

Performance Measure Summary - 101 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 101 Area Sum

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	176,705	175,270	173,690	172,120	170,655
Rank	--	--	--	--	--
Commuters (1000s)	79,957	80,153	79,680	79,160	78,505
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,529,385	1,518,036	1,530,500	1,583,456	1,559,465
Arterial Streets	1,493,340	1,479,505	1,460,585	1,488,649	1,473,251
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)	3.35	3.61	3.58	3.40	2.79
Diesel (\$/gallon)	3.67	3.96	3.97	3.76	3.04
System Performance	2014	2013	2012	2011	2010
Congested Travel (% of peak VMT)	35	--	--	--	--
Congested System (% of lane-miles)	29	--	--	--	--
Congested Time (number of "Rush Hours")	4.25	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	2,697,318	2,657,594	2,612,962	2,558,123	2,508,790
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	23	23	22	22	22
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	6,036,459	5,949,155	5,849,872	5,729,405	5,620,666
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	52	51	51	50	49
Rank	--	--	--	--	--
Travel Time Index					
	1.26	1.26	1.26	1.25	1.25
Rank	--	--	--	--	--
Commuter Stress Index					
	1.32	1.32	1.32	1.31	1.31
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	2.66	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	138,433	138,629	138,309	138,228	139,870
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,189	1,191	1,189	1,189	1,204
Rank	--	--	--	--	--

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

The Mobility Data for 101 Area Sum

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	168,815	167,015	165,335	163,475	161,830
Rank	--	--	--	--	--
Commuters (1000s)	77,456	76,432	75,559	74,424	73,259
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,531,602	1,516,215	1,546,120	1,531,550	1,512,490
Arterial Streets	1,468,361	1,469,730	1,490,030	1,484,205	1,466,155
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)	2.34	3.51	3.07	2.70	2.36
Diesel (\$/gallon)	2.64	4.23	3.47	2.92	2.60
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)	2,458,932	2,540,590	2,540,447	2,494,401	2,426,392
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	21	22	22	21	21
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	5,512,334	5,700,996	5,698,427	5,601,694	5,446,475
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	49	52	52	52	51
Rank	--	--	--	--	--
Travel Time Index					
	1.25	1.26	1.26	1.26	1.26
Rank	--	--	--	--	--
Commuter Stress Index					
	1.31	1.32	1.33	1.32	1.32
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	139,437	143,614	149,072	150,484	151,193
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,202	1,239	1,288	1,304	1,313
Rank	--	--	--	--	--

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The Mobility Data for 101 Area Sum

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	160,125	158,140	155,910	153,665	151,360
Rank	--	--	--	--	--
Commuters (1000s)	72,070	70,747	68,891	66,840	64,800
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,486,905	1,443,440	1,395,765	1,355,790	1,317,715
Arterial Streets	1,442,025	1,405,865	1,371,820	1,334,625	1,306,200
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)	2.01	1.57	1.45	1.61	1.59
Diesel (\$/gallon)	2.04	1.58	1.43	1.61	1.56
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)	2,348,990	2,256,374	2,163,723	2,063,755	1,963,983
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	20	20	19	18	17
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	5,273,507	5,065,390	4,857,646	4,635,508	4,414,356
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	50	49	48	47	46
Rank	--	--	--	--	--
Travel Time Index					
	1.25	1.25	1.24	1.24	1.23
Rank	--	--	--	--	--
Commuter Stress Index					
	1.32	1.31	1.31	1.30	1.30
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	151,324	149,206	146,296	141,771	138,799
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,318	1,302	1,281	1,245	1,223
Rank	--	--	--	--	--

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The Mobility Data for 101 Area Sum

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	148,920	146,950	144,650	142,610	140,455
Rank	--	--	--	--	--
Commuters (1000s)	62,780	61,004	59,126	57,384	55,622
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,281,685	1,243,898	1,203,645	1,170,780	1,133,975
Arterial Streets	1,275,870	1,242,925	1,220,440	1,190,175	1,157,900
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)	1.23	1.13	1.24	1.28	1.21
Diesel (\$/gallon)	1.23	1.22	1.33	1.35	1.27
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)	1,865,797	1,765,837	1,673,173	1,579,804	1,487,666
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	16	16	15	14	13
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	4,197,637	3,976,998	3,771,346	3,566,098	3,359,562
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	45	44	43	42	40
Rank	--	--	--	--	--
Travel Time Index					
	1.23	1.22	1.22	1.21	1.20
Rank	--	--	--	--	--
Commuter Stress Index					
	1.29	1.28	1.28	1.27	1.26
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	136,380	132,013	127,107	122,907	119,207
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,206	1,174	1,134	1,102	1,074
Rank	--	--	--	--	--

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The Mobility Data for 101 Area Sum

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	138,515	136,715	134,872	133,230	130,960
Rank	--	--	--	--	--
Commuters (1000s)	54,006	52,474	50,972	49,549	47,926
Daily Vehicle-Miles of Travel (1000s)					
Freeway	1,093,515	1,058,025	1,020,540	980,130	956,800
Arterial Streets	1,126,420	1,090,120	1,056,258	1,020,815	995,475
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	1.15	1.17	1.14	1.10
Diesel (\$/gallon)	1.15	1.20	1.20	1.26	1.13
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)	1,398,805	1,311,121	1,231,626	1,159,340	1,088,036
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	12	11	11	10
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	3,162,725	2,966,500	2,789,431	2,630,985	2,467,827
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	39	37	36	35	34
Rank	--	--	--	--	--
Travel Time Index					
	1.20	1.19	1.18	1.18	1.17
Rank	--	--	--	--	--
Commuter Stress Index					
	1.26	1.25	1.24	1.24	1.23
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	115,360	110,937	107,429	104,342	102,007
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,045	1,009	981	958	939
Rank	--	--	--	--	--

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The Mobility Data for 101 Area Sum

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	129,185	127,415	125,265	123,430	121,495
Rank	--	--	--	--	--
Commuters (1000s)	46,858	45,789	44,617	43,548	42,497
Daily Vehicle-Miles of Travel (1000s)					
Freeway	922,256	878,955	834,105	785,475	740,161
Arterial Streets	967,470	945,580	909,640	889,425	857,035
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	1.32
Diesel (\$/gallon)	1.08	1.00	1.01	0.98	1.28
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)	1,022,875	964,086	902,645	846,519	795,728
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	9	9	8	8	7
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	2,324,528	2,192,881	2,052,686	1,926,107	1,814,066
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	32	31	30	29	28
Rank	--	--	--	--	--
Travel Time Index					
	1.16	1.16	1.15	1.15	1.14
Rank	--	--	--	--	--
Commuter Stress Index					
	1.22	1.22	1.21	1.20	1.20
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	101,235	100,065	97,561	94,902	91,024
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	936	927	906	884	850
Rank	--	--	--	--	--

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

The Mobility Data for 101 Area Sum

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	119,410	118,220	117,220
Rank	--	--	--
Commuters (1000s)	41,378	40,602	39,791
Daily Vehicle-Miles of Travel (1000s)			
Freeway	701,530	662,645	628,450
Arterial Streets	826,240	804,760	781,010
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	46.47	44.23	43.08
Gasoline (\$/gallon)	1.33	1.36	1.43
Diesel (\$/gallon)	1.29	1.32	1.38
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)	742,207	689,485	643,820
Rank	--	--	--
Fuel per Peak Auto Commuter (gallons)	7	6	6
Rank	--	--	--
Annual Delay			
Total Delay (1000s of person-hours)	1,689,722	1,571,683	1,464,317
Rank	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	27	25	24
Rank	--	--	--
Travel Time Index			
	1.13	1.13	1.12
Rank	--	--	--
Commuter Stress Index			
	1.19	1.18	1.17
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)			
	--	--	--
Rank	--	--	--
Congestion Cost (constant 2014 \$)			
Total Cost (\$ millions)	87,864	85,244	82,093
Rank	--	--	--
Cost per Peak Auto Commuter (\$)	818	797	801
Rank	--	--	--

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