

Performance Measure Summary - Very Large 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 Very Large Area Sum

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	93,785	93,195	92,510	91,770	91,093
Rank	--	--	--	--	--
Commuters (1000s)	38,356	38,586	38,500	38,365	38,215
Daily Vehicle-Miles of Travel (1000s)					
Freeway	784,897	776,639	803,185	829,766	814,260
Arterial Streets	770,976	758,121	734,400	752,812	744,661
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)	3.37	3.66	3.64	3.45	2.82
Diesel (\$/gallon)	3.66	3.99	4.01	3.81	3.06
System Performance	2014	2013	2012	2011	2010
Congested Travel (% of peak VMT)	42	--	--	--	--
Congested System (% of lane-miles)	34	--	--	--	--
Congested Time (number of "Rush Hours")	5.35	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	1,492,317	1,477,217	1,455,734	1,426,880	1,400,280
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	27	27	26	26	25
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	3,479,586	3,445,771	3,396,461	3,330,088	3,269,396
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	63	63	62	61	60
Rank	--	--	--	--	--
Travel Time Index					
	1.32	1.32	1.31	1.31	1.30
Rank	--	--	--	--	--
Commuter Stress Index					
	1.40	1.39	1.39	1.38	1.38
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	3.06	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	78,878	79,370	79,367	79,410	80,408
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,433	1,442	1,441	1,441	1,458
Rank	--	--	--	--	--

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

The Mobility Data for Very Large Area Sum

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	90,284	89,410	88,620	87,820	87,120
Rank	--	--	--	--	--
Commuters (1000s)	37,815	37,411	37,199	36,803	36,365
Daily Vehicle-Miles of Travel (1000s)					
Freeway	802,487	797,985	813,385	809,445	804,490
Arterial Streets	744,591	744,305	756,415	755,950	747,625
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)	2.37	3.55	3.10	2.73	2.39
Diesel (\$/gallon)	2.66	4.28	3.50	2.94	2.64
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)	1,381,606	1,424,721	1,437,447	1,421,313	1,387,070
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	25	26	26	26	25
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	3,227,565	3,332,312	3,356,682	3,323,699	3,242,041
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	60	63	63	63	63
Rank	--	--	--	--	--
Travel Time Index					
	1.30	1.32	1.32	1.32	1.32
Rank	--	--	--	--	--
Commuter Stress Index					
	1.38	1.39	1.40	1.40	1.39
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	80,702	82,967	86,818	88,280	88,978
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,464	1,507	1,576	1,605	1,619
Rank	--	--	--	--	--

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The Mobility Data for Very Large Area Sum

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	86,315	85,505	84,490	83,420	82,385
Rank	--	--	--	--	--
Commuters (1000s)	35,820	35,261	34,467	33,500	32,547
Daily Vehicle-Miles of Travel (1000s)					
Freeway	795,775	776,555	752,150	731,920	712,225
Arterial Streets	737,105	718,125	703,750	684,145	671,130
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)	2.04	1.58	1.47	1.65	1.61
Diesel (\$/gallon)	2.07	1.63	1.45	1.64	1.58
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)	1,343,992	1,294,736	1,245,917	1,189,105	1,136,499
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	24	24	23	22	21
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	3,144,210	3,029,963	2,916,703	2,788,059	2,668,173
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	62	60	59	58	57
Rank	--	--	--	--	--
Travel Time Index					
	1.31	1.30	1.30	1.29	1.29
Rank	--	--	--	--	--
Commuter Stress Index					
	1.39	1.38	1.38	1.37	1.37
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	89,180	88,208	86,815	84,251	82,885
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,626	1,611	1,588	1,546	1,524
Rank	--	--	--	--	--

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The Mobility Data for Very Large Area Sum

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	81,120	80,140	78,780	77,795	76,720
Rank	--	--	--	--	--
Commuters (1000s)	31,560	30,679	29,672	28,818	27,949
Daily Vehicle-Miles of Travel (1000s)					
Freeway	693,250	673,498	652,015	636,370	619,245
Arterial Streets	655,245	638,305	630,025	616,115	600,895
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	1.13	1.25	1.28	1.22
Diesel (\$/gallon)	1.26	1.24	1.34	1.33	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)	1,084,849	1,034,090	984,322	933,503	884,728
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	20	19	18	17	17
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	2,550,896	2,435,381	2,321,073	2,206,170	2,091,207
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	56	55	54	52	51
Rank	--	--	--	--	--
Travel Time Index					
	1.28	1.28	1.27	1.26	1.26
Rank	--	--	--	--	--
Commuter Stress Index					
	1.36	1.35	1.35	1.34	1.34
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	81,871	79,847	77,273	75,096	73,281
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,511	1,482	1,440	1,405	1,377
Rank	--	--	--	--	--

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The Mobility Data for Very Large Area Sum

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	75,860	75,105	74,262	73,570	72,435
Rank	--	--	--	--	--
Commuters (1000s)	27,186	26,499	25,784	25,137	24,338
Daily Vehicle-Miles of Travel (1000s)					
Freeway	598,880	583,685	567,655	550,625	540,990
Arterial Streets	587,300	569,445	552,325	534,745	524,965
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	1.18	1.14	1.10
Diesel (\$/gallon)	1.14	1.20	1.19	1.27	1.14
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)	838,810	795,570	755,758	719,728	685,807
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	16	15	14	13	13
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	1,984,622	1,881,447	1,787,618	1,705,263	1,621,936
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	49	48	47	46	45
Rank	--	--	--	--	--
Travel Time Index					
	1.25	1.24	1.24	1.23	1.22
Rank	--	--	--	--	--
Commuter Stress Index					
	1.33	1.32	1.31	1.31	1.30
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	71,492	69,515	68,024	66,823	66,250
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,349	1,315	1,290	1,272	1,261
Rank	--	--	--	--	--

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The Mobility Data for Very Large Area Sum

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	71,640	70,715	69,610	68,665	67,585
Rank	--	--	--	--	--
Commuters (1000s)	23,842	23,300	22,717	22,187	21,624
Daily Vehicle-Miles of Travel (1000s)					
Freeway	524,380	497,935	472,180	443,345	415,645
Arterial Streets	512,470	500,945	482,735	470,155	452,490
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)	1.11	1.02	1.03	1.00	1.31
Diesel (\$/gallon)	1.07	0.99	1.01	0.97	1.27
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)	655,850	629,427	598,340	566,798	540,535
Rank	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	12	11	11	10
Rank	--	--	--	--	--
Annual Delay					
Total Delay (1000s of person-hours)	1,552,907	1,488,922	1,412,632	1,337,773	1,277,407
Rank	--	--	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	44	43	41	40	39
Rank	--	--	--	--	--
Travel Time Index					
	1.22	1.21	1.21	1.20	1.20
Rank	--	--	--	--	--
Commuter Stress Index					
	1.30	1.29	1.28	1.28	1.27
Rank	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	66,842	67,185	66,413	65,213	63,430
Rank	--	--	--	--	--
Cost per Peak Auto Commuter (\$)	1,275	1,283	1,269	1,247	1,215
Rank	--	--	--	--	--

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

The Mobility Data for Very Large Area Sum

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	66,300	65,760	65,280
Rank	--	--	--
Commuters (1000s)	20,981	20,603	20,215
Daily Vehicle-Miles of Travel (1000s)			
Freeway	393,585	372,930	353,890
Arterial Streets	437,925	427,845	417,825
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	46.47	44.23	43.08
Gasoline (\$/gallon)	1.32	1.35	1.42
Diesel (\$/gallon)	1.28	1.31	1.37
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)	509,628	479,187	451,810
Rank	--	--	--
Fuel per Peak Auto Commuter (gallons)	10	9	9
Rank	--	--	--
Annual Delay			
Total Delay (1000s of person-hours)	1,200,633	1,129,702	1,061,842
Rank	--	--	--
Delay per Peak Auto Commuter (pers-hrs)	38	36	35
Rank	--	--	--
Travel Time Index			
	1.19	1.18	1.17
Rank	--	--	--
Commuter Stress Index			
	1.26	1.25	1.25
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)			
	--	--	--
Rank	--	--	--
Congestion Cost (constant 2014 \$)			
Total Cost (\$ millions)	61,805	60,672	58,883
Rank	--	--	--
Cost per Peak Auto Commuter (\$)	1,178	1,161	1,133
Rank	--	--	--

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