

# LAND EVALUATION SITE ASSESSMENT (LESA)

A Land Preservation  
GIS Application Redesign



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# Presentation Overview

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- Background
- Project Objectives
- Methods/Development
- QA/QC
- Results/Benefits
- Summary

# Geographic & Historic Context

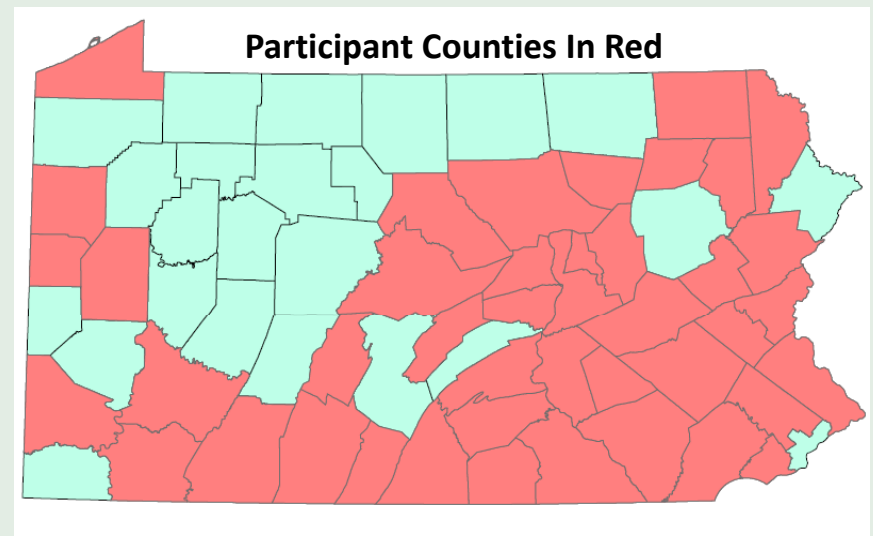
## Where Are We?



## What is the Issue?

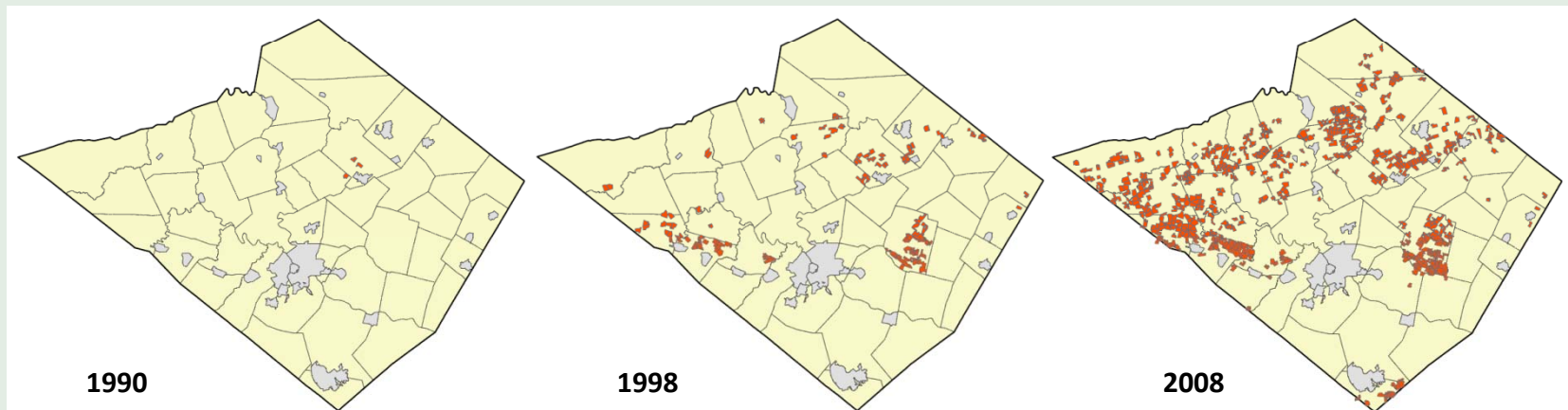
# State & Regional Implications

- Act 138 – Agricultural Easement Purchase Program
- How Many Counties are Involved?
- State Facts and Figures



# Berks County Farmland Preservation

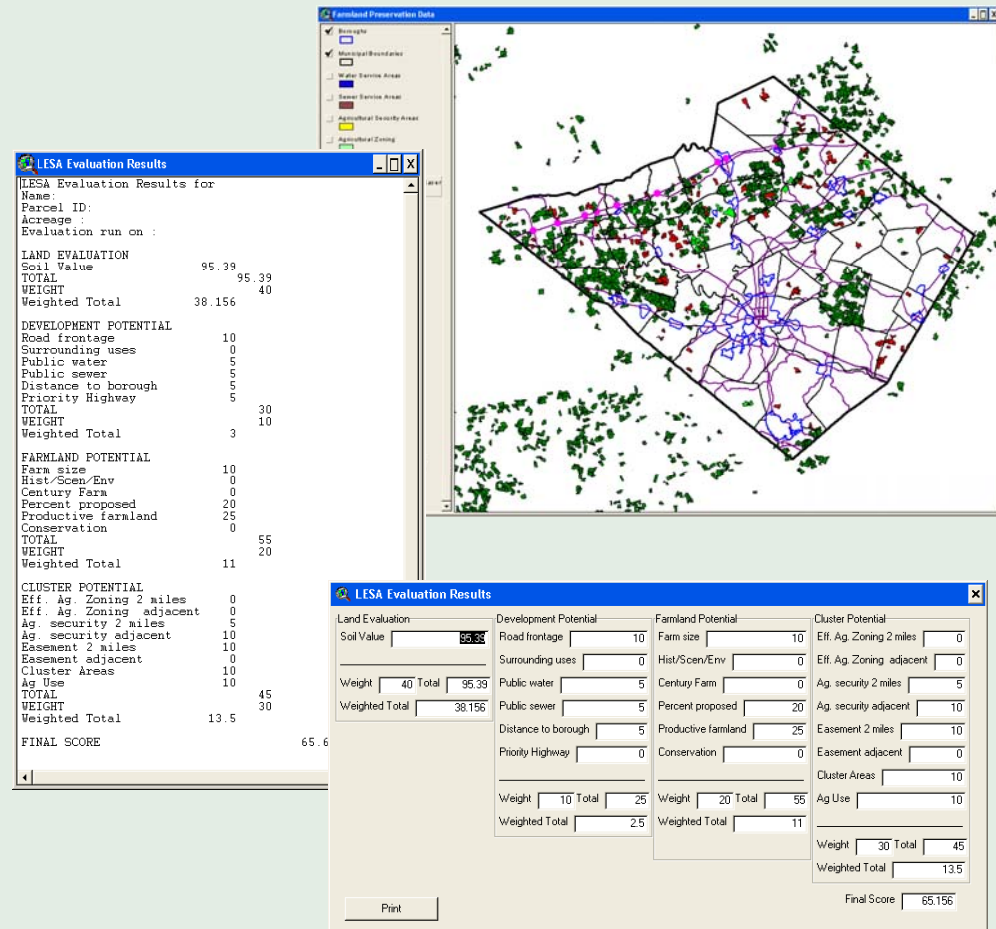
- History of Preservation in Berks County
- History of ALP Office
- How Does GIS Play a Role?
- Why a Change Now?



**Agricultural Conservation Easements Purchased – Farms Preserved**

# Land Evaluation Site Assessment (LESA)

- What is it?
- Who Uses it?
- Why is it Used?
- When Was it Built?
- Who Built it?
- What Software?



# Project Objectives

- Create New LESA Application for Berks County Agricultural Land Preservation Office (ALP)
  - ESRI ArcGIS 9.3.1
  - Same Data and Scoring Procedures
  - Intuitive and Adaptable Interface
- More Efficient Outputs - Analysis & Ranking
- Input from Client
- QA/QC
- Documentation and Training

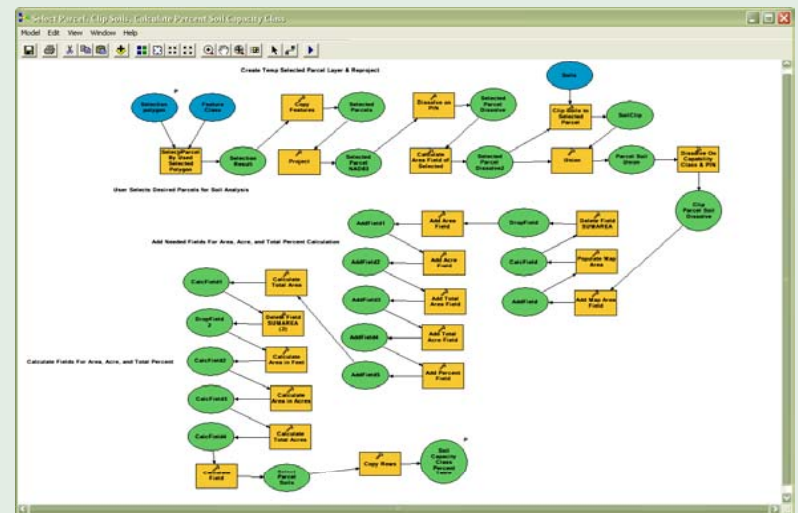
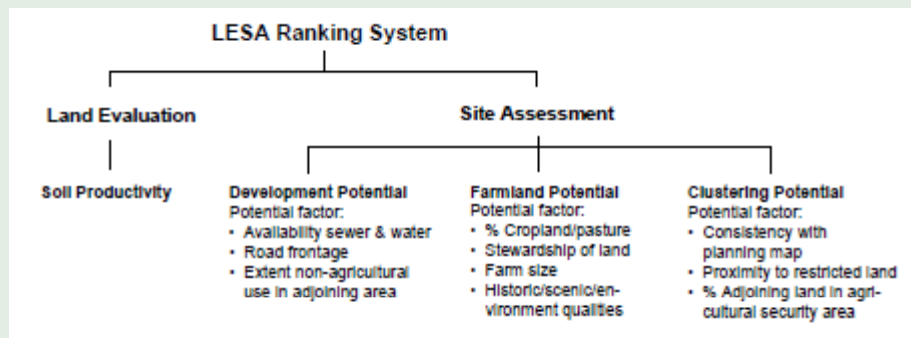
# Project Requirements

- ❑ Data and Program Criteria Needs Assessment
- ❑ Client Involvement
- ❑ Resolve Legacy Software Issues
- ❑ ESRI ModelBuilder for New Software Development
- ❑ Software Documentation
- ❑ Client Satisfaction

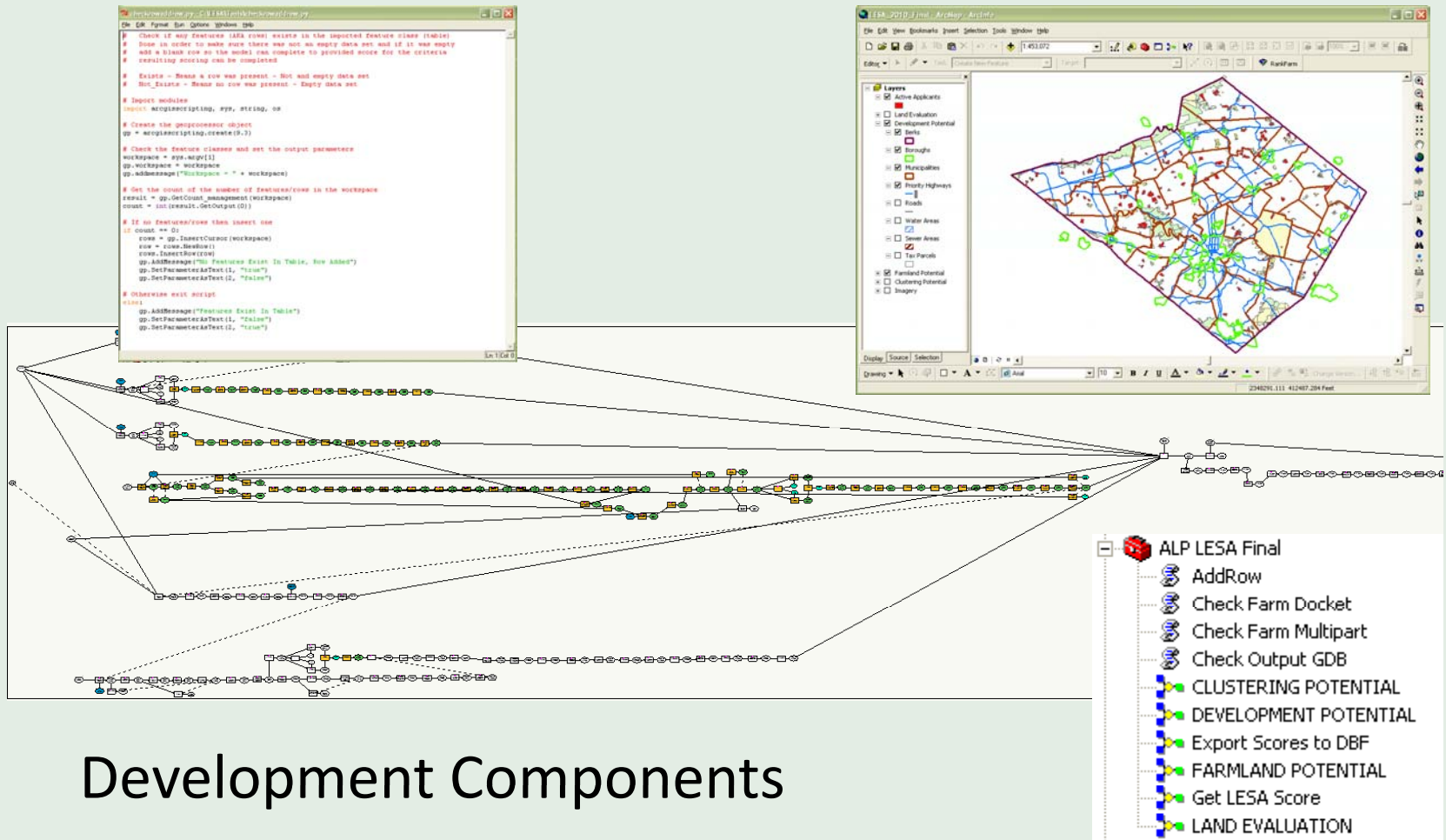


# Software Development

- ❑ Models for Four Major Analysis Areas
- ❑ Individual Criteria to Sub-Models
- ❑ Use of Nested Models/Modules
- ❑ Geoprocessing in Parts
- ❑ Python



# Software Development



## Development Components

# Quality Assurance / Quality Control

- Ensure Client Involvement
- Validate Against Legacy Application
- Model/Module Troubleshooting
- Validation
- Test, Modify, Re-Test
- Client Review

# Results

- Time Savings
- Reduced User Interactions
- Increased Accuracy
- Adaptable/Flexible
- Cost Savings

# Results

## Previous Inputs/Outputs

### 2010 RANKING WORKSHEET Round 36

Name  
Docket

| Account | Count | Sum acres    | Total | Cap class | acres  | weighted index |
|---------|-------|--------------|-------|-----------|--------|----------------|
| AlbA    | 1     | 267968.7783  | 68    | 3         | 6,152  | 3.82           |
| JnB     | 1     | 917470.4316  | 90    | 2         | 21,062 | 17.31          |
| JnC     | 2     | 1101094.9096 | 82    | 3         | 25,278 | 18.92          |
| JnD     | 1     | 777151.5286  | 61    | 4         | 17,841 | 9.94           |
| JpB     | 1     | 64662.8924   | 0     | 7         | 1,484  | 0.00           |
| JpD     | 1     | 1568952.3906 | 0     | 7         | 35,963 | 0.00           |
| ReB     | 1     | 76519.6858   | 82    | 2         | 1,757  | 1.32           |

#### SITE ASSESSMENT FACTORS

##### (1) Development Potential

|   | Notes  | Points |
|---|--------|--------|
| (d) Distance of road frontage                       | 32.77' | 15     |
| (f) Percent of land < 10 acres within 1-mile radius | 20.75  | 0      |
| (c) Availability of public water                    |        | 0      |
| (b) Availability of public sanitary sewer           |        | 0      |
| (a) Distance to Borough                             |        | 0      |
| (e) Distance from access to priority highway: Route | 10840' | 0      |

##### (2) Farmland Potential

|  | Notes | Points |
|--|-------|--------|
| (a) Acreage of site.   |       | 5      |
| (f) Historic, scenic, and environmental qualities                    |       | 0      |
| (c) Century Farm   |       | 0      |
| (b) Percent of farm proposed for sale or donation of an easement     | 100   | 5      |
| (c) Percent of site utilized for cropland, pasture, or graze land    | 77    | 5      |
| (e) Does site have sound conservation and best management practices? | N     | 0      |

##### (3) Clustering Potential

|   | Notes | Points |
|---|-------|--------|
| (a) Percent of land zoned agricultural preservation within 2 mile of site | 0     | 5      |
| (b) Percent of land zoned agricultural preservation adjacent to site      | 0     | 5      |
| (c) Percent of land in an ASA within 2 miles of site                      | 15.51 | 5      |
| (d) Percent of land in an ASA adjacent to site                            | 15.41 | 5      |
| (e) Number of acres of land with an ag easement within 2 miles of site    | 0     | 5      |
| (f) Percent of land with an ag easement adjacent to site                  | 0     | 5      |
| (h) Is site located in a current or future agricultural cluster area?     | 0     | 5      |
| (g) Is site located in an area desirable for agriculture?                 | 0     | 5      |

**LESA Evaluation Results**

|   |  |  |   |
|---|--|--|---|
| Land Evaluation   | Development Potential  | Farmland Potential   | Cluster Potential   |
| Soil Value <input type="text" value="51.31"/>                                   | Road frontage <input type="text" value="10"/>                                | Farm size <input type="text" value="15"/>                                    | Eff. Ag. Zoning 2 miles <input type="text" value="1"/>                      |
| Weight <input type="text" value="40"/> Total <input type="text" value="51.31"/> | Surrounding uses <input type="text" value="0"/>                              | Hist/Scen/Env <input type="text" value="0"/>                                 | Eff. Ag. Zoning adjacent <input type="text" value="0"/>                     |
| Weighted Total <input type="text" value="20.524"/>                              | Public water <input type="text" value="0"/>                                  | Century Farm <input type="text" value="0"/>                                  | Ag. security 2 miles <input type="text" value="1"/>                         |
|   | Public sewer <input type="text" value="10"/>                                 | Percent proposed <input type="text" value="20"/>                             | Ag. security adjacent <input type="text" value="1"/>                        |
|   | Distance to borough <input type="text" value="0"/>                           | Productive farmland <input type="text" value="0"/>                           | Easement 2 miles <input type="text" value="0"/>                             |
|   | Priority Highway <input type="text" value="10"/>                             | Conservation <input type="text" value="15"/>                                 | Easement adjacent <input type="text" value="0"/>                            |
|   | Weight <input type="text" value="10"/> Total <input type="text" value="30"/> | Weight <input type="text" value="20"/> Total <input type="text" value="50"/> | Cluster Areas <input type="text" value="0"/>                                |
|   | Weighted Total <input type="text" value="3"/>                                | Weighted Total <input type="text" value="10"/>                               | Ag Use <input type="text" value="0"/>                                       |
|   |  |  | Weight <input type="text" value="30"/> Total <input type="text" value="3"/> |
|   |  |  | Weighted Total <input type="text" value="0.9"/>                             |
|   |  |  | Final Score <input type="text" value="34.424"/>                             |

Print

**LESA Evaluation Results**

LESA Evaluation Results for  
Name: ALBRIGHT BARBARA Y  
Parcel ID: 532404730769  
Acreage: 109.537  
Evaluation run on: Wed Apr 07 07:00:44 2010

**LAND EVALUATION**

Soil Value   
TOTAL   
WEIGHT   
Weighted Total

**DEVELOPMENT POTENTIAL**

Road frontage   
Surrounding uses   
Public water   
Public sewer   
Distance to borough   
Priority Highway   
TOTAL   
WEIGHT   
Weighted Total

**FARMLAND POTENTIAL**

Farm size   
Hist/Scen/Env   
Century Farm   
Percent proposed   
Productive farmland   
Conservation   
TOTAL   
WEIGHT   
Weighted Total

**CLUSTER POTENTIAL**

Eff. Ag. Zoning 2 miles   
Eff. Ag. Zoning adjacent   
Ag. security 2 miles   
Ag. security adjacent   
Easement 2 miles   
Easement adjacent   
Cluster Areas   
Ag Use   
TOTAL   
WEIGHT   
Weighted Total

**FINAL SCORE**

### RANKING WORKSHEET Round 36

Name: Zimmerman  
Docket: 0742

|   | Notes  | Points |
|---|--------|--------|
| (d) Distance of road frontage                       | 45.21' | 15     |
| (f) Percent of land < 10 acres within 1-mile radius | 14.51  | 0      |
| (c) Availability of public water                    |        | 0      |
| (b) Availability of public sanitary sewer           |        | 0      |
| (a) Distance to Borough                             |        | 0      |
| (e) Distance from access to priority highway: Route | 17465' | 0      |

##### (2) Farmland Potential

|  | Notes | Points |
|--|-------|--------|
| (a) Acreage of site.   |       | 0      |
| (f) Historic, scenic, and environmental qualities                    |       | 5      |
| (c) Century Farm   |       | 0      |
| (b) Percent of farm proposed for sale or donation of an easement     | 100   | 5      |
| (c) Percent of site utilized for cropland, pasture, or graze land    | 77    | 5      |
| (e) Does site have sound conservation and best management practices? | N     | 0      |

##### (3) Clustering Potential

|   | Notes   | Points |
|---|---------|--------|
| (a) Percent of land zoned agricultural preservation within 2 mile of site | 13.97   | 5      |
| (b) Percent of land zoned agricultural preservation adjacent to site      | 100     | 5      |
| (c) Percent of land in an ASA within 2 miles of site                      | 57.71   | 5      |
| (d) Percent of land in an ASA adjacent to site                            | 68.19   | 5      |
| (e) Number of acres of land with an ag easement within 2 miles of site    | 252.453 | 10     |
| (f) Percent of land with an ag easement adjacent to site                  | 17.99   | 5      |
| (h) Is site located in a current or future agricultural cluster area?     | 100     | 10     |
| (g) Is site located in an area desirable for agriculture?                 | 78.87   | 10     |

# Results

## New Inputs/Outputs

| OID | MUSYM | COUNT | VALUE | CAP_CLASS | ACRES   | JOIN | WEIGHTEDSC | DOCKET |
|-----|-------|-------|-------|-----------|---------|------|------------|--------|
| 0   | AoB   | 1     | 0     | 7         | 21.5581 | 1    | 0.0001     |        |
| 1   | BkC   | 5     | 49    | 3         | 57.6796 | 1    | 13.4526    | 0001   |
| 2   | BkF   | 2     | 0     | 7         | 12.9117 | 1    | 0.0001     |        |
| 3   | BtB   | 1     | 61    | 4         | 2.52367 | 1    | 0.732742   | 0001   |
| 4   | BvB   | 1     | 0     | 7         | 4.07223 | 1    | 0.0001     |        |
| 5   | Ho    | 1     | 68    | 3         | 11.2982 | 1    | 3.65686    | 0001   |
| 6   | LbB   | 1     | 0     | 7         | 46.176  | 1    |            |        |
| 7   | LbD   | 1     | 0     | 7         | 1.94815 | 1    |            |        |
| 8   | LdF   | 1     | 0     | 7         | 5.4474  | 1    |            |        |
| 9   | WeB   | 3     | 49    | 3         | 34.31   | 1    |            |        |
| 10  | WeD   | 1     | 34    | 6         | 12.1675 | 1    |            |        |

| OID | DOCKET | FACTOR                              | SCORE   | ACRES    | ACI |
|-----|--------|-------------------------------------|---------|----------|-----|
| 0   | 0036   | LAND EVALUATION TOTAL               | 31.9265 |          |     |
| 1   | 0036   | 1A. DISTANCE TO BOROUGH             | 0       |          |     |
| 2   | 0036   | 1B. DISTANCE TO SEWER               | 10      |          |     |
| 3   | 0036   | 1C. DISTANCE TO WATER               | 0       |          |     |
| 4   | 0036   | 1D. ROAD FRONTAGE                   | 5       |          |     |
| 5   | 0036   | 1E. DISTANCE TO PRIORITY HIGHWAY    | 25      |          |     |
| 6   | 0036   | 1F. PERCENT LAND LESS THAN 10 ACRES | 5       |          |     |
| 7   | 0036   | DEVELOPMENT POTENTIAL TOTAL         | 45      |          |     |
| 8   | 0036   | 2A. FARM ACREAGE                    | 40      | 92.31    |     |
| 9   | 0036   | 2B. PERCENT OF FARM PROPOSED        | 20      |          |     |
| 10  | 0036   | 2C. PERCENT PRODUCTIVE FARMLAND     | 10      |          |     |
| 11  | 0036   | 2D. CONSERVATION PLAN               | 0       |          |     |
| 12  | 0036   | 2E-1. HISTORIC LAND DISTANCE        | 0       | 7972.133 |     |
| 13  | 0036   | 2E-2. CENTURY FARM                  | 0       |          | N   |
| 14  | 0036   | 2E-3. SCENIC ENVIRO LAND DISTANCE   | 5       | 1876.142 |     |
| 15  | 0036   | FARMLAND POTENTIAL TOTAL            | 45      |          |     |
| 16  | 0036   | 3A. EAZ 2 MILE PERCENT              | 1       | 1.863864 |     |
| 17  | 0036   | 3B. EAZ ADJACENT PERCENT            | 0       |          |     |
| 18  | 0036   | 3C. ASA 2 MILE PERCENT              | 1       | 14.31598 |     |
| 19  | 0036   | 3D. ASA ADJACENT PERCENT            | 0       |          |     |
| 20  | 0036   | 3E. ACE 2 MILE ACRES                | 1       | 38.23501 |     |
| 21  | 0036   | 3F. ACE ADJACENT PERCENT            | 0       |          |     |
| 22  | 0036   | 3G. DESIRABLE AG USE PERCENT        | 0       |          |     |
| 23  | 0036   | 3H. AG CLUSTER AREA PERCENT         | 0       |          | N   |
| 24  | 0036   | CLUSTERING POTENTIAL TOTAL          | 3       |          |     |

The screenshot displays the ArcMap interface with a map of land parcels. The map shows various colored overlays representing different criteria. The interface includes a file explorer on the left, a layers panel, and a table of results on the right.

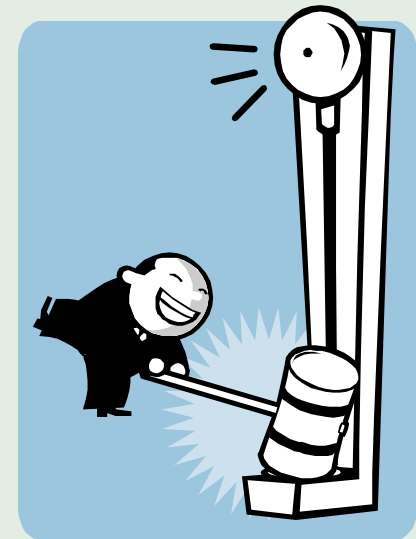
| NAME                      | CRITERIA    | SCORE    |
|---------------------------|-------------|----------|
| ZETZLEMOYER CARL E & LUC* | FINAL SCORE | 42.00284 |
| HOFFMAN ELSIE M &         | FINAL SCORE | 42.11605 |
| FOLLWEILER FARMS LP       | FINAL SCORE | 50.02789 |
| GEHMAN KENNETH M          | FINAL SCORE | 38.81362 |
| GRIM E DONALD & MARIE K * | FINAL SCORE | 40.17198 |
| HOFFMAN RICHARD H JR & T* | FINAL SCORE | 46.94703 |
| LATSHAW EARL W & JOYCE O  | FINAL SCORE | 47.14438 |
| STRANDBURG KATHRYN A &    | FINAL SCORE | 35.62804 |
| WEAVERS ORCHARD INC       | FINAL SCORE | 44.88752 |
| OBER MARY JO              | FINAL SCORE | 39.7161  |
| ZWICZIO LEROY C EST       | FINAL SCORE | 50.10400 |
| FELBECK RICHARD B         | FINAL SCORE | 44.26315 |
| HEFFNER JOHN E & SARAH W* | FINAL SCORE | 44.29046 |
| BELL LUANNE               | FINAL SCORE | 55.06146 |
| RENTSCHLER STEVEN G & DE* | FINAL SCORE | 44.77847 |
| SCHOLLEBERGER DAVID BK*   | FINAL SCORE | 42.1937  |
| STITZ LEE F               | FINAL SCORE | 31.67624 |
| STOLTZLIS RAY J & CATHLE* | FINAL SCORE | 54.55117 |
| FECK DENTON W & MARJOR*   | FINAL SCORE | 43.32346 |
| KOENIG LAVERNE C          | FINAL SCORE | 51.89159 |
| KOSMERL HELEN M           | FINAL SCORE | 51.44897 |
| SPAYD EDWIN R MARY EMC*   | FINAL SCORE | 55.72946 |
| YODER VIRGINIA RUSSELLS*  | FINAL SCORE | 37.24388 |
| 463 LA LP                 | FINAL SCORE | 58.48893 |
| ARNOLD LAWRENCE J & DONN* | FINAL SCORE | 52.49259 |
| BETHANY CHILDRENS HOME    | FINAL SCORE | 63.20327 |
| BLATT BEVERLY A & M LARRY | FINAL SCORE | 48.82299 |

# Benefits

- Organizational Benefits
  - County Staff Efficiency
  - Professional Level Software Application
  - User Friendly
- External Benefits
  - Extensible to Other Preservation Programs
- Personal Benefits
  - Building Personal Capacity and Precedent for Future Projects

# Challenges

- Model Builder and Python Scripting Issues
- Client Interaction
- Flexible Model Interface for Revisions
- Product Documentation
- Project Timeline





# Summary

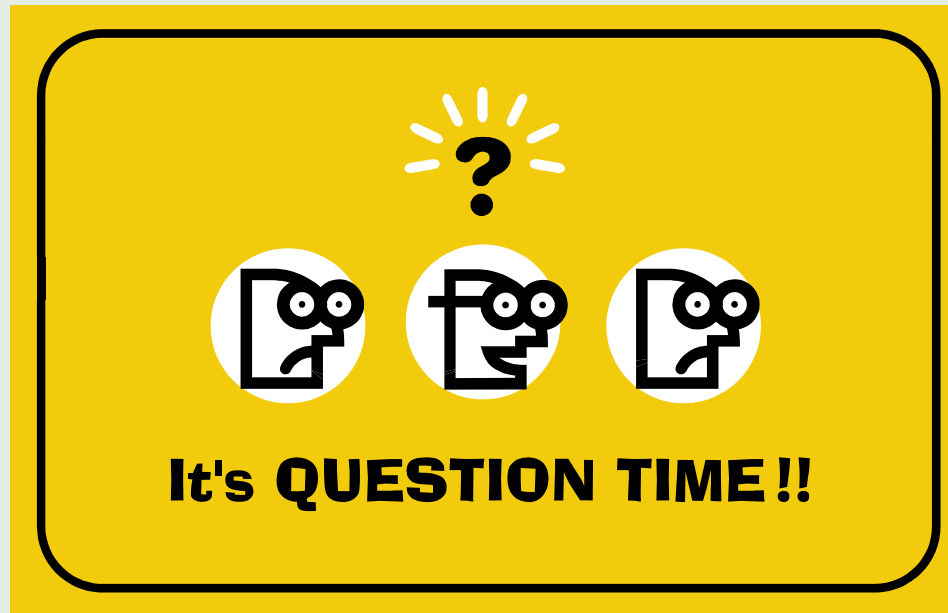
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- Alternative to an Expensive Solution
- Enterprise Application Development
- Extensible Savings

# Acknowledgements

- Berks County Information Systems Department  
Todd Simpson, CIO
- Berks County Agricultural Land Preservation Office  
Tami Hildebrand, Director
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# Questions ?



Thank You