Performance Measure Summary - Bakersfield 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.

Mobility Data for Bakersfield CA

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	560	560	560	560	550	535
Rank	75	75	75	75	76	77
Commuters (1000s)	289	289	289	289	284	276
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,493	2,846	2,885	2,714	2,714	2,631
Arterial Streets	3,677	4,198	4,194	4,779	4,728	4,291
Cost Components						
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
Gasoline ($/gallon)	3.43	3.70	3.72	2.96	2.78	3.18
Diesel ($/gallon)	3.80	3.95	4.03	2.95	2.68	2.86
System Performance	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**
Congested Travel (% of peak VMT)	--	--	--	15.4	--	--
Congested System (% of lane-miles)	--	--	--	9.3	--	--
Congested Time (number of "Rush Hours")	--	--	--	1.3	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	1,565	3,598	3,534	3,521	3,393	3,289
Rank	93	90	89	88	88	88
Fuel per Peak Auto Commuter (gallons)	4	10	10	10	9	9
Rank	99	98	98	98	98	98
Annual Delay						
Total Delay (1000s of person-hours)	4,211	9,684	9,375	8,896	8,467	8,067
Rank	91	87	87	88	88	89
Delay per Auto Commuter (pers-hrs)	11	26	25	24	23	22
Rank	99	98	99	99	99	99
Travel Time Index	1.05	1.15	1.14	1.13	1.13	1.13
Rank	85	72	76	83	83	83
Commuter Stress Index	1.06	1.17	1.16	1.16	--	--
Rank	91	67	77	72	--	--
Freeway Planning Time Index (95th Pctile)	--	1.48	1.28	1.37	--	--
Rank	--	45	70	59	--	--
Congestion Cost						
Total Cost ($ millions)	97	213	207	192	180	170
Rank	91	88	88	89	89	88
Cost per Auto Commuter ($)	268	589	574	532	507	481
Rank	98	96	96	96	97	97
Truck Congestion						
Annual Person-Hours of Delay (000)	219	459	419	374	356	339
Rank	89	87	88	89	89	89
Annual Gallons of Wasted Fuel (000)	441	923	867	747	719	697
Rank	87	84	83	88	89	89
Annual Congestion Cost ($ million)	12	24	24	20	19	17
Rank	89	86	88	88	89	89
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)	15,832	36,409	--	--	--	--
Rank	93	89	--	--	--	--
Due to All Travel (tons)	413,846	951,712	--	--	--	--
Rank	95	92	--	--	--	--
Truck Annual Greenhouse Gases (CO2) Produced						
Excess Due to Truck Congestion (tons)	4,872	10,203	--	--	--	--
Rank	86	83	--	--	--	--
Due to Truck Travel (tons)	123,265	258,110	--	--	--	--
Rank	91	92	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	525	520	515	510	508	505
Rank	77	78	77	76	77	76
Commuters (1000s)	271	273	271	267	265	263
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,015	2,240	2,205	2,173	2,149	2,191
Arterial Streets	5,345	5,187	4,500	4,481	4,432	4,756
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)	3,222	2,988	2,964	2,836	2,690	2,506
Rank	88	89	89	91	92	92
Fuel per Peak Auto Commuter (gallons)	10	7	7	7	8	5
Rank	97	98	98	98	97	101
Annual Delay						
Total Delay (1000s of person-hours)	7,834	7,201	7,079	6,592	6,138	5,611
Rank	87	89	89	90	91	93
Delay per Auto Commuter (pers-hrs)	22	18	18	17	16	15
Rank	97	99	99	99	100	100
Travel Time Index	1.12	1.12	1.11	1.11	1.11	1.10
Rank	92	92	94	93	93	98
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	166	150	146	134	120	107
Rank	89	89	90	91	92	93
Cost per Auto Commuter ($)	467	432	430	415	398	369
Rank	97	98	98	98	98	100
Truck Congestion						
Annual Person-Hours of Delay (000)	329	302	297	277	258	236
Rank	89	90	91	92	93	94
Annual Gallons of Wasted Fuel (000)	683	633	628	601	570	531
Rank	89	90	90	90	91	91
Annual Congestion Cost ($ million)	16	14	14	14	12	11
Rank	89	89	88	90	92	92
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)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	500	495	485	470	455	440
Rank	75	75	75	75	74	74
Commuters (1000s)	259	255	249	239	230	222
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,215	2,275	2,235	2,065	2,035	2,000
Arterial Streets	4,710	4,600	4,700	4,930	4,725	4,500
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)	2,867	2,552	2,287	2,085	1,871	1,470
Rank	91	94	94	95	95	95
Fuel per Peak Auto Commuter (gallons)	8	7	7	6	6	5
Rank	97	99	99	99	98	98
Annual Delay						
Total Delay (1000s of person-hours)	6,114	5,442	4,877	4,447	3,990	3,135
Rank	91	93	94	95	95	95
Delay per Auto Commuter (pers-hrs)	16	15	13	13	12	10
Rank	99	100	100	100	100	100
Travel Time Index	1.10	1.09	1.08	1.08	1.07	1.06
Rank	97	99	100	100	100	100
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	121	102	88	78	67	50
Rank	89	93	94	94	95	95
Cost per Auto Commuter ($)	401	370	341	319	299	239
Rank	98	99	99	99	99	100
Truck Congestion						
Annual Person-Hours of Delay (000)	257	229	205	187	168	132
Rank	93	94	94	94	94	95
Annual Gallons of Wasted Fuel (000)	608	541	485	442	397	312
Rank	90	91	92	94	94	96
Annual Congestion Cost ($ million)	13	10	9	8	6	5
Rank	87	94	94	94	94	94
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)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	425	410	405	390	385	375
Rank	75	77	77	78	78	77
Commuters (1000s)	212	202	196	187	182	175
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,045	1,985	1,930	1,760	1,725	1,630
Arterial Streets	4,300	4,150	4,030	3,960	3,900	3,780
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)	1,195	1,062	865	816	799	701
Rank	97	97	98	98	98	98
Fuel per Peak Auto Commuter (gallons)	3	4	2	2	2	2
Rank	100	98	100	99	99	99
Annual Delay						
Total Delay (1000s of person-hours)	2,548	2,265	1,844	1,739	1,704	1,494
Rank	98	98	98	98	98	98
Delay per Auto Commuter (pers-hrs)	8	8	6	6	6	6
Rank	100	100	100	100	100	100
Travel Time Index	1.05	1.05	1.04	1.04	1.04	1.03
Rank	100	100	100	100	100	101
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	40	35	28	25	24	21
Rank	98	97	98	98	98	98
Cost per Auto Commuter ($)	198	178	151	147	146	132
Rank	100	100	100	101	101	101
Truck Congestion						
Annual Person-Hours of Delay (000)	107	95	77	73	72	63
Rank	98	98	98	99	98	98
Annual Gallons of Wasted Fuel (000)	253	225	183	173	169	149
Rank	97	97	98	98	97	98
Annual Congestion Cost ($ million)	4	3	2	2	2	2
Rank	95	96	98	97	96	96
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)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	365	360	350	335	325	315
Rank	77	77	78	78	79	80
Commuters (1000s)	168	164	158	149	143	137
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,595	1,575	1,570	1,500	1,520	1,530
Arterial Streets	3,620	3,550	3,400	3,330	3,200	3,050
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)	655	596	573	522	419	372
Rank	97	97	97	97	99	99
Fuel per Peak Auto Commuter (gallons)	2	1	1	1	1	1
Rank	98	100	100	99	98	98
Annual Delay						
Total Delay (1000s of person-hours)	1,397	1,270	1,222	1,113	893	792
Rank	98	98	98	97	99	99
Delay per Auto Commuter (pers-hrs)	5	5	5	5	4	4
Rank	101	101	99	99	99	99
Travel Time Index	1.03	1.03	1.03	1.03	1.02	1.02
Rank	101	101	100	100	101	101
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	19	17	16	14	11	9
Rank	98	98	97	97	98	99
Cost per Auto Commuter ($)	129	114	113	110	95	83
Rank	100	100	99	99	99	99
Truck Congestion						
Annual Person-Hours of Delay (000)	59	53	51	47	38	33
Rank	98	99	98	96	98	99
Annual Gallons of Wasted Fuel (000)	139	126	121	111	89	79
Rank	98	98	97	96	97	98
Annual Congestion Cost ($ million)	2	2	1	1	1	1
Rank	94	94	98	96	96	96
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)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	300	295	285	280	265	255
Rank	82	82	83	83	84	84
Commuters (1000s)	128	125	120	117	110	105
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,460	1,410	1,375	1,260	1,220	1,215
Arterial Streets	2,900	2,800	2,650	2,550	2,400	2,200
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						
Total Fuel (1000 gallons)	322	298	280	209	146	132
Rank	99	99	99	99	99	99
Fuel per Peak Auto Commuter (gallons)	1	1	1	1	1	1
Rank	98	97	94	93	91	90
Annual Delay						
Total Delay (1000s of person-hours)	687	636	597	447	312	281
Rank	98	98	99	99	99	99
Delay per Auto Commuter (pers-hrs)	3	3	3	2	2	2
Rank	100	100	100	100	100	100
Travel Time Index	1.02	1.02	1.02	1.01	1.01	1.01
Rank	101	100	98	100	100	100
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	8	7	6	4	3	3
Rank	98	98	98	99	99	99
Cost per Auto Commuter ($)	73	73	76	54	36	43
Rank	99	99	100	99	100	101
Truck Congestion						
Annual Person-Hours of Delay (000)	29	27	25	19	13	12
Rank	98	98	99	99	99	99
Annual Gallons of Wasted Fuel (000)	68	63	59	44	31	28
Rank	98	98	98	99	100	100
Annual Congestion Cost ($ million)	1	1	1	0	0	0
Rank	92	90	89	99	99	99
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)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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

Mobility Data for Bakersfield CA

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	250	240	230
Rank	83	84	84
Commuters (1000s)	102	97	92
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,135	925	880
Arterial Streets	2,050	2,000	1,900
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)	114	98	93
Rank	99	99	99
Fuel per Peak Auto Commuter (gallons)	1	1	1
Rank	87	86	82
Annual Delay			
Total Delay (1000s of person-hours)	244	209	199
Rank	99	99	99
Delay per Auto Commuter (pers-hrs)	1	1	1
Rank	101	101	101
Travel Time Index	1.01	1.01	1.01
Rank	99	99	97
Commuter Stress Index	--	--	--
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--
Rank	--	--	--
Congestion Cost			
Total Cost ($ millions)	2	2	2
Rank	99	99	99
Cost per Auto Commuter ($)	32	24	22
Rank	101	101	101
Truck Congestion			
Annual Person-Hours of Delay (000)	10	9	8
Rank	100	100	100
Annual Gallons of Wasted Fuel (000)	24	21	20
Rank	100	100	99
Annual Congestion Cost ($ million)	0	0	0
Rank	97	97	95
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)	--	--	--
Rank	--	--	--
Due to Truck Travel (tons)	--	--	--
Rank	--	--	--

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