

Performance Measure Summary - Philadelphia PA-NJ-DE-MD

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2014. 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 overnight speeds 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 2014 (estimated at \$17.67 per hour of person travel and \$94.04 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.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	2014	2013	2012	2011	2010
Urban Area Information					
Population (1000s)	5,560	5,550	5,520	5,490	5,465
Rank	5	5	5	5	5
Commuters (1000s)	2,305	2,346	2,334	2,366	2,377
Daily Vehicle-Miles of Travel (1000s)					
Freeway	36,224	35,794	33,735	34,246	34,144
Arterial Streets	45,884	45,028	45,055	45,784	45,648
Cost Components					
Value of Time (\$/hour)	17.67	17.39	17.14	16.79	16.30
Commercial Cost (\$/hour)	94.04	89.60	89.56	86.81	88.12
Gasoline (\$/gallon)	3.29	3.52	3.55	3.41	2.78
Diesel (\$/gallon)	3.57	3.93	4.00	3.79	3.12
System Performance	2014	2013	2012	2011	2010
Congested Travel (% of peak VMT)	30	--	--	--	--
Congested System (% of lane-miles)	28	--	--	--	--
Congested Time (number of "Rush Hours")	3.30	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	77,456	77,425	76,855	77,271	77,041
Rank	8	8	7	7	6
Fuel per Peak Auto Commuter (gallons)	23	23	23	23	23
Rank	18	17	15	12	10
Annual Delay					
Total Delay (1000s of person-hours)	157,183	157,119	155,963	156,807	156,341
Rank	8	8	8	8	8
Delay per Peak Auto Commuter (pers-hrs)	48	47	47	47	47
Rank	22	21	21	18	17
Travel Time Index					
	1.24	1.24	1.24	1.24	1.24
Rank	25	24	24	24	22
Commuter Stress Index					
	1.28	1.28	1.28	1.28	1.28
Rank	31	31	31	30	31
Freeway Planning Time Index (95th Pctile)					
	2.41	--	--	--	--
Rank	33	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,669	3,727	3,754	3,852	3,962
Rank	8	8	8	8	8
Cost per Peak Auto Commuter (\$)	1,112	1,129	1,137	1,167	1,200
Rank	26	23	21	18	13

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	2009	2008	2007	2006	2005
Urban Area Information					
Population (1000s)	5,430	5,390	5,360	5,330	5,315
Rank	5	5	5	5	5
Commuters (1000s)	2,362	2,371	2,366	2,370	2,381
Daily Vehicle-Miles of Travel (1000s)					
Freeway	34,956	36,000	36,400	35,945	35,325
Arterial Streets	45,637	47,000	47,765	47,945	48,235
Cost Components					
Value of Time (\$/hour)	16.01	16.10	15.47	15.06	14.58
Commercial Cost (\$/hour)	89.75	81.52	82.56	80.43	78.05
Gasoline (\$/gallon)	2.33	3.42	2.97	2.68	2.28
Diesel (\$/gallon)	2.73	4.41	3.56	2.93	2.58
System Performance	2009	2008	2007	2006	2005
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	76,427	76,735	78,900	80,654	80,109
Rank	6	6	6	5	5
Fuel per Peak Auto Commuter (gallons)	23	23	24	24	24
Rank	8	12	9	9	8
Annual Delay					
Total Delay (1000s of person-hours)	155,096	155,720	160,112	163,673	162,567
Rank	8	9	9	8	8
Delay per Peak Auto Commuter (pers-hrs)	46	47	48	49	49
Rank	20	25	24	21	21
Travel Time Index					
	1.24	1.24	1.25	1.25	1.25
Rank	22	27	26	24	24
Commuter Stress Index					
	1.28	1.28	1.28	1.29	1.29
Rank	31	32	32	31	30
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,996	3,997	4,268	4,482	4,600
Rank	8	8	9	8	6
Cost per Peak Auto Commuter (\$)	1,211	1,211	1,293	1,358	1,394
Rank	10	16	14	11	9

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	2004	2003	2002	2001	2000
Urban Area Information					
Population (1000s)	5,300	5,285	5,200	5,125	5,040
Rank	4	4	4	4	4
Commuters (1000s)	2,366	2,346	2,296	2,208	2,123
Daily Vehicle-Miles of Travel (1000s)					
Freeway	34,440	33,875	30,770	30,050	28,930
Arterial Streets	47,910	47,245	45,070	42,050	40,015
Cost Components					
Value of Time (\$/hour)	14.10	13.73	13.43	13.22	12.85
Commercial Cost (\$/hour)	74.17	72.23	70.86	71.38	70.47
Gasoline (\$/gallon)	1.94	1.51	1.36	1.54	1.51
Diesel (\$/gallon)	2.03	1.59	1.43	1.59	1.57
System Performance	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)	79,065	75,979	73,204	66,718	61,444
Rank	5	6	6	6	6
Fuel per Peak Auto Commuter (gallons)	24	23	22	20	19
Rank	7	7	8	8	8
Annual Delay					
Total Delay (1000s of person-hours)	160,449	154,186	148,554	135,393	124,688
Rank	7	7	7	7	10
Delay per Peak Auto Commuter (pers-hrs)	48	47	46	43	41
Rank	21	21	18	26	26
Travel Time Index					
	1.25	1.24	1.23	1.22	1.21
Rank	22	24	25	27	26
Commuter Stress Index					
	1.29	1.28	1.27	1.26	1.25
Rank	30	32	32	34	34
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	4,693	4,630	4,563	4,224	4,001
Rank	5	7	7	7	8
Cost per Peak Auto Commuter (\$)	1,422	1,403	1,383	1,280	1,212
Rank	9	9	10	10	12

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	1999	1998	1997	1996	1995
Urban Area Information					
Population (1000s)	4,950	4,875	4,800	4,725	4,670
Rank	4	4	4	4	4
Commuters (1000s)	2,032	1,958	1,881	1,809	1,746
Daily Vehicle-Miles of Travel (1000s)					
Freeway	28,625	27,860	26,930	25,445	25,185
Arterial Streets	38,500	37,105	36,515	35,755	35,560
Cost Components					
Value of Time (\$/hour)	12.43	12.17	11.98	11.71	11.37
Commercial Cost (\$/hour)	66.76	65.76	66.83	66.20	64.27
Gasoline (\$/gallon)	1.11	1.06	1.19	1.26	1.19
Diesel (\$/gallon)	1.19	1.20	1.30	1.39	1.32
System Performance	1999	1998	1997	1996	1995
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	56,687	54,031	50,504	47,195	44,596
Rank	7	8	8	8	8
Fuel per Peak Auto Commuter (gallons)	17	16	15	14	14
Rank	12	12	12	14	12
Annual Delay					
Total Delay (1000s of person-hours)	115,036	109,646	102,488	95,773	90,499
Rank	11	10	10	10	10
Delay per Peak Auto Commuter (pers-hrs)	39	39	37	36	35
Rank	28	23	22	21	20
Travel Time Index					
	1.20	1.20	1.19	1.18	1.18
Rank	26	26	26	26	26
Commuter Stress Index					
	1.24	1.24	1.23	1.22	1.22
Rank	34	33	34	34	33
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,815	3,717	3,528	3,373	3,281
Rank	8	10	10	9	9
Cost per Peak Auto Commuter (\$)	1,156	1,126	1,069	1,022	994
Rank	13	14	14	15	15

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	1994	1993	1992	1991	1990
Urban Area Information					
Population (1000s)	4,640	4,625	4,610	4,590	4,580
Rank	4	4	4	4	4
Commuters (1000s)	1,694	1,647	1,604	1,560	1,519
Daily Vehicle-Miles of Travel (1000s)					
Freeway	24,045	23,395	22,530	22,080	21,210
Arterial Streets	36,300	35,825	35,580	33,105	33,845
Cost Components					
Value of Time (\$/hour)	11.06	10.78	10.47	10.17	9.75
Commercial Cost (\$/hour)	62.23	60.84	59.01	57.31	55.03
Gasoline (\$/gallon)	1.04	1.09	1.14	1.16	1.30
Diesel (\$/gallon)	1.15	1.21	1.28	1.29	1.08
System Performance	1994	1993	1992	1991	1990
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	42,127	39,412	37,640	35,143	33,923
Rank	9	9	9	8	8
Fuel per Peak Auto Commuter (gallons)	13	12	11	11	10
Rank	14	14	14	12	13
Annual Delay					
Total Delay (1000s of person-hours)	85,488	79,980	76,384	71,317	68,841
Rank	10	10	10	11	11
Delay per Peak Auto Commuter (pers-hrs)	34	33	32	30	30
Rank	19	18	18	22	16
Travel Time Index					
	1.17	1.17	1.16	1.15	1.15
Rank	26	23	23	23	21
Commuter Stress Index					
	1.21	1.20	1.20	1.19	1.19
Rank	33	33	32	33	28
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,187	3,058	3,008	2,893	2,910
Rank	10	11	11	11	11
Cost per Peak Auto Commuter (\$)	966	927	912	877	882
Rank	14	14	14	14	13

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	1989	1988	1987	1986	1985
Urban Area Information					
Population (1000s)	4,565	4,550	4,500	4,480	4,470
Rank	4	4	4	4	4
Commuters (1000s)	1,499	1,483	1,452	1,431	1,417
Daily Vehicle-Miles of Travel (1000s)					
Freeway	21,170	19,450	17,790	16,000	15,585
Arterial Streets	33,440	34,105	34,295	33,030	30,015
Cost Components					
Value of Time (\$/hour)	9.25	8.83	8.48	8.18	8.03
Commercial Cost (\$/hour)	52.81	50.04	48.53	46.57	47.83
Gasoline (\$/gallon)	1.06	0.98	0.98	0.96	1.25
Diesel (\$/gallon)	1.03	0.95	0.95	0.93	1.22
System Performance	1989	1988	1987	1986	1985
Congested Travel (% of peak VMT)	--	--	--	--	--
Congested System (% of lane-miles)	--	--	--	--	--
Congested Time (number of "Rush Hours")	--	--	--	--	--
Annual Excess Fuel Consumed					
Total Fuel (1000 gallons)	33,544	33,472	32,308	29,178	24,764
Rank	8	7	7	9	11
Fuel per Peak Auto Commuter (gallons)	10	10	10	9	8
Rank	9	9	8	9	10
Annual Delay					
Total Delay (1000s of person-hours)	68,071	67,926	65,563	59,211	50,255
Rank	11	9	10	11	11
Delay per Peak Auto Commuter (pers-hrs)	30	30	30	27	23
Rank	15	15	14	14	17
Travel Time Index					
	1.15	1.15	1.15	1.14	1.12
Rank	19	17	17	17	20
Commuter Stress Index					
	1.19	1.19	1.19	1.17	1.15
Rank	28	26	26	30	31
Freeway Planning Time Index (95th Pctile)					
	--	--	--	--	--
Rank	--	--	--	--	--
Congestion Cost (constant 2014 \$)					
Total Cost (\$ millions)	3,033	3,173	3,189	2,985	2,581
Rank	10	9	9	9	11
Cost per Peak Auto Commuter (\$)	919	961	966	905	782
Rank	12	11	11	11	12

* Note: Cells containing "--" indicate no available data.

The Mobility Data for Philadelphia PA-NJ-DE-MD

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	4,465	4,460	4,450
Rank	4	4	4
Commuters (1000s)	1,401	1,389	1,371
Daily Vehicle-Miles of Travel (1000s)			
Freeway	15,980	15,705	14,110
Arterial Streets	29,145	28,715	28,425
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	46.47	44.23	43.08
Gasoline (\$/gallon)	1.27	1.30	1.35
Diesel (\$/gallon)	1.23	1.26	1.32
System Performance	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)	22,326	21,260	20,129
Rank	11	11	10
Fuel per Peak Auto Commuter (gallons)	7	6	6
Rank	11	12	11
Annual Delay			
Total Delay (1000s of person-hours)	45,306	43,144	40,847
Rank	11	11	11
Delay per Peak Auto Commuter (pers-hrs)	21	20	19
Rank	19	18	17
Travel Time Index			
	1.11	1.10	1.10
Rank	22	22	19
Commuter Stress Index			
	1.14	1.14	1.13
Rank	32	31	30
Freeway Planning Time Index (95th Pctile)			
	--	--	--
Rank	--	--	--
Congestion Cost (constant 2014 \$)			
Total Cost (\$ millions)	2,410	2,394	2,339
Rank	11	11	11
Cost per Peak Auto Commuter (\$)	730	725	709
Rank	13	12	13

* Note: Cells containing "--" indicate no available data.