MAG
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TransPlan50
2019-2050 REGIONAL TRANSPORTATION PLAN

Transportation System Preservation

Appendix D

TRANSPORTATION SYSTEM MANAGEMENT

Part of providing efficient transportation infrastructure is to ensure that unnecessary obstacles to mobility are removed from the transportation system. The congruence between the regional growth principles and UDOT's three strategic goals: Zero Crashes, Injuries and Fatalities, Preserve Infrastructure, Optimize Mobility, is again reflected. This can include installing sidewalks in areas that lack them, providing handicap access, the use of traffic sensors to monitor and measure traffic, and allowing transit to operate better when interfacing with automobile traffic. Local governments also give vital support to both system and demand management. Transportation System Management (TSM) strategies include incident management, ramp metering, High Occupancy Vehicle / Toll (HOV / HOT) lanes, signal coordination, access management, and Intelligent Transportation Systems (ITS), which overlap several of the previous strategies. Most of these strategies are currently applied to some degree but need to be expanded or enhanced for greater benefit to the performance of the transportation system. Congestion mitigation measures help preserve the original design capacity of the facility. For example, a highway with numerous access points of side streets or driveways will experience diminished capacity due to side friction, accidents, and reduced speeds, which suggests a need for additional capacity; with proper access management the roadway would function as intended.

Transportation Demand Management (TDM) strategies include transit service in all forms (bus, light rail, commuter rail, and bus rapid transit), ridesharing, flextime, telecommuting, pedestrian and bicycle accommodations, growth management, and congestion pricing. Many of these strategies are currently applied as part of the existing transportation network, but increased implementation of these strategies is needed to provide better options to the traveling public and to decrease congestion levels on highways. The environmental, social, and financial consequences of only building and widening highways further point to the need to reduce the demand for single-occupant vehicle travel. The benefits to the transportation system from TSM and TDM include improved operating efficiency, preserving design capacity of existing facilities, improved safety, reduced energy consumption, and reduced emissions. These benefits stem from the improved operation of existing facilities when TSM strategies are implemented and from the reduction in vehicle trips as TDM strategies are applied.

TRANSPORTATION SYSTEM PRESERVATION

During the life of the transportation plan the network of highways, transit, pedestrian, bikeways, and other systems will evolve into an urban transportation network. Proper maintenance and preservation will maximize the life, effectiveness, and capacities of the transportation system.

Upkeep of highway pavement is in line with UDOT's strategic goal to "preserve infrastructure." One of the best ways to accomplish this objective is through a Pavement Management program. UDOT, most municipalities, and the county employ techniques to maintain their roadways.

Pavement maintenance represents one of the largest capital investments on the transportation system. This involves complex decisions about how and when to schedule resurfacing projects or when to apply other treatments to keep the highway performing while maintaining operating costs at a reasonable level. Current methods, mostly at the local level, leave these decisions up to individual road supervisors who select treatments based on extensive knowledge and experience for their local area. This method works well in low traffic areas, but as the county grows more regional strategies will be needed. A main hurdle will always be funding. There are never enough funds to complete all identified road repairs when balanced with expansion needs and other budget constraints. A well-planned regional pavement management program promotes efficiencies of shared information and of scale. A pavement management system consists of four major components:

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

Many of these systems are currently being developed and installed throughout the valley. As the regional system expands, these components can be combined with planning needs and political considerations to develop annual highway repair and preservation programs.

HIGHWAY FUNCTIONAL CLASSIFICATIONS

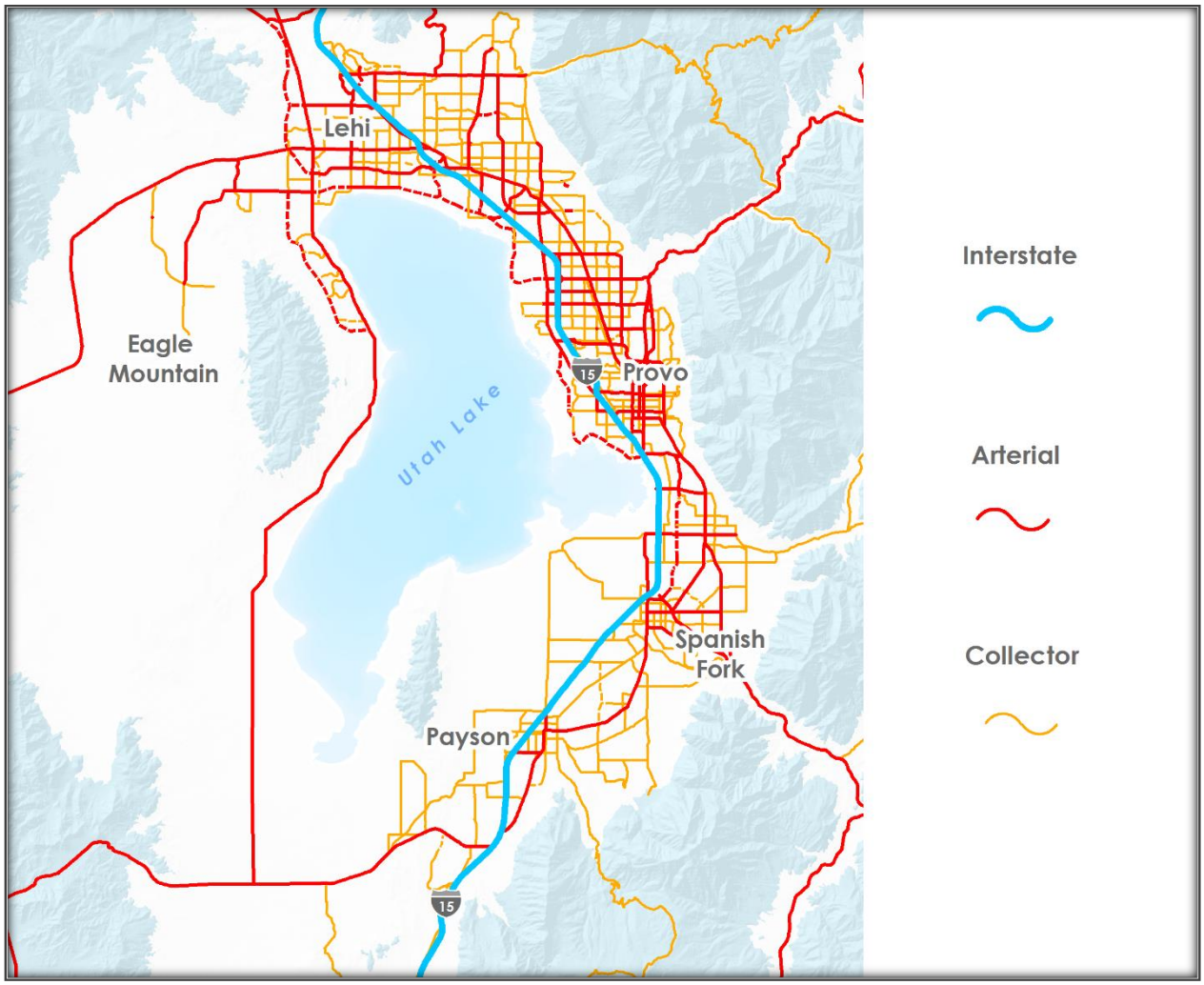
Functional classification defines the role that each street, road, and highway will play in moving traffic from trip origins to destinations. Access is best served by streets with driveways and parking spaces convenient to the individual origin or destination of each traveler. Mobility is best served by controlled access highways where there is minimum interference with the main traffic flow from side traffic. Since it is impossible to build a freeway between each origin and destination a compromise is needed, one that will provide the best practical balance between serving access and mobility.

- Freeway: provides full control of access, allowing smooth flow of through traffic with minimum disruptions by traffic entering or leaving the system. Some highways and expressways also fit within this category.
- Expressway/Highway: a high-functioning roadway with limited access and sometimes with grade separated intersections. In some cases, these roadways can mimic a freeway, but usually they have lower standards of shoulder and median widths, interchange or intersection spacing, or other design impediments.
- Principal Arterials: provide mobility but still allow access too many bordering activities.
- Minor Arterials: connect to principal arterials and carry traffic between less popular destinations and allow a greater degree of access.
- Collectors: connect scattered developments and neighborhoods while providing access to activities along their routes.
- Local: (not shown on the map) provide access to all roadside activities, homes, stores, business locations, etc. In combination the network formed by these various types of roads accommodates highway travelers.

Though the transportation plan lists only the needs of the regional highway system with a functional class of minor arterial up to a freeway, collector and local roads are important elements of the system. This plan supports the collector road system that is listed on the Utah Functional Class Road System Map and all programs that

support it. Though the capacity needs are not listed in this plan, capacity and congestion relief projects remain eligible for MPO federal funding.

Highway Functional Classification Map



REGIONALLY SIGNIFICANT CORRIDORS

This section describes the configuration and attributes of the principal highway corridors today and needed improvements within the transportation plan horizon.

I-15 Freeway: The I-15 freeway is the main lifeline in Utah County. It is only one of two north/south corridors that traverse the urban area and the only freeway. In the last 10 years the freeway reached it capacity and in 2010 underwent a major reconstruction

project called the I-15 CORE project, the largest freeway project in state history. Completed in 2012 this project reconstructed the I-15 between Spanish Fork and Lehi, with a final configuration of 12 lanes between Lehi Main Street and University Parkway in Orem and 10 lanes south to Spanish Fork. Improvements also included major ITS upgrades to better manage the system. New interchanges are proposed at Lehi 4000 N, Orem 800 S (HOV access only), Springville 1600 S, Spanish Fork Center Street, and at UC 12400 S.

Geneva Road: Geneva Road is one of three major facilities that travels between the north and central county through the choke point area of Lindon. Recently widened to 4 lanes, no improvements are needed within the plan time period.

Lehi 2100 N / SR-194: Connecting Redwood Road to I-15, Lehi 2100 N was constructed initially as the frontage road system of a future freeway connection between I-15 and Mountain View Freeway.

North County Boulevard / SR-129: This new facility was completed in 2012 and is the only major north/south arterial traversing the north county. Because the grid network of major roads is sparse here, this road with Timpanogos Highway will have high traffic demands throughout the forecast period.

Orem 800 N / SR-52: This is a major corridor providing connection between I-15, Provo Canyon, and University Avenue, which is a major corridor to Provo with access to the Wasatch Back. Currently at 6 travel lanes and a trail parkway system between Orem 400 W and 1000 E, widening is planned to continue eastward to University Avenue in the future.

Orem Center Street: This important corridor is one of the few east/west roads that connect Provo/Orem to I-15. Traffic is forecast to rise in the near future enough to warrant widening to 6 lanes between State Street and I-15.

Pioneer Crossing / SR-145: This corridor is the primary access for Eagle Mountain, Saratoga Springs, and west Lehi to I-15. Currently a four-lane highway from State Street in American Fork to SR-73 in Saratoga Springs, with six lanes near I-15, Pioneer Crossing was constructed to relieve extreme congestion on Lehi Main Street. Widening to six lanes between 2300 W Lehi and Redwood Road should occur within ten years, and studies will develop the future configurations east of Lehi.

Provo Center Street / SR-114: This is a major connection from downtown Provo to I-15. The portion between I-15 and downtown Provo was reconstructed during the I-15 CORE project and functions well through the life of the plan. It is highly congested

west of the I-15 due to high growth in western Provo and being restricted to a two-lane facility.

Redwood Road / SR-68: Redwood Road is currently the only major arterial highway connecting the two metro areas. Because of the nature of this corridor, restricted access should remain a priority. Traffic growth in this area is projected to increase sharply within the plan timeframe, warranting the construction of the parallel facility, Mountain View Freeway. No additional capacity increases are proposed for Redwood Road.

Spanish Fork Main Street / SR-156: This is a four-lane facility with congestion mainly near the I-15 interchange. Planned improvements would include ITS, congestion management, and transit improvements. New interchanges are planned north and south of the Main Street interchange at Spanish Fork Center Street and at Springville 1600 S. Both will relieve congestion on Main Street by distributing travel demands. Other north/south corridors are needed in this area to relieve future congestion on Main Street.

Springville 400 South / SR-77: This corridor is a main entrance into Springville and has become a major retail area close to I-15. The intensity of uses in the area make traffic control measures important. It is proposed to widen the road to six lanes near I-15.

Springville 1400 North / SR-75: One of two main entrance corridors to Springville, the road is near capacity, but volumes should not grow significantly in the future. Widening to four lanes is proposed in the plan, but with two railroad structures that would need to be widened or replaced, the cost to widen the road has kept it lower on funding priorities.

SR-73: Located in the highest growth area in the state, this highway is a major arterial traversing Saratoga Springs and Eagle Mountain. It also connects urban Utah County with the Tooele area. Travel growth on this corridor is high. Transplan50 proposes SR-73 first be widened to a six-lanes and eventually become a freeway with a frontage road system.

Timpanogos Highway / SR-92: This corridor was just recently expanded from its two-lane configuration to four lanes with two additional express lanes that function as a commuter connection. With these improvements, the express lanes were not connected to I-15 due to cost constraints and the need to reconstruct and reconfigure the interchange at I-15. Both projects are addressed in the plan. As the

express lanes become more popular and additional growth leads to congestion on the SR-92 mainline, expansion of the express lanes will be needed.

University Parkway / SR-265: This is a major east/west arterial road between Provo and Orem connecting both cities to the I-15 freeway. This corridor has the highest traffic volumes of any non-freeway corridor in the county with over 50,000 trips a day. It is a major commercial corridor with limited access to adjacent businesses. Major intersections are highly congested. The parkway has a six-lane configuration in most of Orem and four in Provo. The College Connector Trail, which runs parallel to the Parkway, provides a bike and pedestrian option for travel and recreation along this corridor. Recent improvements include high-frequency bus-rapid transit, and widening of the roadway to six lanes to University Avenue. Plans include constructing a grade-separated urban interchange at State Street. As with other major corridors, ITS and congestion management will be used to further mitigate congestion.

University Avenue / US-189: This principal corridor is a main thoroughfare through Provo providing important access to BYU, major shopping centers, and downtown Provo. This is also an alternate route connecting south Utah County to both Orem and Provo. University Avenue provides access to Provo Canyon and north eastern Utah and is one of the major truck routes through Utah County. University Avenue is currently six lanes south of Provo 920 S and four lanes to the north. Future projects would include reconstruction and widening of the railroad viaduct at Provo 600 S, widening the corridor north of University Parkway to Orem 800 N, and extensions of bus rapid transit. These Improvements as well as better east/west connections proposed in this plan will greatly diminish congestion on this corridor.

State Street/US 89 - I-15 Lehi to American Fork Main Street: There is currently little congestion on this segment of State Street except for individual intersections near The Meadows shopping district in American Fork. Capacity expansion is needed around The Meadows and where the corridor joins I-15 in north Lehi.

State Street / American Fork Main Street, I-15 to Lindon 200 S: This segment is the major north/south arterial road in northern Utah County. Proposals include expansion to six lanes throughout the corridor except for downtown American Fork. Due to its historic nature, expansion is not proposed. Added capacity on Pacific Drive to the north of downtown and an extension of Pacific over I-15 to Pioneer Crossing is proposed to handle travel demand.

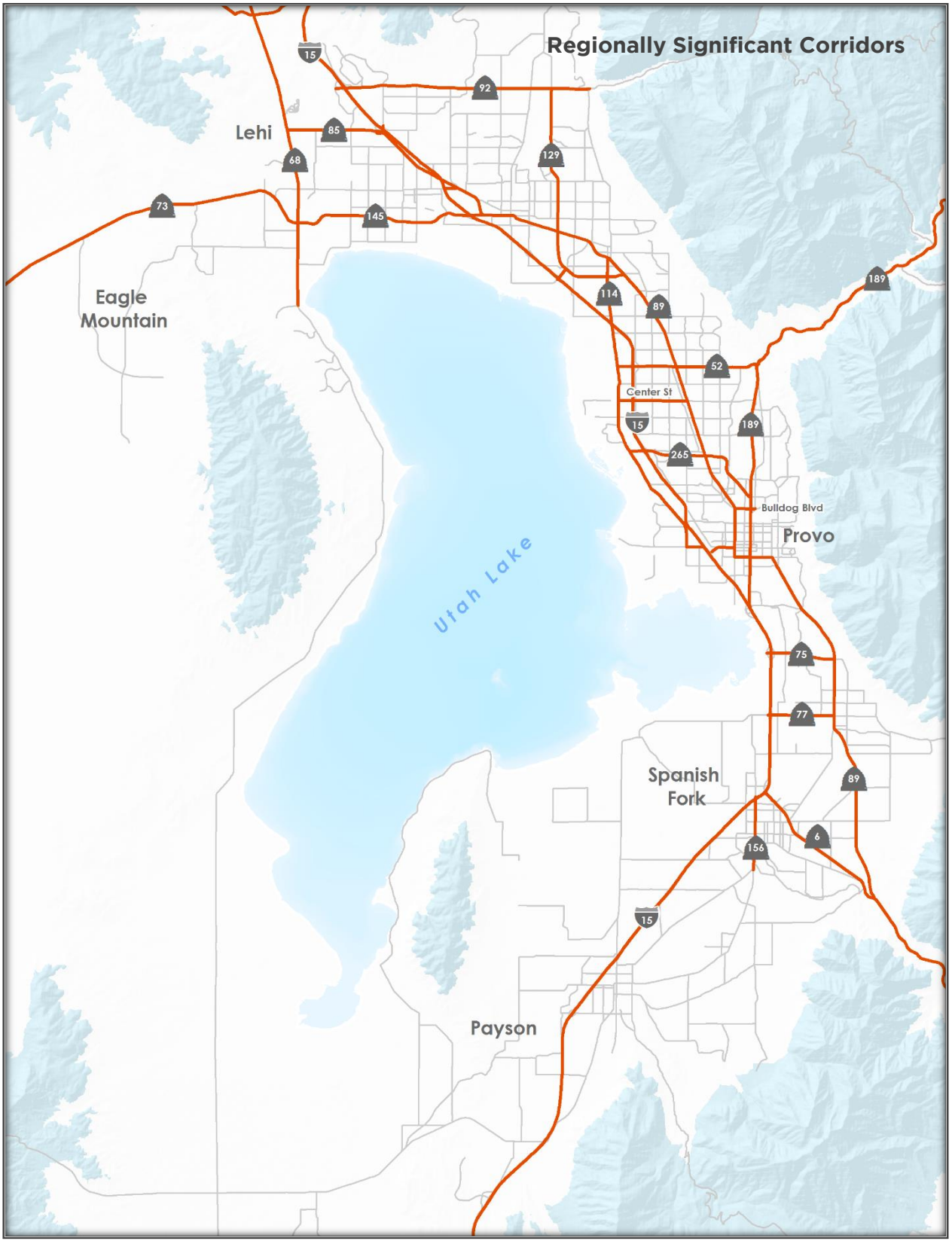
State Street/US 89 - Orem 2000 N to Bulldog Boulevard, Provo: This road is the major north/south corridor through the central urban area. Currently, about 50,000 vehicles a day travel segments of this corridor. In comparison, State Street in Salt Lake County carries 35,000 vehicles at best and no highways in the state of Utah carry over 55,000 vehicles daily that are not a freeway. The road is built out to a six-lane configuration and there are no plans to further expand this facility. Instead, congestion management methods and ITS infrastructure along with transit improvements will be used to mitigate the high traffic volumes. Improving other north/south roads though Orem as well as better east/west connectivity to I-15 in Provo would also aid in congestion relief. Orem is currently studying the future of this corridor that could include light rail or BRT, better pedestrian protections, and better access controls.

Provo 500 W - Provo 500 S to Bulldog Boulevard: This segment is one of the more congested roads in the area and is currently being rehabilitated/reconstructed by UDOT. There are no plans to further expand this facility. Other improvements would include ITS, transit, and further congestion management methods. Better east/west connections to I-15 would also relieve congestion on this corridor.

Provo 300 S - Provo 500 W to Provo 700 E: Currently with four travel lanes this corridor experiences minimal congestion. Other than reconstruction and ITS improvements, no capacity improvements are proposed.

US 89 Provo to Springville Main Street: Traversing south Provo to Springville this a four-lane highway transitions into an urban downtown facility. There are no plans to further expand this facility. Congestion management methods and ITS infrastructure along with transit improvements will be used to mitigate the traffic volumes.

US-89 Springville to Mapleton: In this segment US-89 has four-, and two-lane segments that are primarily a rural highway connecting to US-6 / Spanish Fork Canyon. Improvements are proposed to widen the road from Springville through parts of Mapleton and some improvements at the SR-51 intersection.


Regionally Significant Corridors
Lehi
Eagle Mountain
Utah Lake
Center St
Bulldog Blvd
Provo
Spanish Fork
Payson
15
92
85
68
73
145
129
114
89
52
189
265
75
77
6
156

AUTONOMOUS VEHICLES

Great strides are being taken in the area of autonomous or self- driving vehicles. UDOT has expectations that in the near future some of these vehicles will be operational on our roadways. The infrastructure to operate these in growing numbers will need to be in place to accommodate these needs. The UDOT Traffic Management Division is working to understand how to integrate autonomous vehicles safely into current traffic management programs.

CONGESTION MANAGEMENT PROCESS

A Congestion Management Program is under the direction of the MPO Technical Advisory Committee (TAC). This committee evaluates congestion problem areas, determines the possible causes of congestion, and identifies strategies to alleviate congestion and improve transportation efficiency. If congestion can be alleviated by congestion mitigation strategies alone, then these strategies will be proposed in place of capacity-increasing projects. Where additional general-purpose lanes are determined to be an appropriate strategy, congestion management strategies will be proposed along with the project. This is done to maintain the functional integrity of the additional lanes as well as to facilitate future demand management and operational improvements.

To fund congestion relief projects, MPO staff proposes congestion relief projects of regional importance that go through an evaluation process aimed at determining both the appropriate measures and regional congestion reduction benefits. The TAC reviews this list and additional proposals from sponsors to finalize a proposed program to fund. Sponsors are chosen for each project and are required to prepare a concept report. MPO staff review the reports and make recommendations to TAC for projects to fund based on a ranking process. A final list is approved containing projects and programs based on the transportation plan. See the Mountainland MPO Congestion Management Process for more information.

TRANSPORTATION SECURITY

The security of the transportation system is a national and regional priority. The focus of the MPO is to support ongoing local, state, and federal initiatives to address transportation system security and emergency preparedness planning in Utah County. The MPO continues efforts to improve the security of our regional

transportation system by working with leaders of local governments, UDOT, UTA, Utah Division of Homeland Security and various federal agencies to prepare for a regional incident.

Coordination meetings with these groups and MPO staff have identified the following security related plans, documents, and systems that currently exist.

- Mountainland Pre-Disaster Hazard Mitigation Plan
- Mountainland Interoperability Emergency Communications Plan
- Utah Division of Homeland Security (UHS) Critical Infrastructure Plan
- UHS Strategic Highway Military Plan
- Utah Traffic Operations Center
- UHS "Be Ready Utah" public information system
- UTA Transit Security Plans
- Community Emergency Management Plans

In addition to the coordination efforts, the MPO used its unique transportation modeling ability to simulate traffic for seven days following a major disaster to better understand system redundancy. As a portion of the Mountainland Pre-Disaster Hazard Mitigation Plan, staff used FEMA's HAZUS model to simulate a 7.0 earthquake along the Wasatch Front. Included in the accompanying damage assessment report is a listing of bridges that may be susceptible to potential damages and the usable capacity of those bridges at certain intervals after the event. A simple initial redundancy analysis was done to identify potential choke points in the event of a disaster.

The MPO will continue coordination with local, state, and federal agencies to improve transportation system security, integrate system security and redundancy into the project selection and construction process, and provide transportation modeling as a tool for security and emergency management planning.

TRANSIT SYSTEM

A Federal Transit Administration (FTA) analysis of national transit data conducted several years ago suggested that roughly one-quarter of the nation's bus and rail

assets are in marginal or poor condition, implying these assets are near or past their useful life or have one or more defective or deteriorated components. The proportion of assets in marginal or poor condition jumps to one-third when the analysis is limited to the nation's nine largest rail agencies (including these agencies' non-rail assets).

To this end FTA initiated a program to require transit agencies to program more funding to the maintaining of existing assets and infrastructure. There is a back log of needed maintenance nationally and this requirement has been difficult to fund especially for older systems. However, great strides have been made and ambitious efforts are underway to bring national assets to a state of good repair.

Utah County transit assets are new and in a good state of repair. MAG and UTA have planned for adequate funding to properly maintain these assets into the future. The current financial model for future projects has built in funding to provide for the perpetual system maintenance, and since the backlog of maintenance is small it will be a relatively simple program to bring other assets up to good repair.

Paratransit / Mobility: Paratransit is a service offered to persons with disabilities in the Utah Valley area and follows the Complementary Paratransit Service provision of the Americans with Disabilities Act (ADA). The service is provided by the United Way of Utah County through the direction of UTA who is responsible for mobility compliance with the ADA for the Wasatch Front. Paratransit offers transportation to persons who are prevented from using the fixed UTA routes available to the general public. Persons who are mentally, physically, or temporarily disabled may be eligible for the service. Eligible riders may ride to and from any location within the Utah Valley UTA service area. An application for determining who may be eligible can be obtained from the United Way Transportation Services of Utah County. Once a person has applied and been approved to ride the Paratransit system, they can schedule trips by calling United Way.

The future of paratransit service in Utah Valley will involve change and expansion to make it more efficient and able to keep up with the increasing demand. The future Paratransit system will need to implement the following changes.

- Replacement of older vans, coupled with UTA replacing non-wheelchair lift equipped buses with wheelchair lift equipped ones, should allow the service to remain in compliance with ADA needs and requirements. All UTA regular service buses are wheelchair lift equipped.

- Scheduling will need to be upgraded with software solutions to help keep up with future demand. Currently, all schedules are done by hand and then entered into a computer, a slow and time-consuming process. As demand for scheduling grows, this process will need to be changed. By purchasing computer-scheduling software, the process would be simplified.

- Smaller, wheelchair-lift-equipped vans for paratransit service can be used for times when demand is low or on trips that are far away from the central service area. Smaller vans have a shorter life expectancy than larger vans, but lower initial cost should make the smaller vans more viable.

The MPO supports efforts to coordinate the specialized transportation needs of seniors, disabled individuals, and eligible low-income populations. MAG will continue to maintain a Coordinated Mobility Plan as part of the Statewide Coordinated Plan prepared in partnership with UTA and other local partners to meet the requirements under SAFETEA-LU to access FTA Section 5310, JARC and New Freedom funds. Additionally, the MPO in partnership with UTA, will continue to competitively select projects, and facilitate the inclusion of those projects for funding in the Transportation Improvement Plan and Statewide Transportation Improvement Plan.

A recent emphasis has been put on local areas to learn to coordinate the method in which they provide transportation to various individuals who need special assistance by Human Service Providers. Currently each of those providers have methods of transporting their clients as needed; however, they are done in a silo of service and often are duplicative or inefficient. The Federal government has issued an initiative to coordinate and share services intended to better utilize the resources required to provide that service.

Utah County has formed its own regional coordinating council and are progressing toward a goal of integrating a coordinated approach to providing service. The goal is

to create a partnership with providers to share services. This will eliminate duplication of services and create efficiencies that will enable more service to be provided. A one-call center with coordinated dispatch would be an effective means to meet future service demands. This is detailed in the mobility plan that UTA in partnership with MAG and WFRC has prepared for the MAG area.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Intelligent Transportation Systems (ITS) uses technologies to save lives, time, and money. Communication tools such as closed-circuit television (CCTV), variable messages signs (VMS), traffic signal coordination, traffic monitoring systems, pavement sensors and weather sensors are used to provide real-time information to travelers for a safer more efficient means trips.

Highway ITS: The UDOT Traffic Management Division consolidates the Intelligent Transportation Systems (ITS) Division and the Traffic Operations Center (TOC) into one technology-oriented division. The Traffic Management Division is responsible for planning, designing, installing, operating, and maintaining advanced ITS technologies to improve transportation mobility, safety, economic prosperity, and customer satisfaction.

The Traffic Management Division has five key missions: 1.) To improve highway safety; 2.) to improve the efficiency of Utah's highways; 3.) to provide timely and accurate real-time traffic information; 4.) to facilitate cooperative public and private partnerships that integrate transportation services; and 5.) to provide customer service directly to the public on the operation of the transportation system. These services are cooperatively provided with government agency partners through the UDOT traffic management system.

Services provided by the Traffic Management Division include computer-controlled coordinated traffic signals, management of traffic incidents on state highways, operation of ramp meters on I-15, control of electronic variable message signs, operation of the state's 511 traveler information telephone system, and the traffic website at **www.udot.utah.gov/traffic**. The Division provides outstanding transportation service using advanced technology.

It is estimated that “non-recurring” congestion, such as that caused by traffic accidents, highway construction, or weather conditions, account for about 50 percent of traffic congestion in the region. Intelligent Transportation Systems (ITS) are a vital tool to manage the effects of non-recurring congestion. One element of these systems includes dynamic message signs to alert motorists of upcoming incidents so that they can take an alternate route. Communication systems to speedily alert emergency management providers, traffic control centers, dispatch, incident management personnel, the media, and others about incidents are also part of ITS. Detectors and cameras aid in verifying and managing these situations. The ability to implement prepackaged signal timing plans to respond to traffic changes from incidents is another aspect of ITS.

ITS can also be used to better manage recurring congestion, such as occurs during weekday peak commuting times. This is accomplished through means such as signal timing plans on arterial streets and ramp metering to improve freeway traffic flow. Coordinating signals can reduce delays by 20 to 30 percent and already more than 80 percent of the signals in the entire state are connected to one shared system managed out of UDOT's Traffic Operations Center. Ramp metering also has significant effects in decreasing delay on the mainline of I-15, however, they are currently used only in peak commute times.

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

The success of ITS is due in part to public agencies working together for a seamless transportation system. Some of the agency partnerships include UDOT, Utah Transit Authority (UTA), Salt Lake City, Salt Lake County, Wasatch Front Regional Council (WFRC), Mountainland Association of Governments (MAG), Department of Public Safety (DPS), Federal Highway Administration, and the Federal Transit Authority.

The following are examples of ITS projects that have been and are being planned for further deployment in the MPO planning area.

- Closed Circuit Fiber-optic Camera Surveillance: provides real-time picture of highway conditions and incidents on routes throughout the highway system.

- Advanced Rail Crossing Warning: alerts drivers of a blocked rail crossing well in advance so that the driver may take an alternate route.

- Traffic Monitoring Stations: provides vital, real-time information about traffic volumes and speeds. By providing real-time information, travelers have an opportunity to adjust their route, time of travel, or mode of travel to avoid delays.

- Road Weather Information System: provides real-time information on weather and pavement conditions that can then be relayed to the traveling public.

- Variable Message Signs: provide the traveling public with information about road conditions ahead so the driver can take appropriate action.

- Highway Advisory Radio: provides traveling public advice about road and weather conditions via a car radio frequency.

- 511 Traveler Information Hotline: Voice-activated phone system that delivers real-time information on construction and maintenance projects, road closures, major delays, special events, weather and road conditions, and transit operations.

- Transportation Information Website and Apps: provide real-time information on construction and maintenance projects, road closures, major delays, special events, weather and road conditions, and transit operations.

- Hazardous Materials Management: a computerized model that provides information about the movement of hazardous materials through the area.

INTELLIGENT TRANSIT

UTA will need to adapt to new and innovative trends both in technology and socioeconomic growth and anticipate their impacts on the transportation and transit system. There are a multitude of developments surfacing today, including everything from intelligent vehicle technology with real time vehicle location technology to alternative fuels to roadways with built-in traffic management systems.

Transit ITS

- Transit On-board Passenger Counting System: Provides vital information about passenger boarding and alighting by location and time of day.

- Electronic Reader Boards: Located at train stations and at key bus stops, they give arrival times and traveler information for incoming buses and trains.

- Traffic Signal Interconnect Projects: Link traffic signals to allow better signal coordination along main corridors and better access to update signal timing plans.

- Transit Signal Priority: Pairing buses with traffic signals where if the bus is running behind schedule the green time in the signal will be extended slightly to allow the bus to pass through the intersection and allow it time to catch up to its schedule thereby increasing the reliability of the transit system. This is currently implemented on the recently opened UVX line.

Also requiring consideration is the revolutionary world of mobile technology, so widely used today. Mobile technology offers ease of access to information which provides options about work location and influences commute patterns and even new options about modes of travel, trip origin and destinations, and travel times available in any given area. Bike sharing, electric scooter sharing, van pool, ridesharing and ride hailing services are evolving services that will need to be integrated with transit to keep today's customers and attract new users in the future. UTA will begin testing demand response service using a contracted carrier in south Salt Lake County this year that might be a good method of expansion of service to areas that can't justify the cost of fixed route bus service.

TRANSPORTATION ALTERNATIVE PROGRAM

Mountainland and UDOT manage the Transportation Alternative Program (TAP) within the MPO area. TAP funds are concentrated on active transportation projects. Recently funded and completed projects in the MAG MPO using all MPO federal funds include:

- Provo University Ave Greenway Extension, US-189
- Provo River Bridge Replacement
- Historic Union Pacific Rail Trail, Lehi
- Point of the Mountain Trail, Draper
- Construct Sidewalks on SR-198 in south Payson
- Pony Express Trail, Eagle Mountain
- Widen shoulders on US-89; Springville to Provo
- Art Dye Trail, American Fork
- Lindon Heritage Trail
- Murdock Canal Trail
- Murdock Canal/Jordan River Trail Connector
- South State Street, Provo Ped Improvements
- Mapleton Lateral Canal Parkway Trail
- Spanish Fork River Trail
- Lehi 700 South Cycle Track

UTA, the transit service provider and FTA grant recipient for this MPO, spends 1% of FTA funds on transit enhancement activities including: bus shelters, ADA compliant surfacing, bike lockers, bike racks on buses, etc.

In addition, to these formal funding programs the MPO analyzes each new capacity project during the plan development for opportunities to enhance the planned capacity projects with bicycle/pedestrian community enhancements (e.g. adding shoulders for bike commuting, safe routes to school considerations), community and environmental impact reduction (e.g. sound walls, historic preservation) and transit system enhancements (e.g. bike racks on buses bike lockers.)