

Performance Measure Summary - Los Angeles-Long Beach-Anaheim CA

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 Los Angeles-Long Beach-Anaheim CA

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	12,670	12,660	12,650	12,635	12,575	12,525
Rank	2	2	2	2	2	2
Commuters (1000s)	5,905	5,899	5,892	5,881	5,928	5,904
Daily Vehicle-Miles of Travel (1000s)						
Freeway	133,061	132,796	132,630	132,120	131,010	131,200
Arterial Streets	117,129	116,646	113,286	119,349	117,290	117,015
Cost Components						
Value of Time (\$/hour)	18.12	17.91	17.69	17.67	17.39	17.14
Commercial Cost (\$/hour)	52.14	50.20	46.87	44.82	41.23	39.66
Gasoline (\$/gallon)	2.96	2.78	3.18	3.63	3.89	3.89
Diesel (\$/gallon)	2.95	2.68	2.86	3.85	4.12	4.20
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	56.7	--	--	--	--	--
Congested System (% of lane-miles)	34.6	--	--	--	--	--
Congested Time (number of "Rush Hours")	6.1	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	256,931	252,933	250,199	247,276	245,255	243,075
Rank	2	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	35	33	32	31	30	29
Rank	4	4	4	4	4	5
Annual Delay						
Total Delay (1000s of person-hours)	971,478	942,350	924,196	897,650	874,694	859,180
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	119	116	113	108	105	103
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.51	1.50	1.49	1.48	1.48	1.47
Rank	1	1	1	1	1	1
Commuter Stress Index						
Rank	1.73	--	--	--	--	--
Rank	1	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	2.87	--	--	--	--	--
Rank	1	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	19,490	18,609	18,037	17,587	16,867	16,325
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,676	2,612	2,548	2,396	2,358	2,345
Rank	1	1	1	2	2	2
Truck Congestion						
Annual Person-Hours of Delay (000)	40,802	39,579	38,816	37,701	36,737	36,086
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	54,469	53,622	53,042	52,422	51,994	51,532
Rank	2	2	2	2	2	2
Annual Congestion Cost (\$ million)	2,027	1,887	1,748	1,684	1,543	1,472
Rank	1	1	1	1	1	1

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

Mobility Data for Los Angeles-Long Beach-Anaheim CA

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	12,480	12,430	12,390	12,345	12,305	12,260
Rank	2	2	2	2	2	2
Commuters (1000s)	5,873	5,828	5,798	5,756	5,727	5,696
Daily Vehicle-Miles of Travel (1000s)						
Freeway	137,813	132,195	132,500	133,000	135,235	134,000
Arterial Streets	116,970	116,042	116,702	118,000	120,690	125,800
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)	3.51	3.05	2.61	3.84	3.24	2.88
Diesel (\$/gallon)	4.02	3.20	2.71	4.39	3.60	3.17
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)	240,499	238,375	237,339	249,461	245,970	249,568
Rank	2	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	28	27	26	27	26	27
Rank	6	6	5	4	6	5
Annual Delay						
Total Delay (1000s of person-hours)	834,758	812,204	793,559	794,371	783,254	794,710
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	101	97	96	93	92	92
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.45	1.45	1.45	1.46	1.47	1.46
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	15,669	14,674	14,019	14,410	13,558	13,309
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,353	2,358	2,344	2,326	2,385	2,485
Rank	1	1	1	1	2	1
Truck Congestion						
Annual Person-Hours of Delay (000)	35,060	34,113	33,329	33,364	32,897	33,378
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	50,986	50,536	50,316	52,886	52,146	52,908
Rank	2	2	2	2	2	2
Annual Congestion Cost (\$ million)	1,577	1,433	1,359	1,425	1,322	1,277
Rank	1	1	1	1	1	1

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

Mobility Data for Los Angeles-Long Beach-Anaheim CA

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	12,235	12,215	12,200	12,175	12,150	12,120
Rank	2	2	2	2	2	2
Commuters (1000s)	5,663	5,612	5,574	5,479	5,375	5,279
Daily Vehicle-Miles of Travel (1000s)						
Freeway	133,080	139,275	136,000	135,340	129,755	126,495
Arterial Streets	125,500	126,010	124,535	125,435	122,720	122,130
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)	2.62	2.28	1.78	1.66	1.93	1.72
Diesel (\$/gallon)	2.93	2.27	1.79	1.58	1.78	1.68
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)	242,072	237,736	229,508	221,966	216,824	211,622
Rank	2	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	26	26	26	26	25	25
Rank	6	5	5	6	7	3
Annual Delay						
Total Delay (1000s of person-hours)	770,842	757,034	730,833	706,816	690,442	673,878
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	91	91	90	88	86	84
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.45	1.43	1.42	1.41	1.41	1.41
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	12,454	11,749	10,935	10,310	9,957	9,412
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,490	2,529	2,507	2,476	2,452	2,461
Rank	1	1	2	2	2	2
Truck Congestion						
Annual Person-Hours of Delay (000)	32,375	31,795	30,695	29,686	28,999	28,303
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	51,319	50,400	48,656	47,057	45,967	44,864
Rank	2	2	2	2	2	2
Annual Congestion Cost (\$ million)	1,187	1,096	1,000	926	883	830
Rank	1	1	1	1	1	1

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

Mobility Data for Los Angeles-Long Beach-Anaheim CA

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	12,100	12,175	12,150	12,120	12,050	12,000
Rank	2	2	2	2	2	2
Commuters (1000s)	5,177	5,126	5,032	4,937	4,837	4,735
Daily Vehicle-Miles of Travel (1000s)						
Freeway	123,200	121,555	117,920	117,800	116,050	113,625
Arterial Streets	120,665	119,485	121,020	122,490	121,320	119,085
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)	1.59	1.27	1.40	1.21	1.27	1.16
Diesel (\$/gallon)	1.50	1.39	1.51	1.24	1.31	1.19
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)	206,170	202,433	196,729	192,742	182,946	176,181
Rank	2	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	23	24	21	22	21	20
Rank	6	3	7	2	3	4
Annual Delay						
Total Delay (1000s of person-hours)	656,518	644,617	626,452	613,756	582,565	561,021
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	82	82	81	79	77	75
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.40	1.40	1.39	1.39	1.38	1.37
Rank	1	1	1	1	1	1
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	8,850	8,464	8,127	7,756	7,175	6,716
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,478	2,490	2,457	2,465	2,412	2,390
Rank	2	2	2	2	2	2
Truck Congestion						
Annual Person-Hours of Delay (000)	27,574	27,074	26,311	25,778	24,468	23,563
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	43,708	42,916	41,706	40,861	38,785	37,350
Rank	2	1	1	1	1	1
Annual Congestion Cost (\$ million)	774	746	721	687	646	610
Rank	1	1	1	1	1	1

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

Mobility Data for Los Angeles-Long Beach-Anaheim CA

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	11,950	11,845	11,760	11,420	11,305	11,140
Rank	2	2	2	2	2	2
Commuters (1000s)	4,643	4,522	4,419	4,223	4,142	4,043
Daily Vehicle-Miles of Travel (1000s)						
Freeway	114,000	111,955	110,280	110,345	106,680	102,245
Arterial Streets	115,865	114,590	113,700	116,455	114,780	111,305
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)	1.23	1.28	1.11	1.14	1.14	1.05
Diesel (\$/gallon)	1.26	1.25	1.25	1.19	1.09	1.01
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)	166,612	160,329	158,040	148,311	145,052	138,250
Rank	1	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	19	17	17	15	16	16
Rank	3	4	3	4	3	3
Annual Delay						
Total Delay (1000s of person-hours)	530,549	510,543	503,255	472,274	461,897	440,236
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	73	72	71	70	69	68
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.35	1.35	1.35	1.34	1.34	1.33
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	6,213	5,827	5,571	5,033	4,693	4,278
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,321	2,303	2,343	2,297	2,375	2,380
Rank	2	2	2	2	2	2
Truck Congestion						
Annual Person-Hours of Delay (000)	22,283	21,443	21,137	19,836	19,400	18,490
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	35,322	33,990	33,505	31,442	30,751	29,309
Rank	1	1	1	1	1	1
Annual Congestion Cost (\$ million)	573	544	530	489	469	439
Rank	1	1	1	1	1	1

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

Mobility Data for Los Angeles-Long Beach-Anaheim CA

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	10,920	10,710	10,500	9,900	9,900	9,900
Rank	2	2	2	2	2	2
Commuters (1000s)	3,926	3,823	3,712	3,466	3,433	3,407
Daily Vehicle-Miles of Travel (1000s)						
Freeway	96,990	89,590	82,940	77,260	74,780	72,475
Arterial Streets	102,635	100,845	98,635	96,005	93,300	90,390
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)	1.05	1.03	1.35	1.36	1.39	1.46
Diesel (\$/gallon)	1.01	0.99	1.29	1.31	1.34	1.40
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)	128,900	122,863	119,893	109,000	104,598	95,498
Rank	1	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	15	13	14	13	13	14
Rank	3	4	3	3	2	2
Annual Delay						
Total Delay (1000s of person-hours)	410,461	391,238	381,781	347,093	333,077	304,098
Rank	1	1	1	1	1	1
Delay per Auto Commuter (pers-hrs)	66	64	62	61	60	60
Rank	1	1	1	1	1	1
Travel Time Index						
Rank	1.32	1.31	1.31	1.30	1.29	1.27
Rank	1	1	1	1	1	1
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	3,846	3,546	3,439	3,030	2,805	2,497
Rank	1	1	1	1	1	1
Cost per Auto Commuter (\$)	2,317	2,294	2,279	2,150	2,158	2,036
Rank	2	2	2	2	2	2
Truck Congestion						
Annual Person-Hours of Delay (000)	17,239	16,432	16,035	14,578	13,989	12,772
Rank	1	1	1	1	1	1
Annual Gallons of Wasted Fuel (000)	27,327	26,047	25,417	23,108	22,175	20,246
Rank	1	1	1	1	1	1
Annual Congestion Cost (\$ million)	405	380	374	336	320	289
Rank	1	1	1	1	1	1

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