Performance Measure Summary - Greensboro NC

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 Greensboro NC

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	340	340	335	330	330	330
Rank	94	94	94	94	94	94
Commuters (1000s)	172	172	170	167	167	167
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,609	6,484	6,277	5,955	5,638	5,399
Arterial Streets	3,342	3,864	4,185	3,980	3,757	3,682
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 ($/gallon)	2.19	2.43	2.71	2.20	2.10	2.15
Diesel ($/gallon)	2.70	2.88	3.10	2.45	2.23	2.47
System Performance	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**
Congested Travel (% of peak VMT)	--	--	--	6.1	--	--
Congested System (% of lane-miles)	--	--	--	4.7	--	--
Congested Time (number of "Rush Hours")	--	--	--	0.5	--	--
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	2,193	3,173	3,037	2,977	2,967	2,921
Rank	87	92	93	93	92	92
Fuel per Peak Auto Commuter (gallons)	11	16	15	15	15	14
Rank	51	81	86	84	83	87
Annual Delay						
Total Delay (1000s of person-hours)	5,320	7,697	7,722	7,896	7,758	7,508
Rank	85	91	91	91	90	90
Delay per Auto Commuter (pers-hrs)	25	36	37	38	37	37
Rank	55	87	85	80	81	79
Travel Time Index	1.11	1.13	1.13	1.13	1.13	1.12
Rank	20	83	82	83	83	92
Commuter Stress Index	1.12	1.14	1.14	1.14	--	--
Rank	24	86	84	86	--	--
Freeway Planning Time Index (95th Pctile)	--	1.10	1.10	1.12	--	--
Rank	--	96	97	96	--	--
Congestion Cost						
Total Cost ($ millions)	119	166	168	168	162	155
Rank	86	91	90	90	90	90
Cost per Auto Commuter ($)	463	642	659	670	663	636
Rank	71	94	93	89	88	90
Truck Congestion						
Annual Person-Hours of Delay (000)	250	339	330	332	326	315
Rank	85	91	93	92	91	91
Annual Gallons of Wasted Fuel (000)	455	618	627	631	629	619
Rank	85	90	90	91	91	91
Annual Congestion Cost ($ million)	13	17	18	18	17	15
Rank	85	91	92	91	91	91
Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Congestion (tons)	21,996	31,826	--	--	--	--
Rank	87	92	--	--	--	--
Due to All Travel (tons)	1,376,022	1,990,950	--	--	--	--
Rank	69	80	--	--	--	--
Truck Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Truck Congestion (tons)	5,008	6,798	--	--	--	--
Rank	84	90	--	--	--	--
Due to Truck Travel (tons)	348,581	473,220	--	--	--	--
Rank	69	73	--	--	--	--

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

Mobility Data for Greensboro NC

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	330	330	330	325	325	320
Rank	94	94	93	94	93	93
Commuters (1000s)	167	170	170	168	167	164
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,286	4,477	4,535	4,583	4,450	4,350
Arterial Streets	3,512	3,086	3,260	3,178	3,120	2,800
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 ($/gallon)	3.20	3.44	3.49	3.32	2.70	2.24
Diesel ($/gallon)	3.58	3.89	3.89	3.64	2.93	2.53
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)	2,899	2,834	2,809	2,785	2,725	2,629
Rank	92	92	93	92	91	91
Fuel per Peak Auto Commuter (gallons)	14	14	14	14	13	12
Rank	87	85	82	79	84	83
Annual Delay						
Total Delay (1000s of person-hours)	7,385	7,092	6,969	6,785	6,517	6,169
Rank	90	90	90	89	89	90
Delay per Auto Commuter (pers-hrs)	35	35	34	34	32	32
Rank	80	79	79	78	81	80
Travel Time Index	1.12	1.11	1.11	1.10	1.10	1.09
Rank	92	96	94	99	98	99
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	155	147	142	137	126	116
Rank	90	90	91	90	90	90
Cost per Auto Commuter ($)	621	607	604	602	599	575
Rank	87	88	87	85	85	87
Truck Congestion						
Annual Person-Hours of Delay (000)	310	298	293	285	274	259
Rank	91	91	92	91	91	92
Annual Gallons of Wasted Fuel (000)	615	601	596	591	578	557
Rank	91	91	91	91	90	90
Annual Congestion Cost ($ million)	15	14	13	14	13	12
Rank	90	89	91	90	88	88
Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Congestion (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to All Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Truck Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Truck Congestion (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to Truck Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--

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Mobility Data for Greensboro NC

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	320	320	315	315	310	305
Rank	92	92	92	92	92	92
Commuters (1000s)	163	162	159	158	154	151
Daily Vehicle-Miles of Travel (1000s)						
Freeway	4,225	4,220	4,115	4,095	4,020	3,935
Arterial Streets	2,620	2,540	2,495	2,470	2,400	2,355
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 ($/gallon)	3.42	2.95	2.62	2.27	1.89	1.46
Diesel ($/gallon)	4.11	3.33	2.80	2.44	1.90	1.47
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)	2,749	2,710	2,559	2,539	2,518	2,417
Rank	92	91	92	91	90	90
Fuel per Peak Auto Commuter (gallons)	14	14	13	13	13	13
Rank	80	81	81	81	80	74
Annual Delay						
Total Delay (1000s of person-hours)	6,144	6,057	5,719	5,674	5,626	5,401
Rank	89	90	90	90	89	88
Delay per Auto Commuter (pers-hrs)	31	31	30	30	30	29
Rank	78	81	83	82	81	81
Travel Time Index	1.10	1.10	1.09	1.09	1.09	1.09
Rank	97	97	99	98	98	98
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	120	113	103	98	93	86
Rank	90	91	91	90	89	89
Cost per Auto Commuter ($)	572	583	569	581	594	583
Rank	84	86	87	85	83	82
Truck Congestion						
Annual Person-Hours of Delay (000)	258	254	240	238	236	227
Rank	91	91	92	92	89	89
Annual Gallons of Wasted Fuel (000)	583	575	542	538	534	512
Rank	91	90	90	89	89	89
Annual Congestion Cost ($ million)	12	11	10	9	9	8
Rank	90	89	90	91	88	88
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 Greensboro NC

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	295	290	280	275	265	260
Rank	93	93	93	93	93	93
Commuters (1000s)	144	139	133	128	122	118
Daily Vehicle-Miles of Travel (1000s)						
Freeway	3,810	3,705	3,555	3,345	3,280	3,065
Arterial Streets	2,350	2,340	2,365	2,415	2,345	2,405
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 ($/gallon)	1.33	1.43	1.46	1.05	1.02	1.14
Diesel ($/gallon)	1.32	1.47	1.44	1.06	1.12	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)	2,262	2,120	1,888	1,793	1,692	1,515
Rank	90	90	91	89	89	90
Fuel per Peak Auto Commuter (gallons)	12	11	9	10	9	7
Rank	78	78	84	77	79	86
Annual Delay						
Total Delay (1000s of person-hours)	5,055	4,737	4,218	4,007	3,781	3,387
Rank	88	88	88	88	87	90
Delay per Auto Commuter (pers-hrs)	29	27	26	25	25	23
Rank	80	82	81	82	76	77
Travel Time Index	1.09	1.09	1.08	1.08	1.08	1.07
Rank	96	94	97	96	89	93
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	78	72	63	57	53	47
Rank	88	89	88	89	87	89
Cost per Auto Commuter ($)	561	534	485	476	461	417
Rank	81	78	81	80	80	80
Truck Congestion						
Annual Person-Hours of Delay (000)	212	199	177	168	159	142
Rank	89	89	89	89	88	89
Annual Gallons of Wasted Fuel (000)	480	449	400	380	359	321
Rank	89	89	89	89	88	89
Annual Congestion Cost ($ million)	7	6	6	5	5	4
Rank	89	89	88	88	86	87
Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Congestion (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to All Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Truck Annual Greenhouse Gases (CO_2) 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 Greensboro NC

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	255	245	240	235	225	220
Rank	93	93	93	92	92	91
Commuters (1000s)	113	107	104	100	94	91
Daily Vehicle-Miles of Travel (1000s)						
Freeway	2,910	2,750	2,650	2,490	2,345	2,060
Arterial Streets	2,345	2,305	2,325	2,330	2,340	2,345
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 ($/gallon)	1.21	1.13	1.02	1.07	1.08	1.12
Diesel ($/gallon)	1.28	1.19	1.08	1.13	1.15	1.21
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)	1,430	1,340	1,241	1,063	882	708
Rank	91	91	91	91	92	92
Fuel per Peak Auto Commuter (gallons)	7	8	7	6	5	5
Rank	82	72	73	76	82	79
Annual Delay						
Total Delay (1000s of person-hours)	3,195	2,995	2,773	2,375	1,972	1,582
Rank	88	87	88	90	93	93
Delay per Auto Commuter (pers-hrs)	22	22	21	18	16	13
Rank	79	76	75	82	85	90
Travel Time Index	1.07	1.07	1.06	1.06	1.05	1.04
Rank	90	87	91	89	92	94
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	43	39	35	30	24	19
Rank	89	88	88	89	92	93
Cost per Auto Commuter ($)	402	393	370	324	278	236
Rank	81	79	80	85	86	91
Truck Congestion						
Annual Person-Hours of Delay (000)	134	126	116	100	83	66
Rank	88	87	87	90	92	92
Annual Gallons of Wasted Fuel (000)	303	284	263	225	187	150
Rank	87	87	87	87	90	92
Annual Congestion Cost ($ million)	4	4	3	3	2	2
Rank	86	84	86	85	90	88
Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Congestion (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to All Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Truck Annual Greenhouse Gases (CO_2) 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 Greensboro NC

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	215	205	200	195	190	185
Rank	91	92	92	92	92	93
Commuters (1000s)	87	83	80	77	75	72
Daily Vehicle-Miles of Travel (1000s)						
Freeway	1,985	1,775	1,675	1,610	1,560	1,480
Arterial Streets	2,315	2,300	2,295	2,315	2,305	2,205
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 ($/gallon)	1.08	1.08	1.00	1.00	0.98	1.28
Diesel ($/gallon)	1.07	0.98	0.91	0.91	0.89	1.16
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)	559	437	339	290	249	224
Rank	93	95	97	98	98	98
Fuel per Peak Auto Commuter (gallons)	4	3	2	1	1	1
Rank	81	85	87	93	91	90
Annual Delay						
Total Delay (1000s of person-hours)	1,248	977	758	648	556	501
Rank	95	95	97	97	98	98
Delay per Auto Commuter (pers-hrs)	11	9	7	6	6	5
Rank	90	92	95	98	97	97
Travel Time Index	1.03	1.03	1.02	1.02	1.02	1.02
Rank	96	95	98	96	96	96
Commuter Stress Index	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Congestion Cost						
Total Cost ($ millions)	14	11	8	6	5	5
Rank	95	95	97	97	98	97
Cost per Auto Commuter ($)	196	161	124	107	95	98
Rank	92	95	97	97	98	98
Truck Congestion						
Annual Person-Hours of Delay (000)	52	41	32	27	23	21
Rank	94	95	96	96	97	97
Annual Gallons of Wasted Fuel (000)	118	93	72	61	53	47
Rank	92	94	96	97	98	98
Annual Congestion Cost ($ million)	1	1	1	1	1	1
Rank	92	90	89	86	86	86
Annual Greenhouse Gases (CO_2) Produced						
Excess Due to Congestion (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Due to All Travel (tons)	--	--	--	--	--	--
Rank	--	--	--	--	--	--
Truck Annual Greenhouse Gases (CO_2) 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 Greensboro NC

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	180	175	170
Rank	93	93	92
Commuters (1000s)	70	67	65
Daily Vehicle-Miles of Travel (1000s)			
Freeway	1,350	1,310	1,275
Arterial Streets	2,195	2,170	2,100
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)	1.17	1.20	1.26
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)	217	212	200
Rank	98	98	95
Fuel per Peak Auto Commuter (gallons)	1	1	1
Rank	87	86	82
Annual Delay			
Total Delay (1000s of person-hours)	484	473	447
Rank	98	97	95
Delay per Auto Commuter (pers-hrs)	5	5	5
Rank	97	97	95
Travel Time Index	1.02	1.02	1.02
Rank	95	89	89
Commuter Stress Index	--	--	--
Rank	--	--	--
Freeway Planning Time Index (95th Pctile)	--	--	--
Rank	--	--	--
Congestion Cost			
Total Cost ($ millions)	5	4	4
Rank	96	97	94
Cost per Auto Commuter ($)	92	89	107
Rank	97	97	92
Truck Congestion			
Annual Person-Hours of Delay (000)	20	20	19
Rank	97	97	95
Annual Gallons of Wasted Fuel (000)	46	45	42
Rank	97	95	94
Annual Congestion Cost ($ million)	0	0	0
Rank	97	97	95
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.