

# ***Parsing Parcels: Using GIS to Analyze Options for Farmland Preservation***

***Growing Wisconsin  
Spring 2007***



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Center for Land Use Education***

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## ***Presentation Outline***

- I. Why Care About Parcelization?
- II. Details of UWSP Parcelization Research Project
- III. Hypothetical Application of Research to Policy Analysis

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## ***I. Why Care About Parcelization?***

Working Definition of Parcelization:

***The division of land parcels into progressively smaller units***

- Ownership Units: Ownership Parcelization
- Legal Units: Tax Parcel Parcelization

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## I. Why Care About Parcelization?

Just as the division of tax parcels precedes division of ownership parcels, the division of ownership parcels precedes changes in land use, or *LANDSCAPE FRAGMENTATION*.

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Parcelization ...Is Followed By Development & Fragmentation



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## I. Why Care About Parcelization?

Nationwide, development pressures in rural areas continues to grow and the search for effective management techniques intensifies

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### I. Why Care About Parcelization?

State	Farmland Loss (2000-05)
Delaware	-10.34%
Hawaii	-9.72%
Massachusetts	-8.77%
Nevada	-7.35%
Vermont	-6.72%
Georgia	-5.41%
California	-5.04%
Wisconsin	-4.94%

Farms and Land in Farms. U.S. Department of Agriculture, National Agricultural Statistics Service. Washington, D.C.: February 2001 and January 2006. Summarized at cfed.org

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### I. Why Care About Parcelization?

We know more about what follows parcelization (land sales, developments, loss of farms, etc.) than we do about the first step in this process. This suggests a few questions...

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### I. Why Care About Parcelization?

- Is parcelization faster today than earlier times?
- Do policies impact parcelization, and if so, how?
- Can new or modified policies that target parcel creation improve the situation?

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*Why Work On This Now?*

- The development pressures seem intense
- Comprehensive planning in Wisconsin offers a chance to consider new growth management techniques
- Advances in GIS make the sort of historic spatial analysis needed to answer our questions feasible and practicable

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**II. Details of UWSP Parcelization Research Project**

- Funding through the USDA Rural Development National Research Initiative
- Competitive federal grant for projects that bring together research, education, and extension (22% success rate)
- Funding covers cost of graduate and undergraduate students and GIS staff at UWSP (\$380,000 over 4 years)

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**II. Details of UWSP Parcelization Research Project**

- **Goals**
  - Understand the drivers of parcelization
  - Measure potential effects that policies have on land division
- **Objectives**
  - Reconstruct parcel histories
  - Systematically analyze change over time
  - Communicate results

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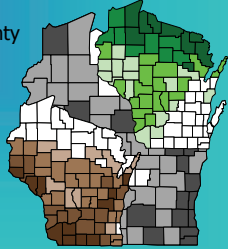
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## II. Details of UWSP Parcelization Research Project

### County Selection

- A. Non-metro adjacent county
- B. Community typology
- C. Data accessibility
- D. Favorable relationships



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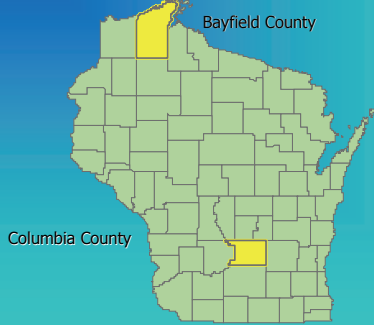
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## II. Details of UWSP Parcelization Research Project



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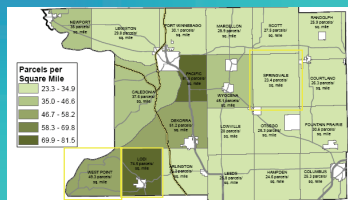
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## II. Details of UWSP Parcelization Research Project

### Township Selection

- A. Different rates of parcelization
- B. Addressing need for comprehensive plan
- C. Favorable relationships



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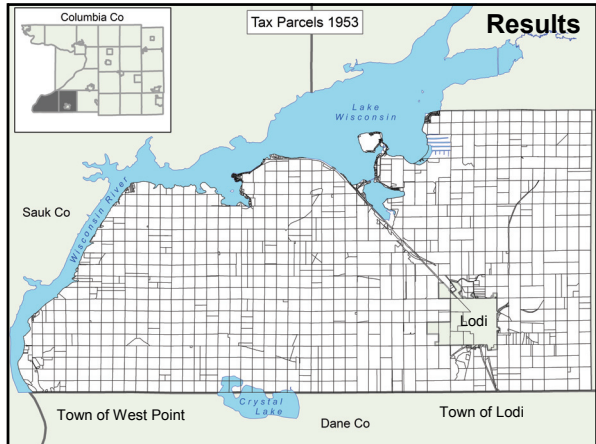
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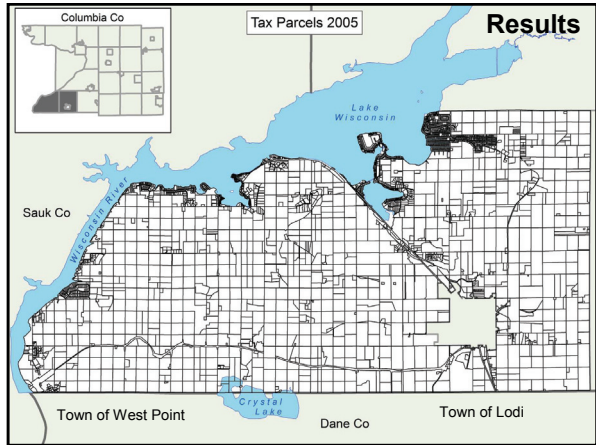
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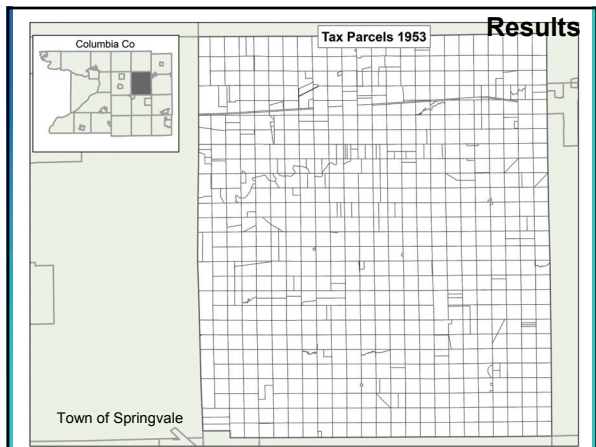
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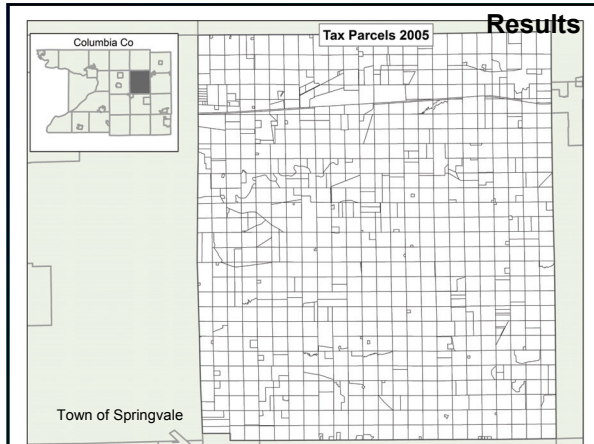
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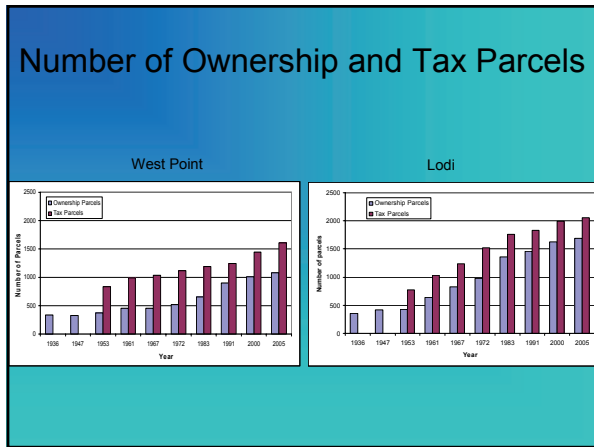
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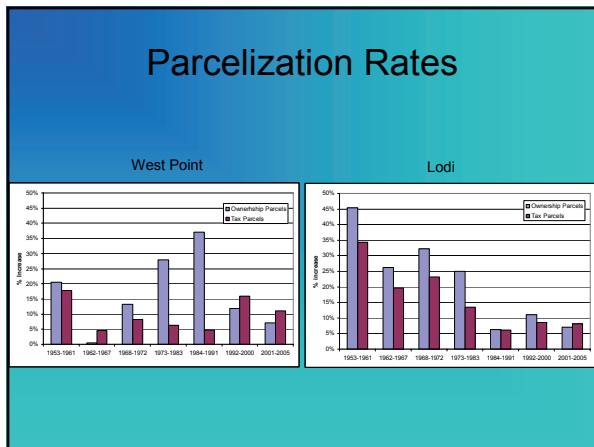
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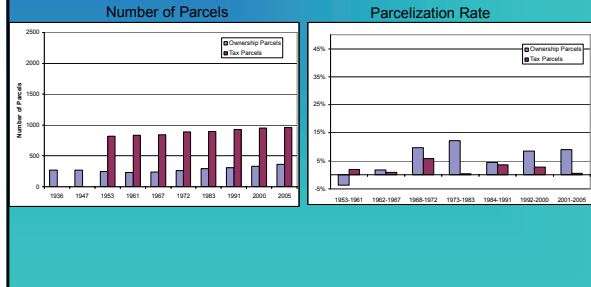
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## Number of Ownership and Tax Parcels

### Town of Springvale




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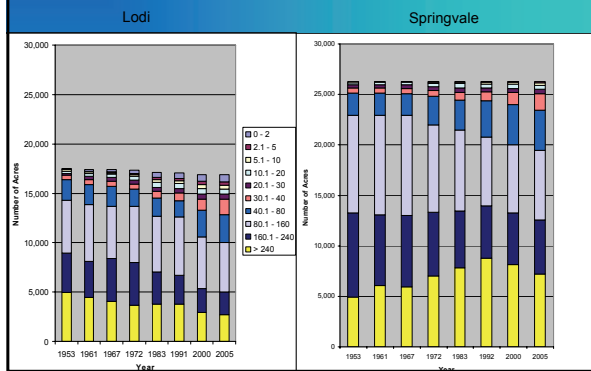
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## Acres Per Parcel Size Class




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These numbers have a  
**SPATIAL COMPONENT**  
 that simple tables would not  
 show




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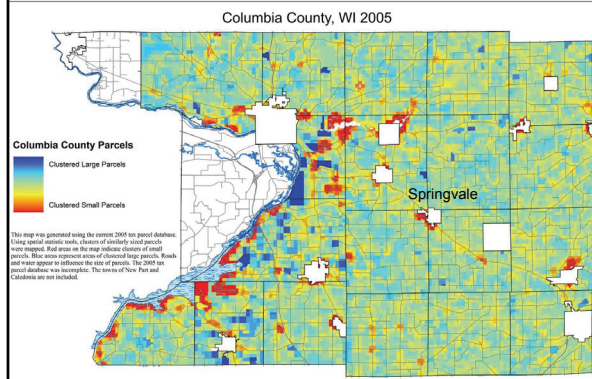
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## Spatial Dimensions of Parcel Patterns




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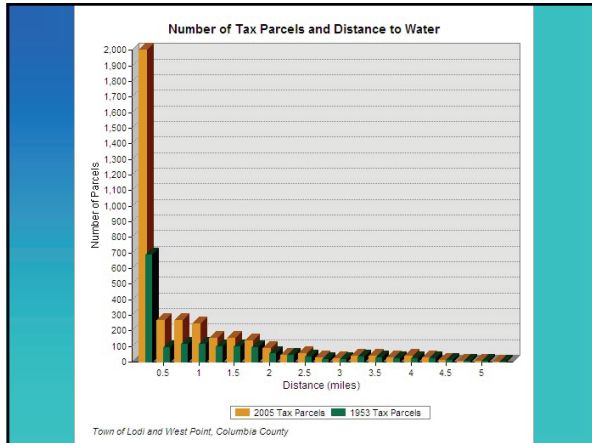
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### III. Hypothetical Application of Research to Policy Analysis

- How might this data set be used when considering land protection policies?
- Consider a hypothetical scenario wherein towns are considering a range of different possible "new rules" to change development patterns
- Handout summarizes some possible options

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### III. Hypothetical Application of Research to Policy Analysis

We are using Columbia County data for exploring these hypothetical options because this is where we have data; we plan to conduct similar analysis with Bayfield County towns for comparison. Given time and resources, we would extend this to a regional scale.

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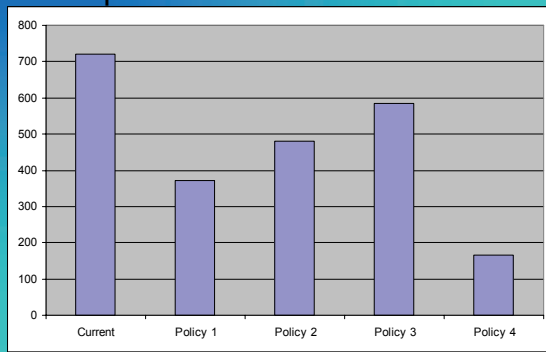
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### Hypothetical total number of future new parcels- Town of West Point



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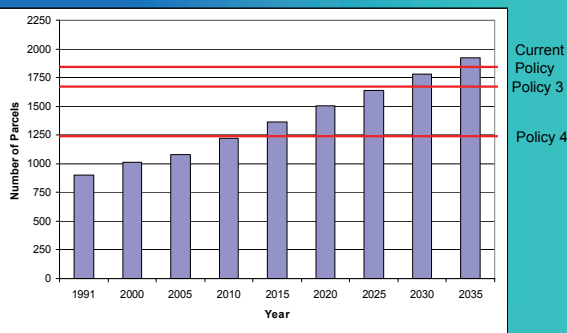
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### Past Trends Extrapolated to the Future- Town of West Point



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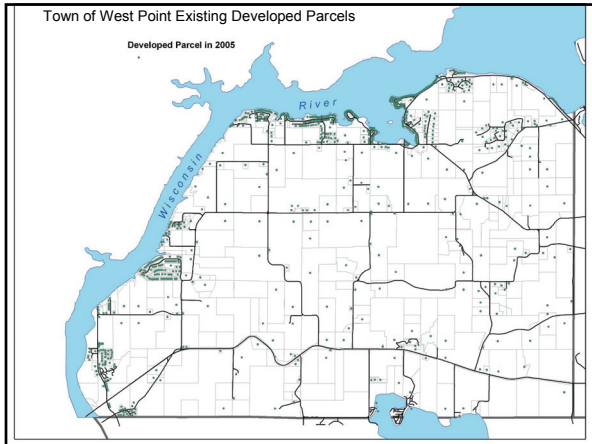
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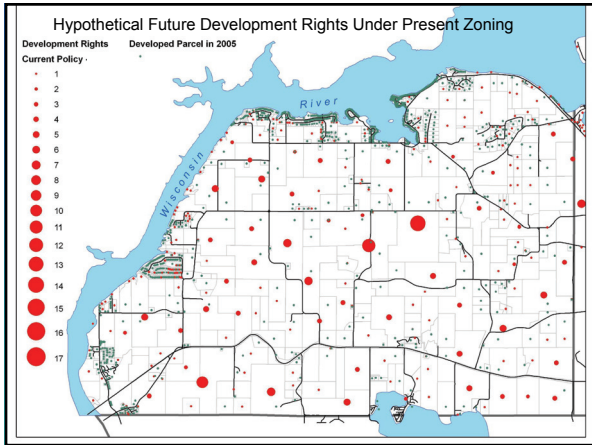
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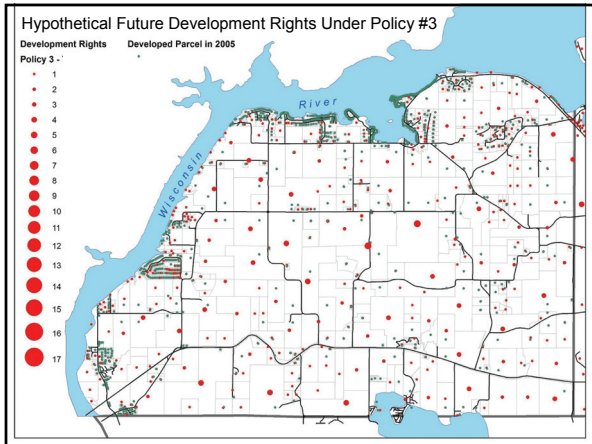
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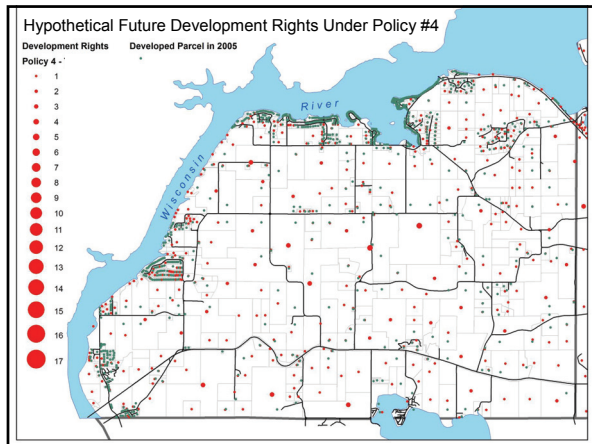
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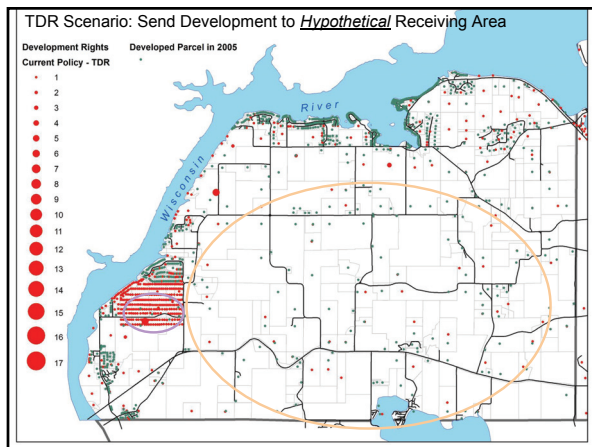
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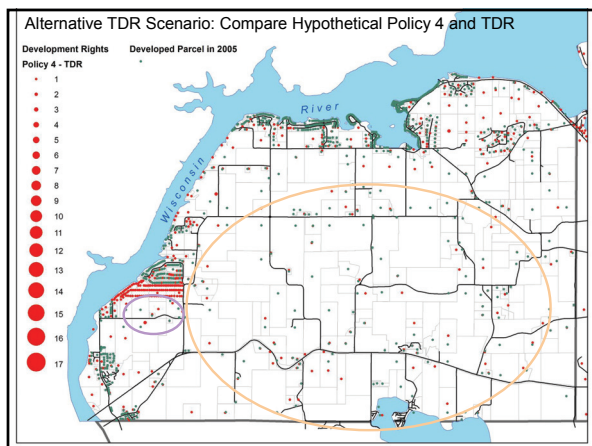
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## So What?

- Measure potential impacts of different policy alternatives
- Identify areas of concern (ecological, social, economical)
- Envision future landscapes



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## Concluding Remarks

- Differences among policies can matter
  - Some matter more than others
- Technology exists
  - Let's use it
- Think spatially



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## Questions?

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Dan McFarlane  
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FACTORS INFLUENCING LAND PARCELIZATION IN AMENITY RICH RURAL AREAS AND THE POTENTIAL CONSEQUENCES OF PLANNING AND POLICY VARIABLES  
CONTRACT/GRANT/AGREEMENT NO: 2005-35401-15924 PROPOSAL NO: 2005-01393



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