

## Performance Measure Summary - Small Area Average (22 areas)

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 Small Area Average (22 areas)

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	350	347	344	341	338	334
Rank	--	--	--	--	--	--
Commuters (1000s)	177	175	173	171	171	169
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	3,317	3,272	3,148	3,018	2,883	2,950
Arterial Streets	3,606	3,523	3,434	3,364	3,322	3,411
<b>Cost Components</b>						
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)	2.48	2.29	2.50	3.39	3.61	3.57
Diesel (\$/gallon)	2.59	2.36	2.60	3.68	3.95	3.97
System Performance	2017	2016	2015	2014	2013	2012
<b>Congested Travel (% of peak VMT)</b>	13.0	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	9.4	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	1.0	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	3,594	3,512	3,409	3,347	3,295	3,217
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	16	16	15	15	14	14
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	9,098	8,784	8,398	8,120	7,861	7,577
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	37	36	35	34	33	32
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.14	1.14	1.14	1.14	1.14	1.14
<b>Commuter Stress Index</b>						
Rank	1.15	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	1.27	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	184	175	165	162	155	147
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	684	666	633	608	594	579
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	382	369	353	341	330	318
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	762	745	723	710	699	682
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	20	18	16	16	15	14
Rank	--	--	--	--	--	--

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

## Mobility Data for Small Area Average (22 areas)

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	331	327	322	318	316	311
Rank	--	--	--	--	--	--
Commuters (1000s)	168	165	162	159	157	154
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	3,052	3,014	2,973	2,930	3,015	2,970
Arterial Streets	3,433	3,404	3,363	3,366	3,416	3,336
<b>Cost Components</b>						
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)	3.41	2.81	2.36	3.52	3.07	2.70
Diesel (\$/gallon)	3.79	3.05	2.63	4.23	3.44	2.90
System Performance	2011	2010	2009	2008	2007	2006
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	3,162	3,099	3,018	3,114	3,090	2,982
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	14	14	13	13	14	13
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	7,324	7,077	6,760	6,611	6,581	6,360
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	31	30	30	29	29	29
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.14	1.14	1.14	1.14	1.14	1.14
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	141	130	121	123	117	109
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	578	576	560	542	575	571
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	308	297	284	278	276	267
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	670	657	640	660	655	632
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	15	13	12	13	12	11
Rank	--	--	--	--	--	--

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

## Mobility Data for Small Area Average (22 areas)

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	307	302	296	290	286	280
Rank	--	--	--	--	--	--
Commuters (1000s)	151	148	144	139	135	130
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	2,885	2,800	2,670	2,567	2,514	2,423
Arterial Streets	3,261	3,165	3,022	2,918	2,832	2,774
<b>Cost Components</b>						
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	2.03	1.59	1.45	1.63	1.58
Diesel (\$/gallon)	2.61	2.05	1.60	1.42	1.61	1.55
System Performance	2005	2004	2003	2002	2001	2000
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	2,843	2,692	2,538	2,380	2,214	2,055
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	13	12	12	11	10	10
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	6,054	5,714	5,373	5,036	4,676	4,326
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	28	27	27	26	25	24
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.14	1.13	1.12	1.12	1.11	1.11
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	100	90	81	74	68	61
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	563	548	529	509	479	455
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	254	240	226	212	196	182
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	603	571	538	505	469	436
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	10	9	8	7	6	6
Rank	--	--	--	--	--	--

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

## Mobility Data for Small Area Average (22 areas)

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	276	271	267	261	255	251
Rank	--	--	--	--	--	--
Commuters (1000s)	126	122	119	114	110	107
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	2,368	2,295	2,215	2,148	2,073	2,006
Arterial Streets	2,729	2,644	2,586	2,518	2,455	2,404
<b>Cost Components</b>						
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)	1.25	1.12	1.25	1.27	1.20	1.10
Diesel (\$/gallon)	1.23	1.21	1.32	1.31	1.25	1.14
System Performance	1999	1998	1997	1996	1995	1994
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	1,917	1,776	1,650	1,518	1,405	1,303
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	9	8	8	7	7	6
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	4,028	3,730	3,463	3,185	2,937	2,726
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	23	21	20	19	18	17
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.10	1.09	1.09	1.09	1.08	1.08
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	55	50	46	41	37	33
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	441	420	398	376	361	344
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	169	157	145	134	123	114
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	406	376	350	322	298	276
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	5	4	4	4	3	3
Rank	--	--	--	--	--	--

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## Mobility Data for Small Area Average (22 areas)

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	246	241	237	233	229	225
Rank	--	--	--	--	--	--
Commuters (1000s)	103	100	97	94	91	89
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	1,917	1,854	1,779	1,714	1,653	1,590
Arterial Streets	2,354	2,314	2,245	2,193	2,135	2,079
<b>Cost Components</b>						
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)	1.16	1.17	1.16	1.09	1.12	1.03
Diesel (\$/gallon)	1.20	1.19	1.24	1.12	1.09	1.01
System Performance	1993	1992	1991	1990	1989	1988
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	1,192	1,098	1,018	924	841	764
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	6	5	5	5	4	4
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	2,484	2,288	2,122	1,925	1,751	1,590
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	16	16	15	14	13	12
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.07	1.07	1.07	1.06	1.06	1.05
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	30	27	24	21	18	16
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	325	310	299	281	272	260
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	104	96	89	81	74	67
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	253	233	216	196	178	162
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	3	3	2	2	2	2
Rank	--	--	--	--	--	--

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## Mobility Data for Small Area Average (22 areas)

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	220	216	211	207	203	199
Rank	--	--	--	--	--	--
Commuters (1000s)	86	84	81	79	77	75
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	1,534	1,467	1,406	1,315	1,250	1,198
Arterial Streets	2,021	1,979	1,918	1,867	1,795	1,749
<b>Cost Components</b>						
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	1.33	1.34	1.37	1.43
Diesel (\$/gallon)	1.04	0.99	1.29	1.31	1.34	1.40
System Performance	1987	1986	1985	1984	1983	1982
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	685	627	574	526	477	432
Rank	--	--	--	--	--	--
Fuel per Peak Auto Commuter (gallons)	3	3	3	2	2	2
Rank	--	--	--	--	--	--
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	1,434	1,315	1,205	1,100	997	900
Rank	--	--	--	--	--	--
Delay per Auto Commuter (pers-hrs)	11	10	10	9	9	8
Rank	--	--	--	--	--	--
<b>Travel Time Index</b>						
Rank	1.05	1.05	1.04	1.04	1.03	1.03
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	14	12	11	10	9	8
Rank	--	--	--	--	--	--
Cost per Auto Commuter (\$)	248	234	219	204	199	187
Rank	--	--	--	--	--	--
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	60	55	51	46	42	38
Rank	--	--	--	--	--	--
Annual Gallons of Wasted Fuel (000)	145	133	122	111	101	92
Rank	--	--	--	--	--	--
Annual Congestion Cost (\$ million)	2	1	1	1	1	1
Rank	--	--	--	--	--	--

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