

Performance Measure Summary - Wichita KS

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.

Mobility Data for Wichita KS

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	505	505	510	515	515	515
Rank	79	79	79	78	79	79
Commuters (1000s)	278	278	281	284	284	284
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,955	4,375	4,427	4,428	4,326	4,335
Arterial Streets	2,383	2,636	2,694	3,069	3,060	3,030
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)	2.13	2.42	2.68	2.23	2.04	2.17
Diesel (\$/gallon)	2.54	2.76	3.10	2.43	2.20	2.42
System Performance	2020	2019	2018	2017	2016	2015
Congested Travel (% of peak VMT)	--	--	--	3.2	--	--
Congested System (% of lane-miles)	--	--	--	4.7	--	--
Congested Time (number of "Rush Hours")	--	--	--	1.0	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,766	4,021	4,168	4,269	4,236	4,201
Rank	82	87	85	82	83	82
Fuel per Peak Auto Commuter (gallons)	11	15	16	16	16	16
Rank	51	91	79	77	76	73
Annual Delay						
Total Delay (1000s of person-hours)	7,423	10,790	10,911	11,079	10,773	10,498
Rank	78	84	83	81	81	81
Delay per Auto Commuter (pers-hrs)	25	36	36	36	35	34
Rank	55	87	88	89	88	89
Travel Time Index	1.09	1.13	1.13	1.14	1.14	1.14
Rank	40	83	82	79	79	79
Commuter Stress Index	1.09	1.14	1.14	1.15	--	--
Rank	44	86	84	78	--	--
Freeway Planning Time Index (95th Pctile)	--	1.24	1.24	1.26	--	--
Rank	--	83	80	82	--	--
Congestion Cost						
Total Cost (\$ millions)	164	230	236	236	226	217
Rank	78	84	83	83	83	82
Cost per Auto Commuter (\$)	377	526	535	531	520	505
Rank	84	98	97	97	96	96
Truck Congestion						
Annual Person-Hours of Delay (000)	303	426	449	487	474	462
Rank	80	88	87	84	84	83
Annual Gallons of Wasted Fuel (000)	545	766	803	892	886	878
Rank	80	87	87	83	82	81
Annual Congestion Cost (\$ million)	16	21	25	26	24	22
Rank	80	88	87	84	84	83
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)	27,700	40,265	--	--	--	--
Rank	82	87	--	--	--	--
Due to All Travel (tons)	1,026,892	1,492,695	--	--	--	--
Rank	79	85	--	--	--	--
Truck Annual Greenhouse Gases (CO2) Produced						
Excess Due to Truck Congestion (tons)	6,008	8,445	--	--	--	--
Rank	80	87	--	--	--	--
Due to Truck Travel (tons)	262,026	368,304	--	--	--	--
Rank	78	82	--	--	--	--

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

Mobility Data for Wichita KS

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	510	510	510	510	510	500
Rank	79	79	79	76	76	77
Commuters (1000s)	282	281	276	274	272	265
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,201	4,070	4,215	4,558	4,500	4,300
Arterial Streets	3,052	5,058	4,840	4,805	4,796	5,050
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)	3.24	3.42	3.38	3.30	2.61	2.19
Diesel (\$/gallon)	3.57	3.81	3.86	3.64	2.89	2.45
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)	4,172	4,102	4,065	3,973	3,837	3,662
Rank	82	82	82	82	82	82
Fuel per Peak Auto Commuter (gallons)	16	16	16	17	17	13
Rank	70	71	69	60	61	80
Annual Delay						
Total Delay (1000s of person-hours)	10,244	9,891	9,625	9,319	8,917	8,431
Rank	81	81	81	81	81	82
Delay per Auto Commuter (pers-hrs)	34	32	31	30	29	28
Rank	85	85	86	85	85	85
Travel Time Index	1.14	1.14	1.15	1.14	1.14	1.14
Rank	78	76	69	75	71	72
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	216	205	197	189	173	159
Rank	82	82	82	81	81	82
Cost per Auto Commuter (\$)	488	477	468	468	464	445
Rank	95	94	94	94	94	94
Truck Congestion						
Annual Person-Hours of Delay (000)	450	435	424	410	392	371
Rank	84	84	84	84	84	84
Annual Gallons of Wasted Fuel (000)	872	857	850	830	802	766
Rank	80	80	80	80	81	82
Annual Congestion Cost (\$ million)	22	20	19	20	18	16
Rank	84	84	84	84	84	84
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	--	--	--	--	--	--

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Mobility Data for Wichita KS

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	490	475	465	455	445	440
Rank	77	77	77	77	77	74
Commuters (1000s)	257	248	242	235	228	224
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,175	4,215	4,195	4,075	3,915	3,740
Arterial Streets	5,205	5,330	5,290	5,065	4,950	4,885
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)	3.36	2.94	2.59	2.29	1.89	1.52
Diesel (\$/gallon)	4.12	3.42	2.88	2.48	1.93	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)	4,113	4,029	3,840	3,501	3,281	3,065
Rank	81	80	81	82	83	83
Fuel per Peak Auto Commuter (gallons)	17	18	18	16	15	14
Rank	61	49	47	58	65	69
Annual Delay						
Total Delay (1000s of person-hours)	9,017	8,832	8,417	7,675	7,193	6,719
Rank	80	80	80	82	82	82
Delay per Auto Commuter (pers-hrs)	27	28	28	28	29	29
Rank	86	85	85	85	83	81
Travel Time Index	1.14	1.15	1.15	1.16	1.16	1.15
Rank	76	69	69	57	55	62
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	176	165	152	133	119	107
Rank	79	79	80	82	82	82
Cost per Auto Commuter (\$)	472	479	469	443	428	412
Rank	94	94	94	95	94	93
Truck Congestion						
Annual Person-Hours of Delay (000)	397	389	370	338	316	296
Rank	82	83	83	84	84	84
Annual Gallons of Wasted Fuel (000)	860	842	802	732	686	640
Rank	79	80	80	81	83	83
Annual Congestion Cost (\$ million)	19	17	15	13	12	10
Rank	81	81	83	84	82	83
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	--	--	--	--	--	--

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Mobility Data for Wichita KS

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	435	430	425	415	410	405
Rank	74	74	74	73	73	73
Commuters (1000s)	219	214	209	201	197	192
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,635	3,535	3,405	3,270	3,070	2,845
Arterial Streets	4,820	4,765	4,700	4,640	4,600	4,535
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)	1.34	1.34	1.52	1.05	1.03	1.10
Diesel (\$/gallon)	1.32	1.49	1.46	1.07	1.07	1.20
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)	2,918	2,853	2,735	2,637	2,481	2,443
Rank	83	81	80	79	80	77
Fuel per Peak Auto Commuter (gallons)	12	13	11	12	10	10
Rank	78	63	74	64	73	66
Annual Delay						
Total Delay (1000s of person-hours)	6,396	6,253	5,994	5,780	5,438	5,357
Rank	81	81	80	78	78	74
Delay per Auto Commuter (pers-hrs)	29	28	28	28	27	28
Rank	80	81	76	72	71	63
Travel Time Index	1.15	1.14	1.14	1.14	1.13	1.14
Rank	58	66	62	58	63	46
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	99	96	89	82	76	74
Rank	81	81	80	78	77	76
Cost per Auto Commuter (\$)	403	399	393	393	377	378
Rank	93	92	90	89	87	87
Truck Congestion						
Annual Person-Hours of Delay (000)	281	275	264	255	239	235
Rank	84	81	80	78	78	77
Annual Gallons of Wasted Fuel (000)	610	597	571	551	519	511
Rank	84	81	80	78	77	75
Annual Congestion Cost (\$ million)	9	9	8	8	7	7
Rank	83	79	79	76	77	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	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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Mobility Data for Wichita KS

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	400	395	385	380	375	365
Rank	72	72	73	73	73	73
Commuters (1000s)	187	182	176	171	167	160
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,615	2,400	2,230	2,150	2,105	1,940
Arterial Streets	4,450	4,375	4,300	4,235	3,958	3,815
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)	1.22	1.09	1.01	1.08	1.02	1.04
Diesel (\$/gallon)	1.37	1.22	1.13	1.21	1.18	1.16
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)	2,339	2,226	2,139	2,034	1,946	1,836
Rank	77	76	76	75	75	75
Fuel per Peak Auto Commuter (gallons)	11	9	9	8	8	9
Rank	49	59	56	58	53	27
Annual Delay						
Total Delay (1000s of person-hours)	5,127	4,879	4,689	4,460	4,265	4,024
Rank	74	74	74	74	74	74
Delay per Auto Commuter (pers-hrs)	27	26	26	25	25	24
Rank	63	61	55	53	45	43
Travel Time Index	1.13	1.13	1.13	1.12	1.12	1.12
Rank	50	47	43	45	41	39
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	70	64	60	56	52	48
Rank	74	75	74	74	74	74
Cost per Auto Commuter (\$)	370	361	357	348	345	335
Rank	84	83	83	80	78	77
Truck Congestion						
Annual Person-Hours of Delay (000)	226	214	207	196	187	177
Rank	78	77	77	76	74	74
Annual Gallons of Wasted Fuel (000)	489	465	447	425	406	384
Rank	75	75	75	74	72	71
Annual Congestion Cost (\$ million)	7	6	6	5	5	5
Rank	75	76	74	76	73	70
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.

Mobility Data for Wichita KS

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	365	360	350	345	340	335
Rank	72	72	72	73	73	73
Commuters (1000s)	158	155	149	146	143	140
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,890	1,720	1,645	1,595	1,525	1,475
Arterial Streets	3,630	3,540	3,325	3,265	3,110	3,065
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)	1.03	1.11	1.02	1.03	1.00	1.31
Diesel (\$/gallon)	1.02	0.96	0.89	0.89	0.87	1.14
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)	1,689	1,511	1,275	1,208	1,139	1,064
Rank	75	75	76	79	75	73
Fuel per Peak Auto Commuter (gallons)	8	7	5	5	5	4
Rank	35	39	58	48	40	50
Annual Delay						
Total Delay (1000s of person-hours)	3,702	3,312	2,796	2,649	2,495	2,333
Rank	74	74	74	74	72	70
Delay per Auto Commuter (pers-hrs)	22	20	18	17	16	16
Rank	46	48	52	51	52	45
Travel Time Index	1.11	1.10	1.09	1.08	1.08	1.08
Rank	42	44	44	45	43	40
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	42	36	29	27	24	23
Rank	74	73	74	74	71	70
Cost per Auto Commuter (\$)	321	304	273	267	257	251
Rank	76	77	79	79	75	69
Truck Congestion						
Annual Person-Hours of Delay (000)	163	146	123	116	110	103
Rank	74	73	77	75	73	71
Annual Gallons of Wasted Fuel (000)	353	316	266	253	238	223
Rank	71	71	73	73	73	72
Annual Congestion Cost (\$ million)	4	4	3	3	3	3
Rank	71	68	71	68	67	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.

Mobility Data for Wichita KS

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	330	325	320
Rank	73	73	73
Commuters (1000s)	136	133	130
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,460	1,450	1,400
Arterial Streets	3,040	3,000	2,900
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	23.94	23.63	23.31
Gasoline (\$/gallon)	1.33	1.36	1.42
Diesel (\$/gallon)	1.15	1.18	1.23
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)	979	902	800
Rank	72	72	73
Fuel per Peak Auto Commuter (gallons)	4	5	2
Rank	41	22	55
Annual Delay			
Total Delay (1000s of person-hours)	2,147	1,978	1,753
Rank	70	70	71
Delay per Auto Commuter (pers-hrs)	15	14	13
Rank	45	44	44
Travel Time Index	1.07	1.07	1.06
Rank	42	40	42
Commuter Stress Index	--	--	--
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--
Rank	--	--	--
Congestion Cost			
Total Cost (\$ millions)	20	18	16
Rank	70	70	71
Cost per Auto Commuter (\$)	236	226	203
Rank	70	70	75
Truck Congestion			
Annual Person-Hours of Delay (000)	94	87	77
Rank	71	71	71
Annual Gallons of Wasted Fuel (000)	205	189	168
Rank	71	71	72
Annual Congestion Cost (\$ million)	2	2	2
Rank	71	68	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	--	--	--

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