

Performance Measure Summary - 101 Area Average

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 101 Area Average

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	1,782	1,771	1,759	1,750	1,736	1,720
Rank	--	--	--	--	--	--
Commuters (1000s)	818	804	797	792	794	789
Daily Vehicle-Miles of Travel (1000s)						
Freeway	16,736	16,515	16,013	15,432	15,065	14,860
Arterial Streets	15,485	15,339	15,033	14,879	14,725	14,639
Cost Components						
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)	2.42	2.24	2.41	3.35	3.61	3.58
Diesel (\$/gallon)	2.59	2.36	2.60	3.67	3.96	3.97
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	29.2	--	--	--	--	--
Congested System (% of lane-miles)	17.2	--	--	--	--	--
Congested Time (number of "Rush Hours")	4.5	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	27,610	27,327	27,028	26,727	26,442	26,007
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	26	25	25	24	24	24
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	74,303	72,506	70,784	68,899	67,234	65,168
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	66	64	62	61	59	57
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.28	1.28	1.27	1.27	1.27	1.26
Commuter Stress Index						
Rank	1.32	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	1.86	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	1,502	1,442	1,390	1,372	1,320	1,261
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,324	1,295	1,257	1,212	1,197	1,175
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	3,121	3,045	2,973	2,894	2,824	2,737
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	5,853	5,793	5,730	5,666	5,606	5,513
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	158	148	138	135	124	117
Rank	--	--	--	--	--	--

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

Mobility Data for 101 Area Average

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	1,704	1,690	1,672	1,654	1,637	1,619
Rank	--	--	--	--	--	--
Commuters (1000s)	784	777	767	757	748	737
Daily Vehicle-Miles of Travel (1000s)						
Freeway	15,388	15,153	14,903	15,748	15,038	14,908
Arterial Streets	14,886	14,752	14,703	14,695	14,898	14,842
Cost Components						
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)	3.40	2.79	2.34	3.51	3.07	2.70
Diesel (\$/gallon)	3.76	3.04	2.64	4.23	3.47	2.92
System Performance	2011	2010	2009	2008	2007	2006
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	25,457	24,967	24,488	25,288	25,292	24,873
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	23	23	21	22	22	22
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	62,689	60,657	58,438	57,547	57,522	56,645
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	56	54	53	52	52	52
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.26	1.25	1.25	1.26	1.27	1.26
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	1,201	1,113	1,046	1,066	1,016	965
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,167	1,166	1,145	1,118	1,165	1,183
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	2,633	2,548	2,454	2,417	2,416	2,379
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	5,397	5,293	5,192	5,361	5,362	5,273
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	124	111	104	109	102	95
Rank	--	--	--	--	--	--

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

Mobility Data for 101 Area Average

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	1,602	1,586	1,566	1,544	1,522	1,499
Rank	--	--	--	--	--	--
Commuters (1000s)	725	714	701	682	662	642
Daily Vehicle-Miles of Travel (1000s)						
Freeway	14,726	14,479	14,051	13,581	13,200	12,824
Arterial Streets	14,665	14,417	14,064	13,734	13,390	13,091
Cost Components						
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)	2.36	2.01	1.57	1.45	1.61	1.59
Diesel (\$/gallon)	2.60	2.04	1.58	1.43	1.61	1.56
System Performance	2005	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)	24,212	23,460	22,549	21,636	20,647	19,664
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	22	22	21	20	19	19
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	55,113	53,415	51,344	49,273	47,053	44,854
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	52	51	50	49	48	47
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.26	1.25	1.25	1.24	1.24	1.23
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	903	839	775	725	684	634
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,192	1,198	1,186	1,167	1,134	1,116
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	2,315	2,243	2,156	2,069	1,976	1,884
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	5,133	4,974	4,780	4,587	4,377	4,169
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	88	80	72	66	62	57
Rank	--	--	--	--	--	--

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Mobility Data for 101 Area Average

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	1,475	1,455	1,432	1,412	1,391	1,371
Rank	--	--	--	--	--	--
Commuters (1000s)	622	604	585	568	551	535
Daily Vehicle-Miles of Travel (1000s)						
Freeway	12,475	12,103	11,714	11,390	11,035	10,650
Arterial Streets	12,800	12,477	12,247	11,955	11,643	11,306
Cost Components						
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)	1.23	1.13	1.24	1.28	1.21	1.10
Diesel (\$/gallon)	1.23	1.22	1.33	1.35	1.27	1.15
System Performance	1999	1998	1997	1996	1995	1994
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	18,697	17,715	16,803	15,887	14,974	14,091
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	18	17	16	15	14	14
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	42,697	40,508	38,461	36,425	34,346	32,368
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	46	45	44	42	41	40
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.23	1.22	1.22	1.21	1.20	1.20
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	578	536	503	467	428	391
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	1,103	1,077	1,042	1,016	993	970
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	1,793	1,701	1,615	1,530	1,443	1,359
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	3,964	3,756	3,562	3,368	3,174	2,987
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	51	48	45	42	39	36
Rank	--	--	--	--	--	--

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Mobility Data for 101 Area Average

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	1,354	1,335	1,319	1,297	1,279	1,262
Rank	--	--	--	--	--	--
Commuters (1000s)	520	505	491	475	464	453
Daily Vehicle-Miles of Travel (1000s)						
Freeway	10,287	9,907	9,516	9,283	8,933	8,510
Arterial Streets	10,936	10,590	10,231	9,967	9,695	9,462
Cost Components						
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)	1.15	1.17	1.14	1.10	1.12	1.03
Diesel (\$/gallon)	1.20	1.20	1.26	1.13	1.08	1.00
System Performance	1993	1992	1991	1990	1989	1988
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	13,217	12,428	11,719	11,011	10,379	9,800
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	12	11	11	10	10
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	30,383	28,600	27,029	25,382	23,976	22,659
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	38	37	36	34	33	32
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.19	1.18	1.18	1.17	1.16	1.16
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	359	330	303	274	247	223
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	939	915	898	882	885	882
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	1,276	1,201	1,135	1,066	1,007	952
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	2,802	2,635	2,484	2,334	2,200	2,078
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	34	31	29	27	25	23
Rank	--	--	--	--	--	--

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Mobility Data for 101 Area Average

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	1,240	1,222	1,203	1,182	1,170	1,161
Rank	--	--	--	--	--	--
Commuters (1000s)	442	431	421	410	402	394
Daily Vehicle-Miles of Travel (1000s)						
Freeway	8,083	7,616	7,189	6,826	6,454	6,119
Arterial Streets	9,121	8,933	8,640	8,352	8,135	8,003
Cost Components						
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)	1.04	1.01	1.32	1.33	1.36	1.43
Diesel (\$/gallon)	1.01	0.98	1.28	1.29	1.32	1.38
System Performance	1987	1986	1985	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)	9,186	8,621	8,120	7,574	7,049	6,577
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	9	8	8	8	7	7
Rank	--	--	--	--	--	--
Annual Delay						
Total Delay (1000s of person-hours)	21,234	19,938	18,817	17,519	16,331	15,211
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	31	29	28	27	26	25
Rank	--	--	--	--	--	--
Travel Time Index						
Rank	1.15	1.15	1.14	1.13	1.13	1.12
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	201	183	172	156	140	127
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	863	844	812	779	764	740
Rank	--	--	--	--	--	--
Truck Congestion						
Annual Person-Hours of Delay (000)	892	837	790	736	686	639
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	1,947	1,828	1,722	1,606	1,494	1,394
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	21	20	19	18	16	15
Rank	--	--	--	--	--	--

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