

Performance Measure Summary - Cincinnati OH-KY-IN

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 Cincinnati OH-KY-IN

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	1,670	1,660	1,650	1,640	1,635	1,630
Rank	31	30	30	30	30	30
Commuters (1000s)	853	846	840	833	860	858
Daily Vehicle-Miles of Travel (1000s)						
Freeway	19,442	18,394	17,059	17,657	18,070	18,550
Arterial Streets	14,116	16,676	16,149	15,626	15,439	13,380
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	3.17	3.48	3.58
Diesel (\$/gallon)	2.53	2.29	2.49	3.65	3.91	3.87
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	21.2	--	--	--	--	--
Congested System (% of lane-miles)	12.6	--	--	--	--	--
Congested Time (number of "Rush Hours")	2.8	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	27,950	27,819	26,997	26,376	25,989	25,818
Rank	26	25	26	26	26	26
Fuel per Peak Auto Commuter (gallons)	25	26	25	23	22	22
Rank	20	15	15	19	24	21
Annual Delay						
Total Delay (1000s of person-hours)	64,061	62,902	59,998	58,108	56,754	55,383
Rank	29	29	29	29	29	28
Delay per Auto Commuter (pers-hrs)	52	51	50	49	47	46
Rank	32	32	32	32	33	34
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	1.53	--	--	--	--	--
Rank	43	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	1,301	1,257	1,181	1,166	1,125	1,084
Rank	29	29	29	28	28	28
Cost per Auto Commuter (\$)	1,110	1,097	1,040	1,002	988	976
Rank	27	25	28	28	27	27
Truck Congestion						
Annual Person-Hours of Delay (000)	2,691	2,642	2,520	2,441	2,384	2,326
Rank	29	29	29	29	29	28
Annual Gallons of Wasted Fuel (000)	5,925	5,898	5,723	5,592	5,510	5,473
Rank	26	25	26	26	26	26
Annual Congestion Cost (\$ million)	138	130	118	116	108	102
Rank	29	28	28	28	28	28

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

Mobility Data for Cincinnati OH-KY-IN

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	1,625	1,620	1,615	1,610	1,605	1,600
Rank	30	30	30	30	30	30
Commuters (1000s)	853	848	844	838	834	830
Daily Vehicle-Miles of Travel (1000s)						
Freeway	19,370	19,314	18,750	18,240	18,990	18,820
Arterial Streets	13,323	12,784	12,125	11,995	12,175	12,080
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)	24,833	23,881	23,189	24,806	24,918	24,475
Rank	27	28	28	27	27	27
Fuel per Peak Auto Commuter (gallons)	21	20	18	20	20	20
Rank	25	29	34	31	28	28
Annual Delay						
Total Delay (1000s of person-hours)	52,309	49,381	47,054	47,938	48,154	47,299
Rank	29	29	29	29	29	29
Delay per Auto Commuter (pers-hrs)	44	41	39	39	39	39
Rank	35	42	47	43	44	43
Travel Time Index						
Rank	1.17	1.16	1.16	1.17	1.17	1.17
Rank	45	58	58	53	56	53
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	1,010	912	847	898	858	813
Rank	28	29	29	29	29	29
Cost per Auto Commuter (\$)	952	926	898	907	947	954
Rank	29	28	28	27	27	25
Truck Congestion						
Annual Person-Hours of Delay (000)	2,197	2,074	1,976	2,013	2,022	1,987
Rank	29	29	29	29	29	29
Annual Gallons of Wasted Fuel (000)	5,265	5,063	4,916	5,259	5,283	5,189
Rank	27	28	28	27	27	27
Annual Congestion Cost (\$ million)	105	92	85	94	87	81
Rank	28	29	29	29	29	27

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

Mobility Data for Cincinnati OH-KY-IN

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	1,590	1,585	1,575	1,570	1,540	1,500
Rank	30	29	28	27	27	27
Commuters (1000s)	821	815	807	790	762	730
Daily Vehicle-Miles of Travel (1000s)						
Freeway	18,560	17,790	17,635	16,900	16,200	16,000
Arterial Streets	12,030	12,270	12,200	11,200	11,000	10,700
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)	24,034	23,704	23,469	23,073	22,745	21,748
Rank	26	25	24	24	24	24
Fuel per Peak Auto Commuter (gallons)	20	19	19	19	19	19
Rank	25	27	23	18	13	11
Annual Delay						
Total Delay (1000s of person-hours)	46,446	45,808	45,355	44,590	43,956	42,028
Rank	29	28	26	26	25	25
Delay per Auto Commuter (pers-hrs)	39	38	38	38	39	38
Rank	43	42	42	40	32	34
Travel Time Index						
Rank	1.17	1.17	1.17	1.17	1.17	1.17
Rank	50	47	45	41	38	37
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	766	722	689	659	638	598
Rank	28	27	26	26	25	25
Cost per Auto Commuter (\$)	969	990	1,006	1,011	1,010	992
Rank	24	23	19	17	15	16
Truck Congestion						
Annual Person-Hours of Delay (000)	1,951	1,924	1,905	1,873	1,846	1,765
Rank	29	28	26	26	25	25
Annual Gallons of Wasted Fuel (000)	5,095	5,025	4,975	4,892	4,822	4,611
Rank	26	25	24	24	24	24
Annual Congestion Cost (\$ million)	75	69	64	60	58	54
Rank	27	27	26	26	25	25

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

Mobility Data for Cincinnati OH-KY-IN

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	1,470	1,425	1,390	1,350	1,300	1,255
Rank	27	29	29	29	30	30
Commuters (1000s)	703	670	642	614	580	551
Daily Vehicle-Miles of Travel (1000s)						
Freeway	15,500	15,195	14,930	13,870	13,425	13,415
Arterial Streets	10,300	10,000	9,640	9,020	8,510	7,990
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)	20,653	19,472	18,179	17,022	15,645	14,011
Rank	24	22	23	25	26	27
Fuel per Peak Auto Commuter (gallons)	18	17	16	15	15	12
Rank	12	13	14	13	11	21
Annual Delay						
Total Delay (1000s of person-hours)	39,914	37,631	35,132	32,895	30,235	27,077
Rank	25	25	25	24	26	28
Delay per Auto Commuter (pers-hrs)	38	37	36	35	34	32
Rank	32	31	28	25	24	27
Travel Time Index						
Rank	41	36	36	40	35	38
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	542	501	461	425	378	330
Rank	25	25	25	24	26	28
Cost per Auto Commuter (\$)	974	938	891	854	810	747
Rank	18	18	18	18	18	20
Truck Congestion						
Annual Person-Hours of Delay (000)	1,676	1,580	1,476	1,382	1,270	1,137
Rank	25	25	25	24	26	28
Annual Gallons of Wasted Fuel (000)	4,379	4,128	3,854	3,609	3,317	2,970
Rank	24	22	23	25	26	27
Annual Congestion Cost (\$ million)	48	45	42	39	35	31
Rank	26	25	25	25	26	27

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Mobility Data for Cincinnati OH-KY-IN

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	1,250	1,220	1,200	1,140	1,140	1,130
Rank	29	29	29	31	31	30
Commuters (1000s)	540	518	501	467	463	455
Daily Vehicle-Miles of Travel (1000s)						
Freeway	12,560	11,610	11,360	11,260	10,800	9,750
Arterial Streets	7,485	7,015	6,525	6,025	5,490	5,010
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)	12,850	11,763	10,926	10,062	9,240	7,728
Rank	27	27	27	28	27	27
Fuel per Peak Auto Commuter (gallons)	11	11	10	9	10	7
Rank	22	16	19	23	11	27
Annual Delay						
Total Delay (1000s of person-hours)	24,834	22,733	21,116	19,446	17,857	14,934
Rank	27	27	27	27	26	27
Delay per Auto Commuter (pers-hrs)	30	28	27	26	24	21
Rank	30	32	30	27	29	38
Travel Time Index						
Rank	1.13	1.12	1.12	1.11	1.11	1.09
Rank	39	40	38	41	36	43
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	295	264	239	211	185	148
Rank	27	27	27	27	26	27
Cost per Auto Commuter (\$)	702	664	636	612	594	521
Rank	21	21	24	22	21	26
Truck Congestion						
Annual Person-Hours of Delay (000)	1,043	955	887	817	750	627
Rank	27	27	27	27	26	27
Annual Gallons of Wasted Fuel (000)	2,724	2,494	2,316	2,133	1,959	1,638
Rank	27	27	27	28	27	27
Annual Congestion Cost (\$ million)	28	25	23	21	19	15
Rank	27	28	27	26	26	27

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Mobility Data for Cincinnati OH-KY-IN

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	1,130	1,130	1,130	1,130	1,130	1,130
Rank	29	29	28	28	26	26
Commuters (1000s)	451	447	443	438	434	431
Daily Vehicle-Miles of Travel (1000s)						
Freeway	9,415	8,775	8,840	8,255	8,310	7,460
Arterial Streets	4,700	4,650	4,565	4,345	4,150	3,930
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)	6,308	5,254	4,869	4,336	3,955	3,518
Rank	27	30	30	31	32	33
Fuel per Peak Auto Commuter (gallons)	6	4	4	4	3	3
Rank	32	54	50	41	46	34
Annual Delay						
Total Delay (1000s of person-hours)	12,191	10,154	9,409	8,380	7,644	6,798
Rank	30	31	32	32	32	32
Delay per Auto Commuter (pers-hrs)	17	14	13	12	11	10
Rank	51	57	56	56	56	58
Travel Time Index						
Rank	1.07	1.06	1.06	1.05	1.05	1.04
Rank	55	57	54	57	55	61
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	117	94	87	75	66	58
Rank	29	30	31	31	32	32
Cost per Auto Commuter (\$)	446	383	360	334	318	292
Rank	34	43	40	43	44	46
Truck Congestion						
Annual Person-Hours of Delay (000)	512	426	395	352	321	286
Rank	29	31	32	32	32	32
Annual Gallons of Wasted Fuel (000)	1,337	1,114	1,032	919	839	746
Rank	27	30	30	31	32	33
Annual Congestion Cost (\$ million)	12	10	10	9	8	7
Rank	30	30	30	29	31	30

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