

# Performance Measure Summary - Salt Lake City-West Valley City UT

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2017. There is no single performance measure that experts agree "says it all". A few key points should be recognized by users of the Urban Mobility Scorecard data.

**Use the trends** - The multi-year performance measures are better indicators, in most cases, than any single year. Examining a few measures over many years reduces the chance that data variations or the estimating procedures may have caused a "spike" in any single year. (5 years is 5 times better than 1 year.)

**Use several measures** - Each performance measure illustrates a different element of congestion. (The view is more interesting from atop several measures.)

**Compare to similar regions** - Congestion analyses that compare areas with similar characteristics (for example, population, growth rate, road and public transportation system design) are usually more insightful than comparisons of different regions. (Los Angeles is not Peoria.)

**Compare ranking changes and performance measure values** - In some performance measures, a small change in the value may cause a significant change in rank from one year to the next. This is the case when there are several regions with nearly the same value. (15 hours is only 1 hour more than 14 hours.)

**Consider the scope of improvement options** - Any improvement project in a corridor within most of the regions will only have a modest effect on the regional congestion level. (To have an effect on areawide congestion, there must be significant change in the system or service.)

## Performance Measures and Definition of Terms

**Travel Time Index** - A measure of congestion that focuses on each trip and each mile of travel. It is calculated as the ratio of travel time in the peak period to travel time in free-flow. A value of 1.30 indicates that a 20-minute free-flow trip takes 26 minutes in the peak.

**Planning Time Index** - A travel time reliability measure that represents the total travel time that should be planned for a trip. Computed with the 95th percentile travel time it represents the amount of time that should be planned for a commute trip to be late for only 1 day a month. If it is computed with the 80th percentile travel time it represents the amount of time that should be planned for a trip to be late for only 1 day a week. A PTI of 2.00 means that for a 20-minute trip in light traffic, 40 minutes should be planned.

**Peak Commuters** - Number of travelers who begin a trip during the morning or evening peak travel periods (6 to 10 a.m. and 3 to 7 p.m.). "Commuters" are private vehicle users unless specifically noted.

**Annual Delay per Commuter** - A yearly sum of all the per-trip delays for those persons who travel in the peak period (6 to 10 a.m. and 3 to 7 p.m.). This measure illustrates the effect of traffic slowdowns as well as the length of each trip.

**Total Delay** - The overall size of the congestion problem. Measured by the total travel time above that needed to complete a trip at free-flow speeds. The ranking of total delay usually follows the population ranking (larger regions usually have more delay).

**Free-Flow Speeds** - These values are derived from time periods with lighter traffic volumes in the INRIX speed database. They are used as the national comparison thresholds. Other speed thresholds may be appropriate for urban project evaluations or sub-region studies.

**Excess Fuel Consumed** - Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.

**Congestion Cost** - Value of travel delay for 2017 (estimated at \$18.29 per hour of person travel and \$59.94 per hour of truck time) and excess fuel consumption estimated using state average cost per gallon.

**Urban Area** - The developed area (population density more than 1,000 persons per square mile) within a metropolitan region. The urban area boundaries change frequently (every year for most growing areas), so increases include both new growth and development that was previously in areas designated as rural.

**Number of Rush Hours** - Time when the road system might have congestion.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	1,115	1,110	1,105	1,100	1,075	1,050
Rank	42	42	42	42	42	43
Commuters (1000s)	537	535	532	530	518	496
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	9,521	9,453	9,069	8,742	8,527	8,290
Arterial Streets	9,755	9,480	8,958	8,616	8,258	8,310
<b>Cost Components</b>						
Value of Time (\$/hour)	18.12	17.91	17.69	17.67	17.39	17.14
Commercial Cost (\$/hour)	52.14	50.20	46.87	44.82	41.23	39.66
Gasoline (\$/gallon)	2.47	2.28	2.69	3.51	3.61	3.24
Diesel (\$/gallon)	2.69	2.43	2.54	3.73	3.89	3.91
System Performance	2017	2016	2015	2014	2013	2012
<b>Congested Travel (% of peak VMT)</b>	24.2	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	14.8	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	3.2	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	15,546	15,393	15,100	14,908	14,760	14,413
Rank	42	41	41	41	41	41
Fuel per Peak Auto Commuter (gallons)	25	24	23	22	22	22
Rank	20	23	25	24	24	21
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	29,739	29,234	28,428	27,822	27,056	26,183
Rank	48	48	48	48	48	48
Delay per Auto Commuter (pers-hrs)	45	45	43	42	40	41
Rank	55	52	55	55	60	50
<b>Travel Time Index</b>						
Rank	1.18	1.18	1.18	1.18	1.18	1.18
Rank	45	45	44	40	41	40
<b>Commuter Stress Index</b>						
Rank	1.21	--	--	--	--	--
Rank	41	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	1.57	--	--	--	--	--
Rank	42	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	612	591	571	570	546	517
Rank	48	48	48	47	47	48
Cost per Auto Commuter (\$)	833	825	796	776	761	746
Rank	51	49	49	49	49	49
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	1,249	1,228	1,194	1,169	1,136	1,100
Rank	48	48	48	47	48	48
Annual Gallons of Wasted Fuel (000)	3,296	3,263	3,201	3,161	3,129	3,056
Rank	42	41	41	41	41	41
Annual Congestion Cost (\$ million)	66	62	57	58	53	50
Rank	48	48	48	47	47	47

\* Note: Zeroes in the table reflect values less than 0.5.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	1,025	1,010	990	975	975	975
Rank	43	44	44	45	44	44
Commuters (1000s)	503	496	490	481	478	476
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	8,444	8,312	8,000	7,810	7,945	7,815
Arterial Streets	8,403	8,272	7,957	8,100	8,240	7,940
<b>Cost Components</b>						
Value of Time (\$/hour)	16.79	16.28	16.01	16.07	15.47	15.06
Commercial Cost (\$/hour)	44.62	42.50	41.83	40.77	39.30	37.88
Gasoline (\$/gallon)	3.33	2.80	2.15	3.35	3.23	2.58
Diesel (\$/gallon)	3.69	3.07	2.56	4.13	3.70	2.91
System Performance	2011	2010	2009	2008	2007	2006
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	13,667	13,190	12,936	13,219	13,403	13,001
Rank	43	43	43	45	43	43
Fuel per Peak Auto Commuter (gallons)	21	19	19	19	20	20
Rank	25	40	27	37	28	28
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	24,377	23,308	22,433	21,832	22,135	21,471
Rank	49	51	51	51	48	48
Delay per Auto Commuter (pers-hrs)	38	36	36	35	36	35
Rank	63	64	61	66	59	62
<b>Travel Time Index</b>						
Rank	1.17	1.17	1.17	1.17	1.18	1.17
Rank	45	43	45	53	44	53
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	479	438	408	415	405	374
Rank	49	50	50	51	48	48
Cost per Auto Commuter (\$)	716	707	693	667	703	702
Rank	55	57	59	59	58	58
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	1,024	979	942	917	930	902
Rank	49	51	51	51	48	48
Annual Gallons of Wasted Fuel (000)	2,897	2,796	2,743	2,803	2,841	2,756
Rank	43	43	43	45	43	43
Annual Congestion Cost (\$ million)	51	45	42	44	43	38
Rank	48	49	49	49	48	48

\* Note: Zeroes in the table reflect values less than 0.5.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	970	945	930	925	920	900
Rank	44	45	44	42	42	42
Commuters (1000s)	470	455	445	438	430	415
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	7,650	7,540	7,300	7,200	7,100	7,000
Arterial Streets	7,900	7,850	7,790	7,690	7,610	7,555
<b>Cost Components</b>						
Value of Time (\$/hour)	14.58	14.10	13.73	13.43	13.22	12.85
Commercial Cost (\$/hour)	36.51	35.19	33.92	32.69	31.51	30.38
Gasoline (\$/gallon)	2.32	1.98	1.61	1.41	1.60	1.54
Diesel (\$/gallon)	2.69	2.11	1.56	1.41	1.61	1.50
System Performance	2005	2004	2003	2002	2001	2000
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	12,562	12,211	11,857	11,100	10,245	9,382
Rank	43	43	43	43	44	45
Fuel per Peak Auto Commuter (gallons)	19	19	18	17	16	16
Rank	34	27	30	34	36	32
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	20,746	20,167	19,581	18,332	16,920	15,495
Rank	50	50	50	50	51	52
Delay per Auto Commuter (pers-hrs)	34	34	34	32	30	28
Rank	67	60	58	67	71	76
<b>Travel Time Index</b>						
Rank	1.17	1.17	1.17	1.16	1.15	1.14
Rank	50	47	45	54	58	65
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	348	323	301	274	250	222
Rank	48	48	48	50	51	52
Cost per Auto Commuter (\$)	700	704	701	671	627	591
Rank	57	56	54	56	60	62
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	871	847	822	770	711	651
Rank	50	50	50	50	51	52
Annual Gallons of Wasted Fuel (000)	2,663	2,589	2,514	2,353	2,172	1,989
Rank	43	43	43	43	44	45
Annual Congestion Cost (\$ million)	35	32	28	25	23	20
Rank	48	47	48	49	51	52

\* Note: Zeroes in the table reflect values less than 0.5.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	895	890	875	855	835	825
Rank	41	41	41	41	42	42
Commuters (1000s)	408	401	389	375	362	353
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	6,470	6,500	6,630	6,900	6,710	6,440
Arterial Streets	7,460	7,385	7,300	7,180	7,090	6,980
<b>Cost Components</b>						
Value of Time (\$/hour)	12.43	12.17	11.98	11.71	11.37	11.06
Commercial Cost (\$/hour)	29.28	28.89	28.50	28.12	27.75	27.38
Gasoline (\$/gallon)	1.26	1.14	1.31	1.29	1.15	1.11
Diesel (\$/gallon)	1.25	1.22	1.42	1.37	1.22	1.17
System Performance	1999	1998	1997	1996	1995	1994
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	8,231	7,681	6,843	6,491	5,744	5,025
Rank	49	49	50	50	51	53
Fuel per Peak Auto Commuter (gallons)	13	12	11	10	9	7
Rank	51	53	54	57	59	73
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	13,593	12,684	11,301	10,720	9,486	8,298
Rank	54	55	56	54	59	62
Delay per Auto Commuter (pers-hrs)	25	24	22	21	19	17
Rank	82	81	83	84	85	87
<b>Travel Time Index</b>						
Rank	76	72	72	72	73	75
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	187	170	151	140	120	102
Rank	54	55	55	54	58	60
Cost per Auto Commuter (\$)	538	512	463	449	411	369
Rank	74	74	74	73	77	77
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	571	533	475	450	398	349
Rank	54	55	56	54	59	62
Annual Gallons of Wasted Fuel (000)	1,745	1,628	1,451	1,376	1,218	1,065
Rank	49	49	50	50	51	53
Annual Congestion Cost (\$ million)	17	15	14	13	11	10
Rank	52	53	54	54	55	56

\* Note: Zeroes in the table reflect values less than 0.5.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	810	810	805	800	785	785
Rank	43	43	42	42	42	41
Commuters (1000s)	342	338	332	325	316	314
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	6,010	5,775	5,685	5,330	5,080	4,740
Arterial Streets	6,570	6,270	5,675	5,465	5,210	5,205
<b>Cost Components</b>						
Value of Time (\$/hour)	10.78	10.47	10.17	9.75	9.25	8.83
Commercial Cost (\$/hour)	27.02	26.66	26.30	25.95	25.60	25.26
Gasoline (\$/gallon)	1.15	1.16	1.15	1.05	1.20	1.11
Diesel (\$/gallon)	1.22	1.20	1.22	1.07	1.18	1.09
System Performance	1993	1992	1991	1990	1989	1988
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	4,748	4,491	4,243	3,994	3,903	3,608
Rank	53	51	49	47	46	45
Fuel per Peak Auto Commuter (gallons)	7	6	6	6	6	5
Rank	67	69	67	60	53	58
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	7,841	7,417	7,008	6,596	6,446	5,959
Rank	59	58	57	56	55	56
Delay per Auto Commuter (pers-hrs)	17	16	15	15	15	14
Rank	85	85	86	84	77	75
<b>Travel Time Index</b>						
Rank	77	76	71	76	66	60
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	94	87	80	72	68	60
Rank	58	58	57	56	54	55
Cost per Auto Commuter (\$)	357	349	342	334	345	339
Rank	77	75	73	72	64	63
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	329	311	294	277	271	250
Rank	59	58	57	56	54	56
Annual Gallons of Wasted Fuel (000)	1,006	952	900	847	827	765
Rank	53	51	49	47	46	45
Annual Congestion Cost (\$ million)	9	8	8	7	7	6
Rank	56	58	54	54	51	52

\* Note: Zeroes in the table reflect values less than 0.5.

# Mobility Data for Salt Lake City-West Valley City UT

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	765	760	750	720	700	680
Rank	41	41	41	41	42	42
Commuters (1000s)	304	300	294	279	270	259
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	4,460	4,090	3,890	3,575	3,550	3,390
Arterial Streets	5,135	5,035	4,695	4,525	4,300	4,050
<b>Cost Components</b>						
Value of Time (\$/hour)	8.48	8.18	8.03	7.75	7.43	7.20
Commercial Cost (\$/hour)	24.93	24.60	24.27	23.94	23.63	23.31
Gasoline (\$/gallon)	1.11	1.08	1.42	1.43	1.47	1.53
Diesel (\$/gallon)	1.09	1.07	1.40	1.41	1.44	1.51
System Performance	1987	1986	1985	1984	1983	1982
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	3,376	3,218	3,020	2,539	2,231	2,001
Rank	43	43	42	45	47	46
Fuel per Peak Auto Commuter (gallons)	5	5	5	5	3	3
Rank	48	40	32	27	46	34
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	5,576	5,315	4,987	4,193	3,684	3,305
Rank	52	51	48	53	53	53
Delay per Auto Commuter (pers-hrs)	13	13	12	11	10	9
Rank	75	64	63	64	64	65
<b>Travel Time Index</b>						
Rank	1.07	1.06	1.06	1.05	1.05	1.05
Rank	55	57	54	57	55	51
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	54	50	47	38	33	29
Rank	51	49	46	51	51	52
Cost per Auto Commuter (\$)	328	326	308	269	253	228
Rank	62	60	59	61	60	62
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	234	223	209	176	155	139
Rank	52	51	48	51	53	53
Annual Gallons of Wasted Fuel (000)	716	682	640	538	473	424
Rank	43	43	42	45	46	46
Annual Congestion Cost (\$ million)	6	6	5	4	4	3
Rank	47	45	46	49	47	52

\* Note: Zeroes in the table reflect values less than 0.5.