

IV. LONG RANGE CAPACITY NEEDS

The Wasatch Front Urban Area has experienced rapid growth over the last several decades that has greatly increased the need for additional high quality and efficient transportation facilities. Because these needs have not been sufficiently met as this growth has continued, significant congestion has resulted throughout the region. Growth in population and employment and the resulting increase in the number of trips will require capacity improvements to all elements of transportation, including highways, transit, bicycle and pedestrian paths, railroads, and airport facilities, and the linkages among them, to properly serve future growth and travel demand.

The Wasatch Front Region's need for a long range package of transportation capacity improvements can be demonstrated by assigning predicted future travel (demand) to the existing regional transit and highway systems (supply). The results of testing 2030 travel demand on the existing 2001 highway and transit networks are shown in the middle column of Table IV-1. If no new highway and transit capacity are constructed, the year 2030 performance would become unacceptable. The total p.m. peak period delay on the highway system, a measure of congestion, would increase from 42,000 hours in 2001 to more than 400,000 hours in 2030. Transit ridership would increase only marginally because the incomplete transit system would not provide an attractive alternative to the automobile. Driven primarily by the independent growth in regional population and employment, and in spite of worsening congestion, vehicle miles of travel (VMT) would continue to increase.

The results of assigning 2030 travel demand on the highway and transit network found in the 2008 Transportation Improvement Program are shown in the last column of Table IV-1. Transit travel would almost double due to projects included in the Wasatch Front Regional Council 2004-2008 Transportation Improvement Program (TIP).

Table IV-1

WASATCH FRONT URBAN AREA TRAVEL DEMAND SUMMARY

EVALUATION CATEGORY	2001	2030 Demand on 2001 Network	2030 Demand on 2008 TIP
Average Weekday Vehicle Miles Traveled	34,500,000	57,000,000	58,000,000
Average Weekday Total PM Peak Period Delay (Vehicle Hours)	42,311	408,410	291,352
Average Weekday PM Peak Period Highway Speeds (miles per hour)	32.95	17.79	21.27
Average Weekday Transit Ridership (Linked Trips)	67,754	85,325	121,059
Average Weekday Transit Percentage of Home Based Work Trips	3.53	2.53	3.77
Peak Bus Transit Service Miles*	23,987	23,987	32,940
Daily Total Bus Service Miles*	49,154	49,154	69,729
Peak Rail Transit Service Miles*	729	729	2,767
Daily Total Rail Service Mile*	1,896	1,896	7,194
Freeway Lane Miles	977	977	1,086
Arterial Lane Miles	3,401	3,401	3,513
Population	1,367,800	2,139,300	2,139,300

* Includes Utah County

Still, congestion on highways again would be unacceptable: p.m. peak period delay would increase by seven times from 42 thousand hours to almost 300 thousand hours. The performance measures in Table IV-1 clearly demonstrate the need for transportation improvements. The regional need for the complete 2030 LRP Update is also explained by analyzing the regional goals listed in Table IV-2 below.

Table IV-2

**WASATCH FRONT URBAN AREA
2030 LRP UPDATE GOALS AND ANALYSIS**

GOAL	ANALYSIS
1. Provide a balanced, interconnected transportation system with a range of convenient, efficient, and economical choices.	The existing system is unbalanced between modes. The transit and highway systems and connections are incomplete. The 2030 LRP Update is needed to add connections and provide choices.
2. Increase transportation mobility and accessibility for both persons and freight, thus promoting economic vitality in the region.	Without increases in transportation supply, travel time and accessibility degrade significantly under the weight of increasing demand.
3. Increase transportation safety and security for all modes of travel.	Increasing congestion can reduce the severity of auto accidents, but the number of accidents will likely increase and emergency response times will also increase. Security can likewise be degraded by congestion and lack of access.
4. Provide a transportation system that both protects and enhances the environment, promotes energy conservation, and improves the quality of life.	Emissions generally decrease with higher speeds and less energy is consumed per mile when congestion is relieved. Sensitive environmental areas will be impacted as the 2030 LRP Update is implemented, but these impacts can be mitigated. Enhancements to the transportation system will relieve congestion and provide alternatives for travel and improve the region's quality of life.
5. Protect existing and future transportation systems through ongoing maintenance, preservation, or reconstruction.	Maintenance, preservation, and reconstruction of highway and transit facilities would continue.

The growth in person-trips anticipated throughout the Wasatch Front Urban Region will concentrate in north Davis County and southern and western portions of Salt Lake County. The charts shown in Figures IV-1 through IV-8, and indexed in Map IV-1, support this conclusion.

Figure IV-1

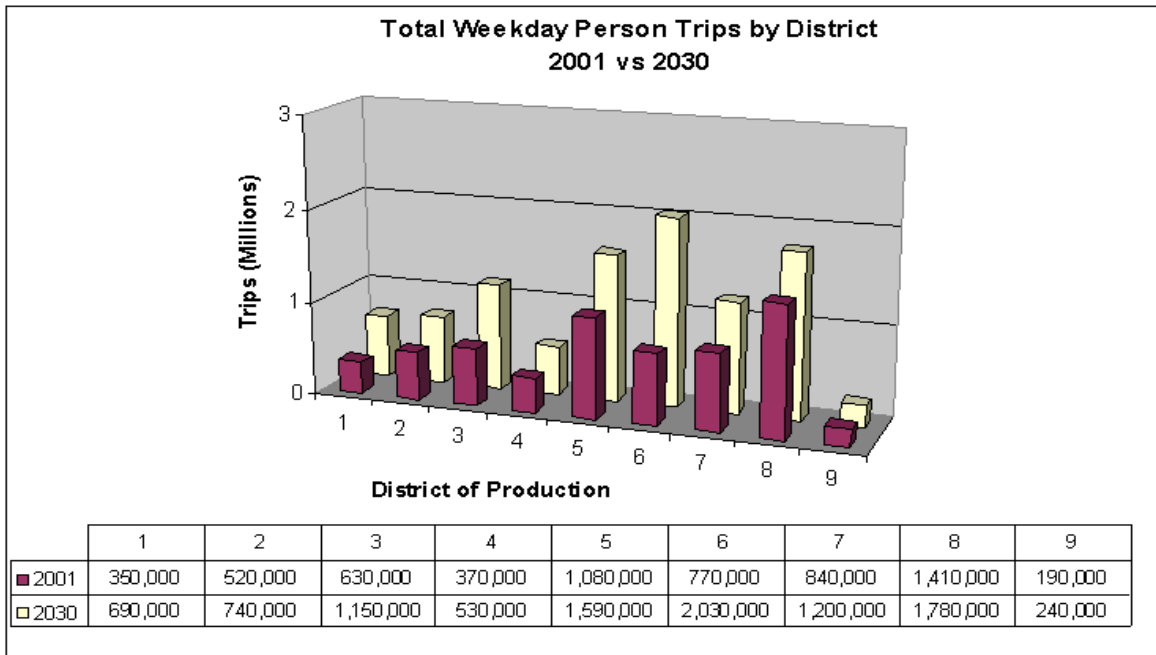
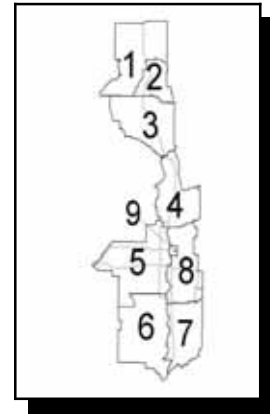


Figure IV-2

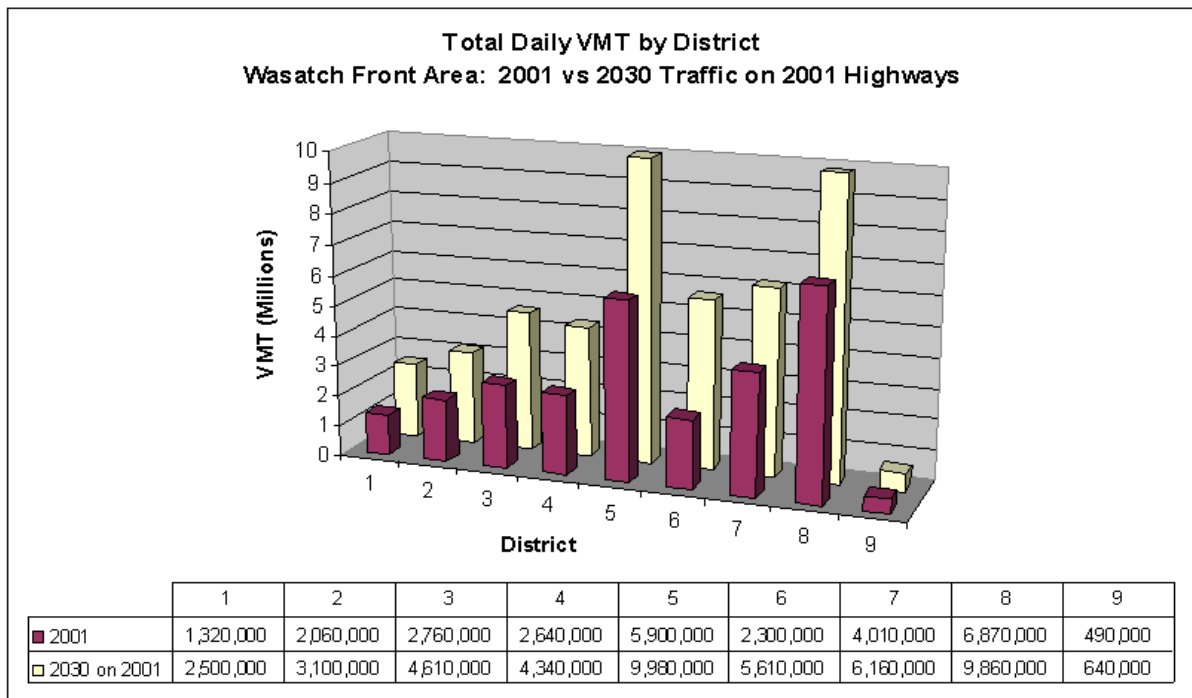
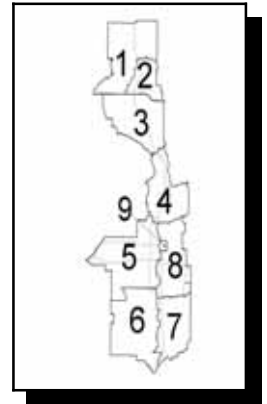


Figure IV-3

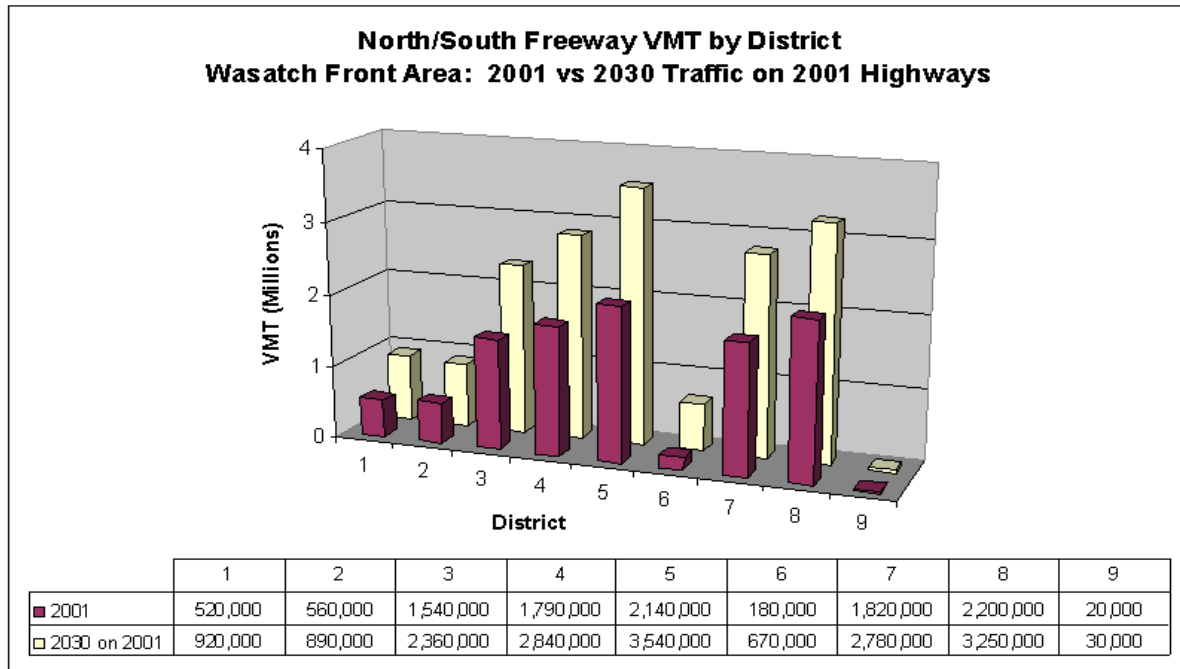


Figure IV-4

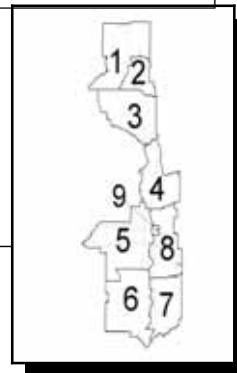
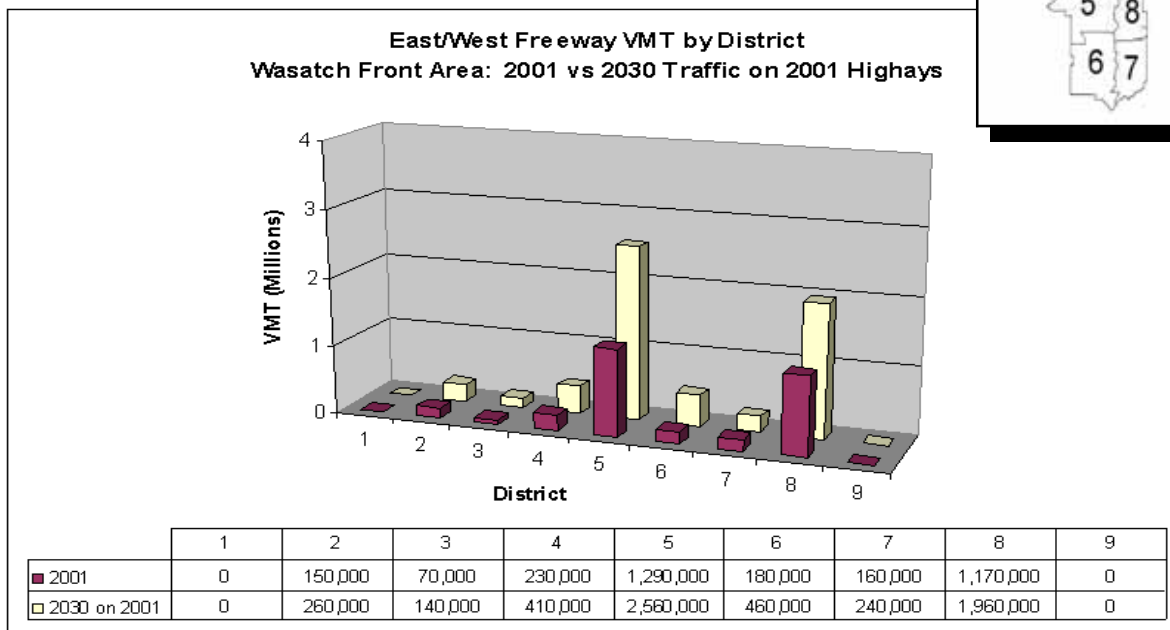


Figure IV-5

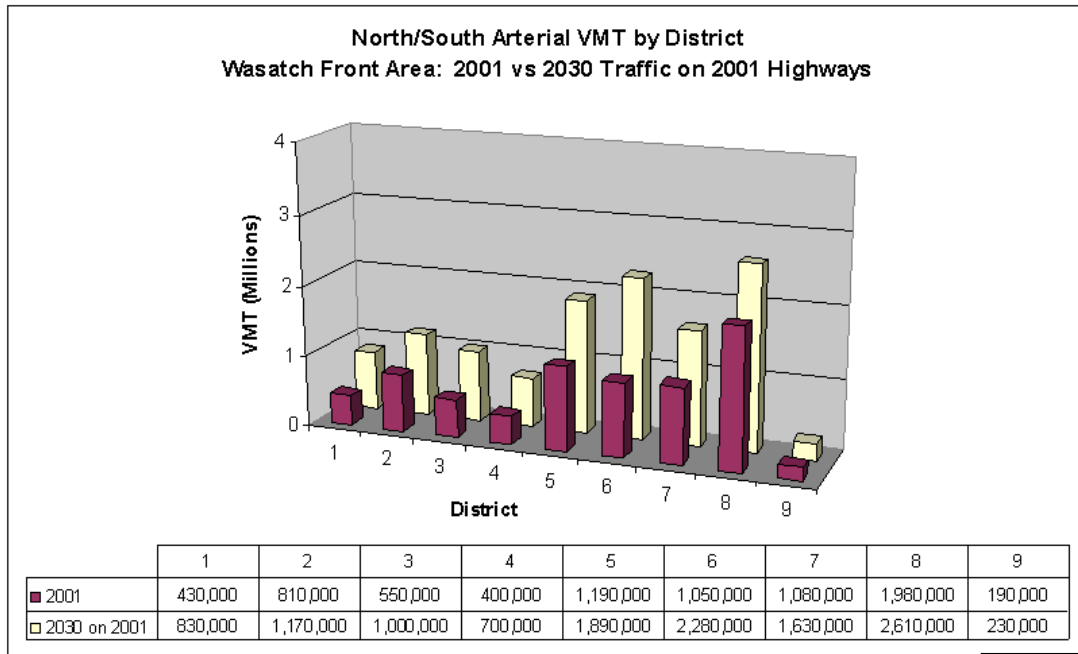


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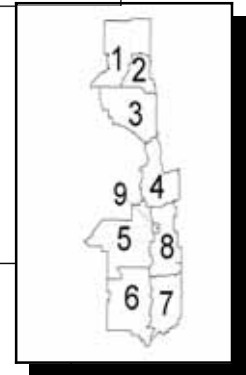
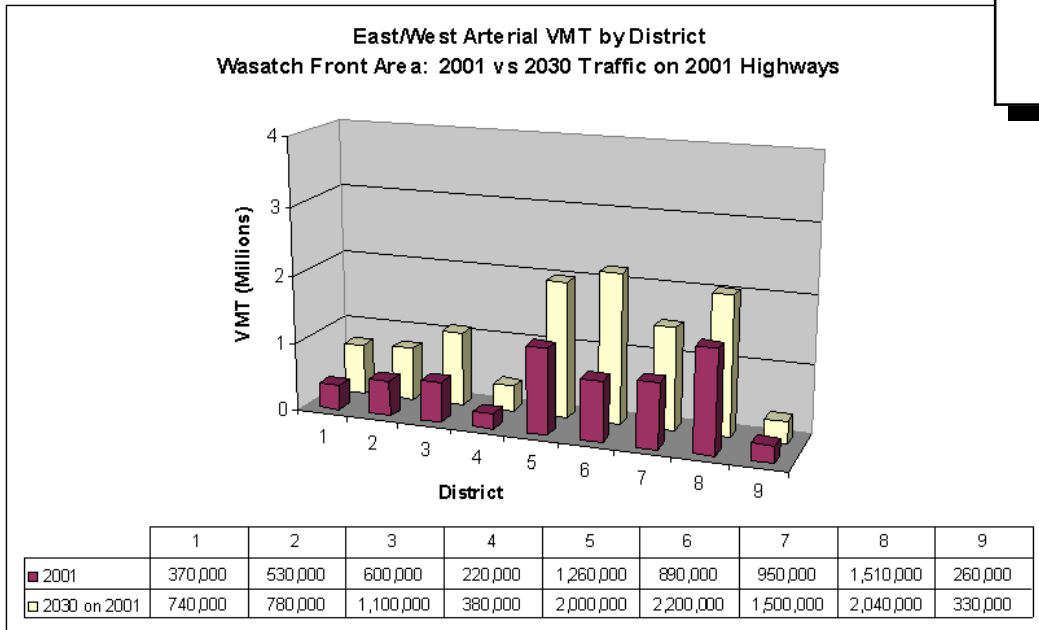


Figure IV-7

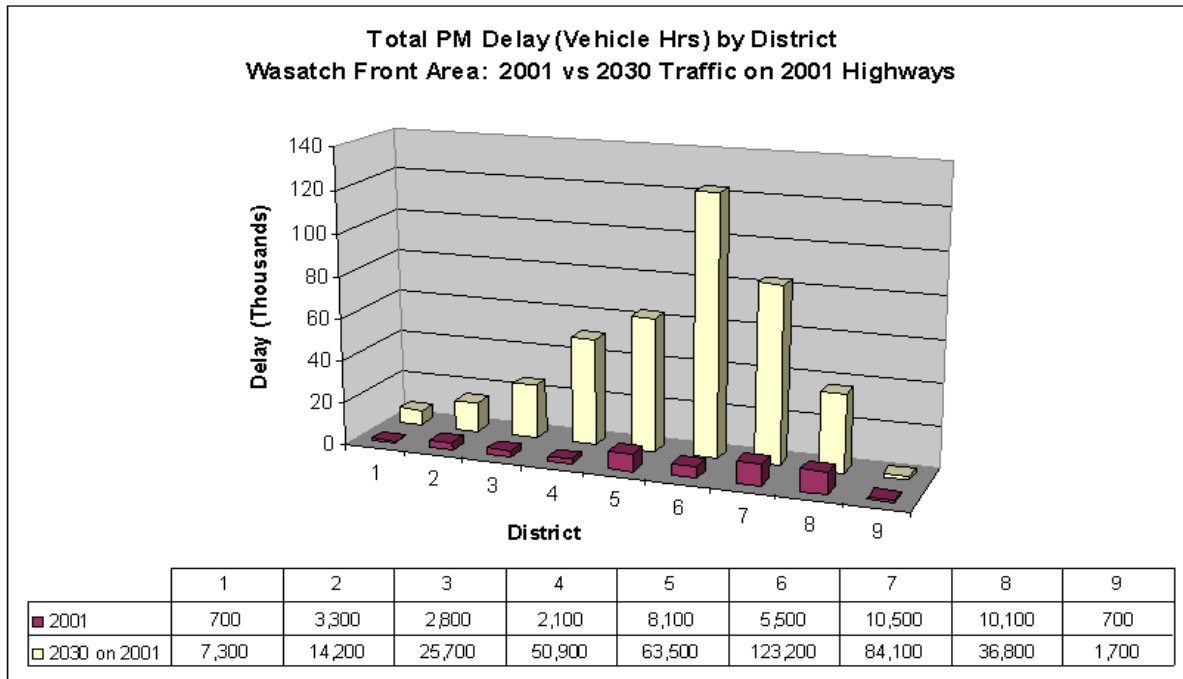
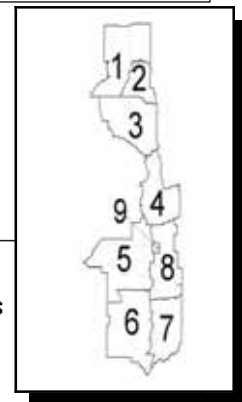
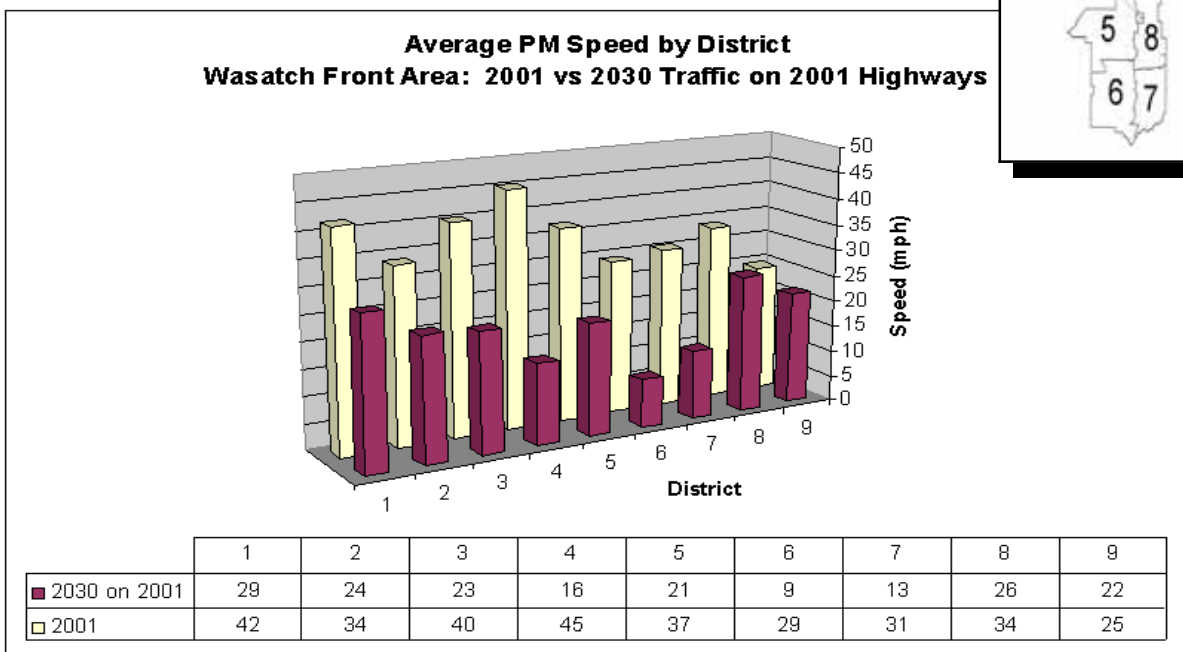


Figure IV-8



HIGHWAY IMPROVEMENT NEEDS

Since the private vehicle continues to be the most frequently used mode of travel in the region, the increase in person-trips translates primarily into growth in number of vehicle miles of travel. Highway improvement needs are assessed by inputting projected 2030 socioeconomic data into the travel demand model, which generates the number of trips anticipated throughout the region. These resulting trips are assigned to the network of roads as identified in the 2001 highway network. Using the 2001 highway network with 2030 socioeconomic input data will illustrate the Wasatch Front's future travel needs based solely on population and employment growth, as if no highway improvements were scheduled.

Projected Travel Demand

Based on the method described above, VMT in the Wasatch Front area are expected to grow from 34,500,000 in 2001 to 57,000,000 in 2030, an increase of 63 percent. Due to the linear geographic configuration of the region, the strongest growth in VMT will be on north-south freeways and east-west arterials in all three counties.

Salt Lake County can also expect a significant increase in travel demand on arterial streets in all directions in the southern and western portions of the County. Total east-west VMT throughout the western half of Salt Lake County will increase by about 3.5 million, an increase of 95 percent, while north-south VMT will increase by 3.8 million, an increase of 83 percent. Although there are large percentage increases for several categories in Davis and Weber Counties, the absolute growth is more significant for north-south travel. The large increases in east-west arterial VMT can likely be attributed to travel toward the north-south freeways. For VMT growth in the Wasatch Front Urban Region on the district level, broken down by direction and road type, see Figures IV-2 through IV-6.

Potential Congested Locations

The growth in VMT discussed above helps to identify where the highway system will need to be improved to better facilitate travel for the Wasatch Front's growing population. Analyzing delay and speed on roads will also indicate where highway capacity, if it remains as it was in 2001, will not support the increased volume of vehicles. The largest percentage of VMT growth is found in the southwest portion of Salt Lake County and it should be expected that delay and speed should be negatively affected in that area. The increases in PM travel delay by district between 2001 and 2030 and the corresponding decreases in average PM peak speeds by district are graphically displayed in Figures IV-7 and IV-8. The figures illustrate that the largest differences occur in southern Davis County and southwest Salt Lake County. A primary reason this would be sensible is because these districts contain the county lines into Davis, Salt Lake, and Utah County.

Mobility is hindered to an unacceptable degree when volumes approach or exceed capacity. Map VII-1, located on Page 139 in Chapter VII - Plan Impacts And Evaluation, shows ranges of volume to capacity (V/C) ratios in 2001 after reconstruction of I-15 through much of Salt Lake County. These ratios reflect conditions during the PM peak period on a typical weekday. While the modeled values may not be exact on a specific section, they give a good indication of corridors where congestion exists. Unacceptable levels of congestion are identified by red lines and travel on some of the road sections in green is also

experiencing unacceptable congestion. Map IV-2 illustrates congestion levels if by 2030 only the highway and transit projects in the 2004-2008 Transportation Improvement Program were constructed. This map points out specific corridors where additional capacity is needed to meet the travel demand of the projected population and employment in 2030.

In Weber County, high congestion levels are found downtown, around Riverdale Road development, near Weber State University, and on accesses to I-15. Red on the freeways is driven in part by continued growth in inter-county travel, while red in the outlying areas of suburban development indicate a need to complete the arterial system. Again, Map IV-2 highlights the difficulty in traveling on east-west arterials in the southwestern area of the county. Similar hardships would be found in nearby northwest Davis County. Congestion would significantly increase the time required to reach and return from I-15 and major activity and employment centers near I-15. Traveling on I-15 itself to and from Weber and Salt Lake Counties would be much slower also. The main north-south freeway does not look much better in Salt Lake County. In addition, virtually every arterial in the southern and western sections of that county would experience severe congestion. Access to the airport, downtown, and the University of Utah would also be difficult. Based on the above information, highway needs over the next 30 years include:

Weber County Needs

- Improve east-west travel in southwest Weber County
- Increase north-south capacity to serve the growth in travel between counties
- Improve access to major traffic generators, including Weber State University, McKay-Dee Hospital Center, Ogden Central Business District, Business Depot Ogden, and Newgate Mall
- Provide better access to I-15
- Complete the arterial street system

Davis County Needs

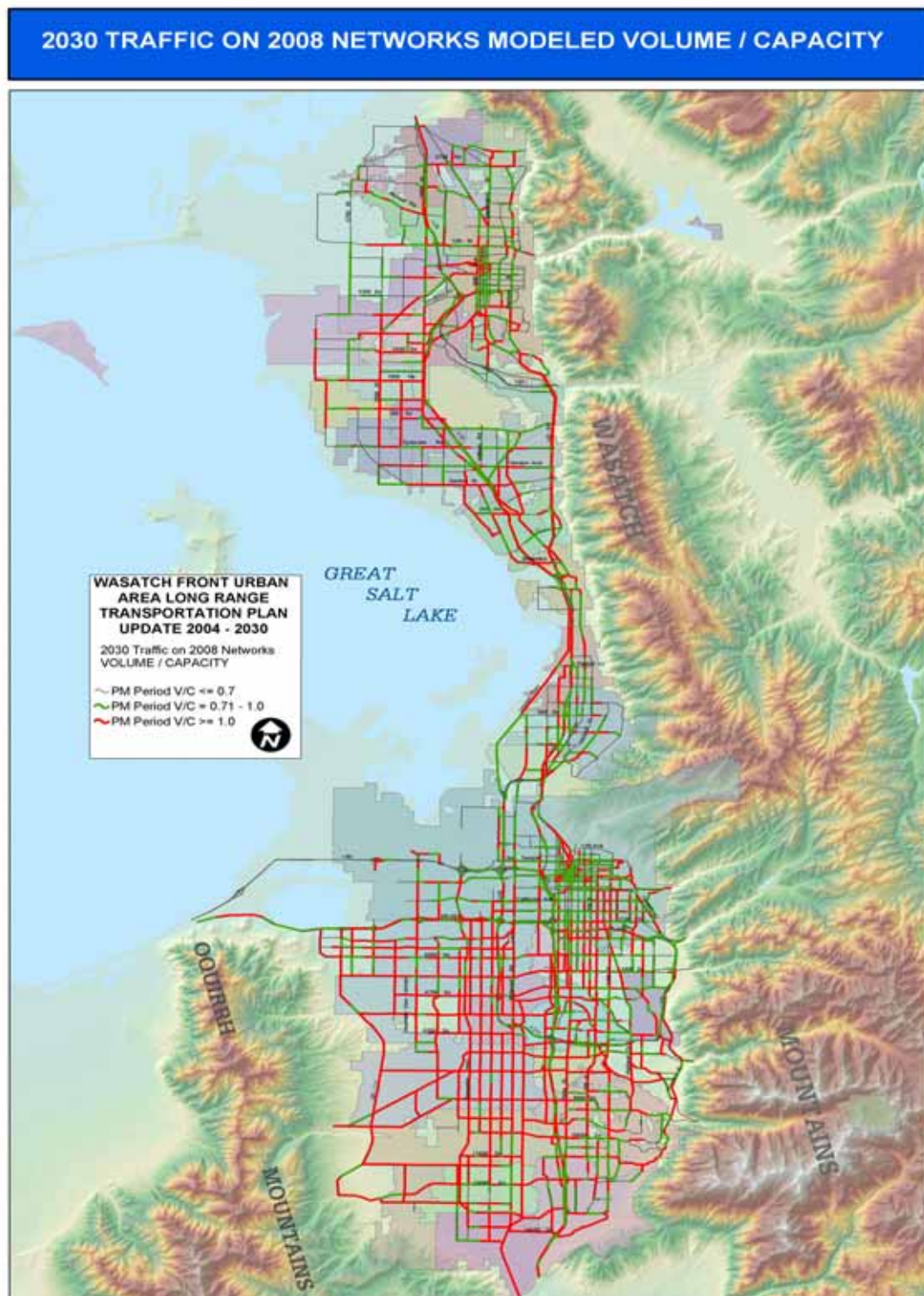
- Provide increased capacity for east-west travel in northwest Davis County
- Increase north-south capacity to serve the growth in travel between counties
- Improve access to major traffic generators, including Hill Air Force Base, Clearfield Freeport Center, and Layton Hills Mall
- Provide better access to I-15
- Complete the arterial street system

Salt Lake County Needs

- Provide increased capacity for east-west and north-south travel in southern/ western Salt Lake County
- Increase north-south capacity to serve the growth in travel between counties
- Complete the arterial street system
- Improve access to major traffic generators, including Salt Lake Central Business District, University of Utah area, Salt Lake International Airport, several malls, and a few industrial parks.

The relative needs for individual highway capacity improvements are included in Appendix C where potential projects were rated against various criteria, including: volume to capacity ratio, hours of delay, accident rate, and proximity to hazardous waste sites, seismic zones, surface water sources, schools, railroad crossings, wetlands, crop land, and parks. These criteria were used to rank regional highway projects from an environmental, congestion, cost, and new capacity needs perspective.

Map IV-2



As the Wasatch Front Urbanized Area continues to grow, transportation demand will increase as well. The high growth in population and employment in the region has led to an even greater increase in the number of trips made. The continued growth of employment in Salt Lake County combined with the significant population growth projected for the suburban areas in south Salt Lake, Davis, and Weber Counties will result in the need for additional transportation capacity. However, the expected growth in employment in the suburban areas will also create additional demands on the local transportation system. In order to serve this demand, improvements in all segments of the transportation system including highways, transit, and other modes will need to be made. In addition, all these modes will need to be linked with all other parts of the transportation system, including railroad and airport facilities, to provide for a balanced, efficient transportation system. The Urbanized Area's multifaceted transportation demands in 2030 will need to be met by improvements to highways, transit, other modes, and intermodal facilities.

TRANSIT IMPROVEMENT NEEDS

Based on past experience, new and expanded highways will not be able to keep up with the growth in travel in the Wasatch Front Urban Area. Transit, therefore, will need to play an even bigger role in the future than it does now. Expanded transit service in the region will need to serve two primary markets:

- Persons who are dependent on transit for transportation because they lack access to an automobile or because they cannot drive.
- Persons who choose to ride transit because it is an attractive alternative to driving.

Transit Dependent Users

Transit dependent users are usually those who choose not to have multiple vehicles, low-income persons without access to an automobile, younger or older persons who cannot drive, or persons with disabilities. Serving the transit dependent travel market requires good service coverage in areas with high proportions of transit dependent residents. These areas tend to have higher than average residential densities. In addition to the areas of coverage, hours of service is also important in providing access to jobs and other services. A consistent concern of transit users and some community groups has been that evening service is inadequate and a hardship for the transit dependent. While UTA has improved night and weekend service since the approval of the transit sales tax referendum, greater efforts will be needed in the future.

Accessibility to transit service is an important need for persons with disabilities. All of UTA's current bus and rail fleet is wheelchair accessible. However, access to vehicles is only one aspect of the problem. Some persons are unable to get to the bus stop or rail station on their own. For these persons, UTA provides supplemental curb-to-curb paratransit service. As the population of persons with disabilities grows, additional accessible regular transit service, as well as paratransit service, will be needed.

The future needs of transit dependent users will likely be served primarily by UTA's bus system. While rail transit can play a role in serving their needs, it will only serve a few specific corridors. Bus service will be more convenient in providing access to transit and to major employment and other activity centers for transit dependent persons.

Transit Choice Users

Choice users are those persons who have access to an automobile for a trip, but choose to take transit. In order to attract choice users, transit must provide an attractive alternative to driving in terms of convenience, travel time, and cost. Transit choice users can be attracted to transit in travel markets with longer trip distances, congested travel conditions, and concentrated trip destinations where a higher level of transit service can be supported. Choice riders may use their automobiles to reach transit routes at park-and-ride lots. The focal points for transit routes serving choice users will be at the major activity centers in the Wasatch Front Region.

Current bus frequencies are 20-30 minutes or more in most cases. This infrequent service is especially inconvenient for most transit choice riders. It requires that the user adapt to the bus schedule or risk waiting for long periods. It also adds significant waiting time to any transfer required. Reducing time between buses on even a portion of the more heavily used routes could significantly improve service levels for transit dependent and attract new choice users with reduced waiting times.

One of the biggest challenges of basic transit service is low speeds. A regular route bus can be expected to average 12 to 15 miles per hour. Local Buses are limited by the speed of traffic, as well as the time required to stop to load and unload passengers. Higher speeds could have the double benefit of attracting new riders and reducing operating costs. Rail, Bus Rapid Transit (BRT), Enhanced Bus, and Express Buses all have proven ability to increase transit speeds and be attractive to choice transit users.

Where ridership is anticipated to be very heavy and a continuous right-of-way is available, transit speeds can be dramatically increased by implementing rail transit. Where ridership is anticipated to be heavy and congestion is anticipated to be significant, yet a continuous right-of-way is not available, BRT can realize much of the speed associated with rail by use of intermittent bus lanes to bypass spot congestion. Where ridership is anticipated to be heavy yet congestion is not anticipated to be significant, Enhanced Bus lines can offer increased speeds and many rail-like amenities that choice riders find attractive.

Corridors where these transit investments are recommended should have the following characteristics:

1. The corridor should have the Central Business District or another major regional activity center, such as a college or university, as an anchor.
2. The roadways in the corridor should be congested to allow the transit travel time to be competitive with the automobile.
3. There must be a significant enough number of trips in the corridor to justify an investment in transit.

Summary

The Wasatch Front Urban Area Long Range Transportation Plan: 2004-2030 addresses the following transit needs:

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1. Added capacity and greater efficiency to UTA's existing transit services. Several routes, including the north/south and University of Utah light rail lines and the UTA's regional express bus services, experience overcrowding on a regular basis. The north/south TRAX system needs to be upgraded to include double tracking along its entire length, more vehicles, and more parking. Major bus routes experiencing high levels of overcrowding, unreliability, and excessively slow travel times should be improved, focusing on capacity, frequency, and speed enhancements.
 2. Expanded bus service to better meet the needs of those persons dependent on transit. This expanded service should include greater area coverage to provide access to major employment centers, medical facilities, schools, and other major destinations. In addition, service on weekends and holidays and in the evening should be evaluated for further increases.
 3. Intelligent Transportation Systems (ITS) implementation to improve the efficiency and effectiveness of transit.
 4. Expanded paratransit service integrated with bus and rail service to meet the needs of persons with disabilities.
 5. Expanded frequencies on a grid of bus routes extending throughout the region. This high frequency bus service may be modified existing bus routes or new routes and take the form of limited-stop or local service as well as peak only or all day service depending upon the nature of the surrounding land uses.
 6. BRT/Enhanced Bus system creation. Create a system of BRT and Enhanced Bus lines where transit ridership and increases in transit speeds would justify such levels of investments or where higher levels of investments may be justified but a continuous right-of-way is not available.
 7. TRAX system expansion. Expansion of the TRAX light rail system where a significant enough number of transit trips is anticipated in the corridor to justify such an investment and a continuous right-of-way has been identified.
 8. Expanded inter-county service. The Utah Transit Authority's express bus service between Salt Lake and Ogden, Provo, and Tooele Cities are some of UTA's most popular routes. Future growth in the region will increase the demand for more inter-county service including Commuter Rail between Weber, Davis, Salt Lake and Utah Counties and Bus Rapid Transit from Salt Lake City to Tooele County.
 9. Intermodal centers, transit hubs, and park-and-ride lots to provide connections between transit services and other modes.

OTHER TRANSPORTATION MODE NEEDS

During the past several years, a considerable amount of attention has focused on bicycle and pedestrian facilities in the Wasatch Front Region Urban Area. There are several reasons for this interest, including the growing popularity of these activities for commuting and recreation. Typically, the bicycle and

pedestrian modes are used for relatively short distances and sometimes in conjunction with auto and transit trips. More times than not, those riding mass transit will walk to the bus stop or light rail station, and bicyclists have the opportunity to take their bicycles with them on these transit modes. Specific facilities for bicycles and pedestrians are normally provided within street rights-of-way in the form of wider roadways, shoulders, bike lanes and sidewalks. Also, separate trail facilities can be provided.

According to the 1990 Census, about 2 percent of the work trips in the region were made by walking, while about 1/2 percent were made through the use of bicycles. The demand for appropriate bicycle and pedestrian facilities has been growing. State, regional, and local policy-makers have been made increasingly aware of pedestrian/bicycle safety needs in the region, which has recently resulted in the construction of some pedestrian/bicycle bridges in areas that have been particularly hazardous, or presented a formidable barrier to non-motorized vehicles.

The primary consideration in meeting the needs of pedestrians and bicycles must be safety. Safety considerations for pedestrians include adequate sidewalks and street crossing opportunities. For bicyclists, a system of separated bikeways and designated routes on safe streets which allows free movement throughout the Wasatch Front Region is needed. School children represent a special class of pedestrians and bicyclists who require unique facilities to ensure their safety.

One of the goals of the Wasatch Urban Area Long Range Transportation Plan Update: 2004-2030 is to improve pedestrian and bicycle linkages to many of the urbanized areas' major special generators, such as the University of Utah, Weber State University, Salt Lake Community College, downtown commercial districts of Salt Lake and Ogden Cities and the malls, and major employment centers. Also, the 2030 LRP Update has provisions that will result in improved linkages from residential areas to primary and secondary schools, parks, transit facilities, and mountain recreation trail heads and other recreation facilities.

INTERMODAL FACILITY NEEDS

Intermodal facility needs are those fixed facilities that provide efficient, economical, and timely transfer of passengers and goods from one mode to another. While intermodal facilities are most noted for enabling easy transfers, they are also credited with reducing fuel consumption, mobile source air pollutants, traffic congestion, and destination parking requirements. Additionally, intermodalism is viewed as a catalyst for more deliberate land use considerations and planning.

Intermodal facilities provide connections between various modes of travel for passengers and the movement of freight. Intermodal facilities, which connect local bus service, light rail transit, rail freight, truck freight, interstate bus lines, automobiles, Amtrak, regional commuter rail, taxis, shuttles and local airport passenger and freight terminals, are increasingly important in ensuring the efficient operation of the Wasatch Front Urban Area's transportation system. While the highway system plays a key role in how many of the different modes of transportation function, intermodalism must be paramount in the development of both passengers and freight transportation systems to provide seamless transfers between various modes. ISTEA's and TEA-21's focus on intermodalism favors projects such as transit links to airports, park-and-ride lots and/or multi-modal stations that allow travelers to transfer from one mode to another.

Intermodal Railroad Freight Service

Rail transportation has been a vital transportation asset within and throughout the Wasatch Front Urban Area for over a century and continues to be a critical element to the region. The Area is served by freight and passenger rail service including the Union Pacific Railroad, Amtrak, and privately owned railroads that serve local business and industry. Union Pacific Railroad operates three separate intermodal terminals within the Wasatch Front Urban Area. The freight intermodal facilities are located in Clearfield, adjacent to the Freeport Center, on the northern limits of Salt Lake City near Beck Street, and in South Salt Lake City at approximately 2700 South and 700 West. They are unable to adequately expand these facilities and are experiencing degrading ground transport access due to the growing urban population and increasing industrial base.

As part of their agreement with the UTA to sell them several rights-of-way, Union Pacific Railroad is beginning the process to consolidate the intermodal facilities with the intention of improving efficiency. By consolidating facilities to a location that allows for expansion and provides improved access for ground transportation to the highway system, the Union Pacific Railroad would vacate significant properties near the urban centers.

Intermodal Railroad Passenger Service

Amtrak provides national rail passenger service to and from the Wasatch Front Urban Area through Salt Lake City. The station was relocated to the designated site of the Salt Lake City “Gateway” Intermodal Center.

Transit Hubs

Transit Hub designations at light rail transit stations and other key locations throughout the Wasatch Front Urban Area help increase access to LRT and other modes of public transportation. Realignment of local bus service routes through transit hubs and LRT stations provides additional opportunities for travelers to reach their destinations.

Intermodal Centers

There is a need for intermodal connections in downtown Salt Lake City and Ogden City. Both cities are served or will be served by a variety of transportation modes. Intermodal centers will provide for efficient transfer of travelers between different transportation modes. Intermodal Centers have been designated in Ogden City, Salt Lake City, and West Valley City. The centers were pursued as the most efficient means to serve the increasing travel demand to and from the Urban Areas. While all three centers are located to effectively accommodate regional commuter rail and light rail connections they also support other transportation modes including local/express/regional (Greyhound) bus service, airport/hotel shuttles, light rail transit, taxis, pedestrians, bicycles and park-and-ride lots. The essence of these centers is to make travel to and from a destination faster, more convenient, and less complicated.

Park-And-Ride Lots

Park-and-ride lots provide a reliable and convenient location for people to park and leave their vehicles, join a carpool or vanpool or to board public transportation. They facilitate the transition from single-

passenger vehicle travel to multiple passenger vehicle travel and the reduction of fuel consumption, mobile source air pollutants, traffic congestion and destination parking requirements. The strategic locations, increasing number and size of park-and-ride lots play an important role in achieving continuity of the intermodal needs of the Wasatch Front Urban Area.

Other Transit Needs

Along with the rest of the nation, the Wasatch Front Region will experience stresses in its social and infrastructure fabrics as the “Baby Boomer” population begins reaching retirement age about 2010. In addition, medical advances and the availability of new technology is also allowing people with physical and mental disabilities to live longer and to participate more fully in mainstream activities. With the lengthening of the average life span, it is fully anticipated that the population of senior citizens, augmented by the “Baby Boomers,” will grow disproportionately to the increase in overall population. It should be noted that the “frail elderly” are defined as person 75 years of age and older. It can be assumed that the need to provide accessible transit to serve their needs, along with the growing population of persons with other non-age related transportation disabilities, will increase at a rapid rate.

The Utah Transit Authority’s current system of specialized, complementary paratransit services primarily caters to persons with non-age related transportation disabilities. Persons who use these paratransit services must go through a comprehensive evaluation process to establish that they cannot functionally access or use the fixed route services. The 2030 LRP Update assumes that this situation will continue into the future.

The growing density of population along the Wasatch Front has created the conditions necessary to support an expanded fixed-rail public transit system, along with expanded bus service. All future bus, light rail, commuter rail service, and support facilities, such a rail stations, intermodal centers, and transit hubs, should be accessible and functional as defined by the Americans with Disabilities Act (ADA) Guidelines. While these services and facilities will meet the needs of many persons with mobility limitations, others with multiple cognitive and developmental disabilities will continue to need paratransit services.

These services are provided directly by UTA in Salt Lake County through its Flextrans program which utilizes specialized vans. The Weber Basin Disabled Association provides paratransit services under contract with UTA in Davis, Box Elder, and Weber Counties through a program called “HandiTrans.” The Wasatch Front Urban Area Long Range Transportation Plan Update: 2004-2030 assumes that the current arrangements for paratransit service will continue into the foreseeable future, although contractual arrangements are subject to change.

The Utah Transit Authority interfaces with its special needs clients through an advisory committee made up of persons with disabilities and their representatives. The Committee On Accessible Transportation (CAT) provides constant review of all services and concerns to assure on-going compliance with ADA guidelines. In order to plan for future needs, UTA representatives should maintain a close liaison with agencies of state and local governments that are planning for the needs of persons with physical and mental disabilities. By working together, all of the specialized transportation resources that are available to the Utah Transit Authority and client based agencies can be utilized as effectively as possible and tailored to the needs of agency clients.

FREIGHT MOVEMENT

The Wasatch Front Urban Area is an integral cog in the nation's freight network, accommodating large volumes of truck and rail traffic. Rail traffic primarily moves through the area from east-to-west, or vice versa, while trucks frequently move east-and-west and north-and-south. Rail has little presence in the north-south corridor due to the difficulty of traversing the rugged terrain in Southern Utah and Northern Arizona, such as the Grand Canyon. While approximately two-thirds of all truck movements have origins and destinations outside the Wasatch Front Region, movements within the Urban Area represent a significant percentage of vehicles on local streets.

The importance of the Wasatch Front as a freight hub, serving large local and intercity truck and rail volumes, presents many difficult planning and safety challenges which must be addressed. A critical component of safe and efficient freight movement is the need to provide and maintain adequate access to industrial areas that contain trucking, bus, rail and air freight terminals.

Truck Freight

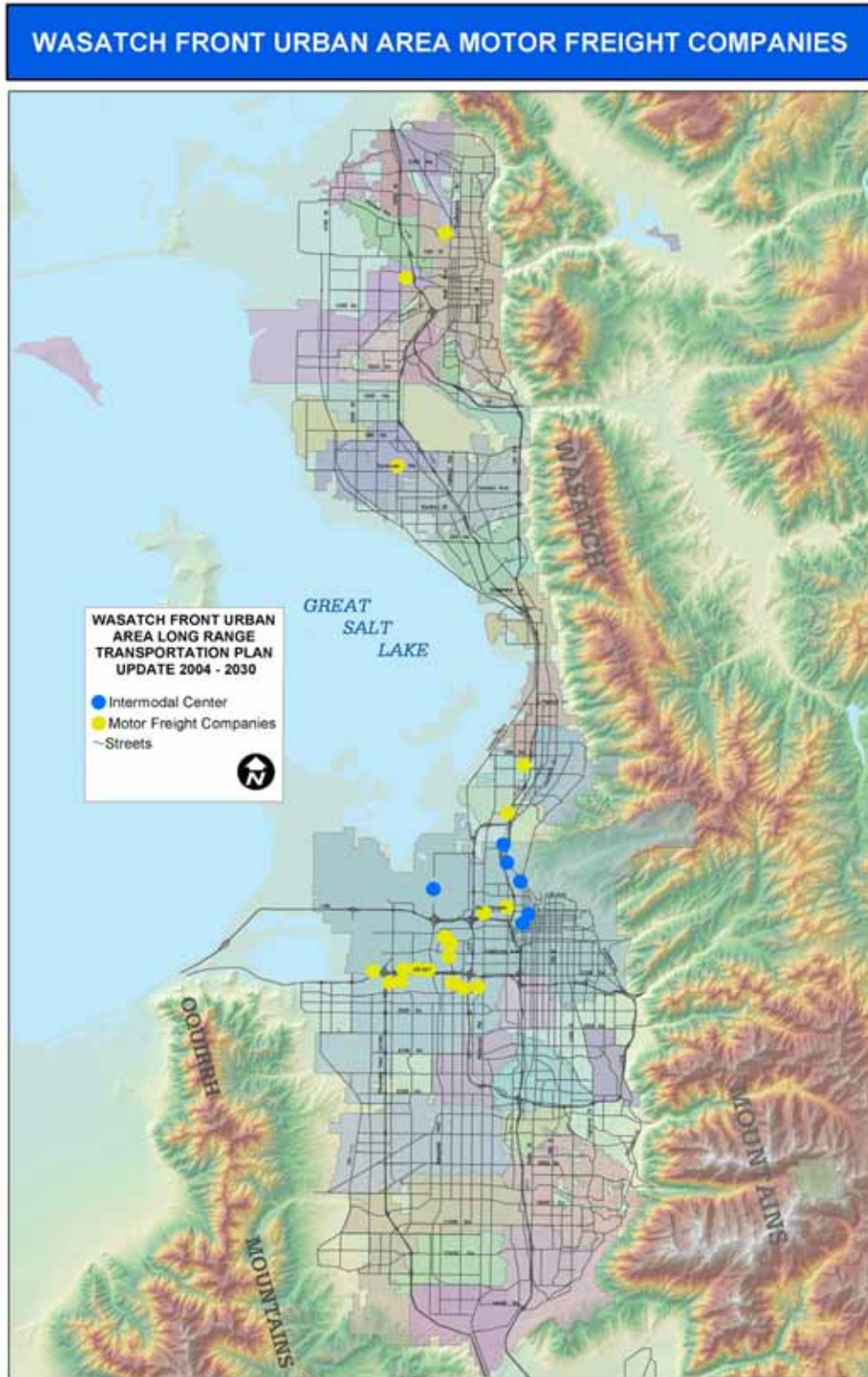
The Salt Lake Urbanized Area has numerous large trucking companies concentrated between I-80 and the 2100 South Freeway (SR-201), west of I-15. Union Pacific Railroad currently operates an intermodal center in the northern industrial section of Salt Lake City, adjacent to I-15, where containerized freight can be efficiently transferred between rail and truck and quickly transported to its next destination. The Salt Lake International Airport is located within a few miles from I-215 and I-80, nearby the Salt Lake International Center, which is a light industrial business park with a connection to the rail network. Several petroleum refineries are located along rail lines in Davis County, a location that allows quick and efficient transport of crude and refined oil.

The Ogden/Layton Urbanized Area has several important freight distribution centers and trucking companies, which serve the freight needs of the residents of the Wasatch Front and beyond, such as the Freeport Center, the Ogden Industrial Park, and Weber Industrial Park. These companies and facilities are located near I-15 and the rail lines adjacent to I-15. Other important locations, from a freight perspective, include Hill Air Force Base and the Hinckley Municipal Airport, which both have good access to I-15 and are near I-84.

The Utah Trucking Association estimates that the number of trucks delivering freight on Utah roadways is increasing 2 to 3 percent annually. The United States Census Bureau conducted nationwide commodity flow surveys of freight shippers in 1993 and 1997 and estimated that truck shipments in Utah increased by 17 percent in monetary value, by 47 percent in terms of weight and by 31 percent in terms of ton-miles, while the average trip length decreased. In other words, there are more trucks, carrying more weight and traveling shorter distances each year in Utah. There are between 1000-1200 trucking companies in Utah that are members of the Utah Trucking Association, including many privately owned lines operated by large-scale commercial interests such as K-Mart, Rite-Aid, Wal-Mart and other, similar companies. Map IV-3 shows the distribution of major motor freight companies throughout the Wasatch Front Urban Area.

In general, freight trucking companies are concerned with safety and congestion. Company management is concerned with the short-term performance of the transportation system, such as when bottlenecks occur due to construction, often resulting in service disruptions. Managers also recognize the need for

Map IV-3



long-term planning and, as such, the industry supports the development of ITS technologies to help with real-time routing. The Utah Trucking Association also supports longer-term capacity upgrades such as the proposed Legacy Highway and arterial upgrades that would facilitate movements within urban and suburban areas. The Utah Trucking Association suggests that the 2030 LRP Update might consider freight-only lanes on highways, higher size limits, speed lanes and more liberal weight limits to help individual trucks move more weight.

The Wasatch Front Urban Area Long Range Transportation Plan Update: 2004-2030 encourages the location of trucking businesses near convenient access points to the National Highway System, as well as new transportation improvements that offer alternative routes between origins and destinations for both freight shippers and other modes of transportation. Table IV-3 lists the five largest trucking companies in the Wasatch Front Urban Area, in terms of numbers of trucks operated in Utah, for full load companies. A full load company is defined as a trucking firm that sorts entire trailer loads destined for a single receiver. The four largest less-than truckload companies, or those firms that carry multiple freight destinations in a single trailer, are listed in Table IV-4. Each of these companies is located very near the National Highway System.

Table IV-3

**WASATCH FRONT URBAN AREA
LARGEST FULL LOAD TRUCKING COMPANIES**

Trucking Company	Address	Number of Employees	Number of Trucks In Utah
C.R. England, Inc.	4701 West 2100 South, West Valley City	1,000	2,500
Central Refrigerated	5175 West 2100 South, West Valley City	400	1300
Swift Transportation	3720 West 800 South, Salt Lake City	300	350
Pride Transport	5499 West 2500 South, West Valley City	321	213
Godfrey Trucking	6173 West 2100 South, West Valley City	50	80

Table IV-4

**WASATCH FRONT URBAN AREA
LESS THAN TRUCKLOAD COMPANIES**

Trucking Company	Address	Number of Employees	Number of Trucks In Utah
Motor Cargo Industries	845 West Center Street, North Salt Lake	350	650
Yellow Transportation	2410 South 2700 West, West Valley City	361	97
Link Trucking, Inc.	1235 South 3200 West, Salt Lake City	100	82
ABF Freight Systems, Inc.	55 South Redwood Road, Salt Lake City	150	40

Railroad Service

The Union Pacific Railroad is the largest rail freight operator in the Wasatch Front Region. Their acquisition of the Southern Pacific Railroad gave them control of nearly all the local rail assets. In general, Union Pacific Railroad is concerned with safety and the impact that interacting with different modes has on operations. As such, all at-grade crossings are a serious concern. Every consideration should be given to minimize the number of at-grade crossings because they hinder freight movements, pose dangerous safety hazards and interrupt vehicle and other person-trips attempting to cross the tracks at the same time. Downtown Salt Lake City also presents bothersome service disruptions, as trains have to slow to proceed through the Grant Tower area near South Temple Street. Union Pacific Railroad would like to be able to increase the speed of trains through this area to eliminate a major bottleneck in their system.

CANAMEX Corridor

In 1995 Congress designated as a high-priority transportation corridor the north-south highway corridor that includes I-15 through Utah and extends from Canada to Mexico, subsequently known as the CANAMEX Trade Corridor. Following the passage of the North American Free Trade Agreement (NAFTA), policy-makers and planners embarked on a study to identify opportunities for innovation along the CANAMEX corridor, looking for ways to develop safe and efficient multi-modal transportation facilities, enhancing global competitiveness and improving the quality of life.

The coalition leading the study identified 5 initiatives to help achieve these goals. Three of the initiatives involve bringing telecommunications investment to poorer rural communities in the corridor, integrating and increasing the promotion of attractions along the corridor, and advancing and integrating e-commerce and e-government capabilities. Two of the initiatives directly address freight issues, recognizing the importance of this freight movement in this corridor to the success of NAFTA and to the future of free trade. Due to the difficulties of moving rail cars through this corridor (particularly in northern Arizona), most freight movement that currently takes place in this corridor is by truck and the CANAMEX study focused on this reality, solely addressing trucking needs.

One initiative involves developing a smart freight corridor. This initiative would use intelligent transportation system technologies to provide service information oriented to commercial vehicle operators and motor carriers. Motor vehicles moving along the corridor would be able to find out the location of rest stops, truck stops, ports of entry, requirements at border crossings and permits, as well as real-time information on traffic conditions, construction and weather. A second initiative is the improvement of highways along the corridor to meet growing traffic needs, both by maintaining and upgrading existing facilities. Of particular relevance is the study's call for widening I-15 in Bountiful to 12 lanes and, less specifically, widening I-15 north of Ogden (to Brigham City) to accommodate what will soon be urban growth. The study advocates the construction of the Legacy Highway.

In 2001, the Smart Tourist Corridor Initiative was developed by the Multi-State CANAMEX Corridor Coalition. With the assistance of the Western Transportation Institute at Montana State University, a scope of services for development of the CANAMEX Smart Tourist Corridor Action Plan have been identified. The purpose of this initiative is to develop new tourism themes and products along the Corridor. This initiative has five elements: (1) Utilization of ITS technology and investment to enhance

the safety and quality of the tourist experience, (2) Outreach to local tourism and economic development officials to integrate local products into regional marketing programs, (3) Development of a new common branding concept, (4) Development of new tourism products in support of that branding concept, and (5) Cooperative marketing campaign based in part upon those products and concept. A report defining the Smart Tourist Corridor and operations plan for integrating transportation and emergency response services will be published in the first quarter of 2004.

AIR TRANSPORTATION

A viable system of airports is essential in promoting economic activity and the movement of goods and services to and from the Wasatch Front Urban Area. Air transportation is set to become one of the biggest economic drivers in the nation, just as the Federal Interstate Highway system was in the 1950's and 1960's. Because construction of new airports in the Wasatch Front Urban Area is infeasible, existing airports must be protected from encroachment and incompatible development. At the same time, airports must be accessible by ground transportation. Airports must be improved to take advantage of new technology and serve the air transportation and economic needs of the region, while minimizing impacts to surrounding communities. The Wasatch Front Urban Area's airports consist of the Salt Lake City International Airport, Ogden Hinckley Airport, Hill Air Force Base, Salt Lake City Airport No. 2, and Bountiful Skypark Airport.

Salt Lake City International Airport

The Salt Lake City International Airport (SLCIA) is a vital component of the state's transportation infrastructure and is the heart of the Metropolitan Airports System. The airport is located approximately five miles west of downtown Salt Lake City near the intersection of I-215 and I-80. The Salt Lake International Airport is owned by Salt Lake City and is operated by the Salt Lake City Department of Airports. The SLCIA serves the air travel needs of the majority of Utah and portions of the surrounding states of Nevada, Idaho, Wyoming, and Colorado. Since 1985, SLCIA has been classified as a large hub airport, meaning the airport enplanes more than 1 percent of the nation's total passengers. In 2000, the SLCIA ranked 24th, nationally, in passenger enplanements, while processing over 9,900,000 enplaned revenue passengers. Since 1996, changes in the Delta Airlines system have reduced the number of connecting passengers at the SLCIA slightly, while local passengers, or those with the Salt Lake City International Airport as origination or destination, have increased roughly in proportion to population growth in Utah. The net result has been a relatively constant number of total annual enplaned and deplaned passengers of approximately 19,000,000.

Air cargo consists of two types, that carried by passenger aircraft and that carried by all-cargo carriers. In term of all-cargo service, in 1999 the Salt Lake City International Airport ranked 25th nationally with 805,329 gross landed tons. This was an increase of 35.2 percent from 1994. While growth in passenger enplanements has been relatively flat during the last three years at the SLCIA, cargo enplanements have been a gradually increasing annually, although at a much slower rate than was seen during 1994 through 1997. This increase in all-cargo tonnage has, and should continue to have, a limited effect on surface routes around the airport. This is because the Salt Lake International Airport also functions as an air cargo hub, and the majority of cargo is transferred from aircraft to aircraft and does not have a local origin or destination.

The SLCIA is also the largest airport in Utah in terms of general aviation activity. The airport has over

400 general aviation aircraft based on the east side, including many large corporate jet aircraft. In 2000, the SLCIA accommodated almost 367,000 annual operations, and approximately 91,500 (25 percent) of these were by general aviation airplanes. A trend of increasing general aviation operations while commercial passenger and cargo operations have been relatively flat has continued for several years. SLCIA is expanding facilities at nearby reliever airports to accept more general aviation aircraft and operations in the future.

Airport surface access is easy and efficient for a large hub airport. Passenger access is provided from both I-80 and I-215 as well as North Temple Street and Bangeter Highway. At present, cargo facilities at the SLCIA exist on both the north and south ends of the airport. Access for air cargo facilities on the south is via the above mentioned passenger access routes. Access to the air cargo facilities on the north is via I-215 and 2200 North. All future expansion of cargo facilities at the SLCIA is planned for the north end of the airport, and roadway access to this area of the airport is excellent. Current transit service consists of a single Utah Transit Authority bus route. Local hotel shuttles, private vans, and taxicabs are also available.

Ogden Hinckley Airport

The Ogden Hinckley Airport is located approximately two miles southwest of the Ogden City center and directly alongside I-15. The airport is owned and operated by the City of Ogden. The Ogden Hinckley Airport's role in the Metropolitan Airports System is as a general aviation reliever for Salt Lake City International Airport, and the airport's service area includes Ogden and surrounding Weber and Davis Counties. The airport's location provides direct access to nearby manufacturing and recreational sites, and it is a popular refueling stop for cross country flights. The Ogden Hinckley Airport has three runways and an air traffic control tower which make it an ideal location for recreational, training and business flying. The current general aviation basing capacity exceeds 400 aircraft. A private air park is currently being developed on 26 acres along the south side of the airport, which will further expand basing capacity. The Ogden Hinckley Airport currently has approximately 285 based airplanes and experiences approximately 105,000 annual operations. Surface access to the airport is excellent. I-15 runs adjacent to the airport, and direct access is provided via Hinckley Drive. The Ogden Hinckley Airport can also be accessed easily from a number of arterial streets in the area, including 1900 West in Roy and Riverdale Road.

Hill Air Force Base

Hill Air Force Base (Hill AFB) is a major United State Department of Defense facility located in Davis County, approximately 20 miles north of Salt Lake City. Hill AFB is operated by the United States Air Force as a major Air Logistics Center and base for tactical aircraft. Hill AFB is Utah's largest single employer and is the center of Utah's \$1.4 Billion defense industry. Access to Hill AFB is good, with direct connections to I-15 on the west and Hill Field Road on the south. US Highway 89 is located approximately three miles east of Hill Air Force Base and provides important access from eastern sections of Ogden and Davis County.

Salt Lake City No. 2 Airport

Salt Lake City No. 2 is a general aviation airport located in West Jordan, approximately nine miles south of SLCIA. The airport serves as a general aviation reliever for SLCIA and is home to the Utah Army National Guard's Aviation Support Facility. This airport serves an important role in the system by providing a convenient basing location for general aviation and military aircraft. Training, recreational, business and military flight operations prevail at this airport.

Current activity at the airport is approaching 70,000 annual operations and 235 based aircraft. Although the SLCIA is expanding the Tooele Valley Airport in Erda (Tooele County), Salt Lake City Airport No.2 will continue to attract general aviation activity because of its location. Both operations and demand for basing will continue to grow, although basing will grow at a somewhat flatter rate than operations. Current basing capacity is restricted by ordinance to 400 aircraft.

Constrained airspace is a significant problem for this airport. The Utah National Guard Aviation Support Facility has expanded and become more active. Approach and departure routes for the SLCIA air carrier runways pass directly overhead. Recent amendments to the Salt Lake City Terminal Control Airspace have provided more uncontrolled airspace to the south and west of the airport. However, aviation access to this airport is still greatly affected by airspace restrictions. These restrictions will be a major challenge as operations increase in the future. A Global Positioning System (GPS) approach is available to the airport, although conflicts with SLCIA traffic often make the approach unusable during certain traffic flow conditions. This situation is similar to that between Ogden-Hinckley and Hill AFB.

This airport, located in a suburban residential area, has seen the rapid development of housing surrounding the airport. This problem may intensify as development continues in the surrounding communities, particularly West Jordan and Kearns. It is very possible that this airport may follow the trend of many other suburban airports and come under increasing pressure from the surrounding communities. Should this airport close, the Utah National Guard Facility would have to relocate (probably to Camp Williams) and new basing would be required for up to 400 general aviation airplanes. Future development plans include general maintenance and rehabilitation of existing pavements and expansion of aircraft basing facilities to accept more general aviation airplanes from SLCIA. Surface access to the airport is fair. The majority of trips originating from the east access the airport via I-15 and 6200 South or 7800 South, both of which are congested during peak travel times. Bangerter Highway provides a mid-valley access to these same east-west arterials. Widening of both roadways is currently included in the 5-year TIP.

Bountiful Skypark Airport

Bountiful Skypark Airport is a privately owned, public-use general aviation airport, located on Redwood Road in Woods Cross City. The airport is located six miles north-northeast of SLCIA. It serves the general aviation needs of northern Salt Lake County and Davis County. With over 160 based airplanes, and more than 50,000 annual operations, Bountiful Skypark Airport plays a vital role in the Metropolitan and State Airport Systems. Skypark Airport provides an economical and convenient niche for a large number of recreational and experimental aircraft and effectively relieves congestion at other Salt Lake Valley airports. Training, business basing, helicopter operations and aircraft maintenance are also present. Surface access to the airport is suitable for a facility of this size. Primary access is via Redwood Road, which connects to I-215 south of the Skypark Airport. Completion of the Legacy Parkway in the

western portion of Davis County will improve this access even further. If local business development continues in this area of Davis County, basing demand at Bountiful Skypark Airport could exceed airport capacity within the next 10 years.

PAVEMENT PRESERVATION NEEDS

In 2001, the Wasatch Front Urban Area had approximately 4,430 lane miles of freeway and arterial streets. The existing street and highway system is a critical asset to the communities of the Wasatch Region and must be maintained in a reasonable condition. Failure to do so results in significant additional vehicle maintenance costs to the traveling public and can compromise safety. In addition, inadequate maintenance results in greater overall costs when complete reconstruction becomes necessary prematurely.

Pavement condition throughout the Wasatch Front Region was rated in terms of ride smoothness, using the International Roughness Index (IRI), and distress, as per the Crack Density Index (CDI). The data were collected as part of a 1997 condition survey, using lasers and other automated equipment. The results of this survey are displayed in Figures IV-9 and IV-10 respectively. Preparations for updating this information are underway with the anticipation to collect data during 2004. This information will be distributed to local governments to assist them in the preservation of their pavements. A pavement preservation goal for the overall condition of the system is to maintain current percentages of each condition rating. Current funding levels are in the range of \$90-\$100 million each year, including maintenance, surface treatment, rehabilitation, reconstruction, and miscellaneous costs.

Figure IV-9

WASATCH FRONT URBAN AREA PAVEMENT CONDITION INTERNATIONAL ROUGHNESS INDEX

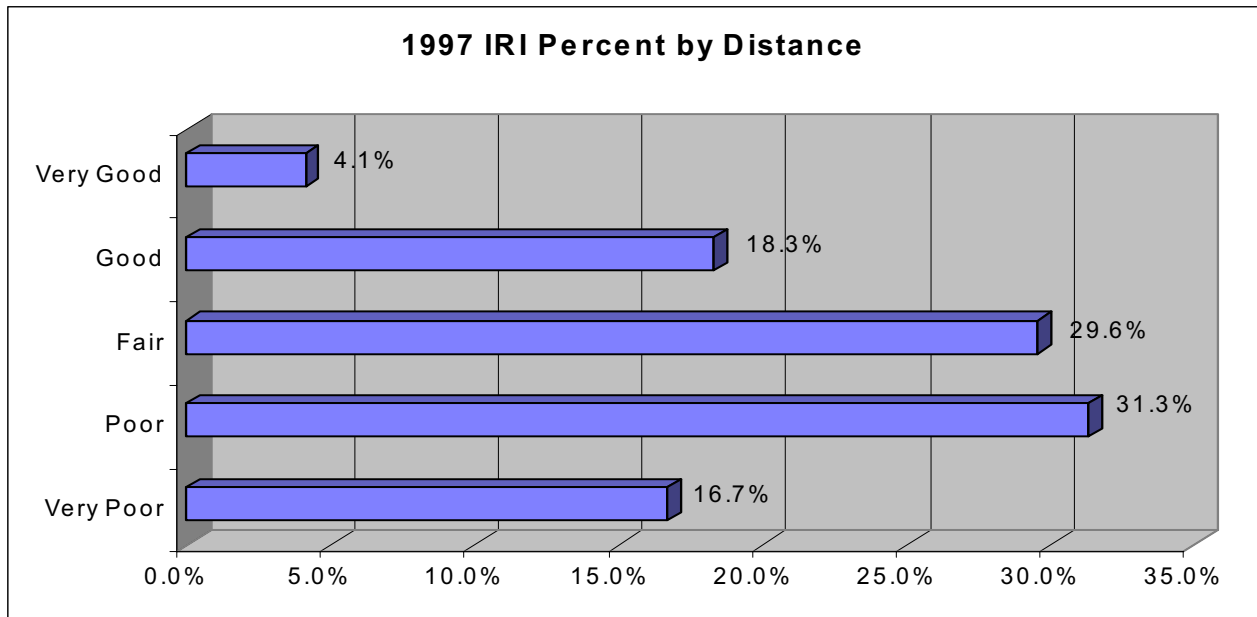


Figure IV-10

**WASATCH FRONT URBAN AREA
PAVEMENT CONDITION CRACK DENSITY INDEX**

