Performance Measure Summary - Columbus OH

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2020. 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 2020 (estimated at \$20.17 per hour of person travel and \$55.24 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.

Annual Greenhouse Gases (CO2) Produced -Tons of CO2 produced from all vehicle travel.

Excess Greenhouse Gases (CO2) Produced due to Congestion-Tons of CO2 produced due to congested portion of travel. The excess CO2 is a subset of the total CO2 produced.

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	1,530	1,530	1,510	1,495	1,480	1,470
Rank	35	35	35	35	35	35
Commuters (1000s)	778	778	768	760	756	750
Daily Vehicle-Miles of Travel (1000s)						
Freeway	13,983	17,052	17,214	17,182	17,037	15,405
Arterial Streets	10,748	13,107	13,177	13,137	12,927	11,912
Cost Components						
Value of Time (\$/hour)	20.17	19.14	18.71	18.12	17.91	17.69
Commercial Cost (\$/hour)	55.24	61.03	54.71	52.14	50.20	46.87
Gasoline (\$/gallon)	2.20	2.78	2.70	2.29	2.17	2.18
Diesel (\$/gallon)	2.76	2.96	3.14	2.53	2.29	2.49
System Performance	2020	2019	2018	2017	2016	2015
Congested Travel (% of peak VMT)				24.6		
Congested System (% of lane-miles)				16.0		
Congested Time (number of "Rush Hours")				3.4		
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	11,007	19,677	19,274	19,364	19,138	18,786
Rank	36	36	37	35	36	37
Fuel per Peak Auto Commuter (gallons)	12	21	21	21	21	20
Rank	39	43	42	41	37	42
Annual Delay						
Total Delay (1000s of person-hours)	26,055	46,578	47,449	46,381	45,110	43,524
Rank	34	37	36	36	36	36
Delay per Auto Commuter (pers-hrs)	27	49	51	50	48	47
Rank	42	44	34	37	39	39
Travel Time Index	1.08	1.18	1.18	1.19	1.19	1.18
Rank	44	41	41	38	38	41
Commuter Stress Index	1.09	1.21	1.20	1.21		
Rank	44	44	47	41		
Freeway Planning Time Index (95th Pctile)		1.49	1.50	1.59		
Rank		43	44	40		
Congestion Cost						
Total Cost (\$ millions)	589	1,027	1,030	991	949	902
Rank	34	37	36	36	36	36
Cost per Auto Commuter (\$)	645	1,126	1,144	1,112	1,090	1,045
Rank	29	34	32	31	31	31
Truck Congestion						
Annual Person-Hours of Delay (000)	1,331	1,979	2,003	1,958	1,904	1,837
Rank	37	42	40	39	40	40
Annual Gallons of Wasted Fuel (000)	2,261	3,363	3,468	3,548	3,507	3,442
Rank	37	43	41	37	36	35
Annual Congestion Cost (\$ million)	71	117	110	104 39	97	89
Rank	37	41	40	39	39	39
Annual Greenhouse Gases (CO2) Produced	100.070	107.417		ı		
Excess Due to Congestion (tons)	109,872	196,416				
Rank Due to All Travel (tons)	36	36				
Due to All Travel (tons) Rank	3,852,227	6,886,553 30	 	 		
		30				
Truck Annual Greenhouse Gases (CO2) Produced	24.720	26 704		ı		
Excess Due to Truck Congestion (tons)	24,739	36,794				
Rank Due to Truck Travel (tons)	1 324 081	1 060 272				
Due to Truck Travel (tons)	1,324,081	1,969,272				
Rank	10	21				

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

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	1,455	1,440	1,410	1,390	1,370	1,330
Rank	36	36	36	37	36	36
Commuters (1000s)	740	747	731	719	707	684
Daily Vehicle-Miles of Travel (1000s)						
Freeway	15,674	16,182	15,245	16,466	16,000	15,300
Arterial Streets	11,872	11,241	9,855	10,872	10,500	10,300
Cost Components	11,072	11,211	7,033	10,072	10,500	10,500
Value of Time (\$/hour)	17.67	17.39	17.14	16.79	16.28	16.01
Commercial Cost (\$/hour)	44.82	41.23	39.66	44.62	42.50	41.83
Gasoline (\$/gallon)	3.16	3.48	3.58	3.25	2.64	2.19
Diesel (\$/gallon)	3.67	3.48	3.87	3.69	2.96	2.19
System Performance	2014	2013	2012	2011	2010	2009
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	18,448	18,186	17,648	16,653	16,390	15,760
Rank	37	37	38	38	38	38
Fuel per Peak Auto Commuter (gallons)	20	21	20	18	19	16
Rank	38	30	33	49	40	54
Annual Delay						
Total Delay (1000s of person-hours)	42,369	41,402	39,466	36,568	35,331	33,337
Rank	36	37	37	37	39	39
Delay per Auto Commuter (pers-hrs)	47	45	44	41	41	40
Rank	34	41	38	45	42	43
Travel Time Index	1.18	1.18	1.18	1.17	1.17	1.17
Rank	39	39	38	43	41	43
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	894	862	812	743	686	631
Rank	36	37	36	38	37	39
Cost per Auto Commuter (\$)	1,013	999	963	922	919	882
Rank	31	31	30	34	33	37
Truck Congestion		- '				
Annual Person-Hours of Delay (000)	1,788	1,748	1,666	1,543	1,492	1,407
Rank	40	40	40	40	41	41
Annual Gallons of Wasted Fuel (000)	3,380	3,332	3,234	3,051	3,003	2,887
Rank	36	36	36	3,031	3,003	39
Annual Congestion Cost (\$ million)	87	80	74	76	68	62
Rank	39	39	39	39	40	41
Annual Greenhouse Gases (CO2) Produced	37	37	37	37	70	71
Excess Due to Congestion (tons)				1	I	
- ' '						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced					1	
Excess Due to Truck Congestion (tons)						
Rank						
					I	
Due to Truck Travel (tons) Rank						

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

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	1,310	1,280	1,250	1,220	1,205	1,190
Rank	36	36	35	35	35	35
Commuters (1000s)	671	651	631	611	601	590
Daily Vehicle-Miles of Travel (1000s)						
Freeway	14,740	15,210	15,430	14,960	15,045	14,665
Arterial Streets	10,005	10,160	10,175	10,440	10,110	9,870
Cost Components						
Value of Time (\$/hour)	16.07	15.47	15.06	14.58	14.10	13.73
Commercial Cost (\$/hour)	40.77	39.30	37.88	36.51	35.19	33.92
Gasoline (\$/gallon)	3.40	2.88	2.58	2.24	1.81	1.52
Diesel (\$/gallon)	4.17	3.35	2.83	2.48	1.94	1.49
System Performance	2008	2007	2006	2005	2004	2003
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	16,239	16,044	15,871	15,437	15,043	14,614
Rank	38	38	36	37	37	37
Fuel per Peak Auto Commuter (gallons)	18	18	17	17	17	17
Rank	49	49	56	48	46	45
Annual Delay						
Total Delay (1000s of person-hours)	32,716	32,323	31,975	31,100	30,306	29,442
Rank	39	38	38	37	37	37
Delay per Auto Commuter (pers-hrs)	40	40	41	41	41	40
Rank	38	41	34	34	32	32
Travel Time Index	1.18	1.18	1.18	1.18	1.18	1.18
Rank	43	43	42	41	38	38
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	644	605	578	540	502	471
Rank	38	38	38	37	37	37
Cost per Auto Commuter (\$)	857	881	896	900	907	903
Rank	40	39	35	37	37	34
Truck Congestion						
Annual Person-Hours of Delay (000)	1,381	1,365	1,350	1,313	1,279	1,243
Rank	42	41	41	40	40	40
Annual Gallons of Wasted Fuel (000)	2,975	2,940	2,908	2,828	2,756	2,677
Rank	39	38	38	38	38	38
Annual Congestion Cost (\$ million)	65	60	56	52	47	43
Rank	42	41	40	40	40	39
Annual Greenhouse Gases (CO2) Produced					ı	
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced					I	
Excess Due to Truck Congestion (tons)						
Rank Due to Travel (Travel (tons)						
Due to Truck Travel (tons)						
Rank						

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

Inventory Measures	2002	2001	2000	1999	1998	1997	
Urban Area Information							
Population (1000s)	1,165	1,140	1,110	1,090	1,065	1,045	
Rank	36	36	36	37	38	38	
Commuters (1000s)	569	548	525	507	487	471	
Daily Vehicle-Miles of Travel (1000s)							
Freeway	13,900	13,400	12,000	11,650	11,500	11,315	
Arterial Streets	9,690	9,510	9,300	9,150	9,005	8,850	
Cost Components							
Value of Time (\$/hour)	13.43	13.22	12.85	12.43	12.17	11.98	
Commercial Cost (\$/hour)	32.69	31.51	30.38	29.28	28.89	28.50	
Gasoline (\$/gallon)	1.38	1.30	1.55	1.14	1.11	1.13	
Diesel (\$/gallon)	1.36	1.49	1.53	1.15	1.17	1.25	
System Performance	2002	2001	2000	1999	1998	1997	
Congested Travel (% of peak VMT)							
Congested System (% of lane-miles)							
Congested Time (number of "Rush Hours")							
Annual Excess Fuel Consumed							
Total Fuel (1000 gallons)	14,080	13,484	12,551	11,849	11,167	10,827	
Rank	36	36	35	35	36	35	
Fuel per Peak Auto Commuter (gallons)	16	16	15	14	12	13	
Rank	42	36	40	42	53	38	
Annual Delay							
Total Delay (1000s of person-hours)	28,365	27,165	25,284	23,872	22,499	21,812	
Rank	37	38	38	36	36	36	
Delay per Auto Commuter (pers-hrs)	40	40	38	37	36	36	
Rank	30	29	34	35	35	28	
Travel Time Index	1.18	1.18	1.17	1.17	1.16	1.16	
Rank	37	36	36	36	36	36	
Commuter Stress Index							
Rank							
Freeway Planning Time Index (95th Pctile)							
Rank							
Congestion Cost							
Total Cost (\$ millions)	442	415	379	341	315	301	
Rank	37	38	38	36	36	36	
Cost per Auto Commuter (\$)	889	865	827	807	778	767	
Rank	35	33	34	32	30	28	
Truck Congestion							
Annual Person-Hours of Delay (000)	1,198	1,147	1,067	1,008	950	921	
Rank	40	40	40	38	37	36	
Annual Gallons of Wasted Fuel (000)	2,580	2,471	2,300	2,171	2,046	1,984	
Rank	36	35	36	36	35	35	
Annual Congestion Cost (\$ million)	40	37	34	30	28	27	
Rank	40	40	39	37	37	36	
Annual Greenhouse Gases (CO2) Produced							
Excess Due to Congestion (tons)							
Rank							
Due to All Travel (tons)							
Rank							
Truck Annual Greenhouse Gases (CO2) Produced							
Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)							
Excess Due to Truck Congestion (tons) Rank	 	 	 	 	 		
Excess Due to Truck Congestion (tons)		 		 		 	

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

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	1,025	1,010	995	985	950	920
Rank	38	38	37	36	37	37
Commuters (1000s)	454	440	427	416	395	376
Daily Vehicle-Miles of Travel (1000s)						
Freeway	10,980	10,650	10,330	10,060	9,460	9,200
Arterial Streets	8,375	7,735	7,215	6,825	6,435	6,140
Cost Components						
Value of Time (\$/hour)	11.71	11.37	11.06	10.78	10.47	10.17
Commercial Cost (\$/hour)	28.12	27.75	27.38	27.02	26.66	26.30
Gasoline (\$/gallon)	1.28	1.12	1.08	1.09	1.11	1.13
Diesel (\$/gallon)	1.39	1.22	1.17	1.19	1.19	1.25
System Performance	1996	1995	1994	1993	1992	1991
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	10,148	9,577	9,244	8,634	7,772	6,854
Rank	35	35	34	34	34	34
Fuel per Peak Auto Commuter (gallons)	12	11	11	10	10	9
Rank	38	41	37	38	24	27
Annual Delay						
Total Delay (1000s of person-hours)	20,444	19,293	18,625	17,395	15,657	13,809
Rank	36	36	35	35	35	35
Delay per Auto Commuter (pers-hrs)	35	34	34	32	30	28
Rank	25	24	19	22	25	26
Travel Time Index	1.16	1.15	1.15	1.14	1.14	1.13
Rank	34	36	35	36	35	34
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	278	254	239	218	191	164
Rank	36	36	35	35	35	35
Cost per Auto Commuter (\$)	734	714	711	680	632	575
Rank	30	31	27	27	28	29
Truck Congestion				_		
Annual Person-Hours of Delay (000)	863	815	787	734	661	583
Rank	36	35	35	35	35	36
Annual Gallons of Wasted Fuel (000)	1,859	1,754	1,694	1,582	1,424	1,256
Rank	35	35	35	34	35	35
Annual Congestion Cost (\$ million)	25	23	22	20	18	16
Rank	36	35	34	34	35	35
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced						
Excess Due to Truck Congestion (tons)						
Rank						
D., 4. T., 1. T., 1 (4)						
Due to Truck Travel (tons)			I			

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

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	870	855	840	840	835	835
Rank	37	37	37	37	37	37
Commuters (1000s)	350	342	333	330	325	323
Daily Vehicle-Miles of Travel (1000s)						
Freeway	9,030	8,350	8,155	7,915	7,565	6,960
Arterial Streets	5,810	5,380	5,105	4,825	4,515	4,175
Cost Components						
Value of Time (\$/hour)	9.75	9.25	8.83	8.48	8.18	8.03
Commercial Cost (\$/hour)	25.95	25.60	25.26	24.93	24.60	24.27
Gasoline (\$/gallon)	1.06	1.08	1.00	1.00	0.98	1.28
Diesel (\$/gallon)	1.10	1.05	0.97	0.97	0.95	1.24
System Performance	1990	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)	6,091	5,598	5,276	4,980	4,507	4,269
Rank	35	36	36	34	33	32
Fuel per Peak Auto Commuter (gallons)	8	6	6	6	5	5
Rank	35	53	45	32	40	32
Annual Delay						
Total Delay (1000s of person-hours)	12,273	11,276	10,629	10,032	9,080	8,601
Rank	35	36	36	36	34	32
Delay per Auto Commuter (pers-hrs)	27	25	24	23	21	20
Rank	26	26	26	25	26	25
Travel Time Index	1.12	1.11	1.11	1.10	1.09	1.09
Rank	35	37	33	37	39	36
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	140	123	111	101	88	84
Rank	36	36	37	36	36	31
Cost per Auto Commuter (\$)	536	520	517	505	476	461
Rank	34	35	32	28	30	28
Truck Congestion						
Annual Person-Hours of Delay (000)	518	476	449	424	383	363
Rank	36	35	34	34	33	32
Annual Gallons of Wasted Fuel (000)	1,116	1,026	967	913	826	782
Rank	36	36	36	34	34	33
Annual Congestion Cost (\$ million) Rank	14 35	12 35	11 36	11 33	10 32	9 31
	33	33	30	33	32	31
Annual Greenhouse Gases (CO2) Produced				1	I	
Excess Due to Congestion (tons) Rank						
Nank Due to All Travel (tons)						
Rank						 -
Truck Annual Greenhouse Gases (CO2) Produced				1	I	
Excess Due to Truck Congestion (tons) Rank						
Rank Due to Truck Travel (tons)						
Rank						
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^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	835	835	835
Rank	37	37	36
Commuters (1000s)	321	318	315
Daily Vehicle-Miles of Travel (1000s)			
Freeway	6,805	6,550	6,200
Arterial Streets	3,835	3,420	3,010
Cost Components	3,033	3,120	3,010
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	23.94	23.63	23.31
Gasoline (\$/gallon)	1.29	1.32	1.38
Diesel (\$\(\frac{9}{2}\)gallon)	1.26	1.29	1.34
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)	4,133	3,946	3,465
Rank	30	30	30
Fuel per Peak Auto Commuter (gallons)	5	5	4
Rank	27	22	19
Annual Delay			
Total Delay (1000s of person-hours)	8,328	7,949	6,980
Rank	30	30	30
Delay per Auto Commuter (pers-hrs)	20	19	17
Rank	23	21	24
Travel Time Index	1.09	1.08	1.07
Rank	30	34	36
Commuter Stress Index			
Rank			
Freeway Planning Time Index (95th Pctile)			
Rank			
Congestion Cost		ĺ	
Total Cost (\$ millions)	79	72	62
Rank	29	29	31
Cost per Auto Commuter (\$)	463	463	416
Rank	26	24	26
Truck Congestion			
Annual Person-Hours of Delay (000)	351	336	295
Rank	30	30	30
Annual Gallons of Wasted Fuel (000)	757	723	635
Rank	32	30	31
Annual Congestion Cost (\$ million)	9	8	7
Rank	30	30	30
Annual Greenhouse Gases (CO2) Produced		Ì	
Excess Due to Congestion (tons)			
Rank			
Due to All Travel (tons)			
Rank			
Truck Annual Greenhouse Gases (CO2) Produced			
Excess Due to Truck Congestion (tons)			
Rank			
Due to Truck Travel (tons)			
Rank			

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