

Performance Measure Summary – Eugene, OR

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2007. There is no single performance measure that experts agree “says it all.” The best comparison of congestion levels and trends is done between regions of similar size, over several years, and with a few measures of congestion. 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. A few key points should be recognized by users of the Urban Mobility Report data.

Use the Trends – The multi-year performance measures are better indicators, in most cases, than 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 the top of a few 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. The ratio of travel time in the peak period to travel time in free-flow. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak.

Peak Travelers – Number of travelers (using any travel mode) who begin a trip during the morning or evening peak travel periods (6 to 9 a.m. and 4 to 7 p.m.).

Annual Delay per Traveler – A yearly sum of all the per-trip delays. This measure illustrates the effect of the per-mile congestion as well as the length of each trip. The extra time required to travel in the peak period is divided by the number of travelers who begin a trip during the peak period (6 to 9 a.m. and 4 to 7 p.m.).

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 (60 mph on freeways and 35 mph on arterials) – These values are used as the national comparison thresholds. Other speed values may be appropriate for urban areas or sub-regions.

Excess Fuel Consumed – Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.

Public Transportation – Regular route service from all public transportation providers in an urban area.

Operations Treatments – Freeway incident management, freeway ramp metering, arterial street signal coordination and arterial street access management.

Congestion Cost – Value of travel delay for 2007 (estimated at \$15.47 per hour of person travel and \$102.12 per hour of truck time) and excess fuel consumption (estimated using state average cost per gallon).

Annual Increase Needed to Maintain Constant Congestion Level – Number of lane-miles that must be added to the road system each year – or – the number of new transit riders or carpoolers that must be added to keep congestion levels the same as the previous year.

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). The annual change in miles traveled, therefore, includes both new travel due to growth and travel that previously occurred in areas designated as rural.

Number of Rush Hours – Time when system might have congestion.

The Mobility Data for Eugene OR

Inventory Measures	2007	2006	2005	2004	2003	2002
Urban Area Information						
Population (1000s)	250	245	240	240	240	235
Rank	85	85	85	85	85	85
Urban Area (square miles)	110	110	110	110	110	110
Population Density (persons/sq mile)	2,273	2,227	2,182	2,182	2,182	2,136
Peak Travelers (1000s)	138	135	131	130	129	125
Freeway						
Daily Vehicle-Miles of Travel (1000s)	1,580	1,545	1,535	1,515	1,390	1,305
Lane-Miles	135	130	125	120	110	110
Arterial Streets						
Daily Vehicle-Miles of Travel (1000s)	1,980	2,020	1,950	1,925	1,900	1,825
Lane-Miles	410	410	400	395	395	390
Public Transportation						
Annual Psgr-Miles of Travel (millions)	44.2	40.5	35.9	33.1	27.4	31.5
Annual Unlinked Psgr Trips (millions)	9.9	9.5	8.5	8.3	8.3	8.7
Cost Components						
Value of Time (\$/hour)	15.47	15.06	14.58	14.10	13.73	13.43
Commercial Cost (\$/hour)	102.12	98.77	94.06	86.24	82.38	79.96
Fuel Cost (\$/gallon)	3.14	2.81	2.48	2.11	1.65	1.52
System Performance	2007	2006	2005	2004	2003	2002
Congested Travel (% of peak VMT)	25	26	30	25	27	25
Congested System (% of lane-miles)	30	30	30	25	27	26
Congested Time (number of "Rush Hours")	4.8	5.0	5.2	5.4	5.4	4.8
Annual Increase Needed to Maintain Constant Congestion Level:						
Lane-miles	15	14	8	9	9	7
Transit Riders or Carpoolers (millions)	3	3	2	2	2	1
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	903	945	1,055	933	964	865
Rank	85	84	82	84	83	85
Fuel per Peak Traveler (gallons)	7	7	8	7	7	7
Rank	77	81	74	78	75	77
Annual Delay						
Total Delay (1000s of person-hours)	1,481	1,546	1,706	1,565	1,626	1,470
Rank	86	84	83	84	83	85
Delay per Peak Traveler (person-hours)	11	11	13	12	13	12
Rank	79	82	76	76	73	74
Delay due to Incidents (percent)	54	54	55	54	54	54
Travel Time Index	1.08	1.08	1.09	1.08	1.09	1.08
Rank	77	77	66	75	66	72
Congestion Cost						
Total Cost (\$ millions)	30	30	32	27	27	24
Rank	86	84	82	84	83	85
Cost per Peak Traveler (\$)	215	224	244	211	212	194
Rank	81	81	77	79	75	76

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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

The Mobility Data for Eugene OR, Continued

Inventory Measures	2001	2000	1999	1998	1997
Urban Area Information					
Population (1000s)	230	220	220	220	215
Rank	85	85	85	85	85
Urban Area (square miles)	110	110	110	105	105
Population Density (persons/sq mile)	2,091	2,000	2,000	2,095	2,048
Peak Travelers (1000s)	120	113	112	110	106
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,325	1,335	1,300	1,235	1,185
Lane-Miles	110	110	110	110	110
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,800	1,900	1,840	1,775	1,740
Lane-Miles	390	385	385	380	370
Public Transportation					
Annual Psgr-Miles of Travel (millions)	31.7	35.4	34.9	33.4	33.7
Annual Unlinked Psgr Trips (millions)	8.7	8.2	8.1	7.7	7.9
Cost Components					
Value of Time (\$/hour)	13.22	12.85	12.43	12.17	11.98
Commercial Cost (\$/hour)	80.88	80.75	74.23	72.61	74.32
Fuel Cost (\$/gallon)	1.67	1.64	1.47	1.19	1.40
System Performance	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)	25	26	25	20	18
Congested System (% of lane-miles)	23	23	23	19	4
Congested Time (number of "Rush Hours")	4.8	5.2	4.8	4.4	4.2
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	8	14	14	9	12
Transit Riders or Carpoolers (millions)	2	3	3	2	2
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	824	959	816	626	547
Rank	84	81	82	85	87
Fuel per Peak Traveler (gallons)	7	8	7	6	5
Rank	76	74	76	77	79
Annual Delay					
Total Delay (1000s of person-hours)	1,371	1,637	1,346	1,039	922
Rank	85	81	82	86	87
Delay per Peak Traveler (person-hours)	11	14	12	9	9
Rank	77	71	76	81	79
Delay due to Incidents (percent)	55	55	54	54	54
Travel Time Index					
Travel Time Index	1.08	1.09	1.08	1.06	1.05
Rank	72	67	71	76	79
Congestion Cost					
Total Cost (\$ millions)	23	26	21	15	14
Rank	84	81	81	85	85
Cost per Peak Traveler (\$)	188	233	185	141	130
Rank	77	72	77	81	82

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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

The Mobility Data for Eugene OR, Continued

Inventory Measures	1996	1995	1994	1993	1992
Urban Area Information					
Population (1000s)	210	200	200	195	195
Rank	86	86	86	86	86
Urban Area (square miles)	105	105	105	95	90
Population Density (persons/sq mile)	2,000	1,905	1,905	2,053	2,167
Peak Travelers (1000s)	102	95	94	90	89
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,165	1,100	1,060	1,040	930
Lane-Miles	110	110	110	110	110
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,725	1,700	1,680	1,705	1,675
Lane-Miles	370	360	360	350	340
Public Transportation					
Annual Psgr-Miles of Travel (millions)	33.3	31.1	29.5	29.2	26.4
Annual Unlinked Psgr Trips (millions)	7.7	7.2	6.8	6.7	6.5
Cost Components					
Value of Time (\$/hour)	11.71	11.37	11.06	10.78	10.47
Commercial Cost (\$/hour)	74.17	71.54	69.53	67.77	66.19
Fuel Cost (\$/gallon)	1.37	1.28	1.24	1.26	1.26
System Performance	1996	1995	1994	1993	1992
Congested Travel (% of peak VMT)	15	13	13	12	13
Congested System (% of lane-miles)	17	16	16	15	15
Congested Time (number of "Rush Hours")	4.0	3.8	3.4	3.6	3.2
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	12	9	8	12	11
Transit Riders or Carpoolers (millions)	2	2	2	3	2
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	438	391	361	369	395
Rank	87	87	87	87	85
Fuel per Peak Traveler (gallons)	4	4	4	4	4
Rank	82	82	81	80	81
Annual Delay					
Total Delay (1000s of person-hours)	739	677	622	662	710
Rank	87	87	87	87	85
Delay per Peak Traveler (person-hours)	7	7	7	7	8
Rank	82	81	82	81	77
Delay due to Incidents (percent)	54	53	53	52	52
Travel Time Index	1.04	1.04	1.04	1.04	1.04
Rank	82	81	80	78	77
Congestion Cost					
Total Cost (\$ millions)	11	10	9	9	9
Rank	85	87	86	86	85
Cost per Peak Traveler (\$)	106	100	91	98	104
Rank	84	82	82	81	78

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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

The Mobility Data for Eugene OR, Continued

Inventory Measures	1991	1990	1989	1988	1987
Urban Area Information					
Population (1000s)	195	185	190	185	185
Rank	86	86	85	85	85
Urban Area (square miles)	90	90	90	85	85
Population Density (persons/sq mile)	2,167	2,056	2,111	2,176	2,176
Peak Travelers (1000s)	88	82	83	80	80
Freeway					
Daily Vehicle-Miles of Travel (1000s)	905	905	880	790	715
Lane-Miles	110	110	110	110	110
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,660	1,640	1,640	1,620	1,610
Lane-Miles	335	325	320	315	315
Public Transportation					
Annual Psgr-Miles of Travel (millions)	26.4	23.9	22.3	21.8	21.0
Annual Unlinked Psgr Trips (millions)	6.5	5.9	5.8	5.6	5.4
Cost Components					
Value of Time (\$/hour)	10.17	9.75	9.25	8.83	8.48
Commercial Cost (\$/hour)	64.55	62.47	59.16	56.03	54.62
Fuel Cost (\$/gallon)	1.48	1.16	1.32	1.22	1.22
System Performance	1991	1990	1989	1988	1987
Congested Travel (% of peak VMT)	13	13	13	13	12
Congested System (% of lane-miles)	15	15	15	15	15
Congested Time (number of "Rush Hours")	3.0	3.2	3.2	3.0	2.9
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	10	9	8	7	4
Transit Riders or Carpoolers (millions)	2	2	2	1	1
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	380	376	377	352	292
Rank	85	84	83	83	83
Fuel per Peak Traveler (gallons)	4	5	5	4	4
Rank	77	67	68	72	69
Annual Delay					
Total Delay (1000s of person-hours)	679	667	670	619	512
Rank	84	83	83	83	83
Delay per Peak Traveler (person-hours)	8	8	8	8	6
Rank	74	71	70	68	71
Delay due to Incidents (percent)	52	52	52	52	52
Travel Time Index	1.04	1.04	1.04	1.04	1.04
Rank	73	72	71	68	65
Congestion Cost					
Total Cost (\$ millions)	9	8	8	7	5
Rank	84	83	80	81	83
Cost per Peak Traveler (\$)	99	99	93	85	68
Rank	76	71	70	70	71

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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

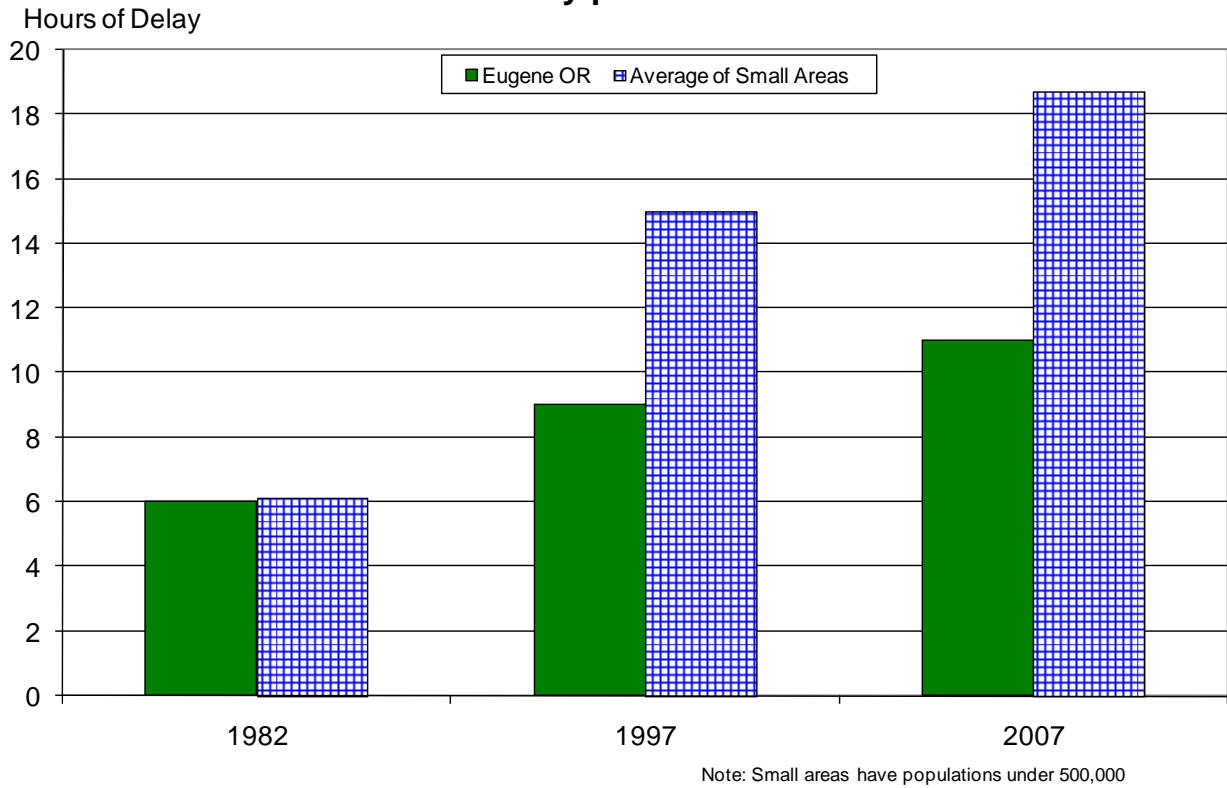
The Mobility Data for Eugene OR, Continued

Inventory Measures	1986	1985	1984	1983	1982
Urban Area Information					
Population (1000s)	185	190	190	190	190
Rank	85	84	84	84	84
Urban Area (square miles)	85	80	80	80	80
Population Density (persons/sq mile)	2,176	2,375	2,375	2,375	2,375
Peak Travelers (1000s)	79	81	80	80	79
Freeway					
Daily Vehicle-Miles of Travel (1000s)	700	705	730	680	670
Lane-Miles	110	110	110	110	110
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,595	1,580	1,575	1,550	1,540
Lane-Miles	315	315	310	310	310
Public Transportation					
Annual Psgr-Miles of Travel (millions)	17.6	17.6	19.4	19.4	19.4
Annual Unlinked Psgr Trips (millions)	4.8	4.7	5.1	5.1	5.1
Cost Components					
Value of Time (\$/hour)	8.18	8.03	7.75	7.43	7.20
Commercial Cost (\$/hour)	52.63	55.80	54.65	52.70	52.13
Fuel Cost (\$/gallon)	1.19	1.56	1.58	1.61	1.69
System Performance	1986	1985	1984	1983	1982
Congested Travel (% of peak VMT)	11	11	13	11	11
Congested System (% of lane-miles)	15	15	15	15	0
Congested Time (number of "Rush Hours")	2.9	2.9	2.9	2.9	2.8
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	--	--	--	--	--
Transit Riders or Carpoolers (millions)	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	288	285	327	278	273
Rank	83	83	77	79	78
Fuel per Peak Traveler (gallons)	4	4	4	3	3
Rank	65	60	58	64	58
Annual Delay					
Total Delay (1000s of person-hours)	506	503	572	492	483
Rank	82	82	77	79	78
Delay per Peak Traveler (person-hours)	6	6	7	6	6
Rank	69	67	60	59	55
Delay due to Incidents (percent)	52	52	52	52	52
Travel Time Index					
	1.04	1.04	1.04	1.04	1.04
Rank	65	59	55	53	50
Congestion Cost					
Total Cost (\$ millions)	5	5	6	5	5
Rank	82	82	76	76	74
Cost per Peak Traveler (\$)	66	65	73	61	58
Rank	70	69	60	58	57

Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

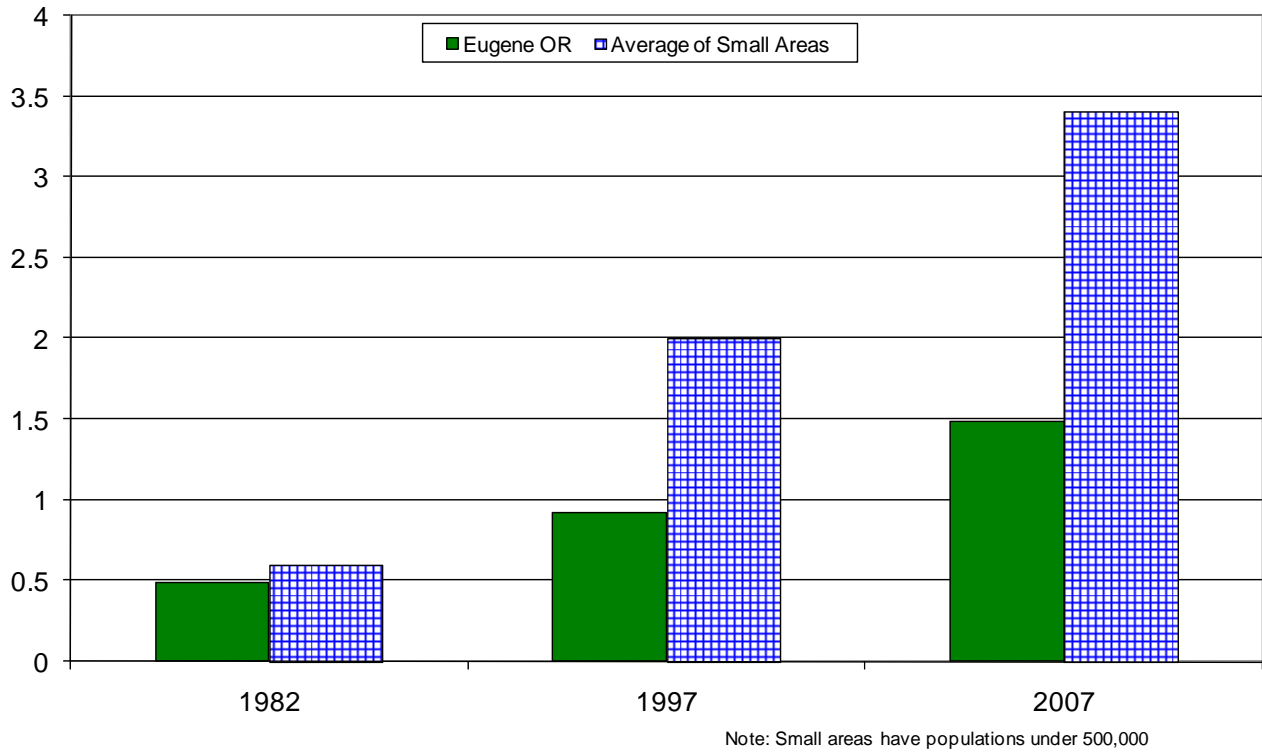
Note: Zeroes in the table reflect values less than 0.5.

Growth in Delay per Peak Traveler



Annual Hours of Delay (millions)

Growth in Total Delay



Benefits from Public Transportation Service and Operations Strategies in Eugene OR

Operations Strategies	2007	2006	2005	2004
Freeway Ramp Metering				
Percent of Roadway Miles	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
Freeway Incident Management				
Cameras				
Percent of Roadway Miles	--	--	--	--
Service Patrols				
Percent of Roadway Miles	100	100	100	100
Annual Delay Reduction (1000 hours)	17	18	23	16
Arterial Signal Coordination				
Percent of Roadway Miles	58	56	43	33
Annual Delay Reduction (1000 hours)	13	15	19	15
Arterial Access Management				
Percent of Roadway Miles	18	18	14	12
Annual Delay Reduction (1000 hours)	22	26	28	38
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	52	58	70	69
Annual Delay Saved per Peak Traveler (hours)	0	0	1	1
Annual Congestion Cost Savings (\$million)	1.1	1.2	1.4	1.2
Travel Time Index with Strategies	1.076	1.080	1.092	1.082
Travel Time Index (Base)	1.079	1.083	1.096	1.085
Public Transportation Service	2007	2006	2005	2004
Existing Service				
Annual Passenger-miles of travel (million)	44.2	40.5	35.9	33.1
Unlinked Passenger Trips (million)	9.9	9.5	8.5	8.3
Travel Time Index (combined road and transit)	1.076	1.080	1.093	1.083
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.087	1.089	1.101	1.090
Annual Increase				
Delay (1000 hours)	230	184	171	141
Delay per Peak Traveler (hours)	2	1	1	1
Congestion Cost (\$million)	4.7	3.6	3.2	2.5

Benefits from Public Transportation Service and Operations Strategies in Eugene OR, Continued

Operations Strategies	2003	2002	2001	2000
Freeway Ramp Metering				
Percent of Roadway Miles	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
Freeway Incident Management				
Cameras				
Percent of Roadway Miles	--	--	--	--
Service Patrols				
Percent of Roadway Miles	100	100	--	--
Annual Delay Reduction (1000 hours)	17	17	--	--
Arterial Signal Coordination				
Percent of Roadway Miles	33	29	29	30
Annual Delay Reduction (1000 hours)	19	17	16	13
Arterial Access Management				
Percent of Roadway Miles	12	13	13	13
Annual Delay Reduction (1000 hours)	29	39	36	39
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	65	73	52	52
Annual Delay Saved per Peak Traveler (hours)	0	1	0	0
Annual Congestion Cost Savings (\$million)	1.1	1.2	0.8	0.8
Travel Time Index with Strategies	1.089	1.083	1.079	1.089
Travel Time Index (Base)	1.092	1.087	1.081	1.091
Public Transportation Service	2003	2002	2001	2000
Existing Service				
Annual Passenger-miles of travel (million)	27.4	31.5	31.7	35.4
Unlinked Passenger Trips (million)	8.3	8.7	8.7	8.2
Travel Time Index (combined road and transit)	1.090	1.084	1.079	1.089
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.096	1.093	1.086	1.096
Annual Increase				
Delay (1000 hours)	118	155	138	154
Delay per Peak Traveler (hours)	1	1	1	1
Congestion Cost (\$million)	2.0	2.6	2.3	2.5

**Comparison of Several Key Mobility Performance Measures
Small Group – less than 500,000 population urban areas**

Urban Area	Delay per Traveler	Travel Time Index	Total Delay	1982 to 2007	
				Delay per Traveler	Total Delay
Knoxville, TN	H+	H	H+	F	F+
Charleston-North Charleston, SC	H+	H+	H+	F+	F+
Cape Coral, FL	H+	H+	H+	F+	F+
Columbia, SC	H	0	H+	F+	F+
Wichita, KS	L-	L-	L-	S-	S-
Little Rock, AR	H	0	H	F+	F+
Spokane WA	L-	L-	L-	S-	S-
Pensacola, FL-AL	H+	H	H+	F+	F+
Corpus Christi, TX	L-	L-	L-	S-	S-
Anchorage, AK	L-	L	L-	S-	S-
Eugene, OR	L-	L	L-	S-	S-
Salem, OR	L	0	L	0	S-
Beaumont, TX	L-	L-	L-	S-	S-
Laredo, TX	L	H	L-	0	S-
Brownsville, TX	L-	L	L-	S-	S-
Boulder, CO	L-	0	L-	S-	S-

0 – Average congestion levels or average congestion growth
H Higher congestion; H+ Much higher congestion; F Faster congestion growth; F+ Much faster growth
L Lower congestion; L- Much lower congestion; S Slower congestion growth; S- Much slower growth

Key Mobility Performance Measure Labels

Note: Designation of an urban area congestion problem as “Much higher”, “Much faster growth”, etc. is determined using a general indicator of the accuracy of the congestion estimates. For regions with the same indicator label, there may be no difference in congestion levels. Different values are used for the indicators in regions over 1 million population and below 1 million population.

Measures	Differences Within These Values May Not Indicate a Difference in Congestion Level	
	Above 1M Population	Below 1M Population
2007 Values Delay per Traveler - Travel Time Index - Total Delay -	5 Hours 5 Index Points 5 Hours x Average Population	3 Hours 3 Index Points 3 Hours x Average Population
1982 to 2007 Trends Delay per Traveler - Total Delay -	5 Hours 5 Hours x Average Population	3 Hours 3 Hours x Average Population