

Performance Measure Summary - Small Area Sum

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2014. 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 overnight speeds 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 2014 (estimated at \$17.67 per hour of person travel and \$94.04 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.

The Mobility Data for Small Area Sum

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	7,460	7,390	7,320	7,250	7,170
Rank	--	--	--	--	--
Commuters (1000s)	3,743	3,745	3,709	3,666	3,611
Daily Vehicle-Miles of Travel (1000s)					
Freeway	64,374	63,434	65,090	67,196	66,313
Arterial Streets	73,815	72,493	74,795	75,518	74,879
Cost Components					
Value of Time (\$/hour)	17.67	17.39	17.14	16.79	16.30
Commercial Cost (\$/hour)	94.04	89.60	89.56	86.81	88.12
Gasoline (\$/gallon)	3.39	3.61	3.57	3.41	2.81
Diesel (\$/gallon)	3.68	3.95	3.97	3.79	3.05
System Performance	2014	2013	2012	2011	2010
Congested Travel (% of peak VMT)	19	--	--	--	--
Congested System (% of lane-miles)	19	--	--	--	--
Congested Time (number of "Rush Hours")	1.84	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	84,741	82,906	80,875	79,639	78,270
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	14	14	13	13	13
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	179,699	175,850	171,699	169,220	166,332
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	30	30	29	29	29
Rank	--	--	--	--	--
Travel Time Index					
	1.14	1.13	1.13	1.13	1.13
Rank	--	--	--	--	--
Commuter Stress Index					
	1.19	1.19	1.18	1.18	1.18
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	1.77	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	4,208	4,186	4,146	4,170	4,228
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	704	700	694	698	708
Rank	--	--	--	--	--

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Small Area Sum

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	7,070	6,985	6,930	6,825	6,740
Rank	--	--	--	--	--
Commuters (1000s)	3,549	3,494	3,449	3,378	3,311
Daily Vehicle-Miles of Travel (1000s)					
Freeway	65,400	64,465	66,325	65,340	63,465
Arterial Streets	73,975	74,045	75,145	73,385	71,735
Cost Components					
Value of Time (\$/hour)	16.01	16.10	15.47	15.06	14.58
Commercial Cost (\$/hour)	89.75	81.52	82.56	80.43	78.05
Gasoline (\$/gallon)	2.36	3.52	3.07	2.70	2.36
Diesel (\$/gallon)	2.63	4.23	3.44	2.90	2.61
System Performance	2009	2008	2007	2006	2005
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	76,383	79,012	78,511	75,778	72,354
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	13	13	13	12
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	162,280	167,216	166,591	161,005	153,494
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	29	30	30	30	29
Rank	--	--	--	--	--
Travel Time Index					
	1.13	1.14	1.14	1.14	1.13
Rank	--	--	--	--	--
Commuter Stress Index					
	1.18	1.19	1.19	1.19	1.18
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	4,194	4,309	4,455	4,419	4,354
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	702	721	746	742	731
Rank	--	--	--	--	--

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Small Area Sum

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	6,635	6,505	6,375	6,270	6,155
Rank	--	--	--	--	--
Commuters (1000s)	3,239	3,157	3,053	2,957	2,860
Daily Vehicle-Miles of Travel (1000s)					
Freeway	61,605	58,745	56,480	55,305	53,315
Arterial Streets	69,630	66,485	64,195	62,295	61,025
Cost Components					
Value of Time (\$/hour)	14.10	13.73	13.43	13.22	12.85
Commercial Cost (\$/hour)	74.17	72.23	70.86	71.38	70.47
Gasoline (\$/gallon)	2.03	1.59	1.45	1.63	1.58
Diesel (\$/gallon)	2.05	1.60	1.42	1.61	1.55
System Performance	2004	2003	2002	2001	2000
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	68,657	64,654	60,529	56,204	52,197
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	11	11	10	9	9
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	145,275	136,443	127,721	118,356	109,569
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	28	27	26	24	23
Rank	--	--	--	--	--
Travel Time Index					
	1.13	1.12	1.12	1.11	1.11
Rank	--	--	--	--	--
Commuter Stress Index					
	1.18	1.17	1.17	1.16	1.16
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	4,256	4,108	3,929	3,700	3,524
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	715	691	662	624	596
Rank	--	--	--	--	--

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The Mobility Data for Small Area Sum

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	6,060	5,960	5,865	5,740	5,620
Rank	--	--	--	--	--
Commuters (1000s)	2,772	2,694	2,609	2,515	2,425
Daily Vehicle-Miles of Travel (1000s)					
Freeway	52,085	50,480	48,735	48,255	45,600
Arterial Streets	60,045	58,170	56,885	55,390	54,020
Cost Components					
Value of Time (\$/hour)	12.43	12.17	11.98	11.71	11.37
Commercial Cost (\$/hour)	66.76	65.76	66.83	66.20	64.27
Gasoline (\$/gallon)	1.25	1.12	1.25	1.27	1.20
Diesel (\$/gallon)	1.23	1.21	1.32	1.31	1.25
System Performance	1999	1998	1997	1996	1995
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	48,700	45,151	41,979	38,582	35,684
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	8	8	7	7	6
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	102,037	94,537	87,825	80,640	74,347
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	22	21	20	19	18
Rank	--	--	--	--	--
Travel Time Index					
	1.10	1.09	1.09	1.09	1.08
Rank	--	--	--	--	--
Commuter Stress Index					
	1.15	1.15	1.14	1.14	1.13
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,396	3,214	3,034	2,850	2,710
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	576	547	519	491	468
Rank	--	--	--	--	--

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The Mobility Data for Small Area Sum

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	5,520	5,410	5,310	5,215	5,130
Rank	--	--	--	--	--
Commuters (1000s)	2,347	2,267	2,192	2,124	2,058
Daily Vehicle-Miles of Travel (1000s)					
Freeway	44,135	42,175	40,795	39,145	37,710
Arterial Streets	52,845	51,780	50,915	49,385	48,255
Cost Components					
Value of Time (\$/hour)	11.06	10.78	10.47	10.17	9.75
Commercial Cost (\$/hour)	62.23	60.84	59.01	57.31	55.03
Gasoline (\$/gallon)	1.10	1.16	1.17	1.16	1.09
Diesel (\$/gallon)	1.14	1.20	1.19	1.24	1.12
System Performance	1994	1993	1992	1991	1990
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	33,156	30,367	27,978	25,936	23,513
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	6	5	5	5	4
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	69,076	63,070	58,072	53,868	48,786
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	17	16	16	15	14
Rank	--	--	--	--	--
Travel Time Index					
	1.08	1.07	1.07	1.07	1.06
Rank	--	--	--	--	--
Commuter Stress Index					
	1.13	1.12	1.12	1.11	1.11
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	2,589	2,424	2,302	2,201	2,078
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	449	423	404	387	365
Rank	--	--	--	--	--

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The Mobility Data for Small Area Sum

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	5,040	4,945	4,840	4,745	4,650
Rank	--	--	--	--	--
Commuters (1000s)	2,006	1,953	1,894	1,842	1,791
Daily Vehicle-Miles of Travel (1000s)					
Freeway	36,360	34,980	33,745	32,275	30,925
Arterial Streets	46,980	45,735	44,460	43,530	42,200
Cost Components					
Value of Time (\$/hour)	9.25	8.83	8.48	8.18	8.03
Commercial Cost (\$/hour)	52.81	50.04	48.53	46.57	47.83
Gasoline (\$/gallon)	1.12	1.03	1.04	1.01	1.33
Diesel (\$/gallon)	1.09	1.01	1.04	0.99	1.29
System Performance	1989	1988	1987	1986	1985
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	21,470	19,516	17,548	16,074	14,732
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	4	3	3	3	3
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	44,505	40,452	36,557	33,546	30,765
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	13	12	11	10	10
Rank	--	--	--	--	--
Travel Time Index					
	1.06	1.05	1.05	1.05	1.04
Rank	--	--	--	--	--
Commuter Stress Index					
	1.10	1.10	1.09	1.09	1.09
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	1,994	1,901	1,788	1,700	1,589
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	353	338	320	305	285
Rank	--	--	--	--	--

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The Mobility Data for Small Area Sum

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	4,550	4,455	4,385
Rank	--	--	--
Commuters (1000s)	1,739	1,693	1,646
Daily Vehicle-Miles of Travel (1000s)			
Freeway	28,920	27,510	26,350
Arterial Streets	41,070	39,480	38,480
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	46.47	44.23	43.08
Gasoline (\$/gallon)	1.34	1.37	1.43
Diesel (\$/gallon)	1.31	1.34	1.40
System Performance	1984	1983	1982
Congested Travel (% of peak VMT)	--	--	--
Congested System (% of lane-miles)	--	--	--
Congested Time (number of "Rush Hours")	--	--	--
Annual Excess Fuel Consumed			
Total Fuel (1000 gallons)	13,532	12,266	11,130
Rank	--	--	--
Fuel per Peak Auto Commuter (gallons)	2	2	2
Rank	--	--	--
Annual Delay			
Total Delay (1000s of person-hours)	28,185	25,543	23,125
Rank	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	9	9	8
Rank	--	--	--
Travel Time Index			
	1.04	1.03	1.03
Rank	--	--	--
Commuter Stress Index			
	1.08	1.08	1.08
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)			
	--	--	--
Rank	--	--	--
Congestion Cost (constant 2014 \$)			
Total Cost (\$ millions)	1,509	1,431	1,336
Rank	--	--	--
Cost per Peak Auto Commuter (\$)	271	258	242
Rank	--	--	--

* Note: Cells containing "--" indicate no available data.