Performance Measure Summary - Fresno CA

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2020. 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 2020 (estimated at \$20.17 per hour of person travel and \$55.24 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.

Annual Greenhouse Gases (CO2) Produced -Tons of CO2 produced from all vehicle travel.

Excess Greenhouse Gases (CO2) Produced due to Congestion-Tons of CO2 produced due to congested portion of travel. The excess CO2 is a subset of the total CO2 produced.

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	705	705	705	700	690	680
Rank	63	63	63	63	63	63
Commuters (1000s)	359	359	359	356	350	344
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,926	4,657	4,642	4,462	4,462	3,695
Arterial Streets	4,551	5,398	5,354	5,339	5,276	5,097
Cost Components	1,551	3,370	3,331	3,337	3,270	2,077
Value of Time (\$/hour)	20.17	19.14	18.71	18.12	17.91	17.69
Commercial Cost (\$/hour)	55.24	49.49	54.71	52.14	50.20	46.87
	1				I	3.18
Gasoline (\$/gallon)	3.43	3.70	3.72	2.96	2.78	
Diesel (\$/gallon)		3.95	4.03	2.95	2.68	2.86
System Performance	2020	2019	2018	2017	2016	2015
Congested Travel (% of peak VMT)				2.8		
Congested System (% of lane-miles)				12.6		
Congested Time (number of "Rush Hours")				2.4		
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	5,619	7,821	7,830	7,844	7,706	7,557
Rank	55	64	64	63	63	63
Fuel per Peak Auto Commuter (gallons)	14	19	19	19	18	17
Rank	17	62	58	55	60	65
Annual Delay						
Total Delay (1000s of person-hours)	13,890	19,335	19,308	19,311	18,769	18,092
Rank	53	65	63	61	61	60
Delay per Auto Commuter (pers-hrs)	29	40	40	40	40	39
Rank	29	78	77	75	72	71
	_					
Travel Time Index	1.12	1.15	1.15	1.15	1.15	1.15
Rank	10	72	72	69	69	67
Commuter Stress Index	1.14	1.18	1.17	1.19		
Rank	10	60	67	50		
Freeway Planning Time Index (95th Pctile)		1.29	1.24	1.39		
Rank		70	80	55		
Congestion Cost						
Total Cost (\$ millions)	320	426	428	417	399	381
Rank	53	65	63	62	61	61
Cost per Auto Commuter (\$)	626	832	837	822	806	771
Rank	31	66	63	60	60	63
Truck Congestion						
Annual Person-Hours of Delay (000)	712	875	853	811	788	760
Rank	53	63	63	63	63	62
Annual Gallons of Wasted Fuel (000)	1,027	1,261	1,252	1,243	1,221	1,197
Rank	61	70	68	66	67	69
Annual Congestion Cost (\$ million)	38	43	47	43	40	37
Rank	53	65	63	63	63	62
Annual Greenhouse Gases (CO2) Produced	1					
Excess Due to Congestion (tons)	56,281	78,343				
Rank	54	64				
Due to All Travel (tons)	1,999,706	2,783,566				
Rank	51	62		<u></u>	<u></u>	
T.WILL	31	02				
Truck Annual Creenhouse Cases (CO2) Dreduced	I		ı			
Truck Annual Greenhouse Gases (CO2) Produced	11 257	12 020		I		
Excess Due to Truck Congestion (tons)	11,256	13,828				
Excess Due to Truck Congestion (tons) Rank	61	69		 		
Excess Due to Truck Congestion (tons)				 		

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

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	675	675	675	670	670	665
Rank	62	62	62	62	62	61
Commuters (1000s)	341	347	347	344	343	339
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,270	3,129	3,820	3,857	3,835	3,857
Arterial Streets	5,350	6,217	6,110	6,318	6,281	6,527
Cost Components						
Value of Time (\$/hour)	17.67	17.39	17.14	16.79	16.28	16.01
Commercial Cost (\$/hour)	44.82	41.23	39.66	44.62	42.50	41.83
Gasoline (\$/gallon)	3.63	3.89	3.89	3.51	3.05	2.61
Diesel (\$/gallon)	3.85	4.12	4.20	4.02	3.20	2.71
System Performance	2014	2013	2012	2011	2010	2009
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	7,432	7,263	6,979	6,949	6,852	6,730
Rank	63	63	63	63	63	64
Fuel per Peak Auto Commuter (gallons)	16	16	14	12	11	10
Rank	70	71	82	89	95	93
Annual Delay						
Total Delay (1000s of person-hours)	17,638	16,934	16,127	15,768	15,262	14,710
Rank	60	61	63	61	61	62
Delay per Auto Commuter (pers-hrs)	36	32	29	26	25	24
Rank	78	85	89	91	93	91
Travel Time Index	1.15	1.15	1.14	1.14	1.13	1.12
Rank	68	68	77	75	82	89
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	374	355	333	321	299	281
Rank	61	61	62	61	61	61
Cost per Auto Commuter (\$)	748	725	700	705	706	692
Rank	63	66	66	65	66	65
Truck Congestion						
Annual Person-Hours of Delay (000)	741	711	677	662	641	618
Rank	62	62	62	62	62	62
Annual Gallons of Wasted Fuel (000)	1,178	1,151	1,106	1,101	1,086	1,067
Rank	69	70	71	71	71	71
Annual Congestion Cost (\$ million)	36 62	32 62	30	32 62	29	27
Rank	62	62	62	62	62	62
Annual Greenhouse Gases (CO2) Produced				ı	I	
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons) Rank	 					
Truck Annual Greenhouse Gases (CO2) Produced				ı	I	
Excess Due to Truck Congestion (tons)						
Rank Due to Truck Travel (tons)						
Due to Truck Travel (tons)						
Rank						

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

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	660	640	640	615	605	595
Rank	61	61	61	64	64	63
Commuters (1000s)	335	323	322	307	300	294
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,900	3,740	3,890	3,865	3,645	3,280
Arterial Streets	6,600	6,475	6,435	6,470	6,440	6,540
Cost Components						
Value of Time (\$/hour)	16.07	15.47	15.06	14.58	14.10	13.73
Commercial Cost (\$/hour)	40.77	39.30	37.88	36.51	35.19	33.92
Gasoline (\$/gallon)	3.84	3.24	2.88	2.62	2.28	1.78
Diesel (\$/gallon)	4.39	3.60	3.17	2.93	2.27	1.79
System Performance	2008	2007	2006	2005	2004	2003
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	6,802	7,087	6,868	6,617	6,458	6,180
Rank	63	61	61	61	60	59
Fuel per Peak Auto Commuter (gallons)	10	11	10	10	10	9
Rank	95	94	93	93	90	91
Annual Delay						
Total Delay (1000s of person-hours)	14,160	14,754	14,297	13,774	13,444	12,865
Rank	61	60	60	58	58	58
Delay per Auto Commuter (pers-hrs)	24	23	23	23	23	22
Rank	92	93	93	93	92	93
Travel Time Index	1.12	1.11	1.10	1.10	1.10	1.10
Rank	90	95	96	96	96	91
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	281	278	260	241	225	207
Rank	61	60	59	58	58	58
Cost per Auto Commuter (\$)	658	714	711	708	715	703
Rank	69	62	61	61	59	62
Truck Congestion						
Annual Person-Hours of Delay (000)	595	620	600	579	565	540
Rank	62	61	61	60	60	60
Annual Gallons of Wasted Fuel (000)	1,078	1,123	1,088	1,049	1,023	979
Rank	71	70	67	67	67	68
Annual Congestion Cost (\$ million)	27	27	25	23	21	19
Rank	62	60	60	60	60	60
Annual Greenhouse Gases (CO2) Produced	İ					
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced						
Excess Due to Truck Congestion (tons)						
Rank						
Due to Truck Travel (tons)						
Rank						

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

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	585	560	560	550	545	540
Rank	63	63	63	63	63	63
Commuters (1000s)	285	270	266	258	253	247
Daily Vehicle-Miles of Travel (1000s)					Ì	
Freeway	3,215	2,520	2,550	2,200	2,025	1,915
Arterial Streets	6,510	6,400	6,505	6,250	6,180	5,940
Cost Components						
Value of Time (\$/hour)	13.43	13.22	12.85	12.43	12.17	11.98
Commercial Cost (\$/hour)	32.69	31.51	30.38	29.28	28.89	28.50
Gasoline (\$/gallon)	1.66	1.93	1.72	1.59	1.27	1.40
Diesel (\$/gallon)	1.58	1.78	1.68	1.50	1.39	1.51
System Performance	2002	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	5,988	5,557	5,140	5,004	4,423	4,163
Rank	58	61	64	63	65	65
Fuel per Peak Auto Commuter (gallons)	10	9	8	8	7	6
Rank	87	89	89	88	87	88
Annual Delay						
Total Delay (1000s of person-hours)	12,466	11,567	10,700	10,417	9,207	8,666
Rank	57	60	63	62	65	65
Delay per Auto Commuter (pers-hrs)	22	21	20	20	18	17
Rank	93	92	92	92	92	92
Travel Time Index	1.10	1.10	1.09	1.09	1.08	1.08
Rank	91	87	92	86	89	87
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	195	180	161	151	130	121
Rank	57	58	63	60	64	65
Cost per Auto Commuter (\$)	695	653	619	624	566	543
Rank	60	62	64	62	69	68
Truck Congestion						
Annual Person-Hours of Delay (000)	524	486	449	438	387	364
Rank	60	62	65	62	65	65
Annual Gallons of Wasted Fuel (000)	949	880	815	793	701	660
Rank	67	68	69	67	69	71
Annual Congestion Cost (\$ million)	17	16	14	13	11	11
Rank	60	61	64	61	64	63
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced						
Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons) Rank		 	 	 	 	
Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)		 		 		

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

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	530	525	515	500	490	475
Rank	64	64	64	64	64	66
Commuters (1000s)	240	234	227	218	211	202
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,895	1,885	1,740	1,710	1,690	1,625
Arterial Streets	5,700	5,505	5,480	5,440	5,350	5,295
Cost Components						
Value of Time (\$/hour)	11.71	11.37	11.06	10.78	10.47	10.17
Commercial Cost (\$/hour)	28.12	27.75	27.38	27.02	26.66	26.30
Gasoline (\$/gallon)	1.21	1.27	1.16	1.23	1.28	1.11
Diesel (\$/gallon)	1.24	1.31	1.19	1.26	1.25	1.25
System Performance	1996	1995	1994	1993	1992	1991
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	3,930	3,733	3,446	3,419	3,286	2,966
Rank	63	64	64	60	60	60
Fuel per Peak Auto Commuter (gallons)	6	7	5	5	6	4
Rank	85	77	88	82	69	85
Annual Delay						
Total Delay (1000s of person-hours)	8,181	7,771	7,173	7,117	6,840	6,175
Rank	64	65	64	61	59	60
Delay per Auto Commuter (pers-hrs)	17	16	15	16	15	15
Rank	91	91	91	89	88	86
Travel Time Index	1.08	1.07	1.07	1.07	1.07	1.07
Rank	86	87	87	83	82	80
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	111	103	92	89	84	73
Rank	64	64	64	61	58	60
Cost per Auto Commuter (\$)	520	515	486	494	489	454
Rank	67	64	62	57	52	55
Truck Congestion						
Annual Person-Hours of Delay (000)	344	326	301	299	287	259
Rank	65	65	64	62	60	61
Annual Gallons of Wasted Fuel (000)	623	591	546	542	521	470
Rank	70	70	69	66	65	67
Annual Congestion Cost (\$ million)	10	9	8	8	8	7
Rank	63	64	64	60	57	57
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)						
Rank						
			ı I			
Due to All Travel (tons)					I	
Due to All Travel (tons) Rank		 				
1 1						
Rank						
Rank Truck Annual Greenhouse Gases (CO2) Produced				 		
Rank Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)				 		

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

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	460	450	430	410	400	385
Rank	66	66	67	68	68	68
Commuters (1000s)	193	187	177	168	162	155
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,580	1,500	1,395	1,370	1,385	1,335
Arterial Streets	5,250	5,220	5,130	1,980	4,800	4,715
Cost Components						
Value of Time (\$/hour)	9.75	9.25	8.83	8.48	8.18	8.03
Commercial Cost (\$/hour)	25.95	25.60	25.26	24.93	24.60	24.27
Gasoline (\$/gallon)	1.14	1.14	1.05	1.05	1.03	1.35
Diesel (\$/gallon)	1.19	1.09	1.01	1.01	0.99	1.29
System Performance	1990	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						<u> </u>
Total Fuel (1000 gallons)	2,806	2,595	2,540	2,383	2,215	1,831
Rank	60	59	57	56	56	59
Fuel per Peak Auto Commuter (gallons)	4	4	4	4	4	3
Rank	81	76	71	61	54	66
Annual Delay						
Total Delay (1000s of person-hours)	5,842	5,403	5,287	4,961	4,611	3,812
Rank	58	56	56	55	54	57
Delay per Auto Commuter (pers-hrs)	14	14	14	14	13	11
Rank	86	80	75	64	64	72
Travel Time Index	1.07	1.06	1.06	1.06	1.06	1.05
Rank	74	79	73	65	56	64
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	67	59	55	50	45	37
Rank	58	56	56	55	54	57
Cost per Auto Commuter (\$)	449	441	458	444	435	360
Rank	51	51	41	38	36	50
Truck Congestion						
Annual Person-Hours of Delay (000)	245	227	222	208	194	160
Rank	59	58	57	55	53	57
Annual Gallons of Wasted Fuel (000)	445	411	402	377	351	290
Rank	65	65	62	60	59	64
Annual Congestion Cost (\$ million) Rank	59	6 55	6 52	5 54	5 51	53
	39	33	32	34	31	33
Annual Greenhouse Gases (CO2) Produced				1		
Excess Due to Congestion (tons) Rank						
Nank Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced				1		
Excess Due to Truck Congestion (tons)						
Rank Due to Travel (tone)						
Due to Truck Travel (tons)						
Rank						

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

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	370	360	345
Rank	68	68	69
Commuters (1000s)	148	143	135
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,270	1,150	1,100
Arterial Streets	4,550	4,410	4,245
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	23.94	23.63	23.31
Gasoline (\$/gallon)	1.36	1.39	1.46
Diesel (\$/gallon)	1.31	1.34	1.40
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)	1,597	1,477	1,373
Rank	59	59	58
Fuel per Peak Auto Commuter (gallons)	2	2	3
Rank	79	69	34
Annual Delay			
Total Delay (1000s of person-hours)	3,324	3,074	2,858
Rank	58	59	58
Delay per Auto Commuter (pers-hrs)	10	10	10
Rank	70	64	58
Travel Time Index	1.05	1.05	1.04
Rank	57	55	61
Commuter Stress Index			
Rank			
Freeway Planning Time Index (95th Pctile)			
Rank			
Congestion Cost			
Total Cost (\$ millions)	31	28	25
Rank	58	59	58
Cost per Auto Commuter (\$)	325	315	299
Rank	51	50	48
Truck Congestion			
Annual Person-Hours of Delay (000)	140	129	120
Rank	58	59	59
Annual Gallons of Wasted Fuel (000)	253	234	218
Rank	66	64	62
Annual Congestion Cost (\$ million)	3	3	3
Rank	58	54	50
Tunk			
Annual Greenhouse Gases (CO2) Produced			
Annual Greenhouse Gases (CO2) Produced		 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons)		 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons) Rank	 	 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons) Rank Due to All Travel (tons)		 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons) Rank Due to All Travel (tons) Rank		 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons) Rank Due to All Travel (tons) Rank Truck Annual Greenhouse Gases (CO2) Produced		 	
Annual Greenhouse Gases (CO2) Produced Excess Due to Congestion (tons) Rank Due to All Travel (tons) Rank Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)	 	 	

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