



## Charting Our Course

*The Wasatch Front Regional Transportation Plan: 2011 - 2040* (2040 RTP) has been developed to enhance the ability of our Region's transportation networks to meet the anticipated travel demand for the next 30 years. The 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 and Ogden - Layton Urbanized Areas.

Based on an adopted regional land use and transportation vision, known as the "Wasatch Choice For 2040" (Vision), the 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.

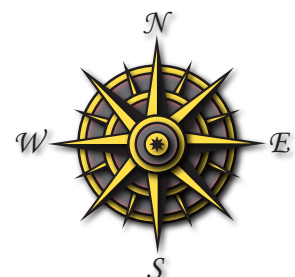


## Chapter 1

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**Photo at Left:** American Fork Interchange with Interstate 15 and the *FrontRunner South* commuter rail line in the background. This new Diverging Diamond Interchange (DDI) is the first of its kind in Utah. These projects, captured in this aerial photo, highlight the cutting edge design and work of the Utah Department of Transportation (UDOT) and the Utah Transit Authority (UTA).

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## INTRODUCTION

Formally created on May 27, 1970, the Wasatch Front Regional Council (WFRC) has been responsible for transportation planning in the Salt Lake and Ogden - Layton Urbanized Areas 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 shows the boundaries of the Metropolitan Planning Area, the Tooele Rural Planning Area, and the Salt Lake and Ogden - Layton Urbanized Areas all located within the Wasatch Front Region.

The 2040 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 2040 RTP meets federal government requirements (under Title 23, Part 450 and Title 49, Parts 100 to 300 of the Code of 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 2040 RTP are 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 50, details the 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 2040 RTP. This technical report supercedes its predecessor, entitled the Wasatch Front Regional Transportation Plan: 2007-2030, Technical Report 46.

Population along the Wasatch Front is projected to increase by 55 percent, or to be 1.5 times the current population, between now and 2040. If no more transit lines



or highways are constructed, the average per capita delay resulting from traffic congestion will increase by nearly 400 percent, or to be six times longer than the current delays. These regional statistics point to the gravity of the Wasatch Front transportation challenge facing the region that will require innovative solutions on a corridor-by-corridor basis.

The Wasatch Front's anticipated growth will require significant investment in new transportation capacity. To meet this demand, the 2040 RTP recommends adding approximately 1,071 lane-miles of new capacity improvements to the existing highway system. The 2040 RTP also recommends adding approximately 296 miles of major public transit improvements. These improvements include 12 additional miles of Light Rail Transit, 6 miles of Commuter Rail Transit, 161 additional miles of Bus Rapid Transit (BRT 3), 106 miles of Enhanced Bus (BRT 1) service, and 11 miles of streetcar lines. These major transit improvements will provide an increase of over 60,000 revenue miles of transit service each weekday, or a 94 percent increase in current service. The 2040 RTP recommends that local bus route service throughout the Wasatch Front Region be increased by at least 25 percent over the next 30 years.

Vehicle miles of travel (VMT) and transit passenger miles of travel are measures of how much travel occurs on the transportation system. Vehicle miles traveled is anticipated to increase by nearly 70 percent, or to be approximately 1.7 times the current number of miles traveled. This projection

reflects a decrease in growth rate compared to historical trends. The total number of transit passenger miles of travel is expected to increase 200 percent, or approximately three times the current passenger miles traveled. Figure 1-1 illustrates the Wasatch Front trend in population and vehicle miles traveled between 1994 and 2040.

The 2040 RTP was developed within the constraints of reasonable financial assumptions. The list of specific highway and transit facility improvements contain only those projects that can be funded over the next 30 years, or between the years 2011 and 2040. Reasonable assumptions were made concerning both future revenues for transportation improvements and the estimated costs of recommended highway and transit facilities.

Finally, to coincide with anticipated financing and revenue streams, the implementation of the 2040 RTP was divided into four separate phases: Phase 1 (2011-2020); Phase 2 (2021-2030); and Phase 3 (2031-2040), and Unfunded Phase (2040+). The Financial Plan for the Wasatch Front Regional Transportation Plan: 2011-2040, Technical Report 51, documents both the estimated available revenues and projected costs of highway and transit improvements through the year 2040. A separate appendices document provides additional information on the planning process, public involvement, alternatives analysis, and recommendations of the 2040 RTP.

## SUMMARY OF PAST PLANNING EFFORTS

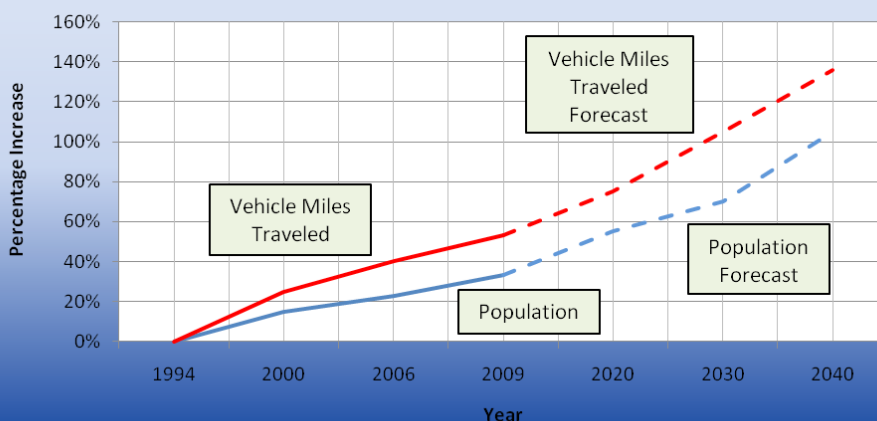
The first comprehensive, regional transportation planning efforts in the Wasatch Front Urban Area were undertaken in the early 1960's. At that time, the Utah Department of Transportation worked with local elected officials in the Wasatch Front Region to develop an area-wide Long Range Transportation Plan (LRP) for 1980. As part of this study and analysis, an origin-destination survey for the Region was conducted to develop travel-forecasting models for projecting future traffic flows.

With its designation as an MPO in 1973, the WFRC initiated a major update to the Wasatch Front Region's LRP. The objective was to extend the LRP to the planning horizon of 1995, taking into account the changes in development patterns and travel behavior that had occurred since the first LRP was adopted. The 1979 LRP, with a planning horizon out to 1995, consisted of Technical Report 13 for the Salt Lake Urbanized Area and Technical Report 19 for the Ogden Urbanized Area. This LRP was approved, published, and distributed in September 1977.

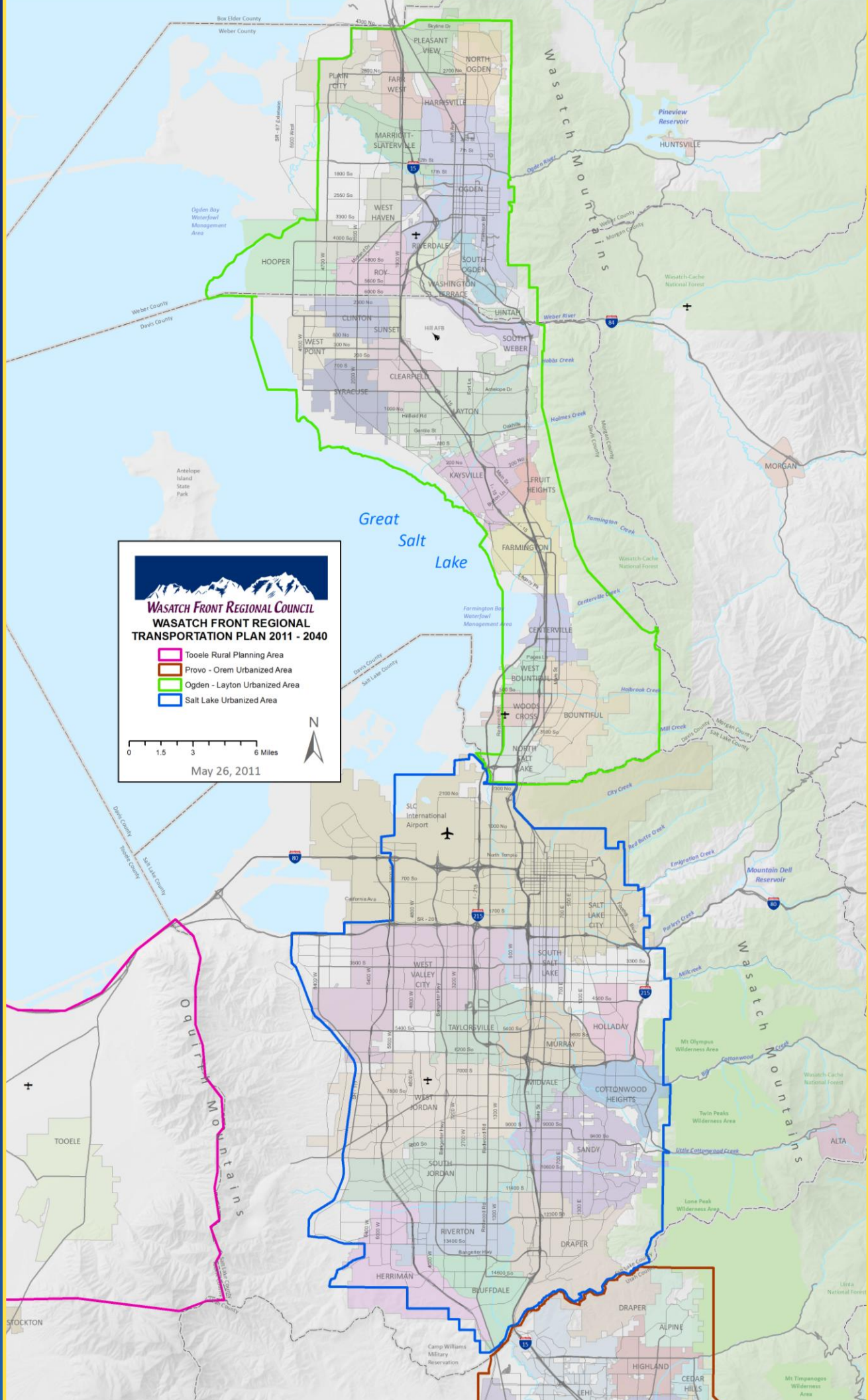
In the 1980's, a second update to the Wasatch Front Region's LRP was undertaken by the WFRC. This update effort extended the LRP's time horizon to 2005. While earlier long range transportation plans had provided a far ranging master plan for future transportation facilities with

an emphasis on highways, many of the facilities would not be needed during the time frame of the plan and funding for other projects was unlikely to be available. The LRP developed in 1987 took a slightly different approach and made recommendations to address the projected needs for the year 2005. The WFRC also developed a separate plan for facilities needed beyond 2005 as a guide for local communities to use in future local transportation planning. The 2005 LRP was approved

**FIGURE 1-1**  
**Wasatch Front Growth in Population and Vehicle Miles Traveled**



Map 1-1, WASATCH FRONT URBANIZED AREA



by the Wasatch Front Regional Council in 1987, and consists of Technical Report 22 for the Salt Lake Urbanized Area and Technical Report 23 for the Ogden Urbanized Area.

Beginning with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, all regional transportation plans are now required to include a financial element showing how the recommended projects and facilities, based on reasonable financial assumptions, can be implemented. Thus, financial constraints meant that some needed projects could not be included in LRP recommendations. In 1993, the WFRC adopted an interim long-range transportation plan to address the financial requirements and other criteria established by ISTEA. The Wasatch Regional Council approved a final long range transportation plan in 1995. This LRP, which had a planning horizon out to the year 2015, addressed ISTEA requirements. Three reports were published, including Technical Report 32, The Salt Lake Area Long Range Plan, Technical Report 33, The Ogden Area Long Range Plan, and Technical Report 34, The Financial Plan for the Wasatch Front Region Transportation Plans.

A comprehensive LRP for 2020 was developed and approved by the Wasatch Front Regional Council in October 1998 for the Salt Lake and Ogden Urbanized Areas. This LRP effort placed greater emphasis on public transit improvements than previous long range transportation plans, and identified a system of fixed guideway light rail and regional commuter rail facilities. The Long Range Transportation Plan was documented and summarized in a series of technical reports, including Technical Reports 35, 36, 37, and 38.

The Long Range Transportation Plan was revisited beginning in January 1999. The Salt Lake and Ogden Urbanized Areas, treated in the past as two separate and distinct geographic jurisdictions for population projections, travel demand analysis, needs assessment, recommended transportation projects, and supporting documentation, were combined into a single, more complete planning effort for the entire of the Wasatch Front Urban Area. This LRP and supporting documentation, entitled the Wasatch Front Urban Area Long Range Transportation Plan: 2002-2030, was approved and adopted by the WFRC in December 2001. The 2002-2030 LRP was designated Technical Report 40. Technical Report 41, entitled the Wasatch Front Urban Area Long Range Transportation

Plan: 2002-2030 Financial Plan, along with appendices and executive summary, provided supporting documentation to the 2002-2030 LRP. In approving this plan, the Regional Council asked the WFRC staff to pursue an expedited and expanded transit plan for the Region. After two years, in December 2003, Regional Council representatives adopted the Wasatch Front Urban Area Long Range Transportation Plan Update: 2004-2030, Technical Report 43, along with its accompanying Financial Plan, Technical Report 44, which included a greater emphasis on transit.

More recently, the Wasatch Front Regional Transportation Plan: 2007-2030, Technical Report 46, was prepared and adopted by the Regional Council on May 24, 2007. This effort featured a compact diskette that contained: (1) Small Area Socioeconomic Projections: 2005-2030 (Technical Report 45); 2030 RTP Appendices (Technical Report 46); 2030 RTP Financial Plan (Technical Report 47) and Air Quality Memorandum (Report Number 21). These previous regional transportation planning efforts provided the groundwork for the current 2040 RTP. Technical Report 50 continued to reflect the recommendations and priorities established in earlier long range plans.

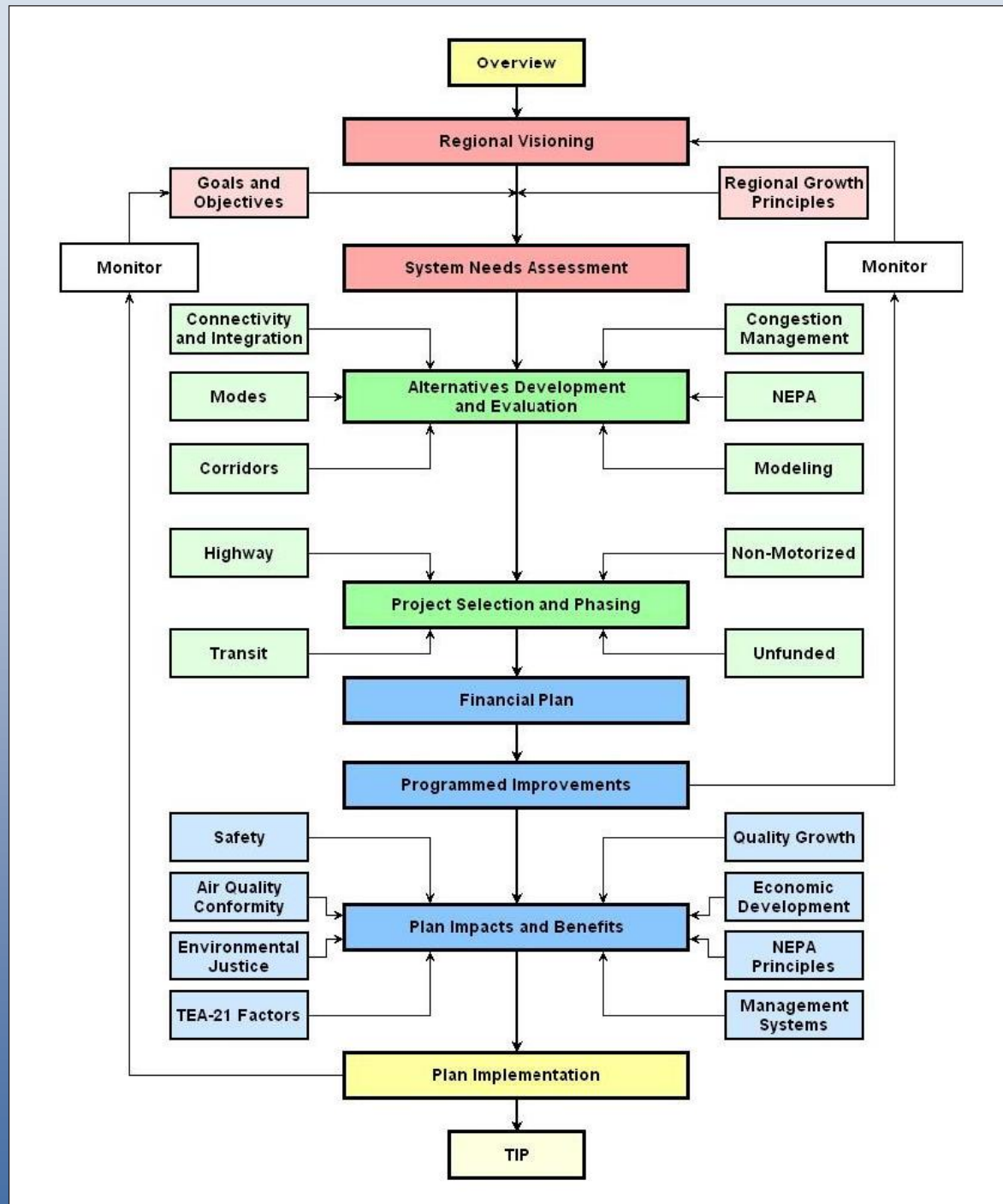
## OVERVIEW OF THE 2040 RTP

### Purpose For 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's Regional Transportation Plan for 2011-2040 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 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 30-year planning horizon was selected for this latest effort. Thus, the 2040 RTP covers the planning period from the year 2011 through 2040. The next planned update to the WFRC regional transportation plan is scheduled for 2015.

# Overview

FIGURE 1-2  
RTP 2040 Planning Process



## Review of Planning Process

The Wasatch Front Regional Council utilized a 9-step planning process to guide the preparation of the 2040 RTP. This process consists of: (1) Overview or Problem Identification; (2) Visioning; (3) Needs Assessment; (4) System 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 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 system-wide alternatives helped to compare different combinations of proposed highway and transit projects. Realistic assumptions about funding sources and assumptions over the next 30 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 2040 RTP are detailed in Figure 1-2.

## Public And Agency Involvement

The 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 resource agencies. An extensive public outreach effort was conducted designed to solicit and identify regional transportation needs from the point of view of the general public. Additional input was provided by members of the 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

As part of the 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 support planned land uses. The type of growth patterns and planned transportation investments need to work together to create a desired future along the Wasatch Front. The adoption of the Vision, along with its supporting Growth Principles, provides a framework for key transportation decisions and the revised Vision map will help guide transportation improvements and land use decision 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 “UrbanSim” program as an analytical tool, the WFRC generated population and employment projections for approximately 1,000 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 2040 RTP process. Population projections indicate that the Wasatch Front Region will increase over the next 30 years from approximately 1,600,000 persons to 2,500,000 persons.

## 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 locate 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, “Needs Assessment,” details the analysis performed.

## Strategy Development

The 2040 RTP process utilized several regional land use

# Overview

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 possibilities. Four alternative transportation alternatives, including a "no build" scenario, 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 highway and transit projects. These four transportation alternatives were reviewed and refined by local community planners and engineers, elected officials, and the general public.

## GOALS AND OBJECTIVES

Following the identification of regional transportation issues and concerns, a series of general and specific goals were developed to meet those needs. A number of these goals focused on increasing mobility through mode choice, minimizing traffic congestion, maintaining the number of vehicle miles of travel per capita, reducing environment impacts, enhancing the Region's economic competitiveness, improving air quality, maximizing accessibility to important services, and linking local land use development decisions with planned improvements to the transportation system.

A number of the goals and objectives that have been used in past regional transportation planning efforts are similar and share common themes. These goals and objectives represent the Wasatch Front Region's shared transportation values and formed the basis for past plans as well as for this most recent effort in preparing the 2040 RTP. In addition to the goals and objectives listed below, adopted WFRC planning policies, such as the Regional Growth Principles, the Wasatch Choice for 2040 Regional Vision (see Chapter 2), and a comprehensive analysis of the Region's transportation needs (see Chapter 3), also helped guide the 2040 RTP process.

1. Provide a balanced, inter-connected transportation system with a range of convenient, efficient, and economical choices.
2. Increase transportation mobility and accessibility for both persons and freight, thus promoting economic vitality in the Wasatch Front Region.
3. Increase transportation safety and security for all modes

of travel.

4. Provide a transportation system that both protects and enhances the environment, promotes energy conservation, and improves the quality of life.
5. Protect existing and future transportation systems through adequate ongoing maintenance, preservation, or reconstruction.

In order to further these goals, the following, more specific objectives were developed:

- Maintain Level of Service E (volume/capacity ratio of 1.0) or better in all major corridors
- Manage all major corridors to optimize throughput using congestion pricing and Intelligent Transportation System (ITS) measures
- Reduce the rate of growth in vehicle miles of travel to the rate of growth in population
- Maintain regional vehicle hours of delay through the planning horizon for the 2040 RTP at the present level of per capita growth rates
- Maintain access to major facilities, encourage compatible land uses, and promote economic development
- Early preservation of transportation corridors
- Implement SAFETEA-LU planning principles

## Generalized Goals for 2040 RTP

A number of generalized goals for the 2040 RTP were developed and several existing goals were expanded to improve upon past planning efforts. An emphasis of the 2040 RTP process was to draw a stronger link between projected growth in population and regional travel demands, recommended transportation facility additions and improvements to meet that demand, and local land use planning. Additional goals focus on taking advantage of improved methods of evaluating the 2040 RTP's social, economic, and environmental impacts and benefits. Finally, there is a well-recognized need to continue to closely coordinate and build consensus with federal, state, and local transportation planning agencies. The following list summarizes the WFRC staff's objectives that helped guide the overall planning process:

1. Develop a more robust regional transportation and land use Vision, known as the Wasatch Choice for 2040, which, along with the WFRC's adopted growth principles and strategies, can serve as guidelines for development

- decision by local governments.
2. Continue to strive for improved quality of life and economic development along the Wasatch Front by developing the most modern, effective, and efficient transportation system that limited resources can provide.
  3. Develop a series of performance measures that are directly linked to Wasatch Front Region's transportation goals in order to determine how well the 2040 RTP meets its objectives.
  4. Update and formally adopt specific evaluation criteria for the selection of highway and transit projects and for determining phasing priorities.
  5. Develop and test through modeling a series of multi-modal and interconnected transportation system alternatives that will allow for the comparison of various transportation choices designed to address projected travel demand throughout the region.
  6. Develop an enhanced public outreach and involvement process for the regional Vision and the regional transportation plan that involves innovative techniques and collaboration.
  7. Continue to develop and utilize important planning analysis tools such as an enhanced Geographic Information System (GIS) database, UrbanSim, UDOT's UPLAN, and BioWest's Utah Planning and Environment Linkages (UPEL) programs.
  8. Incorporate National Environmental Policy Act (NEPA) and other criteria and analyses into the transportation planning process, such as project purpose and need; safety and security; economic development; land use; alternatives analysis; and core system performance measures.
  9. Enhance the regional planning process with new technical planning tools, such as UrbanSim; and foster collaboration between MPO organizations, especially when such organizations have contiguous boundaries.
  10. Promote regional and community sustainability from a transportation investment standpoint.

## Specific Goals for 2040 RTP

In March 2010, the Wasatch Front Regional Council approved a set of goals, objectives, and performance measures that support the Council's mission statement to "serve the mobility needs and enhance the quality of life" in the region. The goals and objectives were developed by the WFRC staff

based on goals identified in previous RTP's, outcomes of the 2009 Regional Council retreat, and planning factors identified in the SAFETEA-LU regulations. Including goals and objectives in the 2040 RTP is consistent with FHWA planning guidelines that encourage an objectives based planning process.

For each goal, specific actionable objectives that support these goals have been identified. The objectives are in turn supported with measurable performance indicators. Each performance measure will be evaluated for current conditions, future conditions with the implemented 2040 RTP, and future conditions without the 2040 RTP. Additional detail about performance measures is found in Chapter 8 on page 287. After some history of tracking these performance measures, WFRC staff will recommend specific improvement targets for Regional Council consideration and approval. Future updates to the regional transportation plan will include specific recommendations for achieving each of the goals and objectives identified in Table 1-1.



# Overview

## PLANNING ORGANIZATIONS AND COMMITTEES

The development of the 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 2040 RTP serves the needs and values of the region for which it is developed. The 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

**TABLE 1-1**  
**2040 RTP Goals and Objectives**

Goals	Objectives
<b>Economic</b> - Promote economic vitality.	a. Maintain, improve, and expand the transportation system to meet the demands of increased population and employment.
<b>Safety</b> - Increase transportation safety and security for all modes of travel.	a. Identify the most critical safety needs in the transportation system and select projects and improvements that will reduce the accident rate at specific locations.
<b>Security</b> - Enhance regional security.	a. Implement a transportation system that can rapidly respond to a variety of emergency situations. b. Plan a flexible and adaptive transportation system including redundant facilities and remote sensing and management of traffic operations.
<b>Accessibility and Mobility</b> - Provide a balanced, inter-connected transportation system with a range of accessible choices for people and freight.	a. Identify and mitigate congested highway corridors and choke points. b. Support a multimodal transportation system including continued investment in highways, public transit, pedestrian accommodations, and bicycle facilities. c. Identify and eliminate congestion points for freight movement.
<b>Energy / Environment</b> - Promote energy conservation, improved quality of life, and a clean environment.	a. Reduce delay due to congestion and incidents. b. Reduce VMT growth by promoting increased automobile occupancy. c. Promote transit use through improved transit service. d. Reduce transportation related emissions of CO, CO <sub>2</sub> , NOx, VOC, and Particulate Matter.
<b>Livability</b> - Protect and enhance improved quality of life.	a. Accommodate the needs of an aging population as well as a growing general population, including continued investment in transit and pedestrian friendly communities. b. Promote in-fill development.
<b>Efficiency</b> - Maximize the productivity of the transportation system for each dollar invested.	a. Implement transportation demand management and transportation system management strategies. b. Improve access to alternative transportation modes such as transit, bicycles, and pedestrian.
<b>Preservation</b> - Protect existing and future transportation systems with maintenance, preservation, or reconstruction.	a. Incorporate and advocate UDOT access management principles. b. Identify critical corridor preservation priorities and a plan to secure rights-of-way for these corridors.

## 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

## General Public

- Envision Utah
- Public Open Houses
- Outreach interviews with select special interest and environmental justice groups

In addition to the above organizations, the WFRC held two meetings for various federal, state, local, and private resource agencies providing for early participation and input into the 2040 RTP process. These meetings were held on August 12, 2009 and October 26, 2010. Participating organizations included the U.S. Army Corps of Engineers, Utah Department of Natural Resources, Utah Department of Agriculture and Food, Utah Geological Survey, Utah Open Lands, Utah Division of State History, Utah Division of Water Resources, Utah Division of Water Quality, Jordan Valley Water Conservancy District, Utah Division of Wildlife Resources, Utah Heritage Foundation, Utah State Historic Preservation Office, and various school districts located within the study area. Thus, these organizations were able to be part the 2030 RTP

process, analysis, and solution development. These resource agency groups provided early identification of key concerns, mitigation strategies, and solution development, including the type and scope of needed transportation projects.

Finally, the WFRC was assisted in developing the 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 2040 RTP planning process and identify various issues and concerns.

## FEDERAL PLANNING REGULATIONS

The United States Congress, through the Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU), passed on August 10, 2005, identified eight planning factors that need to be considered and addressed in regional transportation planning. All relevant modes of transportation are considered when developing plans and programs. Metropolitan Planning Organizations, under SAFETA-LU, are to develop transportation plans and programs for their urbanized areas in cooperation and coordination with state transportation departments and public transit agencies. SAFETA-LU provides the planning strategies, goals, and responsibilities for the MPO. The plans and programs adopted by the MPO provide for the development and the integrated management of a regional transportation systems which are coordinated with the national system of road and transit facilities. SAFETA-LU expired in September 2010 and a new federal reauthorization bill is yet to be enacted. The manner in which the 2040 RTP addresses each factor can be found in Chapter 8, Page 281, of this document. Below is a list of the eight SAFETEA-LU planning factors.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety and security of the transportation system for motorized and non-motorized users.

# Overview

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.

## 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

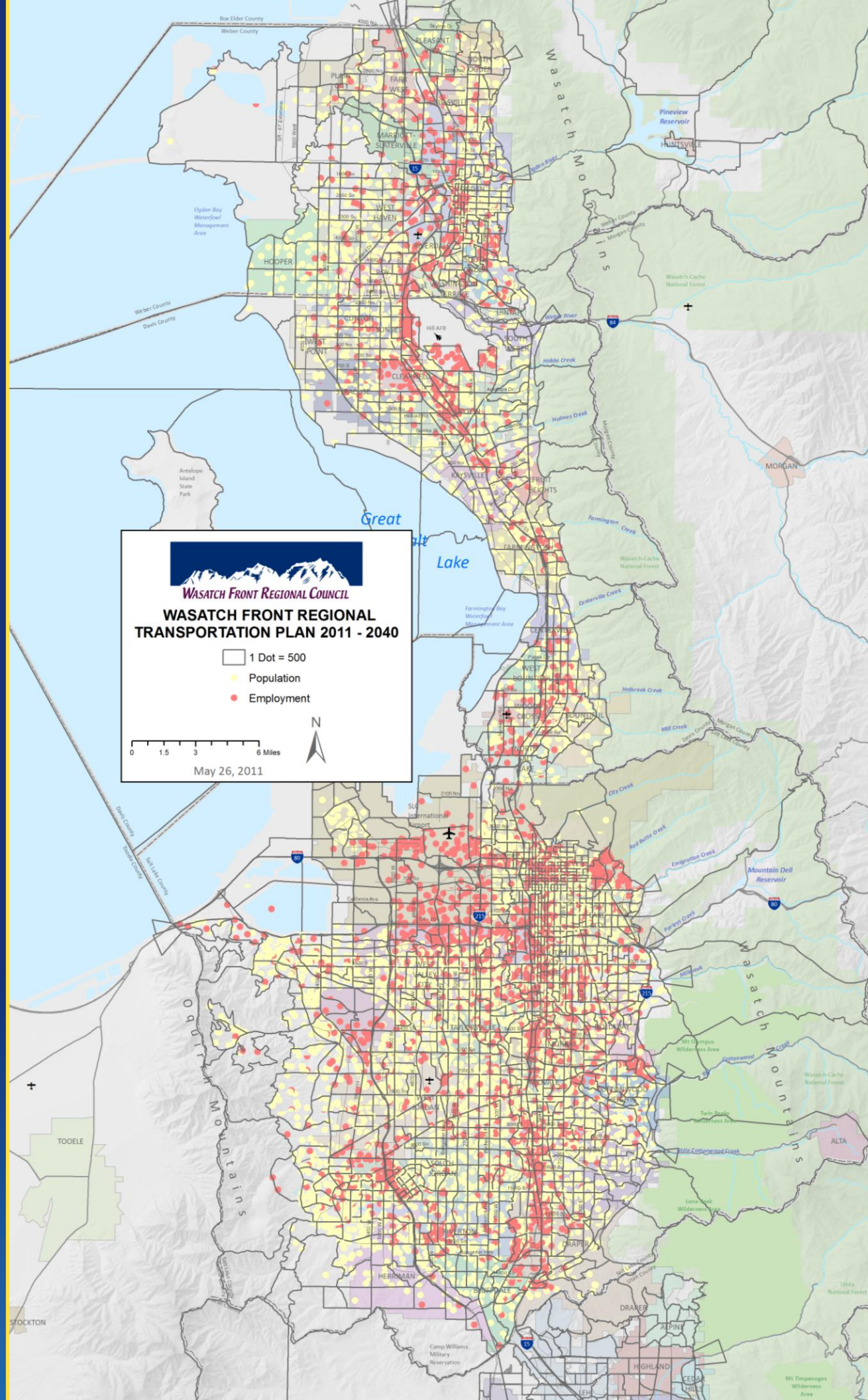
government, the State of Utah, and local governmental jurisdictions recognize that the Great Salt Lake has reached the flood stage when the water level is at an elevation of 4,217 feet. Hence development is restricted to the area above this level.

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 from 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.

### Population

The first permanent Anglo settlers in the 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 74.8 percent of the state total. By 2000, the combined population had increased to 1.3 million persons, but the share had dropped to 59.7 percent of the state total. The state Governor's Office of Planning and Budget projects the combined population to grow to 2.5 million by 2040, with the share dropping even further, to 44 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 developed areas. Map 1-2 shows the projected population and employment 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. These two counties may approach "build-out" population during this time frame.



Map 1-2, 2040 POULATION AND EMPLOYMENT DENSITY

# Overview

## 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 dependent on a limited number of sectors, the economy is now based on the service sector and other industries, such as health care, education, and local government. Agricultural industries continue to decline in importance on a regional scale.

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 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 improved 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 A – Socioeconomic Forecasts.

## Commuter Characteristics

The 2006-2008 American Community Survey (ACS) provides a snapshot of the commuter characteristics in the region. Each workday, approximately 92,000 commuters travel to Salt Lake County, mainly from Davis, Tooele, Weber, and Utah Counties. There are also a significant number of commuters that leave Salt Lake County for other counties. Inside the Region, the commuter patterns become less clear. Major commuting destinations include downtown Salt Lake City, West Valley City, and Provo.

Even with the construction of fixed-guideway transit service, the vast majority of commuting takes place in the single occupant vehicle. With some TRAX extensions already completed, more in various planning phases and under construction, and the FrontRunner commuter rail line between Provo and Salt Lake City under construction, the transit mode share for work trips should increase beyond the 3.6 percent in the ACS data.

## TRANSPORTATION AND LAND USE RELATIONSHIP

The relationship between transportation and land use is relatively complex and there are a number of factors about their inter-relationship that are not well understood. However, additional research continues to contribute to our increased understanding. Although it is understood that transportation and land use patterns are directly linked, the public process for making local land use decisions often fail to consider the long term consequences of incremental land development choices on a region's transportation system.

This is ironic, given that no singular force has had a greater influence on the overall pattern of land development in American cities than roads and highways. Building a road is fundamental to land development. Roads and public mass transit provide new or improved access to land, which in turn is more likely to be developed because of its resultant increase in value and desirability. More and better transportation facilities decrease the cost, time, and money of travel within and between urban areas. Roads and the vehicles that use them are, therefore, instrumental and essential in the development of property.

However, would the road have been built were it not for a demand or need for the land on which development could occur? And, what role do land use plans and public policy play in the pattern of development? The answer to the first question is yes. However, the answer to the second question requires a somewhat more involved response. There is a significant role that land-use plans and public policy play in land development. The decision as to whether or not to build roads, and where and what type of development should be allowed and possibly encouraged is a matter of public policy, as reflected in land-use plans, zoning ordinances, and price of property.

There are many other issues that should be addressed in analyzing the relationship between transportation and land use. For instance: Will building a new highway to relieve traffic congestion also encourage sprawling development in the areas served by the road? What supporting land-use policies should be adopted to take full advantage of expensive investments in new rail transit? And, are there specific policies and practices that can help state and local government officials cope more

effectively with traffic congestion, urban form, infrastructure costs, quality of life, and other growth-management issues? Important questions such as these will need to be considered if a greater understanding between the transportation and land-use linkages are to be reflected in the planning processes, and more effective actions are to be implemented.

There are many questions to be answered about the relationship between transportation and land use, and academic research will continue. However, there are some conclusions about these relationships where a relatively strong consensus exists. These conclusions were articulated in a “White Paper” prepared for the Florida Department of Transportation by Steven E. Polzin, PhD. of the Center for Urban Transportation Research, University of South Florida, and are used as a resource for the following discussion.

## Development Density Or Intensiveness

Independent of other factors, higher density and/or intensity creates higher total travel demand from a given geographic zone, but enables and encourages shorter auto trips and higher pedestrian, bike, and transit use due to the concentration of activities. A higher development density is more supportive of viable transit alternatives and enables more activities to be served with shorter auto trips or pedestrian and bike modes of travel. Density (both residential and employment) is correlated with a host of other factors that influence travel behavior, such as transit availability, income, auto availability, operating costs, parking costs, centrality of location, and urban design features including pedestrian amenities. There appears to be a connection between density and vehicle miles traveled (VMT), with a certain amount of reduction in VMT being made possible, depending on the travel behavior variables listed above.

## Mixed Use

Within a given area, the mix of uses influences the extent to which personal activity needs, such as employment, school, shopping, etc., can be served by development in the area. Mixing of compatible land uses enables shorter trips where biking and walking become viable options. This also enables shorter auto trips

and supports efficient transit operations. The nature of the activity and the nature of the “mixing” of uses may influence the travel response. Mixing of uses can facilitate combining of trips, further impacting travel demand. Job-housing balance is most beneficial if there is balance in income distribution and in the coordinated development of housing and employment opportunities.

## Urban Form

Urban form encompasses the nature of the transportation networks, whether grid, radial, or other; as well as the configuration of land use, such as monocentric versus polycentric. Urban form can favor one mode over others and may influence overall number of vehicle miles traveled by changing the cost of such travel. The characteristics of urban form are clearly factors in travel behavior and VMT. The nature of the transportation network can influence the directness or indirectness of travel routes while the pattern of development can influence the viability of transit and other modes and the length of trips. Urban form influences accessibility, which is unquestionably a factor in travel behavior.

## Urban Design

The orientation of a structure on a site relative to transportation infrastructure (parking, sidewalks, bus stops, covered walkways, seating, and other amenities) can impact the choice of modes. Transportation sensitive urban design generally offers an opportunity to make property more accessible for alternative modes, while providing aesthetic,



# Overview

safety, convenience, and other benefits. When urban design is targeted to favor pedestrian, bike, and transit services, it can help reduce VMT.

## Contiguousness of Development

It is common, particularly at the outer edges of developed areas, for a significant mix of undeveloped land to be interspersed with pockets of development. The skipped-over undeveloped land usually makes alternative transportation unworkable and requires all external trips to or from the new development to be in motor vehicles. This mix of developed and undeveloped parcels produces longer auto trips and increased VMT. Encouraging contiguous development can result in reduced VMT. Contiguousness has been shown to increase density in study areas and reduce travel. Contiguous growth can also result in reduced infrastructure costs, habitat preservation, and efficiencies in service delivery.

## Regional Growth Principles and Vision

Wasatch Choices 2040, a four county land use and transportation vision plan, was developed as a new approach for the WFRC to use in creating a new transportation paradigm for the Region. This vision plan is an attempt to ensure that the billions of dollars allocated for regional transportation improvements over the next 30 years will support planned local land uses. In other words, anticipated growth patterns and programmed transportation investments need to work together to maintain the high quality of life enjoyed along the Wasatch Front. The Wasatch Choices 2040 planning process generated a set of nine Growth Principles and “Implementation Strategies For Local Governments” to help achieve this regional goal. The formal adoption of the Growth Principles, in October 2005, means that over time officials will make key transportation decision only after considering their impact on long-term quality of life issue and cost effectiveness. The framers of these Principles recognized that collaboration is needed among the Region’s local governments if potential benefits are to be realized. As part of that collaborative effort, the WFRC and Envision also developed a regional vision in 2005. This Vision, known as Wasatch Choice for 2040, was updated and adopted by the Regional Council in May 2010, is a graphical representation of how the Wasatch Front Region could absorb projected growth. The purpose of the Vision is to guide the development of our Region’s transportation planning efforts. While the Vision has no regulatory authority, the WFRC

encourages municipalities and counties to consider areas for mixed use development, boulevard communities, and higher density centers as local plans are updated. Implementing the Growth Principles and the Vision will help our communities maintain their high quality of life.

## REGIONALLY SIGNIFICANT FACILITIES

The 2040 RTP must include all improvements planned for the next 20 to 30 years on regionally significant transportation facilities. This is a requirement of the Environmental Protection Agency (EPA) transportation conformity regulations. Regionally significant roadway projects, as defined in the Code of Federal Register, Chapter 40, Section 93.101, are those projects that are functionally classified as principal arterials or larger, such as freeways, and a number of select minor arterials that should be treated as principal arterials. Regionally significant transit facilities are defined as fixed guideway systems and include Commuter Rail (FrontRunner), Light Rail Transit (TRAX), Streetcar, and Bus Rapid Transit (BRT 3) projects that enjoy their own dedicated right-of-way. For the purposes of the Wasatch Front Region, the WFRC established the following guidelines to determine whether or not a highway and transit facility was to be defined as regionally significant or not.

- Any new or existing facility with a functional classification of principal arterial or higher on the latest UDOT Functional Classification Map shall be considered regionally significant.
- Any fixed guideway transit service including light rail, commuter rail, or portions of bus rapid transit that involve exclusive right-of-way shall be considered regionally significant.
- As traffic conditions change in the future, the MPOs - in consultation with DAQ, UDOT, FHWA, and EPA (and UTA and FTA in cases involving transit facilities) - will consider (1) the relative importance of minor arterials serving major activity centers, and (2) the absence of principal arterials in the vicinity to determine if any minor arterials should be considered as regionally significant for purposes of regional emissions analysis.

A list of regionally significant minor arterials, along with the process used to determine what changes to a project’s



concept and scope are to be considered significant enough to warrant a new regional emissions analysis, are provided in Appendix B - Regionally Significant Minor Arterials.

## TRANSPORTATION MODELING AND ANALYSIS TOOLS

The Wasatch Front Regional Council and the Mountainland Association of Governments Travel Demand Model (Model) is a tool for analyzing integrated land-use, transportation, and air quality factors. The 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 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 SAFETEA-LU 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, the Federal Transit Administration, and the Environmental Protection Agency 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 2007 “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. A detailed explanation of the WFRC’s transportation modeling process and analytical tools can be found in Appendix C – Transportation Modeling and Analysis Tools.

## PUBLIC INVOLVEMENT SUMMARY

The WFRC solicited public participation and integrated oral and written comments received into the development of the Regional Transportation Plan (RTP) alternatives, the draft 2040 RTP, and the final adopted 2040 RTP. Input for the 2040 RTP was sought from various groups including freight hauling organizations, 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

# Overview

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 2040 RTP can be found in Appendix D – Public Involvement Summary.

## Special Interest Outreach

WFRC staff members made dozens of visits to private citizens and the organizations noted above in order to identify transportation related problems and issues, receive input on possible solutions to growing travel demand, develop a series of RTP alternatives, and solicit comment on the draft 2040 RTP document. This was done both in the scoping and draft phases of RTP development. Also, notification was made on the WFRC website that materials in Spanish are available upon request.

## 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 community and government. The result of the process was a set of nine Growth Principles derived by consensus and adopted by the Wasatch Front Regional Council and most of its member entities. These Growth Principles continued to guide the development of the 2040 RTP and are an excellent example of how the public involvement process influences policy.

For the 2040 RTP, the Regional Council reviewed the Vision and adopted a revised, more current version, entitled “Wasatch Choice for 2040” Vision. This Vision includes a more detailed and complete map showing suitable locations for mixed use development, transit oriented development, and centers of higher density. The Regional Council staff has also made it a point in all 2040 RTP presentations that the Wasatch Choice for 2040 is the foundation of the 2040 RTP.

As part of the Vision update process, the WFRC held a formal, well-advertised comment period. The Regional Council also sought input on the draft Vision update from area County

Councils of Governments, city councils, local government planning commissions and individual planners and engineers. During this process there were numerous revisions to the draft Wasatch Choice for 2040 document based on comments from municipal and county officials and the public at large.

## Public Open Houses

Three series of open houses regarding the 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 2009. The second series was held for the Alternatives Phase in August 2010 and the third for the draft 2040 RTP were held in March 2011. 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 2,000 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.

The public open houses served as a forum to receive input and to gauge public opinion concerning the 2040 RTP and its underlying planning process. All comments were carefully summarized and responded to by the WFRC staff. The last series of public open houses, held March 2011, presented the draft 2040 RTP for public review and comment. The WFRC staff compiled written comments and summarized verbal comments received from the public after each open house and 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 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 quarterly 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 enjoys generally good relations with area news reporters. Regional Council and WFRC staff members were quoted at length in numerous articles during the RTP development process. Also, various Council members and staff made individual visits to newspaper editorial boards to discuss the benefits of the 'Vision' update. Lastly, personal visits were made to area Spanish language newspapers to introduce the Regional Council and the draft 2040 RTP.

In January and February 2011, the WFRC staff prepared the draft supporting document, entitled *The Wasatch Front Urban Area Regional Transportation Plan: 2011-2040* for distribution to interested public agencies, elected officials, local communities and the general public. A formal public review period was held during March 2011. Interested person and groups were invited to review and offer comments on the draft 2040 RTP in either formalized public open houses or individually at their convenience. The final document was reviewed and approved by the Wasatch Front Regional Council in May 2011. An electronic copy of the final adopted version of the 2040 RTP is available on the WFRC website ([www.wfrc.org](http://www.wfrc.org)). Printed copies can be obtained at the WFRC office and are available at select area libraries.

## THE UNIFIED PLAN

Utah's Unified Transportation Plan: 2011-2040 was revised and updated as part of the 2040 RTP and followed the same general process that was established during the development of the 2007-2030 RTP. The Wasatch Choice for 2040 Vision was used as the basis for the urbanized area of the Wasatch Front. The Regional Vision, and its supporting Regional Growth Principles, which have been adopted by a majority of member cities and counties, helped guide the 2040 Unified Plan. Statewide transportation planning efforts are now much more closely coordinated than in the past and the updated Unified Plan for 2040 continues this tradition.

Historically, until the adoption of the WFRC's 2007 - 2030 RTP in May 2007, UDOT and the state's four MPOs communicated and notified each other about their planning

efforts, but there was no real effort made to coordinate certain or all aspects of the five entities' transportation plans. Each planning organization used different financial assumptions, planning cycles, baseline data, priority-setting procedures, formats, etc. As the Unified Plan process has evolved, many of these inconsistencies have been resolved. Each of the MPO's has accepted responsibility for preparing a transportation plan for the urbanized area for which it has planning responsibility. The Statewide Unified Plan contains the essence of these plans 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 process, etc. With this Unified Plan it is hoped that many of the criticisms and inconsistencies that were apparent in the past have been overcome, and that 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 metropolitan areas of Utah County and Salt Lake County have essentially grown together and creation of the Joint Policy Advisory Committee was a response to the recognized need for a coordinated planning process. The Utah State Legislature has also mandated cooperation between adjacent metropolitan planning organizations. The Committee has grown to include senior representatives from UDOT, UTA, the Dixie MPO and the Cache MPO. Important topics of discussion include the development of the 2040 RTP, discussion of smart growth principles, transportation funding and legislation, coordination of major transportation projects, and the adoption of the Wasatch Choice for 2040 Vision.