

Performance Measure Summary - Dayton OH

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 Dayton OH

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	745	745	740	740	740	745
Rank	60	60	60	59	58	56
Commuters (1000s)	378	378	376	376	382	385
Daily Vehicle-Miles of Travel (1000s)						
Freeway	7,964	7,758	7,214	7,030	6,957	6,905
Arterial Streets	6,311	6,284	5,708	5,638	5,217	6,235
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)	2.29	2.17	2.18	3.16	3.48	3.58
Diesel (\$/gallon)	2.53	2.29	2.49	3.67	3.91	3.87
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	8.4	--	--	--	--	--
Congested System (% of lane-miles)	6.0	--	--	--	--	--
Congested Time (number of "Rush Hours")	0.6	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	7,467	7,382	7,344	7,322	7,273	7,210
Rank	66	66	65	65	64	64
Fuel per Peak Auto Commuter (gallons)	13	13	13	13	13	12
Rank	93	92	92	88	89	93
Annual Delay						
Total Delay (1000s of person-hours)	17,377	16,823	16,447	16,254	16,003	15,723
Rank	70	70	70	69	67	66
Delay per Auto Commuter (pers-hrs)	32	30	30	28	27	27
Rank	93	93	92	94	93	93
Travel Time Index						
Rank	1.12	1.12	1.12	1.12	1.11	1.11
Rank	93	93	92	92	96	94
Commuter Stress Index						
Rank	1.13	--	--	--	--	--
Rank	90	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	1.19	--	--	--	--	--
Rank	93	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	353	336	324	326	317	307
Rank	70	70	70	69	67	66
Cost per Auto Commuter (\$)	601	586	570	560	556	554
Rank	93	93	92	91	91	91
Truck Congestion						
Annual Person-Hours of Delay (000)	730	707	691	683	672	660
Rank	70	70	70	69	67	66
Annual Gallons of Wasted Fuel (000)	1,583	1,565	1,557	1,552	1,542	1,529
Rank	66	66	65	65	64	64
Annual Congestion Cost (\$ million)	37	35	32	33	30	29
Rank	70	69	70	64	66	64

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

Mobility Data for Dayton OH

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	745	745	745	745	745	745
Rank	56	56	55	54	54	52
Commuters (1000s)	384	383	382	380	378	376
Daily Vehicle-Miles of Travel (1000s)						
Freeway	7,384	7,318	7,200	7,115	7,360	7,460
Arterial Streets	6,335	6,310	6,200	6,105	6,250	6,400
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)	3.25	2.64	2.19	3.40	2.88	2.58
Diesel (\$/gallon)	3.69	2.96	2.58	4.17	3.35	2.83
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)	7,148	7,069	6,848	7,386	7,466	7,316
Rank	63	63	63	61	60	60
Fuel per Peak Auto Commuter (gallons)	12	12	11	13	13	13
Rank	89	89	91	84	85	81
Annual Delay						
Total Delay (1000s of person-hours)	15,306	14,859	14,127	14,509	14,668	14,372
Rank	65	66	66	61	62	61
Delay per Auto Commuter (pers-hrs)	26	26	24	25	25	25
Rank	91	91	91	91	91	91
Travel Time Index						
Rank	93	93	92	90	90	95
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	295	274	254	271	261	247
Rank	65	66	65	61	62	61
Cost per Auto Commuter (\$)	557	557	540	547	576	579
Rank	90	89	88	82	84	83
Truck Congestion						
Annual Person-Hours of Delay (000)	643	624	593	609	616	604
Rank	65	65	66	61	62	61
Annual Gallons of Wasted Fuel (000)	1,515	1,499	1,452	1,566	1,583	1,551
Rank	63	63	63	61	60	60
Annual Congestion Cost (\$ million)	31	28	26	28	27	24
Rank	63	63	62	61	60	62

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

Mobility Data for Dayton OH

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	745	745	740	735	730	720
Rank	52	52	52	52	52	52
Commuters (1000s)	373	371	367	360	353	344
Daily Vehicle-Miles of Travel (1000s)						
Freeway	7,485	7,505	6,870	6,500	6,200	6,000
Arterial Streets	6,365	6,400	6,460	6,350	6,300	6,280
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)	2.24	1.81	1.52	1.38	1.30	1.55
Diesel (\$/gallon)	2.48	1.94	1.49	1.36	1.49	1.53
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)	7,163	7,220	7,501	7,339	7,162	6,825
Rank	59	58	55	55	54	55
Fuel per Peak Auto Commuter (gallons)	12	12	13	13	13	13
Rank	86	83	74	71	63	56
Annual Delay						
Total Delay (1000s of person-hours)	14,073	14,184	14,736	14,417	14,070	13,408
Rank	60	60	57	58	58	58
Delay per Auto Commuter (pers-hrs)	24	25	26	26	25	25
Rank	91	88	88	86	87	87
Travel Time Index						
Rank	1.11	1.11	1.12	1.12	1.12	1.11
Rank	92	91	82	82	78	80
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	232	223	224	213	204	191
Rank	60	60	57	58	58	58
Cost per Auto Commuter (\$)	587	611	653	651	646	630
Rank	81	71	65	61	57	59
Truck Congestion						
Annual Person-Hours of Delay (000)	591	596	619	606	591	563
Rank	60	60	57	58	58	58
Annual Gallons of Wasted Fuel (000)	1,519	1,531	1,590	1,556	1,518	1,447
Rank	59	58	55	55	54	55
Annual Congestion Cost (\$ million)	23	21	21	19	19	17
Rank	60	60	57	58	54	56

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

Mobility Data for Dayton OH

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	710	695	685	675	660	645
Rank	51	52	52	51	50	50
Commuters (1000s)	335	324	315	307	296	286
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,850	5,700	5,555	5,365	5,175	4,225
Arterial Streets	6,260	6,220	6,100	5,995	5,900	5,810
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)	1.14	1.11	1.13	1.28	1.12	1.08
Diesel (\$/gallon)	1.15	1.17	1.25	1.39	1.22	1.17
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)	6,551	6,218	5,912	5,426	4,987	4,828
Rank	55	54	54	56	56	55
Fuel per Peak Auto Commuter (gallons)	12	12	11	10	9	9
Rank	64	53	54	57	59	56
Annual Delay						
Total Delay (1000s of person-hours)	12,869	12,216	11,615	10,660	9,798	9,485
Rank	57	57	54	56	56	54
Delay per Auto Commuter (pers-hrs)	24	24	23	22	20	20
Rank	86	81	77	79	82	80
Travel Time Index						
Rank	1.11	1.11	1.11	1.10	1.09	1.09
Rank	78	77	72	76	77	75
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	175	162	152	138	122	115
Rank	57	56	54	56	56	54
Cost per Auto Commuter (\$)	627	611	589	551	526	521
Rank	56	56	54	55	55	50
Truck Congestion						
Annual Person-Hours of Delay (000)	540	513	488	448	412	398
Rank	57	57	54	56	56	54
Annual Gallons of Wasted Fuel (000)	1,389	1,318	1,253	1,150	1,057	1,024
Rank	55	54	54	56	56	55
Annual Congestion Cost (\$ million)	15	15	14	13	11	11
Rank	57	53	54	54	55	53

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Mobility Data for Dayton OH

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	620	605	600	595	595	595
Rank	52	53	53	53	53	53
Commuters (1000s)	271	261	256	250	248	247
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,845	4,335	4,235	4,220	3,850	3,415
Arterial Streets	5,710	5,550	5,410	5,255	5,160	5,005
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)	1.09	1.11	1.13	1.06	1.08	1.00
Diesel (\$/gallon)	1.19	1.19	1.25	1.10	1.05	0.97
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)	4,400	4,085	3,850	3,538	3,288	3,102
Rank	55	57	55	55	55	54
Fuel per Peak Auto Commuter (gallons)	9	7	8	6	6	6
Rank	49	59	45	60	53	45
Annual Delay						
Total Delay (1000s of person-hours)	8,644	8,025	7,564	6,951	6,460	6,094
Rank	55	55	54	55	54	54
Delay per Auto Commuter (pers-hrs)	19	19	18	17	16	15
Rank	78	74	72	70	68	67
Travel Time Index						
Rank	74	70	71	63	66	60
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	103	93	85	75	67	60
Rank	55	55	54	55	55	55
Cost per Auto Commuter (\$)	490	468	455	435	426	423
Rank	50	51	48	49	49	44
Truck Congestion						
Annual Person-Hours of Delay (000)	363	337	318	292	271	256
Rank	55	55	54	55	54	54
Annual Gallons of Wasted Fuel (000)	933	866	816	750	697	658
Rank	55	57	55	55	55	54
Annual Congestion Cost (\$ million)	10	9	8	7	7	6
Rank	53	52	54	54	51	52

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Mobility Data for Dayton OH

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	595	595	595	595	595	595
Rank	50	49	49	49	49	49
Commuters (1000s)	244	243	241	239	237	235
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,300	3,145	3,190	3,015	2,935	2,700
Arterial Streets	4,900	4,740	4,600	4,360	4,150	4,000
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)	0.97	0.95	1.24	1.26	1.29	1.34
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)	2,800	2,603	2,443	2,138	1,923	1,871
Rank	52	51	49	51	52	50
Fuel per Peak Auto Commuter (gallons)	5	4	5	4	3	3
Rank	48	54	32	41	46	34
Annual Delay						
Total Delay (1000s of person-hours)	5,501	5,113	4,799	4,201	3,777	3,676
Rank	55	54	51	51	52	50
Delay per Auto Commuter (pers-hrs)	13	13	12	10	9	9
Rank	75	64	63	70	70	65
Travel Time Index						
Rank	66	57	64	57	68	61
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	53	47	44	38	33	31
Rank	53	54	50	51	51	49
Cost per Auto Commuter (\$)	405	383	370	335	319	316
Rank	41	43	38	42	42	42
Truck Congestion						
Annual Person-Hours of Delay (000)	231	215	202	176	159	154
Rank	55	54	51	51	52	50
Annual Gallons of Wasted Fuel (000)	594	552	518	453	408	397
Rank	52	51	49	51	52	50
Annual Congestion Cost (\$ million)	6	5	5	4	4	4
Rank	47	50	46	49	47	44

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