt a policy encouraging conservation easements
  - Adopt zoning codes that allow clustering of development while retaining overall density requirements
  - Implement a program to facilitate the appropriate transfer of development rights.
- Expand economic and educational opportunities. Seek out, embrace and invest in opportunities for economic growth
  - Conduct an economic baseline analysis
  - Develop a method for measuring progress toward achieving desired outcomes
  - Identify and prioritize sites that should be reserved for employment uses
- Provide recreational opportunities for residents and tourists alike
  - Provide public access to land for a range of recreational uses
  - Create strategies to work with private landowners envisioning resort development or other recreational land uses

MAP 7-16


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
DRAFT 2040 HIGHWAY PHASING: TOOELE COUNTY
Great Salt Lake
Stansbury Lake
Blue Lakes
Grantsville
Tooele
Settlement Canyon Reservoir
Rush Lake
Phase 1: New Construction
Phase 1: Widening
Phase 2: New Construction
Phase 2: Widening
Due to changes in land development, re-evaluation of the southern section of the proposed Midvalley Highway may be considered.
Re-evaluation of the East-West Parkway may be considered as the Tooele County General Plan is updated.
Disclaimer: This is a planning level document, suggested time frames are for planning purposes only.
April 2015
Tooele County
data source: WFRC RTP 2015; Utah AGRC, 2014
0 1.25 2.5 5 Miles

INTRODUCTION

The Wasatch Front 2015 – 2040 Regional Transportation Plan was evaluated to determine its social, economic and environmental impacts and how well it would meet the transportation needs of the Region through the year 2040. The goals and objectives for the 2015 – 2040 RTP, as discussed in the "Goals and Objectives" section of Chapter 1, helped form the basis for this evaluation. The 2015 – 2040 RTP was also analyzed with regard to its conformity with state air quality plans, potential mitigation measures to minimize project impacts, and other factors.

The emphasis of these evaluations was to identify issues that could prevent the implementation of recommended projects or would need to be addressed further in the preliminary engineering phase of project development. In addition, the evaluation considered locations where congestion is still expected to exist in 2040, even with implementation of the recommended 2015 – 2040 RTP highway capacity improvements and transit system improvements. This facet of the evaluation process is important in that it will encourage planners to continue pursuing strategies that could be considered for reducing or eliminating congestion at these locations.

REGIONAL PERFORMANCE MEASURES

Among the tools used to assess the system-wide impacts and benefits of the draft 2015 – 2040 RTP was the report card measures used previously to compare each of the four alternative scenarios and the Draft Preferred Scenario. **Figures 8-1** through **8-11** below compare the draft 2015 – 2040 RTP to the 2011 – 2040 RTP and, as needed, to current conditions. The performance measures were carefully chosen to give decision makers the opportunity to compare how well the 2015 – 2040 RTP supports their values and goals. The goals represent selected Wasatch Choice for 2040 Growth Principles and goals from UTA and UDOT. Information relevant to the interpretation of these bar graphs is provided in the statements below.

- The primary target goal of the measure is provided in the upper left corner. A brief description of the measure is included under each graph.
- The Orange graph bars indicate that higher measures are better and blue graph bars indicated that lower measures are better.
- The "Current' scenario represents 2016 conditions, whereas the remainder of the scenarios represent 2040 conditions.
- In large part, the performance measures represent the draft that was made available for public comment in January, 2015. The result of public input were considered by decision-makers and changes were made to the funded list of highway and transit projects.
- The 2015 – 2040 RTP land use projections were used to assess both the 2011 – 2040 RTP and the 2015 – 2040 RTP in order to isolate the benefits and impacts of the transportation system.

The accessibility provided by the 2015 – 2040 RTP road network is substantially better than that of the previous, 2011 – 2040 RTP. The accessibility of the 2015 – 2040 RTP transit network is about 1 percent less than that of the 2011. Among the factors influencing accessibility is the number of transportation facilities in the RTP. The 2015 – 2040 RTP has fewer major transit facilities than the 2011 – 2040 RTP transit network. However, the 2015 – 2040 RTP dedicates a significant amount of money to more local bus service and more hours of service on the existing rail network which would dramatically improve access.

Transit use and travel time by car are, in some respect, both measures of mobility. Transit use increases substantially in both the 2011 – 2040 RTP and the 2015 – 2040 RTPs, as compared to current ridership. However, total ridership on major transit facilities drops slightly in the 2015 – 2040 RTP as compared to the 2011 RTP due to fewer large facilities. However the 2015 – 2040 RTP

provides a pool of funds dedicated to local bus and better hours of service on existing rail in the 2015 – 2040 RTP which has the potential to substantially improve ridership. Average travel time by car is considerably better in the 2015 – 2040 RTP than both existing conditions and what was forecasted for 2040 in the 2011 – 2040 RTP.

Several of the evaluated performance measures, such as travel time and air quality (mobile emissions) affect economic vitality. However, one of the most direct measures is truck freight travel times from seventeen of the Regions' largest freight centers to the interstate freeway system. The 2015 – 2040 RTP decreases travel time on these routes because they were specifically targeted for improvements where warranted by delay. The WFRC staff will continue to monitor these routes and seek to keep traffic flowing in an effort to improve the Region's economic vitality.

Cost efficiency is a key measure for the 2015 – 2040 RTP. Transportation needs are substantial and on-going. Cost efficiency measures how effective the RTP is meeting our objectives. One of the key objectives is providing timely transportation access to jobs and higher education opportunities. Therefore, access is selected as the numerator for this performance measure. Other objectives were also assessed on a cost basis. Although not discussed here, these show similar patterns. Both the highway and the transit networks in the 2015 – 2040 RTP are more cost effective than the 2011 – 2040 RTP.

The largest source of auto emissions in the Region is the number of auto trips taken regardless of length traveled. At the beginning of a trip, when a car's catalytic converter is not warmed up and functioning, the majority of the emissions are released. It is estimated that the first few miles of these "cold starts" produce 80 percent of the entire emissions attributed to a trip. Other, causes of travel emissions include idling, the number of vehicle miles traveled and high or low speed travel. These later two causes are those captured by the regional travel model and reflected in the emissions and energy use charts above. The 2015 – 2040 RTP provides significant improvements in energy use and modeled travel related emissions. Although not forecastable, attention was paid to limiting the potential for cold starts when developing the 2015 – 2040 RTP. For example, walk access to transit is far preferable to those requiring even a short park-and-ride trip.

When transportation projects are constructed, they can directly impact natural resources such as wetlands and conservation preserve areas for endangered species. Transportation projects can also indirectly impact these resources by increasing access, and therefore development pressure on sensitive lands, especially if these sites are not otherwise protected. Both direct and indirect impacts of transportation projects to the Regions' significant natural resource areas were assessed as part of the planning process.

Direct impacts were estimated using a computer mapping of both natural resources and of placeholder project locations. Direct impacts can frequently be reduced based upon specific project conditions. It should be noted that major projects, or projects potentially impacting significant resources, undergo environmental impact analyses to determine if natural resource impacts can be mitigated and to develop plans for doing so. There is about a ten percent increase in weighted impacts of the 2015 – 2040 RTP as compared with the 2011 – 2040 RTP. Most of the new concerns had to do with drinking water recharge areas and to wetlands. It appears that some of the new impacts to the drinking water recharge areas were due to a more detailed RTP road network in southwest Salt Lake County. Some of the new projects with significant cumulative impacts to wetlands are in Box Elder County, which was not part of the planning area for the 2011 – 2040 RTP.

The indirect impacts of each of the transportation scenarios were estimated by first identifying the major unprotected, natural resource areas in the Region using computer mapping, and then by applying the travel demand model to assess the increase in access to, and therefore the development pressure upon, these resource areas. The resulting estimated development pressure from the 2015 – 2040 RTP is virtually the same as that of the 2011 – 2040 RTP.

FIGURE 8-1

WORK AND COLLEGE ACCESSIBILITY - AUTO

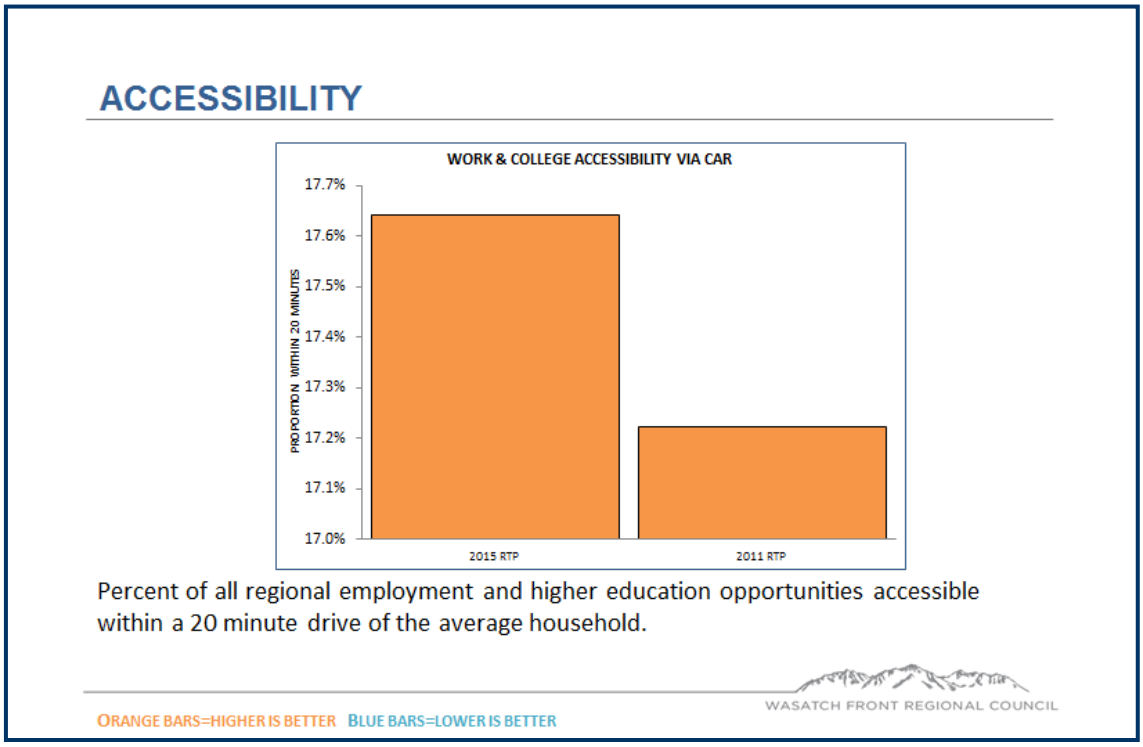


FIGURE 8-2

WORK AND COLLEGE ACCESSIBILITY – TRANSIT

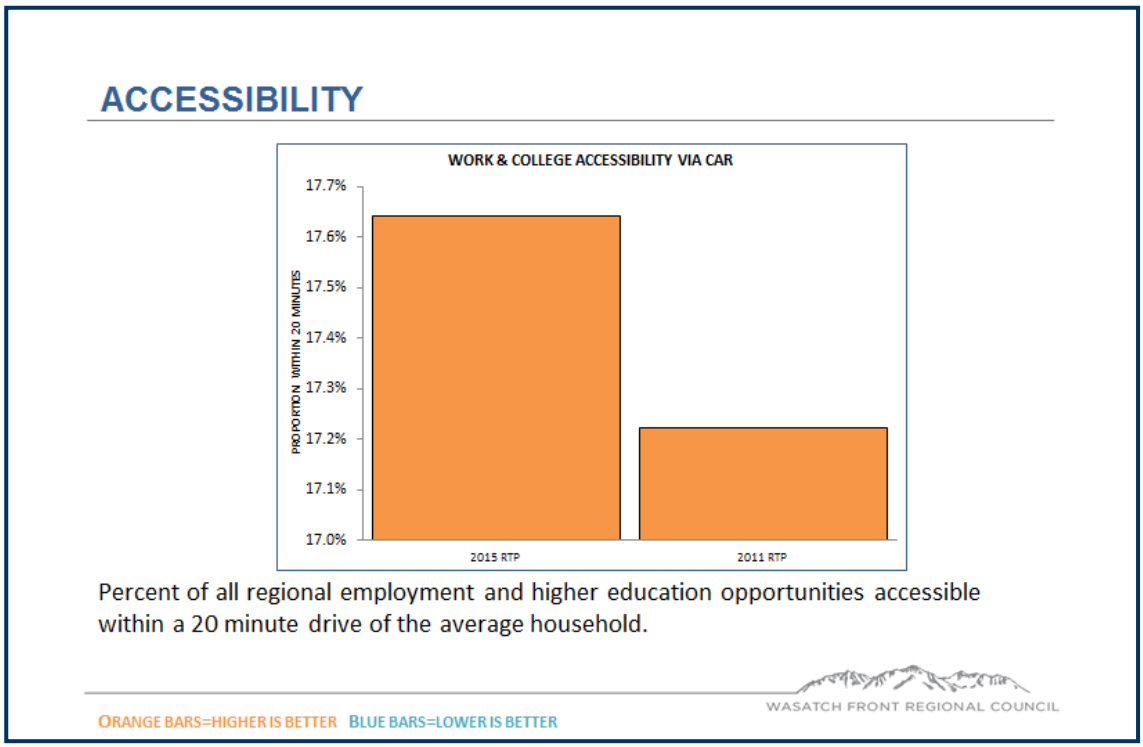


FIGURE 8-3

SELECT MOBILITY COMPARISON – TRANSIT USE

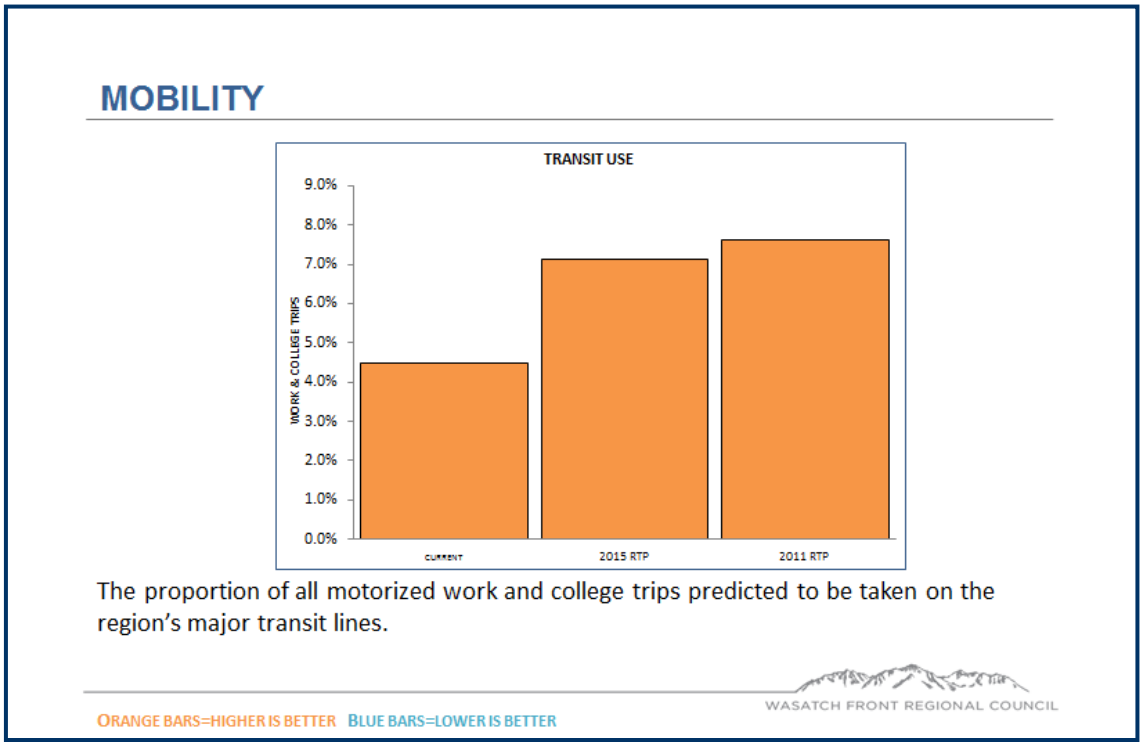


FIGURE 8-4

SELECT TRAVEL TIME COMPARISON - AUTO

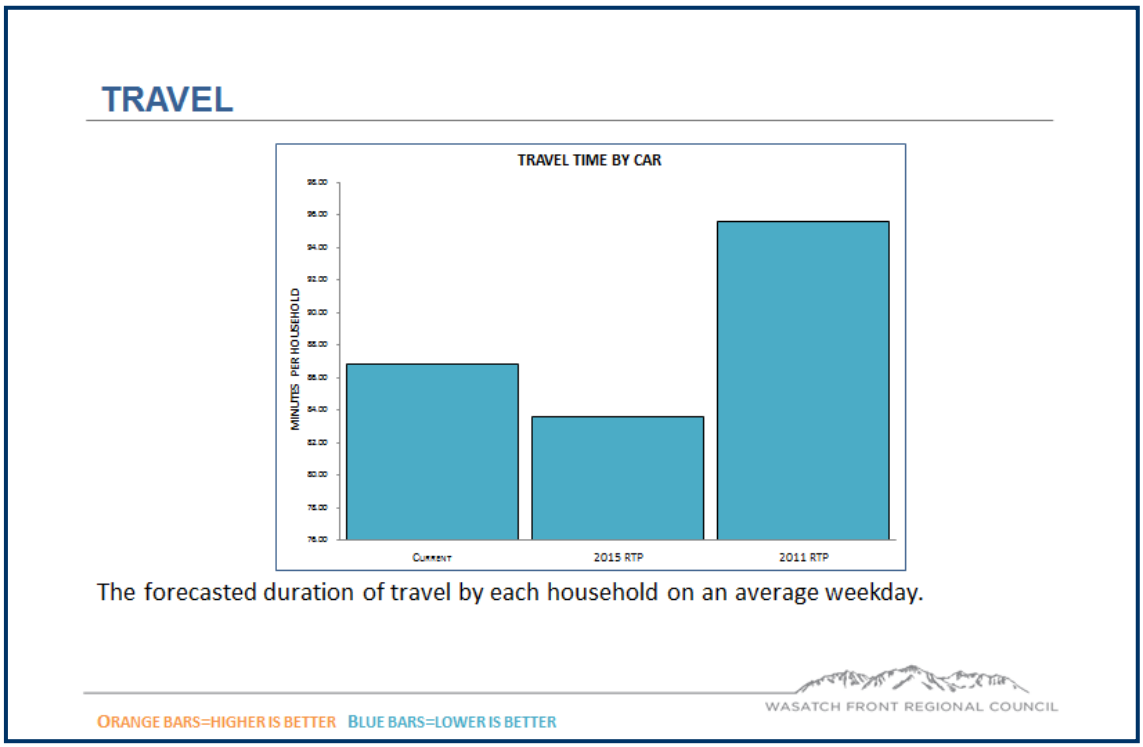


FIGURE 8-5

TRUCK FREIGHT TRAVEL TIME COMPARISON

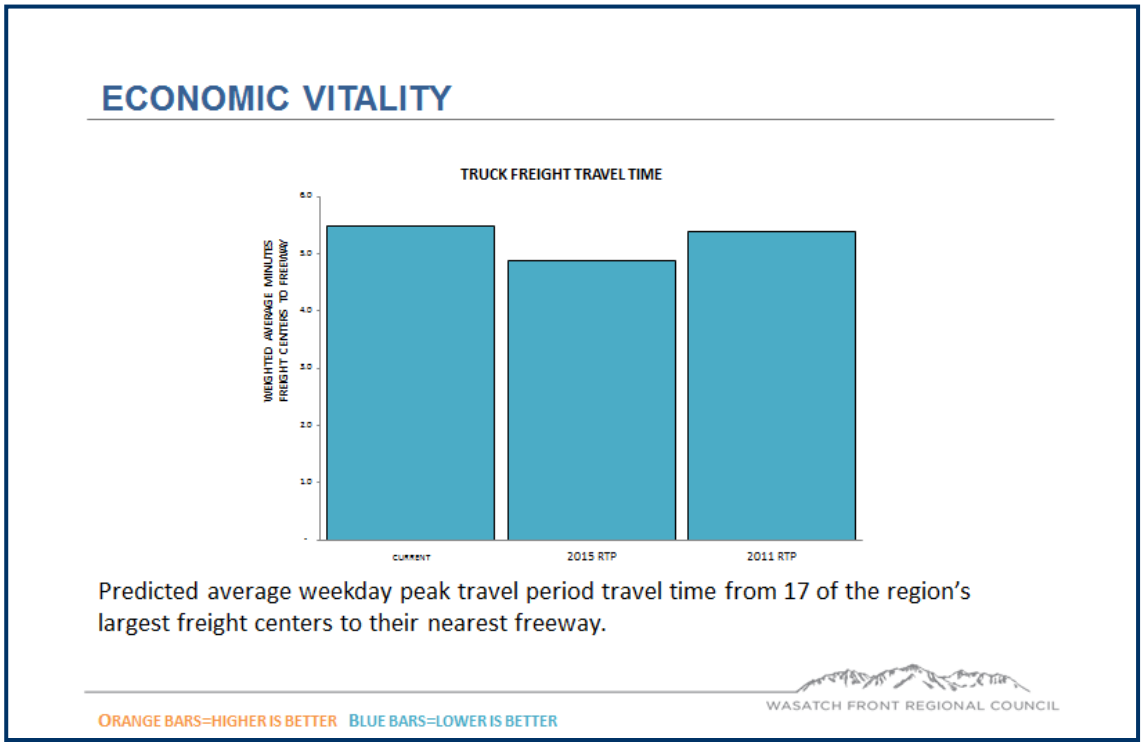


FIGURE 8-6

MAJOR ROAD COST PER CHANGE IN HIGWAY ACCESS

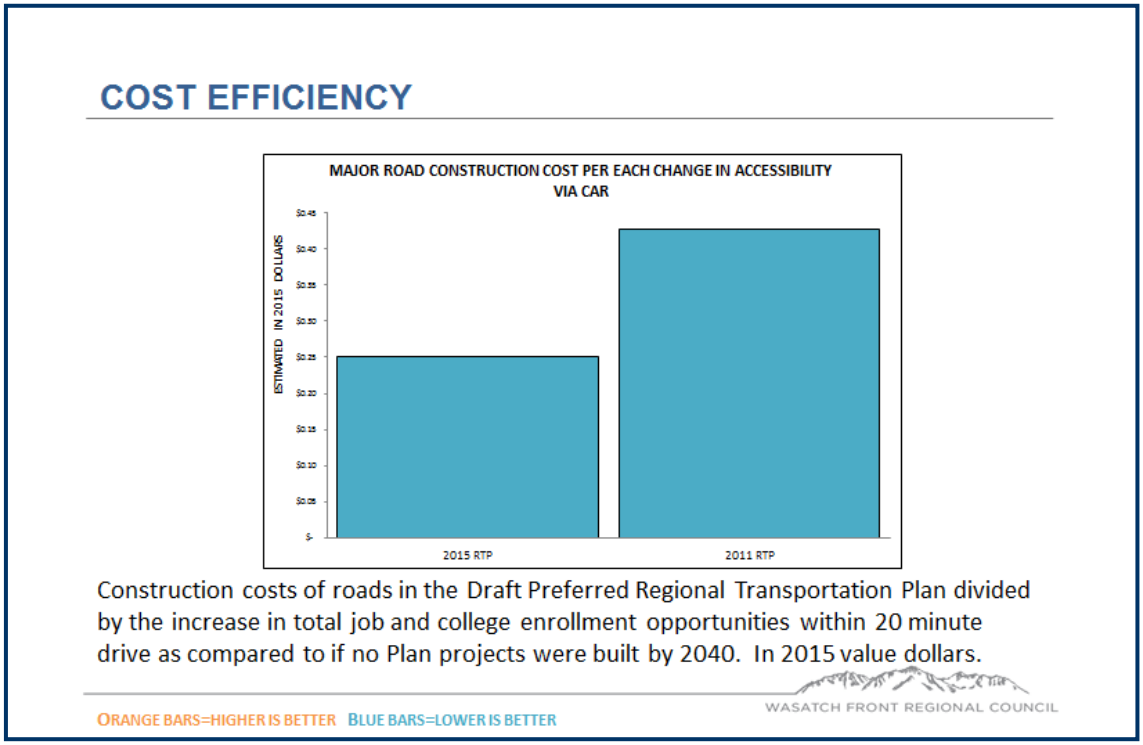


FIGURE 8-7

CONSTRTUCTION COST PER CHANGE IN TRANSIT TRIP

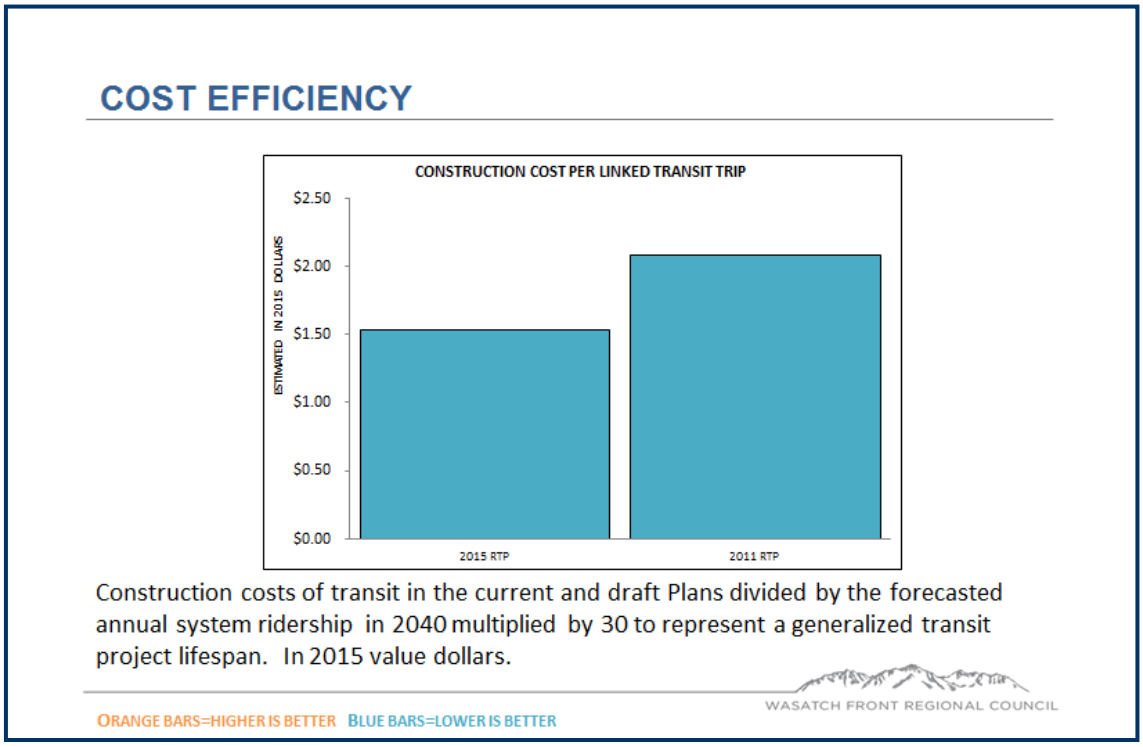


FIGURE 8-8

MOBILE EMISSIONS

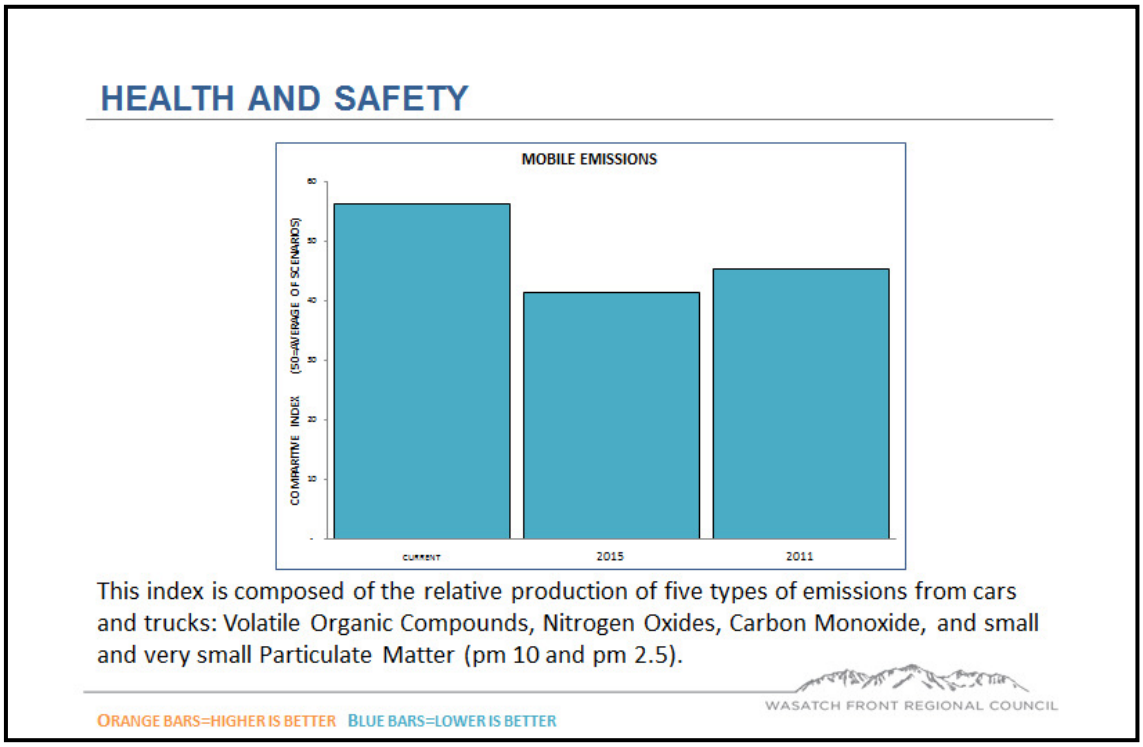


FIGURE 8-9

TRANSPORTATION ENERGY USE

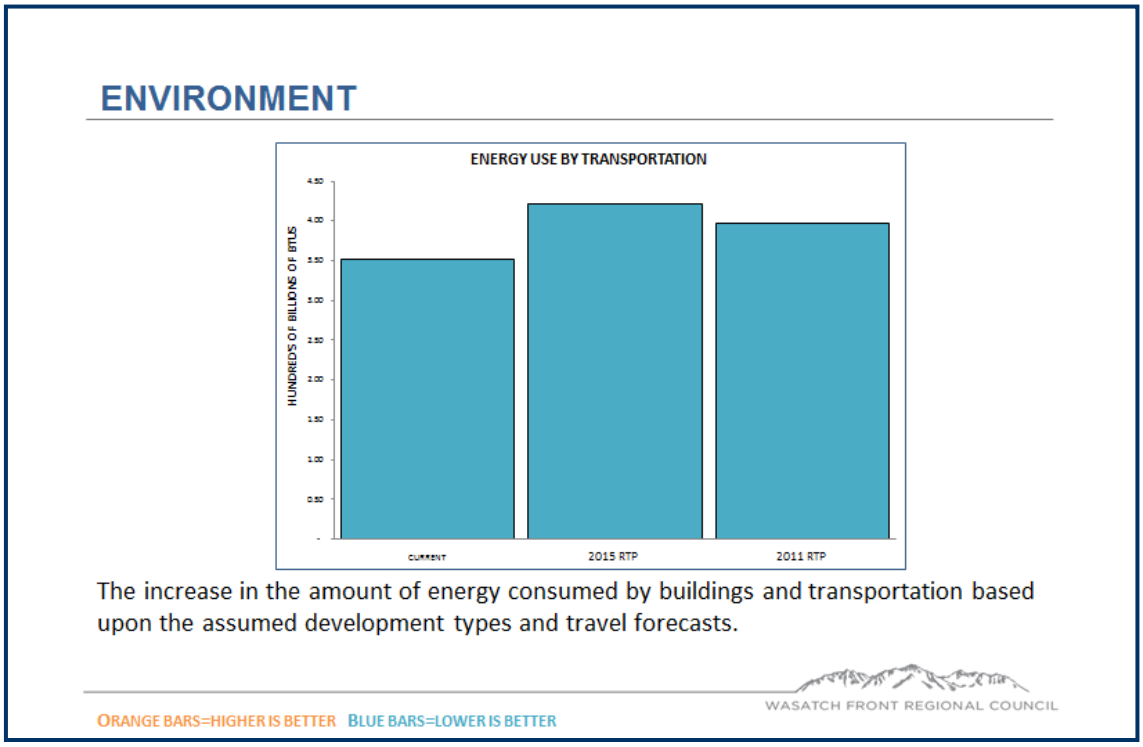


FIGURE 8-10

INDIRECT NATURAL RESOURCE IMPACTS

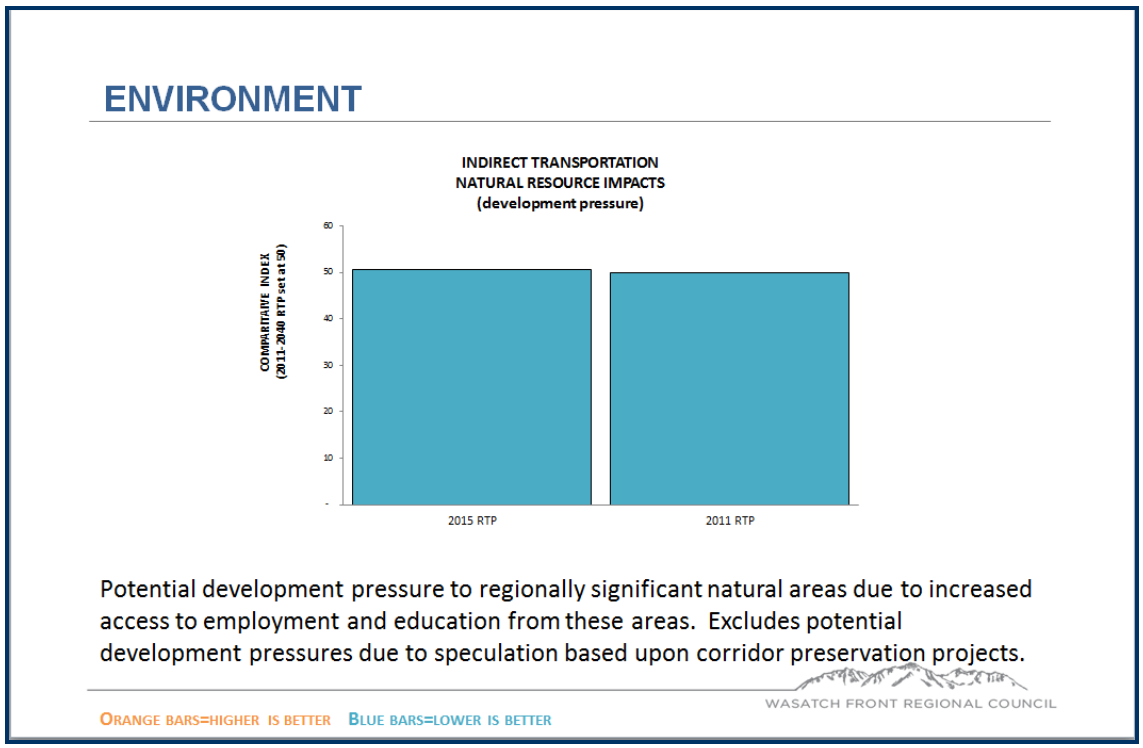
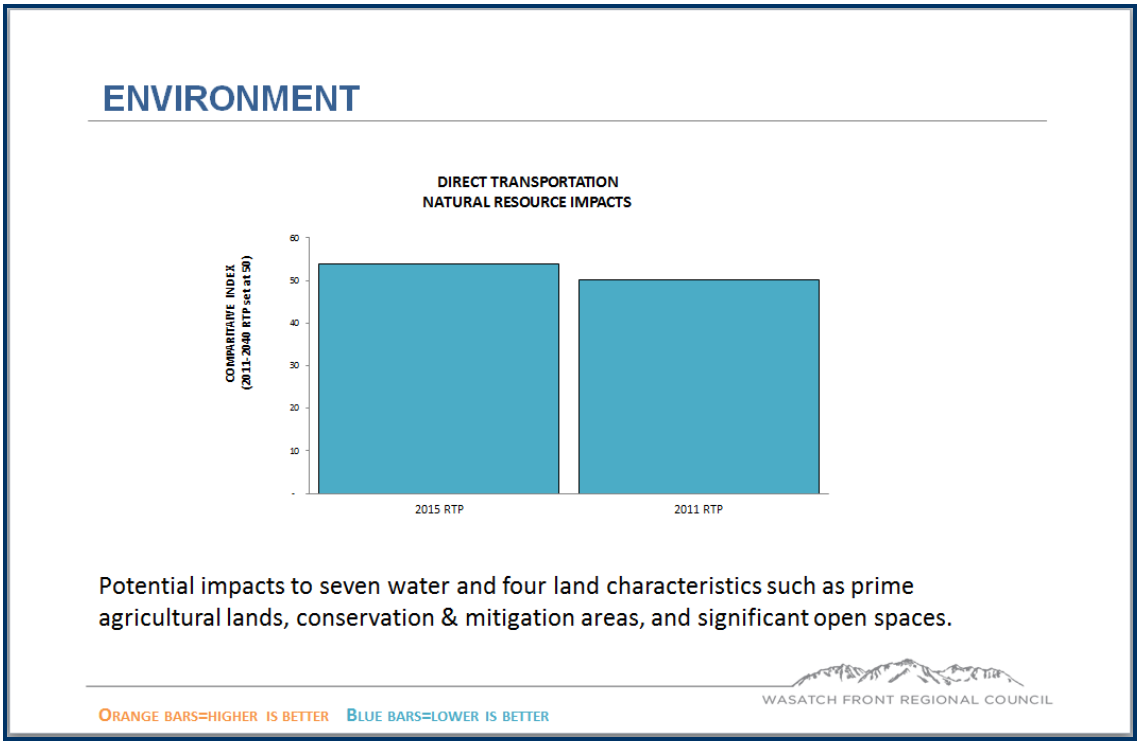


FIGURE 8-11

DIRECT NATURAL RESOURCE IMPACTS



SOCIAL IMPACTS AND BENEFITS

Transit, highway, and active transportation projects and facilities identified in the 2015 – 2040 RTP are socially beneficial. Such improvements help people travel to destinations they want to reach while providing choices in how trips are made. However, the construction of projects does have the potential, without proper implementation, of having adverse social effects on existing urban areas and on future development. Negative social impacts include increased noise, neighborhood disruption, and residential and commercial dislocations. This section discusses the 2015 – 2040 RTP's potential impacts on land use, relocations and neighborhood disruption, housing goals and strategies, school safety, cultural resources, and disadvantaged groups.

Land Use

The connection between land use and transportation has been studied by planners and engineers for many years. Traditionally, extending a region's transportation network opens up additional land for eventual development. In turn, newly developed land with its increase in travel demand may require improvement of the existing transportation network. It is evident in the Wasatch Front Region that transportation improvements are not keeping up with the growth in travel demand. The rapid growth of the suburbs during the past several decades has created very significant changes in urban travel patterns. One of those changes is an increase in suburb-to-suburb travel. The trend to further decentralization and the attendant dispersal of population and employment, gives rise to the emergence of significant suburban commercial / industrial traffic generating activity nodes. This trend is expected to continue for the foreseeable future. New development has occurred without the supporting transportation improvements needed to serve it. This situation will place even further demands on the transportation system that, without huge future investments, will not keep up with demand. This situation may result in continued congestion in the growing parts of the Wasatch Front Region.

In order to better connect people with jobs and other destinations, it will become increasingly important to coordinate local government land use plans and zoning ordinances with the Regional transportation planning process. In order to mitigate current problems and meet future travel demand, local planners must carefully consider the transportation implications of their land use recommendations. Concurrently, regional transportation planners must strive to match recommended transportation investments to changing land use patterns. Implementation by local governments of the Wasatch Choice for 2040 Vision for land use and transportation will help connect people with destinations through the establishment of additional activity nodes, corridors of mixed use, and transit oriented development. This approach will bring jobs, housing and transportation facilities closer together. Adopting policies needed to implement the Vision will reduce the need for vehicular travel and the resulting congestion.

The Wasatch Front Regional Council works with local governmental jurisdictions to coordinate transportation planning with local land use planning. The process used in the development of the 2015 – 2040 RTP gave significant consideration to the location of future population, employment, and other variables that are factors used in estimating transportation demand. Both population and employment projections were correlated with the land use provisions of each local government's general plan, the Wasatch Choice for 2040 Vision, and the Growth Principles, which were first developed in the Wasatch Choices 2040 visioning effort. The Wasatch Choice for 2040 land use Vision and land use and transportation planning information from the Region's local jurisdictions' general plans, were inputs to the transportation planning process. During the planning process, the WFRC made considerable efforts to create a transportation plan that would best support the Wasatch Choice for 2040 Vision and the official land use and transportation policies of its member entities.

Relocations, Neighborhood Disruption, and School Safety

Relocation and neighborhood disruption impacts vary with the type of transportation project proposed. Generally, relocation impacts are determined by the distance structures are "set back" from the existing street rights-of-way and the amount of right-of-way required for the project. Neighborhood disruption impacts occur when homes, businesses, or community institutions are physically removed from the neighborhood or when the roadway becomes a barrier to neighborhood interaction.

Relocation of homes and businesses may result of from the implementation of some projects in the 2015 – 2040 RTP. Most relocations will be relatively minor. The projects on the 2015 – 2040 RTP will require the acquisition of an additional 13,000 acres of rights-of-way from an estimated 25,000 parcels. Freeways, expressways, and six and eight-lane principal arterials have the greatest potential to disrupt neighborhoods and create barriers.

> **Mitigation -** During project design, relocations may be avoided by shifting the highway alignment to limit impacts. Relocation impacts can also be mitigated by following federal relocation guidelines, which provide for relocation assistance and other benefits. Neighborhood disruptions may be minimized by providing pedestrian and bicycle crossing facilities, maintaining local street inter-connectivity, depressing the roadway to limit visual intrusion and/or providing impacted neighborhoods with other resources to mitigate losses.

School Safety

School safety impacts resulting from roadway projects vary according to the nature of the roadway change, the type of school involved, and the traffic exposure student pedestrians may be subjected to. For this report, projects with potential for unusual or major impacts on safety are those involving the widening of an existing road from 4 or less lanes to 6 or more lanes within the designated "walk-to-school" area of an elementary or junior high school. Local school districts were contacted to identify these walk-to-school areas. The state does not provide for the busing of students living within 1.5 miles of an elementary school or two miles of a secondary school. Projects on the 2015 – 2040 RTP project list are estimated to be in immediate proximity to 476 schools. The average

concentration of children in census block groups impacted by the projects is 30 percent of the total population within these block groups. **Map 8-1** shows the location of elementary schools, junior high schools, high schools, colleges and universities.

> **Mitigation** – Mitigation strategies for schools may include adjustment of project rights-of-way requirements in proximity to schools, providing adequate temporary or permanent pedestrian facilities adjacent to new or widened highways. Coordination between those responsible for specific construction activities and officials from the immediately affected schools is understood. Additional safety improvement would include adequate crossings with signals and air quality monitoring stations in proximity to schools that are adjacent or in close proximity to major highways.

Housing Goals and Strategies

The Wasatch Front Region has experienced tremendous growth in the past several years. As a result of this growth, the housing market in the Region has been very dynamic. While housing construction during this time period has generally kept pace with population growth, concerns have been expressed about the type, location, cost and other issues associated with new housing. The overall cost of housing is an issue that has been receiving much attention in recent years. Increases in housing costs within the urbanized area have been some of the steepest in the Nation. Volatility in housing prices due to general economic conditions is another factor that must be considered as well. In response to concerns about escalating housing costs, the State Legislature in its 1996 General Session passed a law requiring local jurisdictions to update the housing elements of their general plans. Specifically, local government plans must include an analysis of the need for moderately priced housing within their jurisdiction and a description of realistic programs and strategies aimed at promoting this type of housing. Many local governmental jurisdictions in the Wasatch Front area have completed the required housing element update. However, others are still in the process of addressing this requirement.

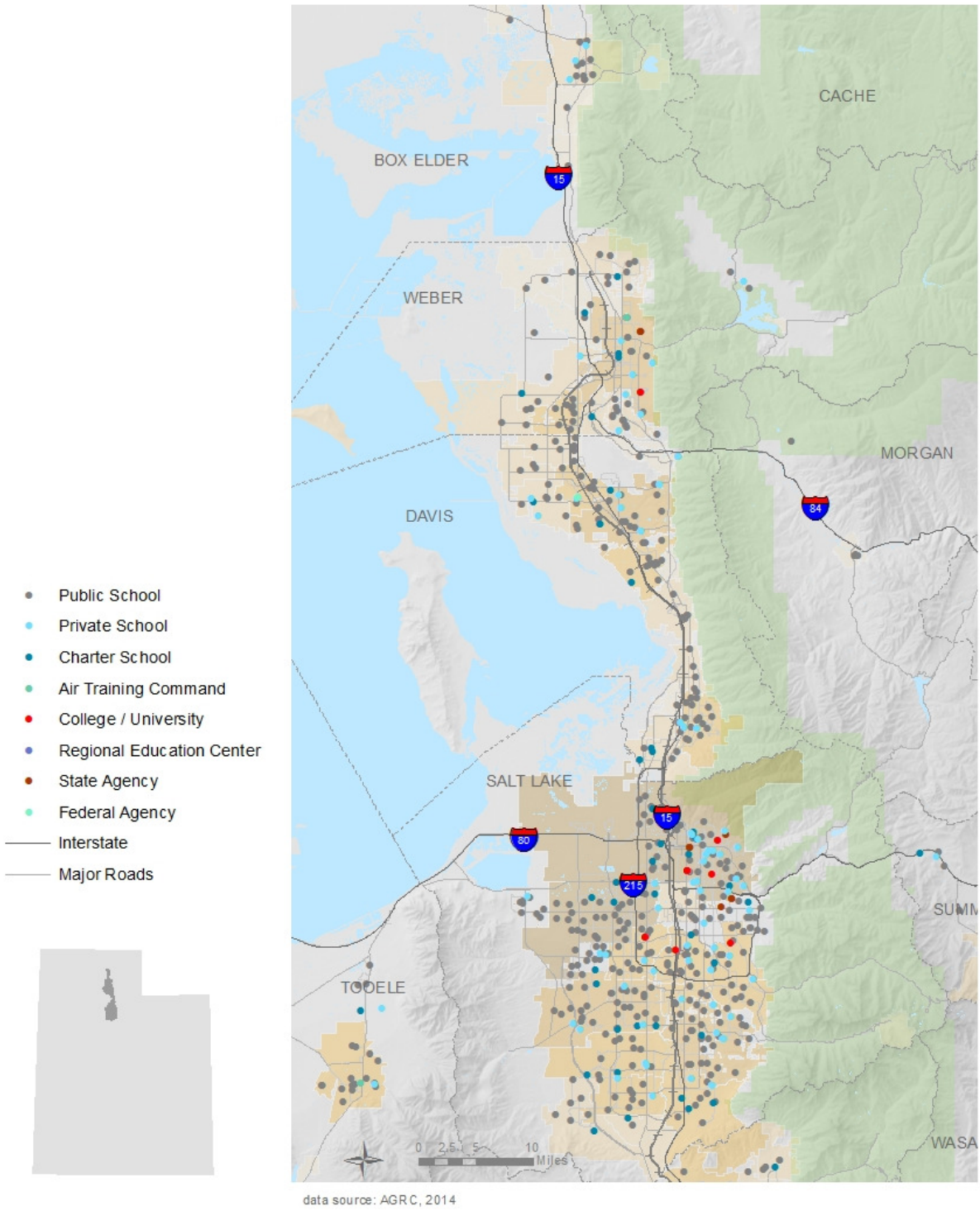
At the regional level, housing needs have been evaluated through a number of studies needed to generate comprehensive housing affordability strategies. More recently, broad based consolidated plans, largely concerned with housing and supporting infrastructure, have been required by the Department of Housing and Urban Development (HUD) in order for states and local jurisdictions to make use of various funding programs. These processes have identified general housing needs and have led to the creation of plans and strategies aimed at meeting these needs.

In addition to impacts on housing location, transportation projects can have direct impacts when relocations are required. Improvements proposed in the 2015 – 2040 RTP have been reviewed to determine if there are potential conflicts with local and regional housing goals and strategies. Generally, there appear to be few projects that would present such conflicts. Most new highway construction or widening projects included in the 2015 – 2040 RTP may require a very limited number of dwelling units to be removed. However, two major highway projects will likely require more extensive removal of existing residences. These are the Mountain View Corridor (MVC) in western Salt Lake County, and the West Davis Highway (WDH) in Davis and Weber Counties. Any projects requiring the removal of homes and relocation of families would be subject to, and in accordance with, all applicable relocation and replacement policies.

> **Mitigation** - As might be expected, in the current climate of relatively high housing costs, meeting the basic housing needs of those with very low incomes, or in need of specialized housing opportunities, is a significant concern. Expansion and coordination of area social service programs will likely be required to help meet affordable and specialized housing needs. The Wasatch Choice for 2040 envisions future centers for development in the Region providing for mixed use and a variety of housing options to address the need for moderate and low-income housing. These centers will be designed as walkable communities served by transit to provide for improved access between future housing and employment opportunities. WFRC is also part of a consortium that has received a Sustainable

MAP 8-1

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
URBAN AREA SCHOOLS



Communities grant from the US Department of Housing and Urban Development (HUD). This grant will be used to assist in implementing the Wasatch Choice for 2040, part of which is to develop a regional housing plan. Transportation improvement projects proposed in the 2015 – 2040 RTP would have little direct impact on housing goals or strategies aimed at meeting these needs. However, additional transit services can provide long term benefits such as improved access to social service providers, employment opportunities, etc. Lastly, when dwelling units need to be relocated, the state and federal governments can provide assistance through established relocation assistance programs.

Cultural Resources

Highway and transit projects can have positive impacts by improving access to cultural resources. However, potential negative impacts include noise, the need to relocate housing and other structures, etc. The evaluation of the 2015 – 2040 RTP also considered potential impacts on historic districts.

The Wasatch Front Region has a number of national and locally registered historic districts, including University, Exchange Place, South Temple, Avenues, Central City, and Capitol Hill, located in Salt Lake City. Four additional Salt Lake City historic districts: Highland Park; Gilmer Park; Warehouse; and Northwest, are nationally registered. Ogden City has two national and locally registered historic districts: 25th Street and Eccles Avenue. The Jefferson Historic District is nationally registered, and Ogden City planners are considering the creation of the East Central Bench District. Farmington City has a single state registered historic district, Clark Lane. Copperton City, an unincorporated community in Salt Lake County, is listed on the national registry. West Bountiful, Riverton, Midvale, Murray, and Sandy City have older residential and commercial areas that might qualify as historic districts. The evaluations of potential highway or transit projects in the 2015 – 2040 RTP with regard to impacts on cultural resources are site specific. Evaluations show that there are approximately 100 historic sites comprising about 50 acres that may be impacted by proposed projects.

Mitigation - Specific impacts on all cultural resources will be identified and mitigation measures determined during the environmental analysis phase of the project development process. If unknown cultural resources are encountered during project development or construction, appropriate investigation and mitigation will be undertaken. Efforts will be made, subject to federal and state policy, to provide mitigation measures that are easily accessible to the general public. Such mitigation measures might, for example, include the placement of historical information markers, in addition to providing standard documentation.

TITLE VI AND ENVIRONMENTAL JUSTICE

Environmental Justice embraces the principle that all people and communities are entitled to equal protection under national environmental, health, employment, housing, transportation, and civil rights laws. On February 11, 1994, President Clinton signed Executive Order 12998, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This order augments Title VI of the Civil Rights Act of 1964, which states in part that, “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.” Recipients of federal aid are required to certify compliance with Title VI of the Civil Rights Act of 1964. The United States Department of Transportation must ensure nondiscrimination under Title VI and other applicable laws, regulations, and policies. Federal transportation authorities and the courts have held that Title VI applies to the transportation planning process and all citizens should receive the benefits of, and not be adversely impacted by, regional transportation plans.

Transportation Needs Of Target Populations

The WFRC conducted a series of outreach meetings with the leadership of local organizations and non-profit groups representing low-income, minority, Native American, disabled, and elderly populations within the Urban Area. The purpose of the 2015 – 2040 RTP was presented and specific transportation related issues relative to these environmental justice groups were discussed. A summary of the concerns raised by each group has been provided in **Table 8-1**. More detailed documentation of these meetings can be found in **Appendix P**, entitled "Transportation Needs Of Target Populations."

As part of its efforts to ensure region-wide environmental justice in the development and implementation of the 2015 – 2040 RTP, the WFRC documented the distribution of specific, target population groups. Target populations along the Wasatch Front are defined as members of minority groups (defined as non-white, Hispanic) and low-income personas defined in the 2010 Census.

Geographic Information System (GIS) technology was applied to compare and map the data as target populations provided by the Census Bureau. Census data at the block group and census tract levels were used for a spatial comparison and for the mapping of target populations. Those areas that contain a higher percentage of target populations than the regional averages are identified in **Map 8-2**. The definition of each target population category is found below.

TABLE 8-1

SUMMARY OF COMMENTS RECEIVED
ENVIRONMENTAL JUSTICE GROUPS

GROUP	COMMENT
Coalition de La Raza	"Our people ride buses." The bus system was reduced to help fund TRAX and FrontRunner. It needs to be brought back to full operation.
Coalition de La Raza	The hours of operation need to be extended. Also, weekend service needs to be expanded.
Indian Walk-In Center	The transit oriented developments planned along the TRAX lines need to have affordable housing as well.
Indian Walk-In Center	The TRAX stop near their office at 1300 South has helped immensely for client access.
NAACP	UTA does not concentrate on where the minorities live and they need to be part of their decision making. They seem to be more concerned about their suburban, middle-class clientele on TRAX.
Disability Rights Action Coalition	UTA should accept an SSI check stub or a Medicaid card as evidence of low income for the purpose of purchasing discounted transit passes.
Disability Rights Action Coalition	The increasing cost of public transit is pricing the poor out of the market. This is particularly true of para-transit where a ride is now $8.00 for a round trip. This is a lot of money to someone living on SSI. This has the effect of isolating people in their homes.
Salt Lake Area Authority on Aging	Every city should have a complete streets ordinance. We need more bicycle lanes and walking paths.

Minority Population – For the purposes of this analysis, a member of a minority population is defined as a person that identified as non-white and/or Hispanic of any race on the 2010 U.S. Census form.

Low-Income Population - Low-income population is defined as a Household Income less than 85 percent of the County median income as reported in the *2009-2013 5-year American Community Survey*.

Impacts of 2015 – 2040 RTP on Target Populations

This comparison, summarized in **Table 8-2**, evaluated the potential impacts of recommended widening, rights-of-way acquisition, and new construction projects on target populations. The table shows the number of census tracts in each target population category. Note that many of these tracts may fall into more than one category. The potential impacts of planned highway and transit projects on affected targeted populations throughout the Wasatch Front Urban Area is significantly lower than that on non-target groups.

TABLE 8-2

CENSUS TRACTS IMPACTED BY 2015 – 2040 RTP PROJECTS

TARGET POPULATIONS	TRACTS
Minority	82
Low Income	87

Benefits Of RTP For Target Populations

The 2015 – 2040 RTP provides a number of transit related benefits which will help members of the target populations. The Plan recommends continued growth in rail service and other enhancements funded, in part, by the November 2006 transit tax referendum approved in Salt Lake County. By 2040, the increase in transit service will be approximately 125 percent compared to the 1997 bus system.

High frequency bus corridors are planned for the Region's most heavily used arterial streets and collector roads. These facilities include 3500 South, 1300 East, North Temple, and Foothill Drive in Salt Lake City, as well as 24th Street, Harrison Blvd, and Washington Blvd in Ogden. Additional transit corridors are planned, including the Herriman and Draper extensions. Corridor preservation for regional commuter rail service is programmed for an extension to Brigham City.

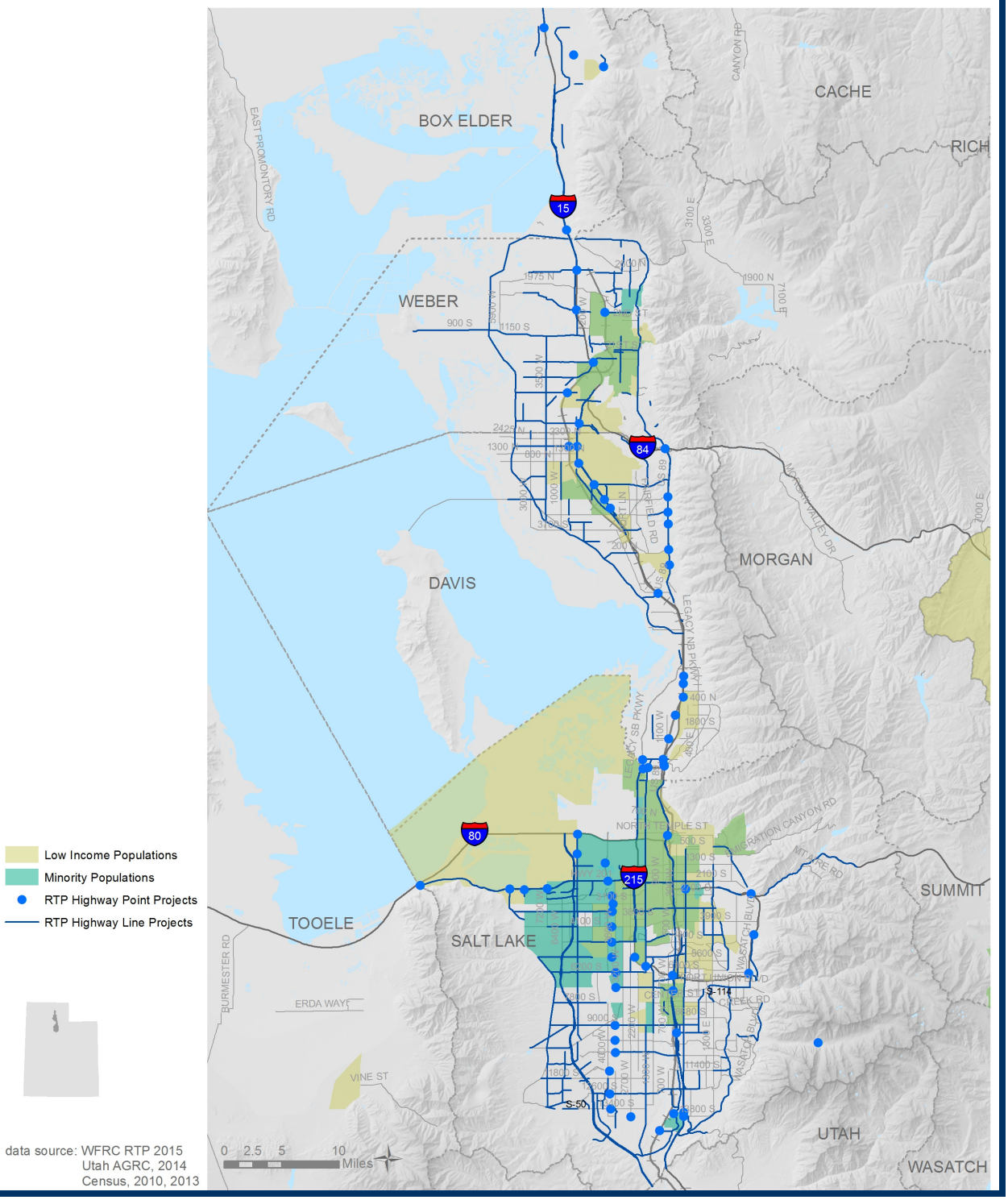
The Utah Transit Authority continues to upgrade its bus fleet and transit stops to meet the requirements of the Americans with Disabilities Act (ADA). All new buses are equipped with wheelchair lift ramps and secured tie-down positions for disabled patrons. Approved ADA curb cuts, better asphalt maintenance, improved site drainage at bus stops and shelters, and the increased time for pedestrians to cross streets will benefit both patrons with disabilities and / or the elderly, as well as the general public.

1964 Civil Rights Act Section VI Compliance

The Wasatch Front Regional Council is obligated under Section VI of the 1964 Civil Rights Act to reach out to members of minority groups, the physically challenged, and other transportation disadvantaged individuals and engage them and their representatives in the Regional Council's transportation planning process. In preparation for this effort, the Regional Council adopted a Title VI compliance plan on March 27, 2014 which includes a Limited English Proficiency Plan and incorporates by reference, the adopted Public Involvement Plan. The Title VI Plan ensures that consistent outreach efforts are made to minority and limited English proficient populations as part of the RTP update process. The Plan includes the placement of posters in the WFRC office and on its website instructing concerned individuals on how to submit complaints for discrimination on the state and local level. WFRC has established this Title VI Complaint Procedure in order to receive and work to resolve any grievance appropriately. By adoption of the Title VI Plan, the Regional Council has agreed that, " the selection of representation on the WFRC is done without regard to race, color, and national origin."

MAP 8-2

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
ENVIRONMENTAL JUSTICE TARGET POPULATIONS



The Title VI Plan includes other elements such as ensuring that WFRC venues and open houses have convenient transit and Americans with Disabilities Act compliant access. The Plan also requires that the WFRC locate minority populations and compare the locations of those concentrations with the major transportation projects within the 2015 – 2040 RTP to make certain that there are no undue or disparate impacts to those populations.

A major element of the Title VI Plan is the adoption of a Limited English Proficiency (LEP) Plan which outlines steps the WFRC will take to include those individuals with a limited ability to speak English. The LEP states in part:

> *"In March 2014, the WFRC adopted the Limited English Proficiency (LEP) Plan, which is included as Appendix A in the Public Involvement Policy (Attachment 5). The LEP Plan uses the Four Factor Analysis to identify LEP persons that need language assistance, outlines how language assistance is available, and describes how staff considers the needs of LEP persons. In accordance with the Safe Harbor Provision, WFRC has analyzed which language groups exceed the 1,000 persons or five percent threshold. These language groups are listed in Attachment 6. Since there are 5 languages that meet the Safe Harbor threshold, it is not feasible to translate vital documents into all of these languages. Therefore, WFRC focuses translation efforts on Spanish, which is the largest language group in the region other than English, comprising over 70 percent of the Region's LEP population. WFRC public meeting notices and agendas will include a disclaimer in English and Spanish indicating that translation services are available if a request is made at least 72 hours before the meeting."*

The four factor analysis mentioned in the LEP extract quoted above has been completed. In addition, all meeting notices and the website carry notices that Spanish translation is available.

Environmental Justice Outreach

The Regional Council is committed to full implementation of the above plans in order to ensure that all residents receive an equal opportunity to participate in the transportation planning process. As part of that effort, the Regional Council has an extensive outreach program to environmental justice populations. For this RTP update cycle, Regional Council staff members have met with the governing boards of the following organizations:

- Salt Lake County Community Action Program—January 20, 2012
- Coalition de La Raza—February 20, 2012
- Salt Lake Community Action Program Housing Staff—February 23, 2012
- Disability Rights Action Coalition—March 6, 2012
- Weber County Coordinating Committee—May 16, 2012
- Regional Coordinating Council (for the transportation disadvantaged)—April 4, 2012
- Disability Law Center Staff—April 11, 2012
- Jordan Meadows Community Council (Rose Park Area)—April 11, 2012
- Salt Lake City Association of Community Councils—June 7, 2012
- Ogden-Weber Community Action Program—July 2, 2012
- Senior Citizen Concerns/Willowood Senior Housing—July 12, 2012
- Davis County Coalition Against Domestic Violence—July 7, 2012
- Weber Area Association of Human Service Organizations—August
- Survey of Mobility Needs for Transportation Disadvantaged 900 respondents—August 23, 2012
- League of Women Voters—November 12, 2012
- NAACP—November 20, 2012
- Utah Indian Housing Council—January 28, 2013
- Salt Lake Area Authority on Aging—February 7, 2013
- Indian Walk-in Center—March 25, 2013
- Utahns for Better Transportation—August 28, 2013

During the meetings documented above, the WFRC staff presented the current 2011 – 2040 RTP and then solicited the respective agency board members thoughts regarding present and future transportation needs for their client populations. These comments were carefully recorded and shared with Regional Council planning staff and board members prior to the selection and prioritization of the projects within the RTP. They were also made part of the summary of comments found in **Appendix C**, entitled "Public Involvement Summary."

Safety And Homeland Security

The WFRC does not perceive any adverse social impacts from any of the safety projects, or projects which include specific safety features. Rather, specific safety projects, and projects including safety features, will provide a direct social benefit to target populations. These benefits include bicycle and pedestrian safety, the improvement of intersection safety, the promotion of safer truck travel and the enhancement of railroad crossing safety.

Similar to safety, security was also considered in the development of the 2015 – 2040 RTP. The MPO is continuing its coordination effort with state, regional and local transportation and community planners as well as its security oriented partners. In an effort to enhance the security of transportation system and infrastructure, the WFRC staff has contributed to the Governor's 10 Year Strategic Energy Plan through participation on the Transportation Sub-Committee. Staff also continues to participate on the Private Sector Homeland Security Coordinating Council with representatives of the two major regional security organizations the Utah State Division of Emergency Services and Homeland Security and the Utah Local Government Association of Emergency Services/Security, and the majority of the emergency support function ESF) representatives from ESP No. 1 Transportation to ESP No. 16 Military Support. The State of Utah continues to refine the Utah Emergency Operations Plan (EOP), which includes emergency operations procedures for all departments in state government including transportation (ESF #1) through the State DOT. The communications portion of the EOP is essential and includes links to all state, local and federal agencies as well as private industry. The WFRC has also reviewed the Utah Energy Shortage Contingency Plan and UTA's current Public Transit Emergency Management Operations and Recovery Plan to ensure appropriate coordination with the MPO's on-going planning processes.

The 2015 – 2040 RTP's recommendations address security of the transportation system in a number of ways, including improving multi-modal system capacity (bicycle, pedestrian, roadway and transit), increasing system redundancy, increasing or improving park-and-ride and transit hubs and expanding the Region's ITS program. With increases in the number of lanes at choke points on I-15, I-80 and other facilities in Weber, Davis and Salt Lake Counties, the likelihood of traffic congestion decreases as does the security vulnerabilities at these locations. Similarly, the capacity of the over-all transportation system has been increased. Needed redundancy in the system includes both high capacity transit and new and expanded highway facilities. Transit projects include commuter rail, light rail, streetcar, bus rapid transit lines, park-and-ride lots, transit station expansion or enhancement. Highway improvement include projects such as the West Davis Corridor (SR-67 Extension) in Weber and Davis Counties, the expansions of I-15 and US-89 in Davis County, the expansions of SR-201, I-80 and I-15, and the Mountain View Corridor in Salt Lake County. Both highway and transit projects combine to decrease congestion by providing commuters with alternative modes and routes, and will increase the security of the transportation system by adding redundancy and decreasing the likelihood of a catastrophic system failure.

Recommended improvements for the Intelligent Transportation System (ITS) program will also enhance the security of the transportation system. Significant portions of the "Commuter Link" system, a computer-controlled system designed to monitor and manage traffic flow on freeways and surface streets, are in operation with information available to the public through the internet. ITS will continue to be improved with the addition of more closed-circuit television cameras, electronic roadway signs, coordinated traffic signals, ramp meters, traffic speed and volume sensors, pavement sensors, weather sensors, and the continued use of the 511 Travel Information Line.

Integrally linked to the ITS system, the UDOT Traffic Operations Center (TOC) monitors and manages traffic flow on surface streets and freeways. UDOT's TOC is connected to smaller traffic control centers in Salt Lake City and Salt Lake County, as well as UTA's three radio control centers. All of these agencies work closely together to improve travel, safety and security along the Wasatch Front.

ECONOMIC IMPACTS AND BENEFITS

Consistent with the Wasatch Choice for 2040 Vision, the Wasatch Front Regional Council believes in a transportation network that enhances the regional economy. To this end, the WFRC seeks to improve mobility and make transportation investment and land use decisions that retain and recruit businesses, labor, and keep the region an affordable place to live and do business.

The WFRC sought feedback from the Region's Wasatch Front Economic Development District in order to gain a better understanding of transportation related economic needs, impacts, and benefits. One of the WFEDD objectives is to encourage development near transportation hubs and along public transit corridors. Another objective is to promote multi-modal transportation options, especially those that encourage and promote existing corridors. The State of Utah has worked hard to improve its transportation infrastructure in order to allow Utah to better support large consumer markets and population centers.

Job Accessibility

Improving the ability of residents to travel to job sites in a reasonable amount of time can be thought of as the basic purpose of transportation - to help people go to desired destinations and return. It is also one important measure of how well the transportation system helps the economy thrive. Improving job accessibility for homes is similar to improving labor and patron accessibility to businesses – a better score means a broader pool of potential employees, more patrons that can access a business easily and also relates to freight movement considerations. In the 2015 – 2040 RTP, planners analyzed job accessibility by homes. This analysis was done for both roads and for transit. The findings are included **Maps 8-3** and **8-4**. The 2015 – 2040 RTP improves job accessibility for both roads and transit when compared to today.

Redevelopment

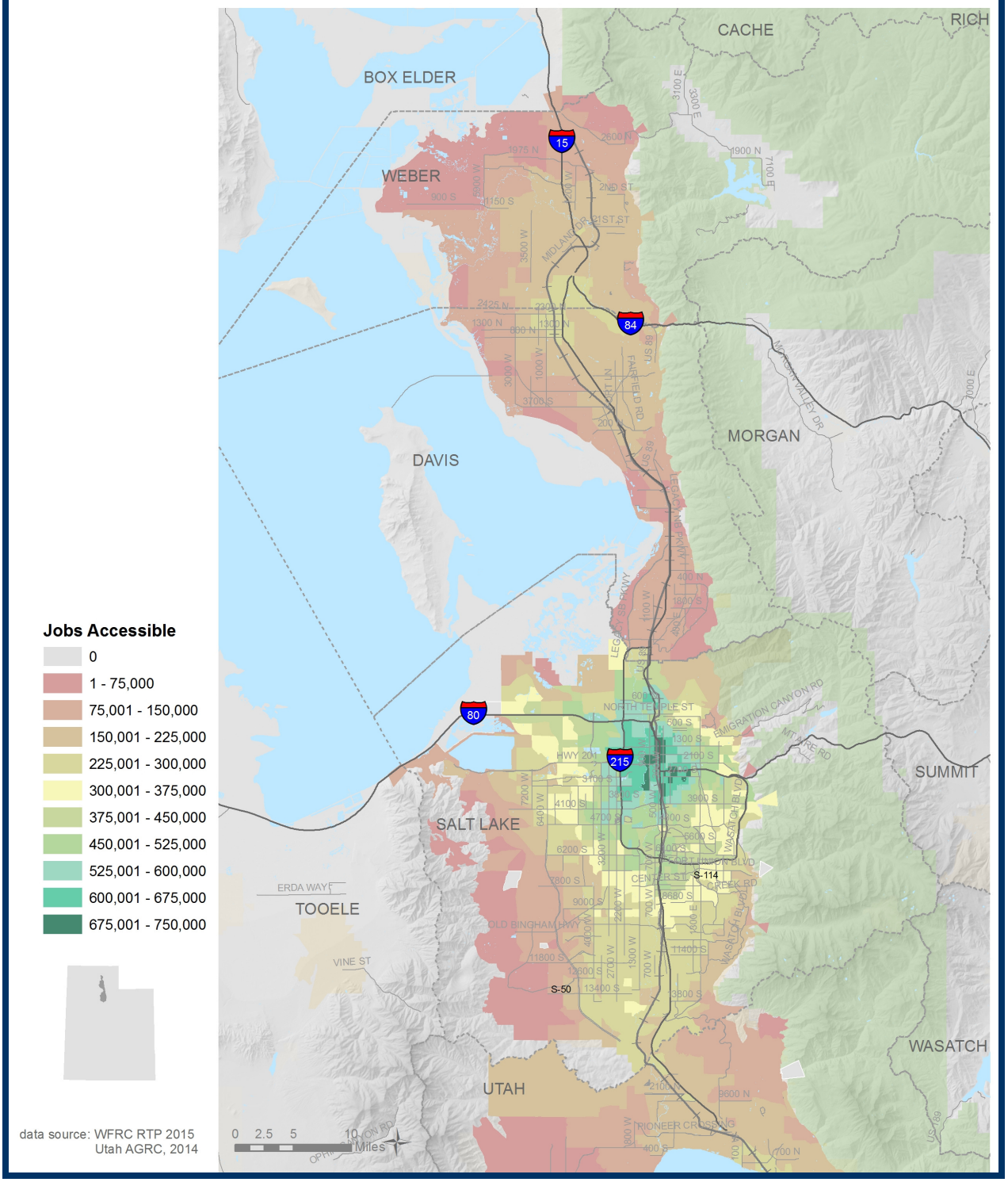
The land use assumptions for the 2015 – 2040 RTP include a growth of 37 percent of housing units through infill and redevelopment. This varies from a recent trend in which 25 percent of the Region's housing growth has occurred through infill and redevelopment. The transportation plan supports this pattern of infill and redevelopment and it is consistent with the feedback received through the planning process. Growth in infill and redevelopment helps cities and towns to remain vital while also protecting against deterioration as buildings age and become obsolete. Infill or redevelopment takes growth pressure off vacant areas and puts people and jobs close to existing infrastructure. Infill/redevelopment reduces the need to build new infrastructure, reduces average driving distances, and tends to enable more people to use transit. Fundamentally, it also improves job accessibility helping residents more easily and effectively participate in the economy

Weber County

The WFRC staff held meetings with representatives of the Governor's Office of Economic Development (GOED) to gather input for the 2015 – 2040 RTP's Project Lists and to receive insights on the implications for regional economic development. In addition, UDOT, in conjunction with the development of its Statewide Plan, requested input from GOED on the same subject. In response to UDOT's request, GOED prepared a memorandum that identified the most important projects in the state in terms of economic development, using the following criteria: (1) alignment with industry clusters; (2) alignment with anticipated location of future economic activity; and (3) alignment with planning efforts.

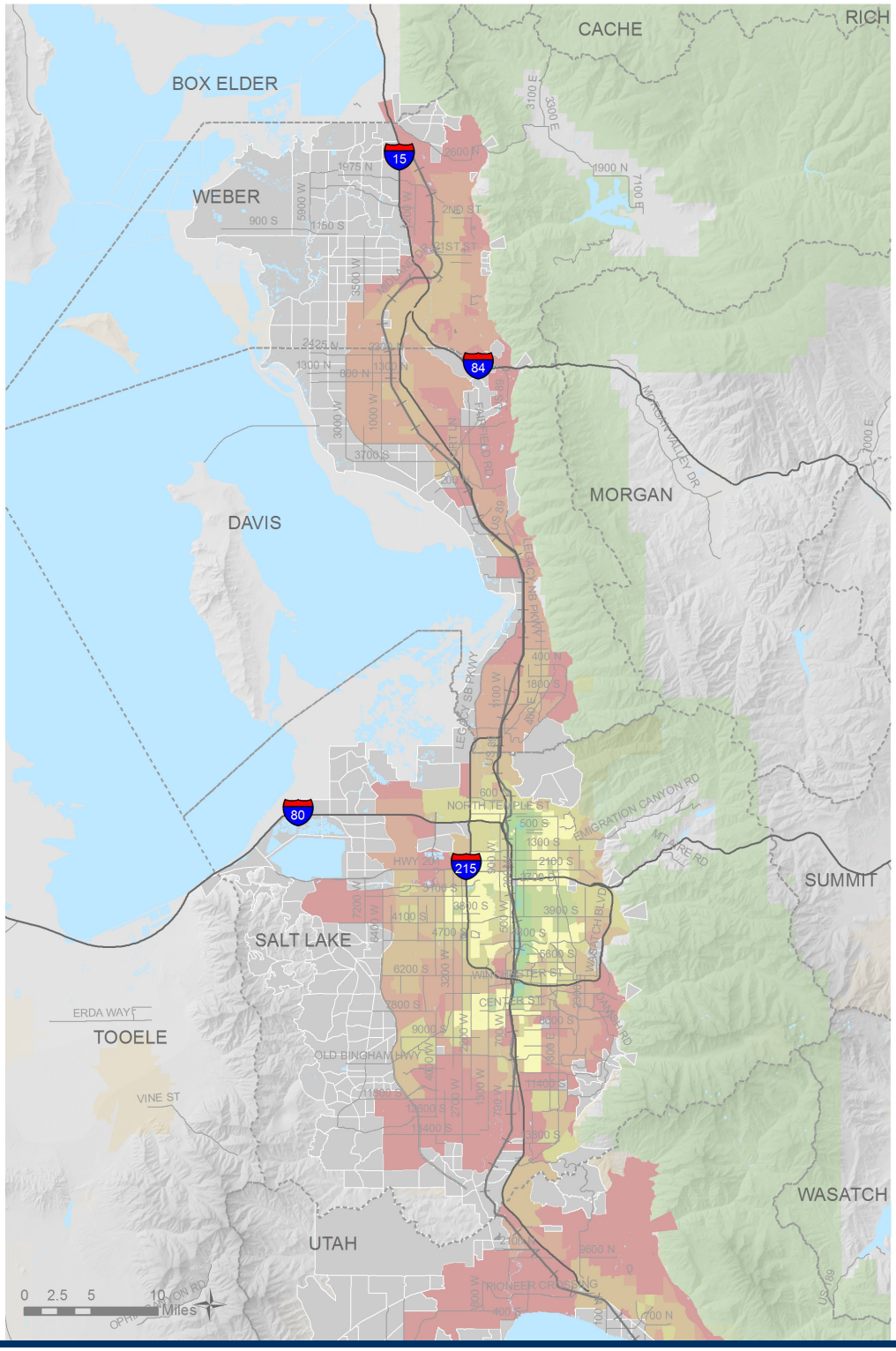
Map 8-3

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
JOB ACCESSIBILITY - 20 MINUTE AUTO



Map 8-4

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
JOB ACCESSIBILITY - 40 MINUTE TRANSIT



Using GOED's memorandum to UDOT and the results of the WFRC staff's own meeting with GOED personnel, existing and potential sites in the Region that are expected to experience significant future economic activities, are identified below. The transportation facilities that serve, or are needed to serve, these sites are also identified.

Pleasant View Area Industrial Park - The area is located near 2700 North between US-89 and SR-126. There are about 200 acres that could be developed for light industrial and other uses. I-15 is fairly close to the west. The number of future jobs this development could accommodate is estimated in the thousands. Direct access is provided by 2700 North, US-89, and / or SR-126. The northern terminus of UTA's FrontRunner commuter rail is located in the area on 2700 North, which is in service during peak hours.

> **Transportation Access** - Overall road capacity in the area will be an important factor in its development. The I-15 / 2700 North Interchange, the adjacent roads, and commuter rail will play an important role in making this site successful.

Business Depot, Ogden (BDO) - This facility was previously known as Defense Depot, Ogden. It was a military installation for many years. In 1997, Ogden City acquired the Depot and since then the City has expended considerable effort to convert the area into a business park. The City has granted the Boyer Company a 70-year lease for the facility. The company is making good progress toward filling the former depot with a wide variety of businesses. The facility consists of 1,200 acres of land and has about 6 to 7 million square feet of floor space. About 75 percent of this space is under lease. There are about 500 acres available for new construction. During the past five years, ten new buildings have been constructed with a combined floor space of 1.5 million square feet. Some of the companies currently located in the BDO are Rossignol, Scott, USA, LK Stainless, Lofthouse Foods, Icon Health and Fitness, and Kimberly-Clark. Currently, there are about 3,000 employees working for businesses in the Depot. By 2025, about 10,000 employees are expected to be working at the BDO.

> **Transportation Access** - The BDO facility's major access is via I-15, located about one mile to the west. The road that provides the most direct access to the BDO is 400 North. This road connects to I-15 via the 400 North-Pioneer Road / I-15 interchange. Other roads that serve the facility are 12th Street, 2nd Street (from the east), and 1200 West. Currently, because of surface deterioration, there are restrictions on the use of 1200 West by trucks heavier than 10,000 lbs. Marriott-Slaterville is planning a street widening from 2 to 4 lanes, with a turning median, and a reconstruction project for 1200 West, from 1000 North to 12th Street. The improvements to 1200 West and 400 North are important to the economic well-being of the BDO. Restrictions on 1200 West are a detriment to the BDO's leasing prospects. Current users of the facility are forced to detour on less convenient roads for access to and from the facility. Correction of these problems as soon as possible will help the BDO be more competitive and successful.

Davis County

Hill Air Force Base West Side Development (Falcon Hill) – Hill Air Force Base (HAFB) has begun construction of a 570-acre business and technology park next to I-15. The land is proposed for lease to private interests, and is located on the west side of the Base near the West Gate. This development is a very high priority for the state's economic development programs. The site offers an opportunity for a large-scale project which private land developers under normal conditions could not afford to develop. The general concept involves relocating the security fence away from I-15 to allow businesses to locate adjacent to HAFB. The five million square feet of space being proposed for development over a 20-year period translates into 10,000 to 20,000 jobs. However, most of these jobs will relocate to Falcon Hill from existing locations in the Region. It is expected that this project will form one of two core locations for the defense / aerospace / advanced composites industry cluster (the other being at the Ogden-Hinckley Airport).

Transportation Access – In order to facilitate development of this project at I-15 and 1800 North, an interchange needs to be constructed, since it will provide significantly improved access to the site. It will be important for the interchange to function properly with ample capacity. A link to the FrontRunner commuter rail station in Clearfield would enhance the site.

Freeport Center / Freeport Center West (Clearfield) - The Freeport Center had its beginnings during World War II when it was established as a United States Navy defense installation. In the 1970s, the installation was closed and the property sold to private interests. It has redeveloped into a significant warehousing and manufacturing facility.

The Freeport Center is comprised of 680 acres of land. The Center consists of 78 buildings (ranging in size between 4,000 to 400,000 square feet) and employees approximately 7,000 people. About 7 million square feet of building space is available for the 70 companies located at the Center. Some of these companies include ATK-Thiokol, Lifetime Products, Futura Steel Manufacturing, Fram Oil, and U.S. Foods. The Center is essentially fully leased, with a vacancy rate of less than one percent. The facility is serviced by rail, and there is some room to expand on 40 vacant acres. There is also potential for redevelopment.

The Freeport Center West facility was established in 1991 and is located adjacent to the Freeport Center on the southwest side. It is comprised of about 85 acres with 10 buildings totaling about one million square feet. Two recently renovated buildings are available for lease at the facility each having about 120,000 square feet of available space.

Transportation Access - This facility is primarily served by I-15, which is located about one mile to the east and SR-126, which is located about one-half mile to the east. Both of these routes to the east of the Freeport Center are oriented in a north / south direction. Access from these two roads is provided via two I-15 interchanges. One is located at 1700 South (Antelope Drive) and the other at 700 South (SR 193) in Clearfield. Both of these east / west routes lead directly to the Freeport Center.

There are several transportation improvements currently underway or planned in the area that could serve the Freeport center. It will be important to provide some linkage to the FrontRunner commuter rail station which is located just to the east of the Freeport Center. Also, the 2015 – 2040 RTP has identified east / west roads in need of improvement. These improvements enhance access in the area where the Freeport Center is located. These are the 200 / 700 South connection, and improvements to 200 South and 1700 South (Antelope Drive). Currently, internal traffic and parking presents problems for the facility. Employees parking their vehicles at the buildings where they work may impede trucks serving the facility. The Freeport Center's property management organization has stated that they would like to construct a central parking lot for employees from which a shuttle, using vans or buses, would service the various businesses.

Salt Lake County

Northwest Quadrant - The Northwest Quadrant as identified by Salt Lake City covers a large area (from SR-201 to about 3000 North, and from Bangerter Highway on the east to about 7400 West on the west). A considerable amount of light industrial and other development already exists on the west side of Bangerter Highway, with a potential for substantial expansion. North of I-80 and west of the Salt Lake International Airport is the International Center, which could also expand into a large amount of acreage to the west and north. In addition, there are trucking and railroad (Union Pacific Intermodal Terminal) complexes emerging in the 5600 West Corridor both west and south of the International Center. One potential site for the relocation of the Utah State Prison is north of I-80 at 7200 West. As noted, there is considerable potential for growth in the Northwest Quadrant. The biggest drawback for the area has been the lack of water, sewer, and other infrastructure. There is also the presence of hazardous wastes, operating solid waste facilities, and environmental (wetland) issues.

Transportation Access – I-80, SR 201, and 5600 West, as well as the Mountain View Corridor will play a vital role in serving the area. I-80, SR-201, Bangerter Highway, 5600 West, California Avenue / 1300 South, 6400 West, 700 South, and 4800 West are the existing roads that primarily serve the area. North of I-80 and west of the airport there are few developed roads. A sub-regional transportation plan will need to be created and implemented, as well as other master plans, before the area can be developed. A future extension of the TRAX line from the airport, as well as a BRT system is expected to serve the area.

Murray - There are still several hundred acres available for development and / or redevelopment in Murray located near the Intermountain Medical Center at about 5300 South and 200 West. It is still undetermined precisely what type and scale of development will occur in this area over the next 10 or 15 years. Murray's central location and the nearby major transportation facilities make it an attractive location.

Transportation Access - I-15, I-215, 5300 South, State Street, Main Street, TRAX and FrontRunner commuter rail provide the bulk of the access to this site. If these facilities are fully functional, then Murray will have excellent access. Murray will need to develop and implement a good neighborhood traffic circulation master plan to facilitate access to and from the site.

Midvale - Midvale's central location in the Salt Lake Valley, good freeway access, the existing TRAX line, and the Mid-Jordan TRAX line make Midvale an attractive area for future development / redevelopment. There are over 200 acres on the slag site near the former Sharon Steel Plant, (now called Bingham Junction), which have been cleared for development. The site is directly served by the Jordan River Boulevard, an extension of 7200 South, and connects to 7000 South in West Jordan. There is potential to develop this site into a major office park, which could possibly become the center for the state's life sciences industry cluster. There are already potential tenants with solid interest in leasing and / or building over 250,000 square feet of office space.

Transportation Access - The Jordan River Boulevard leads directly to the site. The site is bounded on the east by 700 West (Main Street). I-15 and the I-15 / 7200 South Interchange are close by for easy access to the Midvale site. Other streets that could indirectly provide access to the site are 7800 South, 7000 South and 1300 West in West Jordan. The existing and future TRAX stations are removed from the site by several blocks. One station is just west of State Street on 7800 South. The FrontRunner commuter rail line will be located just east of I-15. Midvale and UTA officials should jointly consider how best to link this site to transit services.

Mid-Jordan Tech Corridor - Located between the New and Old Bingham Highways in West Jordan at about 6000 West are hundreds of acres of vacant land with the potential for a high tech center. Specific plans have not been prepared for this area. A high rate of residential development is occurring in both West Jordan and South Jordan, and complements the site from a jobs / housing balance standpoint.

Transportation Access - The Mid-Jordan TRAX line is currently serving the mid-Jordan Tech Corridor. This light rail transit line provides this corridor with nearby high capacity transit service. Roadways that will serve the area are the Old Bingham Highway, the New Bingham Highway, 5600 West, 6400 West, 8000 South, and Mountain View Corridor.

Daybreak - This planned community is located in South Jordan City. It is located just west of the Bangerter Highway and the main entrance is located at about 11400 South. There are 300 acres, or more available for new office space and other uses. The area is a master planned development created by Kennecott Land Company. Because it is a planned community, the area presents a special attractiveness, especially to out-of-state people who are more accustomed to this type of

development. Master planned communities generally provide prospective customers greater assurance about the type and quality of future development that may emerge around them. The development is using concepts of "new urbanism" in its layout, design, and architecture.

> **Transportation Access** – Currently, access to the area is provided by the Bangerter Highway, 11400 South, and 11800 South. The Mid-Jordan TRAX line terminates at Daybreak. The Mountain View Corridor, as well as the TRAX line, will be needed in order for Daybreak to realize its full development potential.

Point of the Mountain Area - This area includes property that is located within Draper and Bluffdale west of I-15. There could be two discrete subareas identified for this area. The first is the Utah State Prison property (Draper), which is generally bounded by the Bangerter Highway to the north, 14600 South to the south, and the D & RG Railroad line to the west. The other subarea could be called the turf farm property, which is bounded by 14600 South to the north, the proposed Porter Rockwell Blvd. and the D&RG Railroad line to the west. The two areas combined exceed 1000 acres. The Point of the Mountain area is strategically located on the boundary of Salt Lake and Utah Counties. The northern portion of Utah County and southern portion of Salt Lake County, are currently experiencing rapid growth.

The economic importance of the prison property has been validated by IKEA's decision to locate at the north end of the area, and Sorenson Development's announced office development at the southeast end. Preliminary plans for the vacant, state-owned property near the Utah State Prison envision a mixed-use development with two million square feet of office space and major retail, hotel, and residential components. Based on anticipated property values, relocating the State Prison could well become economically viable in the future, thus doubling the size of the area available for development.

Extensive development of Bluffdale City's turf farm property is probably a long-term prospect, even though a few office / warehouse type buildings have already been constructed in the area. In any event, there is a considerable amount of land available for development at this location that potentially could generate thousands of jobs.

> **Transportation Access** - I-15 is currently the primary transportation facility providing access to the area. The Bangerter Highway / I-15 and 14600 South / I-15 interchanges provide land access from the Interstate. The West Frontage Road also serves this area. A strong advantage for both of these subareas is the Draper City FrontRunner commuter rail station. This station located, along with continued area growth, will create the need for an exit from Bangerter Highway. An additional need may emerge for a north / south arterial west of I-15 connecting 14600 South to the IKEA area located north of Bangerter Highway. If the nearby segment of the Bangerter Highway is converted to a freeway, land access will need to be maintained and enhanced. The planning agencies responsible for this area should consider general traffic circulation plans for these locations.

ENERGY ANALYSIS

Highway Operations

The 2015 – 2040 RTP also reduces congestion, vehicle hours of travel (actually delay or "non-travel), and the corresponding fuel consumption through improved operation of the highway network. By implementing operational improvements, providing new or wider facilities in congested locations, and eliminating "choke point" conditions, the 2015 – 2040 RTP can significantly reduce traffic congestion compared to an unimproved highway network subject to ever increasing traffic demand. Transportation System Management (TSM) strategies to reduce congestion include signal coordination, Intelligent Transportation Systems (ITS), incident management, ramp metering,

innovative interchange and intersection configurations (such as single point urban interchanges and continuous flow intersections), and access management.

Quantifying the delay reductions from TSM efforts is difficult due to the diverse nature and application of these strategies and the challenge of isolating the benefits of one particular strategy when all the strategies are employed together. From the assumptions made in the travel model testing of region-wide applications of TSM strategies, an overall reduction of VHT on the order of 3 percent seems reasonable. If these assumptions are valid then a daily VHT reduction of 71,500 is possible from maintaining and increasing applications of TSM strategies in the Wasatch Front Region. This VHT reduction is the equivalent of 90,800 gallons of fuel saved each day. **Table 8-3** summarizes the benefits of TSM strategies in the 2015 – 2040 RTP.

TABLE 8-3

TSM STRATEGY SAVINGS
2015 - 2040 RTP HIGHWAY OPERATIONS

MEASURE	AMOUNT
Vehicle Hours Traveled 2040	2,384,000
VHT Reduced from Improved Operations (3%)	71,500
Idling Fuel Consumption Equivalent VMT (assume 2.5 mph)	178,500
Gallons of Fuel*	6,500
*CAFE standard 27.5 mpg for passenger vehicles	

Transit And Non-Motorized Operations

Transportation improvements can help promote economic growth and activity by reducing user operating costs and providing access to employment and retail opportunities. This section discusses the energy savings of the 2015 – 2040 RTP recommended transit projects, and the increase in non-motorized trips (bicycles and walking) that would be encouraged by the activity clusters advocated in the RTP. The 2015 – 2040 RTP includes a variety of transit projects and programs that encourage alternatives to the use of single-occupant automobiles. Public transit alternatives include commuter rail, light rail, bus rapid transit, and local bus service. Rideshare programs and incentives include park and ride lots, freeway HOV lanes, UTA vanpools, and UTA rideshare matching service. Clustered development, or activity centers advocated in the RTP, encourages more bicycling and walking for short trips.

To estimate the energy impacts of these transit and non-motorized strategies, the WFRC staff compared mode share in 2011 to 2040. Transit trips were assumed to have an average trip length of 8.0 miles, and non-motorized trips (bicycle and walking) were assumed to have a combined average trip length of 1.5 miles. It was also assumed that the average speed of the vehicle trips replaced by transit and non-motorized trips is 35 mph with a fuel consumption rate of 27.5 miles per gallon. The resulting energy savings provided by transit projects and non-motorized trips in the 2015 – 2040 RTP are summarized in the **Table 8-4**.

The 2015 – 2040 RTP transit improvements and non-motorized trips reduce energy consumption in two ways: 1) the number of vehicle trips are reduced, and 2) (to a far lesser degree) the remaining vehicle trips experience less congested conditions, so less time is lost to delay. Using a fuel consumption rate per vehicle of 27.5 miles per gallon, the RTP saves about 86,700 gallons of fuel per day in the year 2040. Fuel economy standards for 2040 may be significantly higher than the current 27.5 mpg and if this is the case, the effective energy savings from transit and non-motorized trips would be diminished.

TABLE 8-4

ENERGY SAVINGS 2015 – 2040 RTP TRANSIT PROJECTS AND NON-MOTORIZED TRIPS

	VEHICLE TRIPS ELIMINATED	VEHICLE MILES ELIMINATED	GALLONS OF FUEL SAVED
Transit Trips	165,200	1,321,600	48,100
Bicycle & Walking Trips	708,500	1,062,750	38,600
Total	873,700	2,384,350	86,700

*CAFE standard 27.5 mpg for passenger vehicles at 35 mph yields 1.27 gallons per hour

Fuel Price Impacts

A number of lessons can be learned from the gasoline price spikes of 2008. The average price for a gallon of unleaded gasoline rose from $2.96 in July 2007 to $4.09 in July 2008, an increase of 38 percent. At this price, changes in travel behavior became noticeable with a nationwide decrease in annual vehicle miles traveled (VMT) of 3.5 percent (Dan Brand, *"Impacts of Higher Fuel Costs"*). Utah experienced similar declines in VMT in 2008 due to the elevated fuel prices. The question is, "What happened to all that VMT?"

Perhaps the most important lesson from the 2008 fuel price spike is that traveler behavior began to change as gasoline prices reached the $4.00 threshold. But the nature of the changed travel behavior remains a critical question.

In a short term price spike, commuters have limited options. People still need to get to work and other essential activities. Buying a more fuel efficient vehicle may be a sound long-term response to higher fuel prices, but this is not a remedy immediately available to most consumers. National transit statistics for 2008 indicate that only about 5 percent of the reduced VMT diverted to public transit. Locally, the number of passengers using Utah Transit Authority services increased 12.5 percent from 2007 to 2008. But for 2009 UTA passenger volumes decreased 4.2 percent to volumes very close to 2006 levels. Other possibilities are that travelers reduced discretionary travel, took advantage of flexible work schedules such as four-day work weeks, joined carpools, or they may have opted for telecommuting opportunities. Still others may offset the increased commuting costs with decreases in discretionary spending.

In a study of fuel price elasticity, it was concluded that, *"motorists do find ways of economizing on their use of fuel, given time to adjust. Raising fuel prices will therefore be more effective in reducing the quantity of fuel consumed than in reducing the volume of traffic."* (Daniel J. Graham and Stephen Glaister, "The Demand for Automobile Fuel: A Survey of Elasticities," Journal of Transport Economics and Policy, Volume 36, Part 1, January 2002.) But, even small reductions in traffic volumes can produce noticeable improvements in traffic congestion. As noted in the Brand article cited above, peak-period congestion can be relieved to a large degree with only minor reductions in traffic volume.

A related lesson from the fuel price experience of 2008 is the impact this can have on transportation funding. The primary source of highway construction and maintenance funds is fuel tax. If travelers respond to increased fuel prices with less traveling and less fuel consumption, then the revenues from fuel sales will also be reduced. This is an important consideration as the Wasatch Front faces increased demand for transportation in the future, while current instability in many oil producing areas raises serious questions about the cost and availability of fuel.

QUALITY GROWTH

In May 2005, Envision Utah issued a publication titled: Thinking and Acting Regionally in the Greater Wasatch Area: Implications for Local Economic Development Practice. Section V of this publication includes a discussion on economic development and quality growth. Much of what follows is derived from this section of the Envision Utah publication.

Over the past several decades, the economic development equation has changed dramatically. Traditionally, the state attempted to lure manufacturing companies by promising a low-cost business environment. Also, tax breaks and access to "cheap labor, cheap land and cheap money" were driving forces. Geographic location was also an important ingredient to the mix of factors. As the nation has changed from an "industrial economy" to an "information economy," the factors that corporate site selectors consider have also changed. With skills at a premium in knowledge-intensive industries such as biotechnology, software and advanced manufacturing, a good location is now considered one that has, and can attract, a critical mass of educated people.

In this modern age, skilled labor is the single most important input for many companies. While the costs of doing business still matter, companies are often more concerned about locating in a region that will be attractive to the highly skilled employees they seek. The Brookings Institution issued a working paper (Natalie Cohen) wherein a strong correlation is made between education and quality of life issues in the business-location decision. Essentially, "quality of life" has become a key competitive advantage in the fierce competition to recruit and retain firms and talent.

Company location determines how far residents must travel to work, and it influences the form of transportation they use to for commuting. Company location also impacts the character of community growth. A company that locates in a central, downtown facility spawns additional retail and service industry growth, contributing to a vital town center. In contrast, a company that builds a new facility on vacant land near a highway interchange reinforces a decentralized growth pattern and dependence on automobiles as the exclusive means of employee transportation.

Business location and expansion decisions need to be coordinated with land use, transportation and housing policies in order for the greater Wasatch Front Region to develop in ways that are efficient, equitable, environmentally-sound and attractive. Economic development officials also need to work together to determine which locations across the Region should be developed and / or preserved for future employment sites. Thinking, planning, and acting as a Region will help preserve the high quality of life that residents value. In contrast, unplanned and uncoordinated job site development has the potential to undermine the attractiveness and competitiveness of the entire Wasatch Front Region.

To achieve quality job growth, consideration should be given to the following factors: (1) labor force, (2) land supply, (3) infrastructure, and (4) community amenities. If all other factors are equal, community amenities often make the difference in a business location decision. Thoughtful municipal planning and coordination and steadfast cooperation between public and private actors is necessary to integrate high-impact, quality growth principles into economic development practices on a region-wide scale. Thus, while it is important to think and act regionally in terms of overall business expansion and recruitment, it is also very important to think about how to prepare the Region's communities to be attractive destinations for high-skill, high-wage companies.

TRANSPORTATION IMPACTS

Statistics regarding vehicle hours of delay further quantify the mobility impact of the 2015 – 2040 RTP. Without these projects, total vehicle hours of delay during the evening commute would be over 370,000 hours. With implementation of the 2015 – 2040 RTP, the vehicle hours of delay would decrease by more than a third, totaling about 220,000 hours. **Map 8-5** show congestion levels in

2040 with the implementation of the 2015 – 2040 RTP. Roadways colored red are expected to have significant levels of congestion. Those roadways colored green are expected to have moderate or no congestion. Highway and transit projects in the 2015 – 2040 RTP will improve traffic mobility substantially over not implementing the RTP. However, even with the planned improvement in the 2015 – 2040 RTP there will still be significant roadway congestion especially in Davis County, Weber County, and western Salt Lake County.

In addition to improving traffic mobility, the 2015 – 2040 RTP will provide increased accessibility to transit. Ridership is forecast to increase from 90,000 linked trips per day in 2009 to over 220,000 linked trips in 2040. Approximately five percent of peak period commuter trips are now taken by bus or rail. This figure is forecasted to increase to nearly seven percent if the RTP is fully implemented. Vehicle miles of travel (VMT) per capita is anticipated to increase from 24 per day to 26 per day, or by eight percent. This means that VMT is expected to grow at a rate slightly faster than population. Many of the highway improvements in the 2015 – 2040 RTP allow for more direct (shorter) trips, and transit and other mode improvements reduce the number of vehicle trips. Both system management and demand management strategies (see section 7.8) will also help hold VMT growth to only a slight increase over the rate of expected population growth.

ENVIRONMENTAL IMPACTS

New transportation projects and improvements to existing facilities will address the anticipated needs for greater highway and transit capacity in the Salt Lake and Ogden - Layton Urbanized Areas. However, these projects can have negative environmental impacts as a result of construction and operation. The impacts of the 2015 – 2040 RTP on various aspects of the environment were examined. In particular, the 2040 RTP's impacts on general air quality, noise, water quality, wetlands, water bodies and floodplains, cropland and sensitive species are examined and evaluated. Site specific impacts will need to be investigated in detail as NEPA (National Environmental Policy Act) principles are applied to the planning processes. Most new construction and transit improvement projects that receive federal funding require, at a minimum, a detailed environment assessment (EA), which outlines the social, economic and environmental impacts of the various project alternatives considered. The approval of a draft and a final EIS (Environmental Impact Statement) are required if environmental and social impacts for a specific transportation project are deemed "significant". This section will provide an overview of the possible environmental impacts from the Planning and Environmental Linkages reports from uPLAN. Project specific impacts can be found in **Appendix Q**, entitled "Planning and Environmental Linkage."

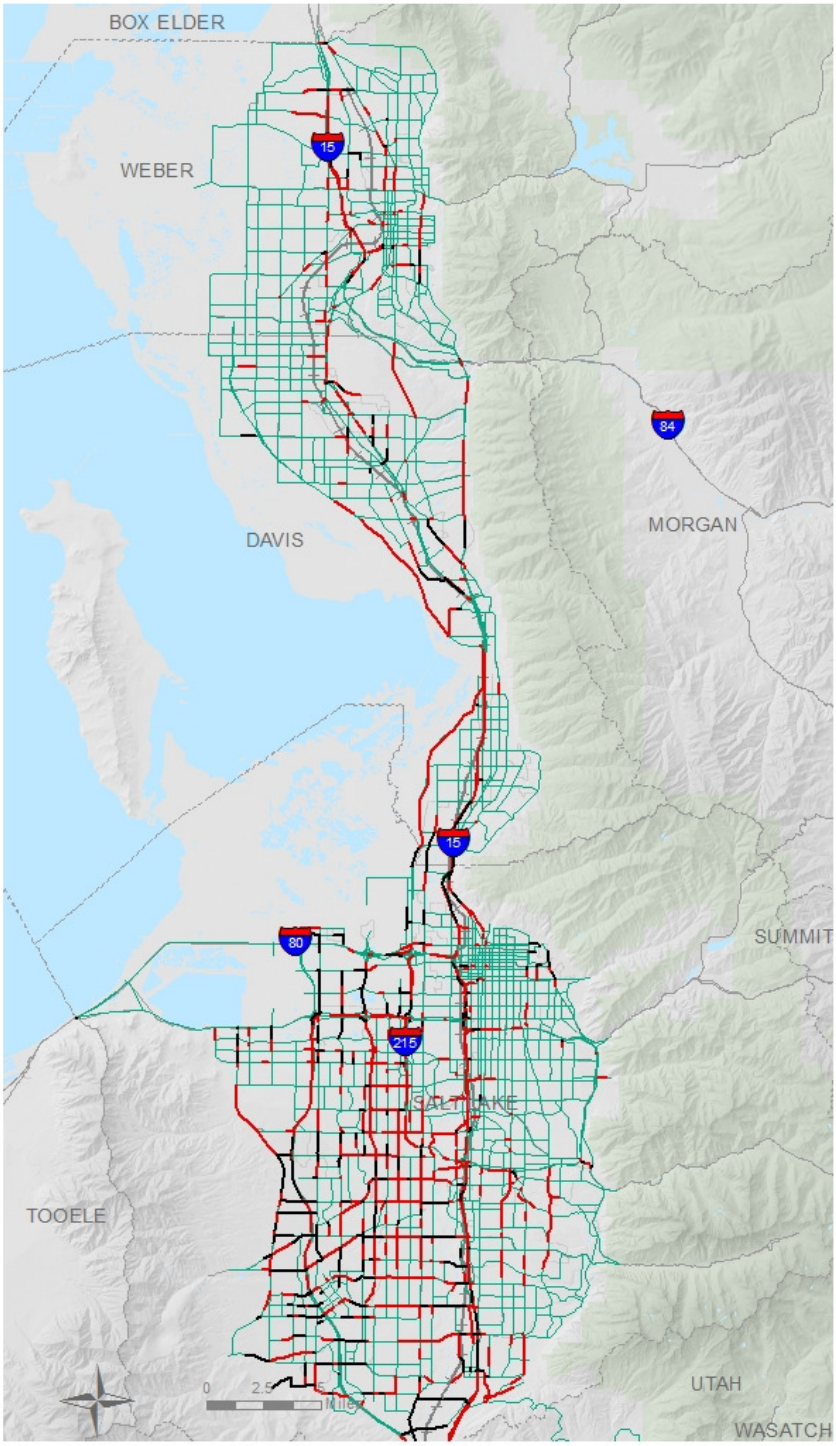
Air Quality

Emissions from cars and trucks traveling on public highways have been declining since the 1990's, even with increases in the overall amount of vehicle travel. This trend in emissions for the Wasatch Front Region (Weber, Davis, Salt Lake, Box Elder, and Tooele Counties) is depicted graphically in **Figures 8-12**, **8-13**, and **8-14**. The emission reduction from vehicles can be attributed mainly to substantial improvements in vehicle emission technology required by federal vehicle standards. Local emission testing and repair programs have also played a lesser but important role in monitoring and reducing overall vehicle emissions.

In the future time frame of the 2015 – 2040 RTP, as newer vehicles with the latest emission technology replace older vehicles, overall emissions will continue to decrease. In 2004, Tier 2 vehicle emission standards for cars and light trucks were implemented, resulting in elimination of over 85 percent of emissions as compared to vehicles manufactured in the 1970's. In 2017, Tier 3 vehicle emission standards will take effect and will significantly reduce vehicle emission yet again. In addition, large diesel trucks beginning with model year 2007 are now subject to much stricter emission standards than in the past. Reduced diesel emissions will contribute significantly to an overall decrease in future vehicle emissions.

MAP 8-5

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
2040 TRAFFIC VOLUME TO ROADWAY CAPACITY RATIO



data source: WFRC Travel Model, Winter 2014

FIGURE 8-12

WASATCH FRONT REGION VEHICLE EMISSION TRENDS – NOx

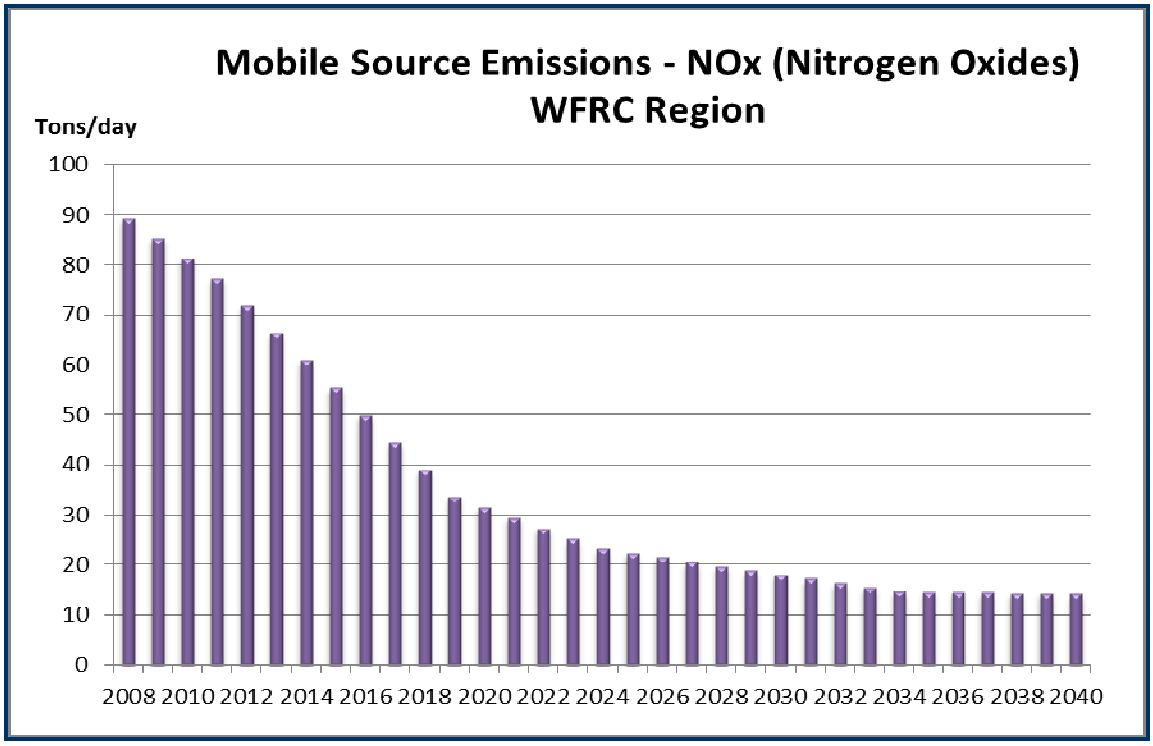


FIGURE 8-13

WASATCH FRONT REGION VEHICLE EMISSION TRENDS – CO

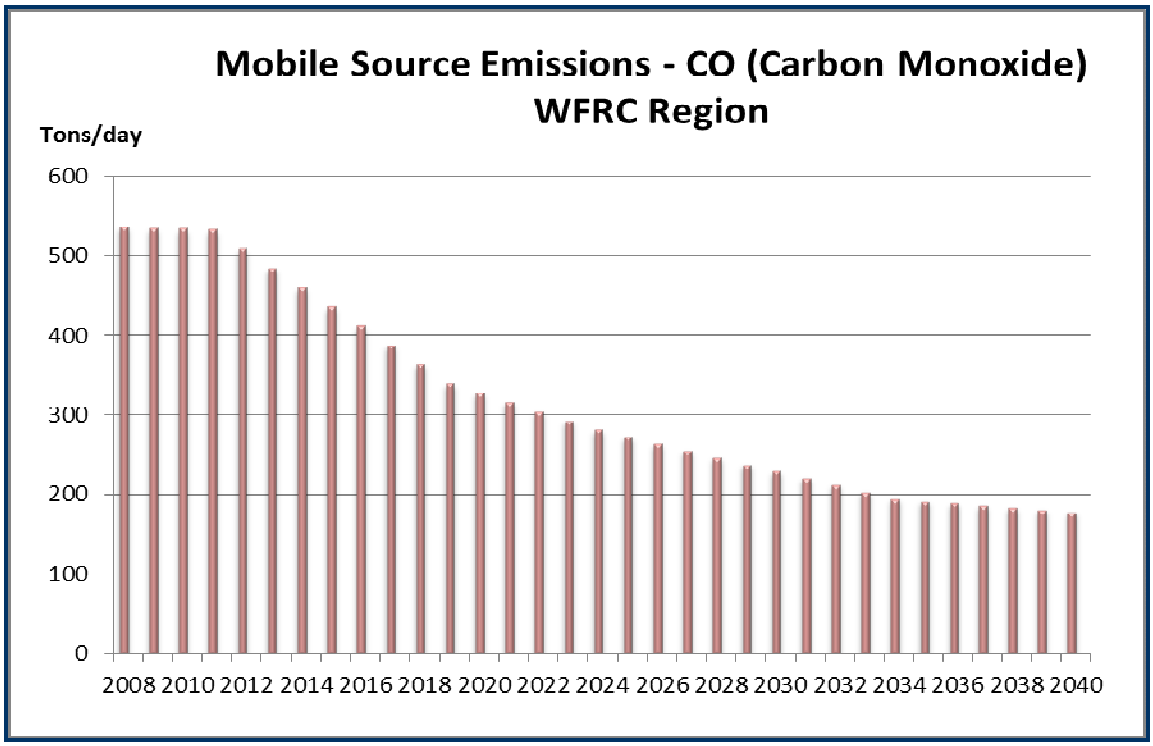
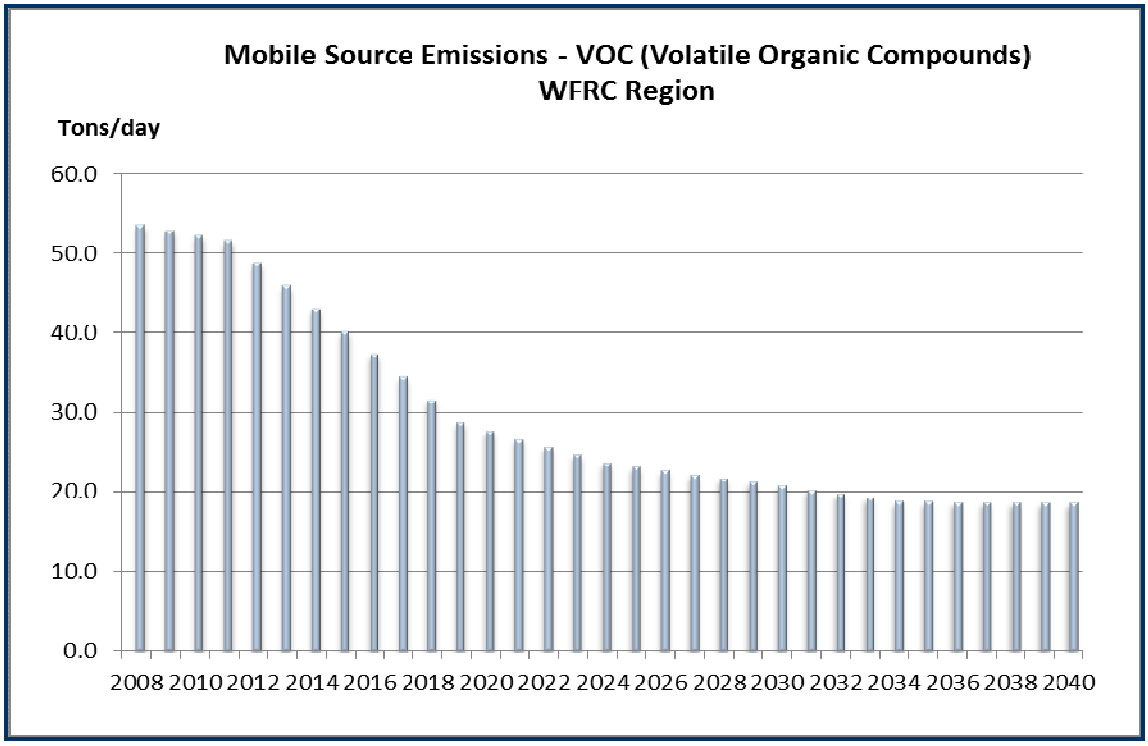


FIGURE 8-14

WASATCH FRONT REGION VEHICLE EMISSION TRENDS – VOC



Other contributing factors to reduced future vehicle emissions include the 2015 – 2040 RTP recommendations for expanded transit service and highway improvements strategically planned to alleviate congestion and corresponding emissions. Congested traffic is responsible for excess emissions for two reasons: (1) the additional load to vehicle engines operating in stop and go conditions; and (2) the inefficiency of congested traffic that generates emissions but produces no movement of people or goods. **Table 8-4** in the Energy Analysis section of this document estimates that by 2040, transit projects and non-motorized trips will eliminate approximately 873,700 daily vehicle trips, which is the equivalent of about 2,384,400 vehicle miles each day. In addition, highway improvements are estimated to potentially eliminate 71,500 daily vehicle hours of travel. As shown in the **Table 8-5**, these reductions in congestion and delay amount to reductions of CO, NOx, and VOC emissions of about 52.23, 0.88, and 1.04 tons per day respectively in 2040 due to transportation improvements described in the 2015 – 2040 RTP.

TABLE 8-5

RTP EMISSION REDUCTIONS IN 2040

RTP IMPROVEMENTS	VEHICLE TRIPS OR HOURS REDUCED	VMT REDUCED	2040 EMISSION REDUCITONS (TONS/DAY)		
			CO	NOx	VOC
Transit	165,200 trips	1,321,600	12.21	0.22	0.28
Non-motorized Trips	708,500 trips	1,062,800	38.95	0.53	0.73
Traffic Operations*	71,500 hours	178,500	1.07	0.13	0.03
Total	--	--	52.23	0.88	1.04

**traffic operation improvements do not eliminate vehicle starts*

Much of the Wasatch Front Urbanized Area has been designated as a non-attainment area by the Environmental Protection Agency for certain types of air borne pollutants: carbon monoxide, coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and potentially ozone. While vehicle emissions are decreasing dramatically, exhaust emissions from automobiles, trucks, and buses in the form of carbon monoxide (CO), nitrogen oxides (NOx), and volatile organic compounds (VOC) remain a significant source of the air pollution problem in the Wasatch Front region. The impact of the 2015 – 2040 RTP on emissions of each of the mobile source related pollutants was examined and evaluated. The WFRC determined that the 2015 – 2040 RTP is consistent with and conforms to state air quality plans. For more information on air quality, please refer to the Air Quality Memorandum Report Number 32.

Noise

Roadway noise impacts vary, based on traffic, the nature of the road, and adjacent land use characteristics. Relevant traffic characteristics are volume, speed, and vehicle mix. The roadway characteristics affecting noise include grades and the presence or absence of noise barriers. Also important are adjacent land use characteristics, including the noise sensitivity of adjacent land uses, the distance between the roadway and the land use, and the design and construction of affected buildings.

A majority of projects in the 2015 – 2040 RTP will have relatively minor or no impact on existing developed areas. However, the projects listed in **Tables 8-6** and **8-7**, primarily interstate highways and principal and minor arterials, have the greatest potential for noise impacts on adjacent communities. These roads pass through identified residential areas and are relatively high-speed, high-volume facilities.

TABLE 8-6

SALT LAKE – WEST VALLEY URBANIZED AREA PROJECTS WITH POTENTIAL NOISE IMPACTS

STREET	FROM	TO
I-80	1300 East	Parley's Canyon
SR-201	I-15	I-80
3500 South	4000 West	8400 West
4500 South	Highland Drive	900 East
4700 South	2700 West	5600 West
5400 South	4800 West	SR-111
6200 South	Redwood Road	SR-111
Fort Union Blvd.	1300 East	3000 East
7000 South	Redwood Road	Bangerter Highway
7800 South	Airport Road	SR-111
8000 South	Bangerter Highway	New Bingham Highway
10400 South	Redwood Road	Bangerter Highway
11400South / 11800 South	Bangerter Highway	SR-111
12600 South	Bangerter Highway	Mountain View Corridor
13400 South	Bangerter Highway	Mountain View Corridor
6400 West	12600 South	13400 South
Mountain View Corridor	I-80	Utah County Line
5600 West	4400 South	14400 South
Redwood Road	8000 South	Bangerter Highway
Main Street	3300 South	Vine Street
700 East	Carnation Drive	12300 South
900 East	3300 South	Fort Union Blvd.
Highland Drive	8400 South	13800 South

Mitigation - Specific project noise impact assessments and mitigation measures will be determined during project design. Noise effects may be mitigated by shifting the highway alignment away from noise sensitive land uses, depressing the roadway, or installing noise barriers between the highway and the sensitive areas. In addition to the highway projects, light rail and commuter transit systems also have the potential for noise impacts. Noise barriers are most frequently incorporated into limited access highways. Noise mitigation is less effective or not effective for non-limited access, since land access roads, such as driveways, would largely negate mitigation efforts. As a matter of UDOT policy, noise mitigation measures will not be incorporated into certain sections of these projects where proposed development has not been approved by the local government authorities at the time highway facilities are under construction. Therefore, the affected local governments should require developers to consider the noise effects of existing adjacent and planned highway facilities during the development approval process. These considerations include proper setback distances from the noise source, and walls or berms between the noise source and receptor.

TABLE 8-7

OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL NOISE IMPACTS

STREET	FROM	TO
1800 North (Clinton)	Main Street	West Davis Highway
200 South	500 West	West Davis Highway
Syracuse Road (SR-108 / 127)	1000 West	West Davis Highway
Hill Field Road Extension	2200 West	3650 West
700 South / 200 South (Clearfield)	I-15	2700 West
Antelope Drive	Oak Forest Drive	US-89
500 South (West Bountiful)	I-15	Redwood Road
West Davis Corridor	Weber Co. Line	I-15 / US-89
2000 West	Weber Co. Line	Syracuse Road
2700 West	Hill Field Road Extension	North Legacy Corridor
US-89	I-15 (Farmington)	I-84
Skyline Drive (North)	2600 North	US-89
2600 North / 2700 North	I-15	3500 West
Midland Drive	Hinckley Drive	3500 West (Roy)
5600 South	1800 West	3500 West
5600 South / 5500 South	3500 West	5800 West
North Legacy Corridor	Davis County Line	I-15
3500 West	1200 South	Weber Co. Line
Monroe Boulevard	1300 North	2700 North

Water Quality

The National Clean Water Act, the State's Non-point Source Management Plan, and various other governmental regulations require the monitoring of water resource impacts and management in the urbanized areas. Water quality impacts resulting from a highway improvement project generally depend on traffic volumes, pavement width additions, and the aquifer recharge capability of the surrounding soils.

Water quality is affected by oil and other hazardous materials deposited by vehicles on the roadway and subsequently washed into ground water or open bodies of water. The amount of pavement added roughly correlates with increased road salt and other solvents used during the winter months. The aquifer recharge capability of the soils surrounding the project and the project's proximity to a well recharge area is indicative of the likelihood of roadway runoff contaminating drinking water. The 2015 – 2040 RTP is expected to require approximately 17,000 acres of right-of-way in ground water recharge zones and an additional 1,500 acres in close proximity to surface water and potential wetlands.

> **Mitigation** - Specific project water quality impact assessments will be made, and mitigation measures based on best management practices will be determined during the environmental phase of the individual project development process. During project design, settling ponds or storm water removal facilities may be used to limit the introduction of hazardous material seepage into important aquifers. **Map 8-6** shows the surface water features located within the Wasatch Front Urban Area.

Wetlands

Wetlands are areas able to support vegetation adapted for life in water- saturated soils. Wetlands can be generally defined as vegetated aquatic areas, such as bogs, marshes, swamps, and prairie potholes. Jurisdictional wetlands are those wetlands, which are within the extent of the Corps of Engineers' regulatory overview. Large, intact wetlands serve critical environmental functions, including flood control, water purification, and the provision of habitat for fish and wildlife. The significance of roadway wetland impacts varies, based on wetland characteristics such as the size of the wetlands area, the level to which the wetlands have already been disturbed by human development, and jurisdictional status. A project may impact wetlands by providing a barrier between adjacent wetland areas or by encroaching upon a single wetland area.

The projects in the 2015 – 2040 RTP that were deemed to have potential impacts on wetlands were those involving new construction or a widening of two or more lanes, and that would traverse, or be in close proximity to, the wetlands identified by the U.S. Fish and Wildlife Service's National Wetlands Inventory. The National Wetlands Inventory, which is based on aerial photography and did not include site sampling, includes both jurisdictional and non-jurisdictional wetlands in Utah and throughout the United States. The degree of impact for the projects listed as potentially affecting wetlands will depend on the amount of right-of-way required. Thus, projects requiring a considerable amount of right-of-way would have more impact than those requiring minimal or no new right-of-way.

> **Mitigation** – Regarding the projects included in the 2015 – 2040 RTP, consideration should first be given to impact avoidance. Specific jurisdictional wetland impact assessments will be made during the project development stage, and mitigation measures will be determined during the environmental evaluation and review phase. Strategies to mitigate impacts to wetlands should include: avoidance by shifting the alignment away from wetlands, replacing lost wetlands, banking wetlands, and / or using "no access" lines to restrict accompanying land development. Potential wetland areas within the Wasatch Front Urban Area are shown on **Map 8-7**. It should be noted that Murray City in Salt Lake County designed a project, as I-215 was constructed, to direct storm water run-off from the freeway into identified wetlands next to the Jordan River. Water filtered through these wetlands is collected and used to irrigate a nearby golf course and other park areas. Murray City has received national recognition for this project.

Farmland

The 2015 – 2040 RTP's recommended improvements will impact farmland by acquiring rights-of-way through active agricultural areas. In the urbanized areas, much of the prime farmland and farmland of statewide importance has already been developed, or is planned for urban uses. Examples of this are properties in Salt Lake County located between SR-111 on the west and the Union Pacific Railroad tracks on the east. These areas were designated in 1978 as prime farmland or farmland of

statewide importance. In southern Davis County, a 1978 Soil Conservation Service map designated much of Centerville, west Farmington, and parts of West Bountiful as prime agricultural land. Much of this land has been, or is under consideration for development. In Weber County, a considerable amount of the prime agricultural land is located between I-15 and the wetlands of the Great Salt Lake. Much of this land has already been converted to urban use, and the agricultural lands that remain are currently under substantial development pressure. In both Weber and Davis Counties, several farms have received the designation "Agricultural Protection Zones" which gives the land special status and makes it more difficult for local and state governments to use condemnation procedures to acquire property for a public purpose.

Prime farmlands of the Wasatch Front are generally those with relatively high quality soils, reliable water, and fewer than 30 dwelling units per 40-acre area, which are not currently designated for urban use. Lands currently within a municipality, which are used, but not zoned for agricultural or open space preservation, are presumed to be urban or designated for future urban use.

With the exception of new roadway construction and rights-of-way acquisition projects, the extent of direct impacts by the 2015 – 2040 RTP improvements on farmlands is relatively minor. New roadways often require larger amounts of rights-of-way than past projects and have the potential for greater direct impacts on farmland. Also, new roadways have the indirect impact of making nearby farmlands more attractive for urban land uses.

Farmland in Salt Lake County, has over the years, been largely consumed by urban development. Forty or more years ago, there were still large tracts of land in agricultural use, particularly in the southwestern part of Salt Lake County. Today, much of that farmland has been converted to residential and other uses, and the balance has been planned for urban development. Farmland that remains in Salt Lake is mostly destined for development, since there are no local government policies in place that would specifically provide for the preservation of farmland.

There are some parcels in Salt Lake County that are used for pasture, growing of hay, and turf farming. The communities that still have significant agricultural lands are Herriman, Bluffdale, West Jordan, and Salt Lake City. In Salt Lake City, there are several parcels of farmland on the west side, and in the Northwest Quadrant.

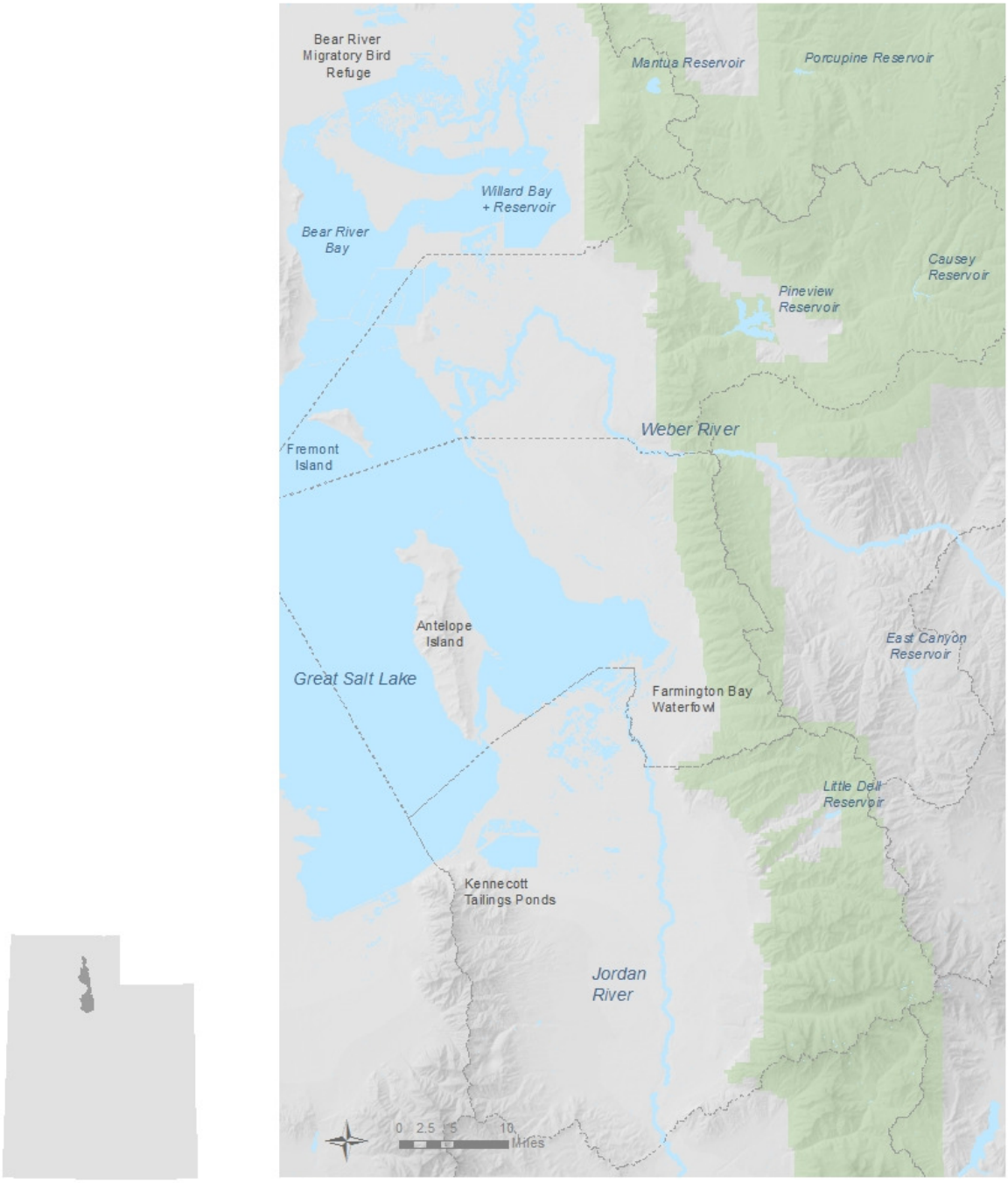
Most of Davis County's remaining farmlands are located west of the West Davis Highway, or west of Bluff Road. Davis County's farmland has also been largely converted to urban uses, similar to the pattern of Salt Lake County.

Weber County, of the three urbanized counties, has the most remaining farmlands. Most of this farmland is located in western Weber County, west of 1900 West, between the communities of Roy and Plain City. There are still large tracts of land that produce a variety of crops, including hay, corn, and onions. There is also a considerable amount of pastureland, as well as a few dairy operations in the area. A number of farmers have expressed a desire to continue to farm the land as long as possible. They do not welcome urbanization and the construction of transportation infrastructure through the area. The 2015 – 2040 RTP is estimated to directly impact 46 acres of Agricultural Protection Area and an additional 953 acres of agricultural land.

> **Mitigation** – Farmlands which have been officially designated as part of an "Agricultural Protection Zone", along with other productive farmlands in the Region, need to be avoided. If avoidance is impossible, due to the absence of other reasonable alternatives, care should be taken in the planning of the transportation facilities to limit the disruption of farm operations to the least extent possible. Local government planning and zoning regulations can play a vital role in preserving viable farmlands.

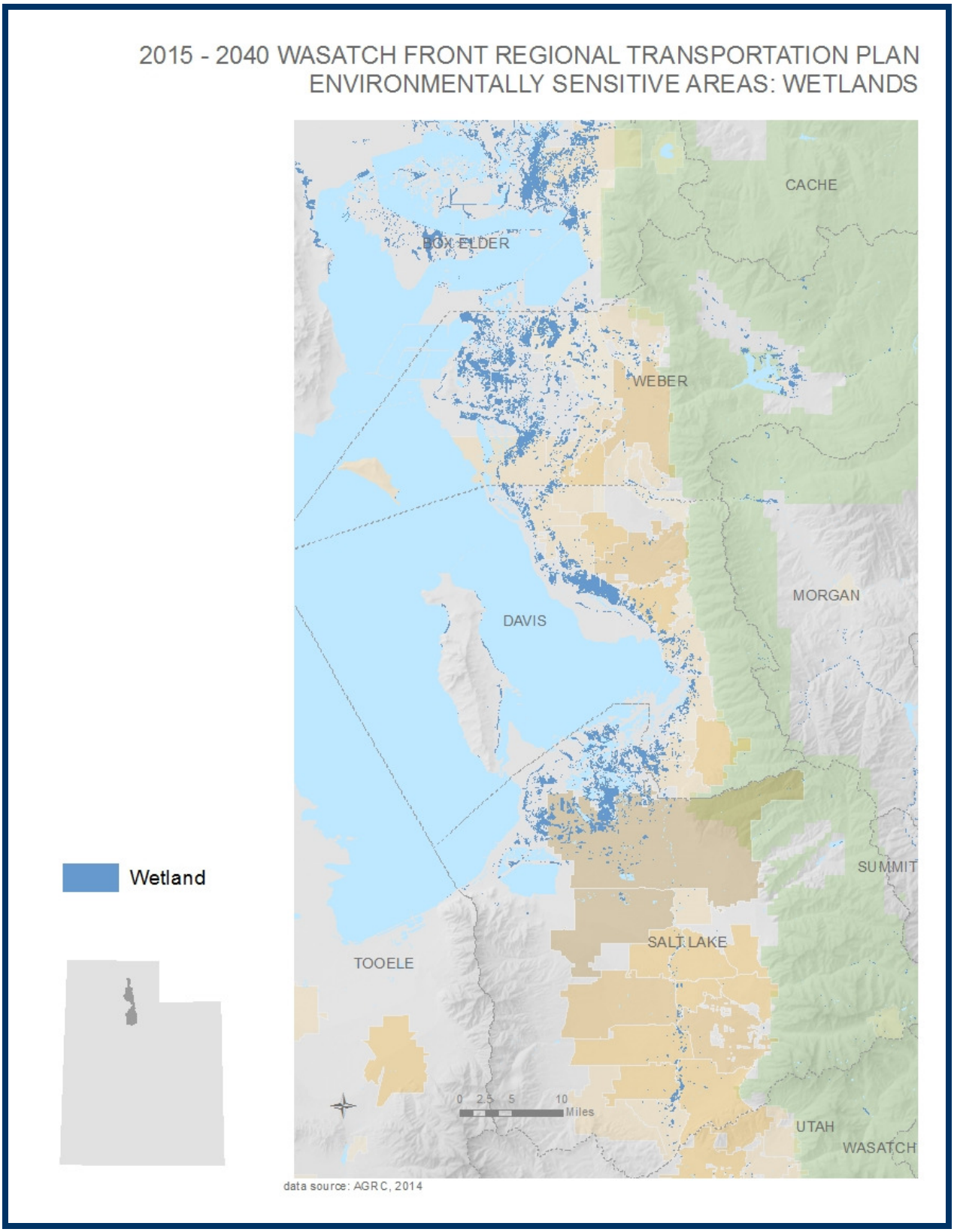
MAP 8-6

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
SURFACE WATER



data source: AGRC, 2014

MAP 8-7


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
ENVIRONMENTALLY SENSITIVE AREAS: WETLANDS
CACHE
BOX ELDER
WEBER
MORGAN
DAVIS
SUMMIT
SALT LAKE
TOOELE
UTAH
WASATCH
0 2.5 5 10
Miles
Wetland
data source: AGRC, 2014

Wildlife Habitat / Sensitive Species

The 2015 – 2040 RTP was evaluated to determine potential impacts on wildlife habitat and endangered and threatened species known to exist in Salt Lake, Davis, and Weber Counties. Bald eagles are known to feed near the Great Salt Lake. The proposed West Davis Highway could possibly affect this habitat. Endangered and threatened plants include Ute Ladies'-tresses and Deseret Milkvetch. It is not known if these plants and animals would be adversely impacted by projects listed in the 2015 – 2040 RTP. A survey of sensitive species will be conducted during the Environmental Impact Statement phase of project development.

The three urbanized counties represented by the WFRC contain significant wildlife habitat areas for a variety of species. The Great Salt Lake and associated wetlands provide an internationally significant migratory bird habitat. Many streams provide habitat for fish, mammals, reptile, and amphibian habitats. A portion of the foothills have been converted for urban use, which interfaces with the native grass, sage, and scrub oak-covered habitat. Mule deer, elk, mink, and snowshoe hare winter and at times spend their entire life cycles in these areas. Also, several species of birds use the foothills for year-round habitat, such as the California Quail, Ring Neck Pheasant, and Ruffed Grouse.

> **Mitigation -** The best method of mitigation is avoidance. If this is not possible, then plans are needed to minimize and / or mitigate unavoidable impacts. There are a variety of measures that can be taken, such as providing wildlife corridors if a transportation facility creates a barrier to wildlife movement or migration. It will be important to coordinate very closely with the U.S. Fish and Wildlife Service and the Utah Department of Wildlife Resources during the various phases of project development.

Water Body / Floodplain Modification

Natural water bodies and floodplains help to moderate flooding and accommodate erosion in a river. Projects can impact a water body by disturbing ground within 20 feet of natural or semi-natural rivers and streams, realigning or channeling meandering waterways, placing obstructions in floodplains, and utilizing unstable floodplain crossings.

The Army Corps of Engineers District Office has indicated in the past that the Jordan River in Salt Lake County was of particular concern, and urged that new crossings of the river be avoided, or minimized whenever possible. One project in the 2015 – 2040 RTP that will particularly affect the Jordan River is Porter Rockwell Blvd. This project will necessitate the construction of bridges. The numerous smaller streams flowing from the surrounding mountains were not considered in the evaluation, as they will be evaluated at a later time in more detail during the Environmental Impact Statement phase of project development. **Map 8-6** shows the distribution of surface water bodies within the Wasatch Front Region.

> **Mitigation -** Transportation facilities should, wherever possible, avoid floodplains. If a project must be located in an area designated as a floodplain, the facility will need to have the proper vertical elevation to prevent flooding. As a way to mitigate the natural hazard of flooding, alternative routes should be identified if the project is determined to be essential to the Region's overall transportation network. Stream crossing should be at right angles to minimize impacts. The channelization of streams and rivers should be minimized or avoided so that the natural channel and the habitat it provides can be preserved. If a watershed management plan exists for an area under consideration for a project, care should be taken to carefully coordinate efforts with watershed planners. Lastly, pre-construction meetings should be held with public officials, contractors, and others to discuss floodplain protection and how the project can be best designed to maintain natural drainage patterns and any existing runoff measures.

Hazardous Waste

The potential for the discovering of hazardous waste deposits buried in project rights-of-way is a concern. The purchase of a contaminated site, or possibly even the purchase of property sub-divided from a contaminated parcel, may result in the public agency that purchased the property becoming financially liable for a hazardous waste site clean-up process. This liability, if it falls to the transportation agency, could create significant financial burdens and project delays.

To identify projects that could be affected by hazardous waste sites, WFRC compared the location of proposed 2015 – 2040 RTP projects with the location of "Superfund" sites listed in the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). CERCLIS is the database used by the EPA to track the status of potential and confirmed hazardous waste sites. (Inclusion in CERCLIS simply means EPA has been notified of the possibility of some release of hazardous substance to the environment, thereby triggering the need for a preliminary assessment.) The distribution of CERCLIS National Priority List Superfund Sites is shown in **Map 8-8**.

Besides the National Priority List Superfund Sites for the three urbanized counties of the Wasatch Front Region noted above, there are between one and two hundred other CERCLIS sites that have the potential of becoming EPA Superfund Sites. It has not been determined definitively that the sites are contaminated, but that there is the potential that they may be. These sites have been identified and mapped by the Utah State Department of Environmental Quality (DEQ), Division of Environmental Response & Remediation (DERR). The database and map should be consulted prior to, or during the EIS preparation phase of project development.

The 2015 – 2040 RTP projects are in immediate proximity of approximately 5,000 acres of hazardous waste sites. Additionally, there are an additional 49 acres of solid waste disposal sites that are impacted.

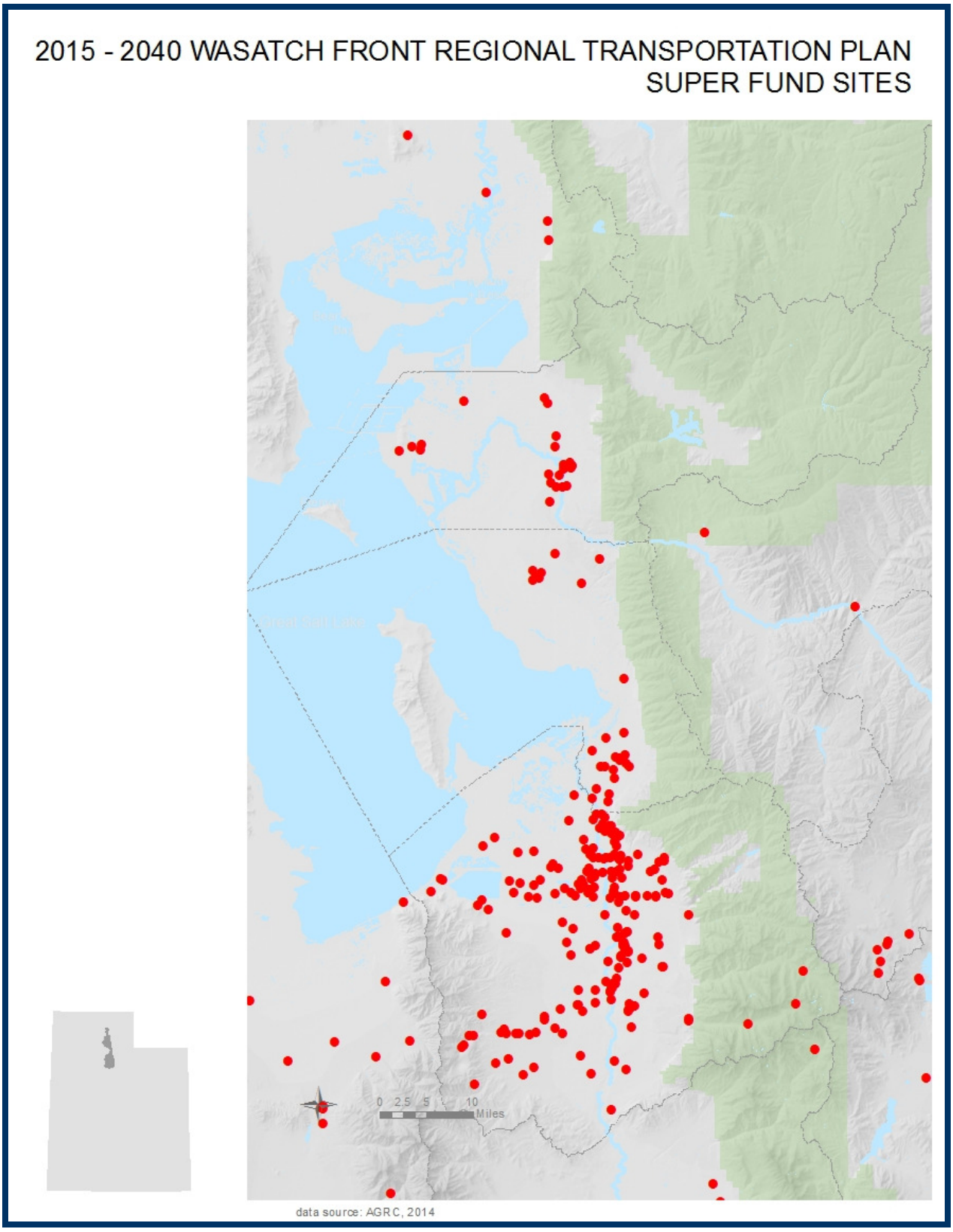
> **Mitigation** – The existence of hazardous waste or Superfund sites could significantly affect the feasibility of a transportation projects. Disturbance of a site could present a significant hazard and could cost millions of dollars to mitigate before construction of a transportation project could begin. Therefore, it is very important for transportation agencies to be aware of where these sites are located so that decisions about the proposed transportation facility can be made in light of this information. It may be prudent to avoid hazardous waste sites if added costs and adherence to construction schedules are important. On the other hand, while increasing costs, a transportation project can be the catalyst for removing a negative environmental condition and spur further mitigation of property for development. Planning for the possible mitigation and use of sites impacted by hazardous waste for transportation projects and other infrastructure should involve the closest possible collaboration with local planning authorities, current property owners, and other community representatives.

Geologic Hazards

It is important to consider geologic and other physical constraints when evaluating transportation projects. In this case, the concern is not only what impacts transportation projects may have on the environment, but what impacts the sensitive environmental features may have on the projects and the safety of the people who will use them. The geologic hazards chosen for this evaluation were: (1) Steep slopes; (2) faults; and (3) liquefaction potential. Steep slopes present a host of problems to transportation projects, including slope failure due to water saturation of soils, which greatly increase maintenance costs. Faults are problematic from the standpoint of potential movement along a fault line.

Such slippage due to earthquakes could range from "gradual" to "catastrophic". In any case, building on a fault line is risky and should be avoided. Liquefaction is associated with fine soils or clays that are not well drained. They can become highly unstable during an earthquake event and may take on quicksand-like properties. Liquefaction tends to increase earthquake damage.

MAP 8-8


2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
SUPER FUND SITES
Great Salt Lake
0 2.5 5 10
Miles
data source: AGRC, 2014

Urbanized area transportation projects subject to potential problems from earthquake fault zones are noted below in **Tables 8-8 and 8-9**. Projects in areas with high liquefaction potential are listed in **Tables 8-10 and 8-11**.

TABLE 8-8

SALT LAKE – WEST VALLEY URBANIZED AREA PROJECTS WITH POTENTIAL TO CONFLICT WITH FAULTS

STREET	FROM	TO
500 South / 700 South	Surplus Canal	5600 West
I-80	1300 East	Parleys Canyon
SR-201	3200 West	Mountain View Corridor
4500 South	I-215	2700 East
Highland Drive	Draper City Limits	Traverse Ridge Road
Wasatch Blvd.	7000 South	Little Cottonwood Road

TABLE 8-9

OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL TO CONFLICT WITH FAULTS

STREET	FROM	TO
US-89	I-15 (Farmington)	I-84
Skyline Drive (North)	2600 North	US-89
1100 West (Pleasant View)	Skyline Drive	4000 North

TABLE 8-10

SALT LAKE – WEST VALLEY URBANIZED AREA PROJECTS IN AREAS OF HIGH LIQUEFACTION POTENTIAL

STREET	FROM	TO
500 South / 700 South	Surplus Canal	5600 West
California Avenue	I-215	7200 West
SR-201	3200 West	Mountain View Corridor
3500 South	2700 West	4000 West
4500 South / 4700 South	I-15	Redwood Road
5400 South	I-15	Mountain View Corridor
7000 South	State Street	Redwood Road
9000 South	I-15	Bangerter Highway
10600 South / 10400 South	I-15	Redwood Road
Bangerter Highway Interchange	@ Redwood Road	
14600 South	D&RGW Railroad Structure	
8400 West	SR-201	3500 South
7200 West	I-80	3500 South
Mountain View Corridor	SR-201	6200 South
5600 West	I-80	SR-201

STREET	FROM	TO
4800 West	California Avenue	3500 South
Redwood Road	Davis Co. Line	1000 North
Bingham Junction	7000 South	8400 South
I-15 Interchange	@ 100 South	

Mitigation - Liquefaction can disrupt transportation networks, and destroy or severely damage residential, commercial, and other structures. When transportation infrastructure is planned in high liquefaction areas, it will be important to consider design and construction guidelines that, if adhered to, will mitigate or minimize the effects of liquefaction. It is equally important to consider design guidelines to minimize the destructive effects of liquefaction for residential and other structures. A variety of measures can be incorporated into the design of a structure so that it can better withstand the effects of liquefaction. Information regarding preventive actions that can mitigate the potential efforts of liquefaction can be obtained from the relevant county Hazard Mitigation Plan and from hazard mitigation planners. With regard to faults, it is important to be aware of the areas where movement along a fault could damage transportation infrastructure. Measures can be taken that can minimize the effects of fault movement. The most important preventive measure is to avoid building on a fault, which is particularly applicable to urban development. Among other measures, transportation structures can be reinforced and designed to better withstand earthquakes.

TABLE 8-11

OGDEN - LAYTON URBANIZED AREA PROJECTS IN AREAS OF HIGH LIQUEFACTION POTENTIAL

STREET	FROM	TO
1800 North	200 West	5000 West
200 South (Syracuse)	2000 West	North Legacy Corridor
Syracuse Road	1000 West	North Legacy Corridor
Hill Field Road	2200 West (Layton)	3200 West (Layton)
700 South / 800 South	I-15	2700 West
Parrish Lane (Centerville)	I-15	1250 West
I-215 Interchanges	@ Legacy Parkway	@ I-15
North Legacy Corridor (Davis Co.)	Weber Co. Line	I-15 / US-89
2000 West	Weber County Line	North Legacy Corridor
2700 West (Layton)	Hill Field Road Extension	North Legacy Corridor
Redwood Road	500 South (Davis Co.)	2600 South
I-15	US-89	I-215
I-15 Interchanges	@ Lund Lane	@ Parrish Lane
2600 North / 2700 North	I-15	3500 West
1200 South	I-15	North Legacy Corridor
24th Street	I-15	Wall Avenue
Hinckley Drive	1800 West	Midland Drive
40th Street	Adams Avenue	Gramercy Avenue
4000 South	1800 West	North Legacy Corridor
Midland Drive	Hinckley Drive	3500 West
5600 South	1800 West	3500 West
5500 South / 5600 South	3500 West	5800 West

STREET	FROM	TO
North Legacy Corridor (Weber Co.)	Davis County Line	1200 South
4700 West	4000 South	5100 South
3500 West	1200 South	Davis County Line
1800 West	1200 South	2700 North
I-15	Box Elder County Line	2700 North
I-15 Interchange	@ 24th Street	
1200 West	Pioneer Road	12th Street
1100 West (Pleasant View)	Skyline Drive	4000 North

GREEN INFRASTRUCTURE

Green Infrastructure is an interconnected network of natural systems that provide a diverse range of environmental, social, recreational, psychological, public health, and economic benefits. The natural systems that make up green infrastructure include features such as forest preserves, historic sites, agricultural lands, rivers, wetlands, parks, and nature reserves. **Figure 8-15** illustrates the landscape features of green infrastructure. The term "green infrastructure" originated in the strategic conservation planning field led by The Conservation Fund and the U.S. Forest Service. Their emphasis was primarily on forests, wetlands, and large natural areas. These agencies propose that natural systems are identified as infrastructure because they support essential ecosystem functions upon which all life depends. Large protected and connected areas are the foundation for a sustainable green infrastructure network.

FIGURE 8-15

GREEN INFRASTRUCTURE FEATURES

Connectivity is important in planning for and upgrading man-made infrastructure (gray infrastructure) such as roads, storm drains, sewers, utilities and levees. This large scale connected approach is just as important in understanding and improving green infrastructure. An interconnected system allows for greater vitality, value and function of ecological, hydrological, recreational, and agricultural networks, promoting the economy and contributing to the health and quality of life of residents.

*(*Re)Connect: The Wasatch Front Green Infrastructure Plan

The Wasatch Front Region is characterized by considerable ecological and biological diversity, cultural richness, historical depth, and an abundance of recreational resources. All of these attributes and features are dependent upon the Region's geography and natural resources.

Population growth has led to widespread land use changes. Unfortunately, urbanization is reducing natural landscapes and affecting ecological systems. This, in turn can affect the Wasatch Front Region's economic health and quality of life for residents. Taking a green infrastructure approach in the Wasatch Front can help offset the negative aspects of urbanizations. However, taking this approach requires identifying and understanding natural systems and protecting those systems, before development or degradation begins, as well as seeking to restore valued lands and connectivity in already developed landscapes.

(Re)Connect is the product of a collaborative effort in order to identify and connect the Region's green infrastructure. The Plan identifies valuable natural and developed areas, as well as potential connections between these areas. The Plan also helps determine which lands can accommodate growth and which lands are better suited for protection, preservation or conservation. It places a strong emphasis on implementation and identifies strategies that can be used by the Wasatch Front Regional Council, its members, counties, municipalities, transportation entities, other government entities, private foundations and the general public to ensure inclusion of green infrastructure planning in long range initiatives. The Plan establishes environmental priorities to guide planners in reviewing development applications, allocating funding, updating municipal general plans, and making acquisition decisions. (*Re)Connect* is a valuable tool for guiding future conservation efforts and planning decisions. **Figure 8-16** illustrates the GIS layers used to develop the green infrastructure network designs.

The Benefits of Green Infrastructure

Green Infrastructure benefits a large number of people in the Wasatch Front in numerous ways. It enhances public health and safety through increased access or availability of parks, trails, walking paths, trees, recreation areas, and even wildfire suppression. It can provide a natural method for capturing and cleansing drinking water and storm water. It can promote healthy food production through increased community supported agriculture, pocket gardens, and the protection or preservation of agricultural lands and prime farmland soil. Green infrastructure can also mitigate flood hazards through the implementation of natural storm water detention basins.

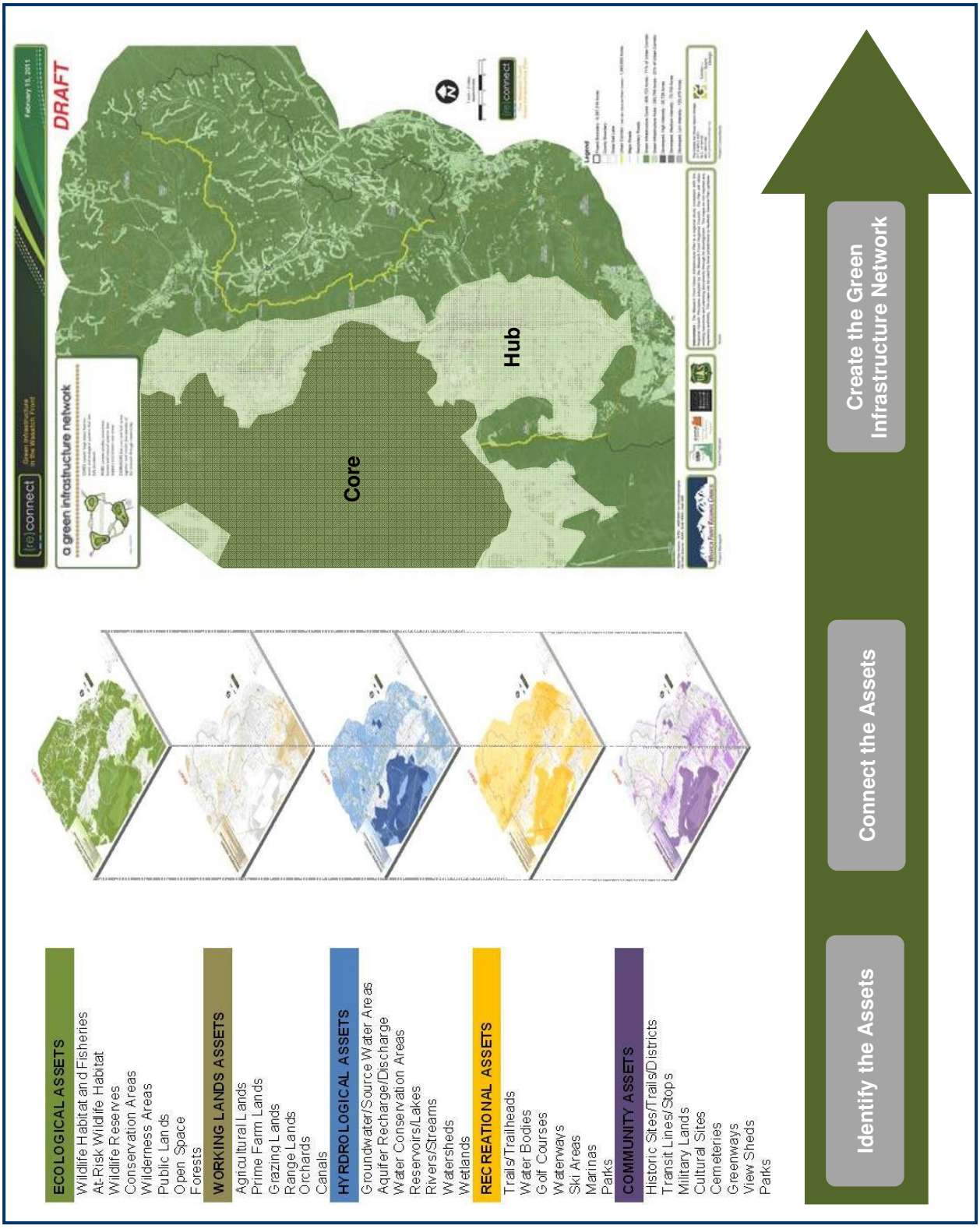
Some green infrastructure benefits, such as water purification, nutrient storage and cycling, flood attenuation, soil generation, and carbon sequestration are necessary functions that otherwise would be ignored or provided by construction expensive gray infrastructure systems. The ecosystem benefits provided by green infrastructure have considerable financial value when compared with the costs of generating equivalent benefits from gray infrastructure.

Green Infrastructure and Transportation Planning

If green infrastructure and gray infrastructure are considered as two different systems within the same overarching network, then green infrastructure planning and transportation planning are simply two strategies for assessing and improving the same interconnected regional network. The tenets of green infrastructure can help transportation planners more fully understand the benefits of an integrated planning approach and vice versa. In other words, green and gray infrastructure function together; they are inherently connected, and planners should be able to draw from both fields to understand the complexities of the urban landscape and the potential benefits afforded by increased connectivity.

The growth principles and objectives outlined in the 2015 – 2040 RTP are fundamental to green infrastructure planning as well. Both plans seek to protect and enhance the environment, strengthen the sense of community, enhance the regional economy, promote regional collaboration, and ensure public health and safety. Working with transportation planners and others, the green infrastructure plan can help shape urban and suburban form and promote the best possible patterns of development.

FIGURE 8-16


Create the Green Infrastructure Network
Connect the Assets
Identify the Assets
DRAFT
a green infrastructure network
Core
Hub
ECOLOGICAL ASSETS
Wildlife Habitat and Fisheries
At-Risk Wildlife Habitat
Wildlife Reserves
Conservation Areas
Wilderness Areas
Public Lands
Open Space
Forests
WORKING LANDS ASSETS
Agricultural Lands
Prime Farm Lands
Grazing Lands
Range Lands
Orchards
Canals
HYDROLOGICAL ASSETS
Groundwater/Source Water Areas
Aquifer Recharge/Discharge
Water Conservation Areas
Reservoirs/Lakes
Rivers/Streams
Watersheds
Wetlands
RECREATIONAL ASSETS
Trails/Trailheads
Water Bodies
Golf Courses
Waterways
Ski Areas
Marinas
Parks
COMMUNITY ASSETS
Historic Sites/Trails/Districts
Transit Lines/Stops
Military Lands
Cultural Sites
Cemeteries
Greenways
View Sheds
Parks

PUBLIC HEALTH AND TRANSPORTATION

An obesity problem among the region's residents is of concern to officials responsible for public health. Obesity is the result of the lack of physical activity, among other contributing factors. Reliance on personal vehicle use, along with work in employment sectors that require little or no physical activity, are part of the modern sedentary lifestyle. Although Utah residents are healthier than many people, the state still faces repercussions caused by public health conditions. Nationally, for example, physical inactivity accounts for about 2.4 percent of health care costs, or approximately $24 billion per year.

In 2006, the WFRC commissioned a study on active living / transportation for the Wasatch Front Region. The study recommended incorporating physically active mode opportunities into the existing regional transportation system. The study report covered subjects ranging from funding options to policy guidelines and design elements. With the adoption of these active transportation policies by the Regional Council, and by making them a critical component of the regional transportation system, the WFRC is encouraging local governments and other organizations to accommodate more pedestrian and bicycle options in their transportation planning products.

The WFRC adopted the policy approaches / recommendations in 2006 because of the benefits that could be realized as these policies are implemented. The policy recommendations essentially call for the following:

- provide adequate, safe, and appropriately located infrastructure for all modes of transportation;
- provide active links (sidewalks and bike paths) to existing and new transit stations and stops, and;
- provide bicycle parking and storage in transit oriented locations.

Plan and implement land use and transportation choices that provide for and encourage active transportation modes.

A variety of benefits can result from following active living / transportation policies. Recent studies have shown that if active mode infrastructure is provided and is convenient, people who would not typically seek out these types of facilities will use them. Linking mass transit facilities with active mode transportation facilities encourages people to use both modes of transportation. Providing mixed and transit oriented land uses, makes communities more walkable and supportive of non-motorized or active modes of transportation. If active living / transportation infrastructure is implemented in new developments, and more opportunities for active living are provided in the urban environment, it is more likely people will make choices about modes of transportation that do not include the automobile. The resultant benefit would not only improve the physical health of those who walk, ride bicycles, use transit, etc., but it will also reduce the amount of VMT and traffic congestion, improve air quality, and improve the overall quality of life.

NEPA PRINCIPLES AND REQUIREMENTS

During the preparation of the 2015 – 2040 RTP, certain aspects and principles derived from the National Environmental Policy Act were considered and incorporated into the planning process. In total these actions meet and exceed the federal planning and environmental requirements found in 23 CFR Part 450.316 & 318. A number of the environmental factors, or categories to be considered, and types of analyses required by NEPA were utilized, such as the manner of describing project purpose and need, safety and security, economic development, land use, alternatives analysis, and core system performance measures. Systems proposed for and projects selected for inclusion in the 2015 -2040 RTP were evaluated for their potential impact on the environment. Major indices

considered included air quality, noise, impact on wetlands, water bodies and flood plains, and existing and planned land use.

The 2015 – 2040 RTP has benefited from the updating of the Wasatch Front visioning process and the development of the uPEL tool. The uPEL tool is a web based environmental tool used for assessing the direct environmental impacts of transportation actions.

PURPOSE AND NEED CONSIDERATIONS

Brief "purpose and need statements" for each of the highest cost, first phase projects in the 2015 – 2040 RTP are included in the following section. The premise behind the development of these purpose and need statements is that they will help inform the corridor level analysis for each project when it is conducted. Any project that has: (1) not undergone a planning or environmental study; (2) is estimated to have a capital construction cost $100 million or more; or (3) is either built partially or wholly in the first phase of the planning horizon, is provided a brief purpose and need statement. The purpose and needs for projects that have undergone planning or environmental studies can be found in these studies. The purpose and need statements are organized as follows: Problems, Needs, and Deficiencies; Solutions; and Expected Outcomes.

West Weber Corridor

Problems, Needs, and Deficiencies: As the western portions of both Davis and Weber County grow, there will be an increased demand for travel and transportation capacity. Many north-south (I-15) and east-west facilities are already severely congested and motorists are experiencing significant delays. More regional capacity is needed in closer proximity to accommodate new demand. In addition, there are few existing alternative north-south routes that could be used by commuters and emergency response vehicles in the event of an incident on I-15.

> **Solutions:** Construction of a north-south limited access principal arterial, or parkway type facility from Farmington to the Box Elder / Weber County line would provide part of the solution to traffic growth in the area. In addition, the corridor is planned to be wide enough to allow for future options, such as mass transit and non-motorized facilities to be incorporated, as needed, into the corridor.
>
> **Expected Outcomes:** The expected outcomes of this project would be as follows: additional north-south transportation capacity to help meet 2040 travel demand; a single, continuous alternate north-south route that could reduce congestion and increase safety when I-15 is congested, under reconstruction or closed because of accidents; and an additional route for emergency vehicle response.

Transit Project Number 27 - Salt Lake City - Foothill Drive - Wasatch Drive

Problems, Needs, and Deficiencies: UTA Route 2, ("2 the U"), is a high performing route. It could perform even better it was extended to Research Park and received operating and capital upgrades. Increasing congestion in the corridor, and high potential for standing loads on this line, may become a deterrent to further ridership growth. Much of the area between Salt Lake Central and the University has a large population of disadvantaged people. The area between Salt Lake Central and 700 East constitutes a Regional Activity Center. The eastern portion of the University campus, the medical center, and Research Park constitute large infill opportunities.

Foothill Boulevard is a congested corridor through which run several transit lines. Foothill Boulevard is the most heavily used access corridor to the University of Utah area from the east side of the Salt Lake Valley. The University of Utah area is the second largest transportation destination in the Salt Lake Valley and is growing quickly. The area near Parley's Way is forecasted to become an activity center. Preserving transit speeds and schedule reliability on Foothill Boulevard is essential.

Wasatch Boulevard in the East Millcreek, Cottonwood Corporate Center, Cottonwood Heights areas provides access to large residential communities and several popular canyons. Efforts are continuing to preserve these canyon areas that also serve the Region as vital watersheds. It is anticipated that the gravel pits in this area will become a significant activity center. Transit has been suggested as a premier tool in these preservation and development efforts.

Solutions: The following project objectives have been identified that would either minimize or eliminate problems: (1) expand the hours of service on UTA's "2 the U" bus line and extend that service through Research Park and along Foothill Boulevard with service to the East Millcreek park-and-ride; (2) add a transitway connection between Mario Capecchi Drive at Research Road and Arapeen Drive at Wakara Way to provide a more direct transit connection between the University of Utah Medical Center and Research Park; (3) mprove reliability, comfort and speed improvements on 200 South and Wasatch Drive by implementing Enhanced Bus treatments such as TRAX-like station amenities, transit signal priority and queue jumpers; and (4) improve reliability, comfort, and speed improvements on North Campus Drive, Mario Capecchi Drive, and Foothill Drive with Bus Rapid Transit treatments, such as transit lanes in addition to TRAX-like station amenities, transit signal priority, and queue jumpers.

Expected Outcomes: The expected outcomes of this project would be the following: a high visibility transit mall east/west through Downtown Salt Lake City; large ridership gains in the corridor; reduced vehicle miles traveled and congestion associated with Research Park, and the Medical Center; the preservation of transit travel speeds and schedule reliability throughout the corridor; improved reliability on existing services from Cottonwood Heights, Park City, and Ball Park Station/Sugarhouse.

Interstate 80

Problems, Needs, and Deficiencies: This section of I-80 was constructed nearly 40 years ago and has essentially exceeded its anticipated lifespan. There are areas in the corridor where the facility is deteriorating. The pavement needs to be completely replaced. The safety problems are, to a large degree, rooted in its design. Current travel speeds and traffic volumes are higher than what the facility was designed for in the 1960s. The facility is plagued with numerous drainage problems. Culverts tend to be partially filled with dirt, storm drains are deteriorating, etc.

Solutions: The following project objectives have been identified that would either minimize or eliminate problems: (1) preserve the infrastructure in the corridor by providing adequate drainage and structurally adequate pavement and bridges; (2) provide a multi-modal system that accommodates future travel demand and improves operations; (3) implement measures designed to improve highway safety where economically justified; (4) optimized capacity through the utilization of TSM and TDM; (5) provide for multi-modal transportation opportunities where feasible; and (6) improve transit operations in the corridor.

Expected Outcome: The expected outcomes of the improvements in the corridor would include the following: structurally adequate pavement, bridges, and other infrastructure; increased capacity and improved operations; enhanced safety, retaining of I-80 as a significant link in the trans-continental transportation system; increased use by multi-modal and transit patrons; and preservation and enhancement of the economic viability of the area that I-80 serves.

State Route-201

Problems, Needs, and Deficiencies: This corridor contains several sections, and facilities between I-215 and the Tooele / Salt Lake County boundary that are proposed for various improvements. The primary needs in this corridor are greater capacity, improved operational efficiencies, and increased safety, particularly at existing intersections / Interchanges. Much of the growth that will add to the

need for greater capacity comes from the industrial employment centers that are anticipated for the areas served by this corridor. In particular, there is a trend for transportation-oriented or trucking companies to locate near the corridor with the potential of greatly increasing truck traffic and movement of goods. There is a need to replace at-grade intersections with interchanges to: meet safety concerns; permit travel at design speeds; and increase capacity.

Solutions: The addition of two auxiliary lanes (one in each direction), in conjunction with the upgrade of the Interchange, new interchanges at 7200 West and 8400 West, the upgrade of the interchange at I-80, and other proposed projects will provide the improvements needed to enhance the function of this important highway.

Expected Outcome: The expected outcome of planned improvements is to provide greater east / west capacity for anticipated traffic in the corridor. In particular, the movement of goods should be greatly facilitated, and add to the economic competitiveness of the Wasatch Front Region. This facility is intended to compliment and augment I-80, which is located about two and one-half miles to the north and provides one of the most significant east / west transcontinental interstate routes in the Nation.

10400 / 10600 South

Problems, Needs, and Deficiencies: Congestion on east-west roadway facilities is becoming a more difficult problem each year. It is hampering mobility in the area as heavy growth continues in the southwestern part of Salt Lake County. Travel demand is growing at a rapid rate and capacities need to be increased, particularly on 10400 / 10600 South. The two lanes are unable to meet current demands of an arterial; lack paved shoulders; have only partial curb, gutter, and sidewalk; and have insufficient sight distances in some areas. Consideration needs to be given to geometric design, signal operations / coordination, transit, and non-motorized facilities deficiencies. Lastly, new residential and commercial growth does not have adequate access to a minor arterial street, which limits access to the regional transportation system.

Solutions: Add capacity and extend the corridor further to the west to connect with SR-111, in order to complete the regional transportation system. Some specific solutions would include the following: (1) widening of the corridor to a consistent cross-section with additional travel lanes, shoulders curb and gutter, park strips, and sidewalks; (2) adding bicycle lanes to the corridor, in accordance with regional and local master plans; (3) widening and improving intersections along the corridor to provide dedicated right and / or left turning lanes, and upgraded traffic signals; (4) implementing additional raised center-island medians at locations along the corridor for access control and access management purposes; and (5) accommodating transit service along the corridor by providing 10-foot shoulders that can be used for bus loading and unloading.

Expected Outcome: The proposed action is intended to ensure that existing and future traffic is adequately accommodated. Other objectives of the proposed action include: enhanced operational characteristics; improved operation of the major signalized intersections; and enhanced opportunities to incorporate multi-modal facilities within the corridor.

4500 / 4700 South

Problems, Needs, and Deficiencies: This facility essentially traverses most of the Salt Lake Valley in the east / west direction starting at I-215 (east) and ending at 6400 West. It is classified as a principal arterial and as such plays a significant role as a roadway facilitating traffic in the east / west direction. Residential and commercial development in the corridor area has added to the considerable traffic congestion evident on this facility. Many adjacent commercial developments have compromised the proper functioning of the roadway and better access management is needed. Often during the peak hour there is a complete breakdown of the traffic flow from I-15, particularly westbound at the major intersections, such as Redwood Road, I-215 (west), and Bangerter

Highway. There is a need to add two lanes throughout the entire corridor, along with other improvements, in order to increase roadway capacity. Also, there is a need for more transit facilities in the corridor.

Solutions: The 2015 – 2040 RTP calls for the addition of two travel lanes (one lane in each direction). In addition, operational and safety improvements at the major intersections, bicycle/pedestrian improvements, ITS, TDM, and TSM type measures need to be implemented. Public transit in the form of a Bus Rapid Transit II (BRT II) is also being proposed to serve a portion of the corridor, between about 600 West and Redwood Road.

Expected Outcome: Overall, planned improvements are expected to provide increased capacity within the 4500 / 4700 South Corridor, improved operations at the intersections / interchanges, improved safety, and improved bicycle and pedestrian facilities. Also, improved transit service in a portion of the corridor, particularly at employment / activity nodes can be expected.

3500 South

Problems, Needs, and Deficiencies: Traffic volumes in the 3500 South corridor already exceed capacity, particularly at intersections. In the corridor there are variations in the shoulder widths and medians, and inconsistencies in the number of travel lanes. In addition, poor access control to the adjacent properties has greatly compounded the traffic congestion. Travel times are expected to double by 2040 if improvements are not made. Adding to the problems in the corridor is poor pavement condition, which hampers the roadway's operational efficiency. Mass transit is also being hampered by slow speeds and lack of transit support facilities (waiting areas, sidewalks, crosswalks, etc.). Lastly, pedestrian and bicycle use is being discouraged because of the lack of adequate facilities. Beside the transportation related problems, there are also issues relating to land use, aesthetics and urban design, and street infrastructure.

Solutions: Consideration should be given to strategies that include spot improvements, better management of signal operations at intersections, and implementing general upgrades to improve traffic flow, such as access management. Improving transit facilities and service would reduce congestion by attracting more transit riders. Improvement would include more safe, accessible, and easily identifiable bus stops and informational kiosks, increasing transit frequency, timeliness, and reliability, and providing express bus service with signal prioritization during peak hours. Vehicle, pedestrian, and bicycle safety improvements at intersections and mid-block should be considered.

Expected Outcome: It is expected that implementing planned capacity and other improvements would provide an efficient and safe transportation arterial; allow safe and convenient access to the local businesses adjacent to and close by the corridor; and would accommodate the needs of multi-modal travel, including transit, pedestrian and bicycle modes.

12600 South

Problems, Needs, and Deficiencies: The southwestern part of Salt Lake County is growing at a very rapid rate. As growth continues, ever increasing number of vehicles are using the east-west roadway facilities, of which 12600 South, categorized as a principal arterial, is a part. Future residential and commercial development will dramatically increase travel demand and exceed the existing capacity of 12600 South and its intersections with other roads. This action will allow urban development along this corridor to be served, and a portion of the regional transportation system to be completed. The 12600 South corridor has several problems that affect its ability to accommodate current and future travel demand. These deficiencies include: narrow, unimproved two-lane roadway sections; some sections not meeting design standards, inefficient signalization at intersections; and poor access to other principal arterials.

Solutions: Add capacity in the form of additional travel lanes, turning lanes and medians. Improve the operational characteristics of intersections, including channelization, signal cycle, and other improvements that will increase the roadway's functionality. Enhance safety by adding medians, shoulders, curb and gutter, park strips, and sidewalks. Increase capacity to accommodate inter-modal facilities within the corridor, including buses, bicycles, pedestrians, trails, and other non-motorized modes.

Expected Outcome: The expected outcomes would include improved east-west regional travel, enhanced functionality and safety, improved operations at the various intersections, corrected design deficiencies, more choice with regard to modes of transportation, and improved access to a principal arterial and the regional transportation system.

Mountain View Corridor

Problems, Needs, and Deficiencies: Needs in the Mountain View Corridor area result from a rapidly growing population and employment opportunities. The existing roadway network in the area consists of minor arterial streets and is not well suited to accommodate high volume and longer-distance traffic. Existing transit consists of local bus and some express bus service. Existing deficient transportation conditions, which will worsen in the future, have resulted in the following problems: lack of adequate north-south transportation capacity in western Salt Lake County; lack of adequate transportation capacity in northwest Utah County; increased travel time and lost productivity; lack of transit availability; reduced safety due to increased roadway congestion; and lack of continuous pedestrian / bicycle facilities.

Solutions: The problems noted above can be addressed with the following improvements. First, build a freeway between I-80 and SR-201 with a total of four lanes (two lanes in each direction. Second, build a freeway from SR-201 to the Salt Lake / Utah County line with a total of six lanes (three lanes in each direction). Third, implement congestion management programs, such as HOV lanes (one in each direction), ramp metering, and Intelligent Transportation System (ITS) measures that would manage traffic flow. Fourth, build interchanges so that various arterial streets can be interconnected with new facilities in the Mountain View Corridor. In addition, provide transit facilities in the form of express bus in the Mountain View Corridor, and in the 5600 West Corridor, from 12600 South to I-80, provide transit facilities, such as bus rapid transit, or other transit service as demand warrants. Additional facilities for non-motorized modes are planned for the Mountain View Corridor to accommodate both pedestrian and bicycle travel.

Expected Outcome: The expected outcomes from this major improvement are increased mobility resulting from reduced congestion, increased availability of transit and other travel modes, increased economic opportunities, improved access to adequate transportation facilities for residential areas and improved regional mobility.

Interstate 15

Problems, Needs, and Deficiencies: The problems and needs associated with this project affect both Salt Lake and Utah Counties. Currently, there is significant traffic congestion in the I-15 corridor in southern Salt Lake County (from 10600 South to the County line) as well as in Utah County from the Salt Lake / Utah County line to Santaquin. There are segments within the described termini of this major freeway improvement project that do not meet current safety standards. Because of rapid population and employment growth, the corridor is fast approaching capacity. Conditions will worsen by the year 2040, resulting in unacceptable levels of service conditions. Projected growth is expected to double the traffic volumes on I-15 by 2040, resulting in increased travel time and crash rates, which will adversely affect the quality of life in the Region.

Solutions: The following improvements are being proposed in the corridor in an effort to solve the pressing problems of capacity, safety and other needs: Expand the freeway from six to ten lanes (five lanes in each direction) in Salt Lake County and expand lanes as needed (to a maximum of nine lanes) in Utah County. There are also traffic management

options, including TSM, TDM, and ITS programs, that are proposed for improving the project's operating efficiency, reducing the vehicular demand during peak travel times, and improving safety and efficiency through the application of advanced technology. Public transit alternatives such as commuter rail, light rail, and bus service will play an important role in reducing traffic on I-15.

Expected Outcome: The project is expected to improve national, regional, and intra-county mobility for people and goods, provide multi-modal transportation choices as part of the overall transportation network, provide cost effective transportation solutions, and to minimize and mitigate impacts to the natural and cultural environments. It will also improve an essential part of a transportation system that is already compatible with locally adopted growth and development policies and land use plans; and will eliminate design deficiencies that hamper operations and create safety concerns.

Highland Drive

Problems, Needs, and Deficiencies: Due to the rapid population and employment growth in southeast Salt Lake County (Cottonwood Heights, Sandy, and Draper), transportation demands have increased significantly. Existing roadways are becoming ever more congested, necessitating increasing roadway capacities in the area. Specifically, there are needs for: improved mobility for both longer and shorter distance travel; improved access within the transportation corridor area; and stronger policies to keep the transportation corridor open, or free from additional development so that it will be feasible to provide more capacity. In addition, there is a need to extend the Highland Drive Corridor southward in an effort to complete an interconnected regional transportation network. Highland Drive has been functionally classified as a principal arterial and, therefore, is intended to play a significant role in providing north-south mobility.

Solutions: Add capacity by widening existing sections of Highland Drive from 2 to 4 lanes, build new sections of 4-lane roadway, and improve existing intersection operations. Where appropriate, provide pedestrian, bicycle, and mass transit (express and local bus) facilities throughout the Corridor, as appropriate.

Expected Outcome: Completion of planned improvements in the Highland Drive Corridor is expected to ameliorate severe traffic congestion (peak hour) on certain sections of 1300 East and 700 East; minimize or eliminate the use of local streets for through traffic (for the lack of an alternative route); and generally improve access / mobility in the southeastern part of Salt Lake County.

Redwood Road

Problems, Needs, and Deficiencies: The projected 2040 peak hour traffic demand exceeds available transportation capacity. Redwood Road must be improved in order to provide a more safe transportation facility for existing commercial and residential development and to more adequately move traffic. Currently, bicycle and pedestrian facilities are deficient and do not adequately accommodate users. There is some conflict with wildlife in the corridor.

Solutions: Increase the number of lanes from 2 (sometimes 3 lanes) to 5-lanes with two through lanes in each direction. This will increase the capacity of Redwood Road to accommodate existing and anticipated 2040 traffic, reduce congestion along the project corridor; and enhance transportation safety for all users. Make operational improvements throughout the length of the facility. Redwood Road will be improved in accordance with current design standards. Bicycle lanes and shoulders will be added where necessary, intersections will be upgraded, medians will be added in some locations, and wildlife corridor connectivity will be addressed. Plans call for wildlife crossings to be constructed at three locations along Redwood Road.

Expected Outcome: Planned improvements should accomplish the following: improve connectivity between existing and proposed transportation arterials and highways; provide a transportation infrastructure that meets current roadway standards and that will be an asset to the communities the facility serves; provide a transportation facility that operates an acceptable level of service; maximize long-term roadway capacity by managing access concurrent with UDOT policies and existing and planned land uses; improve emergency response time and availability of emergency response teams; and reduce conflicts with wildlife living near or crossing Redwood Road.

State Route-111
Problems, Needs, and Deficiencies: Residential and commercial growth will mean substantially more traffic volumes on SR-111 and other roads in the area. Currently, SR-111 is a two-lane facility. As the western portion of Salt Lake County continues to grow, capacity, safety, and other deficiencies will need to be further addressed. Since SR-111 is planned to function as a principal arterial and is expected to carry relatively high speed and high volume traffic, there is a need to increase the number of lanes from two to four lanes. Principal arterial roadways are spaced about every two or three miles. The SR-111 corridor is needed on the west side of the Salt Lake Valley to help complete the principal arterial roadway network.

Solutions: The proposed solutions to the needs outlined above are as follows: Provide two additional travel lanes (one in each direction); Improve the operations and safety of the existing and future SR-111 intersections by providing turning lanes and other improvements; implement ITS, TDM, and TSM strategies; and accommodate non-motorized travel, such as pedestrian and bicycle facilities.

Expected Outcome: With the planned improvements included in the project, the following outcomes are expected: Improved capacity to accommodate increased traffic demand traveling at relatively high speed; the construction of efficient and safe intersections; implementation of ITS, TDM and TSM strategies; accommodation of non-motorized modes of transportation; and TDM, and TSM strategies; and reduced conflicts with wildlife living in proximity to the corridor.

PLANNING FACTORS

The Safe, Accountable, Flexible, Efficient Transportation Equity Act–A Legacy for Users (SAFETEA-LU) required regional and metropolitan planning organizations to assure that the transportation planning process provides for the consideration of projects and strategies in accordance with eight general planning factors. MAP-21 was adopted in 2012 to replace SAFETEA-LU. Under MAP-21 these planning factors remain unchanged. These factors are designed to assist planners in developing comprehensive solutions to area transportation needs. The MAP-21 planning factors for improving transportation system management, operation, efficiency and safety are consistent with the goals and objectives of the 2015 – 2040 RTP. The following paragraphs list the eight MAP-21 planning factors and describe how the 2015 – 2040 RTP has considered each requirement. **Appendix R**, entitled "Planning Factors," provides a brief summary of the federal guidance on interim SAFETEA-LU provisions.

1. **Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.**
   The 2015 – 2040 RTP provides a network of improved transportation facilities, both highway and transit, which are essential to the economic vitality of the Region. The 2015 – 2040 RTP calls for the modernization of a critical portion of the local interstate freeway system, an improved regional highway network, Bus Rapid Transit, enhanced bus service, the extension of the light rail system, regional commuter rail, and increased attention to intermodal center locations and development. The plan improves the ability of the workforce to reach a higher

proportion of jobs within typical commute times. Similarly, the plan improves the ability of businesses to access a higher proportion of the workforce and potential patrons. This improved accessibility benefits both individuals who rely on private automobiles and for persons using public transportation. Improved local and regional accessibility and connection to large employment centers, business districts, commercial developments, industrial parks, educational institutions, shopping malls, neighborhoods, and area airports will promote the Wasatch Front Region's competitiveness, productivity, and efficiency.

2. **Increase the safety of the transportation system for motorized and non-motorized users.**
   The 2015 – 2040 RTP incorporates the recommendations of the Utah Comprehensive Safety Plan developed by UDOT with a goal of reducing crashes and eliminating fatalities on streets and highways. The WFRC participates as a member of UDOT's Safety Leadership Team and is a sponsor of UDOT's "Zero Fatalities" campaign. The highway and transit facilities proposed in the 2015 – 2040 RTP will increase the safety of motorized and non-motorized users through new construction and other improvement projects. While safety related improvements, because of their relatively small scale, are not specifically listed or mapped, safety issues will be given due consideration through the WFRC's Transportation Improvement Plan (TIP) project selection criteria. Controlling facility access, managing congestion, reducing traffic choke points, and modernizing the design of facilities improves overall network safety. The 2015 – 2040 RTP also includes a Regional Bicycle Facilities Plan. Improved bike routes from bike lanes to separated facilities will increase the ability to safely bicycle. The Regional Bicycle Facilities Plan also suggests policies for enhancing pedestrian access and safety through appropriate urban design, site planning, subdivision design, etc. These policies can serve as guidelines for local governments to consider in land use decisions. One of the goals of the regional Bicycle Facilities Plan is to identify improvements that enhance the safety of bicycle travel. The policies for pedestrian facilities and access will also help promote safety.

3. **Increase security of the transportation system for motorized and non-motorized users.**
   The WFRC continues to coordinate its planning processes with the Utah State Division of Public Safety and Homeland Security and with the Utah Local Governments Association for Emergency Services and Security in an effort to identify security issues regarding the transportation system. Both UDOT and UTA have established plans that address emergency and security issues. The highway and transit recommendations in the 2015 – 2040 RTP will increase security for motorized and non-motorized users through new construction and improvement projects that provide alternative routes and modes, especially through area choke points. For UTA, security is an important consideration in designing and operating rail and bus services. UTA employs security personnel to ensure the personal safety of its patrons. Park-and-ride lots are well lit and frequently patrolled. Finally, telephone service is provided in the event of an emergency.

4. **Increase the accessibility and mobility of people and freight.**
   One of the goals of the 2015 – 2040 RTP is to "Increase transportation mobility and accessibility for both persons and freight, thus promoting economic vitality in the region." The roadway and transit improvements recommended in the 2015 – 2040 RTP will help improve mobility and enhance destination accessibility. Increased mobility is provided by a variety of travel options including new or widened highways and primary arterial streets, light rail transit, BRT, enhanced bus service, new regional commuter rail transit service, bus transit hubs, planned intermodal centers, and additional transit amenities, such as park-and-ride lots. The 2015 – 2040 RTP anticipates an increase in the number of miles of bus service, including expansion of weekend and night routes, and additional paratransit service to major travel demand generators. Freight movement, both interstate and intrastate, will benefit from the reconstruction and modernization of the local interstate system, shifting a portion of trips to transit modes, improvements to the regional highway network, and other access

enhancements. The region's highway system will continue to provide convenient access to air cargo facilities. Also, as part of UTA's recommended regional commuter rail project, several of the Union Pacific Railroad's intermodal facilities have been consolidated into an intermodal freight transfer center in Salt Lake City. This new hub will improve the movement of rail freight traffic.

5. **Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.**
The Wasatch Choice for 2040 process, which developed a Vision for future growth and Growth Principles to guide development in the Wasatch Front Region, included a significant amount of input on what kind of future development the public would like to see. One of the purposes of this effort was to identify quality of life issues and establish approaches to enhance quality of life. The WFRC developed the 2015 – 2040 RTP's recommendations for highway and transit improvements consistent with the WC2040 growth principles and growth concepts to support a high quality of life throughout the Region.

   State and local plans for growth and economic development are part of the foundation of the 2015 – 2040 RTP transportation recommendations. The WFRC staff met with officials of every municipal and county to ensure that socio-economic projections developed by the WFRC are consistent with local plans and WC2040. In addition, the Utah State Economic Development Office reviewed the 2015 – 2040 RTP recommendations and provided input on priorities as they affect further economic growth in the Wasatch Front Region.

   Concern for the environment of the Wasatch Front Urbanized Area is an integral part of the 2015 – 2040 RTP planning process. Recommended facilities are considered with respect to environmental impacts at the system level, utilizing maps and other information identifying environmental concerns. As facilities are brought forward through the planning, design, and construction process, appropriate environmental reviews have been conducted. By attempting to maximize destination accessibility and minimize travel time, energy conservation is promoted through successful congestion management strategies, increased system capacity, the provision of transit alternatives, and the provision of active transportation facilities. The 2015 – 2040 RTP provides a number of recommendations for improved regional transit, including an increased emphasis on promoting UTA's Rideshare Program. These efforts combine to enhance mobility and accessibility to home and work, while minimizing impacts on the natural environment and reducing energy use.

6. **Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.**
The 2015 – 2040 RTP recommends the development of intermodal centers and park-and-ride lots at optimum locations to improve connectivity of the regional transportation system. The 2015 – 2040 RTP also promotes shared opportunities for multimodal transportation development including light rail transit, commuter rail, augmented bus service, and pedestrian and bicycle pathways. Further, transportation routes and connections are coordinated with development centers to maximize transportation connectivity and cross-mode utilization. In a related way, identified park-and-ride lots are located near automobile, pedestrian and bicycle connections for access to bus service and carpools. Feeder bus service to the light rail system is provided for in the 2015 – 2040 RTP, along with transit hubs where transfers can take place between different travel modes. Transit-to-transit connections are possible, as well as transit to aviation connections. Access to airport cargo facilities, railroad freight service, Amtrak passenger rail service and intrastate / interstate bus lines (i.e. Greyhound) is accommodated for at planned intermodal facilities. One of the 2015 – 2040 RTP'S goals is to "Provide an equitable distribution of transportation modes, facilities and benefits to permit all geographic, economic and social groups to effectively participate in essential urban activities."

7. **Promote efficient system management and operations.**
   The WFRC has both congestion management and pavement management processes. It also encourages implementation of transportation demand management and transportation system management strategies developed to promote efficient system management and operations. These strategies rely on specific recommendations to be implemented as existing highway facilities are improved or new facilities constructed. Each capacity widening project recommended in the 2015 – 2040 RTP is accompanied by a list of specific methods to improve system efficiency. These lists include such advanced traffic management system strategies as access management plans, fiber optic cables for the implementation of the region's ITS, message signs, cameras and travel demand concepts designed to promote the efficient use and management of the existing and proposed transportation network. The WFRC, in cooperation with UDOT, UTA, and local communities, has prepared an ITS Architecture Plan to guide the implementation of ITS projects for both highway and transit.

8. **Emphasize the preservation of the existing transportation system.**
   The financial analysis section of the 2015 – 2040 RTP assures that adequate funding for maintenance, operation, and preservation of highway and transit facilities is provided. The 2015 – 2040 RTP assumes adequate funding to preserve existing streets and highways and transit facilities. This is a priority of both UDOT, UTA and local governments. UDOT has recently updated its asset management program that identifies funding levels needed to maintain and preserve UDOT's pavements and structures, and to improve the safety of its system. These new projections of funding needed to preserve the existing system, show an increase from previous estimates and were included in the financial plan. This program, combined with proper access management, incident management, and the updating of signal timing, will help preserve the existing transportation system. The 2015 – 2040 RTP also recommends the upgrading of transit facilities and the replacement of all vehicles on a regular schedule. Funding projections for transit preservation and maintenance have been developed in conjunction with UTA. The transit portion of the 2015 – 2040 RTP assumes replacement of buses every 12 years and recommends the construction of additional maintenance facilities. Over the years, UTA has gained a very positive reputation for maintaining its facilities and is not expected to change its maintenance policies.

CLIMATE CHANGE

The subject of climate change is scientifically complex; one that has recently generated significant discussion. Water, carbon dioxide and methane (and traces of other gases in lower proportions) are considered "greenhouse" gases (GHG), meaning that they reflect back some of the radiant heat energy that reaches the earth's surface that would otherwise return to space. Without the "greenhouse" effect of the earth's atmosphere, the mean temperature of the earth would be below freezing. Many scientists now suggest that mankind's activities are adding to the concentration of greenhouse gases in the atmosphere, resulting in potential changes in the earth's climate.

Even with this scientific research, there is still great uncertainty about the nature or degree of impact that increases to greenhouse gas concentrations will have on the climate. An evaluation of mobile source emissions on climate change is not a required element of the RTP conformity analysis. The EPA has not defined a National Ambient Air Quality Standard for CO_2 emissions, and the Utah Division of Air Quality does not include CO_2 in its inventory of statewide emissions from vehicles, industry, commercial activities, and homes. Without a complete understanding of CO_2 emissions from all sources, it is not possible to make conclusions about future CO_2 emissions in this document. However, it is important to outline some of the issues related to the role of the RTP in addressing CO_2 emissions from vehicles operating on public roads.

In the context of the WFRC 2040 Regional Transportation Plan, the questions pertaining to climate are: (1) How does the 2040 RTP impact global climate change?, and (2) How does global climate change impact the 2040 RTP?

How does the 2040 RTP impact climate change?
The vehicle emissions analysis of the 2040 RTP using the MOVES 2010 model, estimates that CO_2 emissions from vehicle activity are expected to be 21 percent greater in 2040 than 2016. While this is a net increase in CO_2 emissions, it is a significant decrease in the vehicle CO_2 emission rate given that VMT is estimated to increase by 40 percent from 2016 to 2040. By comparison, the 2011 version of the 2040 RTP (see the Table below) was estimated to increase CO_2 emissions by 28 percent and VMT by 47 Percent in 2040. The MOVES 2010 model estimates CO_2 emissions based on assumed fuel consumption rates for vehicles. The MOVES 2010 model is not sensitive to speed (congestion conditions) when estimating CO_2 emissions. **Table 8-12** provides a summary of CO_2 emissions and vehicle miles of travel estimates.

TABLE 8-12

CO_2 And VMT ESTIMATES FOR WEBER, DAVIS, AND SALT LAKE COUNTIES

YEAR	CO2 EMISSIONS (TONS/DAY)	CO2 PERCENT CHANGE FROM 2016	VMT	VMT PERCENT CHANGE FROM 2016
2016	27,567	--	43,892,182	--
2040 – RTP version 2011	35,417	28%	64,629,575	47%
2040 – RTP version 2015	33,376	21%	61,640,754	40%

Emissions of CO_2 do not increase as much as VMT because New CAFÉ (Corporate Average Fuel Economy) standards aimed at improving vehicle mileage rates will have a significant impact on reducing future CO_2 emissions. Also, new vehicle concepts such as hybrid electric or pure electric vehicles will contribute to reducing future CO_2 emissions from vehicles. Producing more of the electricity needed for these new concept vehicles from sources other than coal such as nuclear power, wind energy, or geothermal sources would result in a net decrease in vehicle related CO_2 emissions compared to vehicles relying on internal combustion engines. While expanding transit service and other transportation strategies will help reduce travel and greenhouse gas emissions, the improved emission standards for future vehicles will have the greatest impact on reducing mobile source emissions.

How does climate change impact the 2040 RTP?
The WFRC 2015 – 2040 RTP did not make any special provisions for the potential impacts of global climate change. What those specific changes would be along the Wasatch Front are not a subject considered at length in this planning document. However, the WFRC does recognize that public policies emerging from further analysis and understanding of climate change concerns could affect the implementation of later phases of the 2015 – 2040 RTP.

Speculation about the likely effect of climate change includes several possibilities. One possibility is a dryer, hotter climate. This scenario might be a benefit in terms of construction of transportation facilities as this would tend to extend the construction season. This could also reduce snow removal costs, winter weather delays, and weather related crashes. Longer periods of warm weather are also conducive to expanding active transportation opportunities. On the other hand, the negative economic impacts of a region chronically stricken with drought could significantly alter the population and employment forecasts currently found in the RTP.
The other extreme is a cooler, wetter climate. In contrast to the above scenario, this scenario would increase snow removal costs and shorten the construction season. Highway safety would be compromised and weather related delays would be more frequent and severe. A wetter Utah climate

could also lead to springtime flooding from excessive runoff which could damage roads and bridges. Rising levels of the Great Salt Lake could threaten critical transportation facilities adjacent to the Lake such as I-15, I-80, and the Salt Lake City International Airport. Slope failures are another possibility, particularly in mountain passes critical to transportation such as Parley's Canyon (containing I-80), Ogden Canyon, Little Cottonwood Canyon, and Big Cottonwood Canyon. More frequent or more extreme freeze-thaw cycles can have a detrimental effect on pavement quality and service life. This possibility exists under either scenario – warmer or cooler.

In either climate scenario, Utah is already a four-season state with considerable experience adapting to both types of climate. Again, as noted above, the extent to which the climate may shift - if at all - is the crucial question, and this can only be speculated at this time.

AIR QUALITY CONFORMITY DETERMINATION

Davis, and Salt Lake Counties, Salt Lake City, Ogden City and portions of Weber, Box Elder, and Tooele Counties are designated as non-attainment (or maintenance) areas for one or more air pollutants. Specifically, there are four areas in the Wasatch Front region, which are subject to air quality conformity regulations. These areas are listed in **Table 8-13**.

TABLE 8-13

WASATCH FRONT REGION NON-ATTAINMENT DESIGNATIONS

AREA	DESIGNATION	POLLUTANT
Salt Lake City	Maintenance Area	Carbon Monoxide (CO)
Ogden City	Maintenance Area	Carbon Monoxide (CO)
	Moderate Non-Attainment Area	Particulate Matter (PM_{10})
Salt Lake County	Moderate Non-Attainment Area	Particulate Matter (PM_{10})
Salt Lake (including Davis, Salt Lake, and portions of Weber, Box Elder, and Tooele Counties)	Moderate Non-Attainment Area	Particulate Matter ($PM_{2.5}$)

An analysis of projected vehicle related emissions from the transportation network as defined in the 2015 – 2040 RTP shows that vehicle emissions will pass the conformity tests for each non-attainment area along the Wasatch Front. A summary of the mobile source emission budgets as defined in the State Implementation Plan is given in **Table 8-14**. The analysis demonstrating conformity is contained in "Air Quality Memorandum 32", a copy of which can be found on the WFRC website at http://www.wfrc.org/new_wfrc/index.php/wfrc-programs/air-quality.

Vehicle Emission Modeling

Vehicle emissions were estimated using the EPA approved MOVES2014 model. Data from the WFRC travel model was used to describe the transportation network for the analysis years 2011, 2019, 2024, 2034, and 2040. The travel model provides data for VMT, hourly distribution of VMT, speed distribution of VMT, and highway facility type distribution of VMT, for each analysis year. Local data was prepared to determine the age distribution of the vehicle fleet using DMV data for 2014, and the vehicle type distribution using UDOT vehicle classification counts for 2014. Local emission inspection and maintenance programs for each county were also coded for input to the MOVES2014 model.

TABLE 8-14

MOBILE SOURCE EMISSION BUDGETS

AREA	POLLUTANT	YEARS	SIP BUDGET (tons/day)
Salt Lake City	CO	2019 - 2040	278.62
Ogden City	CO	2019	75.36
	CO	2021 - 2040	73.02
	PM_{10}*- NOx	2019 - 2040	6.92
	PM_{10} – Dust*	2019 - 2040	1.28
Salt Lake County	PM_{10} – NOx**	2019 - 2040	32.30
	PM_{10} – Dust	2019 - 2040	40.30
Salt Lake***	$PM_{2.5}$ – Nox	2019 - 2040	89.35
	$PM_{2.5}$ - VOC	2019 - 2040	53.55
	$PM_{2.5}$ – Direct Particulates	2019-2040	7.06

*Use "Build less than 1990" Test
**State air quality rules allows for a portion of the surplus primary PM10 budget (PM10 – Dust) to be applied to the PM10 secondary (PM10 – NOx) budget.
***Use "Build less than 2008" Test

OVERALL MITIGATION

Organizations involved in transportation planning have been encouraged by federal agencies, such as the Federal Highway Administration, Federal Transit Administration and others to be more sensitive to environment needs and to incorporate principles of the National Environmental Policy Act into their planning processes. With this encouragement in mind, efforts were made during the WFRC's current planning process to put more emphasis on resolving environment issues, and to seriously consider NEPA principles. Possible impacts, many of which are required to be considered by NEPA, associated with the projects proposed in the 2015 – 2040 RTP have, in a general way, been identified. In addition, possible mitigation actions that could be taken if environmental impacts could not be avoided were also addressed. General guidelines are listed here to be used as projects are advanced in the project development process. (Note: A document prepared by the Southeast Michigan Council of Governments' entitled, "Integrating Environmental Issues in the Transportation Planning Process: Guidelines for Road and Transit Agencies," was used as a resource in the preparation of this section of the 2015 – 2040 RTP concerning mitigation of impacts.)

Federal transportation statues dictate a series of requirements for the regional transportation plan and Transportation Improvement Program. Current federal legislation contains a requirement that the RTP include "a discussion of types of activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. This discussion shall be developed in consultation with Federal, State, and tribal wildlife, land management, and regulatory agencies."

In essence, this process as applied to the Plan involves three-steps: (1) Defining and inventorying environmentally sensitive resources; (2) identifying and assessing likely impacts on these areas from RTP projects; and (3) addressing possible mitigation at the system-wide level. The process is designed to identify, early on, possible project impacts on environmentally sensitive resources and to provide this information to implementing agencies and elected officials for use in making transportation related decisions. The analysis was conducted on a regional level only. It was determined that the outcome of this analysis should alert the implementing agencies as projects are developed of environmental sensitivities and possible mitigation opportunities.

Mitigation measures can be identified in the planning process and are considered in the 2015 – 2040 RTP. However, consideration of how impacts that are unavoidable can be mitigated should be undertaken in "corridor studies" and in the environmental impact statement preparation phase of project development. Thus, the discussion of mitigation in this document is just the beginning of a relatively long process of identifying impacts and mitigation measures as transportation projects are developed.

Regardless of the type of project or the resources that may be impacted, sound guidelines need to be considered and followed during the planning, design, construction, and maintenance of transportation projects. Good planning practices need to be followed to ensure a blending of sound construction techniques with desired environmental protection goals. There are two types of guidelines that need to be addressed during the development and implementation phases of projects. These guidelines are for planning / design and construction / maintenance. For the purposes of this discussion, guidelines relating to planning and design are the focus, and are presented below. As for construction and maintenance guidelines, the AASHTO Center for Environmental Excellence's "Environmental Stewardship Practices, Procedures, and Policies for Highway Construction and Maintenance" should be referred to and is recommended for use in minimizing impacts of transportation projects.

PUBLIC COMMENTS AND INPUT ON DRAFT DOCUMENT

The Wasatch Front Regional Council has maintained a very robust public engagement effort for the draft 2015 – 2040 RTP at all stages of development. Thousands of comments were received on the draft plan over the four years of its update cycle which have been carefully documented and responded to by WFRC staff. Summaries of the comments and responses were made available to the members of the Regional Council prior to all decision points on the draft 2015 – 2040 RTP.

Many comments were generic such as "we need more transit and more bicycle lanes". Many others, however, were directly related to individual projects. These comments were carefully considered and adjustments made to the draft RTP as warranted. Many projects within the adopted 2015 – 2040 RTP are very different compared to how they were initially considered in the draft stage because of the public comments received. The comments and responses received over the four year development of the RTP are included in this document as **Appendix C** – "Public Involvement Summary."

Comments on the draft regional transportation plan were received at all stages of 2015 – 2040 RTP development including scoping, alternatives, financially unconstrained draft RTP, and final draft 2015 – 2040 RTP. Comments were solicited from the general public, interested stakeholders, city and county governments, special interest groups, UDOT, UTA, natural resource agencies and environmental justice organizations.

Comments were received during four official public comment periods and associated open houses, three series of small area meetings for city and county officials, multiple mass e-mailings to a broad cross section of interested stakeholders, and hundreds of other outreach efforts. These and all other public engagement efforts were documented in a log that is attached as **Appendix C** – "Public Involvement Summary."

INTRODUCTION

To be effective, regional transportation planning must be a continuous process. The transportation system needs to be constantly monitored to determine its condition and operating efficiency. Short term measures to keep the system operating as effectively as possible must be pursued. Projects recommended in the 2015 - 2040 RTP need to be refined and evaluated for environmental and social impacts. Funding sources to implement the recommendations must be identified and programmed. Finally, the RTP needs to be updated every few years to consider changing development patterns, new technologies, and evolving goals and vision for the Wasatch Front Region. This chapter will describe how the recommendations of the 2015 - 2040 RTP will be implemented and what must be done to update it in the future.

IMPLEMENTATION STRATEGIES

Implementation of the 2015 - 2040 RTP is a cooperative effort of local, state, and federal officials. The Wasatch Front Regional Council has established a process to continuously monitor on-going development and progress in implementing recommendations in the 2015 – 2040 RTP. The WFRC also works with other agencies to address short-range congestion, pavement preservation, and bridge replacement and rehabilitation needs through management systems. In addition, the WFRC helps conduct corridor and environmental studies for major highway and transit projects and assists local communities in master plan updates. These efforts help refine the recommendations in the 2015 - 2040 RTP and encourage implementation.

Municipalities and counties of the Wasatch Front Region, UDOT, and UTA are responsible for implementing of the projects in the 2015 - 2040 RTP. The WFRC works with these agencies to encourage them to pursue the facility capital improvements recommended in the 2015 - 2040 RTP and incorporates Phase 1 projects into the short range Transportation Improvement Program (TIP). Each of the components of this continuous process is discussed in more detail in the sections that follow.

System Monitoring and Management Systems

The WFRC regularly publishes a *Surveillance of Land Use and Socioeconomic Characteristics* report, which includes current population and employment data for the Wasatch Front Region. The development and adoption of the Wasatch Front Urban Area's TIP each year allows the WFRC to monitor the implementation of recommended 2015 - 2040 RTP projects and to reevaluate the needs of the Wasatch Front Urban Area. The Utah Department of Transportation's highway traffic surveillance data, published annually, along with periodic Utah Transit Authority ridership updates, also contribute information needed to update the 2015 - 2040 RTP. In addition, as part of the continuing planning process, the WFRC and the Salt Lake - West Valley and Ogden - Layton Area Regional Growth Committee's Transportation Advisory Committees will continue to identify and respond to issues which impact the 2015 – 2040 RTP.

The 2015 - 2040 RTP addresses the need to provide increased capacity to meet the growing travel demand in the Region. Because of financial and other constraints, the recommendations of the 2015 - 2040 RTP will not meet all of the demand by the year 2040. Travel demand management and transportation system management strategies will be needed to mitigate some of the continuing traffic congestion anticipated in the future. In addition to meeting increasing travel requirements, the transportation system needs to be maintained and preserved in order to provide current users with safe and secure travel. The WFRC addresses these congestion, preservation, and safety needs through several management systems developed in cooperation with, UDOT, UTA, and others. Funding to pay for the recommendations of the management systems is included in the Financial Plan for the 2015 - 2040 RTP.

Federal requirements found in MAP-21 mandates that a Congestion Management Process (CMP) be established in all Transportation Management Areas. Since October 1997, the WFRC has had fully operational CMPs for the Salt Lake - West Valley and Ogden - Layton Urbanized Areas. The purpose of a CMP is to recommend actions to maximize the efficiency of the existing and future transportation system. The Salt Lake – West Valley and Ogden - Layton Area Technical Advisory Committees work with WFRC staff to refine and implement the CMPs. The committees monitor and provide input needed for implementation of congestion mitigation strategies on both a regional and a site-specific basis.

For all projects in the TIP that increase single occupant vehicle (SOV) capacity, the WFRC develops site-specific system management and demand management strategies that should be incorporated into each project. For all widening and new construction projects, the CMP also demonstrates that system management and demand management strategies, by themselves, will not meet the travel demand on a particular facility or, in other words, that additional SOV capacity is needed.

The Utah Department of Transportation uses a Pavement Management System and a Bridge Management System to develop recommendations for pavement and bridge projects to be included in the TIP. These systems identify the maintenance and preservation projects necessary to maintain the existing system, and are useful in recommending cost-effective and timely treatments. These recommendations are considered in the development of the TIP.

Safety and security are of increasing importance. The Utah Department of Transportation also has established procedures for identifying high hazard locations and selecting cost-effective projects for the use of federal safety funds. The Utah Transit Authority and UDOT are working with other state and federal agencies to address security needs.

REGIONAL TRANSPORTATION PLAN REFINEMENT

In addition to preparing the regional transportation plan, the WFRC works continuously with UDOT, UTA, and local communities on alternatives analyses, environmental studies, corridor studies, and master plan updates. These efforts help to refine the recommendations in the RTP and facilitate the implementation of the Plan. These studies help achieve several goals by: (1) better defining project scopes; (2) identifying needed rights-of-way for projects to allow UDOT, UTA, and local communities to pursue corridor preservation; and (3) identifying transit facility alignments and station locations. These efforts enable communities to begin planning for transit oriented development at specific locations to make the projects more competitive.

For many major highway and transit improvements, the WFRC, in cooperation with state and local engineers and planners, prepares an alternatives analysis or corridor study. The purpose of an analysis/study is to provide input when refining the long range transportation plan and to allow for decisions to be made on the scope of the improvement(s) during the planning process, prior to project development and engineering. Several major corridor studies and/or alternatives analyses have recently been completed or are currently underway in the Wasatch Front Urban Area, for both highway and transit corridors. Each of the corridors for which an alternatives analysis is underway, or for which a corridor study has recently been completed is discussed below.

Ogden - Weber State Environmental Study Report – The 2015 - 2040 RTP shows a major transit investment (mode undetermined) on a placeholder alignment typical to Bus Rapid Transit (BRTIII) and Enhanced Bus (BRTI). A feasibility study and an alternatives review have been completed for the corridor. These studies narrowed the alignment to two alternatives and the transit modes to either Streetcar or Bus Rapid Transit (BRTIII) and Enhanced Bus (BRTI). An environmental assessment is underway and is anticipated to result in a Locally Preferred Alternative with both alignment and transit mode identified.

West Davis Corridor – SR 67 Highway (formerly the North Legacy Highway) from US-89/ Legacy Parkway/ I-15 in Davis County to I-15 in Weber County - The 2015 - 2040 RTP recommends that a divided highway be constructed from US-89 / Legacy Parkway / I-15 to 4000 South in Weber County. An environmental study of this section began in 2010 and is still underway. At this time, the 2015 - 2040 RTP recommends corridor preservation along the corridor identified in the 2009 Weber County North Legacy study. Efforts to preserve the corridor are being made by the affected municipalities, Davis County, Weber County, and UDOT.

Davis – Salt Lake Community Connector – The 2015 - 2040 RTP recommends Bus Rapid Transit (BRTIII) and Enhanced Bus (BRTI) in the corridor recommended by the Alternatives Analysis. A feasibility study and an Alternatives Analysis have been completed for this corridor. These studies have identified an initial alignment for the project, as well as its guideway and station characteristics.

1800 North Environmental Impact Statement – The 2015 - 2040 RTP recommends the widening of 1800 North in northern Davis County from 2000 West to Main Street, a railroad overpass on 1800 North, and a new interchange on I-15 at 1800 North. An environmental study of this corridor and the potential interchange was initiated in 2010 and is nearing completion.

Southwest Salt Lake County Transit Feasibility Study – Riverton City, Herriman City, South Jordan City, Draper City, the Utah Transit Authority, and the Wasatch Front Regional Council sponsored a study which included Bluffdale City, Property Reserve Inc., Rio Tinto, Salt Lake County, and the Utah Department of Transportation as stakeholders. The purpose of the feasibility study was to identify a realistic and suitable high frequency / high-capacity transit project that could serve the communities in southwest Salt Lake County. The project would also connect the end of the Mid-Jordan TRAX line at the Daybreak Subdivision in South Jordan City to the FrontRunner Station in Draper. The Draper Extension, from the Draper FrontRunner station to the future Draper TRAX station at approximately 14800 South, was also studied. The 2015 - 2040 RTP currently lists most of this project in the Unfunded Phase.

Taylorsville - Murray Environmental Study Report – An alternatives analysis and environmental assessment has been completed for this project. The 2015 - 2040 RTP follows the locally preferred alternative identified by this study, which is a Bus Rapid Transit (BRTIII) and Enhanced Bus (BRTI) line from Murray to the Salt Lake Community College campus in Taylorsville.

Salt Lake City Streetcar – In late 2012, Salt Lake City and UTA constructed the Sugarhouse streetcar line (S Line) using federal funds. This project was built as an outcome of an Alternatives Analysis and environmental assessment. The 2015 - 2040 RTP envisions double tracking the existing line in keeping with the environmental assessment. It also anticipates line extensions resulting in a "C" shape route encompassing Westminster College, Sugarhouse Plaza, the Granary District, the Depot District, Downtown Salt Lake City, and the University of Utah Neighborhood. Alternative analyses have resulted in locally preferred alternatives for the segment from its current eastern end point to the Sugarhouse Plaza and the segment from the Depot District to 700 East and 100 South, east of Salt Lake City's Central Business District.

Mountain Accord Study – This study is taking a comprehensive look at the transportation, environmental, economic, and recreational needs along the Wasatch Mountain Range from I-80 to the southern end of Salt Lake and Summit Counties. Initial coping for the study has been completed and alternative scenarios are being evaluated.

5600 West Transit Environmental Assessment – The 2015 - 2040 RTP recommends Bus Rapid Transit (BRTIII) in this corridor. This recommendation is consistent with the findings of the Mountain View Corridor Environmental Impact Study. The Federal Transit Authority has requested that an alternatives analysis and a supplemental environmental analysis be completed for this project. These analyses are underway.

Sandy/ South Jordan Circulator Study – This is an on-going study to assess the feasibility for near-term circulator solutions. Among other things, those conducting the study are looking at an exclusive travel lane, along with pedestrian / transit bridges over I-15 and State Street between the TRAX and FrontRunner lines. This option is included in the 2015 – 2040 RTP and would be constructed in conjunction with a State Street BRT. This corridor would be used by three different BRT lines as well as other transit facilities.

I-15 / FrontRunner Corridor Study – The 2015 - 2040 RTP identifies improvements for the 3 to 4-mile wide I-15 / FrontRunner Corridor. The plan also identifies the need for additional projects to improve job access and maintain mobility. However, the WFRC, together with MAG, UDOT and UTA have identified the need for a more comprehensively study of this corridor from a multi-modal perspective and with more specificity than can be expected in an RTP analysis. The I-15/ Frontrunner Corridor Study will be initiated in 2015. This study, with a planning horizon of 2050, will identify additional long-range improvements for this corridor that will be included in the 2019 - 2050 RTP.

TRANSPORTATION IMPROVEMENT PROGRAM

Continued funding is needed to implement the recommended highway and transit projects in the 2015 - 2040 RTP. The WFRC works with UDOT, UTA, and local communities through the Transportation Improvement Program (TIP) to allocate funding for RTP projects. The WFRC, as the MPO for the Salt Lake – West Valley and Ogden - Layton Urbanized Areas, is responsible for preparing and approving an annually updated TIP for the Wasatch Front Region. An MPO-approved TIP is required by federal legislation for a region to receive federal highway and transit funding. The purpose of the TIP is to create a coordinated list of transportation projects for which funding has been committed over a four-year period. The TIP should reflect the region's priorities, represent a consensus among state and regional officials, show a direct relationship to the regional transportation plan, be financially constrained, and conform with federal air quality regulations as they relate to transportation. Finally, the TIP must be subjected to thorough public review during its development and prior to adoption.

The WFRC prepares the TIP, in cooperation with UDOT and UTA, for all highways, transit, and other transportation related projects in the both Salt Lake – West Valley and Ogden - Layton Urban Areas. The WFRC, UDOT, and UTA have worked together to develop methods and procedures for evaluating, selecting and prioritizing projects to be included in the TIP. The WFRC has also developed policies to guide the approval of the TIP and the project selection process, as required by TEA-21 and reemphasized with MAP-21. The WFRC TIP includes fully-funded projects to be constructed over four years and project "concept development" that can be constructed in the following two years. Thus, an accurate forecast emerges of the major transportation infrastructure to be created within the Wasatch Front Region over the next six years.

The WFRC staff is continuously reviewing and identifying methods to improve the evaluation and ranking of projects eligible for the urban Surface Transportation Program (STP), the Congestion Mitigation / Air Quality (CMAQ) Program, and the Transportation Alternatives Program. Prioritization of urban STP projects considers system efficiency, benefits and costs, regional growth principles, congestion relief, safety needs, economic benefits, system preservation, environmental impacts, and system and demand management strategies. The prioritization process for CMAQ projects considers air quality benefits in terms of emission reductions, congestion relief, cost benefits, and length of effectiveness.

For other federal aid and state highway funds, a series of workshops are held annually in each UDOT Region to review the progress being made on projects in the current program and to identify projects to add to the program. In preparations for these workshops, each region holds a monthly Pavement Management or Roadway Management committee meeting to discuss the needs,

concerns, and priorities of the roadway network throughout their region. Pavement preservation and maintenance needs, safety, traffic operations, and new capacity requirements are among the criteria UDOT uses to establish priorities. The WFRC participate at the meetings and provide the regions with information and local priorities for new capacity needs. UDOT's Programming Section and the Transportation Commission consider the recommendations of their regions in development of the programs.

The WFRC works with the UTA to identify transit projects for inclusion in the TIP. Projects are selected based on the priorities and needs established in the Transit Development Program and the Regional Transportation Plan. The WFRC also compiles lists of projects funded by local governments and includes them in the TIP. Once the TIP is compiled, the WFRC conducts an analysis to determine if the TIP conforms with state air quality plans. This conformity analysis is made available to the State Division of Air Quality and the public for review and comment. The FHWA and FTA must concur in a finding of conformance.

A draft TIP, containing the recommended programs and projects along with the conformity determination, is submitted to the Transportation Coordinating Committee of the Regional Council annually for its review. The county councils of governments also have an opportunity to review and comment on the draft TIP. Appropriate adjustments are made and a final TIP is developed. The final conforming TIP is then recommended to the WFRC for its approval. Following the Regional Council's approval, the executive director of UDOT, as the governor's designee, must review and approve the TIP. Following UDOT's approval, the Utah State Transportation Commission must include the Wasatch Front Regional Council's TIP without modification in the Statewide Transportation Improvement Program.

LOCAL PLANNING RESOURCE PROGRAM

The Local Planning Resource Program (LPRP) is an annual source of funding created, in partnership with Salt Lake County, for the purpose of providing jurisdictions located in the Salt Lake - West Valley and Ogden - Layton Urbanized Areas (municipalities, counties, townships, and multijurisdictional groups of local governments) with technical assistance to support planning efforts. Assistance is provided in the form of WFRC staff time for technical support or contract management, training for eligible applicants in the use of the Wasatch Choice for 2040 Toolbox or financial support for the hiring of private consultants.

Eligible projects include developing local comprehensive visions or plans, projects that involve multijurisdictional coordination, activities that help to implement previously-adopted plans such as revisions to ordinances or other land use regulations, public participation related to developing or implementing local plans, site assessments to determine feasibility of transit oriented development projects and/or studies or specific plans related to important local issues, such as housing or market studies. Applicants are also encouraged to utilize the following planning tools that were developed through the Wasatch Choice for 2040 Vision:

- Envision Tomorrow Plus (ET+) - a scenario planning software;
- Form Based Code Template - which provides a model code document and a manual for local government entities wishing to modify their local codes;
- Housing Opportunities Analysis - which helps local governments understand impediments and opportunities for housing equity;
- Implementing Centers Tool - with methods and strategies to finance transit oriented development infrastructure;
- StreetPlan - a web-based tool to visualize/test different street cross sections;
- ReConnect - the Wasatch Front Green Infrastructure Plan; and
- Envisioning Centers - a method to utilize the WC2040 toolbox in a dialogue with residents.

Significance of Program

The Local Planning Resource Program supports the Wasatch Front Region's planning goals by promotes consistent long range planning. The LPRP provides funding assistance and planning tools to local entities where such resources might not otherwise be readily available. Additionally, collaborative relationships have been formed with both local governments and planning agencies, such as the Utah Transit Authority, for projects related to transit oriented development. The program is structured in such a manner that applicants take ownership of the projects. The community begins to experience the values of the Wasatch Choice for 2040 and Toolbox and the need to support the regional vision. Momentum surrounding visional land use and transportation planning throughout the Region has been, and will continue to be, enhanced through this program.

Objectives And Goals

The Local Planning Resource Program aims to:

1. Support local governments in their efforts to create livable communities.

2. Support local outreach and engagement efforts that promote broader stakeholder involvement.

3. Reduce single-occupant vehicle travel demand and promote alternative travel choices through planning strategies.

4. Encourage coordination of land use plans with existing or planned regional transportation infrastructure.

5. Promote plans and projects that support and implement the following Wasatch Choice for 2040 Vision and Growth Principles.
    - Integrate local land use with regional transportation systems
    - Provide regional mobility through a variety of interconnected transportation choices
    - Provide public infrastructure that is efficient and adequately maintained
    - Provide housing for people in all various stages of life and income levels
    - Ensure public health and safety
    - Enhance the regional economy
    - Promote regional collaboration
    - Strengthen sense of community
    - Protect and enhance the environment

6. Support the use of the Wasatch Choice 2040 Toolbox (Envision Tomorrow Plus, Form Based Code, Housing Plans, Transit Oriented Development Financing, Complete Streets, Green Infrastructure, TravelWise, etc.) in local planning efforts.

7. Promote regional collaboration.

Financial Logistics

Through its Local Planning Resource Program, the Wasatch Front Regional Council has been able to annually provide $140,000 to serve the Ogden-Layton urbanized area (including Davis, Weber, Morgan, Tooele and Southern Box Elder Counties) and $260,000 to Salt Lake County. Through a partnership with Salt Lake County, an additional a local match of $200,000 has been provided for 2014 and 2015. These amounts are proportionally distributed to each urbanized area according to its population total. Consistent with other WFRC programs, project applicants are required to provide a minimum 7% financial match. This minimum match requirement allows all sizes of communities to be able to compete regardless of municipal revenue flows. Applicants for the LPRP are carefully evaluated based on a number of criteria and funding is assigned.

FUTURE PLAN UPDATES

As noted above, transportation planning is a continuous process. Changing development patterns resulting from continued growth in the Wasatch Front Region, fluctuating economic conditions, and shifting energy and environmental concerns all impact transportation needs in the Wasatch Front Urbanized Areas and the types of improvements required to meet those needs. In order to keep the RTP current, the WFRC reviews the recommendations in the regional transportation plan at least every four years and updates it as necessary. The next update to the RTP will be presented to the Wasatch Front Regional Council in May 2019.

During the next four years, the WFRC will build upon the work completed in development of the current Regional Transportation Plan. This process will include continued emphasis on understanding land use-transportation relationships and using that information to refine the future vision for the Wasatch Front Region. The WFRC will monitor changing land use patterns and major new developments. Future financial projections will depend on the action of Congress, the Utah State Legislature, local officials and general public. As always, the WFRC continues to update its planning capabilities through improvements to the Region's travel models. Incorporating additional MAP-21 guidance into the planning process will be another area the WFRC will pursue more fully during the next four years. Finally, the Wasatch Front Regional Council will continue to update the process used to develop the RTP and anticipates addressing new issues in future updates.

Visioning

For this planning cycle, the Wasatch Front Regional Council utilized the adopted Wasatch Choice for 2040 as the basis for the scenario planning process. This, in turn, served as the first stage of the 2015 - 2040 RTP process. Over the coming years, the Regional Council, in collaboration with key stakeholders, business representatives, and government officials and other interested parties will answer the question: what is the Vision for our region out to the year 2050. The State of Utah's multi-issue statewide visioning process, known as Your Utah - Your Future, will inform our Region's more detailed vision for how growth and transportation improvements should occur.

Changing Growth Patterns

This planning process assumes that the Wasatch Front Region will continue to grow, and the transportation system will need to address the consequences of this growth. Over the next few years, the new development and redevelopment that takes place will need to be considered in future plans. Among the factors that will have the greatest impact are the redevelopment of downtown Ogden, to promote employment and residential uses, the expansion at the Business Depot Ogden, implementation of plans for commercial and office development on the west side of Hill Air Force Base, the creation of Weber State University's Davis County Campus in Layton / Clearfield, redevelopment in downtown Salt Lake City, and realization of Kennecott Land Company's planned development on the west side of Salt Lake County. In addition to these activities, new development is likely to occur around the light rail and commuter rail transit stations in the Region.

Funding Sources

The WFRC will continue to monitor funding sources available for transportation improvements. Over the past several years, the Utah Legislature has significantly increased state funding for highway improvements. In addition, the Legislature has authorized new local option sales taxes and increases in vehicle registration fees for highway, transit, and airport improvements. These funds can be used for congestion mitigation, new capacity, and corridor preservation.

With the adoption of the 2015 - 2040 RTP, members of the Wasatch Front Regional Council will work to ensure that state and federal lawmakers are fully aware that a significant need still exists for preserving and expanding the Wasatch Front Region's transportation system. The WFRC will also work with state and federal officials to pursue new, as well as increases in existing funding sources for highway and transit projects.

Travel Demand Modeling

The WFRC uses travel forecasting models to project future highway traffic and transit ridership based on proposed transportation networks and forecasted land use characteristics. These travel forecasts are used to identify needed highway and transit improvements. These models are data intensive, and are refined each RTP cycle based on the latest traffic counts, speeds, transit boardings, and travel behaviors. Coordination between the land use model and the travel demand model is a critical link in the forecasting process. For the next RTP update, the WFRC will be using a new real estate market model to better inform land use and transportation interactions. With the assistance of consultants, the WFRC has prepared comprehensive data sets and calibrated this robust model that will improve the technical analysis informing the RTP.

NEPA and Planning

By addressing National Environmental Protection Act issues during the planning process, the WFRC hopes to streamline project development for project sponsors. To address inherent issues, the WFRC has made a greater effort to identify and evaluate multi-modal alternatives in major transportation corridors, increase public involvement opportunities, address environmental factors in the evaluation process, and prepare a draft purpose and need statement that can be used as a basis for the preparation of the necessary environmental studies.

Advance Construction (AC) - A plan whereby the State, Cities, or Counties may utilize their own funds to temporarily fund federal-aid projects when federal fund apportionment for a fiscal year has been expended. Funding is then converted to federal-aid when new apportionment is received at the beginning of a new fiscal year.

Americans With Disabilities Act (ADA) - A civil rights law enacted in 1990 that prohibits discrimination against people with disabilities in the areas of employment, transportation, telecommunications, and public accommodation. Special facilities to accommodate persons with disabilities, such as special low curb cuts at intersections for wheelchair traffic, are required by law.

Apportionment - Federal-aid funds appropriated to each state over a multi-year period as a result of an act of Congress. Current funding is authorized by the Transportation Equity Act for the 21st Century signed into law in June, 1998. Funds are allocated in a number of different categories and have certain restrictions for use within those categories.

Arterials - Include those classes of highways emphasizing a high level of mobility for the through movement of traffic. Land access is subordinate to this primary function. Generally, travel speeds and distances are greater on these facilities compared to the other classes. The highest classes of arterials, interstates and freeways, are limited access to allow the free flow of traffic.

Average Daily Traffic (ADT) - The average number of vehicles passing a given point on a roadway in a 24-hour day.

Bikeway - Any road, street, or path that is designated to accommodate bicycle travel. Bikeways do not have to be separated facilities and may be shared with other travel modes.

Bus Rapid Transit (BRT) - Bus Rapid Transit is a rubber wheeled self-propelled transit mode capable of operating in ordinary mixed traffic, limited purpose lanes, exclusive lanes, on aerial structures, and in subway. Bus Rapid Transit is characterized by, but not limited to, distinct vehicles using bus lanes, technology, and limited stops to combine light rail like speeds and convenience with bus flexibility. For the purpose of the 2030 LRP Update, Bus Rapid Transit includes modern, high-capacity buses; segments of bus lanes to avoid significant congestion; light-rail like stations, queue jumpers, and signal priority. Station spacing is generally at one-mile intervals outside of the Central Business District. Operating frequencies are assumed to mirror that of the current Salt Lake to Sandy TRAX Line.

Capacity Deficiency - Occurs when the number of vehicles on a roadway exceeds the desired level of service threshold volumes for that roadway.

Capital Funds - Funding dedicated to new projects or projects to improve or replace elements of the transportation system, including freeway widening, rail extensions, transit station improvement, new bicycle and pedestrian lanes, and so forth (Also see “Operating Funds.”)

Carbon Monoxide (CO) - Is a colorless gas formed by incomplete combustion of fuel. Anywhere combustion takes place (i.e., industrial processes, home heating, etc.) high concentrations of carbon monoxide can develop.

Collectors - Roads and streets that collect traffic from the lower facilities and distribute it to the higher facilities. Collectors provide both mobility and land access. Generally, trip lengths, speeds, and volumes are moderate.

Commuter Rail - Commuter trains are typically electric or diesel propelled passenger trains operating on the general, freight railway network, within an urban area or between an urban

center and it's outlying suburban communities. The principal passenger community is persons making single day return trips within an urban metropolitan area. For the purpose of the 2030 LRP Update, this includes diesel Push/Pull trains as well as Federal Railroad Administration Compliant Diesel Motorized Units with generally five mile station spacing outside of the Central Business District. It excludes electrified trains.

Congestion Management Systems (CMS) - A process of identifying congested locations, evaluating strategies to mitigate congestion, recommending prioritized mitigation projects, and determining their effectiveness. Required by ISTEA in air quality non-attainment areas.

Congestion Mitigation / Air Quality Program (CMAQ) - Is a categorical program created under the Intermodal Surface Transportation Efficiency Act. It directs funding to projects that contribute to meeting national air quality standards.

Corridor Studies - A typical highway or transit study focusing on a segment of a particular travel corridor. Land use, access issues, capacity, level of service, geometrics, impacts, and safety concerns are studied. Alternatives are developed and analyzed, and recommendations are made. Corridor studies are usually prepared with the participation of the affected communities and government agencies.

Delay - A unit of time measure reflecting increased travel time resulting from traffic congestion.

Draft Environmental Impact Statement (DEIS) - A document that provides a full description of the proposed project, the existing environment, and analysis of the anticipated beneficial and adverse environmental effects of all reasonable alternatives. (Also see “Final Environmental Impact Statement” (FEIS.).

Enhanced Bus System - Enhanced Bus, also known as Type I BRT, is a rubber wheeled self-propelled transit mode capable of operating in ordinary mixed traffic and limited purpose lanes but without significant exclusive lanes. Enhanced Bus is characterized by, but not limited to, standard vehicles using technology and limited stops to improve transit speeds. For the purpose of the 2030 LRP Update, Bus Rapid Transit includes standard articulated buses; light-rail like stations, queue jumpers, and signal priority. Station spacing is generally at one-mile intervals outside of the Central Business District. Operating frequencies are assumed to mirror that of the current Salt Lake to Sandy TRAX Line.

Environmental Assessments (EA) - A document prepared for federal actions where it is not clearly known how significant the environmental impact might be. If, after preparing an Environmental Assessment, it is determined that the project’s impacts are significant, an Environmental Impact Statement is then prepared. If not, a “Finding Of No Significant Impact” (FONSI) is documented and issued by the FTA or FHWA. (Also see “Finding Of No Significant Impact.”)

Environmental Impact Statement (EIS) - written statement containing an assessment of the anticipated significant beneficial and detrimental effects which the agency decision may have upon the quality of the human environment for the purposes of: (1) assuring that careful attention is given to environmental matters, (2) providing a vehicle for implementing all applicable environmental requirements, and (3) to insure that the environmental concerns are successfully addressed.

Expenditure - In transportation terms, this is any allowable expense associated with particular project or program.

Federal Highway Administration (FHWA) - An administrative division of the United States Department of Transportation responsible for roadway programs throughout the country.

Federal Transit Administration (FTA) - Another branch of the United States Department of Transportation responsible for mass transit projects throughout the country.

Final Environmental Impact Statement (FEIS**)** - A document that provides a full description of the proposed project, the existing environment, and analysis of the anticipated beneficial and adverse environmental effects of all reasonable alternatives. (Also see "Draft Environmental Impact Statement.") A FEIS addresses comments submitted regarding a draft environmental impact statement.

Findings Of No Significant Impact (FONSI) - A statement indicating that a project was found to have no significant impacts on the quality of the human environment and for which a full environmental impact statement will, therefore, not be prepared.

Flexible Funding - Unlike funding that flows only to highways or only to transit by a rigid formula, this is money that can be invested on a range of transportation projects. Examples of flexible funding categories include the STP and CMAQ programs.

Fixed Guideway - A system of vehicles that can operate only on its own guideway constructed for that purpose. Examples of fixed guideways systems include rapid rail, light rail transit, exclusive right-of-way bus operations, trolley coaches, and ferry boats.

Functional Classification - Is a grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Streets and highways do not operate independently. Instead, they are part of an interconnected network and each one performs service in moving traffic throughout the system. Generally, streets and highways perform two types of service. They provide either traffic mobility or land access. They can be ranked in terms of the proportion of service they perform. The functional classifications are respectively listed in order of traffic service and mobility; freeway, principal arterials, minor arterials, collectors, and local streets.

High Frequency Bus Service - High Frequency Bus is a standard bus transit mode capable of operating in ordinary mixed traffic. High Frequency Bus is characterized by approximately 15 minute headways covering at least the peak commuter period. For the purpose of the 2030 LRP Update, High Frequency Bus does not include special buses, stations, or technologies. Station spacing is varies by demand.

Illustrative Projects - A regionally significant project that has no identified funding that would be included in the 2030 LRP Update if additional resources could be identified or were to become available.

Intelligent Transportation System (ITS) - The development or application of technology (electronics, communications, or information processing) to improve the efficiency and safety of surface transportation systems. ITS is divided into five categories that reflect the major emphasis of application: (1) Advanced Traffic Management Systems, (2) Advance Traveler Information Systems, (3) Advanced Public Transportation Systems, (4) Automatic Vehicle Control Systems and (5) Commercial Vehicle Operations.

Intermodal Center - A transportation facility that is specially designed to accommodate several modes of passenger and freight movement including commuter rail, light rail transit, intercity bus, intra-city bus, airport limousine service, cargo container transfers, piggyback trailers, car rental facilities, taxis, private parking, and other transportation services.

Intermodal Surface Transportation Efficiency Act (ISTEA) - The past transportation act which changed many of the traditional methods and procedures of transportation planning. This act replaced many of the former federal-aid funding programs and increased the responsibility of the Metropolitan Planning Organization (MPO).

Level Of Service (LOS) - A measure of highway congestion ranging from free flow to forced flow on a scale of A to F. Facilities are usually designed for levels C or D.

Linked Trip - A linked trip is a person's entire trip between an origin and destination, which may involve transferring between vehicles (e.g., bus and rail transit), or multiple stops, such as stopping at a daycare center or store along a commute trip. An unlinked trip is a passenger trip make on a single vehicle, such as a single automobile or bus ride.

Local Street And Roads - Their primary function is to provide land access. Travel speeds, distances, and volumes are generally low, and through traffic is usually discouraged.

Management Systems - A requirement of ISTEA to address short range needs. All states are required to have management systems in place. Metropolitan Planning Organizations have been delegated authority to maintain a Congestion Management System (CMS) only in urban areas designated as a Transportation Management Area (TMA). UDOT maintains pavement, bridge, and safety management systems.

Metropolitan Area - This area includes the existing urbanized area plus any contiguous area expected to become urbanized in the 20 year forecast period. The Metropolitan Area also must include all of the non-attainment areas for ozone and carbon monoxide pollutants.

Metropolitan Planning Organization (MPO) - Designated by the Governor under the provisions of the 1973 Federal Aid Highway Act. This organization shares responsibility with the State for developing long and short range transportation plans and programs. It provides a forum for discussion and consensus on issues which transcend jurisdictional boundaries. The Wasatch Front Regional Council is the MPO for the Salt Lake and Ogden/Layton Urbanized Areas.

Multimodal - Refers to the availability of multiple transportation options, especially within a system or corridor. A multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place be it by truck, train, bicycle, automobile, airplane, bus boat, foot or even telecommuting with a computer modem.

National Environmental Policy Act (NEPA) - Enacted in 1969, requires that any activity or project receiving federal funding or other federal approvals (including transportation projects) undergo analyses of potential impacts to see how the activity or project might impact the community, the natural environment, and the health and welfare of the citizens. These analyses include social, economic, and environmental (SEE) concerns ranging from community cohesion to threatened and endangered species.

National Highway System (NHS) - This approximate 160,000-mile network consists of the 42,500 miles of the Interstate system, plus other key roads and arterials throughout the United States. Designated by Congress in 1995 pursuant to a requirement of the Intermodal Surface Transportation Efficiency Act, the NHS is designed to provide an interconnected system of principal routes to serve major travel destinations and population centers. The NHS is also a funding category in TEA-21.

Operating Funds - Money used to fund general, day-to-day costs of running transportation systems. For highways, operating costs involve maintaining pavement, filling potholes, paying salaries, and so forth. For transit, operating cost includes salaries, insurance, administration, maintenance of vehicles and track, replacement parts, and fuel costs.

Ozone (O_3) - Is a colorless gas associated with smog or haze conditions. Ozone is not a direct emission, but a secondary pollutant formed when precursor emissions, hydrocarbons and nitrogen oxides, react in the presence of sunlight.

Paratransit Service - Generally more flexible and personalized than regular bus route service, paratransit services use a variety of vehicles including large and small buses, vans, cars, and taxis. Paratransit can serve a particular population, such as persons with disabilities.

Park-And-Ride - An arrangement whereby people can drive to a transit hub, transfer station, or terminal, park their automobiles in designated lots and use public transportation or carpool to their destinations.

Particulate Matter (PM_{10}) - Is any material less than 10 microns in size. Particulate matter can be caused by wind-blown soil, dust from paved and unpaved roads, and emissions from diesel engines. Particulate matter of this size is too small to be filtered by the nose and lungs. $PM_{2.5}$ is even smaller material that measures 2.5 microns in size.

Peak Period - The time between 6:00 and 9:00 a.m. and between 3:00 and 6:00 p.m. on a weekday, when traffic is usually heavy and dominated by commuters

Queue Jumper - Where a separate set of signals for transit are combined with either a short section of exclusive lane or transit exemptions to turning requirements are made to allow transit to by-pass a queue (line) of automobiles that develops at congested points such as intersections, interchange ramps, or bridge approaches.

Regional Transportation Plan (RTP) - A financially constrained, long range plan, with at least a 20-year time frame, of the anticipated highway and transit needs in a specific area. Transportation needs are based on projected socioeconomic and land use growth within the area. The Wasatch Front Regional Council is responsible for the Long Range Transportation Plan for both the Salt Lake and Ogden/Layton Urbanized Areas. The current plan title is the Wasatch Front Urban Area Long Range Transportation Plan Update: 2004-2030.

Regionally Significant Project - A transportation project or facility which serves regional transportation needs, such as access to or from areas outside of the region, major activity centers, major planned developments, or transportation terminals. Included as regionally significant projects would be all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Ridesharing - Car and van pooling intended primarily to serve the commuter work trip. Formalized ridesharing programs are co-sponsored by the Utah Transit Authority.

Right-Of-Way (ROW) - Land, usually in public ownership, through which a transportation facility passes, including the area for shoulders, parking strips, sidewalks, multipurpose trails, bicycle paths, and other cross section elements. Right-of-way also includes rails and trackbeds for fixed guideway transit facilities.

Signal Prioritization - Existing traffic signals or a separate set of signals for transit are made to be activated by buses. Detector devices are installed on the bus or embedded in the approach lane to trigger a signal change or extend signal green time for transit vehicles. Activation of the device may be always available to the transit vehicle or may be limited to only late vehicles. In addition to transit use, emergency vehicles may use the same devices in a more aggressive way to decrease their response time.

State Implementation Plan (SIP) - A plan showing how the State will meet air quality standards as required by the 1977 Clean Air Act - Amended. Included are emission inventories and controls for industrial, area, and mobile sources of pollution.

Statewide Transportation Improvement Program (STIP) - A five-year program of highway and transit projects for the State. It is a compilation of projects utilizing various federal and state funding programs, and includes highway projects on the state, city, and county highway systems, as well as projects in National Parks, National Forests, and Indian Reservations.

Surface Transportation Program (STP) - One of the key funding programs in TEA-21. STP monies are "flexible," meaning they can be spent on roads and highways, as well as on pedestrian and bicycles facilities and mass transit.

3-C Planning Process (3-C) - Continuing, comprehensive and cooperative (3-C) transportation planning is conducted by Metropolitan Planning Organizations in urbanized areas. The existence of a certified process is a necessary condition for the use of federal transportation funds.

Traffic Control Measures (TCM) - Measures which can improve air quality through a reduction in travel or through a reduction in vehicle emission rates by improved traffic flow. Examples include ride sharing programs, transit service, and signal coordination.

Traffic Operations Center - The Utah Department of Transportation's central facility designed to operate and coordinate a variety of TSM and ITS systems, including a network of traffic signals, fiber optics links, traffic sensors, ramp meters, variable message signs, closed-circuit television cameras, and emergency response personnel.

Transit Hubs - Locations where transfer connections between transit modes is facilitated, usually at shopping centers or other high-pedestrian locations.

Transit Development Program (TDP) - A short-term (usually five years)plan of transit service and facility improvements to meet the transit goals of the region.

Transportation Demand Management (TDM) - TDM programs and methods designed to maximize the people-moving capability of the transportation system by increasing the number of persons in a vehicle, or by influencing the time of, or need to, travel. To accomplish these types of changes, TDM programs must rely on incentives or disincentives to make these shifts in behavior attractive.

Transportation Equity Act For The 21st Century (TEA-21) **-** Federal legislation authorizing highway, highway safety, transit, and other federal surface transportation programs through the year 2003. It continues and expands the programs established by the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. Both acts placed greater emphasis on planning and identified several planning factors that must be addressed.

Transportation Improvement Program (TIP) - A five-year capital improvements program of highway and transit projects including operational and low cost projects to increase efficiency of the existing transportation network as well as capital intensive alternatives prescribed in the Long Range Transportation Plan.

Transportation Management Area (TMA) - An urbanized area with a population over 200,000 (as determined by the latest decennial census) or other area when TMA designation is requested by the Governor and the MPO (or affected local officials), and officially designated by the administrators of the FHWA and the FTA. The TMA designation applies to the entire metropolitan planning area(s).

Transportation System Management Strategies (TSM) - Programs and methods to improve the efficiency and effective capacity of the transportation system. Techniques that might be utilized

are signalization, ramp metering, HOV ramps and lanes, one-way streets, and improvements to transit.

Urban Area - A city or group of cities with population in excess of 5,000. Boundaries are determined by local elected officials, but may not be less than urban area boundaries as defined by the U.S. Bureau of the Census. There are twelve urban areas in Utah.

Urbanize Area - A city or group of cities with population in excess of 50,000. Boundaries are determined by local elected officials, but may not be less than urbanized area boundaries as defined by the United States Bureau of the Census. There are currently five urbanized areas in Utah --- Salt Lake, Ogden/Layton, Logan, Provo/Orem, and St. George.

Urban Transportation Planning Process (UTPP) - The UTPP includes the methodologies used in the development of the Long Range and Short Range Elements of the Transportation Plan. The process is intended to identify existing and projected transportation problems within an urban area.

Utah Transportation Commission - A seven-member commission whose members are appointed by the Governor with advice and consent of the Senate. Six of the members are selected to represent specific areas of the state, and one member represents the state at large. Duties of the commission are to determine priorities and funding, location and establishment of state highways and airports, hold public meetings and provide for public involvement in transportation matters, make rules on behalf of UDOT, and advise the department on statewide transportation policy.

Vehicles Per Day (VPD) - The total number of vehicles including buses and trucks which pass by a specific point during the day.

Vehicle Mile Traveled (VMT) - The amount of vehicle travel on a designated set of roadways multiplied by the total mileage of those roadways.

Glossary of Terms

List of Acronyms

A

AA	Alternatives Analysis
AARC	Average Annual Rate of Change
AASHTO	American Association of States Highway and Transportation Officials
AC	Advanced Construction
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AFB	Air Force Base
AGT	Automated Guideway Transit
AICP	American Institute of Certified Planners
AIP	Airport Improvement Program
AMPO	Association of Metropolitan Planning Organizations
AOG	Association of Governments
APC	Automated Passenger Counting
APE	Area of Potential Effect
APTA	American Public Transit Association
AQC	Air Quality Committee
AST	Above-Ground Storage Tanks
ATMS	Advanced Traffic Management Systems
ATV	All-Terrain Vehicle
AVL	Automated Vehicle Location
AWDT	Average Weekday Daily Traffic

B

BDO	Business Depot Ogden
BEA	Bureau of Economic Analysis
BMP	Best Management Practice
BMS	Bridge Management System
BRT	Bus Rapid Transit

C

CAA	Clean Air Act
CAT	Committee on Accessible Transportation
CBD	Central Business District
CCTV	Closed-Circuit Television
CDBG	Community Development Block Grant
CDSD	Central Davis Sewer District
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation & Liability Act
CERCLIS	Comprehensive Environmental Response Compensation & Liability Information System
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHF	Centennial Highway Fund
CIB	Community Impact Board
CLG	Certified Local Government

CMAQ	Congestion Mitigation / Air Quality Program
CMC	Congestion Management Committee
CMP	Congestion Management Process
CMS	Congestion Management System
CO	Carbon monoxide
CO_2	Carbon Dioxide
COE	Corps of Engineers
COG	Council of Governments - Counties
CPG	Consolidated Planning Grant
CR	Commuter Rail
CRIT	Commuter Rail Integration Team
CSS	Context Sensitive Solutions

D

DAQ	Division of Air Quality
D&RGW	Denver & Rio Grande Western
dB	Decibel
dBA	Decibels measured on the A-weighted system
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DMU	Diesel Multiple Unit
DNR	[Utah] Department of Natural Resources
DOI	Department of the Interior
DOT	Department of Transportation
DSR	Design Study Report
DWR	[Utah] Division of Wildlife Resources

E

EA	Environmental Assessment
EEO	Equal Employment Opportunity
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	[U.S.] Environmental Protection Agency
ESA	Endangered Species Act

F

FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FONSI	Finding Of No Significant Impact
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal Year

G

GIS	Geographic Information System

GOPB	Governor's Office of Planning and Budget
GPS	Global Positioning System

H

HAFB	Hill Air Force Base
HBW	Home-Based Work
HBC	Home-Based College
HBO	Home-Based Other
HCM	Highway Capacity Manual
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
HPMS	Highway Performance Monitoring System
HVAC	Heating, Ventilation, and Air Conditioning

I

ICEA	Indirect and Cumulative Analysis
ILS	Intensive Level Survey
IMACS	Intermountain Antiquities Computer System
IRCAA	Inter-Regional Corridor Alternatives Analysis
IRS	Internal Revenue Service
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
ITS	Intelligent Transportation System

J

JPAC	Joint Policy Advisory Committee

L

Ldn	24 hour average sound weighted by time of day
Leq	Equivalent continuous sound level.
Lmax	Maximum sound pressure level
LRT	Light Rail Transit
LOA	Letter of Agreement
LONP	Letter of No Prejudice
LOS	Level of Service
LPA	Locally Preferred Alternative
LRP	Long Range Plan
LRTP	Long Range Transportation Plan
LTAP	Local Technical Assistance Program
LUST	Leaking Underground Storage Tank

M

MAG	Mountainland Association of Governments
MASP	Metropolitan Airports System Plan
MIS	Major Investment Study
mg/m^3	Milligrams per cubic meter
mm/s	Millimeters per second
MOA	Memorandum of Agreement

MOU	Memorandum of Understanding
MP	Milepost
MPO	Metropolitan Planning Organization
MOBILE	Mobile Source Emissions Model
mph	Mile(s) per hour
MRI	Magnetic Resonance Imaging
MVC	Mountain View Corridor

N

NAAQS	National Ambient Air Quality Standards
NAPL	Non-Aqueous Phase Liquid
NCHRP	National Cooperative Highway Research Program
NDSD	North Davis Sewer District
NEPA	National Environmental Policy Act of 1969
NFRAP	No Further Remedial Action Planned
NHB	Non Home-Based
NHCSA	National Highway Carrier Safety Administration
NHPA	National Historic Preservation Act
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NO	Nitrogen
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NO_x	Nitrogen Oxides [Oxides of nitrogen (NO and NO_2)]
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NTD	National Transit Database
NWI	National Wetlands Inventory

O

O_3	Ozone
OATS	Ogden Area Transportation Technical Subcommittee
O-L	Ogden - Layton
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OU	Operable Unit

P

Pb	Lead
PAC	Policy Advisory Committee
PCB	Polychlorinated Biphenyls
PCE	Percholoethylene
PE	Preliminary Engineering or Professional Engineer
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter < 2.5 microns
PM_{10}	Particulate Matter < 10 microns
PMS	Pavement Management System
ppm	Parts per million
PPV	Peak Particle Velocity

PRP	Potentially Responsible Party
PRT	Personal Rapid Transit
PS & E	Plans Specifications and Estimates
psi	Pounds per square inch
PTA	Parent-Teacher Association
PTO	Public Transit Officer

R

RCA	Recovery Act
RCR	Regional Commuter Rail
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery (Act) Information System
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RDA	Redevelopment Area
RFP	Request for Proposals
RFQ	Request for Qualifications
RGC	Regional Growth Committee
RI/FS	Remedial Investigation/Feasibility Study
RMS	Root Mean Square
ROD	Record of Decision
ROW	Right-Of-Way
RTP	Regional Transportation Plan

S

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SDSD	South Davis Sewer District
SEL	Sound Equivalent Level
SHPO	[Utah] State Historic Preservation Office
SHSP	Strategic Highway Safety Plan
SIP	State Air Quality Implementation Plan
SLATS	Salt Lake Area Transportation Technical Subcommittee
SLC	Salt Lake City
SO_2	Sulfur dioxide
SOV	Single Occupancy Vehicle
SPUI	Single Point Urban Interchange
SR	State Route
STB	Surface Transportation Board
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
SWMU	Solid Waste Management Units

T

TAC	Technical Advisory Committee
TAZ	Trafic Analysis Zone
TCM	Trafic Control Mesure
TCP	Traditional Cultural Property
TDM	Transportation Demand Management
TDP	Transit Development Program
TEA-21	Transportation Equity Act for the 21st Century

TIP	Transportation Improvement Program
TMA	Transportation Management Area
TOC	Traffic Operations Center
TOD	Transit-Oriented Development
tpd	Tons per day
Trans Com	Transportation Coordinating Committee
TRB	Transportation Research Board
TSM	Transportation System Management

U

UAM	Urban Airshed Model
UCSP	Utah Comprehensive Safety Plan
UDAF	U.S. Department of Agriculture and Food
UDAQ	Utah Department of Air Quality
UDEQ	Utah Department of Environmental Quality
UDWR	Utah Department of Wildlife Resources
UDOT	Utah Department of Transportation
UMTA	Urban Mass Transportation Administration
UPRR	Union Pacific Railroad
UPWP	Unified Planning Work Program
UrbanSim	Urban Simulation Land Use Model
US or USA	United States of America
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UTA	Utah Transit Authority
UTPP	Urban Transportation Planning Process
UVSC	Utah Valley State College

V

VdB	Vibration Decibels
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VPD	Vehicles Per Day

W

WBWCD	Weber Basin Water Conservation District
WFRC	Wasatch Front Regional Council
WVC	West Valley City
µg/l	Micrograms per liter
µg/m^3	Micrograms per cubic meter
3-C	Continuing, Comprehensive and Cooperative Transportation Planning Process