

Performance Measure Summary – Omaha, NE-IA

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 Omaha NE-IA

Inventory Measures	2007	2006	2005	2004	2003	2002
Urban Area Information						
Population (1000s)	645	645	640	640	635	635
Rank	62	62	61	60	60	59
Urban Area (square miles)	250	250	245	245	245	245
Population Density (persons/sq mile)	2,580	2,580	2,612	2,612	2,592	2,592
Peak Travelers (1000s)	355	353	348	346	341	337
Freeway						
Daily Vehicle-Miles of Travel (1000s)	4,140	4,130	3,900	3,750	3,600	3,635
Lane-Miles	315	315	305	305	300	300
Arterial Streets						
Daily Vehicle-Miles of Travel (1000s)	7,025	7,110	6,705	6,795	6,740	6,690
Lane-Miles	1,430	1,410	1,370	1,350	1,315	1,290
Public Transportation						
Annual Psgr-Miles of Travel (millions)	17.1	16.8	15.5	17.5	16.5	15.7
Annual Unlinked Psgr Trips (millions)	4.9	4.9	4.7	4.5	4.2	4.0
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)	3.04	2.65	2.32	1.92	1.53	1.40
System Performance	2007	2006	2005	2004	2003	2002
Congested Travel (% of peak VMT)	45	47	44	43	43	44
Congested System (% of lane-miles)	40	40	39	39	39	39
Congested Time (number of "Rush Hours")	5.6	5.8	5.4	5.4	5.4	5.4
Annual Increase Needed to Maintain Constant Congestion Level:						
Lane-miles	28	38	22	32	33	46
Transit Riders or Carpoolers (millions)	6	8	5	7	7	10
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	5,864	6,151	5,489	5,386	5,197	5,230
Rank	56	55	55	55	56	52
Fuel per Peak Traveler (gallons)	17	17	16	16	15	16
Rank	46	44	48	48	48	46
Annual Delay						
Total Delay (1000s of person-hours)	9,298	9,836	8,966	8,896	8,593	8,598
Rank	57	54	55	54	53	52
Delay per Peak Traveler (person-hours)	26	28	26	26	25	25
Rank	47	43	49	48	48	48
Delay due to Incidents (percent)	58	57	56	56	56	56
Travel Time Index	1.16	1.17	1.16	1.16	1.16	1.16
Rank	47	42	45	45	44	43
Congestion Cost						
Total Cost (\$ millions)	184	185	160	150	139	135
Rank	57	54	55	55	54	54
Cost per Peak Traveler (\$)	517	525	461	435	407	402
Rank	51	46	49	49	50	50

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 Omaha NE-IA, Continued

Inventory Measures	2001	2000	1999	1998	1997
Urban Area Information					
Population (1000s)	630	620	605	590	575
Rank	58	58	58	59	59
Urban Area (square miles)	245	240	235	230	225
Population Density (persons/sq mile)	2,571	2,583	2,574	2,565	2,556
Peak Travelers (1000s)	330	321	309	298	286
Freeway					
Daily Vehicle-Miles of Travel (1000s)	3,420	3,300	3,280	3,135	2,955
Lane-Miles	300	300	300	300	290
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	6,675	6,625	6,310	6,220	6,005
Lane-Miles	1,275	1,270	1,260	1,255	1,250
Public Transportation					
Annual Psgr-Miles of Travel (millions)	15.0	16.0	18.7	19.8	20.3
Annual Unlinked Psgr Trips (millions)	3.8	4.3	4.9	5.5	5.4
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)	1.44	1.60	1.12	1.10	1.20
System Performance	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)	41	38	35	34	30
Congested System (% of lane-miles)	39	37	36	36	36
Congested Time (number of "Rush Hours")	5.2	5.0	4.8	4.4	4.2
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	39	46	38	43	38
Transit Riders or Carpoolers (millions)	9	10	8	9	8
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	4,854	4,395	3,972	3,693	3,160
Rank	55	57	60	61	61
Fuel per Peak Traveler (gallons)	15	14	13	12	11
Rank	47	50	57	57	60
Annual Delay					
Total Delay (1000s of person-hours)	8,148	7,515	6,779	6,331	5,426
Rank	54	55	59	59	61
Delay per Peak Traveler (person-hours)	25	23	22	21	19
Rank	47	51	53	53	57
Delay due to Incidents (percent)	56	55	55	55	55
Travel Time Index	1.15	1.14	1.13	1.12	1.11
Rank	45	49	49	49	55
Congestion Cost					
Total Cost (\$ millions)	127	114	98	89	76
Rank	54	59	62	62	63
Cost per Peak Traveler (\$)	384	357	316	300	265
Rank	51	52	59	56	61

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 Omaha NE-IA, Continued

Inventory Measures	1996	1995	1994	1993	1992
Urban Area Information					
Population (1000s)	565	555	545	540	535
Rank	59	59	59	59	59
Urban Area (square miles)	225	220	215	215	210
Population Density (persons/sq mile)	2,511	2,523	2,535	2,512	2,548
Peak Travelers (1000s)	278	270	262	256	250
Freeway					
Daily Vehicle-Miles of Travel (1000s)	2,860	2,715	2,690	2,455	2,370
Lane-Miles	280	280	280	255	245
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	6,070	5,895	5,810	5,685	5,565
Lane-Miles	1,245	1,230	1,225	1,220	1,210
Public Transportation					
Annual Psgr-Miles of Travel (millions)	20.0	19.1	20.5	20.1	24.1
Annual Unlinked Psgr Trips (millions)	5.2	5.0	5.2	5.3	6.0
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)	1.30	1.16	1.14	1.15	1.17
System Performance	1996	1995	1994	1993	1992
Congested Travel (% of peak VMT)	32	30	30	28	28
Congested System (% of lane-miles)	32	32	32	33	33
Congested Time (number of "Rush Hours")	4.2	3.8	3.8	3.8	3.8
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	65	56	63	52	50
Transit Riders or Carpoolers (millions)	13	11	12	10	10
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	3,314	2,974	2,884	2,570	2,587
Rank	59	59	57	60	54
Fuel per Peak Traveler (gallons)	12	11	11	10	10
Rank	54	54	51	52	48
Annual Delay					
Total Delay (1000s of person-hours)	5,553	5,001	4,865	4,293	4,303
Rank	59	59	56	60	55
Delay per Peak Traveler (person-hours)	20	19	19	17	17
Rank	53	53	51	52	51
Delay due to Incidents (percent)	55	54	54	55	55
Travel Time Index	1.11	1.10	1.10	1.09	1.10
Rank	50	53	50	52	45
Congestion Cost					
Total Cost (\$ millions)	77	67	64	55	54
Rank	60	60	58	61	56
Cost per Peak Traveler (\$)	278	248	243	215	216
Rank	56	57	56	58	52

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 Omaha NE-IA, Continued

Inventory Measures	1991	1990	1989	1988	1987
Urban Area Information					
Population (1000s)	535	530	525	520	520
Rank	58	57	56	55	55
Urban Area (square miles)	210	210	205	205	205
Population Density (persons/sq mile)	2,548	2,524	2,561	2,537	2,537
Peak Travelers (1000s)	247	242	237	233	231
Freeway					
Daily Vehicle-Miles of Travel (1000s)	2,095	2,040	2,050	1,965	1,940
Lane-Miles	235	230	225	225	220
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	5,155	5,135	4,890	4,875	4,755
Lane-Miles	1,175	1,155	1,140	1,140	1,130
Public Transportation					
Annual Psgr-Miles of Travel (millions)	22.9	25.5	24.9	28.1	30.0
Annual Unlinked Psgr Trips (millions)	6.1	6.7	6.6	7.0	7.1
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)	1.14	1.13	1.17	1.08	1.08
System Performance	1991	1990	1989	1988	1987
Congested Travel (% of peak VMT)	25	25	23	22	20
Congested System (% of lane-miles)	28	28	28	28	28
Congested Time (number of "Rush Hours")	3.0	3.2	3.0	3.0	3.0
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	23	50	256	56	63
Transit Riders or Carpoolers (millions)	4	9	45	10	11
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	2,026	2,022	1,744	1,638	1,499
Rank	59	57	59	57	59
Fuel per Peak Traveler (gallons)	8	8	7	7	6
Rank	53	53	55	54	53
Annual Delay					
Total Delay (1000s of person-hours)	3,413	3,410	2,914	2,765	2,529
Rank	58	56	59	55	57
Delay per Peak Traveler (person-hours)	14	14	12	12	11
Rank	52	53	55	52	53
Delay due to Incidents (percent)	55	55	55	54	55
Travel Time Index	1.08	1.08	1.07	1.07	1.07
Rank	52	52	53	46	43
Congestion Cost					
Total Cost (\$ millions)	42	40	33	30	26
Rank	59	57	58	56	57
Cost per Peak Traveler (\$)	168	166	138	127	113
Rank	57	54	57	55	58

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.

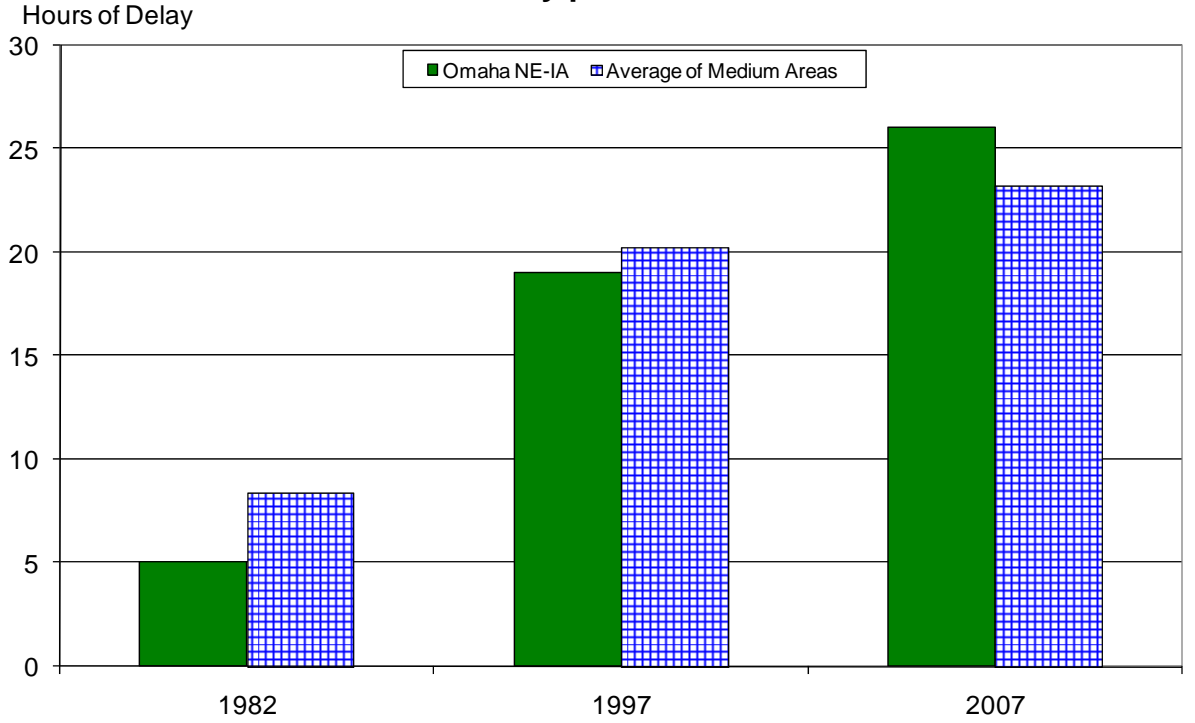
The Mobility Data for Omaha NE-IA, Continued

Inventory Measures	1986	1985	1984	1983	1982
Urban Area Information					
Population (1000s)	515	510	510	505	500
Rank	55	55	55	55	53
Urban Area (square miles)	200	200	200	200	195
Population Density (persons/sq mile)	2,575	2,550	2,550	2,525	2,564
Peak Travelers (1000s)	228	224	222	218	214
Freeway					
Daily Vehicle-Miles of Travel (1000s)	1,895	1,735	1,705	1,585	1,520
Lane-Miles	220	220	215	215	215
Arterial Streets					
Daily Vehicle-Miles of Travel (1000s)	4,790	4,255	1,235	4,015	3,810
Lane-Miles	1,105	1,090	1,075	1,075	1,050
Public Transportation					
Annual Psgr-Miles of Travel (millions)	32.6	31.8	38.2	38.2	38.2
Annual Unlinked Psgr Trips (millions)	7.9	9.0	10.3	10.3	10.3
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)	1.06	1.38	1.40	1.43	1.50
System Performance	1986	1985	1984	1983	1982
Congested Travel (% of peak VMT)	21	16	10	13	12
Congested System (% of lane-miles)	28	23	23	18	14
Congested Time (number of "Rush Hours")	3.0	2.8	2.2	2.7	2.6
Annual Increase Needed to Maintain Constant Congestion Level:					
Lane-miles	--	--	--	--	--
Transit Riders or Carpoolers (millions)	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	1,531	1,005	271	766	697
Rank	53	62	81	61	62
Fuel per Peak Traveler (gallons)	7	4	1	4	3
Rank	44	60	85	55	58
Annual Delay					
Total Delay (1000s of person-hours)	2,602	1,683	416	1,285	1,163
Rank	53	61	82	62	63
Delay per Peak Traveler (person-hours)	11	8	2	6	5
Rank	52	58	85	59	62
Delay due to Incidents (percent)	54	54	56	54	54
Travel Time Index	1.07	1.05	1.03	1.04	1.04
Rank	43	51	66	53	50
Congestion Cost					
Total Cost (\$ millions)	26	17	4	12	11
Rank	52	61	82	63	63
Cost per Peak Traveler (\$)	114	76	19	56	50
Rank	53	61	88	64	62

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

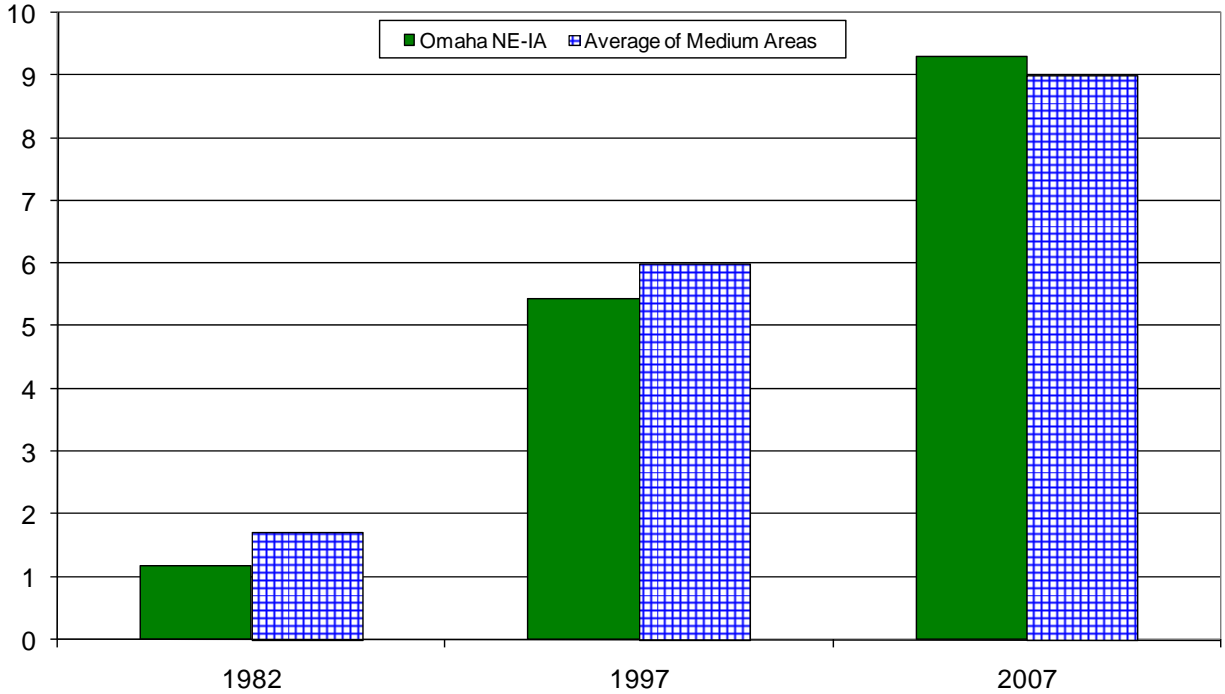
Note: Zeroes in the table reflect values less than 0.5.

Growth in Delay per Peak Traveler



Annual Hours of Delay (millions)

Growth in Total Delay



**Benefits from Public Transportation Service and Operations Strategies in
Omaha NE-IA**

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)	355	303	253	225
Arterial Signal Coordination				
Percent of Roadway Miles	60	60	62	61
Annual Delay Reduction (1000 hours)	95	120	125	149
Arterial Access Management				
Percent of Roadway Miles	41	39	39	36
Annual Delay Reduction (1000 hours)	315	321	310	303
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	765	744	687	677
Annual Delay Saved per Peak Traveler (hours)	2	2	2	2
Annual Congestion Cost Savings (\$million)	15.2	14.1	12.4	11.5
Travel Time Index with Strategies	1.164	1.171	1.161	1.159
Travel Time Index (Base)	1.175	1.182	1.171	1.169
Public Transportation Service	2007	2006	2005	2004
Existing Service				
Annual Passenger-miles of travel (million)	17.1	16.8	15.5	17.5
Unlinked Passenger Trips (million)	4.9	4.9	4.7	4.5
Travel Time Index (combined road and transit)	1.174	1.181	1.171	1.168
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.176	1.184	1.172	1.169
Annual Increase				
Delay (1000 hours)	161	175	96	96
Delay per Peak Traveler (hours)	0	0	0	0
Congestion Cost (\$million)	3.2	3.3	1.7	1.6

**Benefits from Public Transportation Service and Operations Strategies in
Omaha NE-IA, 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	100	100
Annual Delay Reduction (1000 hours)	204	199	173	122
Arterial Signal Coordination				
Percent of Roadway Miles	62	58	55	48
Annual Delay Reduction (1000 hours)	142	119	64	69
Arterial Access Management				
Percent of Roadway Miles	36	36	36	33
Annual Delay Reduction (1000 hours)	271	276	286	282
HOV Lanes				
Daily Passenger-miles of travel (1000s)	--	--	--	--
HOV User Delay Savings	--	--	--	--
Total Effect of Operations Treatments				
Annual Delay Reduction (1000 hours)	616	593	523	473
Annual Delay Saved per Peak Traveler (hours)	2	2	2	1
Annual Congestion Cost Savings (\$million)	10.1	9.5	8.3	7.3
Travel Time Index with Strategies	1.156	1.157	1.149	1.137
Travel Time Index (Base)	1.165	1.167	1.157	1.144
Public Transportation Service	2003	2002	2001	2000
Existing Service				
Annual Passenger-miles of travel (million)	16.5	15.7	15.0	16.0
Unlinked Passenger Trips (million)	4.2	4.0	3.8	4.3
Travel Time Index (combined road and transit)	1.165	1.166	1.156	1.143
Condition if Public Transportation Service were Discontinued				
Travel Time Index	1.167	1.168	1.157	1.146
Annual Increase				
Delay (1000 hours)	146	154	64	165
Delay per Peak Traveler (hours)	0	0	0	1
Congestion Cost (\$million)	2.4	2.4	1.0	2.5

**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