

# Performance Measure Summary - Very Large Area Average (15 areas)

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 Very Large Area Average (15 areas)

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	6,352	6,317	6,282	6,252	6,213	6,167
Rank	--	--	--	--	--	--
Commuters (1000s)	2,663	2,591	2,571	2,557	2,572	2,567
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	57,346	56,797	55,438	53,371	52,523	51,878
Arterial Streets	52,680	52,156	51,045	50,882	50,558	50,358
<b>Cost Components</b>						
Value of Time (\$/hour)	18.29	17.91	17.69	17.67	17.39	17.14
Commercial Cost (\$/hour)	54.94	50.20	46.87	44.82	41.23	39.66
Gasoline (\$/gallon)	2.52	2.33	2.51	3.37	3.66	3.64
Diesel (\$/gallon)	2.65	2.40	2.64	3.66	3.99	4.01
System Performance	2017	2016	2015	2014	2013	2012
<b>Congested Travel (% of peak VMT)</b>	36.1	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	21.7	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	5.1	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	110,007	109,064	108,196	107,218	106,191	104,668
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	32	31	30	29	29	29
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	309,448	302,233	296,235	288,705	282,142	274,154
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	83	81	79	76	74	72
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.35	1.34	1.34	1.33	1.33	1.33
<b>Commuter Stress Index</b>						
Rank	1.41	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	2.13	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	5,704	5,445	5,301	5,257	5,100	4,893
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,583	1,543	1,513	1,465	1,456	1,434
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	12,997	12,694	12,442	12,126	11,850	11,515
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	23,321	23,122	22,938	22,730	22,513	22,190
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	689	615	573	560	519	490
Rank	--	--	--	--	--	--

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

## Mobility Data for Very Large Area Average (15 areas)

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	6,118	6,073	6,019	5,961	5,908	5,855
Rank	--	--	--	--	--	--
Commuters (1000s)	2,558	2,548	2,521	2,494	2,480	2,454
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	53,682	52,679	52,039	51,766	52,709	52,519
Arterial Streets	51,376	50,987	50,979	50,831	51,646	51,613
<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)	3.45	2.82	2.37	3.55	3.10	2.73
Diesel (\$/gallon)	3.81	3.06	2.66	4.28	3.50	2.94
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)	102,599	100,745	99,471	102,587	103,361	102,321
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	28	27	26	26	27	27
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	264,227	255,923	248,123	244,060	245,478	243,376
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	70	68	66	65	65	65
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.32	1.31	1.31	1.32	1.33	1.32
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	4,615	4,284	4,051	4,140	3,970	3,797
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,410	1,407	1,388	1,362	1,422	1,450
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	11,098	10,749	10,421	10,251	10,310	10,222
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	21,751	21,358	21,088	21,749	21,913	21,692
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	518	467	439	460	433	404
Rank	--	--	--	--	--	--

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

## Mobility Data for Very Large Area Average (15 areas)

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	5,808	5,754	5,700	5,633	5,561	5,492
Rank	--	--	--	--	--	--
Commuters (1000s)	2,424	2,388	2,351	2,298	2,233	2,170
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	52,193	51,638	50,365	48,744	47,475	46,168
Arterial Streets	51,073	50,347	49,147	48,212	47,070	46,093
<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)	2.39	2.04	1.58	1.47	1.65	1.61
Diesel (\$/gallon)	2.64	2.07	1.63	1.45	1.64	1.58
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)	99,881	96,862	93,371	89,883	85,861	82,155
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	26	26	25	25	23	23
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	237,448	230,507	222,272	214,056	204,820	196,246
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	64	63	62	61	60	58
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.32	1.31	1.31	1.30	1.29	1.29
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	3,562	3,315	3,074	2,887	2,737	2,549
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,464	1,473	1,461	1,443	1,408	1,392
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	9,973	9,681	9,335	8,990	8,603	8,242
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	21,175	20,535	19,795	19,055	18,203	17,417
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	376	342	310	286	268	248
Rank	--	--	--	--	--	--

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

## Mobility Data for Very Large Area Average (15 areas)

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	5,408	5,343	5,252	5,186	5,108	5,057
Rank	--	--	--	--	--	--
Commuters (1000s)	2,104	2,045	1,978	1,921	1,863	1,812
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	44,943	43,637	42,274	41,285	40,141	38,882
Arterial Streets	45,081	43,955	43,335	42,417	41,416	40,352
<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)	1.25	1.13	1.25	1.28	1.22	1.10
Diesel (\$/gallon)	1.26	1.24	1.34	1.33	1.27	1.14
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)	78,484	74,886	71,332	67,730	64,202	60,883
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	22	21	20	19	18	17
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	187,790	179,466	171,180	162,918	154,450	146,620
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	57	56	55	54	53	51
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.28	1.28	1.27	1.26	1.26	1.25
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	2,336	2,180	2,056	1,915	1,762	1,622
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,382	1,359	1,323	1,295	1,270	1,246
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	7,887	7,538	7,190	6,843	6,487	6,158
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	16,639	15,876	15,122	14,359	13,611	12,907
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	224	211	200	188	175	163
Rank	--	--	--	--	--	--

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

## Mobility Data for Very Large Area Average (15 areas)

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	5,007	4,951	4,905	4,829	4,776	4,714
Rank	--	--	--	--	--	--
Commuters (1000s)	1,767	1,719	1,676	1,623	1,589	1,553
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	37,786	36,731	35,588	34,926	33,758	32,005
Arterial Streets	39,083	37,864	36,620	35,874	35,009	34,190
<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)	1.16	1.18	1.14	1.10	1.11	1.02
Diesel (\$/gallon)	1.20	1.19	1.27	1.14	1.07	0.99
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)	57,706	54,790	52,197	49,708	47,581	45,641
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	16	15	14	14	13	13
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	138,902	131,908	125,897	119,651	114,671	109,884
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	50	48	47	46	45	44
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.24	1.24	1.23	1.22	1.22	1.21
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	1,502	1,389	1,288	1,173	1,069	976
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,214	1,191	1,176	1,163	1,177	1,184
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	5,834	5,540	5,288	5,025	4,816	4,615
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	12,234	11,615	11,066	10,538	10,087	9,676
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	153	143	136	126	119	112
Rank	--	--	--	--	--	--

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

## Mobility Data for Very Large Area Average (15 areas)

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	4,641	4,578	4,506	4,420	4,384	4,352
Rank	--	--	--	--	--	--
Commuters (1000s)	1,514	1,479	1,442	1,399	1,374	1,348
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	30,380	28,549	26,838	25,491	24,195	22,940
Arterial Streets	33,072	32,321	31,307	30,414	29,709	29,048
<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)	1.03	1.00	1.31	1.32	1.35	1.42
Diesel (\$/gallon)	1.01	0.97	1.27	1.28	1.31	1.37
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)	43,350	41,032	39,140	36,818	34,647	32,637
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	12	11	11	10	10
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	104,141	98,544	94,111	88,219	83,089	78,001
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	43	41	40	39	37	36
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.21	1.20	1.20	1.19	1.18	1.17
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	891	813	775	704	638	584
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,168	1,146	1,116	1,075	1,061	1,034
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	4,374	4,139	3,953	3,705	3,490	3,276
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	9,190	8,699	8,298	7,805	7,345	6,919
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	105	98	95	88	82	77
Rank	--	--	--	--	--	--

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