



**MAG**

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# TransPlan50

2019-2050 REGIONAL TRANSPORTATION PLAN



# Transportation Systems Performance

Appendix C



## **TRANSPORTATION SYSTEMS PERFORMANCE**

During the development of this plan, MAG has worked to develop a performance-based planning effort that meets or exceeds those required by existing regulations. The direct results of those efforts are the following three sets of performance measures.

Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act provide a performance management framework for state Departments of Transportation, transit agencies, and MPOs to assess and monitor the performance of the transportation system. Seven national performance goals for the Federal-aid highway program and two national performance goals for transit agencies were created. Each DOT, transit agency, and MPO is required to coordinate together to set performance targets and report on progress toward meeting national goals and agency targets.

TransPlan50 should help the DOTs and transit agencies make progress toward achieving performance targets. Each of these measure and targets mesh with statewide goals and MAG's local goals. These goals were the basis of the creation of this plan.

## **FEDERAL PERFORMANCE MEASURES**

Federal performance measures as required by MAP 21 are grouped in to into several categories. Each category contains multiple measures. MAG and its partners have developed a coordinated effort to collect data, measure outcomes and set targets for each measure.

The purpose of these measures and targets are to help make more informed transportation decisions. TransPlan50 is the first time these measures have been implemented within the region. However, moving forward, programming and future transportation plans will lean heavily on the results of these measures.

**Highway Safety:** It is assumed that as roadways are built or reconstructed that safety will improve on those facilities. Further, the State of Utah is expected to invest \$896 million in safety improvements between 2019 and 2050. Additionally, it is assumed



that future transit projects would be built and operated to include safety features such as well-lit shelters, sidewalk bulb outs, and marked pedestrian crossings. Increased use of bicycle and pedestrian facilities is a result of safe, user-friendly streets as well.

**Highway Infrastructure:** Preserving what we have and making it work better is a MAG goal. Projects have been developed with attention to state of good repair. Also, communities need to build into their maintenance budgets preservation of active transportation facilities such as sidewalks and shared use paths. Many on-street facilities, such as buffered bike lanes, will be considered as part of roadway pavement width maintenance. However, even in those cases, upkeep of painted markings and signage must also be factored into the cost of maintaining good infrastructure.

**Highway System Reliability:** System performance and reliability is a focus of TransPlan50. Projects have been selected in order to maintain, as much as possible, current conditions while accommodating anticipated growth. Reliability is directly tied to the congestion of the system, and as such, congestion-related measures are integrated into the performance-based planning of the plan.

**Freight Movement and Economic Vitality:** Access to economic opportunities is a vital aspect of any region and freight considerations have been incorporated into the project selection and project prioritization of TransPlan50. The plan is aligned closely with the UDOT Freight Plan, incorporating projects from the Freight Plan into TransPlan50.



Table 1   Federal Highway Performance Measures		Statewide Target <sup>1</sup>	Reported
<b>Safety<sup>2</sup></b>			
Number of fatalities		≤ 271	262
Fatality rate per 100 million vehicle miles traveled		≤ 0.91	1.34
Number of serious injuries		≤ 1,445	1,412
Serious injury rate per 100 million vehicle miles traveled		≤ 4.87	7.03
Number of non-motorized fatalities		≤ 46	46
Number of non-motorized serious injuries		≤ 162	166
<b>Infrastructure<sup>3</sup></b>			
Percent of pavement on Interstate System in good condition		> 60%	62%
Percent of pavement on Interstate System in poor condition		< 5%	3%
Percent of pavement on non-Interstate NHS in good condition		> 35%	41%
Percent of pavement on non-Interstate NHS in poor condition		< 5%	3%
Percent of NHS bridges classified as in good condition		> 40%	55%
Percentage of NHS bridges classified in poor condition		< 10%	<1%
<b>System Reliability</b>			
Percent of person miles traveled on Interstate System that are reliable	2-yr target	> 85%	82% <sup>4</sup>
	4-yr target	> 90%	
Percent of person miles traveled on non-Interstate highways that are reliable	2-yr target	> 80%	75% <sup>4</sup>
	4-yr target	> 75%	
<b>Freight Movement and Economic Vitality</b>			
Truck travel time reliability index		1.2	1.21

Footnotes:

1. The MAG concurs with all UDOT targets.
2. Targets set on a rolling five-year average.
3. Targets are two- and four-year targets.
4. The reported percentages apply only to the Mountainland planning area.

**Transit:** There are two federal transit performance measures - state of good repair and safety. The effective date for safety performance measures will be after TransPlan50 adoption, safety performance measures will be in the next plan.

As shown in Table 2, UTA meets its targets for rolling stock, facilities, infrastructure, and equipment. During plan development, MAG worked closely with UTA to incorporate state of good repair costs into financial planning. Costs for every transit project included the costs required to keep the project in a state of good repair until the plan horizon year. State of good repair represents approximately ten percent of all new transit project costs.



Table 2   Federal Transit Performance Measures	Mode	UTA Target <sup>1</sup>	Reported
<b>State of Good Repair</b>			
<b>Rolling stock:</b> Percent of revenue vehicles (by type) that exceeded their Useful Life Benchmark	Articulated bus	40%	0%
	Over-the-road bus	60%	56%
	Bus	60%	19%
	Cutaway bus	60%	18%
	Light rail vehicle	60%	0%
	Commuter rail locomotive	60%	0%
	Commuter rail passenger coach	60%	0%
	Van	60%	26%
<b>Facilities:</b> Percent of facilities (by group) with a condition rating below 3.0 on the Transit Economic Requirements Model scale	Passenger facilities	60%	0%
	Passenger parking facilities	60%	0%
	Maintenance facilities	60%	17%
	Administrative facilities	60%	4%
<b>Infrastructure:</b> Percent of track segments (by mode) with performance restrictions	Commuter rail	40%	5%
	Light rail	40%	27%
	Streetcar rail	40%	0%
<b>Equipment:</b> Percent of non-revenue vehicles (by type) that exceeded their Useful Life Benchmark	Automobile	40%	0%
	Trucks & other rubber tire vehicles	40%	0%
	Steel wheel vehicles	40%	0%

Footnotes:

1. The MAG concurs with all UTA targets.

## STATEWIDE PERFORMANCE MEASURES

In addition to the performance measures required by our federal partners, MAG has worked for many years with its statewide transportation partners to develop statewide transportation performance measures as an element of the Unified Transportation Plan. The Unified Transportation Plan communicates transportation needs for the entire state in a coordinated, jointly developed document. These measures are result of that process and are used by all those involved to communicate performance as a state.

On April 16, 2018 MAG and its statewide partners signed the Performance Based Planning and Programming Memorandum of Agreement. This cooperative agreement identifies the following:

- 1) Developing and Sharing Information Related to Transportation Performance Data



- a) UDOT will provide the MPO(s) with a subset, for their urbanized areas, of the state performance data that UDOT uses in developing statewide targets.
  - b) MPO(s) that choose to adopt their own targets will provide any supplemental data used in determining any such target, to UDOT or the Public Transportation Agencies, or both.
  - c) Public Transportation Agencies that are part of the UDOT Transit Asset Management Plan (TAM) will provide their transit data to UDOT within four months of their fiscal year end. Public Transportation Agencies creating their own TAM will provide transit data by asset class for the FAST Act transit performance measures to UDOT and to MPO(s) in their transit regions, within four months of their fiscal year end.
- 2) Selection of Performance Targets
- a) UDOT will develop statewide performance targets for each of the FAST Act performance measures, in cooperation with the MPO(s) and the Public Transportation Agencies.
  - b) Public Transportation Agencies will develop their measures in the UDOT TAM or, if creating their own TAM, they will cooperate with their respective MPO(s) and UDOT when establishing transit targets.
  - c) MPO(s) will cooperate with UDOT and Public Transportation Agencies in supporting the statewide targets or in establishing their own MPO targets. UDOT and Public Transportation Agencies will be given an opportunity to comment on the MPO(s) targets.
  - d) UDOT, MPO(s), and Public Transportation agencies will develop and set targets as required by 23 CFR Parts 450 and 771, as well as 49 CFR Part 613.
- 3) Reporting of Performance Targets
- a) UDOT and Public Transportation Agencies will report the statewide performance targets to FHWA and FTA, as applicable, and shall provide a copy of such reporting to the MPO(s).
  - b) MPO(s) will report their performance targets to UDOT and their Public Transportation Agencies in the form of a memorandum or meeting minutes from their board.



- c) If the MPO(s) choose to adopt the targets of UDOT or the Public Transportation Agencies, or both, documentation of the MPO(s) support of the appropriate targets shall be provided to UDOT or the Public Transportation Agencies, or both. If MPO(s) choose to adopt their own targets, written notification that the MPO(s) will set a quantifiable target, for the performance measure within the MPO planning area, with its associated data will be provided to UDOT or the Public Transportation Agencies, or both.
  
- 4) Reporting of Performance to Be Used in Tracking Progress Toward Attainment of Critical Outcomes for The Regional Area.
  - a) Reporting of targets and performance shall conform to 23 CFR 490 (National Performance Management Measures), 49 CFR 625 (Transit Asset Management), 49 CFR 673(Public Transportation Agency Safety Plan), and 49 CFR 450.334 (Obligated Projects).
  - b) UDOT will include information outlined in 23 CFR 450.216 (f) (Development of Long-range Statewide Plan) in any statewide transportation plan amended or adopted after May 27, 2018, and information outlined in 23 CFR 450.218 (9) (Development of STIP) in any statewide transportation improvement program amended or adopted after May 27, 2018.
  - c) MPO(s) will include information outlined in 23 CFR 450.324 (Development of Metropolitan Transportation Plan) in any RTP amended or adopted after May 27, 2018, and information outlined in 23 CFR 450.326 (d) (Development of TIP) in any TIP amended or adopted after May 27, 2019, and conform to 23 CFR 450.306 (d) (performance-based approach).
  
- 5) Collection of Data for the State Asset Management Plans for the National Highway System.

UDOT will be responsible for collecting bridge and pavement condition data for the State asset management plan for the NHS.

Through this cooperative agreement, MAG can receive all the data required, participate in the statewide target setting process for each measure, and select targets. MAG has adopted all applicable statewide targets as shown in Table 3. If necessary, those targets may be adjusted in the future.



Table 3 | 2019 Unified Plan Goals and Performance Measures

2019 Goals	2019 Key Objectives	2019 Key Performance Measures	2015 Outcomes (reported in 2015 UTP)	Methodology	Data Needed	Geography (State vs. Planning Area)
Safety	Reduce fatal and serious injuries on the transportation network	Fatalities and serious injuries per capita	31% reduction in traffic fatalities since 2000	Historic reporting similar to previous plan	Fatality Analysis Reporting System (FARS)	Statewide (2015)
Economic Vitality	Increase the number of jobs, services, and desired destinations Utahans can reach within a certain travel time	Increase the number of jobs, service, and desired destinations that Utahns can reach within a certain travel time	8,700 (WF) and 23,000 (rest of Utah) more jobs within 20 minutes of the average household in 2040		MPO and statewide travel models, GOMB, US Census Bureau	Planning Area and Statewide (2015)
	Life Elevated objective TBD (Active Transportation)	Number of new active transportation miles	\$183.6 billion in additional GDP through 2040			Statewide (2015) - rural space may not have new AT miles not associated with a roadway project
State of Good Repair	Keep infrastructure in good condition	Cost/benefit savings from proper maintenance	\$1 invested in preservation now saves up to \$25 in reconstruction in the future		2015 Strategic Direction, UDOT	Statewide (2015)
Air Quality & Environment	Reduce emissions that adversely affect health, quality of life, and the economy	Key mobile source ozone and PM2.5 emissions	68% reduction in mobile emissions statewide by 2040		WFRC MOVES model, Cache MPO, and MAG emissions	Statewide (2015)
Mobility	Reduce vehicle hours of travel	Vehicle hours of travel per capita	3.6 fewer days spent driving per average household in 2040	Comparison of No build vs. build assumptions	WFRC and MAG Travel Demand Model	Statewide if unavaible revert back to Wasatch Front and MAG (2015)
	Increase the share of trips using non-single occupant vehicle modes	Ridership	150% increase in transit ridership from 2015 to 2040			MPO areas
	Improve reliability of system	% on time (transit) existing only % system reliable (road) existing only Travel Delay	2.5 times more travel delay from 2015 to 2040		WFRC and MAG Travel Demand Model	MPO areas (2015)





## MPO PERFORMANCE MEASURES

MAG performance measures are an extension of the MPO goals developed by the Regional Planning Committee and their staffs. Those goals were analyzed and review through each planning process for the last several plans. While small modifications have been made, the core goals have remained.

To implement a performance-based planning and programming process, key objectives were developed throughout the planning process. During several public meetings, stakeholders and staff refined existing goals into key objectives. Performance measures for those goals and key objects have been developed to measure progress towards meeting those goals.

Table 4 | MPO Performance Measures

Build an intermodal transportation system that efficiently moves people and freight to fuel our economy		
Goals	Key Objectives	Performance Measures
Build a metropolitan highway system	Make regional highway connections to complete the grid	New regional connections
		Local plan integration
	Add freeway capacity	New freeway miles
		Local plan integration
Build a world class transit system	Add transit capacity	New transit miles
		Increased ridership (mode split)
Build a regionally connected active transportation system	Increase direct connections to transit	New connections to fixed guideway transit stops
	Build additional active transportation facilities	New miles of active transportation facilities
Preservation	Preserve what we have	TBD
	Make it work better	TBD



## FREIGHT NETWORK

Utah plays a major role in the movement of freight across the United States. The smooth flow of freight in Utah and across its borders is important to the current and future economy of Utah and America. The geographic area of MAG is an important location for roadways and railroads but is less important for pipelines and aviation because of the lack of pipeline infrastructure and air cargo service.

Approximately 213 million tons of freight valued at \$204 billion was shipped to, from and within Utah via the various modes of transportation in 2012, the most recent data available the Federal Highway Administration’s Office of Freight Management and Operations. The following table shows the shipments by weight and value for Utah for 2012 and projections to 2050.

Utah Modal Shipment by Weight (Million Tons) and by Value (Billion Dollars)								
Mode	2012				2050 (Projections)			
	Tons	%T	Value	%V	Tons	%T	Value	%V
Roadways	134	63	137	67	141	87	107	88
Rail/Intermodal	52	24	52	25	12	7	10	8
Pipelines	27	13	12	7	9	6	5	4
Aviation	<1	<1	3	1	<1	<1	<1	<1
<b>Total</b>	213	100	204	100	162	100	122	100

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Facts and Figures 2015. U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Info, <http://ops.fhwa.dot.gov/freight>.

**Freight Highway System:** The trucking industry is the dominant mover of freight in Utah. This is due primarily to freight traffic traveling to and from the east and west coasts on I-70, I-80 and I-84 and north and south along the CANAMEX Corridor of I-15. Truck traffic averages 23 percent on Utah highways, versus a national average of



only 12 percent. Additionally, northern Utah is the hub of western refrigerated (reefer) truck freight operations. Many large reefer truck companies maintain terminals along the Wasatch Front to take advantage of Utah's crossroads status. Geography has also made Utah a strategic trucking hub because of its location relative to the Sierra Nevada Mountain Range in California, the Humboldt River Valley in Nevada and the Colorado River Canyons in southern Utah. Truck transportation works in conjunction with pipelines, railroads and aviation to provide efficient multimodal transportation to Utah's shippers. The following list provides vital points about trucking and its importance to Utah. During 2012:

1. Trucks carried 134 million tons of freight in Utah accounting for 63 percent of the total weight shipped.
2. Trucks carried \$137 billion of freight in Utah accounting for 67 percent of the total value shipped.
3. The trucking industry in Utah employed more than 20,058 people with an average annual salary of \$40,812.
4. More than 80 percent of US communities depend solely on trucking for delivery of goods and commodities.
5. C.R. England is the largest refrigerated truck company in the North America and is headquartered in Salt Lake City.

**Freight Railroad System:** Since the completion of America's first transcontinental railroad at Promontory, Utah on May 10, 1869, 150 years ago, railroads have played a major role in the transportation of freight in Utah. The railroad industry develops, owns, operates and maintains its own infrastructure.

In Utah, primary railroad terminals, known as freight yards, are found in Ogden, Salt Lake City, and Provo. Smaller secondary rail yards are located in Helper, Midvale and Milford. Six routes of the Union Pacific Railroad converge on the Wasatch Front, linking Utah with Northern and Southern California, the Pacific Northwest, as well as Midwestern and Eastern points.

Most mainline railroad infrastructure in the state of Utah is owned and operated by America's largest railroad, Union Pacific (UP). The 1996 UP takeover of Southern



Pacific (SP) resulted in a near monopoly situation in railroad freight service in Utah. As a part of the UP/SP merger, the Federal Surface Transportation Board (STB) directed the west's other large railroad, Burlington Northern Santa Fe (BNSF), to provide limited freight service in Utah. The BNSF Railway owns limited rail infrastructure in Utah, primarily its two railroad freight yards in Provo and Midvale. Most BNSF operations are conducted via a trackage rights agreement over selected UP lines.

There are a modest number of smaller short line railroads in Utah who primarily handle freight traffic to and from UP and BNSF. Utah's railroads provide specialized freight service to the state's businesses and industries handling a variety of shipments.

**Freight Aviation System:** Air freight is the smallest component of the freight transportation system serving MAG. Air freight for the MAG area is primarily serviced by the Salt Lake International Airport. There is no air cargo service in Utah County.

## **REGIONAL AIRPORT PLANNING**

Provo Airport has transformed over the last 20 years from a local municipal airport servicing primarily single engine aircraft to a commercial service airport of regional importance. Starting with the expansion of the primary runway in '98 the Provo Airport has continued to make upgrades in anticipation of future needs. The addition of the Part 139 permit, RADAR, Air Traffic Control Tower, parallel taxiway, and TSA certification allowed the airport to seek FAA funding to expand the current terminal.

Provo currently services nearly 100,000 outbound passengers per year flying to 3 destinations. Provo is served by Allegiant Airlines which uses Airbus A-320 aircraft. This aircraft has a capacity of 166 passengers and is current flying at a load factor of 92%. Flying twice daily the Provo Terminal, which holds 177 passengers is at capacity. Airlines must schedule aircraft at certain times of the day to make gate times at other airports. Additional terminal space, ramp space and gate space are required to expand commercial air service in Provo.

Current projections show that of Utah County is growing at rate that will double its population by 2050. Projections for Provo Airport enplanements also show rapid growth. Provo airport will never become a regional hub, like SLC International, but it will become Utah County's air alternative.



The FAA, State of Utah, Utah County, and Provo City have seen the need and helped fund the construction of a new passenger terminal at the Provo Airport. This will give Utah Valley the ability to recruit and grow additional airline service making Provo Airport a viable alternative for Utah Valley residents, businesses, and universities. With the right service provider, the Missionary Training Center could use Provo for missionary travel.

The new terminal is projected to have a minimum capacity over 350 passengers with 4 gates. It is possible that this terminal will provide room for growth in Utah Valley for the next 5 to 10 years. The Terminal is designed to be scalable to up to 10 gates. This would provide room for more the 1M passengers per year. Projections show that 1M passengers is possible within the next 20 years.

A regional terminal in Provo will also add millions to local economies and remove thousands of vehicle trips to Salt Lake International annually. Attached please review the terminal growth projections for the Provo Airport and the current Master Plan ALP.

