

Performance Measure Summary - Columbia SC

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 Columbia SC

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	605	605	600	590	590	585
Rank	73	73	73	73	72	72
Commuters (1000s)	306	306	303	298	297	294
Daily Vehicle-Miles of Travel (1000s)						
Freeway	6,828	7,698	7,514	7,303	7,187	6,970
Arterial Streets	5,610	6,325	6,352	6,055	6,014	5,978
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)	2.08	2.33	2.59	2.09	1.96	1.98
Diesel (\$/gallon)	2.60	2.79	3.49	2.33	2.10	2.33
System Performance	2020	2019	2018	2017	2016	2015
Congested Travel (% of peak VMT)	--	--	--	13.7	--	--
Congested System (% of lane-miles)	--	--	--	1.8	--	--
Congested Time (number of "Rush Hours")	--	--	--	1.0	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,861	6,564	6,481	6,802	6,746	6,704
Rank	80	72	72	68	68	68
Fuel per Peak Auto Commuter (gallons)	8	18	18	19	19	19
Rank	82	69	64	55	53	50
Annual Delay						
Total Delay (1000s of person-hours)	7,362	16,893	16,387	16,331	16,061	15,687
Rank	80	69	69	68	67	67
Delay per Auto Commuter (pers-hrs)	19	44	43	44	44	44
Rank	82	64	65	59	53	49
Travel Time Index						
Rank	1.05	1.15	1.14	1.15	1.15	1.15
Commuter Stress Index						
Rank	85	72	76	69	69	67
Freeway Planning Time Index (95th Pctile)						
Rank	1.06	1.17	1.15	1.16	--	--
Congestion Cost						
Total Cost (\$ millions)	91	67	80	72	--	--
Rank	162	359	353	346	335	322
Cost per Auto Commuter (\$)	80	69	70	69	67	67
Rank	370	817	810	807	801	776
Rank	87	71	67	65	62	61
Truck Congestion						
Annual Person-Hours of Delay (000)	272	629	616	626	616	601
Rank	83	77	77	75	74	74
Annual Gallons of Wasted Fuel (000)	563	1,300	1,221	1,242	1,232	1,224
Rank	79	67	70	67	66	66
Annual Congestion Cost (\$ million)	15	31	35	33	31	29
Rank	81	78	76	75	74	72
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)	28,496	65,385	--	--	--	--
Rank	81	72	--	--	--	--
Due to All Travel (tons)	1,066,642	2,447,504	--	--	--	--
Rank	76	68	--	--	--	--
Truck Annual Greenhouse Gases (CO2) Produced						
Excess Due to Truck Congestion (tons)	6,186	14,291	--	--	--	--
Rank	79	67	--	--	--	--
Due to Truck Travel (tons)	229,241	529,580	--	--	--	--
Rank	81	72	--	--	--	--

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

Mobility Data for Columbia SC

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	585	575	565	555	545	530
Rank	72	72	73	73	73	73
Commuters (1000s)	293	293	288	282	276	268
Daily Vehicle-Miles of Travel (1000s)						
Freeway	6,588	5,846	5,790	6,106	6,056	5,900
Arterial Streets	5,926	5,270	5,150	5,174	5,132	5,125
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)	3.00	3.23	3.27	3.14	2.56	2.12
Diesel (\$/gallon)	3.43	3.70	3.72	3.53	2.80	2.39
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)	6,635	6,579	6,497	6,333	6,281	6,235
Rank	68	68	68	68	67	67
Fuel per Peak Auto Commuter (gallons)	19	18	18	18	18	17
Rank	47	54	52	49	46	43
Annual Delay						
Total Delay (1000s of person-hours)	15,392	15,128	14,674	14,046	13,675	13,322
Rank	67	66	67	67	65	64
Delay per Auto Commuter (pers-hrs)	43	43	42	41	41	41
Rank	49	46	46	45	42	38
Travel Time Index	1.16	1.16	1.15	1.15	1.15	1.16
Rank	58	55	69	67	65	55
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	322	312	299	283	264	250
Rank	67	67	67	67	67	66
Cost per Auto Commuter (\$)	758	753	738	731	732	727
Rank	61	59	59	62	62	61
Truck Congestion						
Annual Person-Hours of Delay (000)	589	579	562	538	524	511
Rank	73	73	72	74	73	72
Annual Gallons of Wasted Fuel (000)	1,212	1,202	1,186	1,157	1,146	1,139
Rank	66	66	67	68	68	66
Annual Congestion Cost (\$ million)	29	27	25	27	24	23
Rank	70	69	71	68	71	67
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 Columbia SC

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	515	500	480	465	450	440
Rank	74	74	76	76	75	74
Commuters (1000s)	259	250	239	230	221	215
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,730	5,895	5,770	5,635	5,300	5,075
Arterial Streets	5,125	5,180	5,035	4,940	4,900	4,805
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)	3.30	2.82	2.49	2.19	1.83	1.39
Diesel (\$/gallon)	4.00	3.20	2.68	2.35	1.84	1.42
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)	6,383	6,110	5,388	4,878	4,526	4,201
Rank	68	70	74	74	75	75
Fuel per Peak Auto Commuter (gallons)	19	19	17	15	14	13
Rank	37	40	56	64	71	74
Annual Delay						
Total Delay (1000s of person-hours)	12,988	12,434	10,964	9,926	9,210	8,549
Rank	65	68	73	74	74	75
Delay per Auto Commuter (pers-hrs)	41	41	38	35	34	32
Rank	35	36	45	59	60	69
Travel Time Index	1.17	1.16	1.15	1.14	1.14	1.13
Rank	51	59	69	73	71	75
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	254	231	197	171	152	136
Rank	66	69	74	74	74	75
Cost per Auto Commuter (\$)	703	698	632	590	566	543
Rank	60	64	78	84	86	86
Truck Congestion						
Annual Person-Hours of Delay (000)	497	476	421	381	353	328
Rank	73	74	78	78	81	81
Annual Gallons of Wasted Fuel (000)	1,165	1,115	984	891	826	767
Rank	68	71	74	74	75	75
Annual Congestion Cost (\$ million)	24	21	18	15	13	11
Rank	71	75	76	78	78	81
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 Columbia SC

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	425	420	415	410	405	395
Rank	75	75	75	75	75	75
Commuters (1000s)	205	199	194	189	184	176
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,820	4,600	4,500	4,215	4,035	3,840
Arterial Streets	4,720	4,610	4,530	4,400	4,290	4,210
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)	1.25	1.38	1.41	1.00	0.97	1.07
Diesel (\$/gallon)	1.26	1.39	1.37	1.01	1.05	1.16
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)	3,901	3,701	3,495	3,106	2,685	2,632
Rank	75	75	75	76	76	76
Fuel per Peak Auto Commuter (gallons)	12	11	11	10	8	8
Rank	78	78	74	77	83	79
Annual Delay						
Total Delay (1000s of person-hours)	7,937	7,531	7,111	6,320	5,463	5,356
Rank	74	74	74	75	77	75
Delay per Auto Commuter (pers-hrs)	31	30	29	27	23	24
Rank	72	71	71	74	83	76
Travel Time Index	1.13	1.12	1.12	1.11	1.09	1.10
Rank	75	78	77	78	83	80
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	122	115	106	90	76	74
Rank	74	74	74	75	77	76
Cost per Auto Commuter (\$)	515	492	482	443	392	389
Rank	88	87	84	85	86	85
Truck Congestion						
Annual Person-Hours of Delay (000)	304	288	273	242	209	205
Rank	80	79	78	80	81	81
Annual Gallons of Wasted Fuel (000)	712	676	638	567	490	481
Rank	73	73	73	75	79	78
Annual Congestion Cost (\$ million)	10	9	9	7	6	6
Rank	79	79	77	80	80	80
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 Columbia SC

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	385	370	355	340	340	335
Rank	75	75	76	77	75	75
Commuters (1000s)	169	160	151	143	141	136
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,655	3,615	3,280	3,135	2,955	2,740
Arterial Streets	4,055	3,950	3,850	3,800	3,795	3,750
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)	1.16	1.07	0.95	1.00	1.00	1.06
Diesel (\$/gallon)	1.26	1.16	1.03	1.08	1.09	1.15
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)	2,376	2,109	1,995	1,887	1,791	1,591
Rank	76	77	78	77	77	79
Fuel per Peak Auto Commuter (gallons)	8	6	6	5	6	4
Rank	76	85	84	82	69	85
Annual Delay						
Total Delay (1000s of person-hours)	4,834	4,291	4,060	3,840	3,645	3,238
Rank	76	78	78	76	77	77
Delay per Auto Commuter (pers-hrs)	22	21	21	21	20	18
Rank	79	78	75	71	67	72
Travel Time Index	1.09	1.08	1.08	1.08	1.08	1.07
Rank	79	84	80	77	75	80
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	65	56	52	48	44	38
Rank	77	78	78	76	77	77
Cost per Auto Commuter (\$)	359	328	320	307	306	281
Rank	86	88	87	86	85	85
Truck Congestion						
Annual Person-Hours of Delay (000)	185	164	156	147	140	124
Rank	81	81	81	81	81	82
Annual Gallons of Wasted Fuel (000)	434	385	364	345	327	290
Rank	79	81	82	80	80	82
Annual Congestion Cost (\$ million)	5	5	4	4	4	3
Rank	80	80	81	80	79	82
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 Columbia SC

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	335	330	330	325	325	320
Rank	75	74	74	74	74	74
Commuters (1000s)	134	131	130	127	126	123
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,655	2,500	2,485	2,215	1,800	1,655
Arterial Streets	3,715	3,630	3,550	3,520	3,410	3,380
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	1.08	1.00	1.00	0.98	1.28
Diesel (\$/gallon)	1.04	1.00	0.92	0.92	0.90	1.18
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)	1,561	1,495	1,273	1,233	1,078	993
Rank	76	77	77	76	78	78
Fuel per Peak Auto Commuter (gallons)	4	5	4	3	3	3
Rank	81	63	71	80	74	66
Annual Delay						
Total Delay (1000s of person-hours)	3,176	3,043	2,590	2,509	2,194	2,020
Rank	76	75	77	75	77	77
Delay per Auto Commuter (pers-hrs)	18	17	15	15	13	12
Rank	66	62	67	60	64	63
Travel Time Index	1.07	1.07	1.06	1.06	1.05	1.05
Rank	74	65	73	65	74	64
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost (\$ millions)	36	33	27	25	21	20
Rank	76	75	77	75	77	76
Cost per Auto Commuter (\$)	287	285	261	256	241	219
Rank	83	79	83	81	79	80
Truck Congestion						
Annual Person-Hours of Delay (000)	121	117	99	96	84	78
Rank	82	81	82	81	81	81
Annual Gallons of Wasted Fuel (000)	285	273	233	225	197	181
Rank	81	77	79	77	76	76
Annual Congestion Cost (\$ million)	3	3	3	2	2	2
Rank	81	76	71	81	76	73
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 Columbia SC

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	320	315	315
Rank	74	74	74
Commuters (1000s)	122	120	118
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,445	1,400	1,375
Arterial Streets	3,205	2,900	2,595
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)	1.19	1.22	1.28
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)	919	631	547
Rank	74	78	81
Fuel per Peak Auto Commuter (gallons)	4	2	2
Rank	41	69	55
Annual Delay			
Total Delay (1000s of person-hours)	1,870	1,285	1,113
Rank	74	81	82
Delay per Auto Commuter (pers-hrs)	11	8	7
Rank	64	76	82
Travel Time Index	1.05	1.03	1.03
Rank	57	80	76
Commuter Stress Index	--	--	--
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--
Rank	--	--	--
Congestion Cost			
Total Cost (\$ millions)	18	12	10
Rank	73	79	80
Cost per Auto Commuter (\$)	214	153	145
Rank	77	86	86
Truck Congestion			
Annual Person-Hours of Delay (000)	72	49	43
Rank	80	82	85
Annual Gallons of Wasted Fuel (000)	168	115	100
Rank	75	80	81
Annual Congestion Cost (\$ million)	2	1	1
Rank	71	79	78
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.