Performance Measure Summary - Toledo OH-MI

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)	515	515	515	515	520	520
Rank	78	78	78	78	78	78
Commuters (1000s)	263	263	263	263	265	265
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,668	4,446	4,390	4,362	4,230	4,124
Arterial Streets	3,872	4,693	4,711	4,748	4,801	4,623
Cost Components			,		,	
Value of Time (\$/hour)	20.17	19.14	18.71	18.12	17.91	17.69
Commercial Cost (\$/hour)	55.24	49.49	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)				9.7		2013
Congested Travel (% of lane-miles)				6.4		
Congested Time (number of "Rush Hours")				0.4		
,				0.7		
Annual Excess Fuel Consumed	1.067	4.075	4 100	4 127	4 254	4.107
Total Fuel (1000 gallons)	1,967	4,075	4,100	4,137	4,254	4,187
Rank	89	85	86	83	82	83
Fuel per Peak Auto Commuter (gallons)	10	21	21	21	20	20
Rank	59	43	42	41	47	42
Annual Delay						
Total Delay (1000s of person-hours)	5,328	11,042	11,407	11,427	11,172	10,901
Rank	84	82	82	80	80	79
Delay per Auto Commuter (pers-hrs)	19	39	40	40	38	37
Rank	82	82	77	75	79	79
Travel Time Index	1.07	1.13	1.13	1.14	1.14	1.14
Rank	57	83	82	79	79	79
Commuter Stress Index	1.08	1.14	1.14	1.15		
Rank	58	86	84	78		
Freeway Planning Time Index (95th Pctile)		1.15	1.16	1.21		
Rank		92	93	90		
Congestion Cost						
Total Cost (\$ millions)	120	238	247	243	236	226
Rank	85	83	82	80	80	79
Cost per Auto Commuter (\$)	393	779	809	799	785	764
Rank	81	76	68	67	66	65
Truck Congestion						
Annual Person-Hours of Delay (000)	272	490	500	511	547	533
Rank	83	85	82	83	80	79
Annual Gallons of Wasted Fuel (000)	414	747	785	804	837	824
Rank	88	88	88	86	85	85
Annual Congestion Cost (\$ million)	14	24	27	27	27	25
Rank	84	86	83	83	81	81
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)	19,663	40,748				
Rank	89	86				
Due to All Travel (tons)	973,893	2,018,239				
Rank	81	79				
Truck Annual Greenhouse Gases (CO2) Produced						
Truck Annual Greenhouse Gases (CO2) Froduced			ı İ			
Excess Due to Truck Congestion (tons)	4,551	8,206				
· · · · ·	4,551 88	8,206 88				
Excess Due to Truck Congestion (tons)				 		

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

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	525	525	520	520	520	520
Rank	77	77	75	75	75	74
Commuters (1000s)	270	275	273	272	271	270
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,206	4,165	3,770	4,013	4,021	3,900
Arterial Streets	4,488	4,547	4,055	4,344	4,352	4,336
Cost Components						
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	3.91	3.87	3.69	2.96	2.58
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)	4,096	4,018	3,920	3,845	3,702	3,586
Rank	83	83	83	83	84	83
Fuel per Peak Auto Commuter (gallons)	19	19	19	20	20	17
Rank	47	45	42	32	29	43
Annual Delay						
Total Delay (1000s of person-hours)	10,570	10,188	9,850	9,401	8,967	8,523
Rank	80	80	80	80	80	80
Delay per Auto Commuter (pers-hrs)	36	36	36	33	33	33
Rank	78	78	72	81	77	77
Travel Time Index	1.14	1.14	1.15	1.15	1.14	1.14
Rank	78	76	69	67	71	72
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	223	212	202	191	174	162
Rank	80	80	80	80	80	81
Cost per Auto Commuter (\$)	735	715	701	690	678	658
Rank	66	67	65	67	72	72
Truck Congestion						
Annual Person-Hours of Delay (000)	518	499	482	460	439	417
Rank	79	79	79	80	81	81
Annual Gallons of Wasted Fuel (000)	806	790	771	756	728	705
Rank	85	85	85	84	84	86
Annual Congestion Cost (\$ million)	25	22	21	22	20	18
Rank	79	80	79	80	80	81
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	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	520	520	520	520	520	520
Rank	73	72	72	69	69	69
Commuters (1000s)	269	268	266	264	263	261
Daily Vehicle-Miles of Travel (1000s)					Ì	
Freeway	3,805	4,025	4,125	4,090	4,155	4,115
Arterial Streets	4,465	4,855	5,040	4,920	4,930	4,785
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)	3,762	3,681	3,564	3,423	3,353	3,267
Rank	83	83	84	83	82	80
Fuel per Peak Auto Commuter (gallons)	19	19	19	17	17	17
Rank	37	40	36	48	46	45
Annual Delay						
Total Delay (1000s of person-hours)	8,517	8,334	8,069	7,750	7,590	7,396
Rank	81	81	81	81	80	80
Delay per Auto Commuter (pers-hrs)	31	32	33	33	32	32
Rank	78	77	73	71	73	69
Travel Time Index	1.14	1.15	1.15	1.15	1.15	1.15
Rank	76	69	69	68	64	62
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	167	156	146	134	126	118
Rank	82	82	82	81	80	80
Cost per Auto Commuter (\$)	648	661	657	651	661	661
Rank	74	73	73	72	69	69
Truck Congestion						
Annual Person-Hours of Delay (000)	417	408	395	379	372	362
Rank	81	80	79	79	77	75
Annual Gallons of Wasted Fuel (000)	740	724	701	673	660	642
Rank	85	85	85	86	85	82
Annual Congestion Cost (\$ million)	19	17	16	15	13	12
Rank	81	81	79	78	78	75
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	 	 	 	 		

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

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	510	505	500	495	495	495
Rank	69	69	69	69	69	69
Commuters (1000s)	253	248	242	237	234	231
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,090	4,095	4,025	3,805	3,745	3,590
Arterial Streets	4,725	4,665	4,610	4,550	4,480	4,430
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)	3,160	3,076	2,967	2,899	2,862	2,784
Rank	80	79	77	77	75	75
Fuel per Peak Auto Commuter (gallons)	16	16	15	15	14	15
Rank	42	36	40	32	31	17
Annual Delay						
Total Delay (1000s of person-hours)	7,153	6,964	6,718	6,564	6,481	6,303
Rank	78	76	75	74	73	73
Delay per Auto Commuter (pers-hrs)	31	31	31	30	30	30
Rank	72	68	65	65	61	56
Travel Time Index	1.15	1.15	1.14	1.14	1.14	1.14
Rank	58	55	62	58	53	46
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	112	107	101	94	91	87
Rank	77	76	75	74	73	73
Cost per Auto Commuter (\$)	654	643	639	644	653	642
Rank	68	65	60	60	55	48
Truck Congestion						
Annual Person-Hours of Delay (000)	350	340	328	321	317	308
Rank	75	75	74	73	71	71
Annual Gallons of Wasted Fuel (000)	621	605	584	570	563	548
Rank	81	80	79	74	73	73
Annual Congestion Cost (\$ million)	11	11	10	9	9	9
Rank	75	74	74	73	71	71
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) Rank						

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

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	495	495	490	490	490	490
Rank	66	66	66	65	64	64
Commuters (1000s)	228	225	220	217	215	212
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,380	3,305	3,295	3,095	2,950	2,770
Arterial Streets	4,425	4,000	3,560	3,120	2,800	2,650
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)	2,687	2,508	2,368	2,190	2,037	1,922
Rank	75	75	75	74	74	74
Fuel per Peak Auto Commuter (gallons)	14	14	13	12	11	11
Rank	18	15	15	16	16	13
Annual Delay	10	13	13	10	10	13
Total Delay (1000s of person-hours)	6,084	5,678	5,360	4,958	4,612	4,351
Rank	72	72	72	71	71	71
Delay per Auto Commuter (pers-hrs)	29	27	26	24	23	22
Rank	54	57	55	58	58	53
Travel Time Index						
Rank	1.13	1.13	1.12	1.11	1.11	1.10 51
Commuter Stress Index	50	47	50	52	49	31
Rank					 	
Freeway Planning Time Index (95th Pctile)					 	
Rank						
Congestion Cost						
Total Cost (\$ millions)	83	75	69	62	56	52
Rank	72	72	72	71	71	71
Cost per Auto Commuter (\$)	636	614	594	565	543	525
Rank	47	44	43	44	44	44
Truck Congestion			.5			
Annual Person-Hours of Delay (000)	298	278	263	243	226	213
Rank	71	71	71	71	68	68
Annual Gallons of Wasted Fuel (000)	529	493	466	431	400	378
Rank	73	73	73	73	73	73
Annual Congestion Cost (\$ million)	9	8	7	7	6	6
Rank	67	69	69	66	67	65
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		 	 		 	
Due to Truck Travel (tons)		 			 	
Rank				<u></u>		
Ruin			_ 			

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

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	490	490	490	490	490	490
Rank	64	63	62	61	59	57
Commuters (1000s)	209	207	206	204	203	201
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,810	2,725	2,615	2,805	2,535	2,785
Arterial Streets	2,550	2,505	2,435	2,395	2,110	2,015
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)	1,809	1,692	1,597	1,473	1,360	1,258
Rank	74	71	69	70	70	69
Fuel per Peak Auto Commuter (gallons)	10	8	9	8	8	6
Rank	14	26	13	18	14	22
Annual Delay						
Total Delay (1000s of person-hours)	4,096	3,831	3,616	3,335	3,079	2,848
Rank	70	68	68	67	67	67
Delay per Auto Commuter (pers-hrs)	21	19	18	17	16	15
Rank	52	55	52	51	52	50
Travel Time Index	1.10	1.09	1.09	1.08	1.07	1.07
Rank	47	49	44	45	49	48
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	47	42	38	34	30	28
Rank	69	68	68	67	66	66
Cost per Auto Commuter (\$)	517	509	507	490	466	444
Rank	41	36	34	30	32	31
Truck Congestion						
Annual Person-Hours of Delay (000)	200	188	177	163	150	139
Rank	67	66	66	66	64	63
Annual Gallons of Wasted Fuel (000)	356	333	314	289	268	247
Rank	70	70	70	70	71	71
Annual Congestion Cost (\$ million)	5	5	4	4	4	3
Rank	67	61	66	61	58	64
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						
Due to Truck Travel (tons)						
Rank						

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

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	485	485	485
Rank	57	58	58
Commuters (1000s)	197	196	194
Daily Vehicle-Miles of Travel (1000s)			
Freeway	2,660	2,675	2,330
Arterial Streets	1,905	1,810	1,770
Cost Components			
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 (\$/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)	1,225	1,088	993
Rank	67	68	67
Fuel per Peak Auto Commuter (gallons)	7	5	4
Rank	12	22	19
Annual Delay			
Total Delay (1000s of person-hours)	2,772	2,465	2,247
Rank	65	64	65
Delay per Auto Commuter (pers-hrs)	14	13	12
Rank	48	49	47
Travel Time Index	1.07	1.06	1.06
Rank	42	45	42
Commuter Stress Index			
Rank			
Freeway Planning Time Index (95th Pctile)			
Rank			
Congestion Cost			
Total Cost (\$ millions)	26	23	20
Rank	64	64	64
Cost per Auto Commuter (\$)	451	416	392
Rank	29	29	30
Truck Congestion			
Annual Person-Hours of Delay (000)	136	121	110
Rank	60	61	62
Annual Gallons of Wasted Fuel (000)	241	214	195
Rank	67	69	67
Annual Congestion Cost (\$ million)	3	3	3
Rank	58	54	50
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			
Due to Truck Travel (tons)			
Rank			

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