

Performance Measure Summary - Kansas City MO-KS

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 Kansas City MO-KS

Inventory Measures	2017	2016	2015	2014	2013	2012
Urban Area Information						
Population (1000s)	1,605	1,605	1,600	1,600	1,600	1,595
Rank	33	32	32	32	31	31
Commuters (1000s)	834	834	831	831	839	840
Daily Vehicle-Miles of Travel (1000s)						
Freeway	24,488	23,969	23,249	22,532	22,187	21,315
Arterial Streets	13,778	13,904	13,394	12,850	12,773	12,755
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)	2.16	1.98	2.08	3.16	3.36	3.30
Diesel (\$/gallon)	2.31	2.11	2.31	3.47	3.67	3.69
System Performance	2017	2016	2015	2014	2013	2012
Congested Travel (% of peak VMT)	17.6	--	--	--	--	--
Congested System (% of lane-miles)	11.1	--	--	--	--	--
Congested Time (number of "Rush Hours")	2.3	--	--	--	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	19,224	19,082	18,985	18,820	18,574	18,331
Rank	38	38	38	38	38	38
Fuel per Peak Auto Commuter (gallons)	15	15	15	18	18	18
Rank	84	83	83	57	54	52
Annual Delay						
Total Delay (1000s of person-hours)	48,328	47,659	47,011	45,800	44,406	43,434
Rank	37	37	36	36	36	36
Delay per Auto Commuter (pers-hrs)	47	47	45	44	43	42
Rank	46	43	45	44	46	46
Travel Time Index						
Rank	1.15	1.15	1.15	1.15	1.15	1.15
Rank	71	71	69	71	70	71
Commuter Stress Index						
Rank	1.16	--	--	--	--	--
Rank	72	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	1.37	--	--	--	--	--
Rank	59	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	974	944	918	912	871	839
Rank	37	37	36	36	36	36
Cost per Auto Commuter (\$)	837	832	816	790	774	767
Rank	50	48	47	47	47	47
Truck Congestion						
Annual Person-Hours of Delay (000)	2,030	2,002	1,974	1,924	1,865	1,824
Rank	37	37	36	36	36	36
Annual Gallons of Wasted Fuel (000)	4,076	4,045	4,025	3,990	3,938	3,886
Rank	38	38	38	38	38	38
Annual Congestion Cost (\$ million)	102	97	90	89	82	78
Rank	37	36	36	36	36	36

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

Mobility Data for Kansas City MO-KS

Inventory Measures	2011	2010	2009	2008	2007	2006
Urban Area Information						
Population (1000s)	1,585	1,575	1,550	1,530	1,525	1,520
Rank	31	31	31	31	31	31
Commuters (1000s)	837	829	813	800	792	783
Daily Vehicle-Miles of Travel (1000s)						
Freeway	21,701	21,564	21,300	21,050	21,015	20,820
Arterial Streets	12,242	12,500	12,779	13,000	13,315	13,000
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)	3.24	2.49	2.09	3.31	2.85	2.54
Diesel (\$/gallon)	3.54	2.77	2.33	4.01	3.22	2.72
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)	18,088	17,733	17,177	17,689	17,048	16,829
Rank	38	38	38	37	37	35
Fuel per Peak Auto Commuter (gallons)	18	18	17	18	17	16
Rank	49	46	43	49	61	64
Annual Delay						
Total Delay (1000s of person-hours)	42,088	40,503	38,500	37,760	36,391	35,925
Rank	35	34	34	34	34	34
Delay per Auto Commuter (pers-hrs)	41	40	39	38	37	37
Rank	45	48	47	47	54	52
Travel Time Index						
Rank	1.15	1.14	1.14	1.15	1.14	1.14
Rank	70	73	74	72	80	78
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	806	740	687	699	642	612
Rank	35	34	34	35	34	34
Cost per Auto Commuter (\$)	765	760	736	714	716	726
Rank	47	48	48	49	53	52
Truck Congestion						
Annual Person-Hours of Delay (000)	1,768	1,701	1,617	1,586	1,528	1,509
Rank	35	34	34	34	34	34
Annual Gallons of Wasted Fuel (000)	3,835	3,759	3,642	3,750	3,614	3,568
Rank	38	38	38	37	37	35
Annual Congestion Cost (\$ million)	83	74	68	72	64	60
Rank	35	34	34	34	34	34

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

Mobility Data for Kansas City MO-KS

Inventory Measures	2005	2004	2003	2002	2001	2000
Urban Area Information						
Population (1000s)	1,500	1,500	1,500	1,475	1,425	1,420
Rank	31	31	31	31	32	31
Commuters (1000s)	768	763	759	736	699	686
Daily Vehicle-Miles of Travel (1000s)						
Freeway	20,675	20,185	20,185	20,070	19,350	19,310
Arterial Streets	12,970	12,970	12,980	12,890	12,840	12,725
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)	2.20	1.78	1.43	1.30	1.33	1.48
Diesel (\$/gallon)	2.36	1.80	1.39	1.25	1.40	1.41
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)	16,668	16,470	15,570	15,148	14,349	13,713
Rank	36	36	36	35	35	35
Fuel per Peak Auto Commuter (gallons)	16	17	15	16	15	13
Rank	58	46	58	42	47	56
Annual Delay						
Total Delay (1000s of person-hours)	35,580	35,157	33,238	32,336	30,630	29,273
Rank	35	33	33	33	33	34
Delay per Auto Commuter (pers-hrs)	37	37	35	35	35	34
Rank	48	47	53	51	45	49
Travel Time Index						
Rank	1.14	1.14	1.14	1.14	1.13	1.13
Rank	76	74	71	69	73	72
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	582	550	501	475	443	413
Rank	35	33	33	33	33	33
Cost per Auto Commuter (\$)	743	760	739	732	705	692
Rank	47	45	47	47	46	49
Truck Congestion						
Annual Person-Hours of Delay (000)	1,494	1,477	1,396	1,358	1,286	1,229
Rank	35	33	33	33	33	34
Annual Gallons of Wasted Fuel (000)	3,534	3,492	3,301	3,211	3,042	2,907
Rank	36	36	36	35	35	35
Annual Congestion Cost (\$ million)	56	52	46	43	40	37
Rank	35	33	33	33	33	33

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

Mobility Data for Kansas City MO-KS

Inventory Measures	1999	1998	1997	1996	1995	1994
Urban Area Information						
Population (1000s)	1,390	1,375	1,355	1,340	1,330	1,320
Rank	30	30	30	30	27	27
Commuters (1000s)	660	642	623	606	592	579
Daily Vehicle-Miles of Travel (1000s)						
Freeway	18,790	18,225	17,310	16,940	15,960	15,260
Arterial Streets	12,705	12,610	12,600	12,585	12,510	12,365
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)	1.02	1.01	1.06	1.22	1.04	0.95
Diesel (\$/gallon)	1.02	1.04	1.15	1.34	1.14	1.04
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)	13,562	12,604	11,826	11,143	10,765	10,396
Rank	34	34	35	35	33	32
Fuel per Peak Auto Commuter (gallons)	14	13	13	11	11	11
Rank	42	42	38	49	41	37
Annual Delay						
Total Delay (1000s of person-hours)	28,949	26,905	25,244	23,786	22,980	22,191
Rank	33	35	35	35	34	32
Delay per Auto Commuter (pers-hrs)	34	33	31	30	30	29
Rank	45	46	49	49	46	42
Travel Time Index						
Rank	1.13	1.13	1.12	1.12	1.11	1.11
Rank	70	66	69	67	68	63
Commuter Stress Index						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	390	355	329	305	285	268
Rank	33	35	35	35	34	32
Cost per Auto Commuter (\$)	707	671	640	617	615	613
Rank	43	44	42	43	36	32
Truck Congestion						
Annual Person-Hours of Delay (000)	1,216	1,130	1,060	999	965	932
Rank	33	35	35	35	34	32
Annual Gallons of Wasted Fuel (000)	2,875	2,672	2,507	2,362	2,282	2,204
Rank	34	34	35	35	33	32
Annual Congestion Cost (\$ million)	34	31	29	28	26	25
Rank	33	34	35	34	34	32

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Mobility Data for Kansas City MO-KS

Inventory Measures	1993	1992	1991	1990	1989	1988
Urban Area Information						
Population (1000s)	1,300	1,200	1,160	1,160	1,155	1,145
Rank	27	30	32	30	30	29
Commuters (1000s)	560	509	484	476	471	463
Daily Vehicle-Miles of Travel (1000s)						
Freeway	14,900	13,240	12,520	12,555	12,370	12,220
Arterial Streets	12,050	11,730	11,185	10,615	10,100	9,535
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)	0.98	0.96	1.01	0.98	1.11	1.02
Diesel (\$/gallon)	1.08	1.08	1.09	0.98	1.04	0.96
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)	9,754	8,788	8,148	7,698	7,021	6,403
Rank	31	31	31	31	31	30
Fuel per Peak Auto Commuter (gallons)	11	10	8	9	8	7
Rank	22	24	45	23	26	27
Annual Delay						
Total Delay (1000s of person-hours)	20,821	18,760	17,392	16,432	14,987	13,668
Rank	32	32	31	31	31	30
Delay per Auto Commuter (pers-hrs)	28	28	27	26	24	22
Rank	40	32	30	27	29	32
Travel Time Index						
Rank	54	49	51	46	48	48
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	246	215	195	177	155	135
Rank	32	32	31	31	31	31
Cost per Auto Commuter (\$)	589	547	523	516	497	477
Rank	31	35	31	31	33	36
Truck Congestion						
Annual Person-Hours of Delay (000)	874	788	730	690	629	574
Rank	32	32	31	31	31	30
Annual Gallons of Wasted Fuel (000)	2,068	1,863	1,727	1,632	1,488	1,357
Rank	31	31	31	31	31	30
Annual Congestion Cost (\$ million)	23	20	19	17	16	14
Rank	32	32	31	31	31	30

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Mobility Data for Kansas City MO-KS

Inventory Measures	1987	1986	1985	1984	1983	1982
Urban Area Information						
Population (1000s)	1,140	1,135	1,130	1,100	1,095	1,090
Rank	28	28	28	29	29	29
Commuters (1000s)	458	451	446	431	426	419
Daily Vehicle-Miles of Travel (1000s)						
Freeway	11,920	10,905	10,190	9,380	8,985	8,425
Arterial Streets	8,820	8,215	7,530	6,720	6,010	5,520
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)	1.03	1.00	1.31	1.33	1.36	1.42
Diesel (\$/gallon)	0.96	0.94	1.23	1.24	1.27	1.33
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)	5,715	4,763	4,064	3,460	3,253	2,960
Rank	31	34	34	36	36	37
Fuel per Peak Auto Commuter (gallons)	7	6	5	3	3	3
Rank	22	28	32	61	46	34
Annual Delay						
Total Delay (1000s of person-hours)	12,199	10,168	8,675	7,387	6,943	6,319
Rank	29	30	34	36	35	35
Delay per Auto Commuter (pers-hrs)	20	17	14	13	12	11
Rank	36	47	54	52	51	53
Travel Time Index						
Rank	44	57	54	57	55	61
Commuter Stress Index						
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)						
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	116	94	80	66	60	53
Rank	30	30	34	37	35	35
Cost per Auto Commuter (\$)	446	387	334	298	289	271
Rank	34	42	52	54	54	51
Truck Congestion						
Annual Person-Hours of Delay (000)	512	427	364	310	292	265
Rank	29	30	34	36	35	35
Annual Gallons of Wasted Fuel (000)	1,212	1,010	862	734	690	628
Rank	31	34	34	36	36	37
Annual Congestion Cost (\$ million)	12	10	9	7	7	6
Rank	30	30	32	37	34	35

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