

Performance Measure Summary - Large 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 Large Area Average

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	1,685	1,668	1,649	1,630	1,614
Rank	--	--	--	--	--
Commuters (1000s)	844	844	836	830	819
Daily Vehicle-Miles of Travel (1000s)					
Freeway	15,911	16,464	15,380	15,924	15,752
Arterial Streets	14,090	14,629	14,242	14,449	14,278
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)	3.33	3.56	3.53	3.36	2.75
Diesel (\$/gallon)	3.67	3.92	3.93	3.71	3.01
System Performance	2014	2013	2012	2011	2010
Congested Travel (% of peak VMT)	31	--	--	--	--
Congested System (% of lane-miles)	26	--	--	--	--
Congested Time (number of "Rush Hours")	3.75	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	25,692	25,162	24,663	24,049	23,502
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	21	21	20	20	19
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	55,391	54,211	53,105	51,808	50,639
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	45	44	44	43	43
Rank	--	--	--	--	--
Travel Time Index					
	1.23	1.23	1.23	1.22	1.22
Rank	--	--	--	--	--
Commuter Stress Index					
	1.28	1.28	1.27	1.27	1.27
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	2.46	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	1,281	1,274	1,267	1,261	1,272
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,045	1,039	1,033	1,028	1,038
Rank	--	--	--	--	--

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

The Mobility Data for Large Area Average

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	1,593	1,574	1,556	1,534	1,513
Rank	--	--	--	--	--
Commuters (1000s)	806	794	780	765	750
Daily Vehicle-Miles of Travel (1000s)					
Freeway	15,459	15,257	15,569	15,309	15,035
Arterial Streets	14,111	14,131	14,277	14,206	14,077
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)	2.30	3.47	3.02	2.67	2.34
Diesel (\$/gallon)	2.61	4.17	3.43	2.90	2.56
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)	22,787	23,618	23,443	22,952	22,298
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	19	19	19	19	18
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	49,099	50,973	50,599	49,518	48,049
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	42	44	45	44	44
Rank	--	--	--	--	--
Travel Time Index					
	1.22	1.23	1.23	1.23	1.23
Rank	--	--	--	--	--
Commuter Stress Index					
	1.26	1.28	1.28	1.28	1.28
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	1,254	1,296	1,336	1,344	1,348
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,023	1,057	1,091	1,098	1,102
Rank	--	--	--	--	--

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

The Mobility Data for Large Area Average

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	1,496	1,471	1,447	1,422	1,394
Rank	--	--	--	--	--
Commuters (1000s)	737	721	699	676	653
Daily Vehicle-Miles of Travel (1000s)					
Freeway	14,700	14,206	13,686	13,290	12,908
Arterial Streets	13,872	13,568	13,172	12,828	12,498
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)	1.97	1.56	1.42	1.55	1.57
Diesel (\$/gallon)	2.01	1.53	1.41	1.59	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)	21,612	20,636	19,735	18,775	17,664
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	18	17	16	16	15
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	46,506	44,367	42,384	40,278	37,871
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	43	42	41	40	39
Rank	--	--	--	--	--
Travel Time Index					
	1.22	1.22	1.21	1.21	1.20
Rank	--	--	--	--	--
Commuter Stress Index					
	1.27	1.26	1.26	1.25	1.25
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	1,349	1,322	1,291	1,247	1,205
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,104	1,082	1,059	1,025	994
Rank	--	--	--	--	--

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The Mobility Data for Large Area Average

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	1,369	1,349	1,331	1,308	1,285
Rank	--	--	--	--	--
Commuters (1000s)	631	612	594	575	556
Daily Vehicle-Miles of Travel (1000s)					
Freeway	12,581	12,209	11,838	11,466	11,038
Arterial Streets	12,200	11,893	11,646	11,339	10,992
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)	1.21	1.12	1.22	1.29	1.19
Diesel (\$/gallon)	1.22	1.21	1.31	1.38	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)	16,629	15,583	14,708	13,829	12,888
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	14	13	12	12	11
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	35,637	33,355	31,457	29,554	27,544
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	38	36	35	34	33
Rank	--	--	--	--	--
Travel Time Index					
	1.19	1.18	1.18	1.17	1.17
Rank	--	--	--	--	--
Commuter Stress Index					
	1.24	1.23	1.22	1.22	1.21
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	1,172	1,121	1,074	1,033	991
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	969	929	892	862	831
Rank	--	--	--	--	--

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The Mobility Data for Large Area Average

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	1,263	1,241	1,220	1,200	1,175
Rank	--	--	--	--	--
Commuters (1000s)	538	521	504	488	470
Daily Vehicle-Miles of Travel (1000s)					
Freeway	10,582	10,095	9,574	9,091	8,787
Arterial Streets	10,607	10,195	9,844	9,495	9,159
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	1.14	1.15	1.14	1.10
Diesel (\$/gallon)	1.17	1.22	1.22	1.25	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)	11,927	10,958	10,094	9,327	8,520
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	10	9	9	8	7
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	25,500	23,448	21,616	19,980	18,217
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	31	29	28	26	25
Rank	--	--	--	--	--
Travel Time Index					
	1.16	1.15	1.14	1.13	1.13
Rank	--	--	--	--	--
Commuter Stress Index					
	1.20	1.19	1.18	1.18	1.17
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	943	889	845	804	765
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	794	749	713	680	649
Rank	--	--	--	--	--

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

The Mobility Data for Large Area Average

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	1,153	1,136	1,113	1,095	1,078
Rank	--	--	--	--	--
Commuters (1000s)	457	447	434	423	414
Daily Vehicle-Miles of Travel (1000s)					
Freeway	8,381	8,009	7,579	7,148	6,740
Arterial Streets	8,845	8,647	8,305	8,076	7,753
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)	1.13	1.04	1.04	1.02	1.33
Diesel (\$/gallon)	1.10	1.01	1.02	0.99	1.30
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)	7,794	7,075	6,392	5,849	5,336
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	7	6	5	5	5
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	16,657	15,137	13,671	12,515	11,415
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	23	22	20	19	17
Rank	--	--	--	--	--
Travel Time Index					
	1.12	1.11	1.10	1.10	1.09
Rank	--	--	--	--	--
Commuter Stress Index					
	1.16	1.15	1.14	1.14	1.13
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	738	702	661	627	583
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	626	594	559	531	494
Rank	--	--	--	--	--

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

The Mobility Data for Large Area Average

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	1,062	1,048	1,015
Rank	--	--	--
Commuters (1000s)	404	396	380
Daily Vehicle-Miles of Travel (1000s)			
Freeway	6,421	6,044	5,616
Arterial Streets	7,489	7,206	6,825
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	46.47	44.23	43.08
Gasoline (\$/gallon)	1.35	1.38	1.44
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)	4,841	4,404	3,896
Rank	--	--	--
Fuel per Peak Auto Commuter (gallons)	4	4	3
Rank	--	--	--
Annual Delay			
Total Delay (1000s of person-hours)	10,364	9,420	8,304
Rank	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	16	15	14
Rank	--	--	--
Travel Time Index			
	1.08	1.08	1.07
Rank	--	--	--
Commuter Stress Index			
	1.12	1.12	1.11
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)			
	--	--	--
Rank	--	--	--
Congestion Cost (constant 2014 \$)			
Total Cost (\$ millions)	548	519	472
Rank	--	--	--
Cost per Peak Auto Commuter (\$)	464	441	409
Rank	--	--	--

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