

Performance Measure Summary – Albuquerque, NM

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 Albuquerque NM

Inventory Measures	2007	2006	2005	2004	2003	2002
Urban Area Information						
Population (1000s)	585	580	575	575	575	570
Rank	68	68	67	67	67	65
Urban Area (square miles)	285	285	280	280	280	280
Population Density (persons/sq mile)	2,053	2,035	2,054	2,054	2,054	2,036
Peak Travelers (1000s)	322	317	312	311	309	303
Freeway						
Daily Vehicle-Miles of Travel (1000s)	4,875	4,750	4,665	4,515	4,285	4,100
Lane-Miles	335	335	330	330	330	300
Arterial Streets						
Daily Vehicle-Miles of Travel (1000s)	7,470	7,445	7,335	7,240	7,050	6,785
Lane-Miles	1,590	1,590	1,540	1,500	1,440	1,400
Public Transportation						
Annual Psgr-Miles of Travel (millions)	33.3	30.4	21.4	21.5	21.4	21.6
Annual Unlinked Psgr Trips (millions)	9.6	8.8	7.9	7.8	7.8	7.6
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)	3.24	2.65	2.36	1.92	1.52	1.37
System Performance	2007	2006	2005	2004	2003	2002
Congested Travel (% of peak VMT)	46	43	45	43	41	43
Congested System (% of lane-miles)	40	40	41	41	41	41
Congested Time (number of "Rush Hours")	6.2	6.0	6.0	5.8	5.6	5.8
Annual Increase Needed to Maintain Constant Congestion Level:						
Lane-miles	50	53	51	48	37	21
Transit Riders or Carpoolers (millions)	11	12	11	11	8	5
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	7,070	6,570	6,644	5,929	5,314	5,083
Rank	52	53	50	53	55	54
Fuel per Peak Traveler (gallons)	22	21	21	19	17	17
Rank	37	37	39	42	46	45
Annual Delay						
Total Delay (1000s of person-hours)	11,095	10,441	10,407	9,392	8,387	7,926
Rank	51	51	50	52	54	55
Delay per Peak Traveler (person-hours)	34	33	33	30	27	26
Rank	36	36	36	40	47	45
Delay due to Incidents (percent)	52	52	52	52	52	52
Travel Time Index	1.18	1.17	1.17	1.16	1.14	1.14
Rank	39	42	42	45	48	50
Congestion Cost						
Total Cost (\$ millions)	244	218	208	176	150	138
Rank	49	50	50	50	53	52
Cost per Peak Traveler (\$)	757	686	666	567	487	455
Rank	36	37	36	40	45	45

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 Albuquerque NM, Continued

Inventory Measures	2001	2000	1999	1998	1997
Urban Area Information					
Population (1000s)	570	565	565	565	565
Rank	63	61	61	61	61
Urban Area (square miles)	280	275	275	275	275
Population Density (persons/sq mile)	2,036	2,055	2,055	2,055	2,055
Peak Travelers (1000s)	299	292	289	285	281
Freeway					
Daily Vehicle-Miles of Travel (1000s)	3,980	3,875	3,825	3,720	3,585
Lane-Miles	280	265	250	235	235
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	6,670	6,600	6,500	6,500	6,650
Lane-Miles	1,380	1,360	1,315	1,310	1,305
Public Transportation					
Annual Psgr-Miles of Travel (millions)	22.0	21.8	20.8	22.0	23.2
Annual Unlinked Psgr Trips (millions)	7.0	6.4	6.5	6.6	6.8
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)	1.55	1.52	1.20	1.12	1.25
System Performance	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)	44	45	47	45	45
Congested System (% of lane-miles)	41	42	42	37	37
Congested Time (number of "Rush Hours")	6.0	6.2	6.6	6.8	6.8
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	22	26	29	32	42
Transit Riders or Carpoolers (millions)	5	6	7	7	10
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	5,505	5,674	6,211	5,993	5,807
Rank	52	50	48	48	46
Fuel per Peak Traveler (gallons)	18	19	22	21	21
Rank	44	37	29	28	29
Annual Delay					
Total Delay (1000s of person-hours)	8,547	8,791	9,907	9,506	9,292
Rank	51	49	48	48	45
Delay per Peak Traveler (person-hours)	29	30	34	33	33
Rank	41	37	25	26	27
Delay due to Incidents (percent)	52	52	53	53	54
Travel Time Index	1.16	1.17	1.19	1.18	1.18
Rank	42	38	31	34	29
Congestion Cost					
Total Cost (\$ millions)	149	150	160	150	146
Rank	51	49	48	48	45
Cost per Peak Traveler (\$)	497	512	554	526	518
Rank	41	36	24	23	23

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 Albuquerque NM, Continued

Inventory Measures	1996	1995	1994	1993	1992
Urban Area Information					
Population (1000s)	560	550	540	530	525
Rank	60	60	60	60	60
Urban Area (square miles)	275	270	265	260	260
Population Density (persons/sq mile)	2,036	2,037	2,038	2,038	2,019
Peak Travelers (1000s)	276	267	259	251	246
Freeway					
Daily Vehicle-Miles of Travel (1000s)	3,505	3,255	3,100	2,940	2,670
Lane-Miles	235	235	235	235	235
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	6,490	6,425	6,335	6,300	6,275
Lane-Miles	1,300	1,295	1,290	1,285	1,280
Public Transportation					
Annual Psgr-Miles of Travel (millions)	22.9	21.5	21.5	21.5	21.0
Annual Unlinked Psgr Trips (millions)	6.8	6.5	6.5	6.5	6.4
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)	1.31	1.23	1.18	1.21	1.20
System Performance	1996	1995	1994	1993	1992
Congested Travel (% of peak VMT)	43	41	39	39	37
Congested System (% of lane-miles)	37	37	37	40	39
Congested Time (number of "Rush Hours")	6.4	6.0	5.6	5.4	5.0
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	46	39	38	39	40
Transit Riders or Carpoolers (millions)	10	9	8	8	8
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	5,461	4,893	4,299	3,976	3,687
Rank	45	45	46	45	47
Fuel per Peak Traveler (gallons)	20	18	17	16	15
Rank	29	31	32	30	31
Annual Delay					
Total Delay (1000s of person-hours)	8,706	7,652	6,787	6,250	5,827
Rank	43	46	46	47	47
Delay per Peak Traveler (person-hours)	32	29	26	25	24
Rank	25	29	31	30	31
Delay due to Incidents (percent)	54	54	54	54	54
Travel Time Index	1.17	1.16	1.14	1.13	1.13
Rank	32	31	37	34	34
Congestion Cost					
Total Cost (\$ millions)	134	114	97	87	79
Rank	43	45	46	47	46
Cost per Peak Traveler (\$)	487	425	375	345	320
Rank	24	30	32	31	32

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 Albuquerque NM, Continued

Inventory Measures	1991	1990	1989	1988	1987
Urban Area Information					
Population (1000s)	520	505	500	490	485
Rank	59	60	60	60	61
Urban Area (square miles)	260	255	250	250	245
Population Density (persons/sq mile)	2,000	1,980	2,000	1,960	1,980
Peak Travelers (1000s)	240	230	226	220	216
Freeway					
Daily Vehicle-Miles of Travel (1000s)	2,480	2,430	2,310	2,225	2,100
Lane-Miles	230	230	230	235	240
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	6,150	6,100	6,050	5,900	5,750
Lane-Miles	1,275	1,270	1,265	1,250	1,240
Public Transportation					
Annual Psgr-Miles of Travel (millions)	21.0	21.0	16.5	16.5	16.0
Annual Unlinked Psgr Trips (millions)	6.4	6.4	4.5	4.5	4.4
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)	1.10	1.11	1.15	1.06	1.06
System Performance	1991	1990	1989	1988	1987
Congested Travel (% of peak VMT)	34	32	30	26	23
Congested System (% of lane-miles)	38	38	38	33	32
Congested Time (number of "Rush Hours")	4.6	4.4	4.2	3.8	3.4
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	38	45	43	42	46
Transit Riders or Carpoolers (millions)	7	9	8	8	8
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	3,097	2,962	2,698	2,231	1,918
Rank	48	49	46	50	48
Fuel per Peak Traveler (gallons)	13	13	12	10	9
Rank	36	34	33	36	38
Annual Delay					
Total Delay (1000s of person-hours)	4,954	4,797	4,412	3,652	3,290
Rank	49	49	47	50	48
Delay per Peak Traveler (person-hours)	21	21	20	17	15
Rank	36	35	31	37	39
Delay due to Incidents (percent)	53	53	53	53	53
Travel Time Index	1.11	1.10	1.10	1.08	1.07
Rank	39	40	37	43	43
Congestion Cost					
Total Cost (\$ millions)	64	59	52	41	35
Rank	48	48	47	49	47
Cost per Peak Traveler (\$)	266	258	231	186	163
Rank	36	36	34	39	40

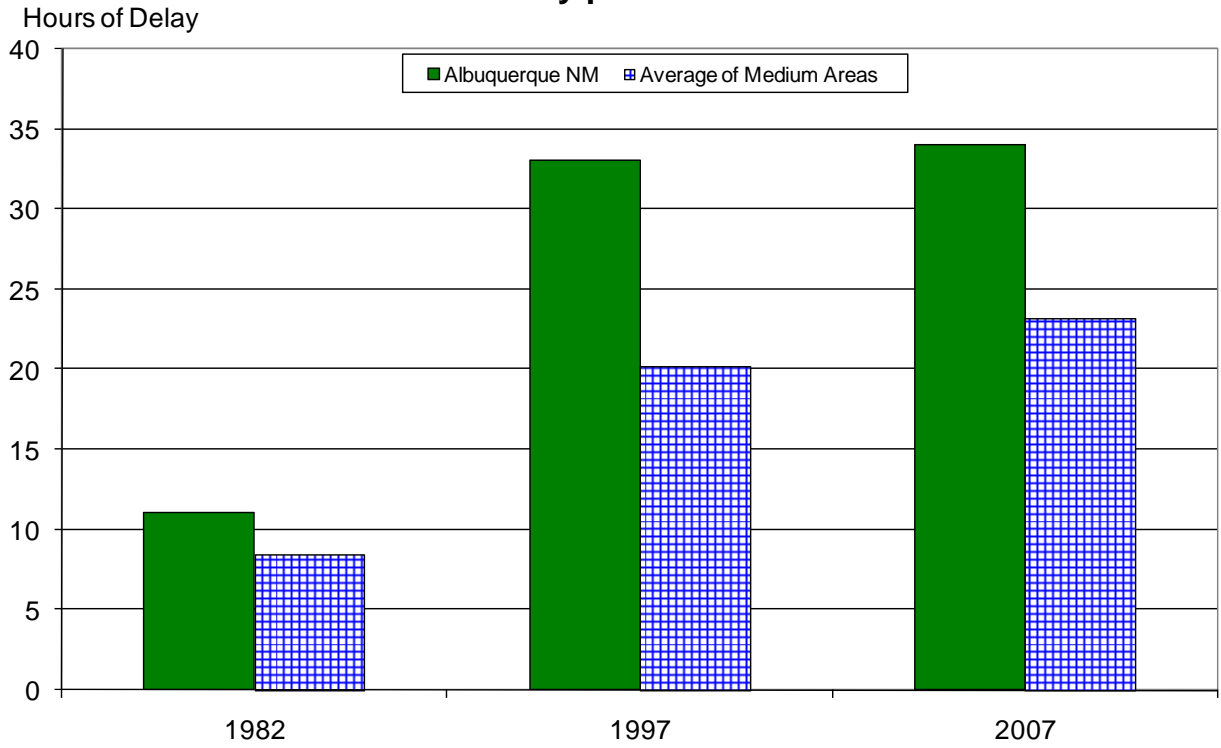
Note: System Performance statistics for 2000 through 2007 data reflect the effects of operational treatments.
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The Mobility Data for Albuquerque NM, Continued

Inventory Measures	1986	1985	1984	1983	1982
Urban Area Information					
Population (1000s)	475	465	455	450	440
Rank	62	60	59	59	61
Urban Area (square miles)	240	230	220	210	210
Population Density (persons/sq mile)	1,979	2,022	2,068	2,143	2,095
Peak Travelers (1000s)	210	204	198	194	188
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,980	1,865	1,870	1,885	1,735
Lane-Miles	250	260	270	270	270
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	5,650	5,500	5,400	5,200	5,000
Lane-Miles	1,230	1,225	1,220	1,210	1,200
Public Transportation					
Annual Psgr-Miles of Travel (millions)	16.0	15.8	19.4	19.4	19.4
Annual Unlinked Psgr Trips (millions)	4.9	4.8	5.6	5.6	5.6
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)	1.04	1.36	1.37	1.41	1.47
System Performance	1986	1985	1984	1983	1982
Congested Travel (% of peak VMT)	21	19	17	16	16
Congested System (% of lane-miles)	31	31	25	21	21
Congested Time (number of "Rush Hours")	3.0	2.9	2.9	2.8	2.7
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	--	--	--	--	--
Transit Riders or Carpoolers (millions)	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	1,797	1,645	1,362	1,274	1,155
Rank	45	47	48	45	45
Fuel per Peak Traveler (gallons)	9	8	7	7	6
Rank	36	37	37	33	36
Annual Delay					
Total Delay (1000s of person-hours)	3,161	2,926	2,431	2,283	2,057
Rank	43	46	46	43	43
Delay per Peak Traveler (person-hours)	15	14	12	12	11
Rank	35	35	37	33	35
Delay due to Incidents (percent)	53	53	53	53	53
Travel Time Index	1.07	1.07	1.05	1.05	1.05
Rank	43	39	47	44	44
Congestion Cost					
Total Cost (\$ millions)	32	30	25	22	20
Rank	44	47	45	42	40
Cost per Peak Traveler (\$)	155	149	124	114	104
Rank	38	36	39	36	35

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

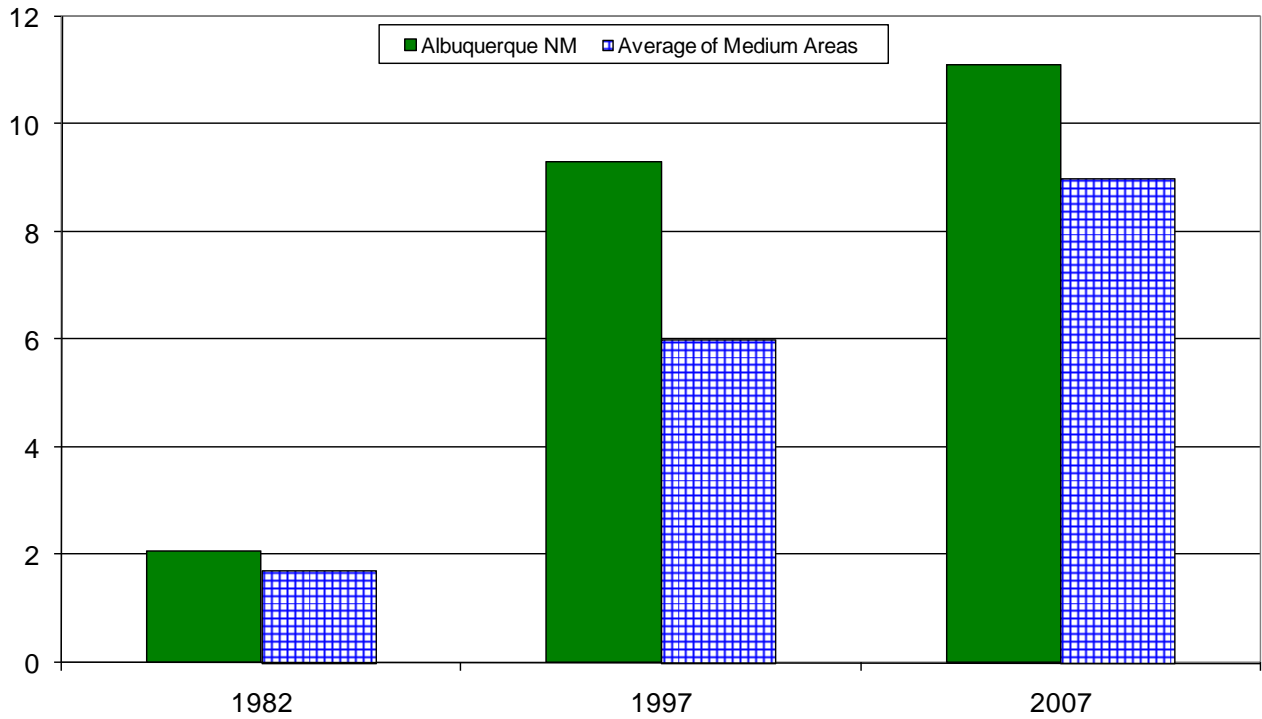
Growth in Delay per Peak Traveler



Note: Medium areas have populations between 0.5 and 1 million

Annual Hours of Delay (millions)

Growth in Total Delay



Note: Medium areas have populations between 0.5 and 1 million

**Benefits from Public Transportation Service and Operations Strategies in
Albuquerque NM**

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	24	24	24	24
Service Patrols				
Percent of Roadway Miles	45	45	45	45
Annual Delay Reduction (1000 hours)	246	216	171	140
Arterial Signal Coordination				
Percent of Roadway Miles	52	51	49	50
Annual Delay Reduction (1000 hours)	30	38	35	30
Arterial Access Management				
Percent of Roadway Miles	67	67	67	67
Annual Delay Reduction (1000 hours)	458	456	444	400
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	734	709	651	570
Annual Delay Saved per Peak Traveler (hours)	2	2	2	2
Annual Congestion Cost Savings (\$million)	15.8	14.5	12.7	10.5
Travel Time Index with Strategies	1.180	1.168	1.174	1.157
Travel Time Index (Base)	1.189	1.177	1.182	1.164
Public Transportation Service	2007	2006	2005	2004
Existing Service				
Annual Passenger-miles of travel (million)	33.3	30.4	21.4	21.5
Unlinked Passenger Trips (million)	9.6	8.8	7.9	7.8
Travel Time Index (combined road and transit)	1.188	1.176	1.181	1.163
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.191	1.179	1.182	1.166
Annual Increase				
Delay (1000 hours)	237	194	105	185
Delay per Peak Traveler (hours)	1	1	0	1
Congestion Cost (\$million)	5.2	4.0	2.1	3.5

**Benefits from Public Transportation Service and Operations Strategies in
Albuquerque NM, 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	24	20	--	--
Service Patrols				
Percent of Roadway Miles	45	42	--	--
Annual Delay Reduction (1000 hours)	115	77	--	--
Arterial Signal Coordination				
Percent of Roadway Miles	52	54	54	55
Annual Delay Reduction (1000 hours)	30	50	59	74
Arterial Access Management				
Percent of Roadway Miles	70	75	75	75
Annual Delay Reduction (1000 hours)	380	386	409	424
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	524	513	468	499
Annual Delay Saved per Peak Traveler (hours)	2	2	2	2
Annual Congestion Cost Savings (\$million)	9.2	8.8	7.8	8.1
Travel Time Index with Strategies	1.145	1.144	1.161	1.169
Travel Time Index (Base)	1.152	1.152	1.167	1.176
Public Transportation Service	2003	2002	2001	2000
Existing Service				
Annual Passenger-miles of travel (million)	21.4	21.6	22.0	21.8
Unlinked Passenger Trips (million)	7.8	7.6	7.0	6.4
Travel Time Index (combined road and transit)	1.151	1.151	1.166	1.175
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.153	1.153	1.168	1.178
Annual Increase				
Delay (1000 hours)	133	170	145	158
Delay per Peak Traveler (hours)	0	1	0	1
Congestion Cost (\$million)	2.4	2.9	2.5	2.7

**Comparison of Several Key Mobility Performance Measures
Medium Group – 500,000 to 1 million population urban areas**

Urban Area	Delay per Traveler	Travel Time Index	Total Delay	1982 to 2007	
				Delay per Traveler	Total Delay
Nashville-Davidson, TN	H+	0	H+	F	F+
Salt Lake City, UT	H	H+	H+	F	F+
Richmond, VA	L	L-	H	0	F+
Louisville, KY-IN	H+	H+	H+	F+	F+
Hartford, CT	L	L	H	F	F+
Bridgeport-Stamford, CT-NY	H+	H+	H+	F+	F+
Oklahoma City, OK	H	L	H+	F+	F+
Tulsa, OK	0	L	0	0	F
Tucson, AZ	H+	H+	H+	F	F+
Dayton, OH	L-	L-	L-	S-	S-
Rochester, NY	L-	L-	L-	S-	S-
Birmingham, AL	H+	0	H+	F+	F+
Lancaster-Palmdale, CA	L-	L	L-	S-	S-
Honolulu, HI	H	H+	H	S	S
El Paso, TX-NM	L	L	L	0	S
Oxnard-Ventura, CA	H+	H+	H+	F+	F+
Sarasota-Bradenton, FL	H	H+	0	S-	0
Springfield, MA-CT	L-	L-	L-	S-	S-
Omaha, NE-IA	H	H	0	F+	F
Fresno, CA	L	0	L	S-	S-
Allentown-Bethlehem, PA-NJ	0	0	L	S	S-
Akron, OH	L-	L-	L-	S-	S-
Grand Rapids, MI	0	L	L	0	S
Albany-Schenectady, NY	L	L	L	0	S-
Albuquerque, NM	H+	H	H	F+	F+
New Haven, CT	L	L	L-	0	S-
Indio-Cathedral City-Palm Springs, CA	L-	0	L-	S-	S-
Toledo, OH-MI	L-	L-	L-	S	S-
Poughkeepsie-Newburgh, NY	L-	L-	L-	S-	S-
Bakersfield, CA	L-	L-	L-	S-	S-
Colorado Springs, CO	0	0	L	F	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 -	Above 1M Population 5 Hours 5 Index Points 5 Hours x Average Population	Below 1M 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