

Performance Measure Summary - Hartford 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 Hartford CT

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	910	910	910	910	905	905
Rank	51	51	51	51	51	51
Commuters (1000s)	447	447	447	447	450	450
Daily Vehicle-Miles of Travel (1000s)						
Freeway	11,328	11,227	11,222	11,052	10,785	10,545
Arterial Streets	7,800	7,798	7,760	7,753	7,322	7,520
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)	2.48	2.29	2.48	3.65	3.82	3.78
Diesel (\$/gallon)	2.66	2.50	2.87	3.87	4.20	4.15
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	19.7	--	--	--	--	--
Congested System (% of lane-miles)	12.5	--	--	--	--	--
Congested Time (number of "Rush Hours")	2.7	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	10,963	10,939	10,885	10,844	10,763	10,675
Rank	52	52	52	52	52	52
Fuel per Peak Auto Commuter (gallons)	20	20	20	21	21	21
Rank	47	47	42	30	30	28
Annual Delay						
Total Delay (1000s of person-hours)	27,436	27,021	26,428	26,100	25,451	25,017
Rank	52	52	52	51	50	50
Delay per Auto Commuter (pers-hrs)	50	49	48	49	48	48
Rank	37	37	35	32	32	29
Travel Time Index						
Rank	1.17	1.17	1.17	1.18	1.18	1.17
Rank	49	49	49	40	41	50
Commuter Stress Index						
Rank	1.18	--	--	--	--	--
Rank	56	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	1.48	--	--	--	--	--
Rank	46	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	557	539	521	525	505	489
Rank	52	52	52	50	50	50
Cost per Auto Commuter (\$)	881	873	849	833	821	818
Rank	45	45	45	44	44	42
Truck Congestion						
Annual Person-Hours of Delay (000)	1,152	1,135	1,110	1,096	1,069	1,051
Rank	52	52	52	51	50	50
Annual Gallons of Wasted Fuel (000)	2,324	2,319	2,308	2,299	2,282	2,263
Rank	52	52	52	52	52	52
Annual Congestion Cost (\$ million)	59	56	52	52	48	46
Rank	52	51	51	50	50	50

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

Mobility Data for Hartford CT

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	905	900	900	895	895	895
Rank	51	51	49	49	49	48
Commuters (1000s)	450	446	445	441	440	439
Daily Vehicle-Miles of Travel (1000s)						
Freeway	11,693	11,580	11,100	10,780	10,840	10,745
Arterial Streets	7,428	7,420	7,400	7,470	7,585	7,520
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)	3.59	2.91	2.41	3.55	3.23	2.83
Diesel (\$/gallon)	3.90	3.20	2.88	4.46	3.66	2.99
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)	10,587	10,871	10,898	11,056	10,403	9,967
Rank	52	50	49	50	51	51
Fuel per Peak Auto Commuter (gallons)	20	21	21	23	21	20
Rank	32	24	15	13	23	28
Annual Delay						
Total Delay (1000s of person-hours)	24,363	24,557	24,159	23,343	21,962	21,043
Rank	50	48	48	47	49	51
Delay per Auto Commuter (pers-hrs)	46	46	44	43	42	40
Rank	30	26	28	31	33	40
Travel Time Index						
Rank	1.17	1.18	1.19	1.19	1.18	1.18
Rank	45	39	39	40	44	43
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	471	454	435	436	392	362
Rank	50	48	48	47	49	51
Cost per Auto Commuter (\$)	821	855	855	818	800	788
Rank	41	36	33	38	44	46
Truck Congestion						
Annual Person-Hours of Delay (000)	1,023	1,031	1,015	980	922	884
Rank	50	48	48	47	49	51
Annual Gallons of Wasted Fuel (000)	2,244	2,305	2,310	2,344	2,205	2,113
Rank	52	50	49	50	51	51
Annual Congestion Cost (\$ million)	49	46	44	46	40	36
Rank	50	48	48	47	49	49

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

Mobility Data for Hartford CT

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	890	885	880	875	870	865
Rank	48	48	48	46	44	43
Commuters (1000s)	434	429	425	417	410	402
Daily Vehicle-Miles of Travel (1000s)						
Freeway	10,590	10,565	10,425	10,360	10,175	10,215
Arterial Streets	7,495	7,225	7,015	6,900	6,730	6,310
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)	2.35	2.08	1.60	1.46	1.77	1.70
Diesel (\$/gallon)	2.65	2.11	1.68	1.42	1.60	1.58
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)	9,344	8,983	8,514	8,261	7,998	7,620
Rank	52	52	52	52	52	52
Fuel per Peak Auto Commuter (gallons)	19	19	18	17	17	16
Rank	34	27	30	34	31	32
Annual Delay						
Total Delay (1000s of person-hours)	19,728	18,965	17,976	17,440	16,886	16,087
Rank	51	51	51	52	52	51
Delay per Auto Commuter (pers-hrs)	40	38	37	36	36	34
Rank	38	42	45	45	43	49
Travel Time Index						
Rank	1.18	1.17	1.16	1.16	1.16	1.15
Rank	41	47	56	54	51	56
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	325	300	273	257	247	229
Rank	51	51	51	52	52	51
Cost per Auto Commuter (\$)	765	759	739	734	718	704
Rank	45	46	47	46	45	47
Truck Congestion						
Annual Person-Hours of Delay (000)	829	797	755	732	709	676
Rank	51	51	51	52	52	51
Annual Gallons of Wasted Fuel (000)	1,981	1,904	1,805	1,751	1,696	1,615
Rank	52	52	52	52	52	52
Annual Congestion Cost (\$ million)	32	29	25	23	22	21
Rank	51	51	51	52	52	51

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Mobility Data for Hartford CT

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	860	850	845	845	840	835
Rank	43	43	42	42	41	41
Commuters (1000s)	395	385	378	373	367	360
Daily Vehicle-Miles of Travel (1000s)						
Freeway	9,735	9,400	9,185	8,875	8,795	8,580
Arterial Streets	6,105	5,790	5,510	5,300	5,020	4,690
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)	1.24	1.22	1.39	1.47	1.34	1.18
Diesel (\$/gallon)	1.16	1.19	1.30	1.41	1.29	1.13
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)	7,115	6,856	6,302	6,023	5,908	5,464
Rank	53	53	53	53	50	50
Fuel per Peak Auto Commuter (gallons)	15	14	13	12	13	12
Rank	32	31	38	38	19	21
Annual Delay						
Total Delay (1000s of person-hours)	15,021	14,476	13,306	12,716	12,473	11,536
Rank	51	51	52	51	50	50
Delay per Auto Commuter (pers-hrs)	33	32	30	29	29	27
Rank	51	52	56	54	48	51
Travel Time Index						
Rank	1.14	1.14	1.13	1.13	1.13	1.12
Rank	61	55	62	50	47	51
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	204	193	175	165	156	140
Rank	51	51	51	51	50	50
Cost per Auto Commuter (\$)	679	671	627	614	617	588
Rank	49	44	46	44	35	38
Truck Congestion						
Annual Person-Hours of Delay (000)	631	608	559	534	524	485
Rank	51	51	52	51	50	50
Annual Gallons of Wasted Fuel (000)	1,508	1,454	1,336	1,277	1,253	1,158
Rank	53	53	53	53	50	50
Annual Congestion Cost (\$ million)	18	17	16	15	14	13
Rank	51	51	51	51	50	50

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Mobility Data for Hartford CT

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	835	830	830	825	815	805
Rank	41	41	40	40	39	39
Commuters (1000s)	355	349	344	338	331	324
Daily Vehicle-Miles of Travel (1000s)						
Freeway	8,480	8,315	7,680	7,200	6,915	6,720
Arterial Streets	4,350	4,100	3,950	3,915	3,800	3,725
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)	1.23	1.26	1.23	1.12	1.21	1.12
Diesel (\$/gallon)	1.18	1.25	1.38	1.20	1.23	1.14
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)	5,046	4,946	4,366	3,785	3,425	3,080
Rank	50	47	47	51	51	55
Fuel per Peak Auto Commuter (gallons)	10	11	10	8	8	7
Rank	38	16	19	35	26	27
Annual Delay						
Total Delay (1000s of person-hours)	10,652	10,443	9,217	7,991	7,232	6,502
Rank	50	48	49	50	50	50
Delay per Auto Commuter (pers-hrs)	25	25	22	20	18	17
Rank	53	45	53	59	59	58
Travel Time Index						
Rank	1.11	1.11	1.10	1.09	1.08	1.07
Rank	54	49	51	56	56	60
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	127	121	104	87	75	65
Rank	50	48	49	50	50	50
Cost per Auto Commuter (\$)	559	565	516	466	447	425
Rank	40	30	38	43	42	43
Truck Congestion						
Annual Person-Hours of Delay (000)	447	439	387	336	304	273
Rank	50	48	49	50	50	50
Annual Gallons of Wasted Fuel (000)	1,070	1,049	926	802	726	653
Rank	50	47	47	51	51	55
Annual Congestion Cost (\$ million)	12	12	10	9	8	7
Rank	49	44	48	48	46	48

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Mobility Data for Hartford CT

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	800	795	785	780	775	775
Rank	39	39	38	38	39	38
Commuters (1000s)	319	314	307	303	298	295
Daily Vehicle-Miles of Travel (1000s)						
Freeway	6,480	6,155	5,900	5,525	5,250	4,790
Arterial Streets	3,595	3,510	3,400	3,355	3,305	3,255
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)	1.12	1.09	1.43	1.44	1.48	1.55
Diesel (\$/gallon)	1.14	1.11	1.45	1.47	1.50	1.57
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)	2,661	2,483	2,101	1,842	1,530	1,522
Rank	54	54	53	55	60	56
Fuel per Peak Auto Commuter (gallons)	5	6	5	5	3	2
Rank	48	28	32	27	46	55
Annual Delay						
Total Delay (1000s of person-hours)	5,617	5,242	4,436	3,889	3,231	3,213
Rank	51	53	54	54	60	54
Delay per Auto Commuter (pers-hrs)	14	14	12	10	9	9
Rank	64	57	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)	54	49	41	35	28	27
Rank	51	51	54	54	60	54
Cost per Auto Commuter (\$)	376	366	318	284	253	252
Rank	53	52	57	58	60	58
Truck Congestion						
Annual Person-Hours of Delay (000)	236	220	186	163	136	135
Rank	51	53	54	54	60	54
Annual Gallons of Wasted Fuel (000)	564	526	445	390	324	323
Rank	54	54	53	55	60	56
Annual Congestion Cost (\$ million)	6	5	5	4	3	3
Rank	47	50	46	49	55	52

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