

## Performance Measure Summary – Little Rock, AR

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 Little Rock AR

Inventory Measures	2007	2006	2005	2004	2003	2002
<b>Urban Area Information</b>						
Population (1000s)	390	380	375	370	345	340
Rank	80	80	80	80	81	80
Urban Area (square miles)	255	255	255	255	255	250
Population Density (persons/sq mile)	1,529	1,490	1,471	1,451	1,353	1,360
Peak Travelers (1000s)	215	209	204	201	186	181
<b>Freeway</b>						
Daily Vehicle-Miles of Travel (1000s)	6,945	6,810	6,170	5,800	5,040	4,715
Lane-Miles	520	505	490	470	420	400
<b>Arterial Streets</b>						
Daily Vehicle-Miles of Travel (1000s)	4,565	4,325	4,330	4,200	3,520	3,395
Lane-Miles	1,025	1,015	1,000	990	965	945
<b>Public Transportation</b>						
Annual Psgr-Miles of Travel (millions)	9.0	8.9	8.6	7.8	10.0	13.0
Annual Unlinked Psgr Trips (millions)	2.5	2.4	2.3	2.1	2.6	3.0
<b>Cost Components</b>						
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)	2.89	2.54	2.23	1.85	1.46	1.32
System Performance	2007	2006	2005	2004	2003	2002
<b>Congested Travel</b> (% of peak VMT)	33	32	29	30	26	24
<b>Congested System</b> (% of lane-miles)	32	28	30	27	27	21
<b>Congested Time</b> (number of "Rush Hours")	5.6	5.6	5.0	4.8	4.2	4.0
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>						
Lane-miles	112	93	78	60	23	20
Transit Riders or Carpoolers (millions)	29	24	19	14	5	4
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	3,298	2,843	2,415	2,423	1,789	1,471
Rank	71	73	75	74	77	77
Fuel per Peak Traveler (gallons)	15	14	12	12	10	8
Rank	52	56	62	63	67	73
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	4,652	3,915	3,530	3,472	2,519	2,139
Rank	73	76	76	76	78	78
Delay per Peak Traveler (person-hours)	22	19	17	17	14	12
Rank	55	63	65	66	72	74
Delay due to Incidents (percent)	55	56	55	55	55	55
<b>Travel Time Index</b>	1.09	1.08	1.07	1.07	1.06	1.05
Rank	70	77	81	81	83	86
<b>Congestion Cost</b>						
Total Cost (\$ millions)	97	79	66	62	44	36
Rank	72	75	78	76	78	78
Cost per Peak Traveler (\$)	449	377	325	311	236	198
Rank	57	64	65	66	73	75

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

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

## The Mobility Data for Little Rock AR, Continued

Inventory Measures	2001	2000	1999	1998	1997
<b>Urban Area Information</b>					
Population (1000s)	335	330	325	320	320
Rank	79	79	80	79	79
Urban Area (square miles)	240	235	230	225	215
Population Density (persons/sq mile)	1,396	1,404	1,413	1,422	1,488
Peak Travelers (1000s)	175	170	165	160	157
<b>Freeway</b>					
Daily Vehicle-Miles of Travel (1000s)	4,980	4,770	4,850	4,680	4,460
Lane-Miles	400	400	395	395	395
<b>Arterial Streets</b>					
Daily Vehicle-Miles of Travel (1000s)	3,285	3,360	3,315	3,185	3,075
Lane-Miles	925	900	885	865	840
<b>Public Transportation</b>					
Annual Psgr-Miles of Travel (millions)	15.6	14.5	14.5	13.0	13.0
Annual Unlinked Psgr Trips (millions)	3.8	3.6	3.6	3.8	3.8
<b>Cost Components</b>					
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)	1.44	1.45	1.03	1.00	1.10
System Performance	2001	2000	1999	1998	1997
<b>Congested Travel</b> (% of peak VMT)	28	24	24	20	18
<b>Congested System</b> (% of lane-miles)	23	22	20	20	15
<b>Congested Time</b> (number of "Rush Hours")	4.6	4.2	4.4	4.0	3.6
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>					
Lane-miles	26	30	40	42	29
Transit Riders or Carpoolers (millions)	6	7	9	9	6
<b>Annual Excess Fuel Consumed</b>					
Total Fuel (1000 gallons)	1,875	1,542	1,662	1,380	1,084
Rank	75	77	74	77	78
Fuel per Peak Traveler (gallons)	11	9	10	9	7
Rank	64	70	68	68	73
<b>Annual Delay</b>					
Total Delay (1000s of person-hours)	2,593	2,222	2,379	2,062	1,590
Rank	77	77	77	77	79
Delay per Peak Traveler (person-hours)	15	13	14	13	10
Rank	70	75	70	71	75
Delay due to Incidents (percent)	56	54	55	54	55
<b>Travel Time Index</b>	1.07	1.06	1.06	1.05	1.04
Rank	76	79	77	81	84
<b>Congestion Cost</b>					
Total Cost (\$ millions)	44	36	37	31	24
Rank	76	77	77	77	79
Cost per Peak Traveler (\$)	251	213	224	194	151
Rank	71	74	69	72	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 Little Rock AR, Continued

Inventory Measures	1996	1995	1994	1993	1992
<b>Urban Area Information</b>					
Population (1000s)	315	310	310	310	310
Rank	79	79	78	77	77
Urban Area (square miles)	210	205	200	200	195
Population Density (persons/sq mile)	1,500	1,512	1,550	1,550	1,590
Peak Travelers (1000s)	152	148	146	144	141
<b>Freeway</b>					
Daily Vehicle-Miles of Travel (1000s)	4,440	4,215	4,125	3,915	3,830
Lane-Miles	395	390	390	390	390
<b>Arterial Streets</b>					
Daily Vehicle-Miles of Travel (1000s)	3,055	3,020	2,865	2,770	2,880
Lane-Miles	820	800	775	775	755
<b>Public Transportation</b>					
Annual Psgr-Miles of Travel (millions)	13.0	9.9	9.9	9.9	10.5
Annual Unlinked Psgr Trips (millions)	3.8	2.6	2.6	2.6	2.6
<b>Cost Components</b>					
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	1.08	1.01	1.04	1.05
System Performance	1996	1995	1994	1993	1992
<b>Congested Travel</b> (% of peak VMT)	18	15	15	14	12
<b>Congested System</b> (% of lane-miles)	15	13	13	13	13
<b>Congested Time</b> (number of "Rush Hours")	3.6	3.4	3.2	2.9	2.9
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>					
Lane-miles	28	31	26	29	38
Transit Riders or Carpoolers (millions)	6	7	5	6	8
<b>Annual Excess Fuel Consumed</b>					
Total Fuel (1000 gallons)	1,072	933	889	809	649
Rank	78	78	79	79	79
Fuel per Peak Traveler (gallons)	7	6	6	6	5
Rank	72	74	75	72	77
<b>Annual Delay</b>					
Total Delay (1000s of person-hours)	1,552	1,421	1,344	1,227	1,008
Rank	78	79	79	79	81
Delay per Peak Traveler (person-hours)	10	10	9	9	7
Rank	75	74	78	75	80
Delay due to Incidents (percent)	55	54	55	55	54
<b>Travel Time Index</b>	1.04	1.04	1.04	1.04	1.03
Rank	82	81	80	78	85
<b>Congestion Cost</b>					
Total Cost (\$ millions)	23	20	19	17	13
Rank	78	79	79	79	81
Cost per Peak Traveler (\$)	151	136	128	116	94
Rank	75	77	78	78	81

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

## The Mobility Data for Little Rock AR, Continued

Inventory Measures	1991	1990	1989	1988	1987
<b>Urban Area Information</b>					
Population (1000s)	310	310	310	305	300
Rank	77	76	75	76	76
Urban Area (square miles)	190	190	185	185	180
Population Density (persons/sq mile)	1,632	1,632	1,676	1,649	1,667
Peak Travelers (1000s)	139	137	136	133	130
<b>Freeway</b>					
Daily Vehicle-Miles of Travel (1000s)	3,890	3,600	3,560	3,445	3,300
Lane-Miles	385	380	375	375	370
<b>Arterial Streets</b>					
Daily Vehicle-Miles of Travel (1000s)	2,795	2,765	2,695	2,460	2,385
Lane-Miles	735	710	695	680	675
<b>Public Transportation</b>					
Annual Psgr-Miles of Travel (millions)	11.5	11.6	13.7	15.1	16.4
Annual Unlinked Psgr Trips (millions)	2.8	2.8	3.2	3.6	3.6
<b>Cost Components</b>					
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)	1.10	1.00	1.09	1.01	1.01
System Performance	1991	1990	1989	1988	1987
<b>Congested Travel</b> (% of peak VMT)	10	9	9	8	8
<b>Congested System</b> (% of lane-miles)	12	12	11	11	11
<b>Congested Time</b> (number of "Rush Hours")	3.0	2.9	2.9	2.8	2.7
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>					
Lane-miles	52	46	63	60	51
Transit Riders or Carpoolers (millions)	11	9	13	12	10
<b>Annual Excess Fuel Consumed</b>					
Total Fuel (1000 gallons)	621	542	534	443	426
Rank	78	78	77	78	78
Fuel per Peak Traveler (gallons)	4	4	4	3	3
Rank	77	74	73	75	75
<b>Annual Delay</b>					
Total Delay (1000s of person-hours)	976	877	856	712	696
Rank	79	79	78	80	79
Delay per Peak Traveler (person-hours)	7	6	6	5	5
Rank	77	78	76	77	75
Delay due to Incidents (percent)	54	54	54	54	54
<b>Travel Time Index</b>	1.03	1.02	1.02	1.02	1.02
Rank	85	87	87	86	83
<b>Congestion Cost</b>					
Total Cost (\$ millions)	13	11	10	8	7
Rank	77	77	77	79	79
Cost per Peak Traveler (\$)	90	78	73	59	57
Rank	79	79	77	78	75

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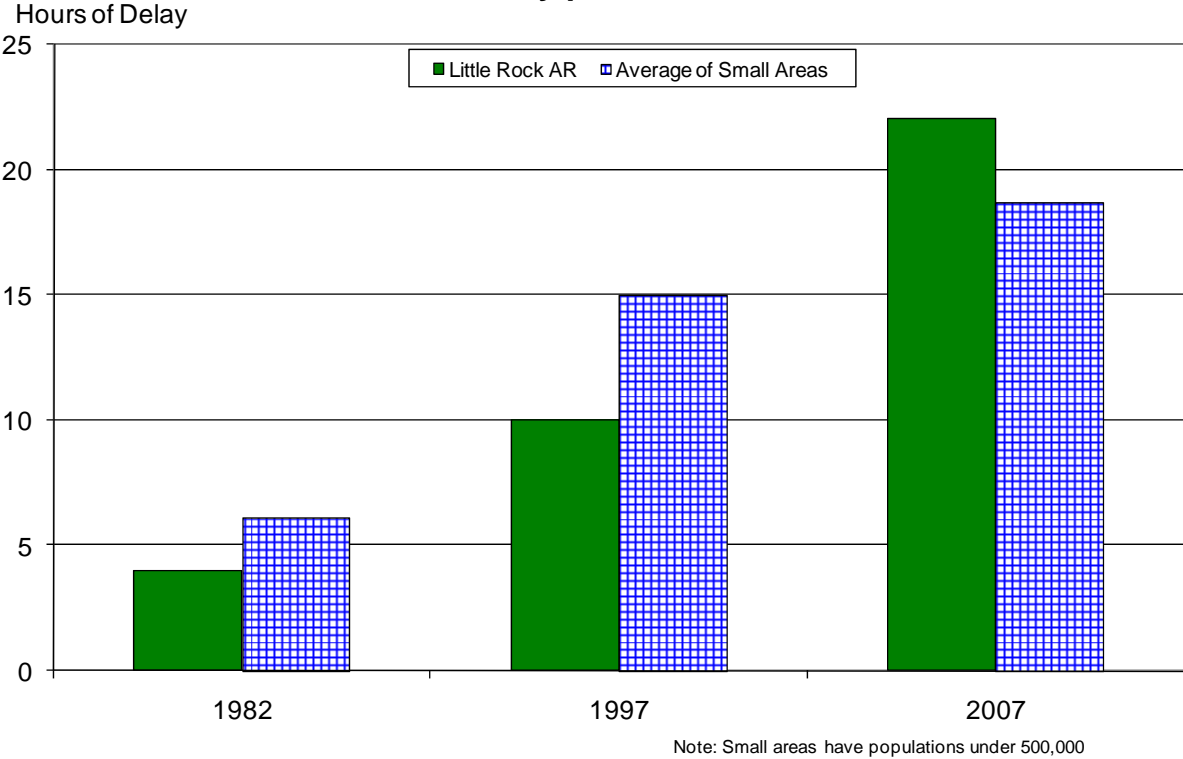
## The Mobility Data for Little Rock AR, Continued

Inventory Measures	1986	1985	1984	1983	1982
<b>Urban Area Information</b>					
Population (1000s)	295	290	285	280	275
Rank	75	75	75	75	75
Urban Area (square miles)	175	170	165	160	160
Population Density (persons/sq mile)	1,686	1,706	1,727	1,750	1,719
Peak Travelers (1000s)	126	123	120	117	114
<b>Freeway</b>					
Daily Vehicle-Miles of Travel (1000s)	3,000	2,870	2,440	2,400	2,330
Lane-Miles	362	362	360	360	355
<b>Arterial Streets</b>					
Daily Vehicle-Miles of Travel (1000s)	2,315	2,300	2,245	2,075	2,150
Lane-Miles	650	635	605	595	570
<b>Public Transportation</b>					
Annual Psgr-Miles of Travel (millions)	14.7	15.8	16.0	16.0	16.0
Annual Unlinked Psgr Trips (millions)	3.5	3.6	3.8	3.8	3.8
<b>Cost Components</b>					
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)	0.98	1.29	1.30	1.33	1.39
System Performance	1986	1985	1984	1983	1982
<b>Congested Travel</b> (% of peak VMT)	8	6	6	6	6
<b>Congested System</b> (% of lane-miles)	11	11	11	11	11
<b>Congested Time</b> (number of "Rush Hours")	2.6	2.6	2.4	2.3	2.3
<b>Annual Increase Needed to Maintain Constant Congestion Level:</b>					
Lane-miles	--	--	--	--	--
Transit Riders or Carpoolers (millions)	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>					
Total Fuel (1000 gallons)	392	341	297	267	278
Rank	79	78	80	80	77
Fuel per Peak Traveler (gallons)	3	3	2	2	2
Rank	72	71	73	73	72
<b>Annual Delay</b>					
Total Delay (1000s of person-hours)	642	587	517	463	490
Rank	80	78	80	80	77
Delay per Peak Traveler (person-hours)	5	5	4	4	4
Rank	75	72	72	71	69
Delay due to Incidents (percent)	54	53	53	53	53
<b>Travel Time Index</b>	1.02	1.02	1.02	1.02	1.02
Rank	80	80	76	74	74
<b>Congestion Cost</b>					
Total Cost (\$ millions)	7	6	5	4	5
Rank	77	77	79	80	74
Cost per Peak Traveler (\$)	52	49	43	38	41
Rank	75	75	73	73	71

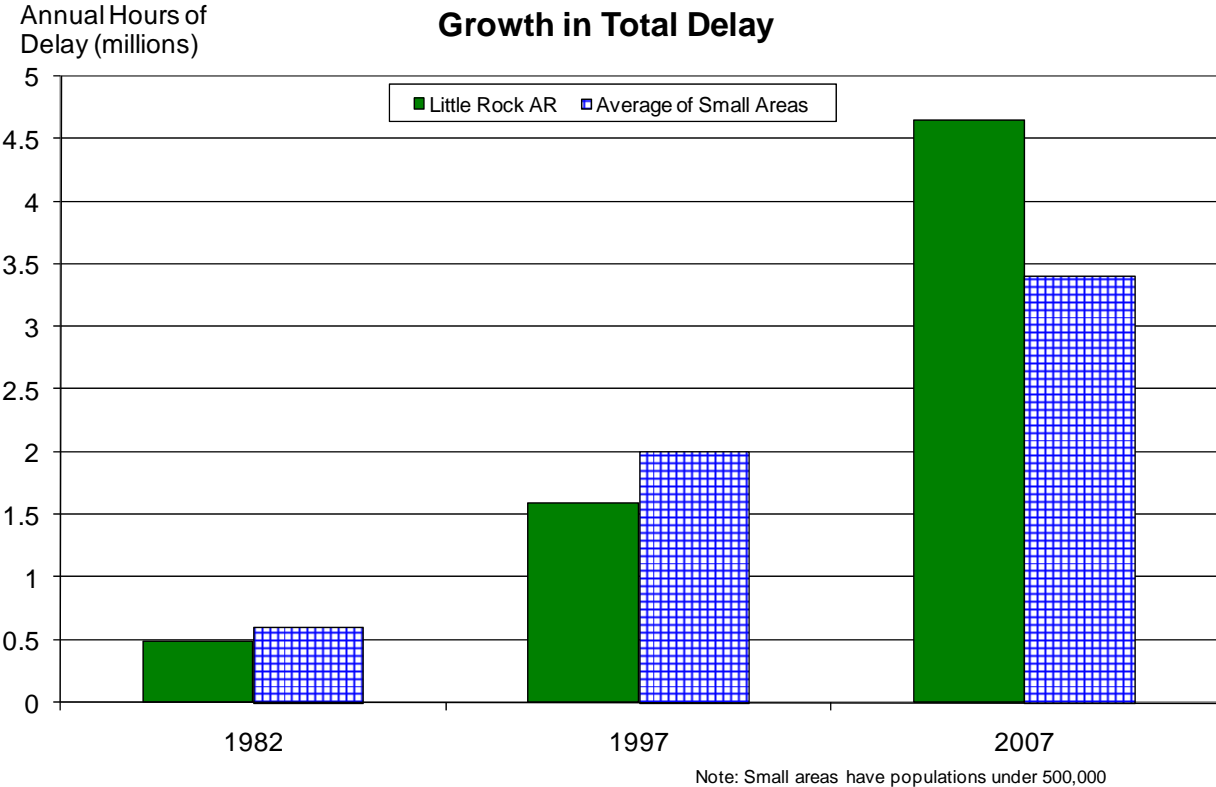
Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.

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### Growth in Delay per Peak Traveler



### Growth in Total Delay



**Benefits from Public Transportation Service and Operations Strategies in  
Little Rock AR**

<b>Operations Strategies</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>
<b>Freeway Ramp Metering</b>				
Percent of Roadway Miles	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
<b>Freeway Incident Management</b>				
<b>Cameras</b>				
Percent of Roadway Miles	26	27	28	29
<b>Service Patrols</b>				
Percent of Roadway Miles	100	100	100	100
Annual Delay Reduction (1000 hours)	129	109	65	77
<b>Arterial Signal Coordination</b>				
Percent of Roadway Miles	25	25	25	25
Annual Delay Reduction (1000 hours)	6	6	8	8
<b>Arterial Access Management</b>				
Percent of Roadway Miles	15	15	15	11
Annual Delay Reduction (1000 hours)	77	43	41	61
<b>HOV Lanes</b>				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
<b>Total Effect of Operations Treatments</b>				
Annual Delay Reduction (1000 hours)	213	159	114	145
Annual Delay Saved per Peak Traveler (hours)	1	1	1	1
Annual Congestion Cost Savings (\$million)	4.7	3.5	2.3	2.8
Travel Time Index with Strategies	1.087	1.077	1.069	1.073
Travel Time Index (Base)	1.091	1.081	1.072	1.076
<b>Public Transportation Service</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>
<b>Existing Service</b>				
Annual Passenger-miles of travel (million)	9.0	8.9	8.6	7.8
Unlinked Passenger Trips (million)	2.5	2.4	2.3	2.1
Travel Time Index (combined road and transit)	1.091	1.081	1.072	1.076
<b>Condition if Public Transportation Service were Discontinued</b>				
Travel Time Index	1.091	1.086	1.073	1.083
Annual Increase				
Delay (1000 hours)	12	277	74	318
Delay per Peak Traveler (hours)	0	1	0	2
Congestion Cost (\$million)	0.2	6.3	1.6	6.4

**Benefits from Public Transportation Service and Operations Strategies in  
Little Rock AR, Continued**

<b>Operations Strategies</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>2000</b>
<b>Freeway Ramp Metering</b>				
Percent of Roadway Miles	--	--	--	--
Annual Delay Reduction (1000 hours)	--	--	--	--
<b>Freeway Incident Management</b>				
<b>Cameras</b>				
Percent of Roadway Miles	--	--	--	--
<b>Service Patrols</b>				
Percent of Roadway Miles	64	66	--	--
Annual Delay Reduction (1000 hours)	42	27	--	--
<b>Arterial Signal Coordination</b>				
Percent of Roadway Miles	26	24	24	25
Annual Delay Reduction (1000 hours)	9	6	4	3
<b>Arterial Access Management</b>				
Percent of Roadway Miles	10	7	8	8
Annual Delay Reduction (1000 hours)	46	34	50	26
<b>HOV Lanes</b>				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
<b>Total Effect of Operations Treatments</b>				
Annual Delay Reduction (1000 hours)	97	68	54	29
Annual Delay Saved per Peak Traveler (hours)	1	0	0	0
Annual Congestion Cost Savings (\$million)	1.7	1.2	0.8	0.4
Travel Time Index with Strategies	1.063	1.054	1.068	1.057
Travel Time Index (Base)	1.065	1.056	1.069	1.057
<b>Public Transportation Service</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>2000</b>
<b>Existing Service</b>				
Annual Passenger-miles of travel (million)	10.0	13.0	15.6	14.5
Unlinked Passenger Trips (million)	2.6	3.0	3.8	3.6
Travel Time Index (combined road and transit)	1.065	1.056	1.069	1.057
<b>Condition if Public Transportation Service were Discontinued</b>				
Travel Time Index	1.069	1.057	1.070	1.057
Annual Increase				
Delay (1000 hours)	174	66	67	26
Delay per Peak Traveler (hours)	1	0	0	0
Congestion Cost (\$million)	3.4	1.2	1.2	0.4

**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-
<b>Little Rock, AR</b>	<b>H</b>	<b>0</b>	<b>H</b>	<b>F+</b>	<b>F+</b>
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
<b>2007 Values</b> 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
<b>1982 to 2007 Trends</b> Delay per Traveler - Total Delay -	5 Hours 5 Hours x Average Population	3 Hours 3 Hours x Average Population