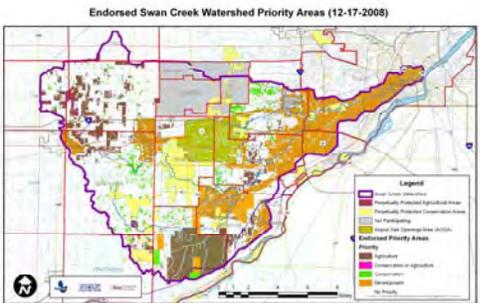
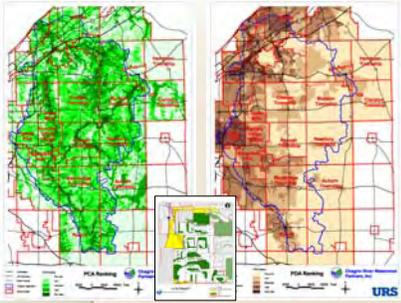
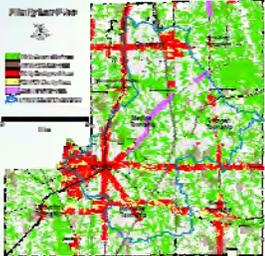
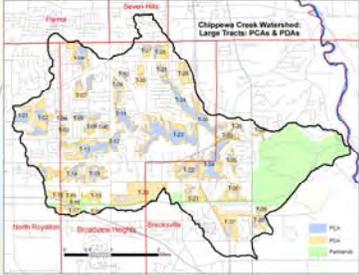


PCA and PDA Modeling

For the Balanced Growth Program

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ODNR – Office of Coastal Management
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Beginning with the end in mind



PCA and PDA Modeling

- **Basic premise:**
 - Landscape components have characteristics that are either suitable or unsuitable for the activities being planned, and
 - Overall suitability can be revealed through detailed evaluation and assessment
- **Suitability can be combined with local preferences to prioritize land uses**

Outline

Goals / Criteria



(Suitability Analysis)



Priority Analysis



What happens if a PDA overlaps with a PDA?

Where to Start

Goals / Criteria



Suitability Analysis



Priority Analysis

Goals

- **Priority Conservation Areas (PCAs)**
 - locally designated areas targeted for protection and restoration
- **Priority Development Areas (PDAs)**
 - locally designated areas where growth and/or redevelopment is to be especially encouraged

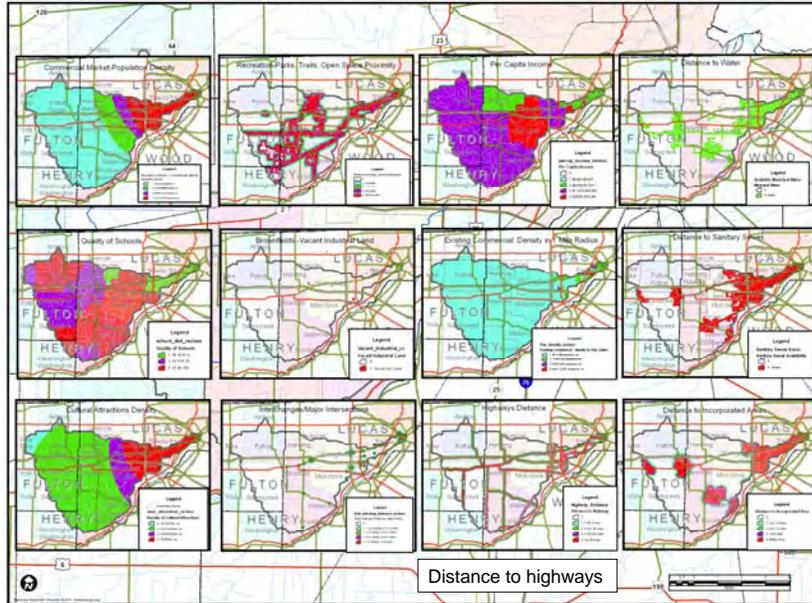


Process

- Define spatial criteria/factors that indicate land suitability for conservation or development

- Example: Access to highways is a factor that determines development potential

Swan Creek Watershed Priority Development Areas - Parameters, Input Data Layers



West Branch Rocky River PCA Criteria

- Criterion 1- Floodplains
 - Within a 100-year floodplain designated by the Federal Emergency Management Agency
 - Classified as flood prone soils by the Natural Resources Conservation Service
- Criterion 2- Riparian Areas
 - Within 120' of the edge of a stream that drains 20-300 sq mi
 - Within 75' of the edge of a stream that drains 0.5-20 sq mi
 - Within 25' of the edge of a stream that drains under 0.5 sq mi
- Criterion 3- Forests
 - Areas covered by 20 or more acres of contiguous forest
- Criterion 4- Steep Slopes
 - Areas located on slopes with a steepness of 12% or greater
- Criterion 5- Parklands
 - Parcels held by the Medina County Park District
 - Parcels held by the Cleveland MetroParks
 - Parcels held as municipal and township parks
- Criterion 6- Conservation Easements
 - Parcels held in conservation easements by the Western Reserve Land Conservancy – Medina/Summit Chapter or Cleveland Museum of Natural History
- Criterion 7- Wetlands
 - Areas identified on the *National Wetlands Inventory* that intersect with *hydric soils*.

West Branch Rocky River PDA Criteria

- Residential Development
 - **The entire Pilot Project Area, where not in conflict with PCA and PDA (commercial/industrial) areas, currently developed areas, or jurisdictional desires, has high potential for residential development**
- Commercial/Industrial Development
 - *Criterion 1- Sewer Service (in conjunction with Criterion 2 below)*
 - **Areas with current sewer service or areas with the potential for sewer service upon local request.**
 - *Criterion 2- Proximity to Major Highways (in conjunction with Criterion 1 above)*
 - **Areas within 1000' of State routes**
 - **Areas within 1000' of US routes**
 - *Criterion 3- Enterprise Zones and Community Reinvestment Areas*
 - **In conjunction with Criterion 4 below**
 - *Criterion 4- Commercial and Industrial Zoning*
 - **Using current zoning as a tool to identify PDAs reflects community desires as to where development should occur, readily identifies areas where infrastructure is already in place, provides a view as to where redevelopment could occur, and streamlines the approval process for development projects.**

West Branch Rocky River PAA Criteria

- *Criterion- Farmland enrolled as Agricultural Districts*
 - **Fluid due to the ability of farmers to opt into or out of the program as desires change**

Chagrin Priority Conservation Area Criteria

- Watersheds with **high or moderate sensitivity** to hydrodynamic changes from development
- **Wetlands** and **riparian** areas
- Current **land use** is conservation or passive recreation
- **Threatened** or **endangered species** present
- Areas with **high quality cultural resources**
- **Steep slopes**
- **High quality streams** (CWH, EWH, State Scenic, brook trout)
- Groundwater pollution potential **high**

Chagrin Priority Development Area Criteria

- Watersheds with **low or moderate sensitivity** to hydrodynamic changes from development
- Currently **developed**
- Within 500 feet of **major interchange/intersection**
- Served/planned to be served by **sanitary sewer**
- **Zoned** for high density land use, commercial, or retail
- **Impervious cover**
- Groundwater pollution potential **low**

Mapping the Criteria - Resource Data

State/federal data

- Land cover
- Places
 - County border
 - Other civil divisions
- Roads
 - Interstate
 - State highways
 - US highways
- Schools
- Streams
- Watersheds
- Electricity
- Gas
- Rail
- Wetlands (NWI)

County data

- Floodplain
- Sewers
 - NOACA
 - NEFCO
 - TMACOG
- Soils

Other local data

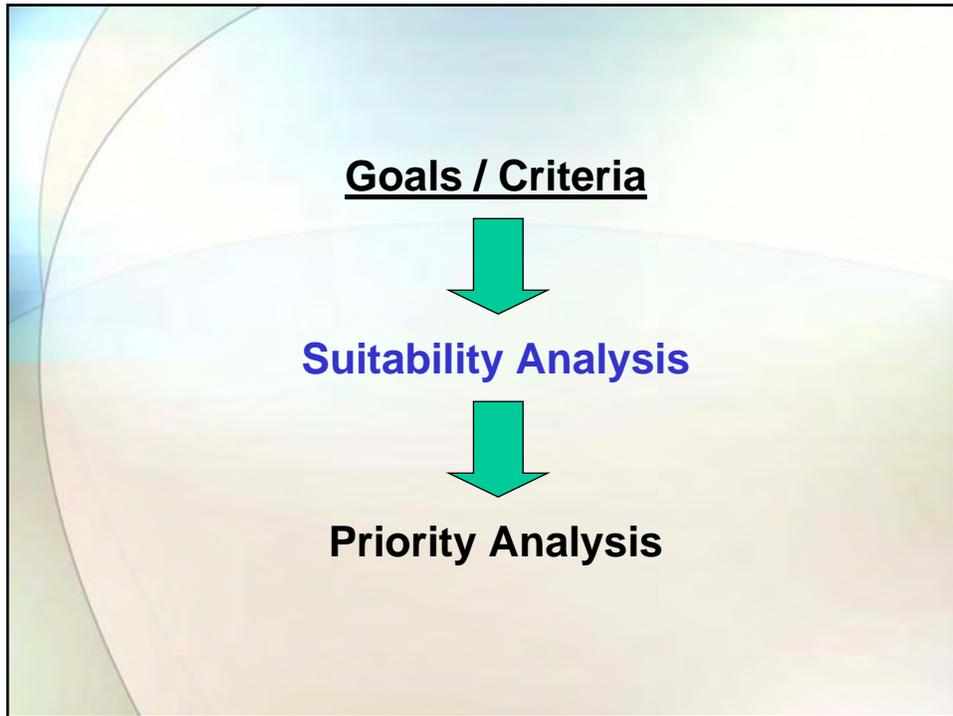
Obtaining Resource Data

- Ohio River watersheds:
- Matt Fancher of Ohio EPA, Division of Surface Water can direct you to data
 - matt.fancher@epa.state.oh.us
 - 614-644-2151
- Lake Erie watersheds:
- Contact Steve Lewis at the Office of Coastal Management
 - steve.lewis@dnr.state.oh.us
 - 419-626-7980

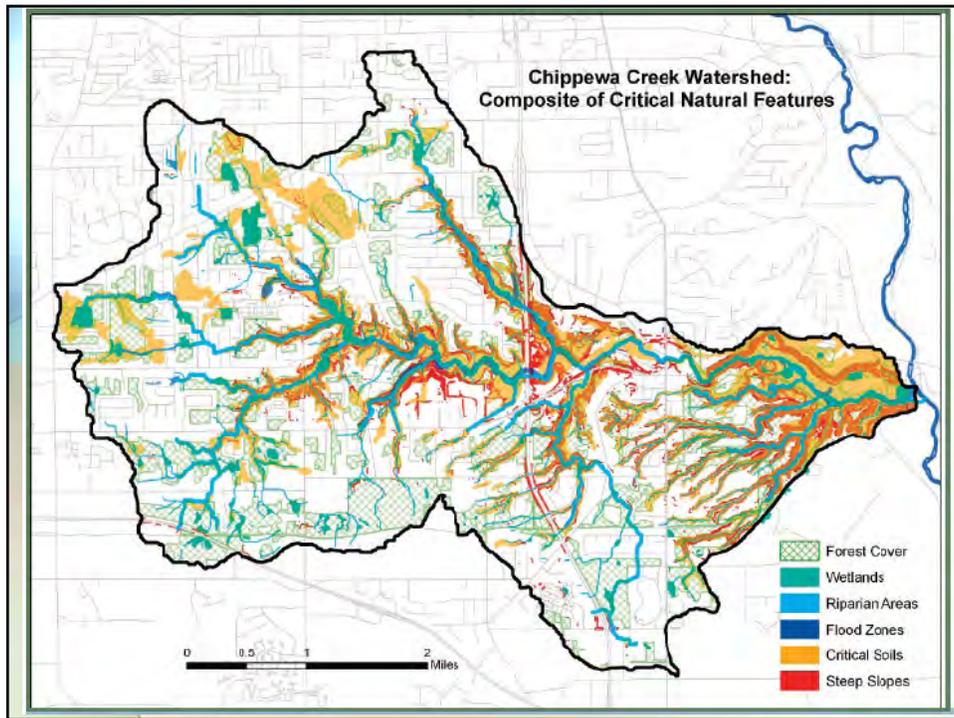
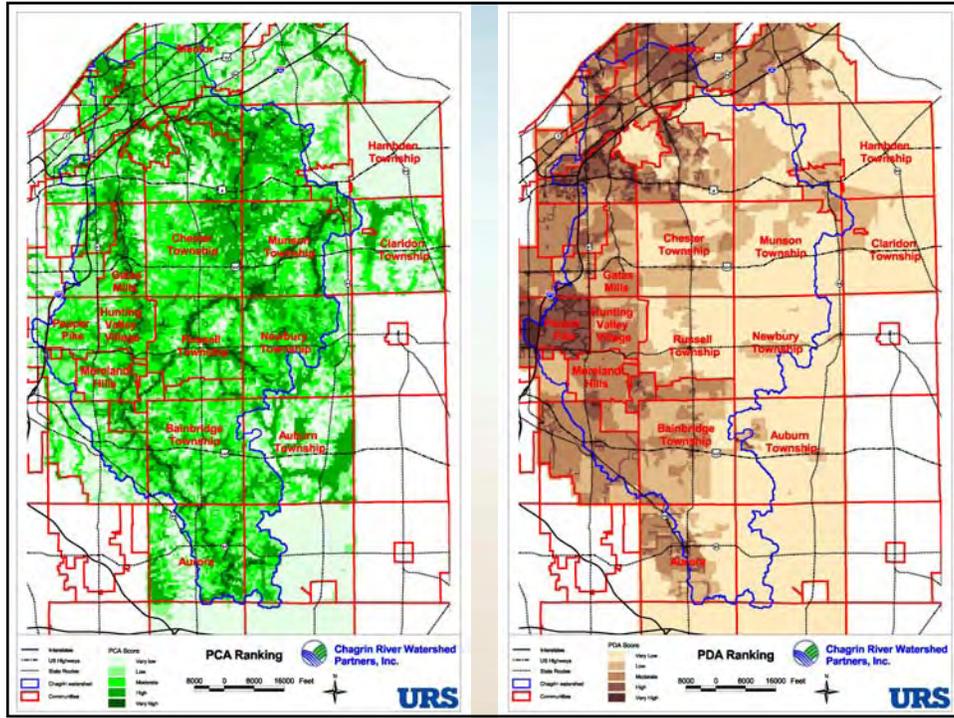
Watershed NPS Modeling Tools

- **Swan Creek Watershed Management System**
 - <http://iwr.msu.edu/swancreek/>
- **NOAA Coastal Services Center: NSPECT**
 - <http://www.csc.noaa.gov/digitalcoast/tools/nspect/index.html>

Suitability Analysis



- ### **Process**
- Define spatial criteria/factors that indicate land suitability for conservation or development
 - Overlay the maps of each criterion/factor to map them together



Priority Analysis

Goals / Criteria



Suitability Analysis



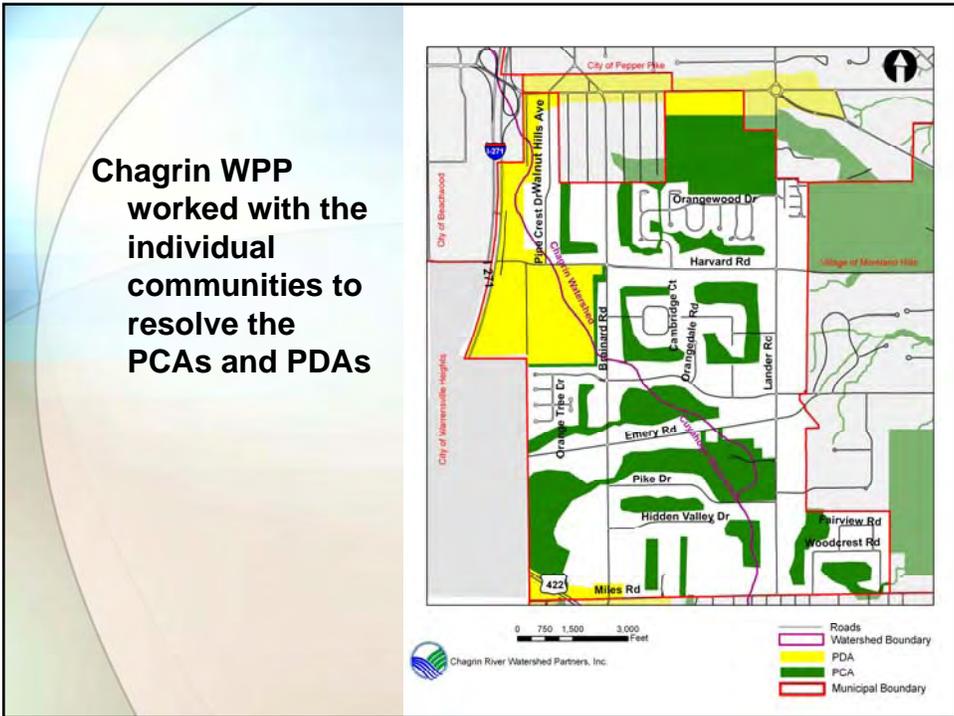
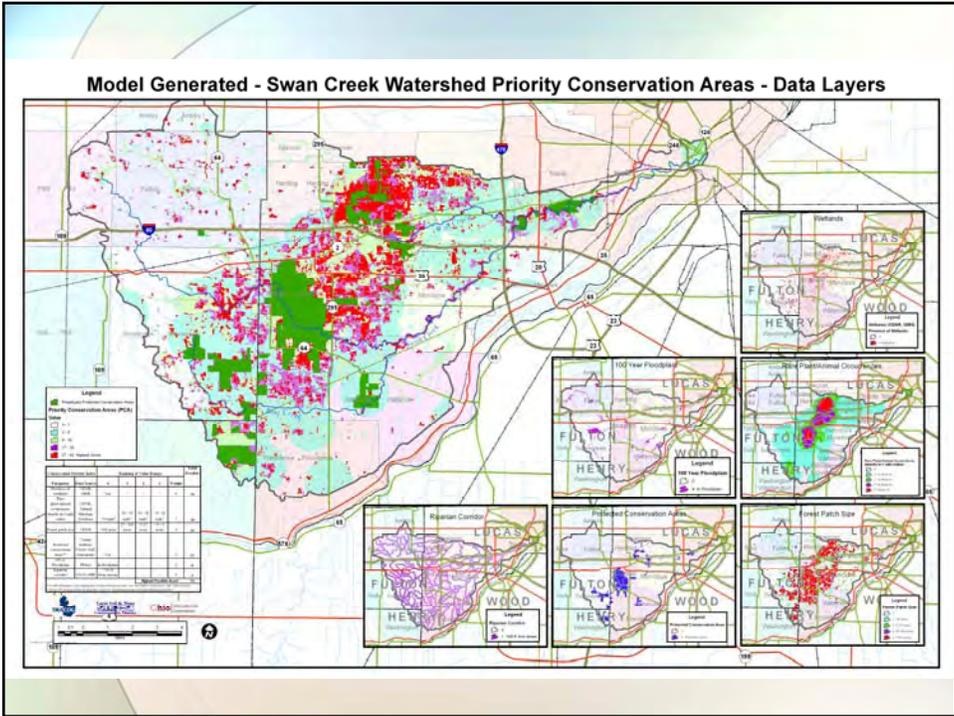
Priority Analysis

Process

- Define spatial criteria/factors that indicate land suitability for conservation or development
- Overlay the maps of each criterion/factor to map them together
- Select from, or weight the criteria/factors to prioritize

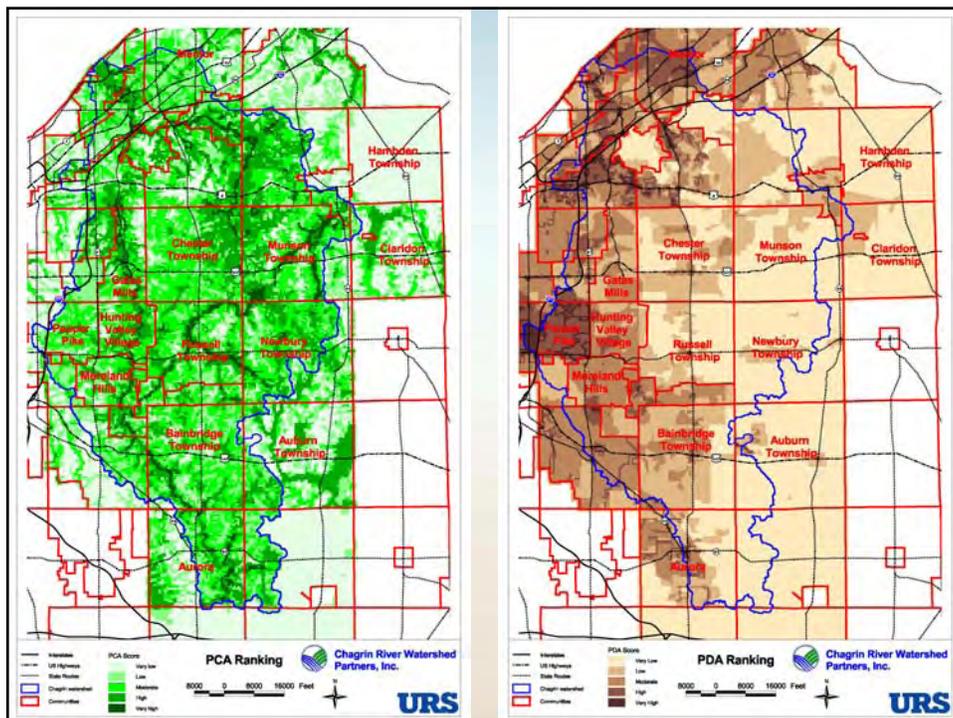
Swan Creek: Example priority analysis

Conservation Priority Index		Ranking of Value Ranges				Weight	Total Possible
Parameter	Data Source	4	3	2	1		
Presence of wetlands	ODNR, GIMS	Yes	--	--	--	6	24
Rare plant/animal occurrences: density in 1 mile radius	ODNR, Natural Heritage Database	>50 mile ²	30 - 50 mile ²	10 - 30 mile ²	>0 - 10 mile ²	5	20
Forest patch size	ODNR	>100 acres	25 - 100 acres	5 - 25 acres	>0 - 5 acres	4	16
Protected conservation areas[1]	County auditors; USGS GAP; metroparks	Yes	--	--	--	3	12
100 yr. Floodplain	FEMA	In floodplain	--	--	--	2	8
Riparian corridor	USGS NHD	<500 ft. from stream	--	--	--	1	4
90th percentile scoring pixels = Priority Conservation Area					Highest Possible Score		84

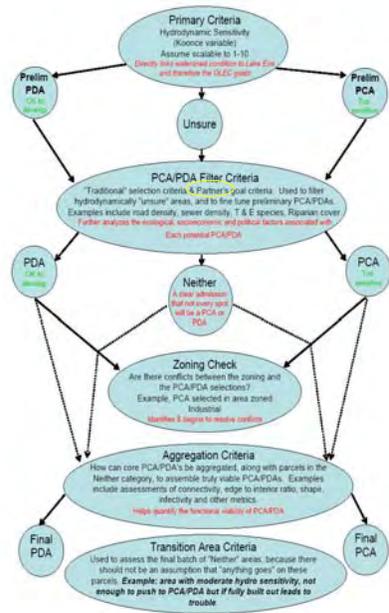


PCA/PDA Overlap

- Question: What happens when a resource rich area is located near infrastructure and therefore could be designated both PCA and PDA?

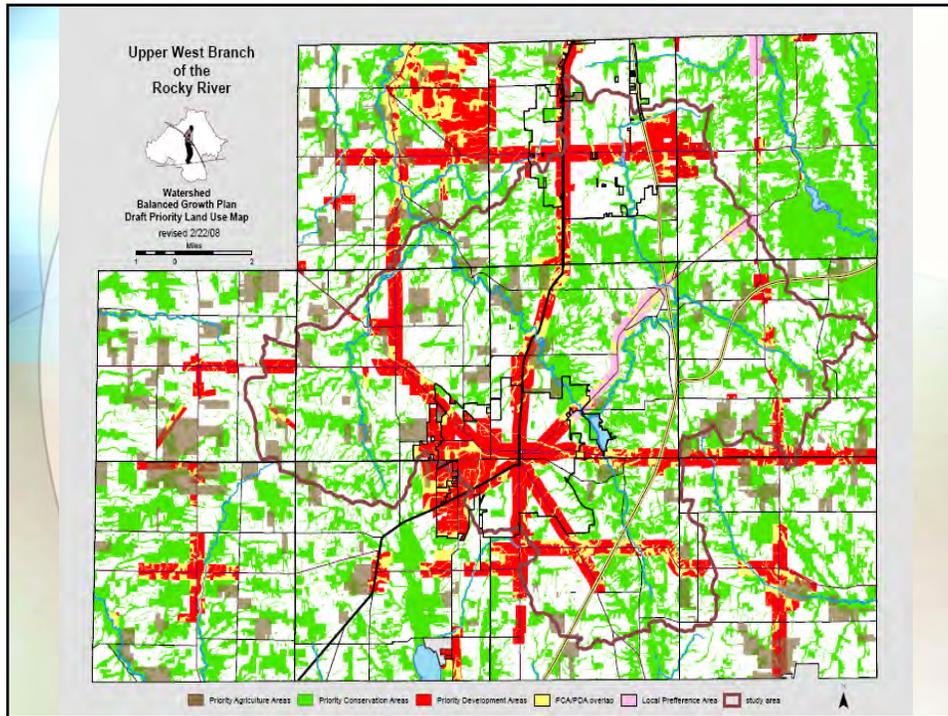


PCAs
predominate
But decision
tree for
conflicts by
parcel



Chagrin River Watershed Partners, Inc.

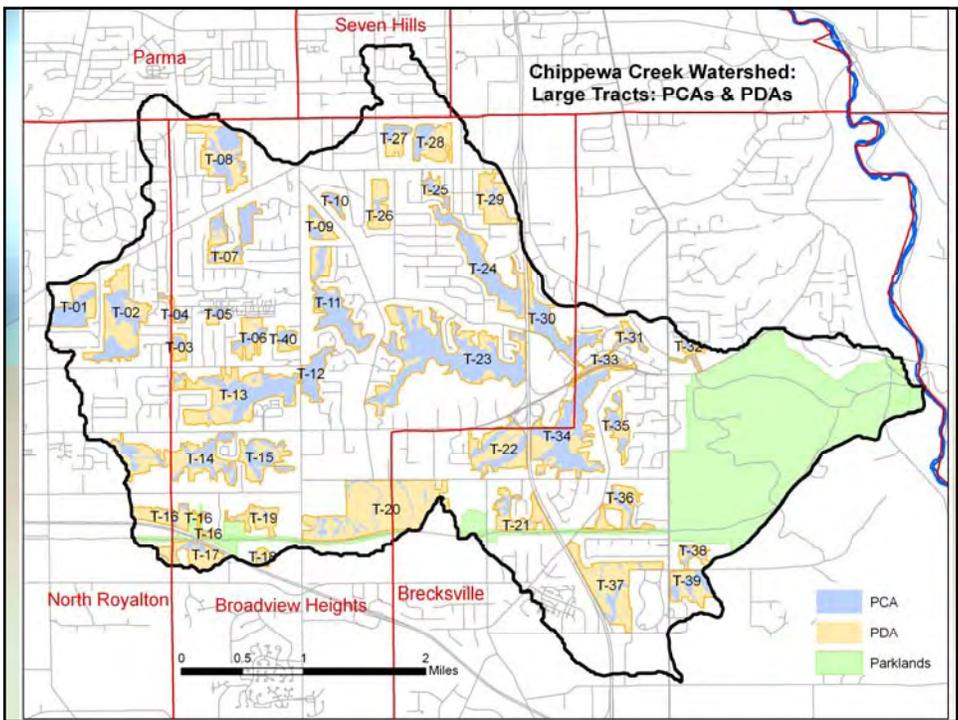
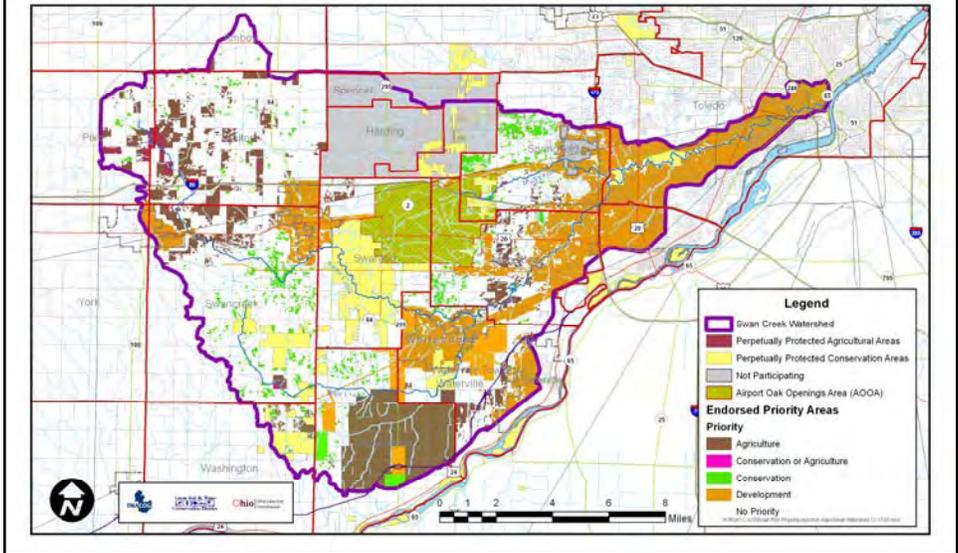
- Roads
- Watershed Boundary
- PDA
- PCA
- Municipal Boundary



West Branch Rocky River PCA/PDA Overlap Areas

“Apparent conflict areas exist where PCAs and PDAs intersect. It was felt, however, that since these areas could represent opportunities for incentives for either conservation or development, they should be shown in a unique color. While careful consideration would be required to determine the scope and type of development that may occur in these areas, they would be ideal for development that would incorporate innovative site designs with appropriate BMP’s to minimize impacts on stream quality. Examples of such designs and BMP’s could include green roofs, pervious pavement and other low impact designs. Additionally, a high percentage of the site would be maintained in a natural state with the opportunity for nature trails and such.”

All overlap of PCAs and PDAs resolved by technical committee (most were eliminated by using percentile approach).
 PCA / PAA overlap is designated on map (considered "not mutually exclusive" by technical committee).



Large, Undeveloped Tracts

- A total of 39 undeveloped areas
- These areas provide communities with opportunities to implement BG concepts
- Assessed each tract for PCA/PDA opportunities
- Designated Each Large Tract
 - PCA
 - PCA w/ conservation development
 - PCA- Restoration
 - PCA- Landlocked
 - PDA- Conservation Development
 - PDA- Recreation

Conclusion

- Begin with goals and criteria
- Suitability Analysis provides:
 - Preliminary PCAs & PDAs
 - Starting point for WPPs to take to local gov'ts
- Priority Analysis: up to the individual WPPs along with locals for final PCAs and PDAs