

# Performance Measure Summary - New York-Newark NY-NJ-CT

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 New York-Newark NY-NJ-CT

Inventory Measures	2017	2016	2015	2014	2013	2012
<b>Urban Area Information</b>						
Population (1000s)	19,095	19,070	19,055	19,040	18,970	18,900
Rank	1	1	1	1	1	1
Commuters (1000s)	6,003	5,190	5,181	5,176	5,234	5,215
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	124,035	120,623	117,614	121,029	120,723	114,560
Arterial Streets	106,014	106,293	106,467	107,608	108,364	105,535
<b>Cost Components</b>						
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)	2.48	2.33	2.51	3.42	3.79	3.75
Diesel (\$/gallon)	2.70	2.49	2.88	3.65	4.20	4.17
System Performance	2017	2016	2015	2014	2013	2012
<b>Congested Travel (% of peak VMT)</b>	36.3	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	23.3	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	5.1	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	323,712	321,719	319,909	317,483	314,799	312,414
Rank	1	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	38	37	36	35	35	35
Rank	2	1	2	2	1	1
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	811,609	790,205	778,986	759,632	746,546	727,659
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	92	89	87	85	84	81
Rank	4	4	4	4	4	4
<b>Travel Time Index</b>						
Rank	1.35	1.35	1.35	1.34	1.34	1.34
Rank	7	6	7	7	7	8
<b>Commuter Stress Index</b>						
Rank	1.38	--	--	--	--	--
Rank	14	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	2.05	--	--	--	--	--
Rank	14	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	16,466	15,780	15,375	15,215	14,792	14,211
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,947	1,908	1,869	1,813	1,800	1,777
Rank	4	4	4	4	4	4
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	34,088	33,189	32,717	31,905	31,355	30,562
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	68,627	68,204	67,821	67,306	66,737	66,232
Rank	1	1	1	1	1	1
Annual Congestion Cost (\$ million)	1,744	1,631	1,540	1,500	1,414	1,339
Rank	2	2	2	2	2	2

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

# Mobility Data for New York-Newark NY-NJ-CT

Inventory Measures	2011	2010	2009	2008	2007	2006
<b>Urban Area Information</b>						
Population (1000s)	18,860	18,800	18,770	18,675	18,400	18,220
Rank	1	1	1	1	1	1
Commuters (1000s)	5,193	5,155	5,135	5,088	5,002	4,943
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	117,496	116,913	117,000	117,000	119,240	118,245
Arterial Streets	112,322	110,765	106,000	102,000	103,470	99,685
<b>Cost Components</b>						
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)	3.65	2.95	2.47	3.55	3.19	2.82
Diesel (\$/gallon)	3.99	3.21	2.90	4.52	3.71	3.03
System Performance	2011	2010	2009	2008	2007	2006
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	309,523	304,080	301,759	302,511	301,926	297,741
Rank	1	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	35	34	33	33	33	34
Rank	1	2	2	2	1	1
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	707,819	688,933	670,895	640,541	639,301	630,441
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	80	78	77	74	73	73
Rank	4	4	4	4	4	4
<b>Travel Time Index</b>						
Rank	1.33	1.33	1.33	1.33	1.34	1.34
Rank	9	8	7	8	7	6
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	13,701	12,737	12,097	11,959	11,397	10,828
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,782	1,789	1,773	1,678	1,740	1,763
Rank	4	4	4	4	3	3
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	29,728	28,935	28,178	26,903	26,851	26,479
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	65,619	64,465	63,973	64,132	64,008	63,121
Rank	1	1	1	1	1	1
Annual Congestion Cost (\$ million)	1,425	1,286	1,219	1,252	1,163	1,071
Rank	2	2	2	2	2	2

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

# Mobility Data for New York-Newark NY-NJ-CT

Inventory Measures	2005	2004	2003	2002	2001	2000
<b>Urban Area Information</b>						
Population (1000s)	18,000	17,850	17,700	17,400	17,200	17,090
Rank	1	1	1	1	1	1
Commuters (1000s)	4,852	4,781	4,710	4,590	4,468	4,371
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	117,500	115,500	112,555	105,195	103,675	101,295
Arterial Streets	96,500	94,000	90,450	85,850	84,365	83,835
<b>Cost Components</b>						
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)	2.40	2.14	1.62	1.49	1.72	1.64
Diesel (\$/gallon)	2.66	2.14	1.73	1.51	1.70	1.65
System Performance	2005	2004	2003	2002	2001	2000
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	290,997	279,272	269,488	253,388	235,807	227,074
Rank	1	1	1	1	1	1
Fuel per Peak Auto Commuter (gallons)	33	32	32	30	27	26
Rank	1	1	1	1	2	2
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	616,161	591,334	570,616	536,526	499,299	480,809
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	72	71	69	66	63	62
Rank	4	4	4	4	4	4
<b>Travel Time Index</b>						
Rank	1.33	1.32	1.32	1.31	1.29	1.29
Rank	7	7	6	6	9	7
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	10,150	9,352	8,661	7,928	7,308	6,830
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,781	1,768	1,752	1,684	1,588	1,572
Rank	3	3	3	3	4	3
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	25,879	24,836	23,966	22,534	20,971	20,194
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	61,691	59,206	57,131	53,718	49,991	48,140
Rank	1	1	1	1	1	1
Annual Congestion Cost (\$ million)	993	893	812	727	665	618
Rank	2	2	2	2	2	2

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

# Mobility Data for New York-Newark NY-NJ-CT

Inventory Measures	1999	1998	1997	1996	1995	1994
<b>Urban Area Information</b>						
Population (1000s)	16,650	16,500	16,335	16,320	16,270	16,185
Rank	1	1	1	1	1	1
Commuters (1000s)	4,201	4,096	3,999	3,929	3,861	3,785
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	100,260	96,808	94,755	91,270	88,500	86,600
Arterial Streets	82,575	81,665	80,255	78,300	75,605	71,555
<b>Cost Components</b>						
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)	1.19	1.15	1.31	1.37	1.27	1.15
Diesel (\$/gallon)	1.24	1.29	1.39	1.28	1.19	1.07
System Performance	1999	1998	1997	1996	1995	1994
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	214,891	199,713	192,064	180,966	170,680	159,101
Rank	1	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	26	23	22	21	20	19
Rank	2	5	4	5	4	5
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	455,012	422,874	406,678	383,179	361,399	336,883
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	61	58	57	54	52	49
Rank	4	4	4	4	4	4
<b>Travel Time Index</b>						
Rank	1.28	1.27	1.26	1.25	1.24	1.23
Rank	7	8	8	8	8	7
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	6,167	5,616	5,349	4,940	4,520	4,090
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,539	1,462	1,428	1,378	1,338	1,286
Rank	4	4	4	4	4	4
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	19,111	17,761	17,080	16,094	15,179	14,149
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	45,557	42,339	40,718	38,365	36,184	33,730
Rank	1	2	2	2	2	2
Annual Congestion Cost (\$ million)	547	505	484	446	413	376
Rank	2	2	2	2	2	2

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

# Mobility Data for New York-Newark NY-NJ-CT

Inventory Measures	1993	1992	1991	1990	1989	1988
<b>Urban Area Information</b>						
Population (1000s)	16,115	16,015	15,975	15,925	15,840	15,750
Rank	1	1	1	1	1	1
Commuters (1000s)	3,713	3,635	3,570	3,504	3,458	3,402
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	84,210	82,900	81,600	81,475	78,675	74,580
Arterial Streets	67,905	63,810	60,695	57,385	54,800	54,490
<b>Cost Components</b>						
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)	1.21	1.24	1.21	1.07	1.13	1.04
Diesel (\$/gallon)	1.13	1.00	1.35	1.09	1.05	0.97
System Performance	1993	1992	1991	1990	1989	1988
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	150,619	140,792	134,907	130,163	122,791	117,010
Rank	2	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	18	17	16	15	15	14
Rank	5	4	5	4	5	5
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	318,923	298,115	285,653	275,610	259,999	247,757
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	47	45	44	43	41	40
Rank	4	6	5	5	7	7
<b>Travel Time Index</b>						
Rank	1.22	1.21	1.20	1.20	1.19	1.18
Rank	7	11	13	9	11	13
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	3,791	3,450	3,227	2,978	2,686	2,446
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,249	1,204	1,189	1,199	1,196	1,199
Rank	5	5	6	6	6	6
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	13,395	12,521	11,997	11,576	10,920	10,406
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	31,931	29,848	28,600	27,595	26,032	24,806
Rank	2	2	2	2	2	2
Annual Congestion Cost (\$ million)	354	323	315	294	273	255
Rank	2	2	2	2	2	2

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

# Mobility Data for New York-Newark NY-NJ-CT

Inventory Measures	1987	1986	1985	1984	1983	1982
<b>Urban Area Information</b>						
Population (1000s)	15,580	15,500	15,400	15,340	15,375	15,500
Rank	1	1	1	1	1	1
Commuters (1000s)	3,338	3,286	3,238	3,199	3,179	3,169
<b>Daily Vehicle-Miles of Travel (1000s)</b>						
Freeway	72,000	69,100	65,860	63,900	60,600	57,560
Arterial Streets	54,510	54,440	53,830	52,540	52,365	51,105
<b>Cost Components</b>						
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)	1.05	1.02	1.34	1.35	1.38	1.44
Diesel (\$/gallon)	0.97	0.95	1.24	1.25	1.28	1.34
System Performance	1987	1986	1985	1984	1983	1982
<b>Congested Travel (% of peak VMT)</b>	--	--	--	--	--	--
<b>Congested System (% of lane-miles)</b>	--	--	--	--	--	--
<b>Congested Time (number of "Rush Hours")</b>	--	--	--	--	--	--
<b>Annual Excess Fuel Consumed</b>						
Total Fuel (1000 gallons)	110,130	103,869	100,003	96,746	93,537	89,930
Rank	2	2	2	2	2	2
Fuel per Peak Auto Commuter (gallons)	13	11	11	11	10	11
Rank	7	7	7	5	4	3
<b>Annual Delay</b>						
Total Delay (1000s of person-hours)	233,189	219,934	211,747	204,850	198,057	190,419
Rank	2	2	2	2	2	2
Delay per Auto Commuter (pers-hrs)	38	36	36	35	34	32
Rank	8	9	8	7	7	8
<b>Travel Time Index</b>						
Rank	11	11	11	9	7	8
<b>Commuter Stress Index</b>						
Rank	--	--	--	--	--	--
<b>Freeway Planning Time Index (95th Pctile)</b>						
Rank	--	--	--	--	--	--
<b>Congestion Cost</b>						
Total Cost (\$ millions)	2,222	2,027	1,950	1,830	1,709	1,605
Rank	2	2	2	2	2	2
Cost per Auto Commuter (\$)	1,178	1,154	1,130	1,135	1,147	1,140
Rank	6	6	6	4	4	4
<b>Truck Congestion</b>						
Annual Person-Hours of Delay (000)	9,794	9,237	8,893	8,604	8,318	7,998
Rank	2	2	2	2	2	2
Annual Gallons of Wasted Fuel (000)	23,347	22,020	21,201	20,510	19,830	19,065
Rank	2	2	2	2	2	2
Annual Congestion Cost (\$ million)	237	220	216	206	198	189
Rank	2	2	2	2	2	2

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