

# Performance Measure Summary - Sacramento 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 Sacramento CA

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	1,855	1,840	1,825	1,810	1,800	1,785
Rank	27	27	27	27	27	27
Commuters (1000s)	930	924	913	897	884	870
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	17,750	17,750	17,009	16,107	15,607	15,170
Arterial Streets	13,064	13,112	12,831	13,646	14,199	14,335
<b>Cost Components</b>						
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
<b>Congested Travel (% of peak VMT)</b>	37.6	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	22.7	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	5.2	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	28,106	27,591	27,233	26,839	26,664	26,045
Rank	24	26	25	25	25	25
Fuel per Peak Auto Commuter (gallons)	24	23	22	21	20	19
Rank	27	27	29	30	37	42
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	76,437	73,945	71,738	69,470	67,797	65,626
Rank	24	24	24	24	24	24
Delay per Auto Commuter (pers-hrs)	59	57	55	53	51	50
Rank	22	22	24	26	25	23
<b>Travel Time Index</b>						
Rank	1.28	1.27	1.27	1.26	1.26	1.25
Rank	21	21	20	22	22	23
<b>Commuter Stress Index</b>						
Rank	1.34	--	--	--	--	--
Rank	18	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	1.97	--	--	--	--	--
Rank	17	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	1,557	1,482	1,424	1,389	1,337	1,276
Rank	24	24	24	24	24	24
Cost per Auto Commuter (\$)	1,118	1,088	1,050	1,012	997	977
Rank	26	28	26	27	26	26
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	3,210	3,106	3,013	2,918	2,847	2,756
Rank	24	24	24	24	24	24
Annual Gallons of Wasted Fuel (000)	5,958	5,849	5,773	5,690	5,653	5,522
Rank	25	26	25	25	25	25
Annual Congestion Cost (\$ million)	164	152	140	137	126	119
Rank	24	24	24	24	24	24

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

# Mobility Data for Sacramento CA

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	1,780	1,770	1,760	1,750	1,740	1,725
Rank	27	29	28	27	26	26
Commuters (1000s)	862	852	843	835	828	815
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	15,556	15,400	15,300	15,335	15,955	15,805
Arterial Streets	14,377	14,233	14,200	14,130	14,135	14,455
<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)	3.51	3.05	2.61	3.84	3.24	2.88
Diesel (\$/gallon)	3.65	3.20	2.71	4.39	3.60	3.17
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)	25,425	25,167	24,894	25,906	26,524	25,727
Rank	25	25	25	26	25	25
Fuel per Peak Auto Commuter (gallons)	18	18	17	18	20	19
Rank	49	46	43	49	28	36
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	62,899	61,685	59,874	59,343	60,757	58,933
Rank	25	25	25	23	22	22
Delay per Auto Commuter (pers-hrs)	48	46	45	44	46	45
Rank	26	26	25	28	28	27
<b>Travel Time Index</b>						
Rank	1.25	1.24	1.24	1.23	1.24	1.24
Rank	22	24	24	30	29	27
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	1,205	1,136	1,076	1,105	1,076	1,008
Rank	25	25	25	23	22	23
Cost per Auto Commuter (\$)	968	978	967	949	1,010	1,006
Rank	26	24	23	25	19	20
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	2,642	2,591	2,515	2,492	2,552	2,475
Rank	25	25	25	23	22	22
Annual Gallons of Wasted Fuel (000)	5,390	5,335	5,277	5,492	5,623	5,454
Rank	25	25	25	26	25	25
Annual Congestion Cost (\$ million)	123	114	107	113	108	100
Rank	25	24	24	24	23	23

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

# Mobility Data for Sacramento CA

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	1,700	1,680	1,650	1,560	1,470	1,425
Rank	26	26	26	28	28	30
Commuters (1000s)	797	784	765	712	661	631
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	15,415	14,600	13,900	13,225	12,650	12,170
Arterial Streets	14,305	13,525	12,310	12,035	11,725	11,510
<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)	2.62	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
<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)	24,608	23,608	22,618	20,483	18,548	16,846
Rank	25	26	25	26	27	30
Fuel per Peak Auto Commuter (gallons)	18	18	18	15	14	13
Rank	43	38	30	53	54	56
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	56,369	54,078	51,809	46,920	42,486	38,588
Rank	24	25	24	25	26	27
Delay per Auto Commuter (pers-hrs)	44	43	42	40	39	37
Rank	27	28	28	30	32	37
<b>Travel Time Index</b>						
Rank	1.23	1.23	1.22	1.21	1.21	1.20
Rank	28	29	30	31	29	29
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	929	854	787	694	623	547
Rank	23	25	25	25	26	27
Cost per Auto Commuter (\$)	995	987	971	899	825	770
Rank	21	24	23	28	32	35
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	2,368	2,271	2,176	1,971	1,784	1,621
Rank	24	25	24	25	26	27
Annual Gallons of Wasted Fuel (000)	5,217	5,005	4,795	4,342	3,932	3,571
Rank	25	26	25	26	27	30
Annual Congestion Cost (\$ million)	91	81	73	63	56	49
Rank	24	24	25	25	26	27

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

# Mobility Data for Sacramento CA

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	1,390	1,355	1,300	1,260	1,240	1,220
Rank	30	31	31	32	32	32
Commuters (1000s)	605	580	548	522	506	490
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	11,490	11,140	10,470	10,755	10,550	10,645
Arterial Streets	11,350	11,295	11,680	11,845	10,910	10,675
<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)	1.59	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
<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)	15,905	14,634	13,484	12,376	11,821	10,945
Rank	30	30	31	32	31	30
Fuel per Peak Auto Commuter (gallons)	12	11	10	9	9	9
Rank	64	65	66	69	59	56
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	36,432	33,522	30,888	28,349	27,077	25,072
Rank	28	28	30	30	30	29
Delay per Auto Commuter (pers-hrs)	36	35	34	32	32	30
Rank	37	37	38	43	34	38
<b>Travel Time Index</b>						
Rank	1.19	1.18	1.18	1.17	1.17	1.16
Rank	30	30	28	30	29	30
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	498	445	406	362	338	304
Rank	27	29	30	30	29	29
Cost per Auto Commuter (\$)	751	706	661	623	612	586
Rank	35	38	40	40	37	39
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	1,530	1,408	1,297	1,191	1,137	1,053
Rank	28	28	30	30	30	29
Annual Gallons of Wasted Fuel (000)	3,372	3,102	2,859	2,624	2,506	2,320
Rank	30	30	31	32	31	30
Annual Congestion Cost (\$ million)	44	40	37	33	31	28
Rank	27	28	29	30	29	29

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

# Mobility Data for Sacramento CA

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	1,205	1,190	1,165	1,100	1,065	1,050
Rank	32	32	31	32	33	34
Commuters (1000s)	476	463	445	414	398	389
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	10,280	10,115	9,640	9,265	9,300	8,880
Arterial Streets	10,505	10,965	11,325	11,350	11,065	10,805
<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)	1.23	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
<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)	10,241	9,642	8,959	8,103	7,073	6,367
Rank	30	30	30	30	30	31
Fuel per Peak Auto Commuter (gallons)	7	8	7	7	6	5
Rank	67	53	57	50	53	58
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	23,459	22,087	20,522	18,562	16,203	14,584
Rank	29	28	28	29	30	28
Delay per Auto Commuter (pers-hrs)	29	28	27	26	24	22
Rank	33	32	30	27	29	32
<b>Travel Time Index</b>						
Rank	1.15	1.15	1.14	1.14	1.12	1.11
Rank	30	26	28	25	32	32
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	278	256	230	200	167	144
Rank	29	29	28	30	30	28
Cost per Auto Commuter (\$)	560	544	521	492	453	431
Rank	39	38	33	40	41	42
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	985	928	862	780	681	613
Rank	29	28	28	29	30	28
Annual Gallons of Wasted Fuel (000)	2,171	2,044	1,899	1,718	1,500	1,350
Rank	30	30	30	30	30	31
Annual Congestion Cost (\$ million)	26	24	22	20	17	15
Rank	29	29	29	30	30	27

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

# Mobility Data for Sacramento CA

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	995	955	910	870	845	830
Rank	35	35	35	35	36	37
Commuters (1000s)	366	348	329	313	301	292
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	8,245	7,700	7,250	6,825	6,140	5,725
Arterial Streets	9,915	9,235	8,825	8,410	8,215	8,130
<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)	1.05	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
<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)	5,595	5,117	4,603	4,054	3,878	3,601
Rank	32	32	32	33	33	31
Fuel per Peak Auto Commuter (gallons)	4	4	3	3	3	3
Rank	61	54	66	61	46	34
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	12,816	11,721	10,544	9,287	8,883	8,248
Rank	28	28	28	28	28	28
Delay per Auto Commuter (pers-hrs)	20	19	18	17	17	16
Rank	36	35	35	35	30	28
<b>Travel Time Index</b>						
Rank	29	32	26	29	27	28
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	122	108	97	83	76	69
Rank	28	28	28	28	28	28
Cost per Auto Commuter (\$)	395	376	345	316	312	302
Rank	48	49	47	47	45	45
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	538	492	443	390	373	346
Rank	28	28	28	28	28	28
Annual Gallons of Wasted Fuel (000)	1,186	1,085	976	860	822	763
Rank	32	32	32	33	33	31
Annual Congestion Cost (\$ million)	13	12	11	9	9	8
Rank	27	28	28	29	28	28

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