

Composite Score Analysis

Results from several of the individual analyses were combined in an attempt to derive an overall assessment of the regional network. Separate metrics were developed for the ozone monitors and the fine particulate monitors. Analyses that were incorporated into the overall assessment were as follows: monitor-to-monitor correlations; design value for the 2006-2008 period; population served by the monitor; area covered by the monitor; total number of parameters measured at the site; and number of years. The standardized scores have a mean value of zero and a standard deviation of 1. Keep in mind that rankings are developed for the 6-state-region as a whole and each state may wish to include additional factors in evaluating the relative importance of monitors within the state, or give the various components more or less weight in a state-only evaluation.

For the correlation analysis, each monitor was given a standardized score based on its highest correlation with other monitors. Highest correlations are assigned the lowest scores, based on the assumption that monitors with lower correlations are conveying more unique information and thus are more valuable. These correlation rankings are shown graphically in Figures 1 and 2 and individual monitor rankings are given in Table 1. In a similar manner, standardized scores for design values were calculated for the same set of monitors, with separate scores for ozone, PM annual, and PM daily design values. Sites with the highest design values are given the highest scores, based on the assumption that these sites are essential for determining compliance with the National Ambient Air Quality Standards. These design value scores are shown in Figures 3, 4, and 5.

Figures 6 through 11 show the standardized scores for each monitored based on the population served by the monitor (more population = higher rank), the area covered by the monitor (larger area = higher rank), the total number of parameters measured at the site (more parameters = higher rank), and the number of years that the monitor has been collecting data (more years = higher rank). Each of these analyses is discussed separately in this document and so they are not discussed further here.

Finally, composite scores were calculated separately for ozone and PM monitors by averaging the standardized scores for correlation, design value, population, area, number of parameters, and number of years. These overall scores are presented in Figures 12 and 13. An additional plot for ozone is presented in Figure 14 that weights design values twice as much as any of the other factors. Because the PM_{2.5} overall score included both annual design values and daily design values, additional weighting for design value was not performed. Other weighting schemes may be preferred by individual states and can be easily implemented by adjusting the scores for each factor in Table 1 as desired. Note that the scores for area served, which ranks monitors higher for greater area, will naturally tend to value rural monitors most highly, because the rural network is sparse and each rural monitor is intended to represent a large area. In contrast, the scores for population served will tend to value urban monitors more highly, because they are sited in areas of greatest population density. To some extent, these two scores will cancel each other, although they are not perfect inverses. Weighting one or the other of these in particular may have a significant effect on the composite score

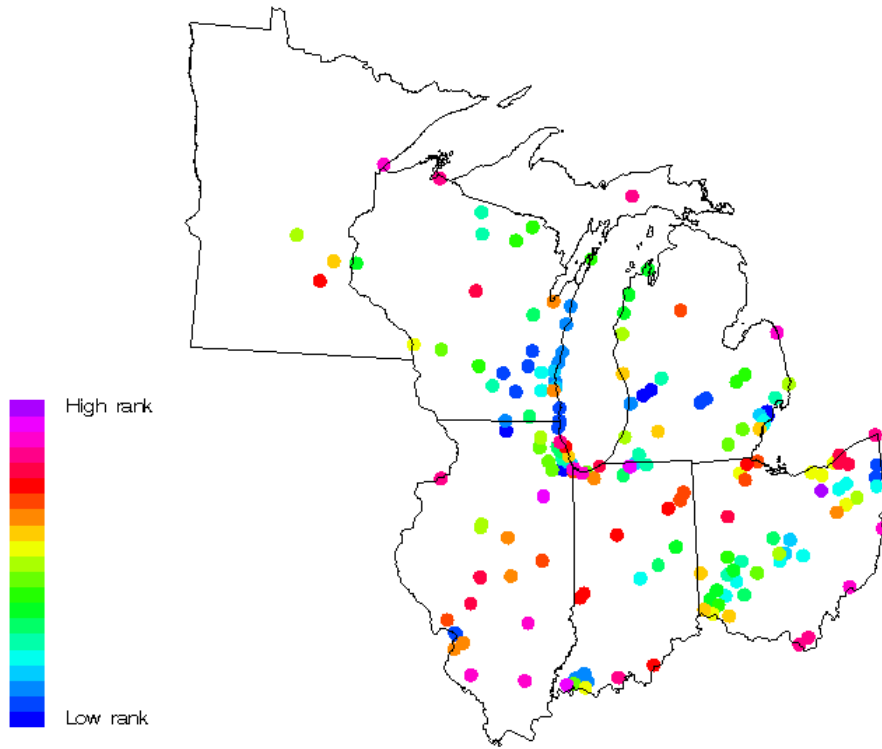


Figure 1. Ozone monitors ranked by monitor correlation (lower correlation = higher rank)

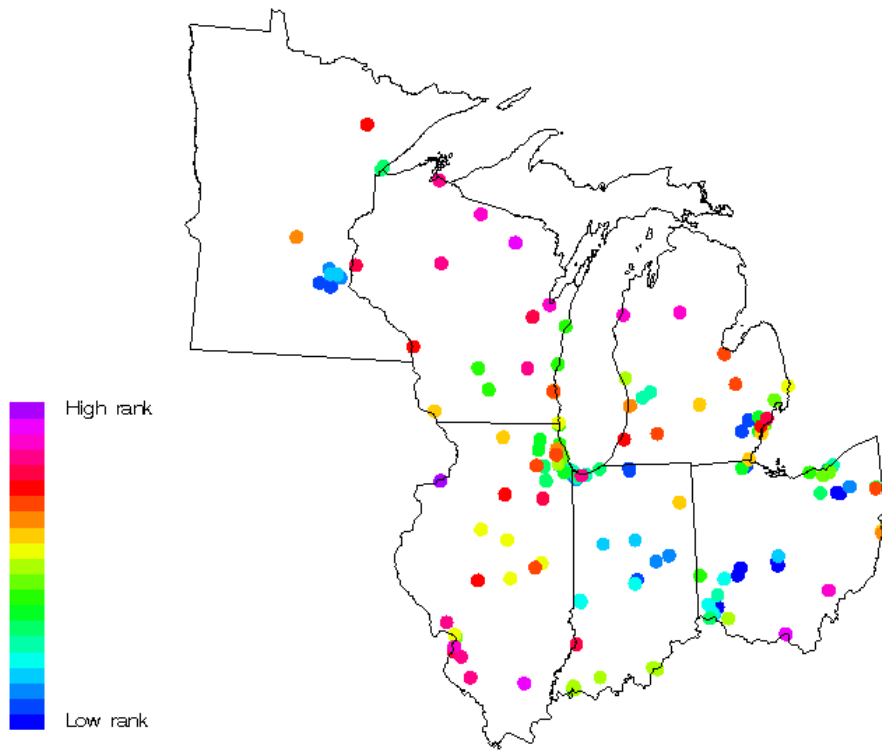


Figure 2. PM2.5 monitors ranked by monitor correlation (lower correlation = higher rank)

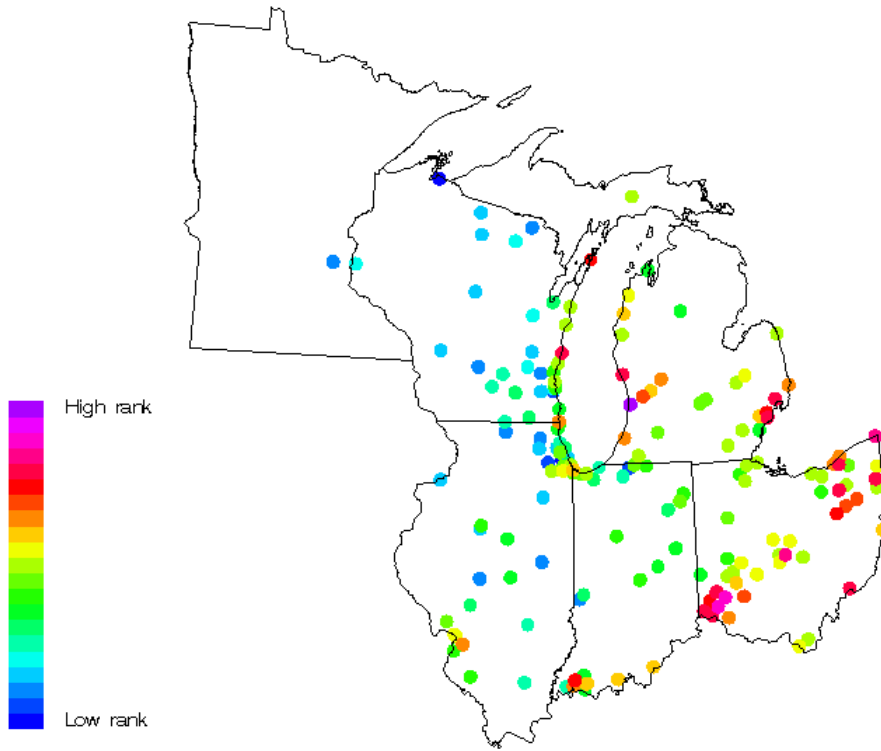


Figure 3. Ozone monitors ranked by design value

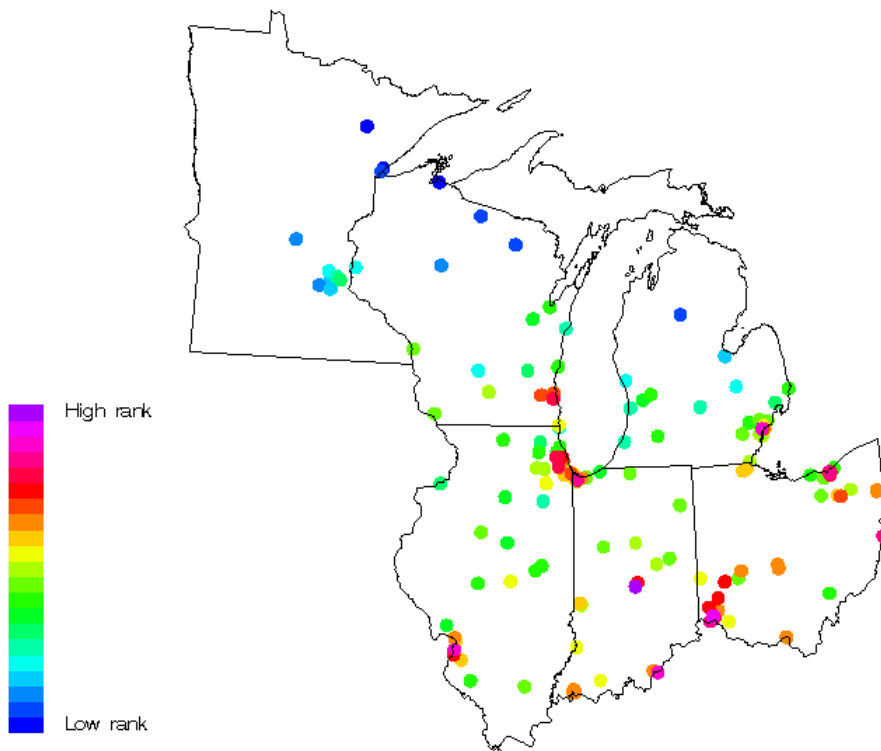


Figure 4. PM2.5 monitors ranked by annual design value

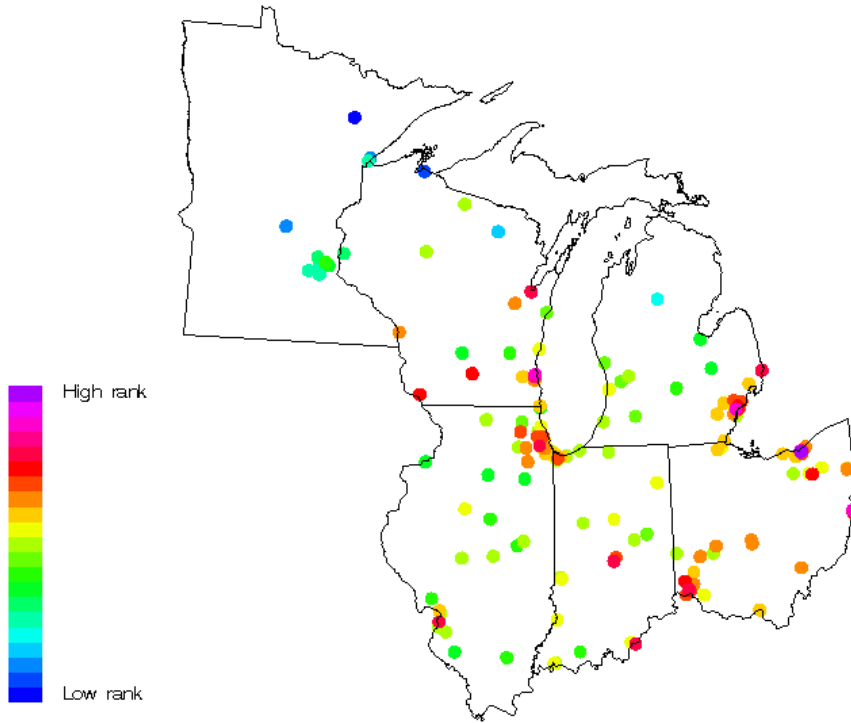


Figure 5. PM2.5 monitors ranked by daily design value

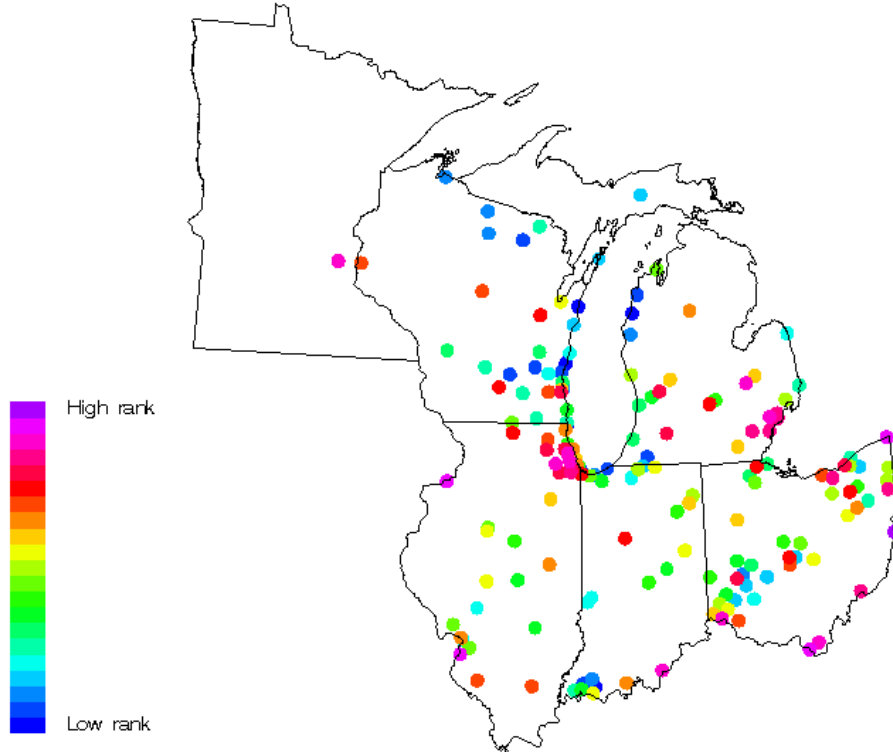


Figure 6. Ozone monitors ranked by population served

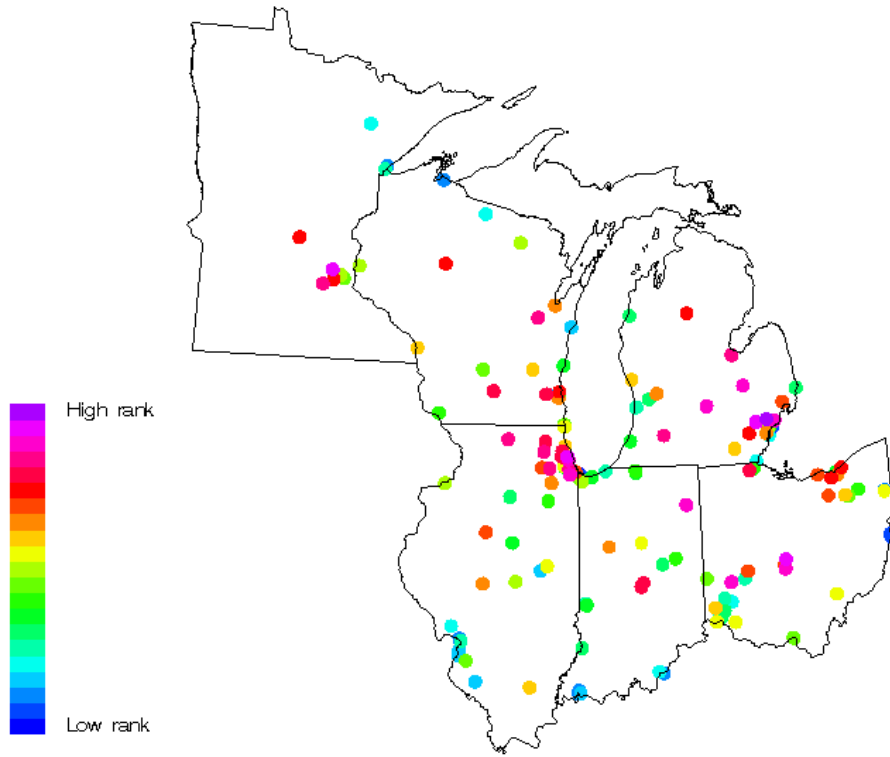


Figure 7. PM2.5 monitors ranked by population served

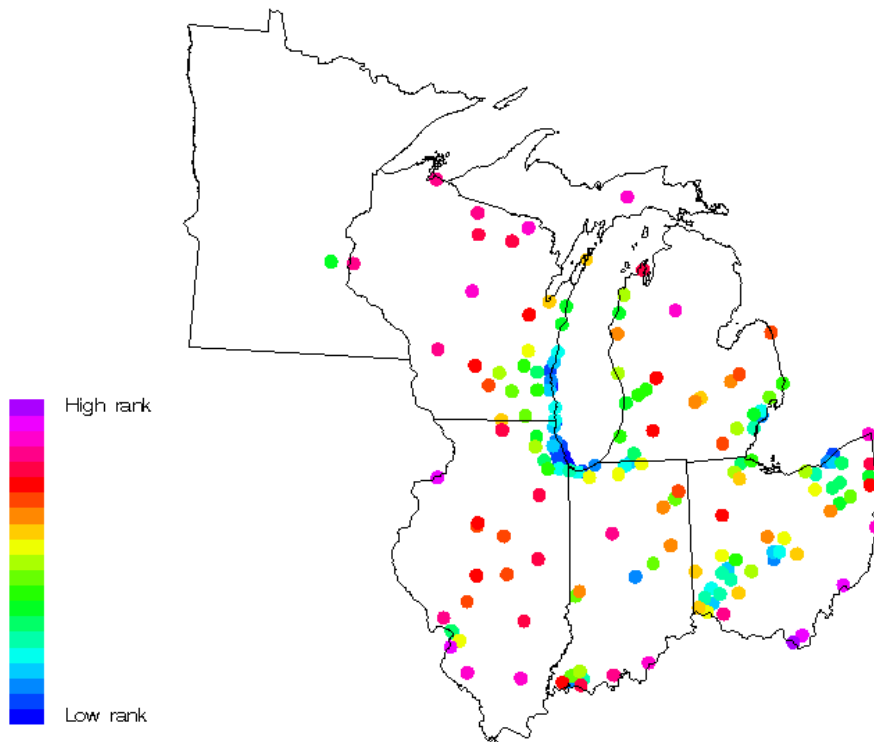


Figure 8. Ozone monitors ranked by area served

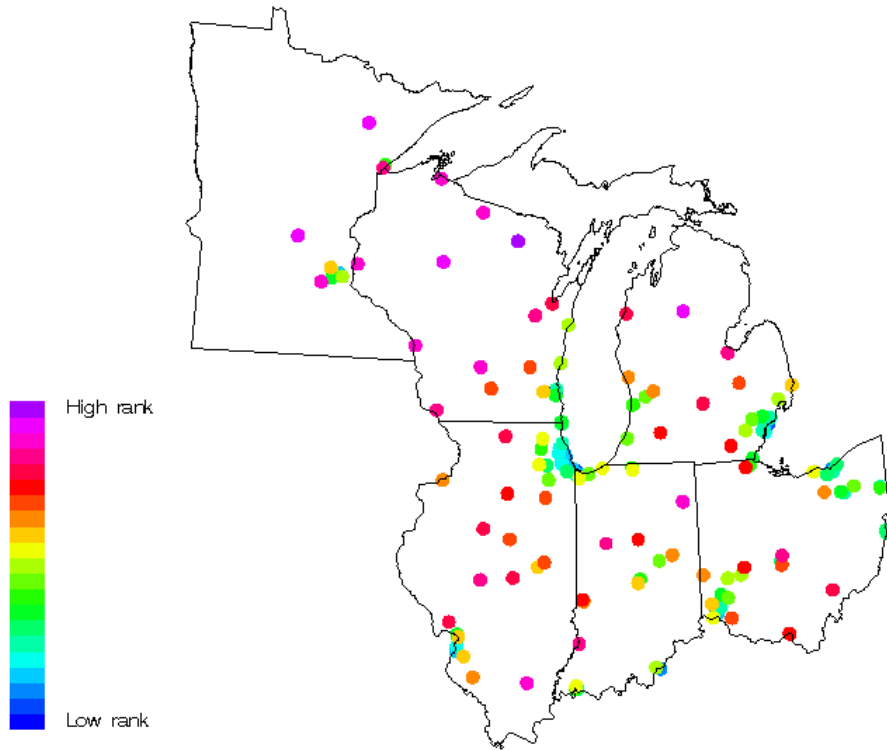


Figure 9. PM2.5 monitors ranked by area served

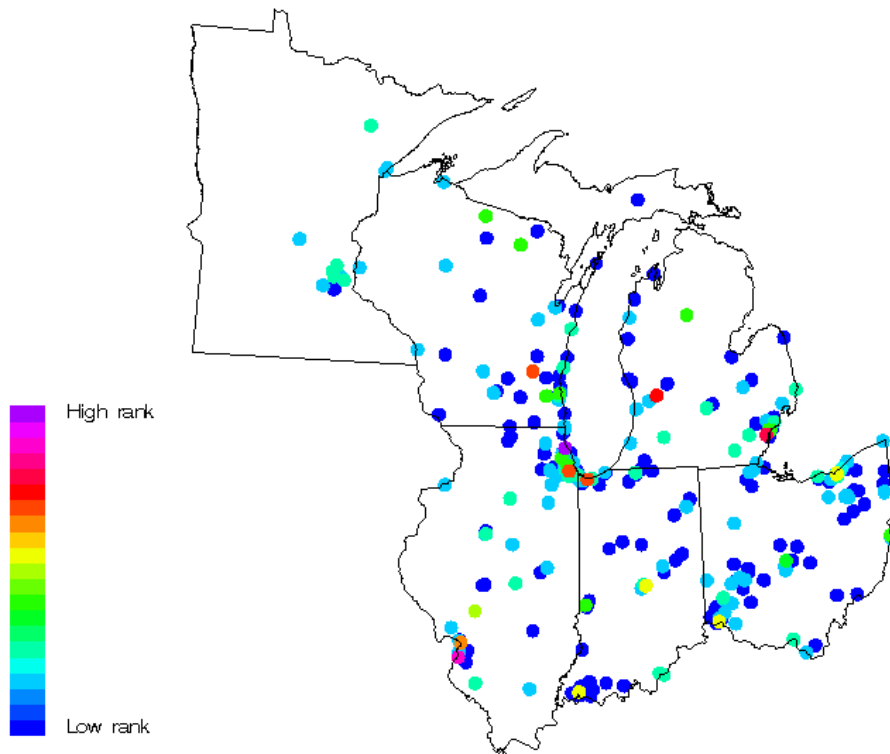


Figure 10. All monitors ranked by number of parameters

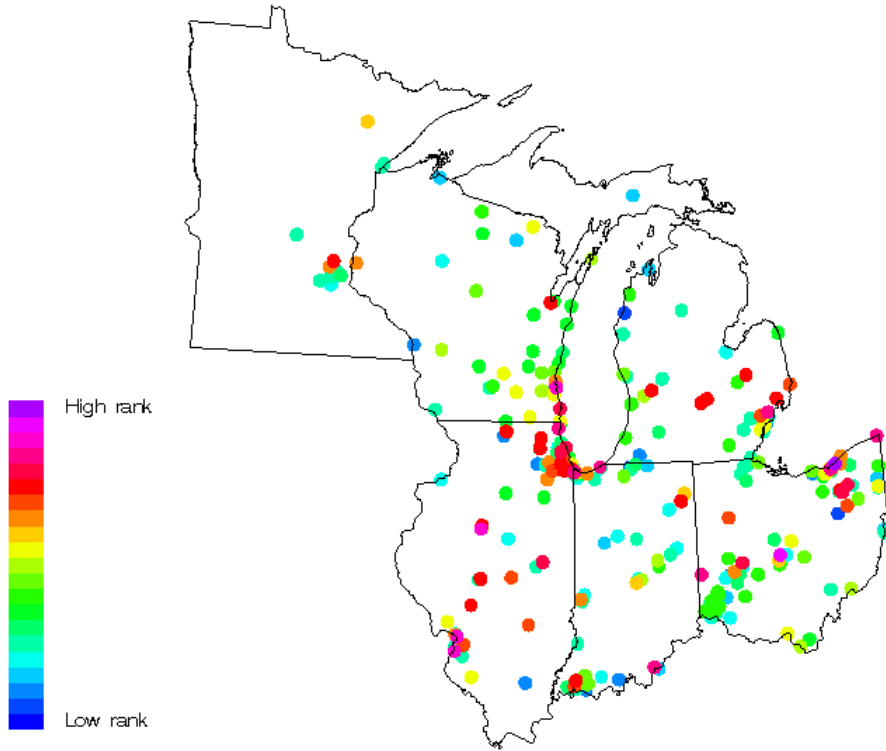


Figure 11. All monitors ranked by number of years site has operated

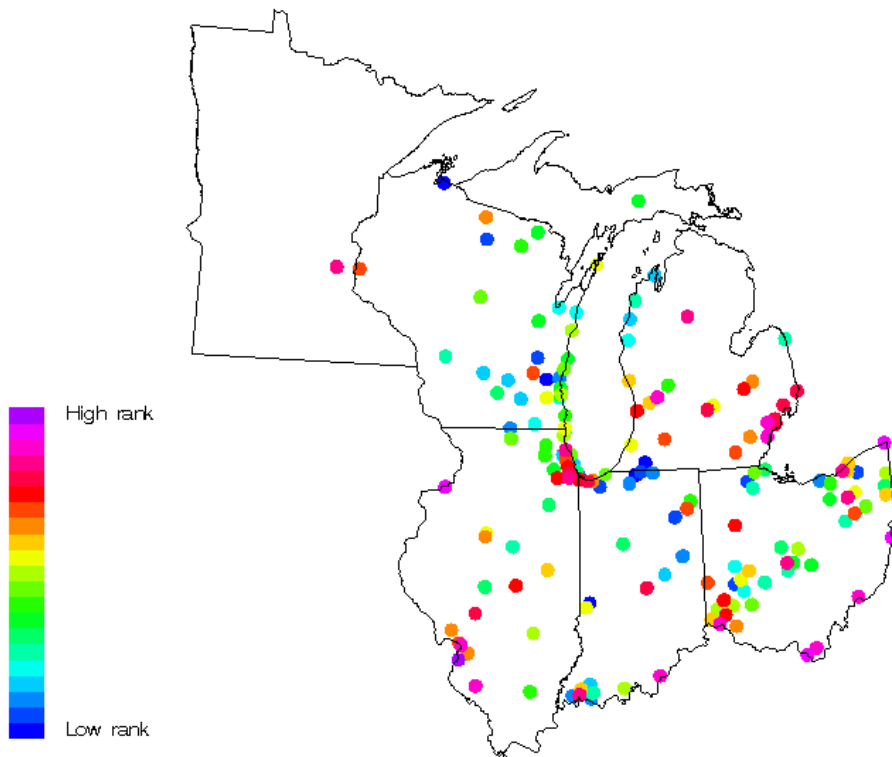


Figure 12. Overall ranking of ozone monitors

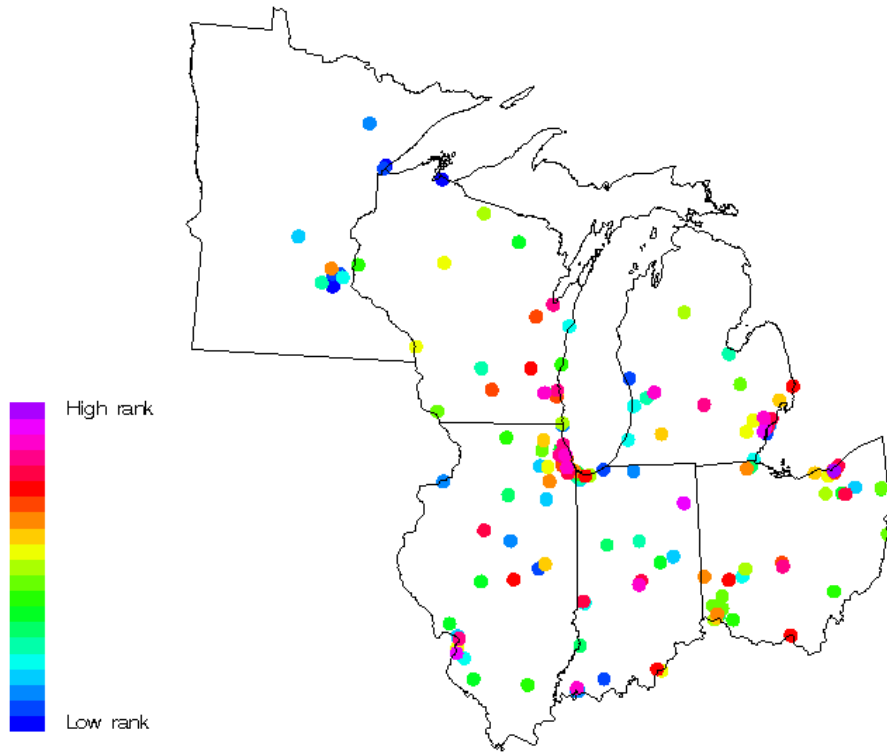


Figure 13. Overall ranking of PM2.5 monitors

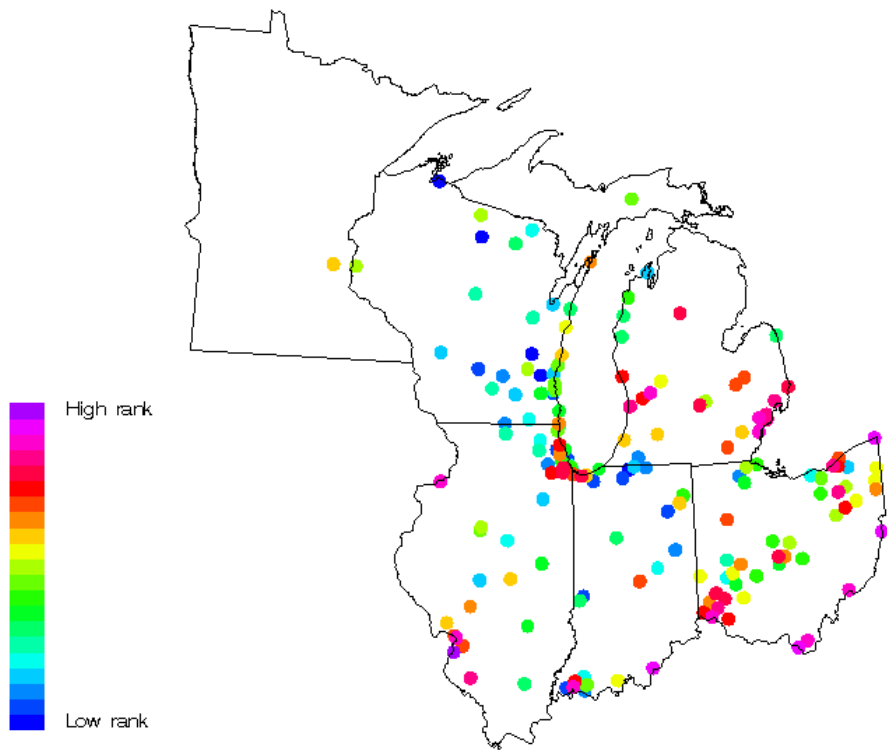


Figure 14. Design-value-weighted ranking of ozone monitors

Table 1. Individual monitor rankings for each factor and overall scores

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
170190004	Champaign	0.381	0.050	-1.588	-0.287	-0.345	-0.053	0.552	-0.062	0.246	1.655	0.224	0.158	0.238	-0.133
170191001	Champaign		0.450		-0.826	-0.345			-0.917	-0.084	-0.525	-0.647		-0.557	
170310001	Cook	-1.233		0.539			0.712	-0.581			1.437	1.095	0.640		0.623
170310022	Cook		-0.666		0.252	0.757			-1.039	-0.690	1.546	1.095		0.320	
170310032	Cook	-0.857		0.152			-0.376	-0.648			0.674	-0.647	-0.169		-0.116
170310050	Cook		-0.588		-0.287	0.389			0.456	-0.677	1.328	0.224		0.239	
170310052	Cook		-0.197		0.790	0.914			2.674	-0.670	1.219	0.224		0.858	
170310057	Cook		-0.197		0.252	0.652			2.423	-0.678	-0.634	0.224		0.373	
170310064	Cook	-0.857		-0.622			-0.054	-0.646			0.456	-0.647	-0.303		-0.356
170310072	Cook	0.224		-1.202			-0.135	-0.651			-0.198	0.224	-0.392		-0.527
170310076	Cook	-1.233	-0.776	-0.041	0.521	0.442	0.439	-0.632	1.603	-0.673	-0.634	3.708	0.568	0.828	0.466
170311003	Cook	-0.606		-0.041			1.054	-0.624			1.655	-0.647	0.279		0.226
170311016	Cook		-0.056		1.329	1.229			0.036	-0.659	-0.089	0.224		0.345	
170311601	Cook	-0.239		0.345			0.426	-0.432			1.328	0.224	0.378		0.373
170312001	Cook		-0.357		0.252	0.494			1.680	-0.597	0.892	0.224		0.491	
170313103	Cook		0.417		0.790	1.176			0.900	-0.641	-0.416	1.966		0.629	
170313301	Cook		-0.776		0.252	0.599			-0.505	-0.668	1.546	1.095		0.386	
170314002	Cook	-0.647		-2.168			1.413	-0.624			1.219	1.966	0.361		-0.061
170314007	Cook	-0.606	0.343	-1.395	-0.287	-0.292	0.527	-0.606	1.157	-0.647	-0.743	0.224	-0.399	-0.098	-0.565
170314201	Cook	-0.398	-0.300	-0.815	-0.018	-0.345	-0.334	-0.621	0.089	-0.637	-0.416	5.451	0.653	0.687	0.408
170317002	Cook	0.567		-0.622			-0.009	-0.645			1.764	-0.647	-0.032		-0.130
170434002	DuPage		-0.449		0.521	0.127			1.474	-0.599	-0.525	0.224		0.204	
170436001	DuPage	-0.239		-1.975			1.588	-0.495			1.110	-0.647	-0.084		-0.399
170491001	Effingham	2.155		-0.815			-0.451	0.577			1.328	-0.647	-0.002		-0.137
170650002	Hamilton	1.353	3.305	-0.815	-0.826	-0.030	0.102	1.393	0.148	1.407	-1.288	0.224	-0.077	-0.061	-0.200
170831001	Jersey	0.514	1.155	-0.041	-0.826	-0.397	-0.328	0.584	-0.785	0.607	0.565	0.224	0.201	-0.102	0.160
170890003	Kane		-0.427		0.790	-0.240			1.199	-0.488	-0.634	-0.647		-0.003	
170890005	Kane	-0.120		-1.395			0.642	-0.334			1.437	-0.647	-0.060		-0.282
170890007	Kane		0.412		-0.287	0.075			0.430	-0.321	-1.288	-0.647		-0.340	
170971002	Lake	-1.063		-0.428			-0.035	-0.591			1.873	-0.647	0.034		-0.043
170971007	Lake	-1.070	-0.300	-0.235	-0.826	-0.922	-0.766	-0.642	0.052	-0.618	-0.089	0.224	-0.302	-0.363	-0.291

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
170990007	La Salle		0.705		-1.095	-0.502			-0.556	0.325	-0.089	1.095		-0.137	
171110001	McHenry	-0.053	-0.427	-1.588	-0.556	-0.607	0.119	-0.474	1.119	-0.290	1.437	0.224	-0.056	0.221	-0.312
171132003	McLean	0.256	-0.053	-0.428	-0.826	-0.450	-0.383	0.076	-0.418	0.178	-0.852	0.224	-0.273	-0.357	-0.299
171150013	Macon	0.256	0.045	-0.428	-0.287	0.180	-0.425	0.070	-0.156	0.704	1.219	1.095	0.306	0.459	0.184
171170002	Macoupin	0.872		-0.622			-0.587	-0.020			1.437	1.966	0.435		0.259
171190008	Madison	-1.023		0.539			-0.042	-0.526			1.110	0.224	0.261		0.307
171191007	Madison		3.020		1.329	1.701			-0.892	-0.659	-0.525	0.224		0.196	
171191009	Madison	0.376		0.925			-0.316	-0.194			1.219	-0.647	0.198		0.319
171192009	Madison		0.000		0.252	0.599			-1.008	-0.571	-0.634	-0.647		-0.335	
171193007	Madison	-1.023	-0.170	0.539	-0.287	0.442	-0.598	-0.552	-0.695	-0.245	2.091	2.837	0.863	0.690	0.809
171430024	Peoria	-0.103		-1.202			-0.202	0.019			2.200	0.224	0.208		-0.027
171430037	Peoria		-0.053		-0.018	-0.135			0.637	0.625	0.783	1.095		0.498	
171431001	Peoria	-0.103		-0.235			-0.312	0.218			1.546	-0.647	0.114		0.056
171570001	Randolph	1.591	1.516	-0.235	-1.095	-0.188	0.127	2.553	-0.847	0.033	0.565	1.095	0.821	-0.073	0.645
171613002	Rock Island	1.024	3.499	-1.395	-1.095	-0.607	3.632	5.339	-0.105	-0.026	-0.743	0.224	1.411	-0.392	0.944
171630010	Saint Clair	0.380	1.104	-0.235	-0.287	0.966	4.464	3.129	-0.916	-0.670	2.091	4.579	2.806	0.961	2.299
171634001	Saint Clair		1.901		-0.287	0.389			-0.211	-0.122	-0.634	-0.647		-0.252	
171670010	Sangamon	0.809		-1.588			-0.202	0.288			1.437	-0.647	-0.143		-0.384
171670012	Sangamon		0.677		-0.287	-0.240			0.259	0.942	-0.525	-0.647		-0.083	
171971002	Will		-0.449		0.521	0.232			0.292	-0.401	1.110	0.224		0.330	
171971011	Will	2.334	0.869	-1.395	-1.095	-0.870	-0.076	0.539	-0.407	0.247	-0.198	0.224	-0.181	-0.350	-0.384
172010013	Winnebago		0.106		-0.287	-0.292			1.562	0.669	-1.288	-0.647		-0.047	
172012001	Winnebago	-1.359		-1.588			0.241	0.316			1.546	-0.647	-0.027		-0.287
180030002	Allen	0.506		-0.235			-0.281	0.058			0.783	-0.647	-0.065		-0.093
180030004	Allen	0.506	0.170	-0.041	-0.018	-0.030	-0.072	-0.369	2.601	1.494	1.546	0.224	0.258	0.969	0.208
180150002	Carroll	0.539		-0.235			0.185	0.602			-0.852	-0.647	-0.189		-0.197
180190006	Clark		-0.120		1.329	1.543			-0.964	-0.678	-1.070	1.095		0.209	
180350006	Delaware		-0.810		-0.556	-0.030			-0.277	0.023	-0.634	-0.647		-0.354	
180350010	Delaware	-0.512		-0.428			-0.233	-0.026			-0.852	-0.647	-0.437		-0.436
180390007	Elkhart	-0.774		-0.235			-0.182	-0.166			-0.961	-0.647	-0.438		-0.404
180431004	Floyd	0.625	-0.120	0.732	-0.018	0.652	1.664	1.323	-0.725	-0.373	1.873	1.095	1.337	0.417	1.237
180670003	Howard		-0.707		-0.018	0.022			0.023	0.380	-0.634	-0.647		-0.146	
180690002	Huntington	0.602		-0.622			-0.373	-0.029			-0.743	-0.647	-0.483		-0.506

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180830004	Knox		0.933		-0.018	0.285			-0.558	0.729	-0.634	-0.647		-0.141	
180890006	Lake		-0.624		0.252	0.442			-1.188	-0.687	0.674	0.224		-0.047	
180890022	Lake	1.413	1.209	-0.041	0.252	0.704	-0.291	-0.559	-1.103	-0.671	-0.198	3.708	0.524	0.449	0.430
180890026	Lake		-0.614		0.790	1.334			-1.221	-0.691	-0.743	-0.647		-0.196	
180890027	Lake		-0.866		-0.287	0.022			-0.092	-0.285	-0.743	-0.647		-0.339	
180890030	Lake	1.413		0.732			-0.742	-0.647			-1.179	-0.647	-0.497		-0.292
180890031	Lake		-0.549		0.252	0.494			-1.081	-0.689	-1.288	0.224		-0.348	
180892004	Lake		-0.866		-0.018	0.180			-0.246	-0.661	-0.634	0.224		-0.193	
180892008	Lake	0.518		-0.041			0.224	-0.541			1.982	0.224	0.370		0.301
180892010	Lake		-0.666		-0.018	0.285			-1.192	-0.690	0.674	0.224		-0.120	
180910005	LaPorte	0.805		-0.815			-0.719	-0.617			1.873	0.224	-0.011		-0.145
180910011	LaPorte		-0.548		-0.287	-0.397			-0.641	-0.325	-0.634	-0.647		-0.489	
180950009	Madison		-0.810		-0.287	0.127			-0.567	-0.453	0.456	0.224		-0.083	
180950010	Madison	-0.588		-0.428			-0.399	-0.367			0.020	-0.647	-0.364		-0.375
180970043	Marion		-0.692		1.329	1.911			0.906	-0.093	0.783	0.224		0.843	
180970073	Marion	-0.798		-0.235			-0.330	-0.620			0.347	2.837	0.400		0.294
180970078	Marion		-1.058		0.790	1.019			1.101	-0.503	-0.743	1.095		0.460	
181230009	Perry	0.984		0.732			-0.046	1.104			-1.179	-0.647	-0.007		0.116
181270024	Porter	-0.152	-0.551	0.152	-0.287	-0.083	-0.696	-0.631	-0.511	-0.406	1.110	1.095	0.206	0.153	0.197
181270026	Porter	0.284		-0.622			-0.448	-0.162			-0.525	-0.647	-0.481		-0.504
181290003	Posey	2.318		-0.815			-0.566	0.262			-0.307	-0.647	-0.415		-0.481
181410010	St. Joseph	-0.596		-0.815			-0.587	-0.276			0.238	-0.647	-0.417		-0.484
181410014	St. Joseph		-0.948		-0.287	-0.135			-0.464	-0.295	-0.634	-0.647		-0.410	
181410015	St. Joseph	2.624	-0.948	-1.975			-0.251	-0.554	-0.382	-0.469	-1.397	1.095	-0.617		-0.843
181411007	St. Joseph	-0.910		-0.041			-0.635	-0.604			-0.307	-0.647	-0.447		-0.379
181470009	Spencer		-0.063		-0.826	0.337					-0.743	-0.647		-0.470	
181570008	Tippecanoe		-0.707		-0.287	-0.030			0.206	0.888	-0.961	-0.647		-0.139	
181630006	Vanderburgh		-0.135		-0.018	0.547			-0.955	-0.484	-0.634	-0.647		-0.365	
181630012	Vanderburgh	-0.188	-0.095	0.925		0.704	-0.422	-0.613	-0.943	-0.308	1.219	2.837	0.789	0.702	0.812
181630013	Vanderburgh	-1.004		1.312			-0.762	-0.415			1.437	-0.647	0.185		0.373
181630016	Vanderburgh		-0.095		-0.287	0.652			-0.881	-0.634	-0.634	-0.647		-0.405	
181670018	Vigo	0.701	-0.632	-1.588	-0.287	0.442	-0.594	-0.422	-0.610	0.326	1.110	1.966	0.094	0.491	-0.186
181670023	Vigo		-0.632		-0.018	0.127			-0.517	0.024	-0.634	-0.647		-0.277	

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181670024	Vigo	0.544		-0.622			-0.606	-0.060			-0.852	-0.647	-0.557		-0.568
181730008	Warrick	-0.934		0.732			-0.803	-0.551			0.238	-0.647	-0.206		-0.050
181730009	Warrick	-1.004		-0.428			-0.676	-0.299			0.238	-0.647	-0.363		-0.374
181730011	Warrick	0.069		-0.428			-0.158	0.485			-1.288	-0.647	-0.407		-0.411
260050003	Allegan	-0.998	0.334	2.472	-0.018	-0.765	-0.489	-0.489	-0.664	-0.490	0.129	0.224	0.369	-0.264	0.720
260170014	Bay		0.459		-1.095	-1.394			1.530	1.286	-0.743	-0.647		-0.177	
260190003	Benzie	-0.547		0.539			-0.739	-0.348			0.129	-0.647	-0.213		-0.088
260210014	Berrien	-0.043	0.594	0.925	-0.287	-0.817	-0.477	-0.432	-0.529	-0.383	0.129	0.224	0.074	-0.277	0.216
260270003	Cass	-0.774		0.345			-0.743	-0.497			-1.288	-0.647	-0.566		-0.414
260370001	Clinton	-1.161		-0.041			-0.340	-0.069			1.546	-0.647	0.089		0.068
260490021	Genesee	-0.350	0.459	0.152	-1.095	-0.922	1.065	-0.058	1.919	0.219	0.129	0.224	0.302	0.079	0.277
260492001	Genesee	-0.286		0.539			-0.140	0.029			1.437	-0.647	0.243		0.293
260630007	Huron	1.477		0.152			-0.623	0.029			-0.089	-0.647	-0.236		-0.171
260650012	Ingham	-1.161	0.227	-0.041	-0.826	-0.765	0.253	-0.026	1.673	0.705	1.437	1.095	0.543	0.553	0.446
260770008	Kalamazoo	0.150	0.496	-0.041	-0.556	-0.188	0.411	0.179	1.282	0.456	-0.416	1.095	0.246	0.279	0.198
260810020	Kent	-1.236	-0.612	0.732	-0.287	-0.292	0.347	-0.428	0.336	0.088	1.437	3.708	1.159	0.832	1.088
260810022	Kent	-0.662		0.925			-0.117	0.212			-0.634	-0.647	-0.052		0.111
260890001	Leelanau	-0.547		-0.428			-0.324	0.532			-1.070	-0.647	-0.387		-0.394
260910007	Lenawee	-0.123		0.345			-0.104	0.057	0.188	0.298	0.020	1.095	0.283		0.293
260990009	Macomb	-0.784	-0.160	1.506	0.252	-0.555	-0.285	-0.426	0.490	-0.345	1.437	0.224	0.491	0.250	0.660
260991003	Macomb	-1.424		1.312			0.860	-0.581			1.873	-0.647	0.563		0.688
261010922	Manistee	-0.528	2.232	0.732			-0.804	-0.475	-0.553	0.533	-1.397	0.224	-0.344		-0.165
261050007	Mason	-0.119		0.345			-0.697	-0.061			-0.525	-0.647	-0.317		-0.207
261130001	Missaukee	0.501	3.117	-0.428	-2.173	-2.601	-0.056	2.143	0.682	3.442	-0.525	1.966	0.620	0.132	0.445
261150005	Monroe		0.143		0.252	0.022			-0.764	-0.575	-0.634	0.224		-0.246	
261210039	Muskegon	0.174		1.699			-0.281	-0.322			0.238	-0.647	0.137		0.397
261210040	Muskegon		-0.054		-0.556	-0.974			0.061	0.075	-0.525	-0.647		-0.428	
261250001	Oakland	-0.909	-0.349	0.732	0.790	-0.135	2.965	-0.463	3.787	-0.550	1.328	0.224	0.957	0.907	0.920
261390005	Ottawa	-1.236	-0.612	1.119	-0.556	-0.450	-0.396	-0.442	-0.550	-0.457	0.456	0.224	0.192	-0.222	0.347
261470005	St. Clair	-0.013	0.009	0.925	1.329	-0.240	-0.541	-0.444	-0.584	-0.204	1.328	1.095	0.473	0.454	0.548
261530001	Schoolcraft	0.919		0.345			-0.633	1.469			-0.961	-0.647	-0.085		-0.014
261610008	Washtenaw	-0.123	-0.988	0.152	0.252	-0.083	0.794	-0.318	0.763	-0.379	-0.634	1.095	0.218	0.169	0.207
261630001	Wayne	0.191	-0.349	-0.428	0.521	0.127	1.044	-0.539	0.232	-0.632	0.674	4.579	1.066	0.917	0.817

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
261630015	Wayne	-0.822	-0.130		1.329	0.862			-1.211	-0.692	0.674	1.966		0.488	
261630016	Wayne	-0.822	-0.426		1.060	0.285			-0.310	-0.683	-0.634	-0.647		-0.155	
261630019	Wayne	-1.424	0.888	1.699	0.790	-0.030	0.692	-0.621	2.593	-0.629	-0.743	1.095	0.424	0.513	0.637
261630025	Wayne		-0.988		0.252	-0.240			2.794	-0.412	-0.634	-0.647		0.185	
261630033	Wayne		0.708		1.868	1.596			-0.165	-0.674	0.347	1.966		0.823	
261630036	Wayne		0.172		-0.287	0.022			-0.733	-0.650	-0.634	-0.647		-0.488	
261630039	Wayne		-0.328		0.790	0.389			-1.079	-0.691	-1.288	-0.647		-0.421	
270031002	Anoka	0.133		-1.588			2.283	-0.491			1.546	1.095	0.569		0.209
270370470	Dakota		-0.931		-1.903	-1.604					-0.743	-0.647		-1.224	
270530961	Hennepin		-1.077		-1.903	-1.761			0.691	-0.562	-0.634	-0.647		-0.803	
270530963	Hennepin		-0.736		-1.903	-1.447			-0.085	-0.680	-0.743	1.095		-0.627	
270531007	Hennepin		-0.916		-1.364	-1.289			2.643	-0.205	1.001	1.095		0.313	
271230866	Ramsey		-0.847		-1.095	-0.712			-0.194	-0.351	-0.307	1.095		-0.261	
271230868	Ramsey		-0.780		-0.826	-0.870			-0.145	-0.672	-0.634	0.224		-0.487	
271377001	Saint Louis		0.660		-3.519	-3.335			-0.801	3.378	0.892	1.095		-0.382	
271377550	Saint Louis	1.682	-0.491		-2.711	-3.178			-0.988	-0.490	-0.634	0.224		-1.296	
271377551	Saint Louis		-0.491		-1.903	-2.496			-0.623	1.082	-0.634	0.224		-0.725	
271390505	Scott	0.676	-0.931		-1.903	-1.709			1.341	1.609	-0.634	0.224		-0.179	
271453052	Stearns	-0.043	0.377		-2.711	-2.076			0.800	2.564	-0.634	0.224		-0.306	
390030002	Allen	0.814		-0.041			-0.120	0.285			1.328	0.224	0.335		0.272
390071001	Ashtabula	1.173		2.086			3.728	1.521			1.873	0.224	1.886		1.920
390090003	Athens		2.555		0.521	-0.292			0.035	0.645	-0.634	-0.647		-0.062	
390170003	Butler		-0.628		0.252	1.071			-0.607	-0.570	0.129	0.224		0.083	
390170004	Butler	-0.425		1.312			-0.258	-0.545			0.129	-0.647	-0.002		0.217
390170016	Butler		-0.650		1.060	0.966			0.106	-0.275	-0.743	-0.647		0.078	
390171004	Butler	-0.436		1.699			-0.428	-0.567			0.129	1.095	0.385		0.604
390230001	Clark	-0.685		0.539			-0.457	-0.427			1.764	-0.647	0.154		0.218
390230003	Clark	-0.459		0.345			-0.661	-0.585			1.001	0.224	0.065		0.112
390230005	Clark		-1.088		0.521	0.599			0.428	0.375	-0.743	-0.647		0.089	
390250022	Clermont	0.204	-0.065	0.925	-0.018	0.232	0.109	0.648	-0.048	0.229	-0.852	0.224	0.211	-0.039	0.330
390271002	Clinton	-0.561		1.119			-0.582	-0.134			0.020	-0.647	-0.045		0.149
390350027	Cuyahoga		-0.817		1.598	0.599			-0.483	-0.686	0.565	0.224		0.303	
390350034	Cuyahoga	0.061	-0.550	0.925	0.521	-0.188	0.559	-0.620	0.820	-0.614	2.309	0.224	0.679	0.512	0.720

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
390350038	Cuyahoga		-0.402		2.137	1.439			-1.310	-0.694	1.982	2.837		1.065	
390350045	Cuyahoga		-0.550		0.790	1.019			-0.676	-0.686	1.001	1.095		0.424	
390350060	Cuyahoga		-0.817		1.598	1.334			-1.119	-0.691	-0.743	2.837		0.536	
390350064	Cuyahoga	0.094		0.152			0.818	-0.551			-0.089	-0.647	-0.064		-0.028
390350065	Cuyahoga		-0.157		0.790	1.124			0.250	-0.626	-0.416	1.095		0.369	
390351002	Cuyahoga		-0.143		0.252	-0.030			0.823	-0.597	0.565	0.224		0.206	
390355002	Cuyahoga	0.718		1.506			-0.272	-0.599			1.001	-0.647	0.198		0.416
390410002	Delaware	-0.631		0.539			-0.328	-0.067			-0.416	-0.647	-0.184		-0.063
390490024	Franklin		-1.168		0.521	0.704			0.439	-0.587	0.783	0.224		0.347	
390490025	Franklin		-1.168		0.521	0.652			1.914	0.189	0.020	0.224		0.587	
390490029	Franklin	-0.861		2.086			-0.631	-0.578			-0.852	-0.647	-0.124		0.244
390490037	Franklin	-0.788		0.539			0.158	-0.612			-0.852	-0.647	-0.283		-0.146
390490081	Franklin	-0.095	-0.717	0.152			0.206	-0.587	2.716	0.942	2.309	1.095	0.635		0.554
390550004	Geauga	0.718		-0.041			-0.640	-0.516			-0.416	-0.647	-0.452		-0.384
390570005	Greene		-1.088		-0.287	-0.030			-0.646	-0.373	-0.416	0.224		-0.255	
390570006	Greene	-0.837		0.732			-0.641	-0.544			-0.416	-0.647	-0.303		-0.131
390610006	Hamilton	-0.323	-1.166	2.279	0.521	0.599	-0.145	-0.587	-0.578	-0.640	0.129	0.224	0.380	0.043	0.696
390610010	Hamilton	0.193		1.506			-0.120	-0.090			0.129	-0.647	0.155		0.380
390610014	Hamilton		-0.769		1.329	1.753			-0.895	-0.683	0.129	0.224		0.309	
390610040	Hamilton	0.036	-0.931	1.506	0.252	0.757	1.212	-0.247	-0.822	-0.687	-0.634	2.837	0.935	0.284	1.030
390610042	Hamilton		-0.439		0.790	1.439			0.053	-0.292	-0.743	-0.647		0.100	
390617001	Hamilton		-0.769		0.790	1.071			-0.568	-0.674	-0.634	-0.647		-0.110	
390618001	Hamilton		-0.667		1.060	1.648			-0.792	-0.680	-0.634	0.224		0.138	
390810017	Jefferson	1.368	0.252	0.732	1.868		6.369	2.570	-1.133	-0.579	-1.070	1.966	2.114		1.883
390811001	Jefferson		0.342		1.060	1.281			-1.191	-0.613	-0.634	0.224		0.021	
390830002	Knox	-0.861		0.539			-0.290	-0.184			0.565	-0.647	-0.004		0.087
390850003	Lake	0.766		0.925			-0.565	-0.636			1.001	0.224	0.190		0.312
390870006	Lawrence	1.189		0.539			3.067	5.924			0.347	0.224	2.020		1.773
390870011	Lawrence	1.189		0.152			3.057	3.850			-0.198	-0.647	1.243		1.061
390890005	Licking	-0.813		0.152			-0.192	-0.082			0.238	-0.647	-0.106		-0.063
390930018	Lorain	0.061		0.152			0.074	-0.364			-1.288	-0.647	-0.415		-0.320
390933002	Lorain		-0.330		0.252	-0.240			0.576	-0.301	0.238	1.095		0.270	
390950024	Lucas	0.647	-1.037	0.345	-0.018	0.389	0.333	-0.534	-0.300	-0.539	-0.525	0.224	-0.031	-0.128	0.031

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
390950026	Lucas		-0.415		0.252	0.389			1.144	0.360	-0.634	0.224		0.289	
390950027	Lucas	0.006		-0.235			-0.464	-0.284			-0.634	-0.647	-0.453		-0.417
390950034	Lucas	0.481		0.345			-0.473	-0.450			0.238	-0.647	-0.197		-0.107
390970007	Madison	-0.222		0.539			-0.624	-0.300			0.020	-0.647	-0.202		-0.079
390990005	Mahoning		-0.409		0.252	0.599			-0.972	-0.655	0.565	0.224		0.002	
390990013	Mahoning	-0.817		0.345			0.804	0.247			-0.634	0.224	0.197		0.222
390990014	Mahoning		0.552		0.521	0.652			-0.083	-0.499	-0.961	0.224		-0.024	
391030003	Medina	3.176	-0.454	-0.235	-0.287	-0.135	-0.269	-0.206	0.661	0.174	0.020	0.224	-0.093	0.109	-0.117
391090005	Miami	-0.331		-0.235			-0.406	-0.232			0.020	-0.647	-0.300		-0.289
391130032	Montgomery		-0.684		0.521	0.966			2.091	-0.357	-0.852	0.224		0.432	
391130037	Montgomery	-0.685		0.152			0.432	-0.549			-1.615	-0.647	-0.445		-0.346
391330002	Portage		-0.913		-0.018	0.127			-0.343	-0.423	-0.634	-0.647		-0.323	
391331001	Portage	-0.819		0.152			-0.332	-0.509			1.655	-0.647	0.064		0.078
391351001	Preble	0.233	-0.213	-0.428	-0.287	0.180	-0.369	-0.092	-0.223	0.135	1.982	0.224	0.263	0.335	0.148
391450013	Scioto		3.469		0.252	0.599			-0.271	0.418	0.565	1.095		0.443	
391510016	Stark	0.011		1.119			-0.047	-0.483			1.328	-0.647	0.254		0.398
391510022	Stark	0.343		1.312			-0.180	-0.050			-1.506	-0.647	-0.214		0.040
391514005	Stark	-0.051		1.119			-0.530	-0.421			0.238	-0.647	-0.048		0.146
391530017	Summit		-1.094		1.060	0.862			-0.254	-0.627	1.655	0.224		0.486	
391530020	Summit	-0.819		1.699			0.277	-0.536			1.437	0.224	0.620		0.800
391530023	Summit		-1.094		-0.018	0.389			0.129	-0.577	-0.525	0.224		-0.063	
391550009	Trumbull	-1.076		0.539			-0.250	0.490			0.129	-0.647	0.052		0.133
391550011	Trumbull	-1.076		1.506			-0.254	-0.468			-0.961	-0.647	-0.165		0.113
391650007	Warren	-0.837		2.279			-0.657	-0.549	-0.782	-0.412	-1.070	0.224	0.045		0.418
391670004	Washington	1.494		1.506			0.673	3.572			0.347	-0.647	1.090		1.159
391730003	Wood	0.457		0.345			-0.320	-0.094			-0.416	-0.647	-0.226		-0.131
550030010	Ashland	1.091	1.175	-2.168	-2.981	-3.178	-0.698	0.850	-1.036	1.600	-0.961	0.224	-0.551	-1.055	-0.820
550090005	Brown		2.098		1.329	-0.240			0.420	0.458	1.437	0.224		0.605	
550090026	Brown	0.319		-0.622			-0.158	-0.137			-0.089	-0.647	-0.331		-0.379
550210015	Columbia	-1.190		-0.815			-0.714	-0.322			0.565	-0.647	-0.387		-0.458
550250041	Dane	-0.732		-0.815			0.290	0.073			0.129	-0.647	-0.194		-0.298
550250047	Dane		-0.322		1.060	0.127			1.143	0.253	-0.634	0.224		0.362	
550270007	Dodge	-1.122	1.137	-1.008	-0.826	-0.660	-0.707	-0.436	0.067	0.278	-0.089	3.708	0.293	0.413	0.076

Monitor ID	County	O3 Corr.	PM2.5 Corr.	O3 DV	PM25 Daily DV	PM2.5 Annual DV	O3 Pop.	O3 Area	PM2.5 Pop	PM2.5 Area	Years	Parms.	O3 Rank	PM2.5 Rank	DV-wtd O3 Rank
550290004	Door	-0.368		1.312			-0.654	-0.152			0.456	-0.647	0.063		0.271
550370001	Florence	-0.305		-1.588			-0.520	1.596			0.674	-0.647	-0.097		-0.346
550390006	Fond du Lac	-1.122		-1.202			-0.494	-0.219			-0.089	-0.647	-0.530		-0.642
550410007	Forest	-0.305	3.494	-1.008	-2.442	-2.758	-0.736	0.428	-0.091	3.876	-0.961	1.966	-0.062	-0.068	-0.220
550430009	Grant		0.259		1.060	-0.030			-0.399	0.742	-0.634	-0.647		0.015	
550550002	Jefferson	-1.190		-0.622			-0.557	-0.403			0.565	-0.647	-0.333		-0.381
550590019	Kenosha	-1.113	0.095	0.925	0.252	0.180	-0.558	-0.583	-0.228	-0.560	0.674	0.224	0.136	0.090	0.268
550610002	Kewaunee	-0.968		0.345			-0.770	-0.490			-0.089	-0.647	-0.330		-0.218
550630012	La Crosse	0.006	0.753		0.521	-0.135			0.173	1.769	-1.288	0.224		0.211	
550710007	Manitowoc	-0.968	-0.268	0.345	-0.556	-0.870	-0.660	-0.463	-0.870	-0.374	-0.089	1.095	0.046	-0.277	0.095
550730012	Marathon	0.757		-1.202			0.059	1.388			0.238	-0.647	-0.033		-0.228
550790010	Milwaukee	0.325		-1.975	1.598	0.547	0.351	-0.608	-0.335	-0.682	-0.525	1.095	-0.332	0.283	-0.606
550790026	Milwaukee	-0.841	0.295	-1.008	1.868	0.599	-0.134	-0.642	0.869	-0.633	-0.525	1.966	-0.069	0.691	-0.225
550790041	Milwaukee	-0.900		-0.235			-0.688	-0.651			2.200	-0.647	-0.004		-0.043
550790043	Milwaukee		0.375		1.598	0.809			-1.256	-0.694	-0.634	-0.647		-0.137	
550790059	Milwaukee				0.521	1.124			0.303	-0.556	0.565	0.224		0.363	
550790085	Milwaukee	-1.000		0.345			-0.499	-0.620			1.001	-0.647	-0.084		-0.012
550790099	Milwaukee		0.397		1.598	0.862			-0.937	-0.691	-0.634	-0.647		-0.075	
550850004	Oneida	-0.763		-1.395			-0.665	0.533			-0.089	-0.647	-0.453		-0.610
550870009	Outagamie	-0.566	0.934	-1.008	0.521	-0.502	0.186	0.278	1.187	0.963	-0.198	0.224	-0.104	0.366	-0.254
550890008	Ozaukee	-0.837		-0.235			-0.748	-0.623			0.238	-0.647	-0.403		-0.375
550890009	Ozaukee	-1.000	-0.268	0.152	-0.018	-0.240	-0.801	-0.599	-0.437	-0.373	-0.089	1.095	-0.048	-0.010	-0.015
551010017	Racine	-1.113		-0.428			-0.407	-0.571			1.764	-0.647	-0.058		-0.120
551050024	Rock	-1.017		-0.815			-0.326	-0.132			-0.089	-0.647	-0.402		-0.471
551091002	St. Croix	-0.475	1.113	-1.008	-1.364	-1.079	0.055	1.205	-0.117	1.289	1.001	0.224	0.295	-0.008	0.078
551110007	Sauk	-0.289	-0.322	-1.588	-1.095	-0.974	-0.517	0.254	-0.182	1.318	-0.198	0.224	-0.365	-0.151	-0.569
551170006	Sheboygan	-0.960		1.699			-0.610	-0.557			-0.416	-0.647	-0.106		0.194
551198001	Taylor		1.870		-0.287	-1.761			0.713	3.142	-0.852	0.224		0.196	
551230008	Vernon	-0.208		-1.202			-0.504	0.889			0.347	-0.647	-0.224		-0.387
551250001	Vilas	-0.763	2.504	-1.202	-0.287	-2.863	-0.684	0.930	-0.753	2.543	0.129	1.966	0.228	0.123	-0.010
551270005	Walworth	-0.625		-0.622			-0.522	-0.376			0.674	-0.647	-0.298		-0.352
551310009	Washington	-0.803		-1.588			-0.583	-0.538			0.238	-0.647	-0.624		-0.785
551330027	Waukesha	-0.803		-1.395	0.252	0.809	0.009	-0.449	0.944	-0.153	0.456	1.966	0.117	0.712	-0.135