

Performance Measure Summary - Small Area Average

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 Average

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	339	336	333	330	326
Rank	--	--	--	--	--
Commuters (1000s)	170	170	169	167	164
Daily Vehicle-Miles of Travel (1000s)					
Freeway	2,926	2,883	2,959	3,054	3,014
Arterial Streets	3,355	3,295	3,400	3,433	3,404
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)	3,852	3,768	3,676	3,620	3,558
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	14	14	13	13	13
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	8,168	7,993	7,805	7,692	7,561
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)	191	190	188	190	192
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 Average

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	321	318	315	310	306
Rank	--	--	--	--	--
Commuters (1000s)	161	159	157	154	151
Daily Vehicle-Miles of Travel (1000s)					
Freeway	2,973	2,930	3,015	2,970	2,885
Arterial Streets	3,363	3,366	3,416	3,336	3,261
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)	3,472	3,591	3,569	3,444	3,289
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	13	13	13	12
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	7,376	7,601	7,572	7,318	6,977
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)	191	196	203	201	198
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 Average

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	302	296	290	285	280
Rank	--	--	--	--	--
Commuters (1000s)	147	144	139	134	130
Daily Vehicle-Miles of Travel (1000s)					
Freeway	2,800	2,670	2,567	2,514	2,423
Arterial Streets	3,165	3,022	2,918	2,832	2,774
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)	3,121	2,939	2,751	2,555	2,373
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	11	11	10	9	9
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	6,603	6,202	5,806	5,380	4,980
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)	193	187	179	168	160
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	715	691	662	624	596
Rank	--	--	--	--	--

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The Mobility Data for Small Area Average

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	275	271	267	261	255
Rank	--	--	--	--	--
Commuters (1000s)	126	122	119	114	110
Daily Vehicle-Miles of Travel (1000s)					
Freeway	2,368	2,295	2,215	2,193	2,073
Arterial Streets	2,729	2,644	2,586	2,518	2,455
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)	2,214	2,052	1,908	1,754	1,622
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	8	8	7	7	6
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	4,638	4,297	3,992	3,665	3,379
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	22	21	20	19	18
Rank	--	--	--	--	--
Travel Time Index					
Rank	1.10	1.09	1.09	1.09	1.08
Rank	--	--	--	--	--
Commuter Stress Index					
Rank	1.15	1.15	1.14	1.14	1.13
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
Rank	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	154	146	138	130	123
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	576	547	519	491	468
Rank	--	--	--	--	--

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The Mobility Data for Small Area Average

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	251	246	241	237	233
Rank	--	--	--	--	--
Commuters (1000s)	107	103	100	97	94
Daily Vehicle-Miles of Travel (1000s)					
Freeway	2,006	1,917	1,854	1,779	1,714
Arterial Streets	2,402	2,354	2,314	2,245	2,193
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)	1,507	1,380	1,272	1,179	1,069
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	6	5	5	5	4
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	3,140	2,867	2,640	2,449	2,218
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)	118	110	105	100	94
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	449	423	404	387	365
Rank	--	--	--	--	--

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

The Mobility Data for Small Area Average

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	229	225	220	216	211
Rank	--	--	--	--	--
Commuters (1000s)	91	89	86	84	81
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,653	1,590	1,534	1,467	1,406
Arterial Streets	2,135	2,079	2,021	1,979	1,918
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)	976	887	798	731	670
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	4	3	3	3	3
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	2,023	1,839	1,662	1,525	1,398
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)	91	86	81	77	72
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	353	338	320	305	285
Rank	--	--	--	--	--

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

The Mobility Data for Small Area Average

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	207	203	199
Rank	--	--	--
Commuters (1000s)	79	77	75
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,315	1,250	1,198
Arterial Streets	1,867	1,795	1,749
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)	615	558	506
Rank	--	--	--
Fuel per Peak Auto Commuter (gallons)	2	2	2
Rank	--	--	--
Annual Delay			
Total Delay (1000s of person-hours)	1,281	1,161	1,051
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)	69	65	61
Rank	--	--	--
Cost per Peak Auto Commuter (\$)	271	258	242
Rank	--	--	--

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