

Performance Measure Summary – Beaumont, TX

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 Beaumont TX

Inventory Measures	2007	2006	2005	2004	2003	2002
Urban Area Information						
Population (1000s)	225	225	225	225	225	220
Rank	87	86	86	86	86	86
Urban Area (square miles)	195	195	190	190	190	190
Population Density (persons/sq mile)	1,154	1,154	1,184	1,184	1,184	1,158
Peak Travelers (1000s)	124	124	123	122	121	117
Freeway						
Daily Vehicle-Miles of Travel (1000s)	2,400	2,550	2,320	2,260	2,240	2,250
Lane-Miles	205	205	205	205	205	205
Arterial Streets						
Daily Vehicle-Miles of Travel (1000s)	2,935	2,935	2,850	2,745	2,610	2,515
Lane-Miles	830	830	800	785	770	745
Public Transportation						
Annual Psgr-Miles of Travel (millions)	2.9	2.7	3.9	4.1	4.3	6.3
Annual Unlinked Psgr Trips (millions)	0.7	0.6	0.8	0.8	0.9	1.6
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)	2.92	2.55	2.23	1.83	1.45	1.32
System Performance	2007	2006	2005	2004	2003	2002
Congested Travel (% of peak VMT)	14	16	15	15	14	14
Congested System (% of lane-miles)	15	19	19	19	19	19
Congested Time (number of "Rush Hours")	3.8	4.2	3.4	3.2	3.2	3.2
Annual Increase Needed to Maintain Constant Congestion Level:						
Lane-miles	24	38	31	28	28	27
Transit Riders or Carpoolers (millions)	4	7	6	5	5	5
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	866	951	831	788	730	745
Rank	87	83	86	86	86	86
Fuel per Peak Traveler (gallons)	7	8	7	6	6	6
Rank	77	75	79	81	80	78
Annual Delay						
Total Delay (1000s of person-hours)	1,425	1,518	1,377	1,337	1,231	1,270
Rank	87	85	86	86	87	86
Delay per Peak Traveler (person-hours)	11	12	11	11	10	11
Rank	79	78	80	79	80	77
Delay due to Incidents (percent)	57	58	57	57	57	57
Travel Time Index	1.05	1.05	1.05	1.05	1.04	1.05
Rank	87	87	88	87	89	86
Congestion Cost						
Total Cost (\$ millions)	28	30	26	23	21	21
Rank	87	84	86	86	87	86
Cost per Peak Traveler (\$)	228	239	208	192	171	180
Rank	80	79	81	82	83	79

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 Beaumont TX, Continued

Inventory Measures	2001	2000	1999	1998	1997
Urban Area Information					
Population (1000s)	220	220	220	220	215
Rank	86	85	85	85	85
Urban Area (square miles)	190	190	190	190	185
Population Density (persons/sq mile)	1,158	1,158	1,158	1,158	1,162
Peak Travelers (1000s)	115	113	112	110	106
Freeway					
Daily Vehicle-Miles of Travel (1000s)	2,140	2,075	2,120	2,105	2,110
Lane-Miles	205	205	210	215	215
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	2,440	2,360	2,230	2,120	2,040
Lane-Miles	720	705	690	675	650
Public Transportation					
Annual Psgr-Miles of Travel (millions)	7.0	6.9	7.0	5.9	6.2
Annual Unlinked Psgr Trips (millions)	1.7	1.7	1.7	1.4	1.7
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)	1.46	1.47	1.07	1.01	1.12
System Performance	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)	14	12	12	9	9
Congested System (% of lane-miles)	19	18	18	13	14
Congested Time (number of "Rush Hours")	3.0	2.9	2.9	2.8	2.8
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	27	31	36	37	33
Transit Riders or Carpoolers (millions)	5	5	6	6	6
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	641	574	553	450	396
Rank	86	87	87	88	88
Fuel per Peak Traveler (gallons)	6	5	5	4	4
Rank	78	83	83	87	85
Annual Delay					
Total Delay (1000s of person-hours)	1,056	981	941	803	650
Rank	86	87	87	88	89
Delay per Peak Traveler (person-hours)	9	9	8	7	6
Rank	83	83	84	85	87
Delay due to Incidents (percent)	57	56	56	57	56
Travel Time Index					
	1.04	1.04	1.04	1.03	1.03
Rank	89	88	89	89	89
Congestion Cost					
Total Cost (\$ millions)	17	16	14	12	10
Rank	86	86	87	88	89
Cost per Peak Traveler (\$)	150	139	128	108	91
Rank	85	84	84	85	87

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 Beaumont TX, Continued

Inventory Measures	1996	1995	1994	1993	1992
Urban Area Information					
Population (1000s)	215	215	215	215	210
Rank	85	85	85	85	85
Urban Area (square miles)	185	185	185	185	185
Population Density (persons/sq mile)	1,162	1,162	1,162	1,162	1,135
Peak Travelers (1000s)	104	103	101	100	96
Freeway					
Daily Vehicle-Miles of Travel (1000s)	2,050	1,940	1,830	1,780	1,825
Lane-Miles	205	205	200	195	200
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,905	1,820	1,745	1,670	1,610
Lane-Miles	640	625	600	565	540
Public Transportation					
Annual Psgr-Miles of Travel (millions)	6.2	6.6	6.7	7.0	7.2
Annual Unlinked Psgr Trips (millions)	1.7	1.8	1.8	1.9	1.9
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)	1.21	1.14	1.03	1.10	1.09
System Performance	1996	1995	1994	1993	1992
Congested Travel (% of peak VMT)	10	8	7	8	9
Congested System (% of lane-miles)	14	13	13	12	14
Congested Time (number of "Rush Hours")	2.8	2.7	2.7	2.7	2.7
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	29	28	24	20	22
Transit Riders or Carpoolers (millions)	5	4	4	3	4
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	404	351	313	337	309
Rank	88	88	88	88	88
Fuel per Peak Traveler (gallons)	4	3	3	3	3
Rank	82	88	87	87	84
Annual Delay					
Total Delay (1000s of person-hours)	674	630	569	606	508
Rank	88	88	88	88	88
Delay per Peak Traveler (person-hours)	6	6	6	6	5
Rank	87	85	85	83	85
Delay due to Incidents (percent)	55	56	55	56	55
Travel Time Index	1.03	1.03	1.03	1.03	1.03
Rank	89	89	89	87	85
Congestion Cost					
Total Cost (\$ millions)	10	9	8	8	7
Rank	88	88	88	88	86
Cost per Peak Traveler (\$)	94	87	76	80	69
Rank	87	87	87	86	86

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

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The Mobility Data for Beaumont TX, Continued

Inventory Measures	1991	1990	1989	1988	1987
Urban Area Information					
Population (1000s)	210	210	205	205	205
Rank	84	84	84	83	83
Urban Area (square miles)	185	185	180	180	180
Population Density (persons/sq mile)	1,135	1,135	1,139	1,139	1,139
Peak Travelers (1000s)	94	93	90	89	89
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,780	1,690	1,660	1,600	1,580
Lane-Miles	200	200	200	200	200
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,550	1,500	1,435	1,430	1,390
Lane-Miles	510	485	445	435	430
Public Transportation					
Annual Psgr-Miles of Travel (millions)	5.5	5.1	4.6	5.4	5.7
Annual Unlinked Psgr Trips (millions)	1.5	1.4	1.2	1.3	1.3
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)	1.12	1.04	1.07	0.99	0.99
System Performance	1991	1990	1989	1988	1987
Congested Travel (% of peak VMT)	7	6	6	6	7
Congested System (% of lane-miles)	12	9	8	8	12
Congested Time (number of "Rush Hours")	2.6	2.6	2.6	2.5	2.5
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	14	11	11	19	16
Transit Riders or Carpoolers (millions)	2	2	2	3	3
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	282	230	225	199	211
Rank	87	88	86	87	86
Fuel per Peak Traveler (gallons)	3	2	3	2	2
Rank	84	86	80	84	81
Annual Delay					
Total Delay (1000s of person-hours)	465	378	372	325	341
Rank	88	88	87	87	86
Delay per Peak Traveler (person-hours)	5	4	4	4	4
Rank	84	86	85	84	79
Delay due to Incidents (percent)	58	58	58	57	56
Travel Time Index	1.02	1.02	1.02	1.02	1.02
Rank	89	87	87	86	83
Congestion Cost					
Total Cost (\$ millions)	6	5	4	4	4
Rank	87	87	86	87	85
Cost per Peak Traveler (\$)	63	50	49	41	41
Rank	86	86	86	86	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.

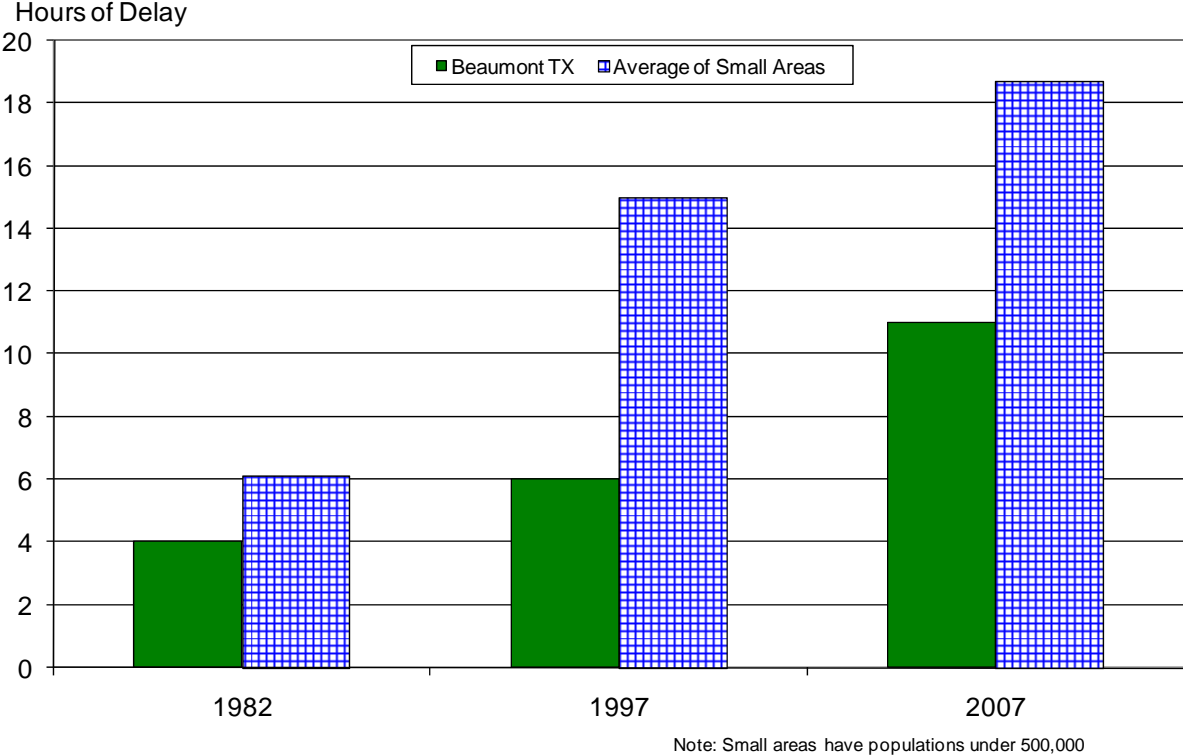
The Mobility Data for Beaumont TX, Continued

Inventory Measures	1986	1985	1984	1983	1982
Urban Area Information					
Population (1000s)	205	205	205	205	205
Rank	83	83	82	82	82
Urban Area (square miles)	180	175	175	175	175
Population Density (persons/sq mile)	1,139	1,171	1,171	1,171	1,171
Peak Travelers (1000s)	88	87	87	86	85
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,640	1,550	1,565	1,515	1,475
Lane-Miles	200	205	205	205	200
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	1,370	1,385	1,280	1,110	1,130
Lane-Miles	425	410	390	350	330
Public Transportation					
Annual Psgr-Miles of Travel (millions)	5.7	7.1	6.7	6.7	6.7
Annual Unlinked Psgr Trips (millions)	1.4	1.7	1.9	1.9	1.9
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)	0.97	1.27	1.28	1.31	1.37
System Performance	1986	1985	1984	1983	1982
Congested Travel (% of peak VMT)	9	8	7	7	7
Congested System (% of lane-miles)	15	13	12	11	11
Congested Time (number of "Rush Hours")	2.5	2.5	2.5	2.4	2.4
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	--	--	--	--	--
Transit Riders or Carpoolers (millions)	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	251	241	215	184	189
Rank	84	84	84	84	84
Fuel per Peak Traveler (gallons)	3	3	2	2	2
Rank	72	71	73	73	72
Annual Delay					
Total Delay (1000s of person-hours)	378	390	355	302	314
Rank	85	85	84	84	84
Delay per Peak Traveler (person-hours)	4	4	4	4	4
Rank	78	76	72	71	69
Delay due to Incidents (percent)	57	55	55	55	55
Travel Time Index					
	1.02	1.02	1.02	1.02	1.02
Rank	80	80	76	74	74
Congestion Cost					
Total Cost (\$ millions)	4	4	4	3	3
Rank	84	84	82	84	83
Cost per Peak Traveler (\$)	45	47	42	35	36
Rank	79	76	74	76	75

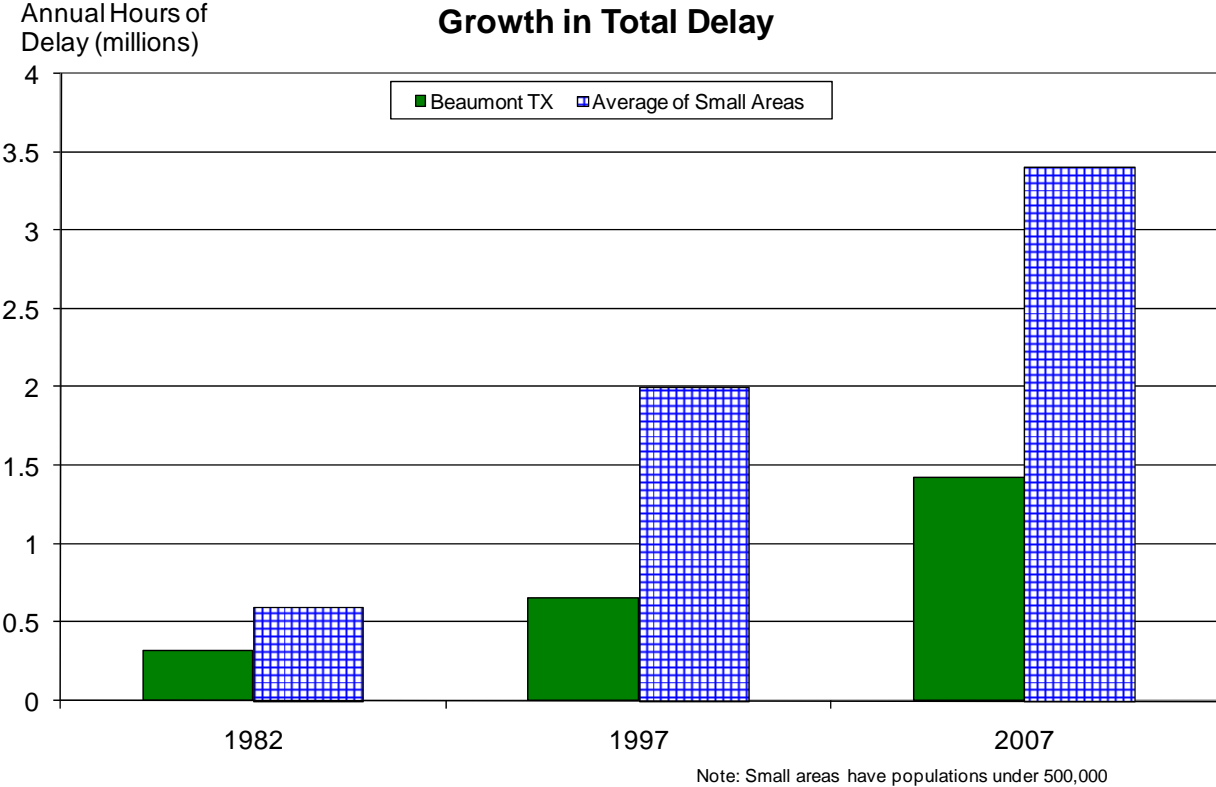
Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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

Growth in Delay per Peak Traveler



Growth in Total Delay



**Benefits from Public Transportation Service and Operations Strategies in
Beaumont TX**

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	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
Arterial Signal Coordination				
Percent of Roadway Miles	46	46	44	38
Annual Delay Reduction (1000 hours)	2	3	3	1
Arterial Access Management				
Percent of Roadway Miles	15	15	15	15
Annual Delay Reduction (1000 hours)	11	21	14	15
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	13	23	17	16
Annual Delay Saved per Peak Traveler (hours)	0	0	0	0
Annual Congestion Cost Savings (\$million)	0.2	0.4	0.3	0.3
Travel Time Index with Strategies	1.048	1.051	1.047	1.046
Travel Time Index (Base)	1.048	1.052	1.048	1.047
Public Transportation Service	2007	2006	2005	2004
Existing Service				
Annual Passenger-miles of travel (million)	2.9	2.7	3.9	4.1
Unlinked Passenger Trips (million)	0.7	0.6	0.8	0.8
Travel Time Index (combined road and transit)	1.048	1.052	1.048	1.047
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.049	1.053	1.048	1.047
Annual Increase				
Delay (1000 hours)	15	19	11	5
Delay per Peak Traveler (hours)	0	0	0	0
Congestion Cost (\$million)	0.3	0.4	0.2	0.1

**Benefits from Public Transportation Service and Operations Strategies in
Beaumont TX, 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	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
Arterial Signal Coordination				
Percent of Roadway Miles	39	33	35	35
Annual Delay Reduction (1000 hours)	1	6	2	0
Arterial Access Management				
Percent of Roadway Miles	16	16	17	17
Annual Delay Reduction (1000 hours)	12	9	12	10
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	13	15	14	11
Annual Delay Saved per Peak Traveler (hours)	0	0	0	0
Annual Congestion Cost Savings (\$million)	0.2	0.2	0.2	0.2
Travel Time Index with Strategies	1.044	1.046	1.041	1.038
Travel Time Index (Base)	1.045	1.047	1.042	1.038
Public Transportation Service	2003	2002	2001	2000
Existing Service				
Annual Passenger-miles of travel (million)	4.3	6.3	7.0	6.9
Unlinked Passenger Trips (million)	0.9	1.6	1.7	1.7
Travel Time Index (combined road and transit)	1.045	1.047	1.042	1.038
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.045	1.047	1.042	1.038
Annual Increase				
Delay (1000 hours)	7	29	11	8
Delay per Peak Traveler (hours)	0	0	0	0
Congestion Cost (\$million)	0.1	0.5	0.2	0.1

**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