

Performance Measure Summary - Greensboro NC

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2017. There is no single performance measure that experts agree "says it all". A few key points should be recognized by users of the Urban Mobility Scorecard data.

Use the trends - The multi-year performance measures are better indicators, in most cases, than any single year. 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. (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 atop several 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. It is calculated as the ratio of travel time in the peak period to travel time in free-flow. A value of 1.30 indicates that a 20-minute free-flow trip takes 26 minutes in the peak.

Planning Time Index - A travel time reliability measure that represents the total travel time that should be planned for a trip. Computed with the 95th percentile travel time it represents the amount of time that should be planned for a commute trip to be late for only 1 day a month. If it is computed with the 80th percentile travel time it represents the amount of time that should be planned for a trip to be late for only 1 day a week. A PTI of 2.00 means that for a 20-minute trip in light traffic, 40 minutes should be planned.

Peak Commuters - Number of travelers who begin a trip during the morning or evening peak travel periods (6 to 10 a.m. and 3 to 7 p.m.). "Commuters" are private vehicle users unless specifically noted.

Annual Delay per Commuter - A yearly sum of all the per-trip delays for those persons who travel in the peak period (6 to 10 a.m. and 3 to 7 p.m.). This measure illustrates the effect of traffic slowdowns as well as the length of each trip.

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 - These values are derived from time periods with lighter traffic volumes in the INRIX speed database. They are used as the national comparison thresholds. Other speed thresholds may be appropriate for urban project evaluations or sub-region studies.

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

Congestion Cost - Value of travel delay for 2017 (estimated at \$18.29 per hour of person travel and \$59.94 per hour of truck time) and excess fuel consumption estimated using state average cost per gallon.

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), so increases include both new growth and development that was previously in areas designated as rural.

Number of Rush Hours - Time when the road system might have congestion.

Mobility Data for Greensboro NC

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	330	330	330	330	330	330
Rank	94	94	94	94	94	93
Commuters (1000s)	167	167	167	167	170	170
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,955	5,638	5,399	5,286	4,477	4,535
Arterial Streets	3,980	3,757	3,682	3,512	3,086	3,260
Cost Components						
Value of Time (\$/hour)	18.12	17.91	17.69	17.67	17.39	17.14
Commercial Cost (\$/hour)	52.14	50.20	46.87	44.82	41.23	39.66
Gasoline (\$/gallon)	2.20	2.10	2.15	3.20	3.44	3.49
Diesel (\$/gallon)	2.45	2.23	2.47	3.58	3.89	3.89
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	6.1	--	--	--	--	--
Congested System (% of lane-miles)	4.7	--	--	--	--	--
Congested Time (number of "Rush Hours")	0.5	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,977	2,967	2,921	2,899	2,834	2,809
Rank	94	94	94	94	94	93
Fuel per Peak Auto Commuter (gallons)	15	15	14	14	14	14
Rank	84	83	87	87	85	82
Annual Delay						
Total Delay (1000s of person-hours)	7,896	7,758	7,508	7,385	7,092	6,969
Rank	94	93	93	93	93	91
Delay per Auto Commuter (pers-hrs)	38	37	37	35	35	34
Rank	80	81	79	80	79	79
Travel Time Index						
Rank	1.13	1.13	1.12	1.12	1.11	1.11
Rank	83	83	92	92	96	94
Commuter Stress Index						
Rank	1.14	--	--	--	--	--
Rank	86	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	1.12	--	--	--	--	--
Rank	96	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	159	154	147	147	139	135
Rank	93	93	93	93	93	92
Cost per Auto Commuter (\$)	635	629	603	589	575	573
Rank	89	88	90	87	88	87
Truck Congestion						
Annual Person-Hours of Delay (000)	332	326	315	310	298	293
Rank	94	93	93	93	93	91
Annual Gallons of Wasted Fuel (000)	631	629	619	615	601	596
Rank	94	94	94	94	94	93
Annual Congestion Cost (\$ million)	17	16	14	14	13	13
Rank	93	93	93	93	92	90

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

Mobility Data for Greensboro NC

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	325	325	320	320	320	315
Rank	94	93	93	92	92	92
Commuters (1000s)	168	167	164	163	162	159
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,583	4,450	4,350	4,225	4,220	4,115
Arterial Streets	3,178	3,120	2,800	2,620	2,540	2,495
Cost Components						
Value of Time (\$/hour)	16.79	16.28	16.01	16.07	15.47	15.06
Commercial Cost (\$/hour)	44.62	42.50	41.83	40.77	39.30	37.88
Gasoline (\$/gallon)	3.32	2.70	2.24	3.42	2.95	2.62
Diesel (\$/gallon)	3.64	2.93	2.53	4.11	3.33	2.80
System Performance	2011	2010	2009	2008	2007	2006
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,785	2,725	2,629	2,749	2,710	2,559
Rank	93	93	93	93	93	94
Fuel per Peak Auto Commuter (gallons)	14	13	12	14	14	13
Rank	79	84	83	80	81	81
Annual Delay						
Total Delay (1000s of person-hours)	6,785	6,517	6,169	6,144	6,057	5,719
Rank	90	91	91	90	92	93
Delay per Auto Commuter (pers-hrs)	34	32	32	31	31	30
Rank	78	81	80	78	81	83
Travel Time Index						
Rank	1.10	1.10	1.09	1.10	1.10	1.09
Rank	99	98	99	97	97	99
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	130	119	110	114	107	97
Rank	90	90	91	91	94	94
Cost per Auto Commuter (\$)	571	568	545	542	553	539
Rank	85	85	87	84	86	87
Truck Congestion						
Annual Person-Hours of Delay (000)	285	274	259	258	254	240
Rank	90	90	91	90	92	93
Annual Gallons of Wasted Fuel (000)	591	578	557	583	575	542
Rank	93	93	93	93	93	94
Annual Congestion Cost (\$ million)	13	12	11	12	11	9
Rank	91	90	89	88	90	94

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

Mobility Data for Greensboro NC

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	315	310	305	295	290	280
Rank	92	92	92	93	93	93
Commuters (1000s)	158	154	151	144	139	133
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,095	4,020	3,935	3,810	3,705	3,555
Arterial Streets	2,470	2,400	2,355	2,350	2,340	2,365
Cost Components						
Value of Time (\$/hour)	14.58	14.10	13.73	13.43	13.22	12.85
Commercial Cost (\$/hour)	36.51	35.19	33.92	32.69	31.51	30.38
Gasoline (\$/gallon)	2.27	1.89	1.46	1.33	1.43	1.46
Diesel (\$/gallon)	2.44	1.90	1.47	1.32	1.47	1.44
System Performance	2005	2004	2003	2002	2001	2000
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,539	2,518	2,417	2,262	2,120	1,888
Rank	93	92	91	91	91	91
Fuel per Peak Auto Commuter (gallons)	13	13	13	12	11	9
Rank	81	80	74	78	78	84
Annual Delay						
Total Delay (1000s of person-hours)	5,674	5,626	5,401	5,055	4,737	4,218
Rank	92	90	89	89	89	89
Delay per Auto Commuter (pers-hrs)	30	30	29	29	27	26
Rank	82	81	81	80	82	81
Travel Time Index						
Rank	1.09	1.09	1.09	1.09	1.09	1.08
Rank	98	98	98	96	94	97
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	93	88	81	74	69	59
Rank	93	89	89	89	89	89
Cost per Auto Commuter (\$)	551	563	553	532	506	460
Rank	85	83	82	81	78	81
Truck Congestion						
Annual Person-Hours of Delay (000)	238	236	227	212	199	177
Rank	92	90	89	89	89	89
Annual Gallons of Wasted Fuel (000)	538	534	512	480	449	400
Rank	93	92	91	91	91	91
Annual Congestion Cost (\$ million)	9	8	8	7	6	5
Rank	91	89	85	85	87	89

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

Mobility Data for Greensboro NC

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	275	265	260	255	245	240
Rank	93	93	93	93	93	93
Commuters (1000s)	128	122	118	113	107	104
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,345	3,280	3,065	2,910	2,750	2,650
Arterial Streets	2,415	2,345	2,405	2,345	2,305	2,325
Cost Components						
Value of Time (\$/hour)	12.43	12.17	11.98	11.71	11.37	11.06
Commercial Cost (\$/hour)	29.28	28.89	28.50	28.12	27.75	27.38
Gasoline (\$/gallon)	1.05	1.02	1.14	1.21	1.13	1.02
Diesel (\$/gallon)	1.06	1.12	1.20	1.28	1.19	1.08
System Performance	1999	1998	1997	1996	1995	1994
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	1,793	1,692	1,515	1,430	1,340	1,241
Rank	91	90	91	89	89	89
Fuel per Peak Auto Commuter (gallons)	10	9	7	7	8	7
Rank	77	79	86	82	72	73
Annual Delay						
Total Delay (1000s of person-hours)	4,007	3,781	3,387	3,195	2,995	2,773
Rank	89	88	90	88	88	88
Delay per Auto Commuter (pers-hrs)	25	25	23	22	22	21
Rank	82	76	77	79	76	75
Travel Time Index						
Rank	1.08	1.08	1.07	1.07	1.07	1.06
Rank	96	90	94	91	88	91
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	54	50	44	41	37	33
Rank	90	88	90	88	88	88
Cost per Auto Commuter (\$)	451	437	395	381	373	351
Rank	80	80	80	81	79	80
Truck Congestion						
Annual Person-Hours of Delay (000)	168	159	142	134	126	116
Rank	89	88	90	88	88	88
Annual Gallons of Wasted Fuel (000)	380	359	321	303	284	263
Rank	91	90	91	89	89	89
Annual Congestion Cost (\$ million)	5	4	4	4	3	3
Rank	84	88	86	82	88	85

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Mobility Data for Greensboro NC

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	235	225	220	215	205	200
Rank	92	92	91	91	92	93
Commuters (1000s)	100	94	91	87	83	80
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,490	2,345	2,060	1,985	1,775	1,675
Arterial Streets	2,330	2,340	2,345	2,315	2,300	2,295
Cost Components						
Value of Time (\$/hour)	10.78	10.47	10.17	9.75	9.25	8.83
Commercial Cost (\$/hour)	27.02	26.66	26.30	25.95	25.60	25.26
Gasoline (\$/gallon)	1.07	1.08	1.12	1.08	1.08	1.00
Diesel (\$/gallon)	1.13	1.15	1.21	1.07	0.98	0.91
System Performance	1993	1992	1991	1990	1989	1988
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	1,063	882	708	559	437	339
Rank	89	91	92	92	96	97
Fuel per Peak Auto Commuter (gallons)	6	5	5	4	3	2
Rank	76	82	79	81	85	87
Annual Delay						
Total Delay (1000s of person-hours)	2,375	1,972	1,582	1,248	977	758
Rank	91	93	93	95	96	98
Delay per Auto Commuter (pers-hrs)	18	16	13	11	9	7
Rank	82	85	90	90	92	95
Travel Time Index						
Rank	1.06	1.05	1.04	1.03	1.03	1.02
Rank	90	92	94	96	95	98
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	28	23	18	13	10	7
Rank	91	92	93	95	96	98
Cost per Auto Commuter (\$)	307	264	224	186	153	118
Rank	85	86	91	92	95	97
Truck Congestion						
Annual Person-Hours of Delay (000)	100	83	66	52	41	32
Rank	91	93	93	95	96	98
Annual Gallons of Wasted Fuel (000)	225	187	150	118	93	72
Rank	89	91	92	92	96	97
Annual Congestion Cost (\$ million)	3	2	2	1	1	1
Rank	82	90	85	93	91	90

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Mobility Data for Greensboro NC

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	195	190	185	180	175	170
Rank	93	93	94	94	94	93
Commuters (1000s)	77	75	72	70	67	65
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,610	1,560	1,480	1,350	1,310	1,275
Arterial Streets	2,315	2,305	2,205	2,195	2,170	2,100
Cost Components						
Value of Time (\$/hour)	8.48	8.18	8.03	7.75	7.43	7.20
Commercial Cost (\$/hour)	24.93	24.60	24.27	23.94	23.63	23.31
Gasoline (\$/gallon)	1.00	0.98	1.28	1.29	1.32	1.38
Diesel (\$/gallon)	0.91	0.89	1.16	1.17	1.20	1.26
System Performance	1987	1986	1985	1984	1983	1982
Congested Travel (% of peak VMT)	--	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	290	249	224	217	212	200
Rank	98	98	98	98	96	96
Fuel per Peak Auto Commuter (gallons)	1	1	1	1	1	1
Rank	93	91	90	87	86	82
Annual Delay						
Total Delay (1000s of person-hours)	648	556	501	484	473	447
Rank	98	98	98	98	97	95
Delay per Auto Commuter (pers-hrs)	6	6	5	5	5	5
Rank	98	97	97	97	97	95
Travel Time Index						
Rank	96	96	96	96	90	90
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	6	5	5	4	4	4
Rank	98	98	97	98	96	94
Cost per Auto Commuter (\$)	101	90	93	87	84	101
Rank	97	98	98	97	97	92
Truck Congestion						
Annual Person-Hours of Delay (000)	27	23	21	20	20	19
Rank	98	98	98	98	97	95
Annual Gallons of Wasted Fuel (000)	61	53	47	46	45	42
Rank	98	98	98	98	96	96
Annual Congestion Cost (\$ million)	1	1	1	-	-	-
Rank	87	84	83	98	96	95

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