DEVELOPING A MODEL FOR ACTION:

Targeting Ohio Counties for Strategic Farmland Policy Innovation

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Author:

Heide S. Martin, Center for Farmland Policy Innovation

The following document describes the analytical process behind a model created to assess the need for farmland preservation action in the State of Ohio. This model was created through the Center for Farmland Policy Innovation (CFFPI) through the collaboration of Heide Martin, Planning and Policy Coordinator, and Jill Clark, Interim Director. Heide Martin completed the data collection, mapping analysis, and weighted calculations. Please see the accompanying media file, *Planning on Farming Ohio?,* for a poster containing all maps and final analysis.

THE MODEL:

The model was formulated as a two-sided equation that looked at the difference between the level of need for preservation in a county and the levels of farmland preservation activity in that county, to determine a final need for action (NFA) for strategic farmland policy change. NFA is established on a relative basis – meaning that need is relative to the rest of the counties in Ohio. All counties may have some level of need, but the question here is, which counties have the greatest need given the existing resources, the existing activity and the existing pressure in the state.

I. Need

To determine the level of need in each county, three factors were used: the percent of land under high development pressure, the percent of land classified as prime farmland, and the relative market value of farmland by acre. These factors were weighted so that external stresses on productivity (development pressure) would be factored as heavily as potential and actual productivity (prime soils and market value). See Appendix A for the results of Need by county.

Equation: (DEVELOPMENT PRESSURE*3) + (PRIME SOILS*1.5) + (MARKET VALUE *1.5) = LEVEL OF NEED

Development Pressure:

Using block level data obtained from the OSU Exurban Change Project, each county was classified as having either above average development pressure or average/below average development pressure. This was gauged by using the average population growth of all block groups (16%) between the years 1990 and 2000, and then identifying each block group as having average development pressure (below 16%) or high development pressure (above 16%). Change in population density was used as the unit of measurement rather than absolute growth, because the wide range in the size of black groups leaves this as the most reliable indicator of local population change. A new field was then added to the ArcGIS layer for Ohio block groups, with a zero (0) representing those counties with low pressure and a (1) representing those with high pressure. The areas of those block groups and county land area were then used to determine the percentage of land within each county under relatively high development pressure. These results varied from 0% (Coshocton, Paulding, and Williams) to 99.6% (Delaware) under above average development pressure. These percentages were then fed into the model as absolute numbers, and weighted by a factor of 3 (99.6% equals .996*3).

Prime Soils:

With data obtained by the USDA STATSGO database, each county was analyzed to determine the percentage of prime soils existing within the county. This was achieved by first identifying which soils were prime according to their USDA classification, and then adding this to a new field in the soils ArcGIS layer, with a one (1) representing prime soils, and a zero (0) representing non-prime soils. This information then had to be brought to the county level by a union of the soils and county ArcGIS layers. It was then necessary to calculate what percentage of prime soil existed within each county. These values varied between 0% (Harrison, Jefferson, Noble, and Monroe) and 100% (Fayette, Greene, Miami, Champaign, Hardin, Medina, and Summit). These percentages were then fed into the model as absolute numbers, and weighted by a factor of 1.5.

Market Value:

To determine market value per acre, the Ohio Department of Agriculture USDA National Agricultural Statistics Service Ohio Field Office 2005 Annual Report was utilized. The total cash receipts and total land in farms were used from this report to calculate the average value of farmland per acre in each county. These values varied widely, ranging between $46/per acre (Vinton County) to $ 2,924/per acre (Lake County). In order to use these unevenly distributed values in the model, a quartile method was used to classify these numbers into four ranges; 22 counties were placed within each grouping, and, dependent on their position, were assigned a quartile value. The breakdown is as follows: 1: $46-$209 (value of 0), 2: $222-$345 (value of .3333), 3: $351-$437 (value of .6666), 4: $462-2,924 (value of 1). These assigned quartile numbers were then fed into the model for activity, and weighted by a factor of 1.5.

II. Activity

To determine the level of activity in the county, three indicators were analyzed: number of applications for the Ohio Department of Agriculture Agricultural Easement Purchase Program (AEPP) in that county, land trust activity focused on farmland preservation in the county, and existence or absence of an agricultural preservation task force and plan. AEPP applications were weighted the highest in the model (a weight of 3), because they were considered the most reliable measure of activity that is statistically available today. Land trust activity was weighted by a factor of 2 because it was not considered as strong an indicator of activity as were AEPP applications. Similarly, the presence of an agricultural preservation task force and plan was weighted yet lower (1), and was considered the least reliable measure of activity, although these, like land trusts, are an indicator that an area has the *intention* to pre-

serve agricultural lands. Sensitivity testing of this weighting method determined that changing the weights has virtually no impact on the outcome of the model (this is, typically counties without AEPP applications did not have land trusts or a task force, and vice versa).

Ideally, the measure of activity would also include a comparison of the numbers of farms or acres of farmland protected through agricultural easements in the State of Ohio. It was discovered through this research that there is no entity in the state that keeps a comprehensive county-level database of those agricultural lands in Ohio protected by easements held by local land trusts. A conservation and recreation lands (CARL) database is currently being compiled by Ducks Unlimited, a Great Lakes region preservation group, and will include information that may be useful to the further development of this research. Other possible indicators could include an analysis of zoning regulations which support or hinder agriculture, or other local policies which likewise impact agriculture. Again, few counties have such comprehensive data, and a comprehensive analysis of such breadth is beyond the scope of this report. See Appendix B for the results of Action by county.

Equation: (AEPP APPLICATIONS*3) + (LAND TRUST*2) + (PLAN*1) = LEVEL OF ACTION

Protected Lands:

The data used for this model was provided by the Ohio Department of Agriculture (ODA). The ODA provided a database of all applications for the Clean Ohio Agricultural Easement Purchase Program (2002-2007). These numbers were organized by county, and it was determined how many applications had been made from each county. This information was then added in ArcGIS to a new field in the county layer for Ohio.

The numbers of AEPP applications per county vary widely across the state, and range from 0 (26 counties total) to 147 (Ashland County). Because this information was not distributed evenly it was added to the model using the quartile method. Identical quartiles could not be created (because 26 counties have no applications), and the breakdown into categories is as follows: 1: 0 applications (value of 0), 2: 1-5 applications (value of .3333), 3: 6-20 applications (value of .6666), 4: over 20 applications (value of 1). To add this variable to the equation, this value was then weighted by a factor of 3 in the equation, for it was assumed that the number of easements would be the strongest barometer of activity within any county.

Land Trust:

Using information obtained from the Coalition for Ohio Land Trusts 2005 Directory of Ohio Land Trusts, it was determined how many land trusts *with a primary focus on agricultural lands* were operating in each county. These numbers were then added in ArcGIS to a new field in the county layer for Ohio. For the calculation of the model in Microsoft Excel, a value of one (1) was given to each county with at least one land trust working in it, and a value of (0) was given to those counties with no land trust activity. This variable was then weighted by a factor of two (2). This factor was given less weight than the number of easements in the county, because the presence of a land trust alone is not a clear barometer for the level of activity of each individual land trust.

Preservation Plan:

In the 1997, former Ohio governor George V. Voinovich created the Ohio Farmland Preservation Task Force, and created a funding program to help counties plan for farmland preservation. Out of this initiative, 57 Ohio counties mobilized task forces in the late 1990s to draft local farmland preservation plans. These task forces are significant in not only the plans which resulted from their efforts, but also because they represent a level of interest in farmland preservation. With data obtained from the Ohio Department of Agriculture, a new field was added in ArcGIS to the county layer for Ohio for the presence of task forces. For the calculation of the model in Microsoft Excel, a value of zero (0) was applied to each county without a task force and farmland protection plan, and a value of one (1) was assigned to each county with a task force and farmland protection plan. This variable was then weighted by a factor of one (1). It was determined that the presence of a plan should have the least weight in the activity equation, because the other variables were clearer barometers of *activity* (not intent).

III. Comparative Analysis:

Using the solutions from the weighted equations for level of activity and level of need, a ***need for action (NFA)*** was determined if the following equation was true:

LEVEL OF NEED – LEVEL OF ACTIVITY > 0

no ***need for action*** was found if:

LEVEL OF NEED – LEVEL OF ACTIVITY ≤ 0

A range of values between -4.9 and 2.8 were found as a result of this final level of analysis. Those counties with NFA greater than zero were then classified as having high, medium or low NFA levels, as can be seen in Table 1.

NUMBER OF CASES	VALUE	# OF CASES
HIGH	$X \geq 2$	2
MED	$1 < X < 2$	5
LOW	$0 < X < 1$	8
not a priority	$X \leq 0$	63

Table 1

Wyandot and Shelby Counties had the highest NFA levels (2.8 and 2.3, respectively), but the majority of counties fell into the "low" classification, with five counties having a "medium" classification. See Appendix C for the final results of the NFA model by county.

CONCLUSION:

A total of 15 counties in Ohio were classified with some level of NFA. The results suggest that although there many counties in need of more comprehensive farmland protection strategies, there are only few counties that, through this analytical process, can be considered as counties with high need. It must be restated that those 15 counties identified in this study can be considered to have high need for intervention *relative* to other areas of the state. While farmland preservation efforts are growing within Ohio, there remains a statewide level of need for collaborative strategies between govern-

ments, farmers, and the public and private sectors in order to comprehensively address the challenge of farmland preservation.

In our original workings of the model, we considered eliminating heavily urbanized counties with relatively little land devoted to agriculture. We have reconsidered this approach, and 4 highly urbanized counties appear in the final 15 priority counties, including Summit, Franklin, Cuyahoga, and Hamilton Counties. These counties have remained in our analysis because we feel that their presence is significant, and provides us with a unique opportunity to rethink the future role of Ohio agriculture. They allow us to pose several questions, such as: Is agriculture in urbanized counties protected by traditional preservation methods? What is the significance of these urbanized agricultural enterprises to Ohio's economy and food supply? What local or state-wide strategies can be used to support agriculture in urbanizing counties? With current trends focusing on *local* food systems in agriculture - the growing popularity of agri-tourism and direct marketing, as well as concerns over rising fuel costs - preservation efforts may have to look beyond large commodity farm operations to consider the role of small-scale, diversified metro farms.

This study has revealed one further challenge facing farmland preservation efforts across the state: no comprehensive database of protected and threatened lands exists, and without data on the location and acreage of protected lands held by local and state-level land trusts in Ohio, it will very difficult to measure or chart progress over time. Comprehensive statistical resources, particularly maps of state and locally protected lands, would also enable preservationists to take strategic steps to protect critically located lands.

Finally, what this model reveals is not only the *need* for farmland preservation in Ohio, but the *opportunities* that are present in the state - for state legislators, farmland preservation practitioners, and local communities – to create innovative and timely strategies to protect our agricultural resources.

Appendix A: Need (A-K)

LEVEL OF NEED = (PRESSURE * 3) + (SOILS * 1.5) + (SALES * 1.5)

COUNTY	% DEVT PRESSURE	VALUE DEVT PRESSURE	% PRIME SOILS	SOILS VALUE	CASH PER ACRE	SALES VALUE	TOTAL NEED
Adams	32.6%	0.33	9.0%	0.09	$155.11	0.00	1.11
Allen	3.9%	0.04	99.8%	1.00	$344.98	0.33	2.11
Ashland	28.9%	0.29	92.6%	0.93	$405.00	0.67	3.25
Ashtabula	29.0%	0.29	9.8%	0.10	$271.20	0.33	1.52
Athens	0.2%	0.00	9.7%	0.10	$90.78	0.00	0.15
Auglaize	21.2%	0.21	99.1%	0.99	$496.24	1.00	3.62
Belmont	18.6%	0.19	2.8%	0.03	$138.29	0.00	0.60
Brown	68.7%	0.69	47.7%	0.48	$173.31	0.00	2.78
Butler	55.7%	0.56	93.3%	0.93	$283.91	0.33	3.57
Carroll	45.6%	0.46	3.0%	0.03	$580.74	1.00	2.91
Champaign	20.6%	0.21	100.0%	1.00	$353.81	0.67	3.12
Clark	8.7%	0.09	100.0%	1.00	$520.86	1.00	3.26
Clermont	57.8%	0.58	42.2%	0.42	$222.22	0.33	2.87
Clinton	62.4%	0.62	78.4%	0.78	$293.91	0.33	3.55
Columbiana	14.4%	0.14	47.7%	0.48	$383.89	0.67	2.15
Coshocton	0.0%	0.00	16.1%	0.16	$267.34	0.33	0.74
Crawford	23.8%	0.24	82.1%	0.82	$366.18	0.67	2.94
Cuyahoga	19.4%	0.19	76.3%	0.76	$2,171.20	1.00	3.23
Darke	5.1%	0.05	100.0%	1.00	$865.60	1.00	3.15
Defiance	6.2%	0.06	69.4%	0.69	$302.50	0.33	1.73
Delaware	99.6%	1.00	66.5%	0.67	$351.00	0.67	4.99
Erie	12.7%	0.13	77.1%	0.77	$422.34	0.67	2.54
Fairfield	67.5%	0.68	69.4%	0.69	$301.37	0.33	3.57
Fayette	11.4%	0.11	100.0%	1.00	$351.61	0.67	2.84
Franklin	39.9%	0.40	70.1%	0.70	$384.38	0.67	3.25
Fulton	7.4%	0.07	77.3%	0.77	$524.25	1.00	2.88
Gallia	18.4%	0.18	8.3%	0.08	$104.15	0.00	0.68
Geauga	33.4%	0.33	93.3%	0.93	$334.51	0.33	2.90
Greene	28.0%	0.28	100.0%	1.00	$363.28	0.67	3.34
Guernsey	55.6%	0.56	1.7%	0.02	$125.45	0.00	1.70
Hamilton	20.4%	0.20	29.8%	0.30	$521.33	1.00	2.56
Hancock	6.4%	0.06	99.8%	1.00	$336.18	0.33	2.19
Hardin	0.5%	0.01	100.0%	1.00	$476.20	1.00	3.02
Harrison	2.3%	0.02	0.0%	0.00	$101.81	0.00	0.07
Henry	2.5%	0.02	92.5%	0.93	$365.06	0.67	2.46
Highland	61.4%	0.61	53.2%	0.53	$181.99	0.00	2.64
Hocking	56.7%	0.57	15.1%	0.15	$77.94	0.00	1.93
Holmes	47.6%	0.48	48.7%	0.49	$636.65	1.00	3.66
Huron	19.3%	0.19	99.8%	1.00	$327.92	0.33	2.58
Jackson	43.4%	0.43	16.2%	0.16	$81.86	0.00	1.55
Jefferson	0.1%	0.00	0.0%	0.00	$126.01	0.00	0.00
Knox	49.6%	0.50	72.8%	0.73	$320.07	0.33	3.08

Appendix A: Need (L-Z)

LEVEL OF NEED = (PRESSURE * 3) + (SOILS * 1.5) + (SALES * 1.5)

COUNTY	% DEVT PRESSURE	VALUE DEVT PRESSURE	% PRIME SOILS	SOILS VALUE	CASH PER ACRE	SALES VALUE	TOTAL NEED
Lake	19.3%	0.19	23.4%	0.23	$2,924.32	1.00	2.43
Lawrence	13.5%	0.13	4.6%	0.05	$78.65	0.00	0.47
Licking	27.4%	0.27	55.9%	0.56	$565.21	1.00	3.16
Logan	44.1%	0.44	98.2%	0.98	$304.71	0.33	3.30
Lorain	14.3%	0.14	94.4%	0.94	$624.75	1.00	3.35
Lucas	10.8%	0.11	70.6%	0.71	$749.97	1.00	2.88
Madison	24.4%	0.24	100.0%	1.00	$436.93	0.67	3.23
Mahoning	5.7%	0.06	88.2%	0.88	$416.26	0.67	2.49
Marion	16.3%	0.16	89.6%	0.90	$340.32	0.33	2.33
Medina	65.9%	0.66	100.0%	1.00	$363.93	0.67	4.48
Meigs	12.8%	0.13	14.7%	0.15	$251.26	0.33	1.11
Mercer	7.6%	0.08	96.6%	0.97	$1,315.60	1.00	3.18
Miami	17.7%	0.18	100.0%	1.00	$358.97	0.67	3.03
Monroe	5.9%	0.06	0.0%	0.00	$88.76	0.00	0.18
Montgomery	9.2%	0.09	100.0%	1.00	$507.81	1.00	3.28
Morgan	12.8%	0.13	0.5%	0.01	$115.37	0.00	0.39
Morrow	59.8%	0.60	98.1%	0.98	$295.68	0.33	3.77
Muskingum	8.7%	0.09	11.8%	0.12	$132.37	0.00	0.44
Noble	81.3%	0.81	0.0%	0.00	$52.63	0.00	2.44
Ottawa	18.5%	0.18	89.6%	0.90	$324.09	0.33	2.40
Paulding	0.0%	0.00	56.8%	0.57	$377.39	0.67	1.85
Perry	36.5%	0.37	14.3%	0.14	$182.37	0.00	1.31
Pickaway	7.3%	0.07	99.8%	1.00	$355.01	0.67	2.72
Pike	58.6%	0.59	31.4%	0.31	$124.12	0.00	2.23
Portage	12.2%	0.12	80.8%	0.81	$342.60	0.33	2.08
Preble	18.3%	0.18	99.4%	0.99	$375.58	0.67	3.04
Putnam	19.6%	0.20	69.9%	0.70	$463.44	1.00	3.14
Richland	24.9%	0.25	88.0%	0.88	$381.83	0.67	3.07
Ross	29.2%	0.29	52.6%	0.53	$208.94	0.00	1.67
Sandusky	3.8%	0.04	94.9%	0.95	$377.68	0.67	2.54
Scioto	0.6%	0.01	17.3%	0.17	$157.02	0.00	0.28
Seneca	0.1%	0.00	99.9%	1.00	$298.84	0.33	2.00
Shelby	12.1%	0.12	99.7%	1.00	$470.48	1.00	3.36
Stark	15.5%	0.16	80.4%	0.80	$615.36	1.00	3.17
Summit	31.2%	0.31	100.0%	1.00	$510.11	1.00	3.94
Trumbull	12.5%	0.13	87.1%	0.87	$291.93	0.33	2.18
Tuscarawas	23.1%	0.23	15.1%	0.15	$462.45	1.00	2.42
Union	85.7%	0.86	100.0%	1.00	$378.97	0.67	5.07
Van Wert	0.8%	0.01	100.0%	1.00	$361.65	0.67	2.52
Vinton	50.2%	0.50	23.2%	0.23	$45.86	0.00	1.85
Warren	90.9%	0.91	86.5%	0.87	$314.60	0.33	4.52
Washington	16.9%	0.17	11.9%	0.12	$163.44	0.00	0.68
Wayne	39.9%	0.40	93.8%	0.94	$750.54	1.00	4.10
Williams	0.0%	0.00	98.8%	0.99	$338.55	0.33	1.98
Wood	9.8%	0.10	89.6%	0.90	$389.04	0.67	2.64
Wyandot	0.6%	0.01	86.6%	0.87	$502.19	1.00	2.82

Appendix B: Activity (A-K)

LEVEL OF ACTION = (AEPP*3)+(LAND TRUSTS*2)+(TASK FORCE*1)

COUNTY	AEPP APPLICATIONS	AEPP VALUE	LAND TRUST	TASK FORCE	TOTAL ACTION
Adams	7	0.67	1	0	4.00
Allen	5	0.33	1	0	3.00
Ashland	147	1.00	1	1	6.00
Ashtabula	21	1.00	1	1	6.00
Athens	1	0.33	1	0	3.00
Auglaize	3	0.33	1	1	4.00
Belmont	0	0.00	1	0	2.00
Brown	18	0.67	1	0	4.00
Butler	36	1.00	1	1	6.00
Carroll	1	0.33	1	1	4.00
Champaign	42	1.00	1	1	6.00
Clark	145	1.00	1	1	6.00
Clermont	4	0.33	1	0	3.00
Clinton	17	0.67	1	1	5.00
Columbiana	0	0.00	1	0	2.00
Coshocton	1	0.33	1	1	4.00
Crawford	9	0.67	0	1	3.00
Cuyahoga	0	0.00	1	0	2.00
Darke	14	0.67	1	1	5.00
Defiance	11	0.67	1	1	5.00
Delaware	4	0.33	1	1	4.00
Erie	0	0.00	1	1	3.00
Fairfield	72	1.00	1	1	6.00
Fayette	1	0.33	0	0	1.00
Franklin	0	0.00	1	0	2.00
Fulton	107	1.00	1	0	5.00
Gallia	0	0.00	1	1	3.00
Geauga	28	1.00	1	1	6.00
Greene	33	1.00	1	1	6.00
Guernsey	0	0.00	1	0	2.00
Hamilton	0	0.00	1	0	2.00
Hancock	3	0.33	1	1	4.00
Hardin	1	0.33	1	1	4.00
Harrison	15	0.67	1	1	5.00
Henry	0	0.00	1	1	3.00
Highland	0	0.00	1	1	3.00
Hocking	9	0.67	1	0	4.00
Holmes	15	0.67	1	1	5.00
Huron	6	0.67	1	1	5.00
Jackson	0	0.00	1	0	2.00
Jefferson	0	0.00	1	1	3.00
Knox	106	1.00	1	1	6.00

Appendix B: Activity (L-Z)

LEVEL OF ACTION = (AEPP*3)+(LAND TRUSTS*2)+(TASK FORCE*1)

COUNTY	AEPP APPLICATIONS	AEPP VALUE	LAND TRUST	TASK FORCE	TOTAL ACTION
Lake	14	0.67	1	1	5.00
Lawrence	0	0.00	1	0	2.00
Licking	14	0.67	1	1	5.00
Logan	12	0.67	1	1	5.00
Lorain	2	0.33	1	1	4.00
Lucas	12	0.67	1	1	5.00
Madison	66	1.00	0	1	4.00
Mahoning	0	0.00	1	1	3.00
Marion	7	0.67	0	1	3.00
Medina	10	0.67	1	1	5.00
Meigs	0	0.00	1	1	3.00
Mercer	2	0.33	1	1	4.00
Miami	54	1.00	1	1	6.00
Monroe	0	0.00	1	0	2.00
Montgomery	74	1.00	1	0	5.00
Morgan	0	0.00	1	0	2.00
Morrow	0	0.00	1	1	3.00
Muskingum	1	0.33	1	1	4.00
Noble	0	0.00	1	0	2.00
Ottawa	13	0.67	1	1	5.00
Paulding	0	0.00	1	1	3.00
Perry	24	1.00	1	0	5.00
Pickaway	7	0.67	1	0	4.00
Pike	0	0.00	1	0	2.00
Portage	43	1.00	1	1	6.00
Preble	99	1.00	1	1	6.00
Putnam	1	0.33	1	0	3.00
Richland	5	0.33	1	1	4.00
Ross	2	0.33	1	1	4.00
Sandusky	3	0.33	1	1	4.00
Scioto	3	0.33	1	0	3.00
Seneca	50	1.00	1	1	6.00
Shelby	0	0.00	0	1	1.00
Stark	2	0.33	1	1	4.00
Summit	0	0.00	1	0	2.00
Trumbull	31	1.00	1	1	6.00
Tuscarawas	1	0.33	1	1	4.00
Union	7	0.67	1	1	5.00
Van Wert	0	0.00	1	1	3.00
Vinton	2	0.33	1	1	4.00
Warren	15	0.67	1	0	4.00
Washington	4	0.33	1	0	3.00
Wayne	100	1.00	1	1	6.00
Williams	0	0.00	1	1	3.00
Wood	31	1.00	1	1	6.00
Wyandot	0	0.00	0	0	0.00

Appendix C: Final NFA

FINAL MODEL = (NEED) - (ACTION)

COUNTY	TOTAL NEED	TOTAL ACTION	NFA LEVEL
Adams	1.1	4.0	-2.9
Allen	2.1	3.0	-0.9
Ashland	3.3	6.0	-2.7
Ashtabula	1.5	6.0	-4.5
Athens	0.2	3.0	-2.8
Auglaize	3.6	4.0	-0.4
Belmont	0.6	2.0	-1.4
Brown	2.8	4.0	-1.2
Butler	3.6	6.0	-2.4
Carroll	2.9	4.0	-1.1
Champaign	3.1	6.0	-2.9
Clark	3.3	6.0	-2.7
Clermont	2.9	3.0	-0.1
Clinton	3.5	5.0	-1.5
Columbiana	2.1	2.0	0.1
Coshocton	0.7	4.0	-3.3
Crawford	2.9	3.0	-0.1
Cuyahoga	3.2	2.0	1.2
Darke	3.2	5.0	-1.8
Defiance	1.7	5.0	-3.3
Delaware	5.0	4.0	1.0
Erie	2.5	3.0	-0.5
Fairfield	3.6	6.0	-2.4
Fayette	2.8	1.0	1.8
Franklin	3.2	2.0	1.2
Fulton	2.9	5.0	-2.1
Gallia	0.7	3.0	-2.3
Geauga	2.9	6.0	-3.1
Greene	3.3	6.0	-2.7
Guernsey	1.7	2.0	-0.3
Hamilton	2.6	2.0	0.6
Hancock	2.2	4.0	-1.8
Hardin	3.0	4.0	-1.0
Harrison	0.1	5.0	-4.9
Henry	2.5	3.0	-0.5
Highland	2.6	3.0	-0.4
Hocking	1.9	4.0	-2.1
Holmes	3.7	5.0	-1.3
Huron	2.6	5.0	-2.4
Jackson	1.5	2.0	-0.5
Jefferson	0.0	3.0	-3.0
Knox	3.1	6.0	-2.9

FINAL MODEL = (NEED) - (ACTION)

COUNTY	TOTAL NEED	TOTAL ACTION	NFA LEVEL
Lake	2.4	5.0	-2.6
Lawrence	0.5	2.0	-1.5
Licking	3.2	5.0	-1.8
Logan	3.3	5.0	-1.7
Lorain	3.3	4.0	-0.7
Lucas	2.9	5.0	-2.1
Madison	3.2	4.0	-0.8
Mahoning	2.5	3.0	-0.5
Marion	2.3	3.0	-0.7
Medina	4.5	5.0	-0.5
Meigs	1.1	3.0	-1.9
Mercer	3.2	4.0	-0.8
Miami	3.0	6.0	-3.0
Monroe	0.2	2.0	-1.8
Montgomery	3.3	5.0	-1.7
Morgan	0.4	2.0	-1.6
Morrow	3.8	3.0	0.8
Muskingum	0.4	4.0	-3.6
Noble	2.4	2.0	0.4
Ottawa	2.4	5.0	-2.6
Paulding	1.9	3.0	-1.1
Perry	1.3	5.0	-3.7
Pickaway	2.7	4.0	-1.3
Pike	2.2	2.0	0.2
Portage	2.1	6.0	-3.9
Preble	3.0	6.0	-3.0
Putnam	3.1	3.0	0.1
Richland	3.1	4.0	-0.9
Ross	1.7	4.0	-2.3
Sandusky	2.5	4.0	-1.5
Scioto	0.3	3.0	-2.7
Seneca	2.0	6.0	-4.0
Shelby	3.4	1.0	2.4
Stark	3.2	4.0	-0.8
Summit	3.9	2.0	1.9
Trumbull	2.2	6.0	-3.8
Tuscarawas	2.4	4.0	-1.6
Union	5.1	5.0	0.1
Van Wert	2.5	3.0	-0.5
Vinton	1.9	4.0	-2.1
Warren	4.5	4.0	0.5
Washington	0.7	3.0	-2.3
Wayne	4.1	6.0	-1.9
Williams	2.0	3.0	-1.0
Wood	2.6	6.0	-3.4
Wyandot	2.8	0.0	2.8