

## PLAN IMPACTS AND BENEFITS

The 2030 RTP 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 2030. The goals and objectives for the RTP as discussed in the “Goals and Objectives” section of Chapter 1, helped form the basis for this evaluation. The 2030 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 2030, even with the recommended 2030 RTP highway capacity 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.

## SOCIAL IMPACTS AND BENEFITS

9.1

Transit, highway, and other projects and facilities identified in the 2030 RTP are socially beneficial. Such improvements help reduce congestion in the short term, while providing greater land access to improve the quality of life. On the other hand, poorly planned projects can have 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 2030 RTP's potential impacts on land use, relocations and neighborhood disruption, housing goals and strategies, school safety, cultural resources, and disadvantaged groups.



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### 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 that transportation improvements are not keeping up with the growth in transportation 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 for further decentralization and dispersal of population and employment, giving rise to the development of significant suburban commercial / industrial traffic generating activity nodes, is expected to continue

for the foreseeable future. Much of this 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, cannot keep up with demand. This situation may result in continued congestion in the growing parts of the Wasatch Front Region.

In order to avoid or mitigate the effects of congestion, it will become increasingly important to coordinate local government land use plans and zoning ordinances with the regional transportation planning process. 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 of the “Wasatch Choices 2040 Vision” for land use and transportation by local governments will help reduce congestion through the establishment of even more activity nodes, and corridors of mixed use and transit oriented development. This approach will bring jobs, housing and transportation facilities even 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, in cooperation the local governmental jurisdictions, continues to coordinate transportation planning with local land use planning. The development of the 2030 RTP recommendations gave significant consideration to the location of future population and employment and other variables that would be indicative of future transportation demand. Both the population and employment projections were correlated with the land use provisions of each community’s General Plan and the Wasatch Choices 2040 “vision” and growth principles. The Wasatch Choices 2040 land use vision and land use and transportation planning information from the region’s local jurisdictions’ General Plans was an input to the transportation planning process. During the planning process, the WFRC made considerable efforts to create a Plan that would best support the Wasatch Choices 2040 vision and the official land use and transportation policies of the local communities.

### **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 right-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 occur as a result of implementing many of the projects in the 2030 RTP. Most will be relatively minor. The projects which were determined to have the greatest potential for relocation impacts were roadway upgrades which require 30 or more feet of additional right-of-way and pass through already developed residential or commercial areas. Projects can result in neighborhood disruption if they change the nature of the road passing through the community and become a barrier to community interaction. 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 mitigated 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 bike crossing facilities, maintaining local street inter-connectivity, depressing the roadway to limit visual intrusion and/or providing impacted neighborhoods with resources to mitigate losses. Tables 9-1 and 9-2 list highway improvement



projects that have the potential for causing major relocation, neighborhood disruption and school safety impacts.



### 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 school safety are those involving the widening of an existing road from four or less lanes to six or more 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.

Table 9-1 and 9-2 summarizes potential housing relocations, neighborhood barriers and school safety concerns associated with proposed transportation improvement projects in the Salt Lake and Ogden-Layton urbanized areas. Map 9-1 shows the location of elementary schools, junior high schools, high schools, colleges and universities within the urbanized area.

**TABLE 9-1**

**SALT LAKE URBAN AREA PROJECTS WITH POTENTIAL IMPACTS,  
RELOCATIONS, NEIGHBORHOOD BARRIERS, AND SCHOOL SAFETY**  
(Table includes both funded and unfunded projects)

STREET	FROM	TO	RELOCATIONS	NEIGHBORHOOD BARRIER	SCHOOL SAFETY
I-80	State Street	1300 East	Yes		
SR-201	3200 West	Mountain View Corridor	Yes	Yes	
3500 South	2700 West	Mountain View Corridor	Yes	Yes	Yes
4700 South	2700 West	4000 West	Yes	Yes	Yes
6200 South	2200 West	SR-111	Yes	Yes	Yes



STREET	FROM	TO	RELOCATIONS	NEIGHBORHOOD BARRIER	SCHOOL SAFETY
7800 South	Bangerter Highway	Mountain View Corridor	Yes	Yes	Yes
9000 South	I-15	Mountain View Corridor		Yes	Yes
10600 / 10400 South	I-15	Bangerter Highway		Yes	Yes
11400 South	700 West	Bangerter Highway	Yes	Yes	Yes
10600 South	700 East	Highland Drive	Yes	Yes	Yes
10400 / 10800 South	Bangerter Highway	SR-111	Yes	Yes	Yes
12300 / 12600 South	Bangerter Highway	900 East	Yes	Yes	Yes
13400 South	6400 West	Bangerter Highway	Yes	Yes	Yes
Main Street	4400 South	Vine Street	Yes	Yes	Yes
Main Street / 300 West	5200 South	7200 South	Yes	Yes	Yes
State Street	6200 South	9000 South	Yes	Yes	Yes
700 East	Carnation Drive	12300 South	Yes	Yes	Yes
900 East	3300 South	4500 South	Yes	Yes	Yes
900 East	Van Winkle Expressway	Fort Union Blvd.	Yes	Yes	Yes
1300 East	Creek Road	7800 South		Yes	Yes
Highland Drive	9400 South	13800 South	Yes	Yes	Yes
Highland Drive Connection	Traverse Ridge Road	13800 South		Yes	Yes
900 West	3300 South	3900 South		Yes	Yes
Redwood Road	Davis County Line	1000 North		Yes	Yes
Redwood Road	9000 South	Bangerter Highway	Yes	Yes	Yes
3200 West	1820 South	3500 South			Yes
5600 West	4700 South	6200 South	Yes	Yes	Yes
5600 West	New Bingham Highway	Old Bingham Highway	Yes	Yes	Yes
Mountain View Corridor	I-80	Utah County Line	Yes	Yes	Yes
8400 West	SR-201	3500 South	Yes	Yes	Yes
SR-111	5400 South	11800 South		Yes	Yes



**TABLE 9-2****OGDEN - LAYTON URBAN AREA PROJECTS WITH POTENTIAL IMPACTS,  
RELOCATIONS, NEIGHBORHOOD BARRIERS, AND SCHOOL SAFETY**

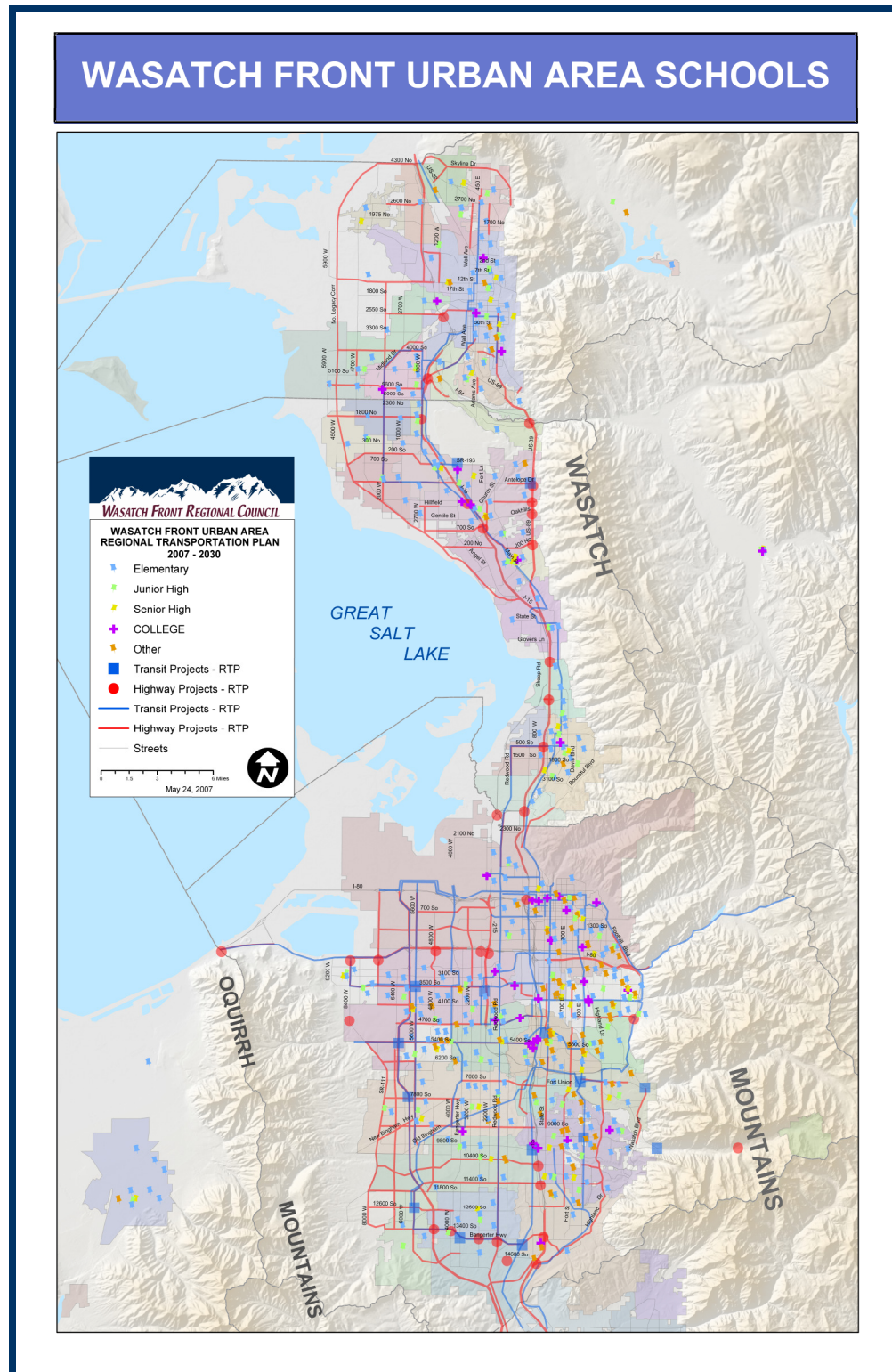
(Table includes both funded and unfunded projects)

STREET	FROM	TO	RELOCATIONS	NEIGHBORHOOD BARRIER	SCHOOL SAFETY
1800 North (Clinton)	Main Street	5000 West	Yes		
200 South (Syracuse)	500 West	North Legacy Corridor	Yes		
Syracuse Road (SR-108)	I-15	North Legacy Corridor	Yes	Yes	Yes
Antelope Drive	Oak Forest Drive	US-89		Yes	Yes
North Legacy Corridor	Weber County Line	I-15 / US-89	Yes	Yes	Yes
2000 West	Weber County Line	North Legacy Corridor	Yes	Yes	Yes
2700 West (Layton)	Hill Field Road Extension	Legacy Parkway	Yes		
2600 North / 2700 North	I-15	3500 West			Yes
3500 West	Weber County Line	North Legacy Corridor	Yes	Yes	Yes
Skyline Drive (North)	2600 North	US-89	Yes	Yes	Yes
Pioneer Rd. (400 N.)	I-15	1200 West	Yes	Yes	Yes
1200 South	I-15	1200 West		Yes	Yes
40 <sup>th</sup> Street	Adams Ave.	Gramercy	Yes		Yes
4000 Street (SR-37)	Wall Avenue	Harrison Blvd.	Yes		Yes
Midland Drive (SR-108)	Hinckley Drive	3500 West (Roy)			Yes
5600 South	1900 West	3500 West	Yes	Yes	Yes
5500 South / 5600 South	3500 West	5900 West	Yes	Yes	Yes
4700 West	4000 South	4800 South		Yes	Yes
1100 West	Skyline Drive	US-89		Yes	
Wall Avenue	2700 North	US-89	Yes	Yes	Yes
North Legacy Corridor	5500 South (Roy)	Weber / Davis County Line		Yes	Yes
North Legacy Corridor	Weber / Davis County Line	I-15	Yes	Yes	Yes
3500 West (SR-108)	Midland Drive	Davis County Line	Yes	Yes	Yes
Monroe Blvd.	1300 North	2700 North		Yes	Yes
Harrison Blvd.	12 <sup>th</sup> Street	US-89	Yes	Yes	Yes



## MAP 9-1

## WASATCH FRONT URBAN AREA SCHOOLS



### 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 area has been very dynamic. While housing construction has generally kept pace with population growth during this period, 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. 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 plans must include an analysis of the need for moderately priced housing in their community and a description of 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 concerns, have been required by the federal Department of Housing and Urban Development (HUD) in order for states and local jurisdictions to make use of various HUD funding programs. These processes have identified general housing needs and have led to the creation of plans and strategies aimed at meeting these needs.

Improvements proposed in the 2030 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. Some widening and / or expansion projects may require a very limited number of dwelling units to be removed. However, two new construction projects will likely require more extensive removal of existing residences. These are the Mountain View Corridor (MVC) in western Salt Lake County, and the North Legacy Transportation Corridor (NLTC) 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 / 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. Transportation improvement projects proposed in the 2030 RTP would have little direct impact on housing goals or strategies aimed at meeting these needs. However, additional transit services can provide 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 on cultural resources by improving access to where they are located. However, potential negative impacts include noise, the need to relocate housing and other structures, etc. The evaluation of the 2030 RTP considered potential impacts on historic districts. The State Historic Preservation Office was contacted regarding potential project impacts on cultural resource sites listed on the National and State Historic registers or known archaeological sites. The Preservation Office declined to comment on the 2030 RTP noting that any potential impacts would have to be considered on a site-by-site basis.

The Wasatch Front Region has a number of national and city 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 city registered historic districts, 25<sup>th</sup> Street and Eccles Avenue. The Jefferson Historic District is nationally registered, and planners at Ogden City 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.

Project evaluations of potential highway or transit facility impacts have focused on historic structures that were at least 50-years old. However, given the time lag between the evaluations and actual construction, buildings that are now 45 years old and meet the appropriate criteria are considered “historic.” In fact, even 40-year old buildings are often inventoried and evaluated. This means that much of the post-World War II subdivision development (circa 1945-1960) along the Wasatch Front might qualify for historic designation, depending on each development’s architectural significance and similar factors. Many of the designated historic structures and districts are located within the confines of older central cities with established street networks and land uses. These older development factors make it difficult to widen existing streets and preservation desires and requirements discourage major changes.

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

## 9.2

## 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 12898; *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 Population

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 2030 RTP was presented and specific transportation related issues were discussed. A summary of the concerns raised by each group has been provided in the Table 9-3. More detailed documentation of these meetings can be found in Appendix N.



**TABLE 9-3****SUMMARY OF COMMENTS RECEIVED FROM ACTIVIST GROUPS**

GROUP	SUMMARY OF CONCERNS
Anti-Hunger Action Committee	UTA Fare increases are outpacing inflation. Increased service to Tooele County. Zone system needed for UTA fares.
Disability Law Center	Limited transportation options for disabled, especially in rural areas.
Family Connection Center	Transit service to Freeport Center and Layton Food Bank. East-west transit service. TRAX service in southern Davis County.
Indian Walk-In Center	Don't sacrifice TRAX for more buses. More East-west transit service needed. West Salt Lake County focus. Express buses to the TRAX station.
NAACP	Bus routes are spaced too widely. Bus on-time performance lacking. Don't sacrifice TRAX service for more buses.
Centro De La Familia	Separate rights-of-way for buses and auto traffic. Public / private partnerships. Outreach in Spanish.
Salt Lake Area Authority on Aging Board	Don't sacrifice TRAX for more buses. More East-west transit service. Plan transit around concentrations of seniors.
Future Moves Coalition	Reduce VMT. Integrate the transportation system. Integrate land use and transportation planning.
Utah State Advisory Committee on Aging	More frequent bus service. Increased Sunday service. Incentivize transit use by decreasing the supply and increasing the cost of downtown parking.
Utah Association of Community Services	Rural transportation options. Tooele County transit options. Bus frequency. Nighttime transit service.

Many of the comments received from Wasatch Front area advocacy groups focused on the need for greater public transit service. Reflecting the desire for improved service, the voting population in Salt Lake County approved increased spending on public transit by passing a referendum that increased local taxes by one-quarter of a cent. This money will fund additional TRAX light rail lines, as well as Commuter Rail to Utah County. New bus signs are being installed and routing information is being updated. In an effort to make a more efficient use of resources, UTA is encouraging increased use of accessible regular buses and rail by persons with disabilities rather than the more expensive paratransit service.

### Regional Target Population Distribution

As part of its efforts to ensure regular-wide environmental justice in the development and implementation of the 2030 RTP, the WFRC documented the distribution of specific, target population groups. Target populations along the Wasatch Front are defined as members of minority



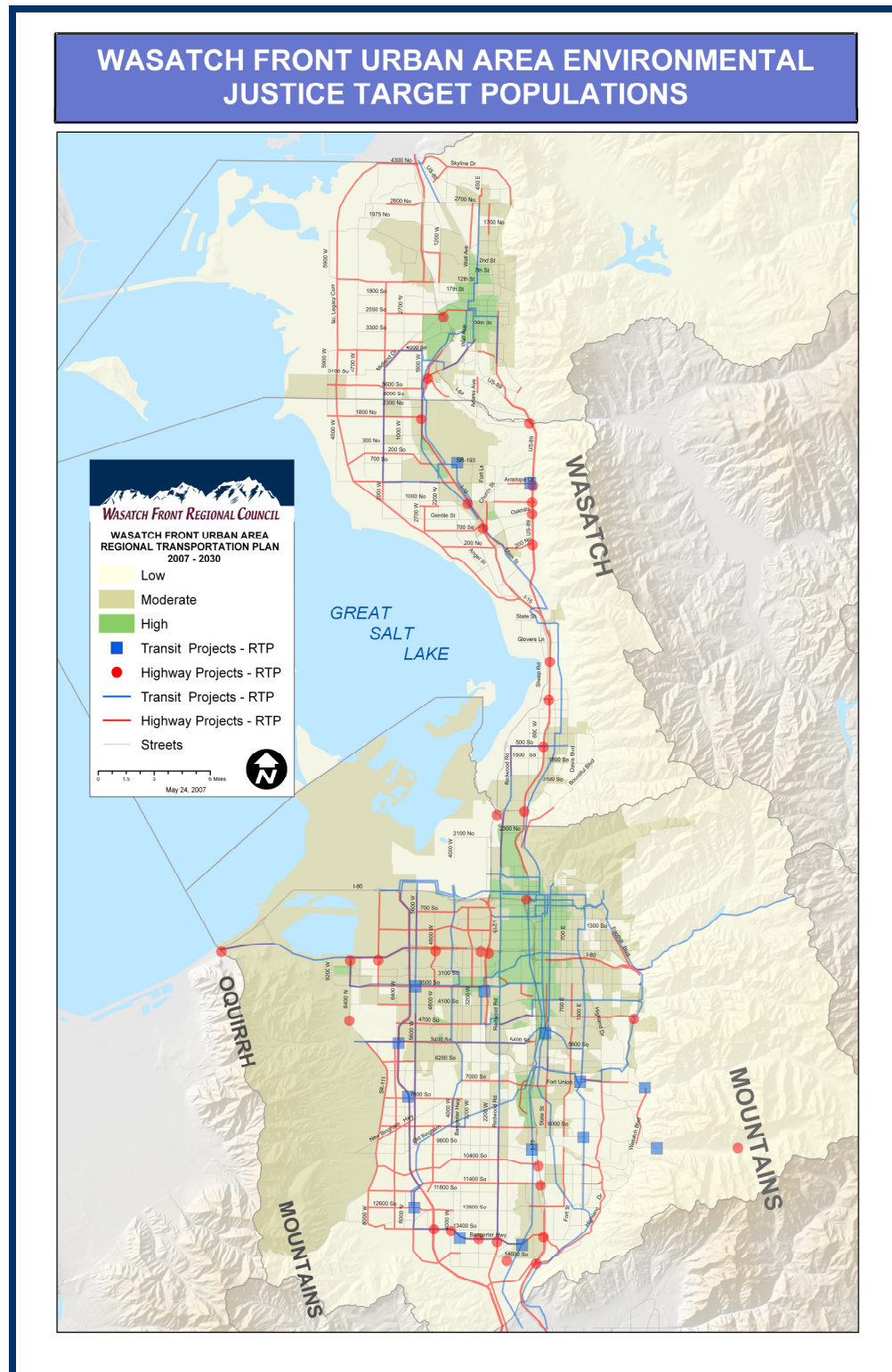
groups, Hispanic, low-income, persons with disabilities, and the elderly, as well as households without cars, as defined in the 2000 Census. Regional non-target populations are those individuals who are not members of the groups listed above.

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” level was used for a spatial comparison and for the mapping of target and non-target populations. Those block groups that contain a higher percentage of target populations than the regional averages are identified in Map 9-2. The percentage of the six target categories was calculated for each block group



and compared to the regional average. If a block group was below the regional average it was scored with 0 points in the category. If it was greater than the regional average, but less than twice the regional average, it was scored with one point. If it scored higher than two times the regional average, it received two points. With six categories, a total of 12 points is possible. The block groups were categorized as having Low (0-4 points), Medium (4-8 points), and High (9-12 points) concentrations of the target populations. The definition of each target population category is found below.

- **Minority Population** - A minority individual is defined as a person that did not check “white” on the 2000 U.S. Census form, which represents a departure from previous censuses. Beginning with the 2000 U.S. Census, individuals were allowed to check more than one race category on the form. Persons who checked white and some other race were not included in the white population. These changes in the 2000 Census make it difficult to compare racial breakdowns with previous censuses.
- **Hispanic Population** – Hispanic population includes anyone, of any race, who indicated being of Hispanic origin in the 2000 Census.
- **Low-Income Population** - Low-income population is defined as living below the nationally defined poverty level as recorded in the 2000 Census.
- **Disabled Population** – Members of the disabled population are persons that indicated that they had a work disability or self-care or mobility limitation in the 2000 Census. The universe that this sample is drawn from is the population of persons over age 16.
- **Elderly Population** - The elderly population is defined as those persons over age 65 in the 2000 U.S. Census.
- **Zero Car Households** - Households that reported no cars available in the 2000 Census are included in the target populations. While the WFRC was not required population to analyze this, it is included because members of this group are transit dependant.

**MAP 9-2****WASATCH FRONT URBAN AREA ENVIRONMENTAL JUSTICE TARGET POPULATIONS**

### Impacts of 2030 RTP On Target Population

Utilizing information provided by the geographic information systems, the WFRC compared impacts of the highway and transit projects in the plan on both target and non-target populations. This comparison, summarized in Table 9-4, evaluated the potential impacts of recommended widening, rights-of-way acquisition, and new construction projects on minority, low-income, disabled and elderly populations. The table shows the number of miles through block groups in each target population category. In simple terms, the potential impacts of recommended projects on affected targeted populations throughout the Wasatch Front Urban Area is significantly lower than that on non-target groups in both numbers of project miles and affected populations.

**TABLE 9-4**

**MILES OF RTP PROJECTS IMPACTING POPULATION GROUPS**

POPULATION GROUP	CENSUS POPULATION	PROJECT MILES
Low	810,315	476
Medium	456,143	301
High	67,456	112

### Benefits Of RTP For Target Populations

The 2030 Plan provides a number of transit related benefits which will positively impact members of the target populations. The plan recommends continued growth in TRAX service, commuter rail, and other enhancements funded in part by the November 2006 tax referendum in Salt Lake County. By 2030, the increase in service will equal approximately 125 percent of 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, Foothill Blvd., 24<sup>th</sup> Street, Harrison Blvd, and Washington Blvd. Additional light rail corridors are planned, including the Salt Lake International Airport, Mid-Jordan, West Valley City, and Draper lines. Regional commuter rail service between Salt Lake City and Utah County is also part of the plan.

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 increased time for pedestrians to cross streets will benefit both patrons who are disabled and / or elderly, as well as the general public.

### Safety And Homeland Security

The WFRC does not see any social impacts from safety projects or projects including safety features. Safety projects and projects including safety features will have a direct social benefit for target populations. These benefits will include pedestrian safety, the improvement of intersection safety, the promotion of safer truck travel, the enhancement of railroad crossing safety and bicycle safety.

Similar to safety, security plays a significant role in the development of a regional transportation plan. The MPO is continuing the coordination effort with regional and local transportation partners as well as its more security oriented partners. In an effort to advance transportation infrastructure security, the WFRC staff requested representatives of the two major regional security organizations (the State / Division of Emergency Services and Homeland Security and the Utah Local Government Association of Emergency Services / Security) to participate with the MPO in planning and





coordinating security through participation on it's Regional Growth Committee. Likewise the MPO is represented on the Utah State Division of Emergency Services and Homeland Security governing committee. The State of Utah continues to update the Utah Emergency Operations Plan (EOP), which includes emergency operations procedures for all departments in state government including UDOT. The communication 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 recently published Public Transit Emergency Management Operations and Recovery Plan to ensure proper coordination with the on going planning processes of the Regional Council and the 2030 RTP.

The 2030 RTP's recommendations specifically address the security of the transportation system in a number of ways. With increases in the number of lanes at choke points on I-15 and other facilities in Weber, Davis and Salt Lake Counties the likelihood of stop-and-go traffic decreases as does the security vulnerabilities at these locations. Similarly, the capacity of the over-all system has been increased and needed redundancy features enhanced with the inclusion of high capacity transit and new and expanded highway facilities. These projects include Light Rail, Commuter Rail and Bus Rapid Transit lines; and highway projects such as the North Legacy Corridor in Weber and Davis Counties, the expansions of I-15 and US-89 in Davis County, and the expansions of SR-201, I-80 and I-15 and the improvement of the Mountain View Corridor in Salt Lake County. In summary, these projects aid in decreasing congestion and providing alternative routes and modes, 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 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 and available to the public through the internet, are now in operation. It 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, and weather sensors and the continued use of the 511 Travel Information Line. Integrally linked to the ITS system, the UDOT Traffic Operations Center 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 and security along the Wasatch Front.

## QUALITY GROWTH

9.3

In May 2005, Envision Utah issued a publication titled: *Thinking and Acting Regionally in the Greater Wasatch Area: Implications for Local Economic Development Practice*. In Section V of the publication there is a discussion on economic development and quality growth. Much of what follows is based on the information in 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 country 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.



Today, skilled labor or “talent” 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 connection 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 get to work. Company location also impacts the character of growth in a community. 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 off 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 to develop the Greater Wasatch Area 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 job sites. Thinking, planning, and acting like a region today will help preserve the quality of life residents value into the future. In contrast, unplanned and uncoordinated job site development has the potential to undermine the attractiveness and competitiveness of the region as a whole.

To achieve quality job growth that the region seeks, consideration should be given to the following factors: (1) labor force, (2) land supply, (3) infrastructure, and (4) community amenities. Often, community amenities make the difference in a business location decision, if all other factors are equal. Thoughtful municipal planning and coordination and steadfast cooperation between public and private actors will be necessary to integrate high-impact, quality growth principles into economic development practice 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 as attractive destinations for high-skill, high-wage companies.

## ECONOMIC IMPACTS AND BENEFITS

### Economic Development And Redevelopment

The WFRC staff had meetings with representatives of the Governor's Office of Economic Development (GOED) to gather input for the 2030 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.

Using GOED's memorandum to UDOT and the results of the WFRC staff's own meeting with GOED personnel as resources, the 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.

### Weber County

**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 at a few thousand. Direct access is provided by either 2700 North, US-89, and / or SR-126. The northern terminus of the Front Runner commuter rail is located in the area on 2700 North, which will be an asset once construction has been completed.

**Transportation Access** - Overall road capacity in the area will be an important factor in its development. The I-15 / 2700 North Interchange (presently undergoing expansion), 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. About 10 years ago, 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 given the Boyer Company a 70-year lease of the facility. The company is making good progress toward filling the former depot with businesses of all kinds. 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 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. 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 12<sup>th</sup> Street, 2<sup>nd</sup> Street (from the east), and 1200 West. Currently, there are restrictions on the use of 1200 West by trucks heavier than 10,000 lbs., since the roadway has been deteriorating. 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 12<sup>th</sup> Street. A similar widening and reconstruction project is also planned for 400 North. The



improvements to 1200 West and 400 North are important to the BDO's economic well being. Restrictions on 1200 West, and possibly 400 North, 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** - The Air Force has proposed construction of a 570-acre business and technology park on HAFB 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 is a very high priority for the state's economic development goals, since 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 pulling the security fence back from the freeway to allow businesses to locate adjacent to the Base. The five million square feet of space being proposed for development over a 20-year period translates into 10,000 to 20,000 jobs. 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, I-15 and its 1800 North 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 and that it offer ample capacity. A link to the Front Runner commuter rail station in Clearfield would help the site.

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

The Freeport Center is comprised of 680 acres of land, 7,000 employees, and 78 buildings (ranging in size between 4,000 to 400,000 square feet). 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 1981 and is located adjacent to the Freeport Center on the southwest side. It is comprised of about 95 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 are oriented in the north / south direction. Access from these two roads is provided via two I-15 interchanges. One is located at 1700 (Antelope Drive) South and the other at 700 South in Clearfield. Both of these east / west routes lead directly to the Freeport Center.

There are several transportation improvements currently underway and planned in the area that could serve the Freeport center. It will be important to provide some linkage to the Front Runner commuter rail station which is located just to the east of the Freeport Center. Also, the 2030 RTP has identified east / west roads needing improvements, which will improve 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 some problems for the facility. Employees parking their vehicles at the buildings when they work may impede the trucks serving the facility. The Freeport Center's property management organization has indicated that they would like to construct a central parking lot for employees from which a shuttle, using vans or buses, would service the various buildings.

## Salt Lake County

**Northwest Quadrant** - There is currently not much specific information for this area. However, several plans have been developed in the past. Currently, a visioning process being conducted by Salt Lake City is underway. 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 the potential for substantial expansion. North of I-80 and west of the 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 (UPRR Intermodal Terminal) complexes emerging in the 5600 West corridor both east and west of that facility. 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 in addition to the presence of hazardous wastes, solid waste facilities, and environmental (wetland) issues.

**Transportation Access** – The future status and alignment of the Mountain View Corridor from SR-201 to I-80 needs to be firmly resolved in Salt Lake City. It 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, 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.

**Murray** - There are still several hundred acres available for development and / or redevelopment in Murray located near the IHC flagship hospital at about 5300 South and 200 West. It is still undetermined precisely what type and scale of development will occur in this area in 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 Front Runner 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 a planned LRT extension, 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. As the Mid-Jordan TRAX is constructed, another station could be located in the area. The Front Runner 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 complement the site from a jobs / housing balance standpoint.

**Transportation Access** - The Mid-Jordan TRAX line is currently being planned with the start of construction anticipated within the next year or two. Providing an LRT line will make the site available to high capacity transit service. Roadways that will serve the area are the Old Bingham Highway, the New Bingham Highway, 5600 West, 6400 West, and 9000 South.

**Daybreak** - This development is in South Jordan. 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 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. In addition, a major university is considering locating a campus within the community.

**Transportation Access** – Currently, access to the area is provided by the Bangerter Highway, 11400 South, and 11800 South. There are plans to extend the planned Mid-Jordan TRAX line to 11400 South and about 5600 West. Also in the WFRC’s 2030 RTP is the Mountain View Corridor. This project, as well as the TRAX line, will be needed in the near future in order for Daybreak to realize its development potential.

**South - West Bangerter Highway Corridor Area** - Riverton includes hundreds of acres centered at about 13400 South and the Bangerter Highway, with office and high tech development potential. Intel has already built a facility in the area.

**Transportation Access** - The primary facilities providing access in this area are the Bangerter Highway, 13400 South, and 12600 South. Facilities constructed within the Mountain View Corridor will increase accessibility in the area once they are completed.

**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. corridor, which does not currently exist, 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. There is support for moving the Utah State Prison from both Draper and Bluffdale.

Extensive development of Bluffdale'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 Hwy / I-15 and 14600 South / I-15 Interchanges provide the land access from the freeway. The West Frontage Rd. also serves the area. A strong advantage for both of the subareas identified above will be the south extension of the FrontRunner Commuter Rail project, which will likely be completed within the next 7 years. A station is planned at about 14300 South. The construction of a rail station may create a need for an exit from Bangerter Highway, as will overall growth. There may be a need for a north / south arterial west of I-15 connecting 14600 South to the Ikea area to the north on Bangerter Highway. If the nearby segment of the Bangerter Highway is converted to a freeway, then 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 - Transit Projects

Transportation improvements can help promote economic growth and activity by reducing user operating costs. This section discusses the energy savings of the 2030 RTP recommended transit projects.

The 2030 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.

To estimate the energy impacts of these transit projects, WFRC staff modified the travel model program to eliminate transit and rideshare options from the available modes. The trips formerly served by transit and rideshare modes were then re-assigned to single occupant vehicles. A comparison of travel model results with and without transit modes was then made to estimate the impact of the transit projects in the 2030 RTP on reducing vehicle miles of travel and congestion, measured in VHT – vehicle hours traveled. The results energy saving provided by transit projects in the 2030 RTP are summarized in the Table 9-5.



**TABLE 9-5****ENERGY SAVINGS - 2030 RTP TRANSIT PROJECTS**

REDUCTION	2006	2012	2015	2025	2030
Vehicle Miles Traveled	676,241	1,064,803	1,125,891	1,521,011	1,844,769
Vehicle Hours Traveled	38,897	52,539	60,107	85,183	104,149
Gallons of Fuel*	49,399	66,725	76,336	108,182	132,269

\*CAFE standard 27.5 mpg for passenger vehicles at 35 mph yields 1.27 gallons per hour

The 2030 RTP transit improvements reduce energy consumption in two ways: 1) the number of vehicle trips are reduced, and (to a far lesser degree) 2) the remaining vehicle trips take place under less congested conditions, so less time is lost to delay. The VHT figures in the Table 9-5 reflect both aspects of energy savings resulting from the RTP. Using an hourly fuel consumption rate per vehicle of 1.27 gallons per hour, the RTP transit improvements save about 132,000 gallons of fuel per day in the year 2030.

**Energy Analysis – Highway Projects**

The 2030 RTP also reduces congestion, vehicle miles of travel, and the corresponding fuel consumption through improvements to the highway network. By providing new or wider facilities in congested locations and eliminating “choke point” conditions, implementing the RTP can result in significant reductions in VHT over what would otherwise result from the absence of the improvements needed to keep pace with increased demand. Table 9-6 below summarizes the benefits of these 2030 RTP highway improvements. In the year 2030, an estimated 362,000 gallons of fuel per day is saved as a result of implementing these improvements.

**TABLE 9-6****ENERGY SAVINGS - 2030 RTP HIGHWAY PROJECTS**

VEHICLES HOURS TRAVELED	VEHICLES MILES TRAVELED
285,160	-1,833,375
	<i>(a negative value indicates a net increase in VMT)</i>
362,000 Gallons of Fuel Reduction Per Day	

In addition to new capacity, the 2030 RTP also recommends a variety of Transportation System Management strategies to reduce congestion including signal coordination, Intelligent Transportation Systems, incident management, ramp metering, single point urban interchange configurations, continuous flow intersection configurations, and access management. These strategies also eliminate vehicle delay and result in fuel conservation and reduced emissions. Quantifying the VHT 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% is reasonable. If these assumptions are valid then a daily VHT reduction measured in the tens of thousands can be expected from maintaining and increasing applications of TSM strategies in the Wasatch Front Region.





### Price Elasticity of Fuel

Recent fluctuations in the price of fuel have raised questions about the impact of fuel prices on the transportation system. At what price will consumers begin changing their travel behavior? What will those behavior changes be?

Charles Komanoff of the Victoria Transport Policy Institute of Canada carried out research on the price elasticity of fuel for the Transportation Research Board. The study was based on U.S. Department of Energy data on fuel prices and fuel consumption. During the two-year period from 2004-2006 there was considerable volatility in the price of fuel. Mr. Komanoff's research suggests a price elasticity of -0.21 for this time period. This means that for every 10% increase in fuel price there is a corresponding decrease of 2.1% in fuel consumption.

Therefore, if fuel prices increased 100% from the March 2007 price of about \$2.25 per gallon to \$4.50 per gallon, a 21% decrease in fuel consumption (in the short term) could be expected. That does not mean that 21% of the automobile trips will now switch to transit modes. Travelers have many other options available to them. Some certainly will switch to transit. But for others, transit is not a viable option because of schedule and coverage limitations. If the price increase is long term, the traveler has the option to purchase a more fuel-efficient vehicle (i.e. one that gets 40 mpg instead of 20 mpg would financially offset the fuel price increase). Some of the other options include adjusting work schedules to reduce the number of commuting days and the amount of fuel purchased, carpooling and telecommuting. Still other travelers will choose to offset the increased fuel costs by reducing spending in other areas.

The last time Americans experienced large price spikes in gasoline was the period from 1975 to 1980. This earlier spike in fuel prices was coupled with fuel shortages that led to infamous long lines at gas stations. During the 1975 episode, fuel prices increased 20% while consumption decreased 6% (TMIP Listserv Technical Synthesis, May 24, 2007, "Fuel Price Increases and Impact on Driver Behavior").

In 1981, Americans spent about 5% of their household budget on gasoline; in 2006 the amount was about 3%. The price of gasoline in 1981 is equivalent to \$3.18 per gallon in 2006 dollars. These facts suggest that gasoline prices would have to go even higher, possibly double or more, than the increases in 2005 and 2006 (and for an extended length of time) before commuters permanently change their travel behavior such as changing to more economical vehicles, changing transportation modes, or moving their residence closer to places of employment.

During the 2005 and 2006 episodes of fuel price increases, prices have gone up 20% as in 1975, but consumption has dropped only one percent. Part of the difference in response may be that fuel is still available in 2006 whereas in 1975 there were numerous cases of fuel shortages. Also, people's travel habits have changed.

People may be even more dependent on their automobiles now than in the past. Or it may be that travelers today have not yet made the commitment to more fuel-efficient vehicles as they did in the 1970's. Market data for 2004 indicates that of the top six best-selling vehicles in the United States three were full-sized pick-up trucks and one was a sport utility vehicle. Coming in at fourth and fifth on the list were the Toyota Camry and the Honda Accord each rated at just under 30 mpg. American's affinity for pick-up trucks and SUV's may be due in part to the dual use of some of these vehicles as a business related asset and as a source of personal transportation; or it may be due to a lingering attitude of frontier independence where the pick-up truck has become the horse for the modern cowboy (Dan Leinert, Forbes Magazine, 2004, "The Best-Selling Cars").



Since the date of the initial draft of this document, fuel prices have jumped from \$2.25 to about \$3.15 per gallon – an increase of about 40%. Using the price elasticity cited above this increase should translate to a decrease in fuel consumption of about 8.4%. With the latest round of fuel price spikes it will be of interest to planners and economists to see how the Wasatch Front population and Americans in general adjust to this new reality that directly impacts so much of our daily activity. If higher fuel prices become the long-term norm, then future updates to the RTP will need to reflect changes in traveler behavior.

**9.5****TRANSPORTATION IMPACTS AND BENEFITS**

As described in Section 1.4, several of the objectives of the 2030 RTP are measurable. The first of these objectives is to maintain LOS E (which is defined as a v/c ratio of 1.0) or better in all major corridors. As shown by comparing Maps 9-3 and 9-4 below, this objective has been accomplished to a large extent in Davis and Weber Counties, and to a lesser extent in Salt Lake County. However, congestion levels in west and southwest Salt Lake County decrease dramatically with implementation of the 2030 RTP. Throughout region, the increased mobility will help maintain the quality of life. This produces benefits for individuals in all types of daily activities and helps sustain a healthy economy.

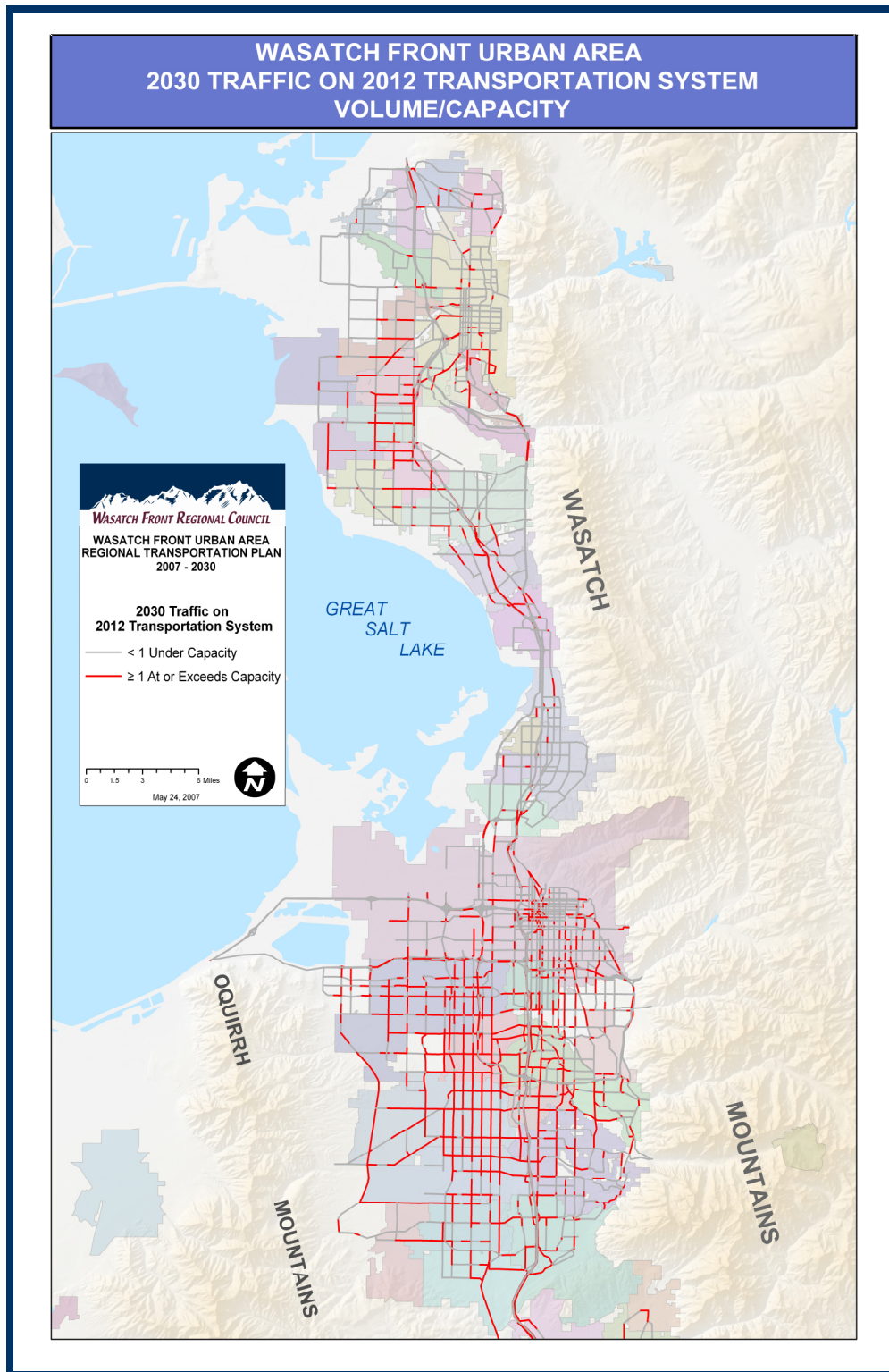
Another quantifiable objective is to reduce the rate of growth in regional vehicle miles of travel (VMT) to the rate of growth in population. Vehicle miles of travel grew by about 38 percent over the 11-year period between 1994 and 2005, compared with a population increase of nearly 24 percent. Anticipated growth and implementation of the 2030 RTP recommendations are expected to result in an increase in VMT from 37 million on a typical weekday in 2006 to nearly 57 million in 2030, or about 52 percent over a 24-year period. Population increase for the same time period is projected to be about 42 percent. Consequently, while VMT growth is still higher than the population growth rate, the RTP “vision” land use for 2030 helps in slowing the growth rate of VMT in comparison with the population growth rate. Many of the highway improvements allow for more direct (shorter) trips, and transit and other mode improvements reduce the number of vehicle trips. The implementation of regional growth principles will contribute to this lower VMT growth.

A third measurable objective is to maintain annual vehicle hours of delay per capita at the present level. As discussed in section 3.2, financially unconstrained scenarios were tested with this objective in mind, and as a preliminary step in creating alternative transportation systems for consideration in further refining the 2030 RTP. The unconstrained scenarios with arterial and transit components were able to achieve this objective, but the freeways-only scenario was not. When financial constraint and environmental factors are introduced in the proposed 2030 RTP system, the objective of maintaining annual vehicle hours of delay at the present level of 17 hours is not achievable. However, the 2030 RTP lowers the annual delay per capita to 24 hours, compared to 29 in the previous long range plan.

The other goals and objectives of the 2030 RTP are not as directly measurable. For example, more funding is suggested for ITS to manage travel and access to major corridors. Major corridor preservation efforts are recommended during the first phase of the 2030 RTP in order to minimize costs and maximize multi-modal potential. Anticipated increases in transit ridership and mode share demonstrate that the 2030 RTP balances modes. Total transit ridership is projected to increase from about 103,000 linked trips per day in 2005 to 260,000 in 2030, or by about 152 percent. The transit mode share for work trips is projected to increase during this time period from 4.6 percent to 7.1 percent, or by 54 percent. These numbers reflect growth for the entire modeled transit system, which includes Utah County in addition to Davis, Salt Lake, and Weber Counties.

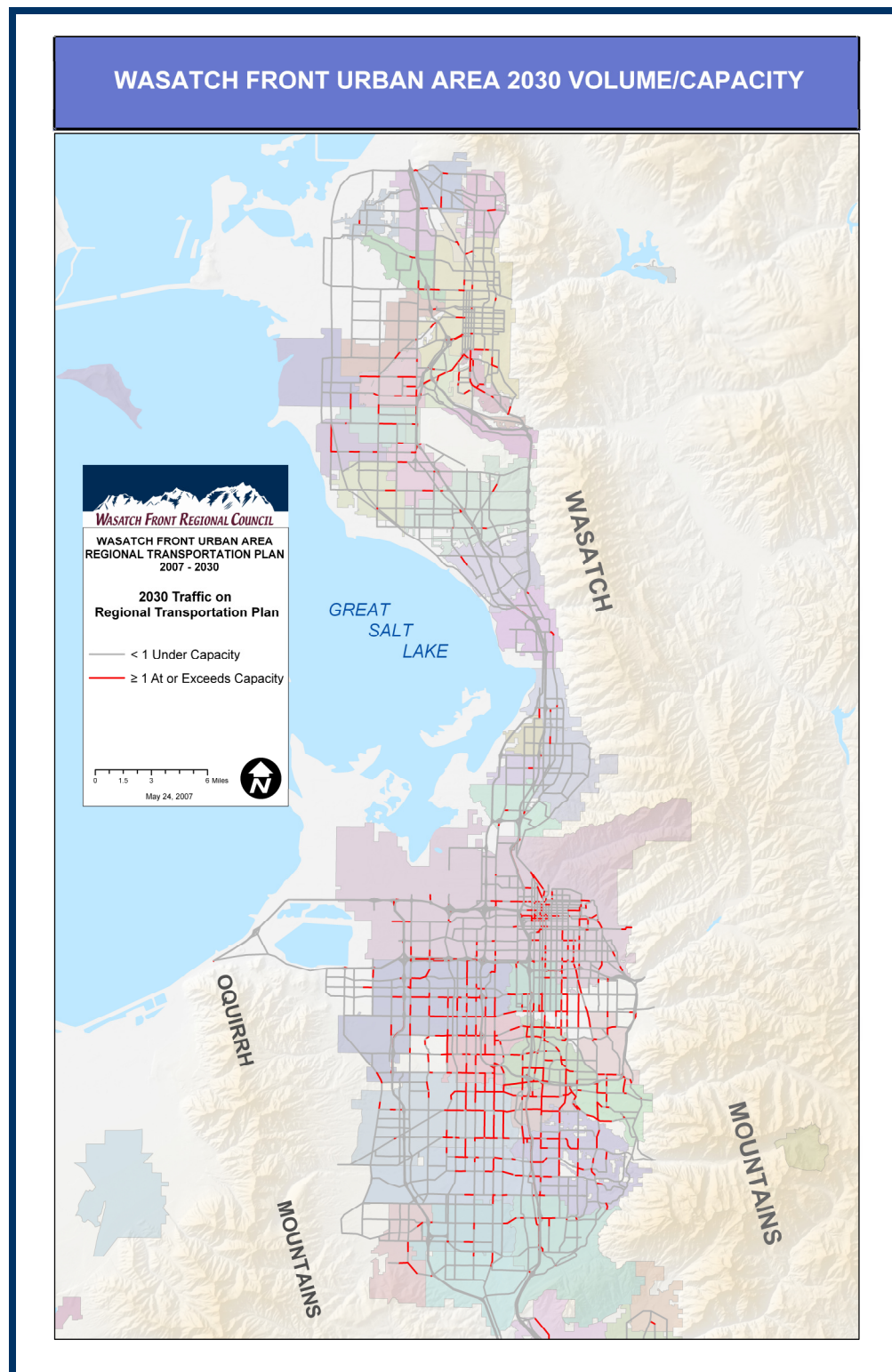


MAP 9-3

**WASATCH FRONT URBAN AREA 2030 TRAFFIC ON  
2012 TRANSPORTATION SYSTEM VOLUME / CAPACITY**

## MAP 9-4

## WASATCH FRONT URBAN AREA 2030 VOLUME / CAPACITY





## PUBLIC HEALTH AND TRANSPORTATION

Overweight and obesity have become nearly epidemic in recent years, leading to a decrease in personal well being. Obesity among the population is also of concern to officials responsible for public health. These conditions are 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, is contributing to more sedentary lifestyles. Although Utahans

are better off than many people, the state still faces repercussions caused by these 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 was completed in 2006 and recommends 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 when these policies are implemented. The policy recommendations, which are listed and discussed in Chapter 8, under “Active Living Principles,” 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
- Provide bicycle parking and storage in transit oriented locations
- Plan and implement active-friendly land use and transportation choices

There are a variety of benefits that 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 normally 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 development land uses, makes communities more walkable and friendly toward 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, the more likely people will make choices about modes of transportation that do not include the automobile. Rather, a greater proportion of the public would likely use active living transportation modes. 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 add to the overall quality of life.

## 9.7

## ENVIRONMENTAL IMPACTS AND BENEFITS

New transportation projects and improvements to existing facilities help address the projected need 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 effects of the 2030 RTP on various aspects of the environment were examined. In particular, the 2030 Plan's effect 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 transportation project are deemed "significant".

### Air Quality

Emissions from cars and trucks traveling on public highways have been declining since the 1980's, even with increases in the overall amount of vehicle travel. This trend for the past and projected into the future is depicted graphically below in Figures 9.1, 9.2, and 9.3. 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 reducing overall vehicle emissions.

FIGURE 9.1

### SALT LAKE COUNTY VEHICLE EMISSION TRENDS - NO<sub>x</sub>

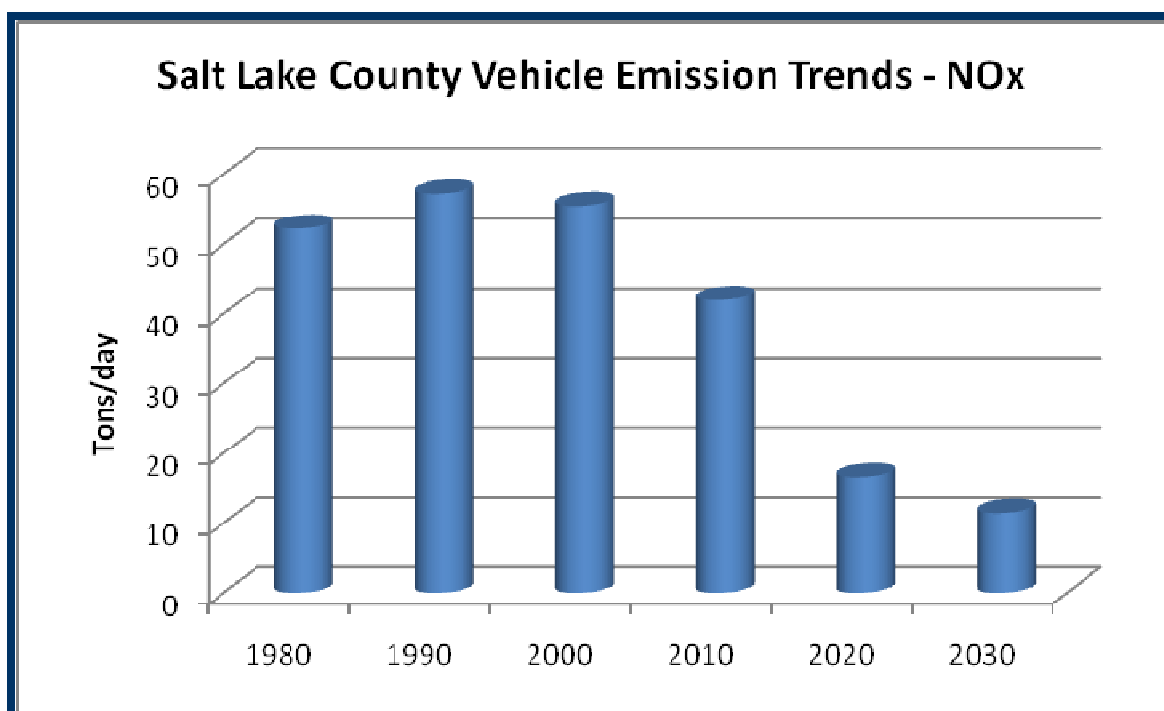


FIGURE 9.2

## SALT LAKE COUNTY VEHICLE EMISSION TRENDS - CO

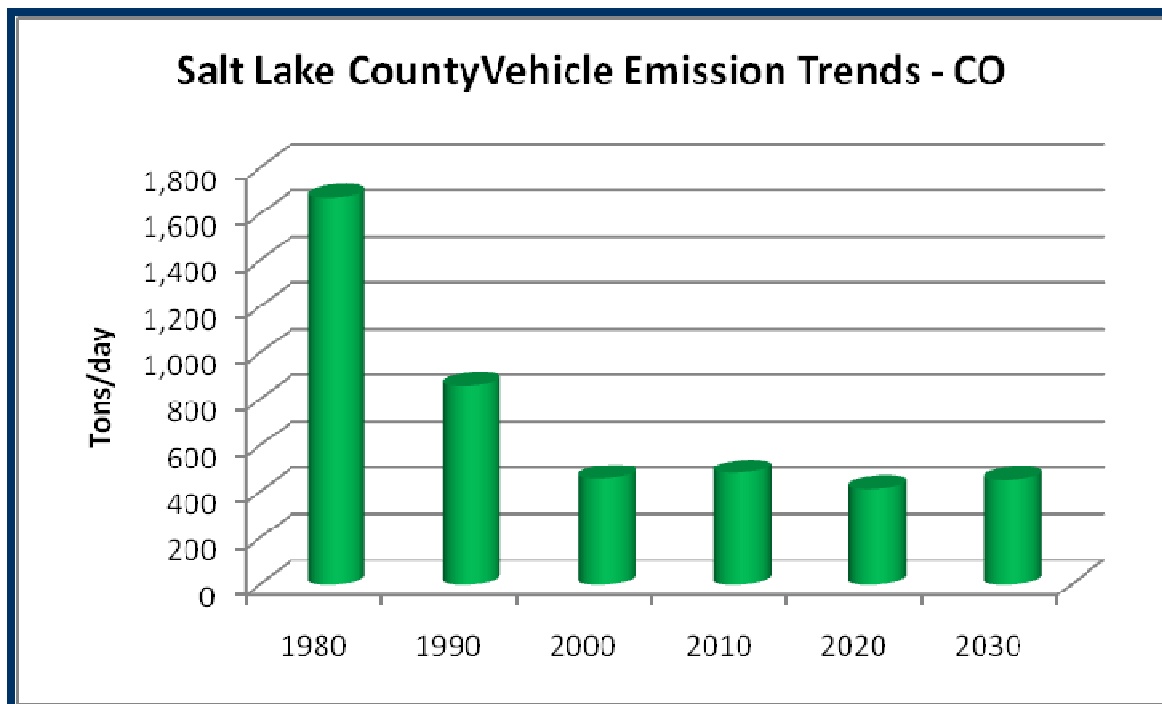
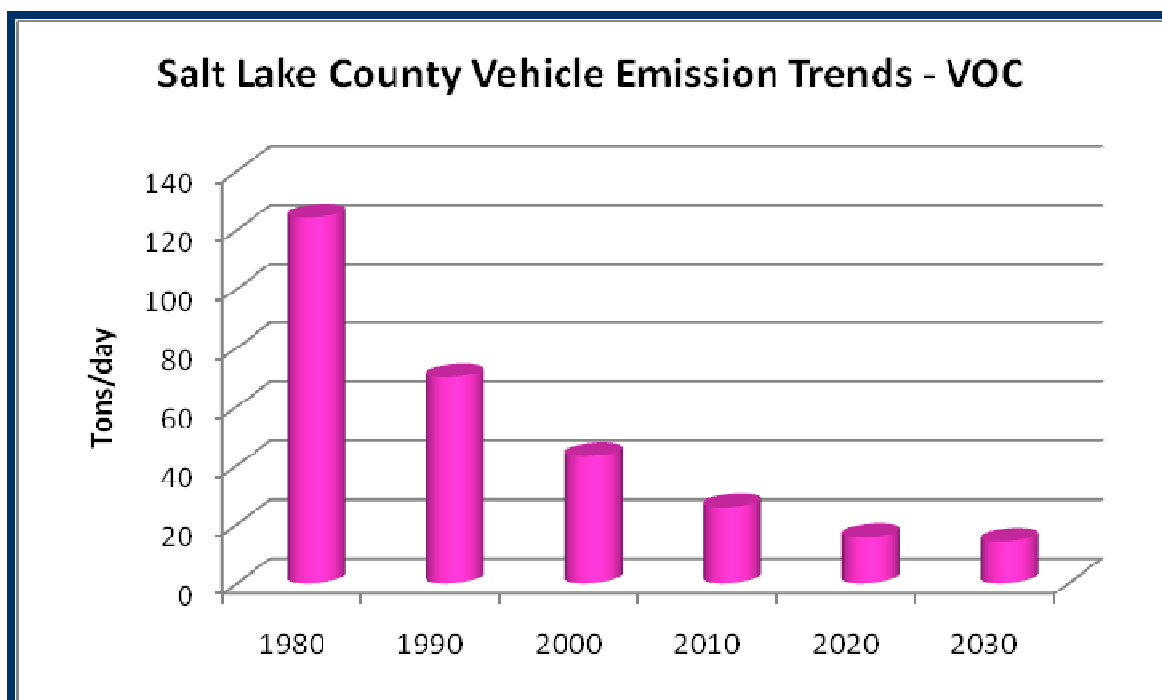


FIGURE 9.3

## SALT LAKE COUNTY VEHICLE EMISSION TRENDS - VOC



In the future time frame of the RTP, as vehicles with the latest vehicle emission technology replace older vehicles with greater emissions, the overall emissions from vehicles will be less than vehicle emissions observed today. The latest emission standards for cars and light trucks have eliminated over 95% of the emissions compared to vehicles manufactured in the 1970's. In addition, large diesel trucks beginning with model year 2007 are now subject to much stricter emission controls than in the past and this will also contribute significantly to an overall decrease in future vehicle emissions.

Other contributing factors to reduced vehicle emissions include the 2030 RTP recommendations for expanded transit service and additional highway capacity to alleviate congestion. Congested traffic is the largest generator of pollution from this source because of the additional load to vehicle engines operating in stop and go conditions; and this is apart from the inefficiency of idling traffic that generates emissions but produces no movement of people or goods. The Energy Analysis contained in Section 9.4 of this document estimates that in 2030 the RTP transit projects eliminate 104,000 daily vehicle hours of travel, and RTP highway projects eliminate 285,000 daily vehicle hours of travel. These reductions in congestion and delay amount to reductions of NO<sub>x</sub> emissions of about 0.4 tons attributable to transit projects and 1.2 tons to highway projects. Proportional reductions for VOC and CO emissions are also anticipated but were not quantified.

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. Exhaust emissions from automobiles, trucks, and buses contribute to three of these pollutants: carbon monoxide (CO), ozone (O<sub>3</sub>), and fine particulate matter (PM<sub>10</sub>). The impact of the 2030 RTP on emissions of each of the mobile source related pollutants was examined and evaluated. The WFRC determined that the 2030 RTP is consistent with and conforms to state air quality plans (for more information on air quality, please refer to Section 9.9 of this Chapter, entitled "Air Quality Conformity Determination.")

### Noise

Roadway noise impacts vary based on traffic, the nature of the road, and adjacent land use characteristics. The 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 such as 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 2030 RTP will have relatively minor or no impact on existing developed areas. However, listed in Tables 9-7 and 9-8 are projects, primarily interstate highways, and principal and minor arterials, which 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.

**Mitigation** - Specific project noise impact assessments and mitigation measures will be determined at a later date 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 9-7**

**SALT LAKE URBANIZED AREA PROJECTS WITH  
POTENTIAL NOISE IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO
I-80	State Street	Parley's Canyon
SR-201	3200 West	I-80
3500 South	2700 West	8400 West
4100 South	Mountain View Corridor	8400 West
4500 South	I-215 (east)	900 East
4700 South	2700 West	6400 West
5400 South	I-15	SR-111
6200 South	5600 West	SR-111
Fort Union Blvd.	1300 East	3000 East
7000 South	Redwood Road	Bangerter Highway
7800 South	Bangerter Highway	SR-111
New Bingham Highway	5600 West	SR-111
9000 South	Bangerter Highway	New Bingham Highway
10400 South	Redwood Road	Bangerter Highway
11400 South	I-15	Bangerter Highway
11400 South / 11800 South	Bangerter Highway	SR-111
12600 South	Bangerter Highway	8000 West
13400 South	Bangerter Highway	Mountain View Corridor
8400 West	SR-201	3500 South
6400 West	12600 South	13400 South
Mountain View Corridor	I-80	Utah County Line
5600 West	4400 South	14400 South
Redwood Road	9000 South	Bangerter Highway
Main Street	3300 South	Vine Street
700 East	Carnation Drive	12300 South
900 East	3300 South	Fort Union Blvd.
Highland Drive	9400 South	13800 South



**TABLE 9-8****OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL NOISE IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO
1800 North (Clinton)	Main Street	5000 West
200 South	500 West	North Legacy Corridor
Syracuse Road (SR-108 / 127)	1000 West	North Legacy Corridor
Hill Field Road Extension	2200 West	3200 West
700 South / 900 South	I-15	2700 West
Antelope Drive	Oak Forest Drive	US-89
500 South	I-15	Redwood Road
North Legacy 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
Hinckley Drive	1900 West	Midland Drive
Midland Drive	Hinckley Drive	3500 West (Roy)
5600 South	1900 West	3500 West
5600 South / 5500 South	3500 West	5900 West
North Legacy Corridor	Davis County Line	I-15
3500 West	1200 South	Weber Co. Line
Wall Avenue	2700 North	US-89
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 that are 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 solvent usage in the winter aquifers. 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. Listed in Tables 9-9 and 9-10, are 2030 RTP projects that were deemed to have potential impacts on water quality. These projects are significant and are planned to have relatively large roadway surface areas. They require the addition of at least two lanes, if new construction; increase both pavement width and the volume of traffic carried; have at least 110 feet of right-of-way; and / or are located in the relative proximity of a perennial stream, canal, lake, well, or aquifer recharge area.



**TABLE 9-9****SALT LAKE URBANIZED AREA PROJECTS WITH POTENTIAL WATER QUALITY IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO
California Avenue	I-215	Mountain View Corridor
I-80	State Street	Parley's Canyon
SR-201	3200 West	I-80
3500 South	4000 West	7200 West
4500 South / 4700 South	State Street	Redwood Road
4700 South	2700 West	6400 West
5400 South	I-15	SR-111
Ft. Union	1300 East	3000 East
7800 South	Bangerter Highway	SR-111
9000 South	Old Bingham Highway	SR-111
9400 South	2100 East	Wasatch Blvd.
11400 South	1300 East	Highland Drive
11400 South	Redwood Road	11800 South
13400 South	6400 West	8000 West
Bangerter Interchanges	I-15	13400 South
Porter Rockwell Road	I-15	Mountain View Corridor
7200 West	I-80	SR-201
Mountain View Corridor	I-80	Utah County Line
2700 West	Overpass @ SR-201	
I-215	I-80	4700 South
I-15	I-215	Beck Street
I-15	12300 South	Utah County Line
I-215	I-80 (west side)	300 East
I-15 Interchange	@ 11400 South	
Wasatch Blvd.	7000 South	North Little Cottonwood Road

**TABLE 9-10****OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL WATER QUALITY IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO
200 South / 700 South Connection	State Street	500 West
Hill Field Road Extension	2200 West (Layton)	3200 West (Layton)



STREET	FROM	TO
I-215 Interchange	@ Legacy Parkway	
North Legacy Corridor (Davis Co.)	Weber County Line	I-15 / US-89
I-15	Weber County Line	US-89
I-15 Interchange	@ 1800 North	
I-15 Interchange	@ Lund Lane	
US-89	I-15 (Farmington)	I-84
I-15	500 South	I-215
US-89 Interchanges	@ Antelope Drive	400 North (Fruit Heights)
North Legacy Corridor (Weber Co.)	Davis County Line	I-15
1900 West	2700 North	Riverdale Road
I-15	Box Elder Co. Line	Davis Co. Line
Riverdale Road	SR-126	Washington Blvd.
US-89	I-84	Harrison Blvd.

**Mitigation** - Specific project water quality impact assessments will be made, and mitigation measures 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 9-5 shows the surface water features located within the Wasatch Front Urban Area.

### Wetlands

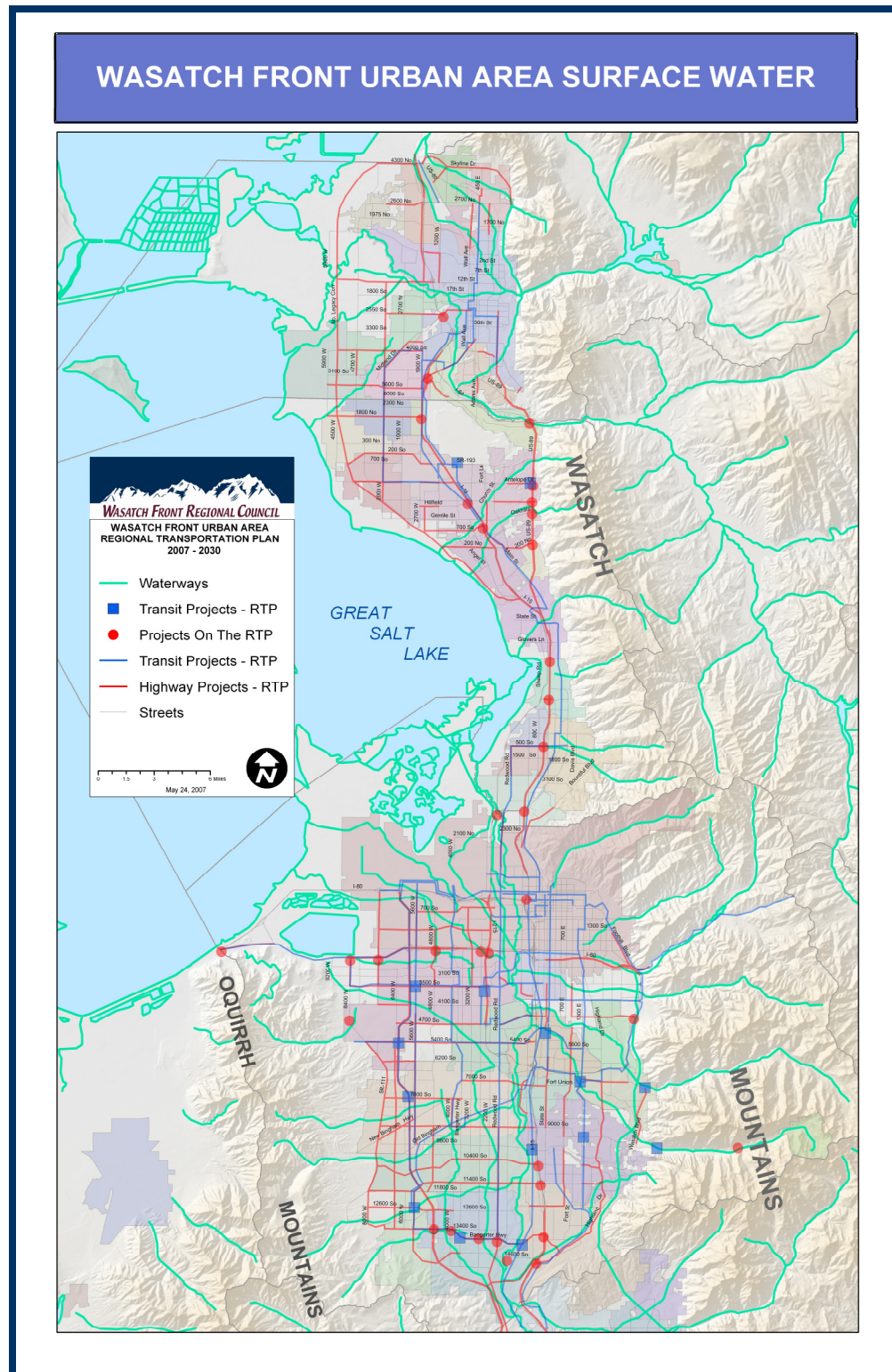
Wetlands are areas able to support vegetation adapted for life in water-saturated soils. Wetlands can be generally defined as vegetated aquatic areas, such as bogs, marshes, swamps, and prairie potholes. Jurisdictional wetlands are those wetlands, which are within the extent of the Corps of Engineers' 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 jurisdictional status, the size of the wetlands area, and the level to which the wetlands have already been disturbed by human development. A project may impact wetlands by providing a barrier between adjacent wetland areas or by encroaching upon a single wetland area. Tables 9-11 and 9-12 list those projects that have the potential to impact wetland areas.





## MAP 9-5

## WASATCH FRONT URBAN AREA SURFACE WATER



**TABLE 9-11****SALT LAKE URBANIZED AREA PROJECTS WITH POTENTIAL WETLAND IMPACTS**

STREET	FROM	TO	WETLAND IMPACTED
500 South / 700 South	Surplus Canal	Mountain View Corridor	W. Salt Lake Low Areas
California Avenue	I-215	Mountain View Corridor	W. Salt Lake Low Areas
SR-201	3200 West	8400 West	W. Salt Lake Low Areas
SR-201 Interchanges	@ 7200 West	@ 8400 West	W. Salt Lake Low Areas
5400 South	I-15	Mountain View Corridor	Jordan River Complex
9000 South	I-15	Redwood Road	Jordan River Complex
10400 South / 10600 South	I-15	Redwood Road	Jordan River Complex
11400 South	700 West	Redwood Road	Jordan River Complex
Porter Rockwell Road	I-15	Mountain View Corridor	Jordan River Complex
8400 West	SR-201	3500 South	W. Salt Lake Low Areas
Mountain View Corridor	I-80	6200 South	W. Salt Lake Low Areas
4800 West	SR-201	3500 South	W. Salt Lake Low Areas
Bingham Junction Blvd.	7000 South	8400 South	Jordan River Complex

The projects of the 2030 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 having potential for impacting wetlands will depend on the amount of right-of-way required. Projects requiring a considerable amount of right-of-way would have more impact than those requiring minimal, or no new right-of-way.

**TABLE 9-12****OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL WETLAND IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO	WETLAND IMPACTED
200 South (Syracuse)	2000 West	North Legacy Corridor	Great Salt Lake Complex
500 South	I-15	Redwood Road	Great Salt Lake Complex
North Legacy Corridor	Weber County Line	I-15 / US-89	Great Salt Lake Complex
Redwood Road	500 South	2600 South	GSL Complex / Jordan River
I-15	US-89 (Farmington)	500 South (Davis County)	Great Salt Lake Complex
2600 North / 2700 North	I-15	3500 West	Low Areas
1200 South	I-15	North Legacy Corridor	Stream Drainage



STREET	FROM	TO	WETLAND IMPACTED
4000 South	1900 West	North Legacy Corridor	Stream Drainage
Midland Drive	Hinckley Drive	3500 West	Stream Drainage
5500 South / 5600 South	3500 West	5900 West	Stream Drainage
I-15	Box Elder Co. Line	2700 North	Great Salt Lake Complex
Wall Avenue	2700 North	US-89	Stream Drainage
Monroe Blvd.	1300 North	2700 North	Stream Drainage
Riverdale Road	SR-126	Washington Blvd.	Stream Drainage

**Mitigation** – Regarding the projects listed above, consideration should first be given to impact avoidance. Specific jurisdictional wetland impact assessments and mitigation measures will be determined during the environmental evaluation and review phase of the project development process. Strategies to mitigate impacts to wetlands should include: avoidance by shifting the roadway 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 9-6.

### Farmland

The 2030 RTP's recommended highway improvements can impact farmland by requiring 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 between SR-111 on the west and the Union

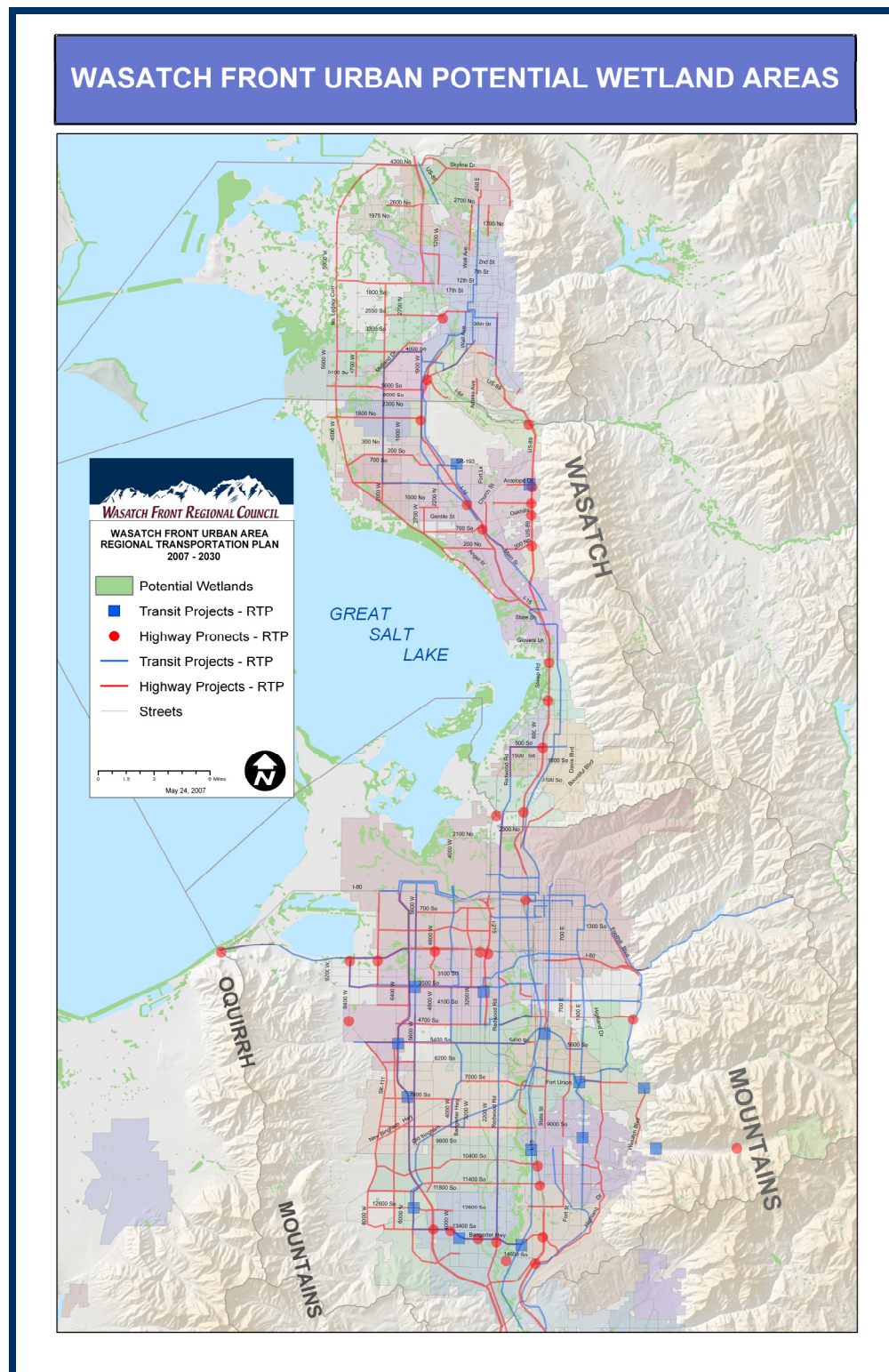


Pacific Railroad tracks on the east, which were designated in 1979 as prime farmland or farmland of statewide importance. In southern Davis County, a 1978 Soil Conservation Service map designated much of Centerville, west Farmington, and parts of West Bountiful as prime agricultural land. Much of this land has also 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 been converted to urban use,



## MAP 9-6

## WASATCH FRONT URBAN POTENTIAL WETLAND AREAS





and those 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 soil, reliable water, fewer than 30 dwelling units per 40-acre area, and are not currently designated for urban use. Lands currently within an incorporated city, 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 2030 RTP improvements direct impacts on farmlands is relatively minor. New roadways often require greater amounts of rights-of-way and have the potential for greater direct impacts on farmland. Also, new roadways have indirect impacts by making farmlands more attractive for urban 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 some 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. Projects in the 2030 RTP that could impact the farmland that remains, particularly in Salt Lake County, are 6000 West, the Mountain View Corridor, New Bingham Highway, 12600 South, 9000 South, and 7800 South.

Most of Davis County's remaining farmlands are located west of the North Legacy Corridor, or west of Bluff Road. Davis County's farmland is also being converted to urban uses, similar to the pattern of Salt Lake County. The projects in the 2030 RTP that would affect farmlands are: North Legacy Corridor, 200 South, 700 South (Layton) and 1800 North.

Weber County, of the three urbanized counties, has the most farmlands. Most of these farmlands are 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 in this area have expressed a desire to continue to farm the land as long as possible. They do not welcome urban type development and the construction of transportation infrastructure in the area. Projects in the 2030 RTP that would most affect farmlands in Weber County are: North Legacy Corridor, 1200 South and 5500 South.

**Mitigation** – Farms which have been officially designated an “Agricultural Protection Zone”, and other productive farmlands need to be avoided. If this cannot be accomplished, due to the absence of other reasonable alternatives, care should be taken in the planning and location of the transportation facility to disrupt and / or affect to the least extent possible the economic viability of a farm operation. Local planning and zoning regulations can play a vital role in preserving viable farmlands.



### Wildlife Habitat / Sensitive Species

The 2030 RTP was evaluated to determine potential impacts on wildlife habitat and the 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 North Legacy Transportation Corridor could possibly affect this habitat. Peregrine falcons nest in downtown Salt Lake City and along the cliffs north of Salt Lake City. The proposed Bountiful Boulevard extension could impact these nesting sites. 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 2030 RTP. A survey of sensitive species will be conducted during the Environmental Impact Statement phase of project development.

The three urbanized counties of the WFRC contain significant wildlife habitat areas for a variety of species. The Great Salt Lake and associated wetlands provide a 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-long 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. Tables 9-13 and 9-14 below, list those projects that were identified as crossing significant creeks and rivers.



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. All the potential stream crossings and conflicts were not identified in the water body / floodplain evaluation. Two projects in the 2030 RTP that affect the Jordan River, are 11400 South and Porter Rockwell Blvd. which 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 9-5, found on Page 241, shows the distribution of surface water bodies within the Wasatch Front region.



**TABLE 9-13****SALT LAKE URBANIZED AREA PROJECTS WITH POTENTIAL  
WATER BODY / FLOODPLAIN IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO	WATERBODY / FLOODPLAIN
500 / 700 South	Surplus Canal	5600 West	Ridgeland Canal, Brighton Canal, Goggin Drain, Surplus Canal
California Avenue	I-215	Bangerter Highway	Ridgeland Canal, Brighton Canal
I-80	1300 East	Parley's Canyon	Parley's Creek
SR-201	Mountain View Corridor	8400 West	Ridgeland Canal
4500 / 4700 South	I-15	Redwood Road	Jordan River
5400 South	I-15	Mountain View Corridor	Jordan River, Canals
7800 South	Bangerter Highway	Mountain View Corridor	Provo Reservoir Canal, Barnes Creek
9000 South	I-15	Bangerter Highway	Provo Reservoir Canal / Jordan River
10400 South	Redwood Road	Bangerter Highway	Canals
11400 South	State Street	4800 West	Salt Lake Canal, Jordan River
12600 South	Bangerter Highway	8000 West	Salt Lake Canal, Jordan River, Rose Creek
MVC / Bangerter Connector	Bangerter Highway	Mountain View Corridor	Wood Hollow Cr., Provo Reservoir Canal / Jordan River
7200 West	I-80	SR-201	Salt Lake Canal
5600 West	7000 South	New Bingham Highway	Barneys Creek
5600 West	11800 South	14400 South	Midas Creek
Redwood Road	9000 South	12600 South	South Jordan Canal, Midas Creek
Redwood Road	Porter Rockwell	Utah County Line	Canals
Main Street	3300 South	4500 South	Little Cottonwood Creek
900 East / 700 East	Fort Union Blvd.	9400 South	East Jordan Canal
700 East	Carnation Drive	12300 South	East Jordan Canal
900 East	3300 South	4500 South	Millcreek
Highland Drive	Sego Lily	13800 South	Irrigation Canal / Dry Creek
Wasatch Blvd.	North Little Cottonwood Road	Little Cottonwood Road	Little Cottonwood Creek
Mountain View Corridor	I-80	Salt Lake / Utah County Line	Brighton Canal, Ridgeland Canal, Riter Canal, Salt Lake Canal, Barney's Creek, Bingham Creek, Rose Creek, Wood Hollow, Provo Reservoir Canal
SR-111	5400 South	11800 South	Barney's Creek, Bingham Creek
1300 East	Van Winkle Expressway	5900 South	Little Cottonwood Creek
Porter Rockwell Road	Frontage Road	I-15 / 14600 South Interchange	Jordan River, Irrigation Canal



**TABLE 9-14****OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL  
WATERBODY / FLOODPLAIN IMPACTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO	WATERBODY / FLOODPLAIN
1800 North (Clinton)	2000 West	5000 West	Hooper Canal / Howard Slough
200 North	I-15	North Legacy Corridor	Hooper Canal
North Legacy Corridor	I-15 / US-89 (Farmington)	Weber County Line	Farmington Creek, Holmes Creek, Kays Creek, Hooper Canal

**Mitigation** - Transportation facilities should first avoid floodplains. If a project must be located in a floodplain, the facility would need to have the proper vertical elevation as to not be affected by flooding. As a way to mitigate the natural hazard of flooding, alternative routes should be identified if the project is rendered impassable. 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. Determination must also be made if a watershed management plan exists and, if so, coordination should then be undertaken with watershed planners in order to remain consistent with the plan. Lastly, pre-construction meetings with community officials, contractors, and others to discuss floodplain protection and how the project can be designed to best maintain natural drainage patterns and runoff rates.

**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 subdivided 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 the proposed 2030 RTP projects with the location of the "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 9-7. Also, the potentially impacted projects in the urbanized areas are listed in Table 9-15.

Besides the National Priority List Superfund Sites for the three urbanized counties of the Wasatch Front Region listed above, there are between one and two hundred other CERCLIS sites that have the potential of becoming Environmental Protection Agency (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 State Department of Environmental Quality (DEQ), Division of Environmental Response & Remediation (DERR). The database and map should be consulted prior or during the EIS preparation phase of project development. The DEQ file path is





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### **Projects With The Potential To Conflict With “Superfund” Sites**

In Weber County there are no Superfund site conflicts. In Davis County, the following projects have the potential of conflict with a Superfund site: I-15 / 1800 North Interchange (Sunset); I-15 / 500 South Interchange (Bountiful); and 500 South (West Bountiful / Woods Cross). In Salt Lake County, the following projects have the potential of conflict with a Superfund site: I-15 (Beck Street to 600 North - Salt Lake City); Bountiful Blvd. (Beck Street to Davis County line - Salt Lake City); I-15 / 100 South Interchange (Salt Lake City); 5400 South (at I-15 in Murray); Bingham Jct. Blvd. (Midvale); Wasatch Blvd. (at Little Cottonwood Canyon Rd. - Sandy).



**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 start. 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 time 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 project and other infrastructure should involve the closet possible collaboration with local planning authorities and other community representatives.





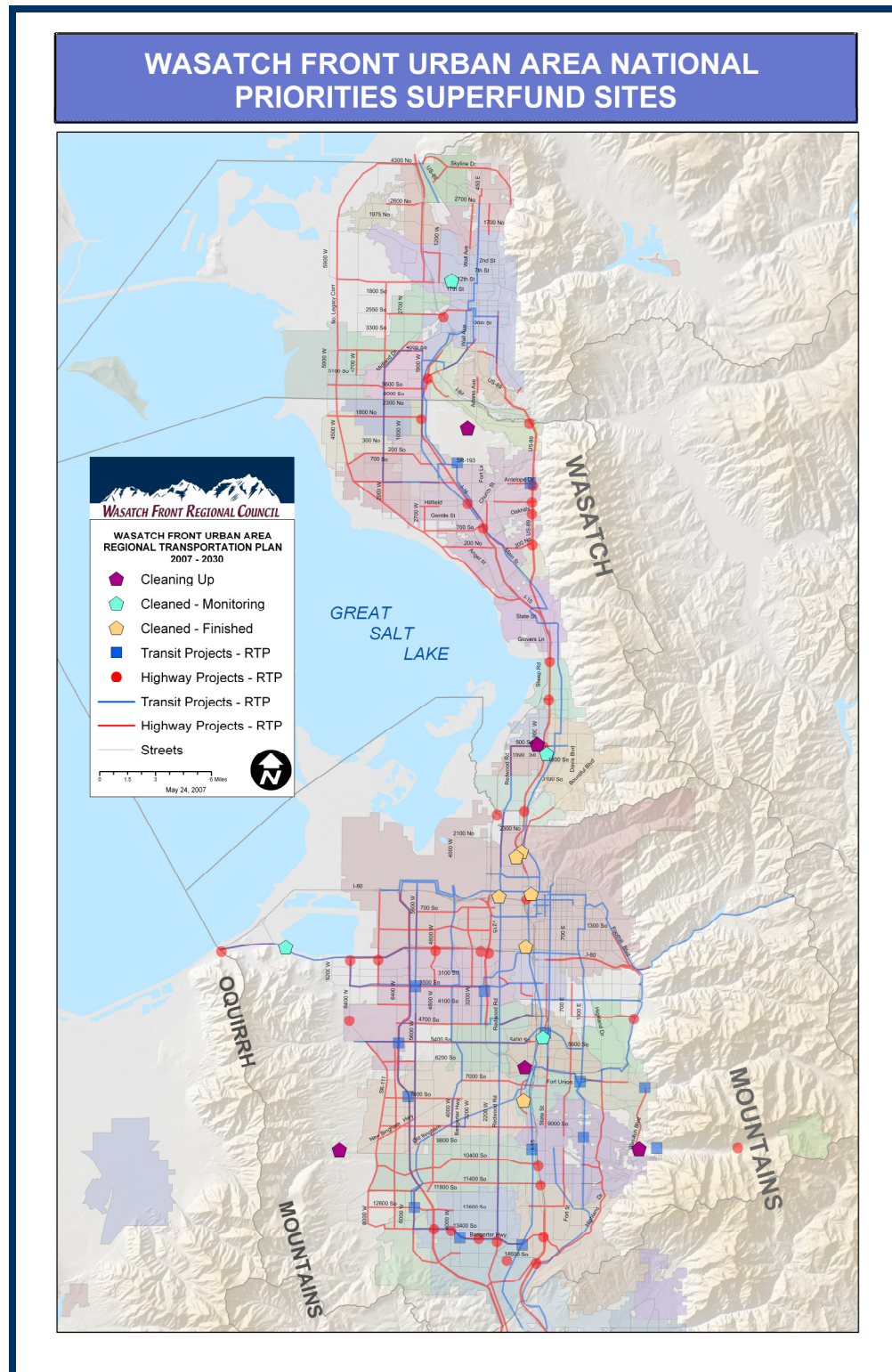
**MAP 9-7****WASATCH FRONT URBAN AREA NATIONAL PRIORITIES SUPERFUND SITES**

TABLE 9-15

## NATIONAL PRIORITIES LIST SUPERFUND SITES

SITE NAME CERCLIS ID	PROPOSED LISTING	FINAL LISTING	CONSTRUCTION COMPLETION	PARTIAL DELETION	DELETION
<b>DAVIS / WEBER COUNTY</b>					
Hill Air Force Base UT0571724350	10/15/84	7/22/87	N/A	N/A	N/A
<b>DAVIS COUNTY</b>					
Bountiful / Wood Cross 500 South PCE Plume UTN0001119296	12/01/00	9/13/01	N/A	N/A	N/A
Five Points PCE Plume UTN000802654	3//07/07	N/A	N/A	N/A	N/A
Intermountain Waste Oil Refinery UT 0001277359	10/22/99	5/11/00	10/1/04	N/A	N/A
<b>WEBER COUNTY</b>					
Ogden Defense DLA UT9210020922	10/15/84	7/22/87	9/28/95	N/A	N/A
<b>SALT LAKE COUNTY</b>					
Davenport and Flagstaff Smelters UTD988075719	12/01/00	4/30/03	N/A	10/19/04	N/A
Kennecott (North Zone) UTD07926811	1/18/94	N/A	N/A	N/A	N/A
Midvale Smelter UTD980951420	1/18/94	N/A	N/A	N/A	N/A
Petrochem Recycling Corp. / Ekotek Plan UTD093119196	7/29/91	10/14/92	4/12/00	N/A	6/30/03
Portland Cement (Kiln Dust 2 and 3) UTD980718670	10/15/84	6/10/86	8/18/98	N/A	N/A
Rose Park Sludge Pit UTD980635452	12/30/82	9/08/83	8/18/92	N/A	N/A
Utah Power & Light / American Barrel Co.	5/05/89	10/04/89	9/30/97	N/A	N/A
Wasatch Chemical Co. (Lot 6) UTD000716399	1/22/87	2/11/91	9/30/97	N/A	N/A



### Geologic Hazards

It is important to consider geologic and other physical constraints when evaluating transportation projects. In this case, the concern is not so much what impacts transportation projects may have on the environment, but what impacts the environment may have on the projects and the safety of the people who will them. The geologic hazards that were chosen for this evaluation were: (1) Steep slopes; (2) faults; and (3) liquefaction potential. Steep slopes present a host of problems to transportation projects, such as slope failure due to water saturation of soils that would greatly increase maintenance costs. Faults are problematic from the standpoint of movement along a fault line.

Such slippage due to earthquakes could range from “gradual” to “catastrophic”. In any case, building on a fault 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 shake like “Jell-O”. Liquefaction tends to increase earthquake damage. Projects that would be exposed to faults and liquefaction are listed below. Steep slopes (30 percent or higher) were not considered. Few, if any, projects are planned in areas with steep slopes.



Urbanized area transportation projects with potential conflicts with earthquake fault zones are noted below in tables 9-16 and 9-17. Projects in areas with high liquefaction potential are listed in Tables 9-18 and 9-19. These areas of concern are depicted graphically in Map 9-8 on Page 256.

**TABLE 9-16**

#### **SALT LAKE URBANIZED AREA PROJECTS WITH POTENTIAL TO CONFLICT WITH FAULTS**

(Table includes both funded and unfunded projects)

STREET	FROM	TO
500 South / 700 South	Surplus Canal	5600 West
California Avenue	I-215	Bangerter Highway
I-80	State Street	Parleys Canyon
SR-201	3200 West	Mountain View Corridor
3500 South	2700 West	4000 West
4500 South	I-215	2700 West
I-215	I-80 (west side)	SR-201
Highland Drive	Draper City Limits	Traverse Ridge Road
Wasatch Blvd.	7000 South	Little Cottonwood Road

**TABLE 9-17**  
**OGDEN - LAYTON URBANIZED AREA PROJECTS WITH POTENTIAL TO**  
**CONFLICT WITH FAULTS**  
 (Table includes both funded and unfunded projects)

STREET	FROM	TO
Bountiful Blvd.	Eaglewood	Beck Street
US-89	I-15 (Farmington)	I-84
Skyline Drive (North)	2600 North	US-89
1100 West (Pleasant View)	Skyline Drive	4000 North

**TABLE 9-18**  
**SALT LAKE URBANIZED AREA PROJECTS IN AREAS OF**  
**HIGH LIQUEFACTION POTENTIAL**  
 (Table includes both funded and unfunded projects)

STREET	FROM	TO
500 South / 700 South	Surplus Canal	5600 West
California Avenue	I-215	7200 West
I-80	State Street	1300 East
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
10400 South	Redwood Road	Bangerter Highway
Bangerter Highway Interchange	@ Redwood Road	
14600 South	D&RGW Railroad Structure	
8400 West	SR-201	3500 South
7200 West	I-80	3500 South



STREET	FROM	TO
Mountain View Corridor	SR-201	6200 South
5600 West	I-80	SR-201
4800 West	California Avenue	3500 South
I-215	SR-201	4700 South
Redwood Road	Davis Co. Line	1000 North
Bingham Junction	7000 South	8400 South
I-15	I-215	600 North
I-15 Interchange	@ 100 South	

**TABLE 9-19**

**OGDEN - LAYTON URBANIZED AREA PROJECTS IN AREAS OF  
HIGH LIQUEFACTION POTENTIAL**

(Table includes both funded and unfunded projects)

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 / 900 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



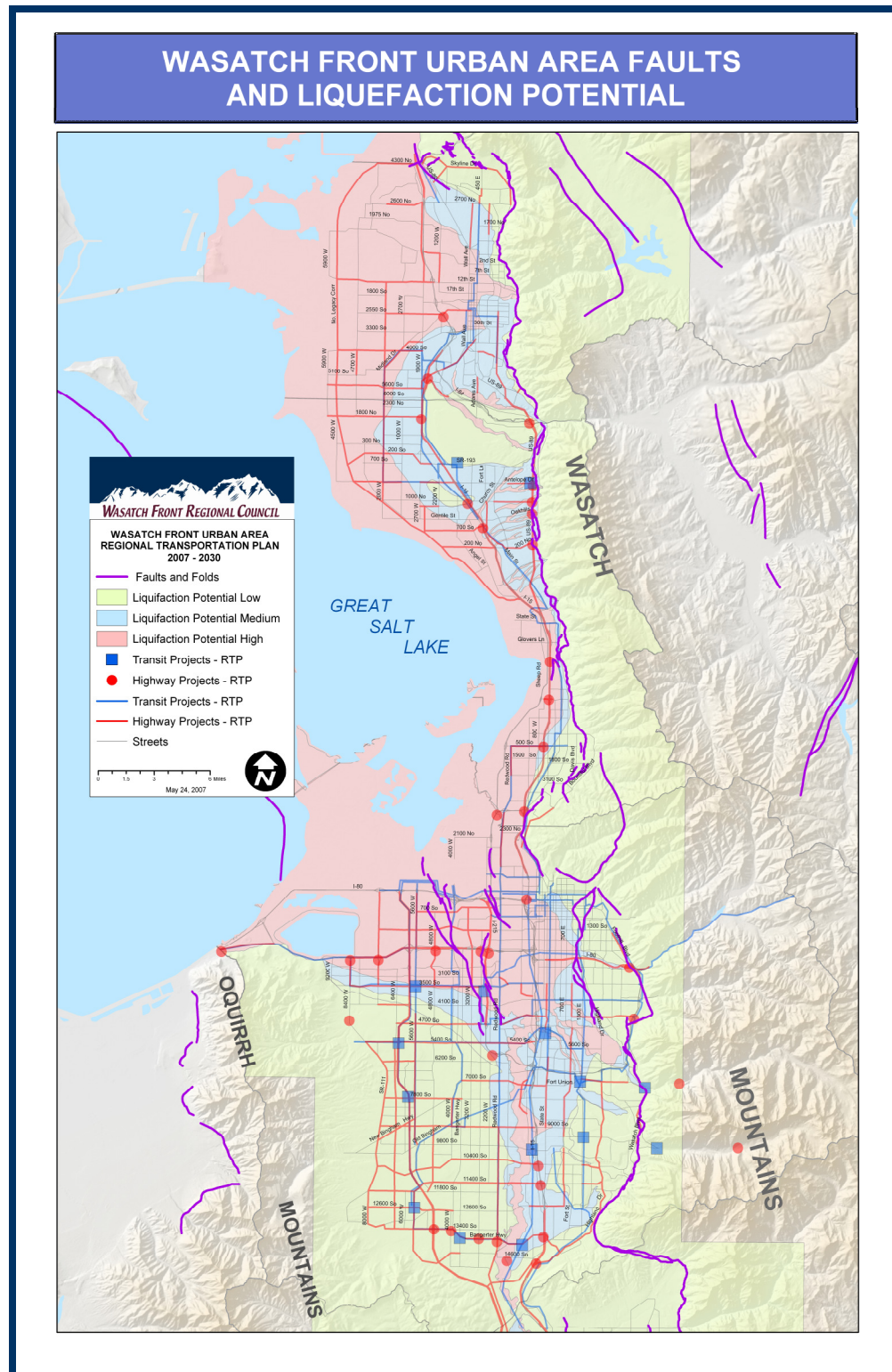


STREET	FROM	TO
24 <sup>th</sup> Street	I-15	Wall Avenue
Hinckley Drive	1900 West	Midland Drive
40 <sup>th</sup> Street	Adams Avenue	Gramercy Avenue
4000 South	1900 West	North Legacy Corridor
Midland Drive	Hinckley Drive	3500 West
5600 South	1900 West	3500 West
5500 South / 5600 South	3500 West	5900 West
North Legacy Corridor (Weber Co.)	Davis County Line	1200 South
4700 West	4000 South	5100 South
3500 West	1200 South	Davis County Line
1900 West	1200 South	2700 North
I-15	Box Elder County Line	2700 North
I-15 Interchange	@ 24 <sup>th</sup> Street	
1200 West	Pioneer Road	12 <sup>th</sup> Street
1100 West (Pleasant View)	Skyline Drive	4000 North



**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 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 effects of liquefaction can be

obtained from the relevant county Hazard Mitigation Plan and 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.

**MAP 9-8****WASATCH FRONT URBAN AREA FAULTS AND LIQUEFACTION POTENTIAL**

## NEPA PRINCIPLES AND REQUIREMENTS

During the preparation of the 2030 RTP, certain aspects and principles derived from the National Environmental Policy Act were considered and incorporated into the planning process. 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. Projects selected for the 2030 RTP were evaluated for their potential impact on the environment. Indices considered included air quality, noise, impact on wetlands, water bodies and flood plains, existing and planned land use, etc.

### Integration Of NEPA Into The RTP Process

In August and September of 2004, the National Highway Institute (NHI) held two workshops on linking local government planning and NEPA. The first workshop was for upper level executives of the participating entities. The latter workshop was for the “practitioners,” or managers, which lasted for three days. The managers workshop, which included participants from Utah Department of Transportation, Utah Transit Authority, the Metropolitan Planning Organizations (Wasatch Front Regional Council, Mountainland Association of Governments, Dixie, and Cache), Federal Highway Administration, Environmental Protection Agency, Army Corps of Engineers, and other resource agencies, produced recommendations and a short-term work, or Action Plan. In cooperation with UTA, a “Coordinating Committee” was organized, comprised of representatives from UDOT, WFRC, FHWA, and UTA. The Committee was given responsibility for managing and monitoring the implementation process. Several meetings of the Coordinating Committee were held during 2005 and 2006. A more complete discussion of this topic and the linking of planning and NEPA in the 2030 RTP can be found in Appendix O.

There were various action items identified in an action plan which resulted from the NTI / NHI Linking Planning and NEPA Managers workshops. The action items were summarized along with the status of their implementation in a “memorandum to the file”, dated May 21, 2007, titled “Integration of NEPA into the RTP Planning Process”. This memorandum has been included in the RTP Appendices. The memorandum indicates that many of the action items, such as the establishment of a “Coordinating Committee,” use of land use scenarios, increasing the involvement of resource agencies, and involving Envision Utah in a Wasatch Front visioning process, were accomplished.

After the NHI workshop, the executives and other staff members of UDOT, FHWA, MPOs, held a follow up meeting on May 25, 2005 to review the status of the Action Plan resulting from the September, 2004, “Linking Planning and NEPA Managers Workshop”. At this meeting, it was reported that substantial progress had been made on accomplishing nearly all the short-term action items, with over half listed as complete, or nearly complete. Remaining key action items were summarized and prioritized as follows.

- (1) Geographic Information System (GIS) - Develop the tool to compile and share transportation planning and environmental data layers
- (2) Collaboration - Develop a Memorandum of Agreement (MOA) on planning and project development linkage that includes environmental resource agency participation and the framework for interagency collaboration
- (3) Land Use and Transportation - Complete the visioning process (Wasatch Choices 2040), evaluate planning alternatives (scenarios) as well as secondary and cumulative impacts.



Item (1) above, is in the process of being completed through a research project being sponsored by UDOT. Regarding Item (2), a rough draft of an MOA to link the resource agencies to the planning process is still under consideration. However, two well-attended meetings were held with the resource agencies during the RTP preparation process, which essentially accomplished what the MOA would have provided for. Lastly, Item (3) was accomplished through the completion of the Wasatch Choices 2040 process.

## 9.9

## PURPOSE AND NEED CONSIDERATIONS

The major highway projects in the 2030 RTP were subjected to a “purpose and need” review. The transportation planning process forms the basis for determining the purpose and need for a project. What follows in Tables 9-20, 9-21, and 9-22 is a listing of the major projects in the 2030 RTP for which a statement of purpose and need were developed. The criterion used in determining a major project was primarily based on cost. Any project that cost \$100 million or more, and was either partially or wholly in the first phase of the planning horizon was, therefore, considered in developing a purpose and need statement. The purpose and need statements for each of the major projects are not as fully developed as those prepared for an environmental impact statement and are summarized below. The purpose and need statements are organized as follows: Problems, needs and deficiencies; solutions; and expected outcomes.

**TABLE 9-20**

### SALT LAKE COUNTY URBANIZED AREA MAJOR HIGHWAY PROJECTS

(Table includes some or all projects in 1<sup>st</sup> phase)

EAST / WEST PROJECTS					
Project	From	To	Type	F. Class	Cost (mil. \$)
I-80	State Street	Parleys Canyon	Widening	Freeway	536
SR-201	3200 West	8400 West	Widening	Freeway	251
11400 / 11800 South	State Street	SR-111	Widening / N.C.	M. Arterial	229
10400 / 10800 South	Redwood Road	SR-111	Widening / N.C.	M. Arterial	153
4500 / 4700 South	2700 East	6400 West	Widening	P. Arterial	200
3500 South	2700 West	8400 West	Widening	P. Arterial	112
12600 South	Bangerter Highway	8000 West	Widening	P. Arterial	105
NORTH / SOUTH PROJECTS					
Mountain View Corridor	I-80	Utah / Salt Lake County Line	New Construction	Freeway	2,000
I-15	12300 South	Utah. / Salt Lake County Line.	Widening	Freeway	495
Highland Drive	9400 South	14600 South	New Construction / Widening	P. Arterial	256
Redwood Road	9000 South	Utah / Salt Lake County Line	Widening	P. Arterial	164
SR-111	5900 South	11800 South	Widening	P. Arterial	139



**TABLE 9-21****DAVIS COUNTY URBANIZED AREA MAJOR HIGHWAY PROJECTS**(Table includes some or all projects in 1<sup>st</sup> phase)

NORTH / SOUTH PROJECTS					
Project	From	To	Type	F. Class	Cost (mil. \$)
North Legacy Corridor	Weber County Line	I-15	New Construction	P. Arterial	934

**TABLE 9-22****WEBER COUNTY URBANIZED AREA MAJOR HIGHWAY PROJECTS**(Table includes some or all projects in 1<sup>st</sup> phase)

NORTH / SOUTH PROJECTS					
Project	From	To	Type	F. Class	Cost (mil. \$)
North Legacy Corridor	5500 South	I-15	New Construction	P. Arterial	565

**Salt Lake County Projects****I-80**

**Problems, Needs, and Deficiencies:** This section of I-80 was constructed nearly 40 years ago and has essentially outlived its intended lifespan. There are areas in the corridor where the facility is deteriorating, it is subject to heavy congestion during the peak hour, and has a higher than expected accident rate. There are 12 bridge structures that are structurally deficient. There are 10 bridge structures that are functionally obsolete. Most of the bridges were not designed to meet current earthquake standards. 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 the facility was designed for in the 1960s. The facility is plagued with numerous drainage problems. Culverts being partially filled with dirt, storm drains are deteriorating, etc.

**Solutions:** The following project objectives have been identified which would minimize, or eliminate problems: (1) preserve the infrastructure in the corridor by providing adequate drainage and structurally adequate pavement and bridges; (2) provide a system that accommodates future travel demand and improves operations; (3) 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; improved safety, retaining of I-80 as a significant link in the trans-continental transportation system; increased use by multi-modal and transit users; and preservation and enhancement of the economic viability of the area that I-80 serves.





**SR-201**

**Problems, Needs, and Deficiencies:** This corridor contains several sections, or projects between I-215 and the Tooele / Salt Lake Co. Line that are planned 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 creating the need for greater capacity comes from the industrial job centers that are anticipated for the area that the corridor serves. In particular, there is a trend for transportation-related, or trucking companies to locate in the area with the potential of greatly increasing truck traffic and movement of goods. There is a need to replace at grade intersections with interchanges for safety purposes, to provide freeway speeds and capacity, and to provide for an overpass (4800 West) for greater access and network continuity.

**Solutions:** The addition of two additional lanes (one in each direction), auxiliary lanes in conjunction with the upgrade of the Interchange, an over pass at 4800 West, new interchanges at 7200 West and 8400 West, and upgrade of the interchange at I-80, and other improvements will provide the improvements needed to improve the function of this facility.

**Expected Outcome:** The expected outcome of the 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, which will improve the economic competitiveness of the 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.

**11400 / 11800 South**

**Problems, Needs, and Deficiencies:** Current and projected rapid growth in the 11400 / 11800 South Corridor is creating a need to increase capacity on existing sections, as well as construct new sections of roadway in the corridor. Along with population growth, a substantial increase in of business activity and employment opportunities is also expected. In the southwest part of Salt Lake County, there is a need to complete the transportation network in both the north-south and east-west direction. This corridor will play a significant roll in providing added capacity in the east-west direction between SR-111 and I-15. Several intersections and two I-15 interchanges in the study area are, or will be operating at above capacity during the rush hours by 2030. This congestion is expected to cause difficulties and delays for commuters and local travelers, as well as increases in emergency service response times. In addition, without the capacity improvements, economic development will suffer, adversely affecting employment opportunities and local government finances.

**Solutions:** In order to relieve the I-15 interchanges in the study area that are expected to be over capacity by 2030, a new I-15 Interchange at 11400 South is proposed. In addition, the existing facility is proposed for widened to six lanes. A new river crossing and the linking of the existing sections of 11400 / 11800 South with new roadway sections will complete the highway from I-15 to SR-111. Intersection improvements at the Bangerter Hwy., and Jordan Gateway / Lone Peak Parkway, as well as improvements to 10600 South and 12300 / 12600 South are assumed.

**Expected Outcome:** The expected outcomes include: (1) increased capacity and improved operations at several intersections and ramps on I-15 in the corridor and study area; (2) economic stimulation due to an improved development environment giving rise to increased employment opportunities and sales tax revenues; (3) the addition of a much needed east-west route contributing to the completion of the arterial network in the southwestern part of Salt Lake County; and (4) minimized impact to the natural and social environments.



**10400 / 10800 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 / 10800 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 its access to the regional transportation system.

**Solutions:** Add capacity in the corridor 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 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: (1) enhanced operational characteristics in the corridor; (2) 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 facility 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 the capacity of this facility. Also, there is a need for more transit facilities in the corridor.

**Solutions:** The 2030 RTP calls for the addition of two travel lanes (two lanes 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. Mass 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 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:** In the 3500 South corridor traffic volumes 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 related to the adjacent properties has greatly compounded the congestion problem. Travel times are expected to double by 2030 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 adequate facilities are lacking. 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, improving the effectiveness of signal operations at intersections, and providing general upgrades to improve traffic flow (access management). Improving transit facilities and service would attract more transit riders. This would include safe, accessible, and easily identifiable bus stops and informational kiosks, improvements in 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 planned capacity and other improvements would provide an efficient and safe transportation arterial; allow safe and convenient access to the local businesses adjacent and close by to the corridor; and 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 occurs, ever increasing traffic is 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 intersections with other roads. In addition, there is a need to extend 12600 South to the west from 4800 West to 8000 West. 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; certain sections not meeting design standards, inefficient signalization at intersections; and poor access to principal arterials of the regional transportation system.

**Solutions:** Add capacity in the form of additional travel lanes, turning lanes and medians; and operational improvements to the intersections, including channelization and signal cycle, improvements to the roadway's functionality. Improve 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; improved 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 rapidly growing population and employment. 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 roadway 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 traffic of various arterial streets can be interconnected with that of 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. Facilities for non-motorized modes are in the Mt. 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.

### I-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 the freeway project that do not meet current safety standards. Because of rapid population and employment growth, the corridor is fast approaching capacity and conditions will worsen by 2030, resulting in unacceptable levels of service. Projected growth is expected to double the traffic volumes on I-15 by 2030, 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, such as provided through 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 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; minimize and mitigate impacts to the natural and cultural environments; be a part of a transportation system that is compatible with locally adopted growth and development policies and land use plans; and 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 increasingly congested, necessitating increasing roadway capacities in the area. Specifically, these are needs for: (1) improved mobility for both longer and shorter distance travel; (2) improved access within the transportation corridor area; and (3) policies to keep the transportation corridor open, or free from 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. 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 2030 peak hour traffic demand exceeds available transportation capacity; and therefore are safety issues. Redwood Road must be improved in order to provide a safer transportation facility for existing commercial and residential development. 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 2030 traffic, reduce congestion along the project corridor; and increase transportation safety for all users. 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. Wildlife crossings are planned for construction at three locations along the Corridor.

**Expected Outcome:** Planned improvements should accomplish the following: (1) improve connectivity between existing and proposed transportation arterials and highways; (2) provide a transportation infrastructure that meets current roadway standards and that will be an asset to the community; (3) provide a transportation facility that operates an acceptable level of service and meets UDOT's goal of a level of service "D"; (4) maximize long-term roadway capacity by managing access concurrent with UDOT policies and existing and planned land uses; (5) improve emergency response time and availability of emergency response teams; and (6) reduce conflicts with wildlife along the corridor.



**SR-111**

**Problems, Needs, and Deficiencies:** Residential and commercial growth will translate into substantially more traffic volumes on SR-111 and other roads in the area. There is room to develop an additional 200,000 housing within the area with a population of close to 600,000 people. Currently, SR-111 is a two-lane facility. As the west side of Salt Lake County continues to grow, capacity, safety, and other deficiencies will need to be addressed. Since SR-111 is planned to function as a principal arterial and 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, and the SR-111 corridor is needed on the west side of Salt Lake County to help complete the principal arterial roadway network.

**Solutions:** The proposed solutions to the needs outline 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 for the project, the following outcomes are expected: Improved capacity to accommodate increased traffic demand traveling at relatively high speed; the construction of operationally functional and safe intersections; implementation of ITS, accommodation of non-motorized modes of transportation; and TDM, and TSM strategies; and reduced conflicts with wildlife along the corridor.

**Davis and Weber County Projects****North Legacy Corridor**

**Problems, Needs, and Deficiencies:** As the western portions of 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. 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 existing and future problems associated with 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 into the corridor, as needed.

**Expected Outcomes:** The expected outcomes of this project would be the following: (1) additional north-south transportation capacity to help meet 2030 travel demand needs; (2) a single, continuous alternate north-south route to reduce congestion and increase safety when I-15 is congested, under reconstruction or closed because of accidents; and (3) an additional route for emergency vehicle response.

**SAFETEA-LU PLANNING FACTORS**

The Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users requires 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. These factors are designed to assist planners in developing comprehensive solutions to area transportation needs. The SAFETEA-LU planning factors for improving transportation system management, operation, efficiency and safety are consistent with the goals and objectives of the 2030 RTP. The following paragraphs list the eight SAFETEA-LU planning factors and describe how the 2030 RTP has considered each requirement.

**1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.**

The 2030 RTP provides a network of improved transportation facilities, both highway and transit, which are essential to the economic vitality of the region. The 2030 RTP calls for the modernization of a critical portion of the local interstate freeway system, an improved regional highway network, BRT, enhanced bus service, the extension of the light rail system, regional commuter rail, and increased attention to intermodal center locations and development. The facilities improvements recommended by the 2030 RTP would provide increased accessibility to regional employment opportunities for 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 in the 21st Century.

**2. Increase the safety of the transportation system for motorized and non-motorized users.**

The 2030 RTP incorporates the recommendations of the Utah Comprehensive Safety Plan developed by UDOT with a goal of reducing crashes and fatalities on streets and highways. The WFRC participates on UDOT's Safety Leadership Team and is a sponsor of UDOT's "Zero Fatalities" campaign.

The highway and transit facilities proposed in the 2030 RTP will increase safety of motorized and non-motorized users through new construction and 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 project selection criteria. Controlling facility access, expanding freeway capacity, and putting traffic on streets that are designed to adequately handle the demand improve overall network safety. Major highway improvements, widening projects, and facility access control through congestion management systems all combine to enhance travel safety. The 2030 RTP includes a Regional Bicycle Facilities Plan and suggested policies for enhancing pedestrian access 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 is coordinating its planning processes with the Utah State Division of Emergency Services and Homeland Security and with the Utah Local Governments Association for Emergency Services and Security 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 2030 RTP will increase security of motorized and non-motorized users through new construction and improvement projects by providing 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 system 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 2030 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 2030 LRP Update will help reduce area congestion and enhance 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 2030 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 freeway 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. In addition, the Union Pacific Railroad’s tracks through Grant Tower in downtown Salt Lake City are being realigned to improve speeds and reduce congestion on their main freight corridor.

**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.**

Concern for the environment of the Wasatch Front Urban Area is an integral part of the 2030 RTP planning process. Recommended facilities are considered with respect to environment 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 are conducted by qualified individuals. By attempting to minimize travel delay, energy conservation is promoted through congestion management strategies, improved system capacity, and the provision of transit alternatives. The 2030 LRP Update 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.

The Wasatch Choices 2040 process, which developed a vision for future growth and principles to guide growth in the 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. The WFRC developed the 2030 RTP recommendations for highway and transit improvements consistent with the growth principles and in support of the overall quality of life for those residing throughout the region.





State and local plans for growth and economic development formed the background for developing transportation recommendations. The WFRC staff met with officials of every municipal and county to ensure that the socio-economic projections were consistent with local plans. In addition, the state economic development office reviewed the 2030 RTP recommendations and provided input on priorities as they affect further economic growth in the region.

**6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.**

The 2030 RTP recommends the development of intermodal centers and park-and-ride lots at optimum locations to improve connectivity of the regional transportation system. The 2030 RTP also promotes shared opportunities for multimodal transportation development including light rail transit, commuter rail, augmented bus service, and bicycle pathways. Identified park-and-ride lots are located relative to 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 2030 RTP, along with transit hubs when 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 provided for at planned intermodal facilities. One of the 2030 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 a 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 2030 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 2030 RTP assures that adequate funding for maintenance, operation, and preservation of highway and transit facilities is provided. The 2030 RTP assumes adequate funding to preserve existing streets and highways. This is a priority of both UDOT and local communities. 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 estimates of funding needed to preserve the existing system, representing an increase from previous estimates, 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 2030 RTP also recommends the upgrading of transit facilities and the replacement of all vehicles on a regular schedule. The transit portion of the 2030 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.

## AIR QUALITY CONFORMITY DETERMINATION

9.11

Salt Lake County, Salt Lake City, and Ogden City are designated as non-attainment area (or maintenance) for one or more air pollutants. Specifically, there are three areas in the Wasatch Front region, which are subject to air quality conformity regulations. These areas are listed in Table 9-23.

**TABLE 9-23**

### 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 <sub>10</sub> )
Salt Lake County	Moderate Non-Attainment	Particulate Matter (PM <sub>10</sub> )

An analysis of projected vehicle related emissions from the transportation network defined in the 2030 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 9-24. The analysis demonstrating conformity is contained in “Air Quality Memorandum 21”, a copy of which can be found in Appendix C.

**TABLE 9-24**

### MOBILE SOURCE EMISSION BUDGETS

AREA	POLLUTANT	YEARS	SIP BUDGET
Salt Lake City	CO	2012 - 2030	278.60 tons per day
Ogden City	CO	2012 - 2020	75.36 tons per day
	CO	2021 - 2030	73.02 tons per day
	PM <sub>10</sub>	2007 - 2030	No SIP Budget <sup>+</sup>
Salt Lake County	PM <sub>10</sub> – NOx <sup>**</sup>	2012 - 2030	32.30 tons per day
	PM <sub>10</sub> – Dust	2012 - 2030	40.30 tons per day

<sup>+</sup>Use “Build less than 1990” Test

<sup>\*\*</sup>State air quality rules allow for a portion of the surplus primary PM<sub>10</sub> budget (PM<sub>10</sub> – Dust) to be applied to the PM<sub>10</sub> secondary (PM<sub>10</sub> – NOx) budget.

#### Particulate Matter (PM<sub>2.5</sub>)

The WFRC also anticipates that portions of Weber, Davis, Salt Lake, and Tooele Counties will be designated as non-attainment areas under the new PM<sub>2.5</sub> standard (35 µg / m<sup>3</sup>) established in 2006.



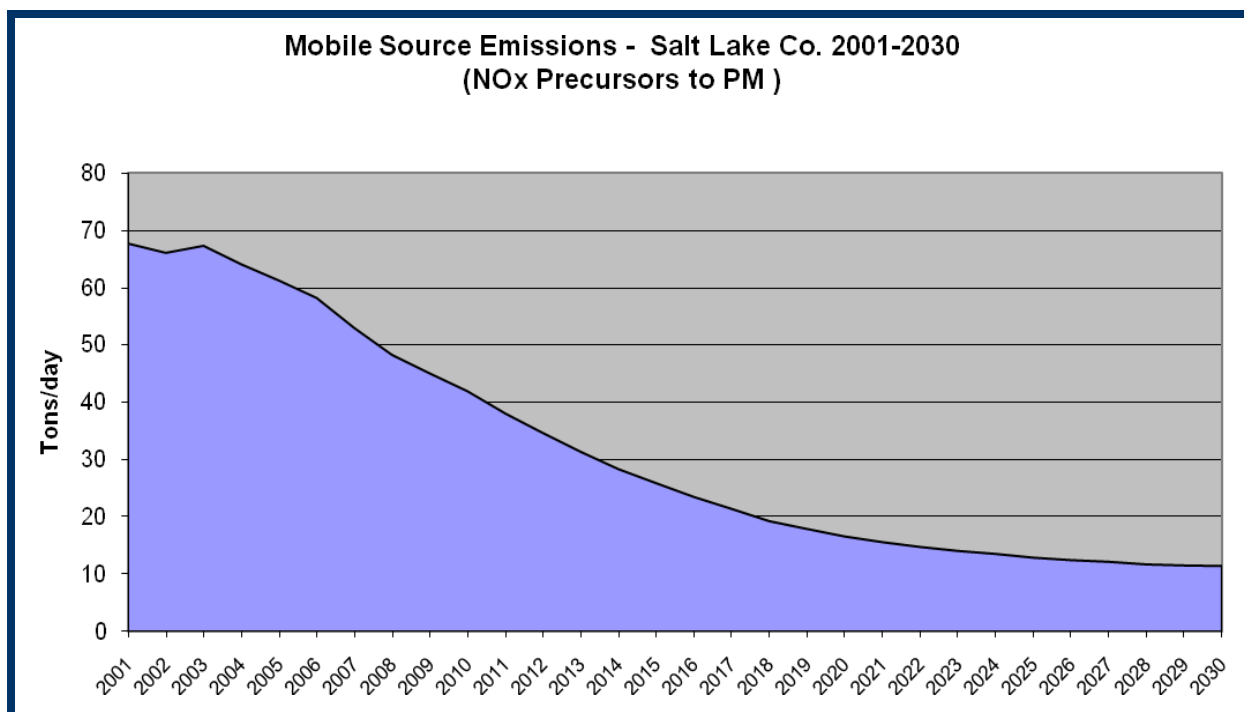
The previous  $PM_{2.5}$  standard was  $65 \mu g / m^3$  and the Wasatch Front Region was in attainment of the former standard. Official EPA non-attainment designations under the new stricter standard will be made at the end of 2009 and conformity to the new standard will be required beginning in 2011.

By 2013, the State of Utah will be required to submit a new section of the State Implementation Plan (SIP) documenting how the state will meet the new  $PM_{2.5}$  standard. Once the  $PM_{2.5}$  SIP is approved by EPA, the WFRC will be required to make a conformity determination verifying that transportation related emissions are within the limits established in the SIP. During the interim period from 2011 when  $PM_{2.5}$  conformity is required and 2013 when emission limits are established in the SIP, the WFRC will be required to establish conformity by demonstrating that future  $PM_{2.5}$  emissions are lower than 2002 levels.

A conformity determination for  $PM_{2.5}$  is not required for the current 2030 RTP update. However, for discussion purposes a projection of  $PM_{2.5}$  related emissions is presented in Figure 9-4 (below) to illustrate that  $PM_{2.5}$  related emissions from on-road mobile sources are expected to continue the declining trend of the last several years, thus making  $PM_{2.5}$  conformity a reasonable expectation for transportation plans developed after 2011 when the new  $PM_{2.5}$  conformity requirements take effect.

**FIGURE 9-4**

**MOBILE SOURCE EMISSIONS – SALT LAKE CO. 2001-2030  
(NOX PRECURSORS TO PM)**



### Vehicle Emission Modeling

Vehicle emissions were estimated using the EPA approved Mobile6.2 model. Data from the WFRC travel model was used to describe the transportation network for the analysis years 2006, 2012, 2015, 2025, and 2030. 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 2005, and the

vehicle type distribution using UDOT vehicle classification counts for 2002. Local emission inspection and maintenance programs for each county were also coded for input to the Mobile6.2 model.

## OVERALL MITIGATION

9.12

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 the environment and to incorporate principles of the National Environmental Policy Act into the planning process. With this encouragement in mind, efforts were made during the current planning process to be more sensitive to the environment, 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 2030 RTP have, in a general way, been identified. In addition, possible mitigation actions that could be taken in the event that 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: The Southeast Michigan Council of Governments' document, *"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 2030 RTP concerning mitigation of impacts.)

Federal transportation legislation dictates a series of requirements for the regional transportation plan and Transportation Improvement Program. The current federal legislation - the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU, 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 their transportation decision-making. The analysis was conducted on a regional level only. It was determined that the outcome of this analysis should alert the implementing agencies of environmental sensitivities and possible mitigation opportunities as projects are developed and constructed.

Mitigation measures can be identified in the planning process and are considered in the 2030 RTP. However, consideration of the mitigation of impacts that cannot be avoided are should be identified in "corridor studies" and in the environmental impact statement phase of project development as well as during construction. 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 that will ensure a blending of sound construction techniques with desired environmental protection goals. There are two types of guidelines that need to be addressed during project development and implementation phases of project development: (1) Planning / design guidelines, and (2) Construction / maintenance





guidelines. 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.

### Government Resource Agency Coordination

In August of 2006 and March of 2007, meetings were held with government resource agencies and other interested parties. Representatives from each of the MPOs and UDOT attended the meeting. The purpose of the initial meeting was to determine the needs and issues of each agency prior to the identification of the 2030 RTP's recommended projects and preparation of the written document. This meeting was well attended with broad representation from four school and two water districts, the Bureau of Land Management, the Bureau of Reclamation, the U.S. Forest Service, the Utah Division of Natural Resources, the Utah Division of Water Quality, the Utah Division of Solid and Hazardous Waste, the Utah Division of Air Quality, the U.S. Natural Resources and Soil Conservation Service, the Utah State Department of Parks and Recreation, the Federal Highway Administration, the Utah Trucking Association, and Weber Pathways (representing the bicycle and pedestrian interests).

The purpose of the second meeting was to discuss possible or potential mitigation measures. This meeting was also well attended with most of the same agencies being represented. Those agencies that were represented at the second meeting, but not at the first were: Utah State Division of State History, Utah State Division of Wildlife Resources, Utah Division of Water Resources, Intermountain Health Care, and Salt Lake County Bicycle Committee, and Safe Routes to School Advisory Committee. The comments of the agency representatives relating to mitigation are briefly summarized below.

- **School Safety:** The school districts encouraged the construction of sidewalks where none currently exist in order to improve safety and to reduce the need to drive students to school. Also, there is a need for additional overpass facilities and more crossing guards. Coordination between school districts and transportation agencies should occur far in advance of the construction of projects so the proper provisions can be made for the re-routing of traffic and school buses.
- **Air Quality:** The Utah State Division of Air Quality is helping the urban school districts to retrofit school buses with cleaner engine technology. This program is on-going. Since the EPA has tightened its ozone and particulate matter standards, provisions should be made to meet these standards and further mitigate vehicle emissions.
- **Bicycle Facilities:** Because there are many more bicycles on Forest Service and other roads than in the past, the provision of shoulders and / or wider shoulders are encouraged for safety purposes. Interchanges and intersections need to be more bicycle-friendly.
- **Coordination of Transportation and Utility Infrastructure Plans / Corridors:** Utility agencies and companies, and agencies responsible for constructing and maintaining roadways, need to improve coordination in planning. Thus, the scheduling of construction projects for utility lines can be coordinated, where possible, with the construction of maintenance activities of the transportation agencies. At a minimum, agency officials need to be aware of the development plans of all other agencies who share a right-of-way. Some canal companies are covering their canals, which provide an excellent opportunity for the development of public trails. Sufficient advance notice of future highway construction projects is encouraged so that mitigation efforts can be planned and implemented. The



sharing of corridors for transportation and utilities infrastructure helps reduce the impacts on the natural environment, particularly critical lands.

- **Water Conservation:** Highway projects should lead the way in providing an example in the application of low water use landscaping.
- **Preserving Streams, Rivers, and Lakes:** The environs of navigable streams, rivers, and lakes need to be protected as bridges and other road infrastructure are constructed. Measures also need to be taken to minimize these effects on floodplains.
- **Water Quality:** Streams, rivers, and lakes should continue to be monitored by the various water quality agencies so that sources of pollution can be determined. If highways are the source of pollution mitigation steps can be taken. Salt storage sites, snow removal activities and salting equipment management practices need to be carefully monitored to determine the types and sources of impacts, and appropriate mitigation measures. The use of best management practices can minimize pollutants washing into streams and ground water from roadways. Additional efforts need to be made to address groundwater concerns and well head protection.
- **Hazardous Wastes:** Lists of federal and non-federal contaminated sites should be consulted by transportation planners so that coordinated environmental mitigation responses can be considered. As preparations are made to construct transportation projects near contaminated sites, coordination with Utah Division of Solid and Hazardous Waste is essential.
- **Freight Movement:** In planning highways, provisions need to be made to better accommodate trucking to the large-box retail stores and warehouses. Details such as proper turning radii, dock access, traffic light timing, etc. should be discussed with the interested parties. Also, as freight traffic increases in the future, more consideration should be given to establishing freight lanes.
- **Fish and Wildlife:** Early planning and corridor preservation can serve to mitigate conflicts with wildlife. Promoting transit ridership could reduce the need for new roads and lessen the effects on wildlife habitat. Wildlife agencies desire to work and coordinate with transportation planners to minimize conflict with wildlife resources. Every effort should be made to minimize the fragmentation of ecosystems. When landscaping is required for transportation projects, plants that will not attract wildlife should be used so that transportation and wildlife conflicts can be kept to a minimum. Road-related wildlife mortality can be reduced by mapping conflict locations, using 8-foot fences to protect against wildlife encroachment and one-way ramps to allow for escape for animals that are able to breach fences. Big game escape structures need to be further studied and made more effective. Problems should be identified early in the project development process so that they can be avoided or mitigated. Wildlife agencies (GIS) databases are available and should be used as transportation plans are made.
- **Historic and Pre-Historic Resources:** The database of historic and pre-historic resources should be utilized to minimize conflicts and / or help formulate mitigation measures.



