

Long Range School Planning for Wake County Public School System

Operations Research and Education Lab
August 22, 2005

OR/Ed. Lab



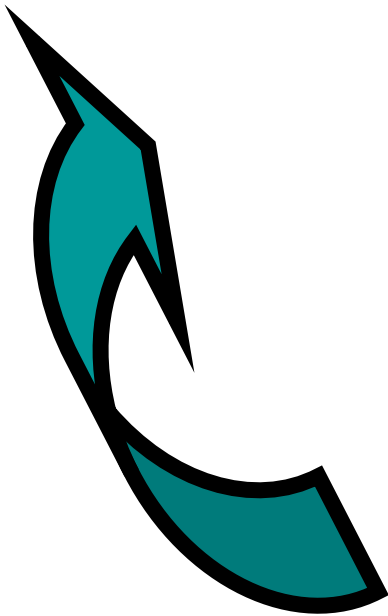
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WCPSS Long Range Planning

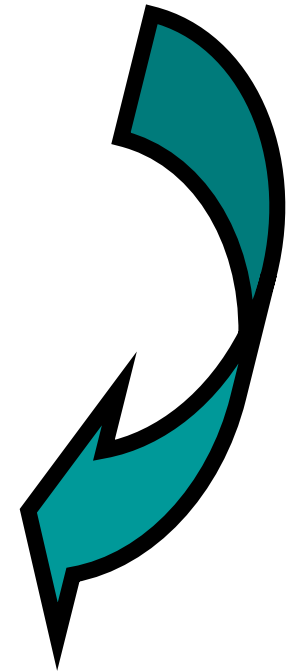
Student Projection Model



**Land Use
Planning Service Bureau**



- | | |
|-----------------------|---------------------|
| Town of Apex | Town of Cary |
| Town of Fuquay-Varina | Town of Garner |
| Town of Holly Springs | Town of Knightdale |
| Town of Morrisville | City of Raleigh |
| Town of Rolesville | Town of Wake Forest |
| Town of Wendell | Town of Zebulon |



WCPSS Long Range School Planning

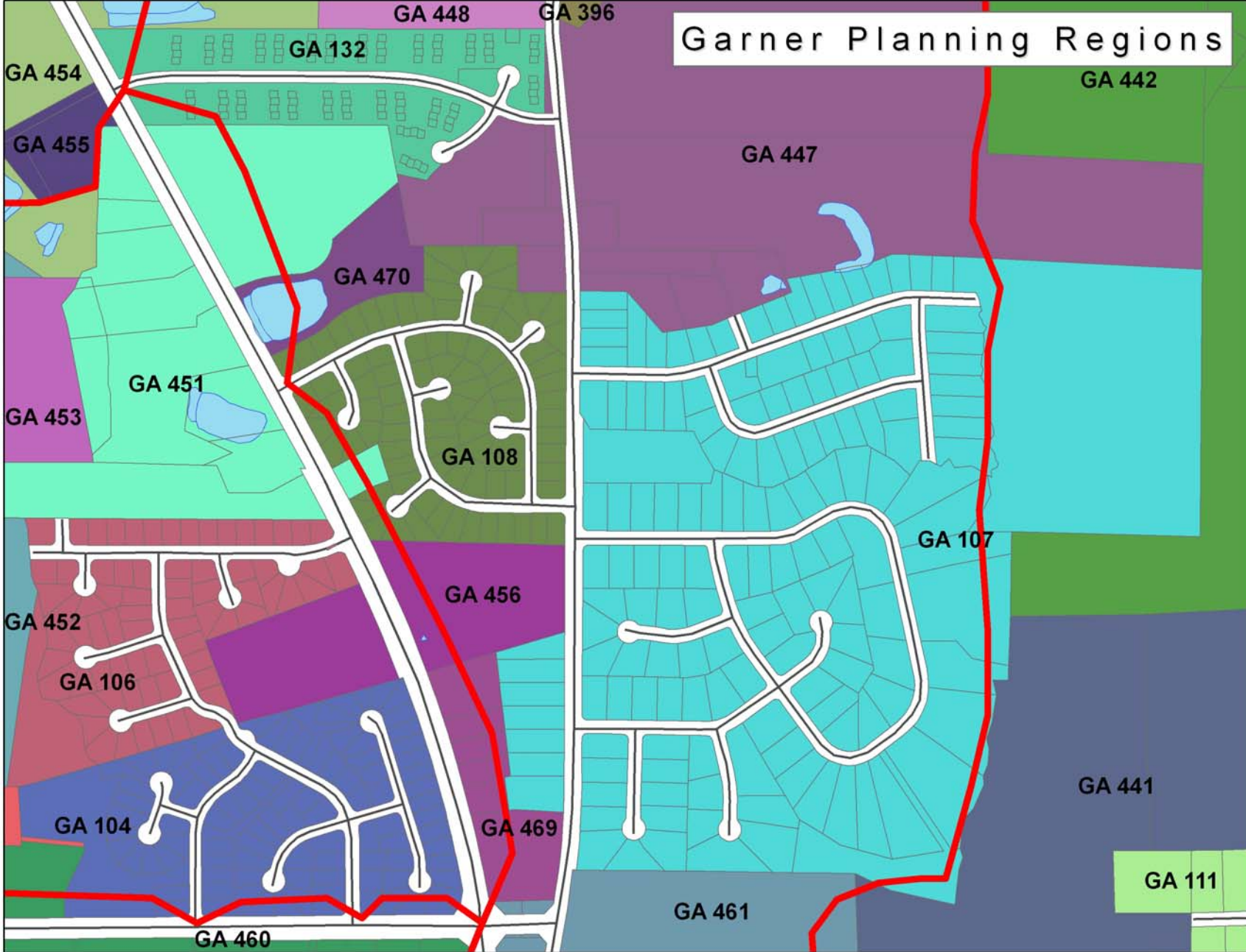
- **Phase I: Profile Classes/Planning Regions**
 - April – August 2005
- **Phase II: Land Use Study/Assignment of Profiles**
 - September 2005 – March 2006
- **Phase III: Location of Target Areas**
 - April – June 2006

Phase I Summary

Objectives

- Create Planning Regions/Profiles
- Community Engagement
- CAMPO/TRM Involvement

Garner Planning Regions



Planning Region Construction Priorities

1. Preserve node boundaries
2. Preserve jurisdiction boundaries
3. Exhibit uniform residential Land Use characteristics

Planning Regions

- Facilitate easy updates
 - Rapid developments
 - Node boundary changes
- Allow localized Student Generation Potential analysis
- Can be aggregated to any suitable larger geometry

Planning Regions

- ~ 280,000 parcels in Wake County
- 1134 WCPSS nodes
- 6152 Planning Regions
 - Rolesville: 121 Planning Regions
 - Raleigh: 2154 Planning Regions
 - From 1 to 788 parcels per Planning Region

Community Engagement

- 13 Stakeholder Interviews
 - April – June 2005
 - Planning Directors
 - Long-Range Planners
 - GIS Analysts
 - WCPSS Representative

Community Engagement

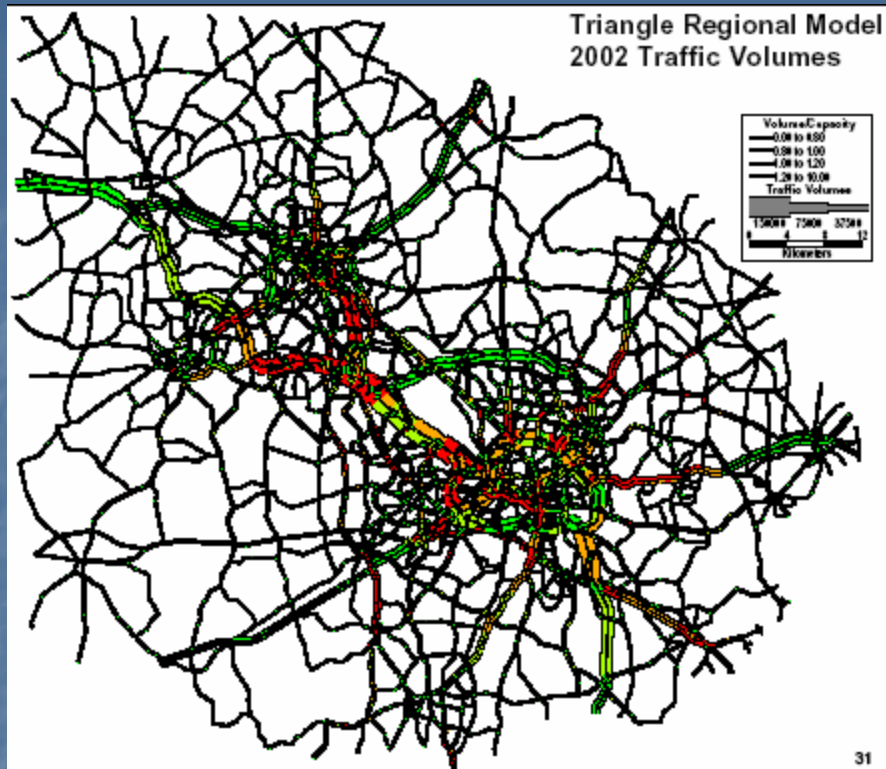
- Wake Forest, April 25, 2005. Chip Russell – Director, Chad Sary – Planner
- Fuquay-Varina, May 2, 2005. Mike Sorenson – Director, Danny Johnson – Sr. Planner, Lee Ann Billington – Long Range Planning
- Garner, May 3, 2005. Brad Bass – Director, David Bamford – Long Range Planning/GIS
- Apex, May 4, 2005. Dianne Khin – Senior Planner, David Rowland – Director
- Zebulon, May 6, 2005. Lyddia Pritchard – Director
- Knightdale, May 6, 2005. Mike Frangos – Director
- Raleigh, May 10, 2005. Karen Duke – Senior Planner, Martin Stankus – Senior Planner, Beth Stagner – GIS
- Wake County, May 12, 2005. Sharon Peterson – Planner III, Tim Clark – Long Range Planning, Jennifer Song – Planner II.
- Morrisville, May 25, 2005. Rodney Wadkins – Senior Planner, Tim Gauss – Director of Developmental Service
- Rolesville, May 26, 2005. Bryan Hicks – Director
- Wendell, June 1, 2005. Teresa Piner – Director, Chris Hills – Planner.
- Cary, June 2, 2005. Jeff Ulma – Director, Scott Ramage– Principal Planner, Greg Barnes - Planner, Amity Little – GIS Specialist
- Holly Springs, June 23, 2005. Gina Bobber – Director, Beth Trautz – Planning Technician, Jeff Jones – Planner II

Community Engagement

- Stakeholders are eager to participate in study
 - Positive response to municipality involvement in school site selection
 - Devote Department resources to Phase II
 - Contributed Land Use Plan data
 - Test runs and feedback from several stakeholders
- Stakeholders gain from a **RECIPROCAL** relationship with WCPSS

CAMPO/TRM Involvement

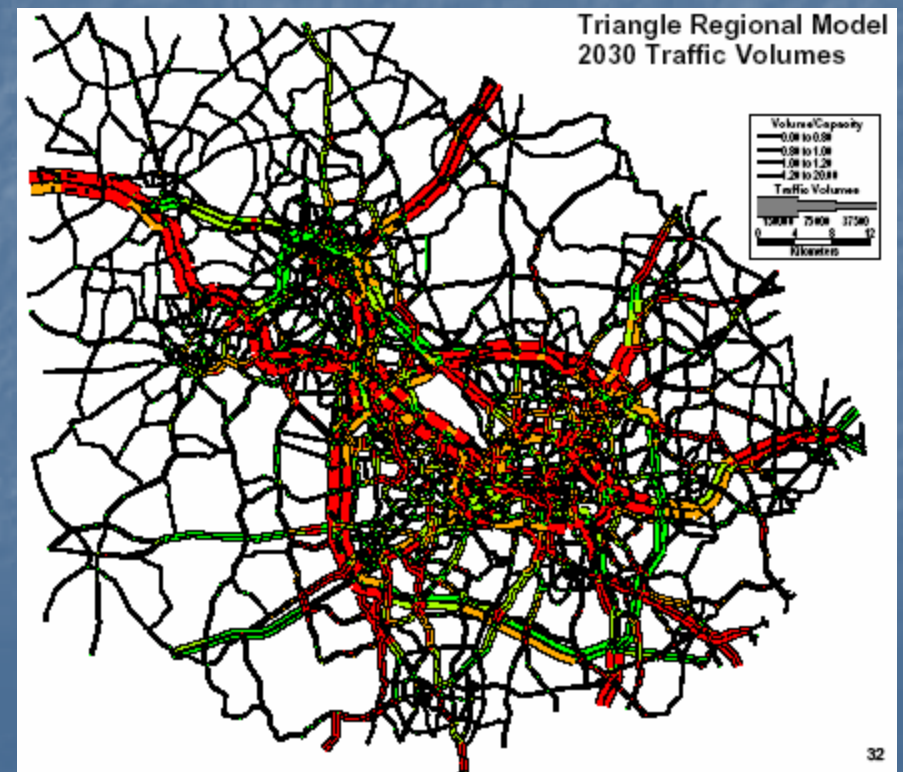
Capital Area MPO is responsible for the Wake County travel demand data used by the TRM (Triangle Regional Model), which forecasts traffic demands on existing transportation infrastructure.



L/R Transportation Plan Fed. Requirements

- The plan must be “multimodal”
- Planning horizon of at least 20 years
- Financially constrained
- Sensitive of air quality, the forecasted emissions on the future transportation system cannot exceed our emissions “budget”
- The plan must have an environmental justice component

- Consider school generated trips attributed by future school sites as part of the travel demand forecast
- Consider future school sites when developing transportation improvement plans
- Potential to consider transportation attributes when selecting school sites



Phase II: Sept. 2005 – March 2006

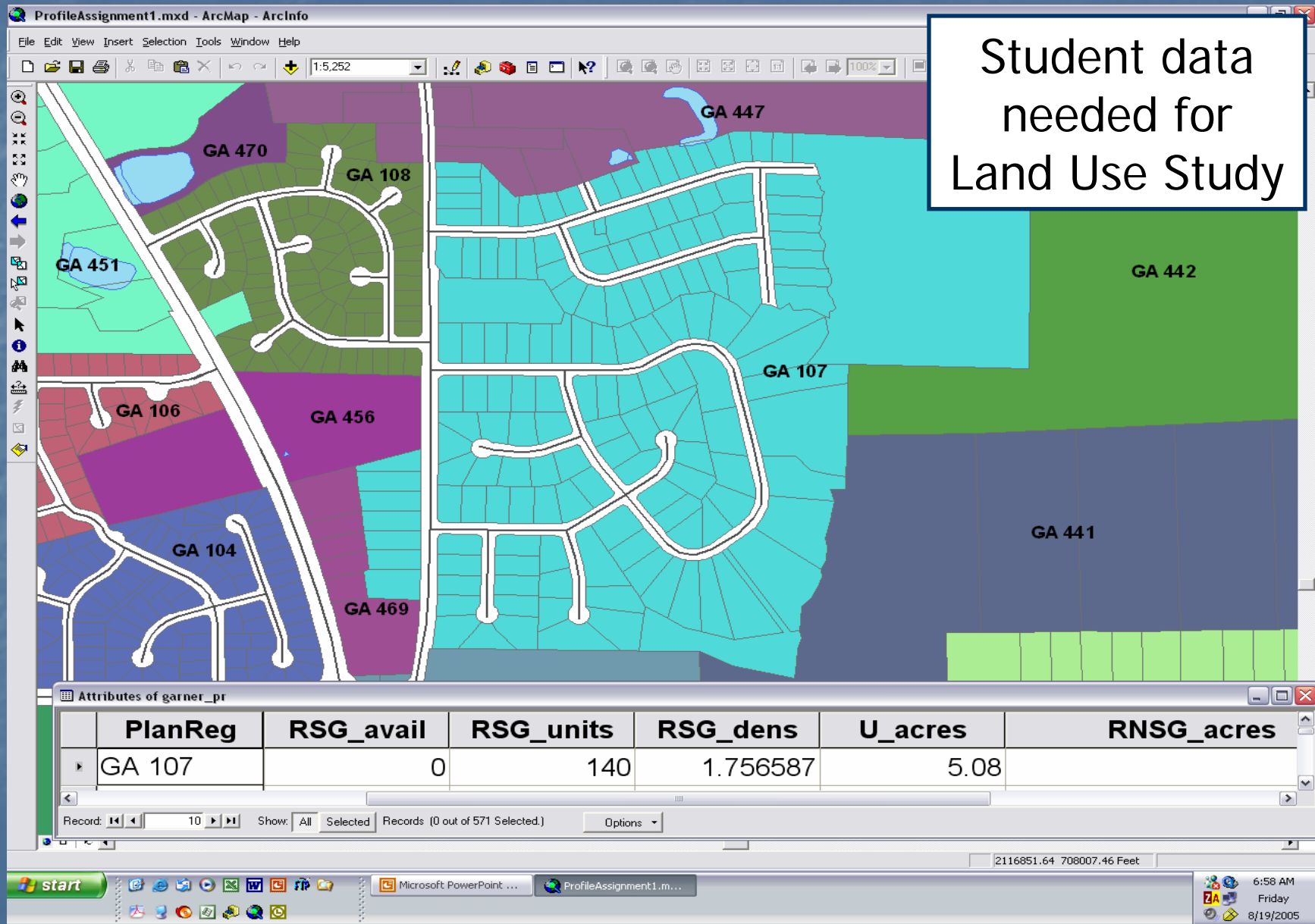
- Stakeholder Land Use Study
- Lab/WCPSS Student Generation Analyses
- Operations Research

Stakeholder Land Use Study

Each municipality and Wake County will assign Profiles and estimate residential build-out for all Planning Regions in their jurisdictions.

Non-residential development will also be estimated for CAMPO study.

Stakeholder Land Use Study

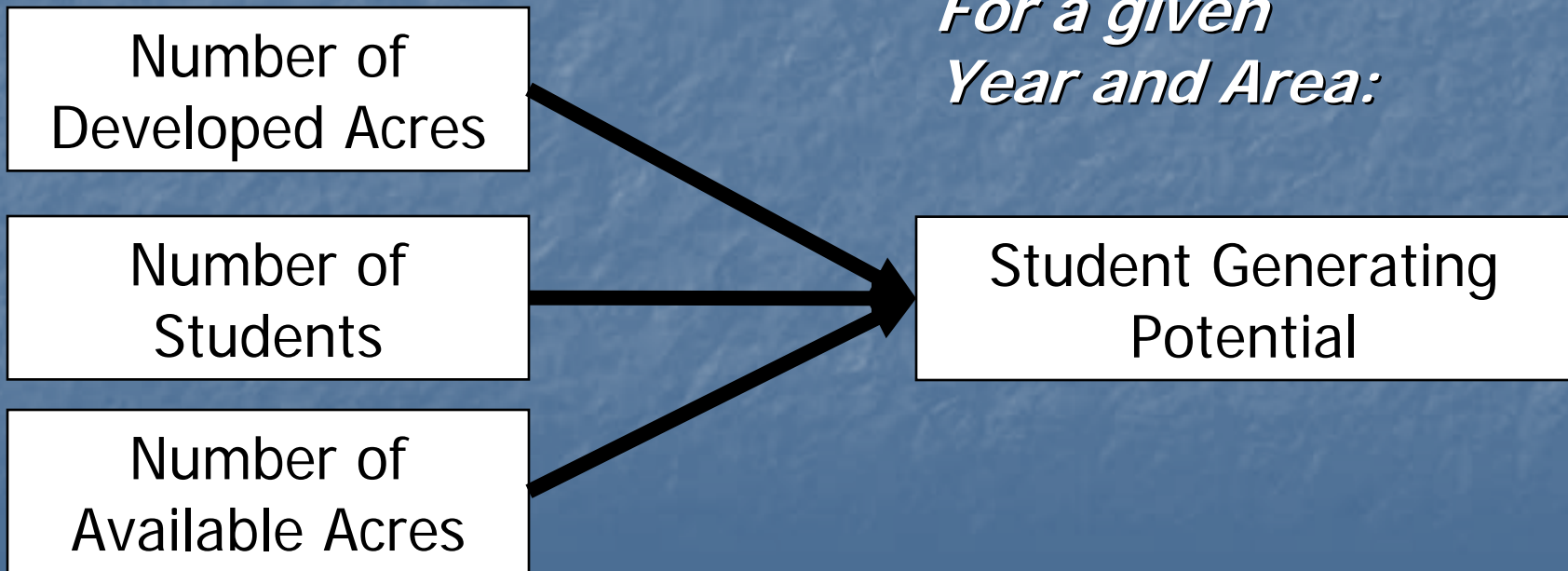


Stakeholder Land Use Study

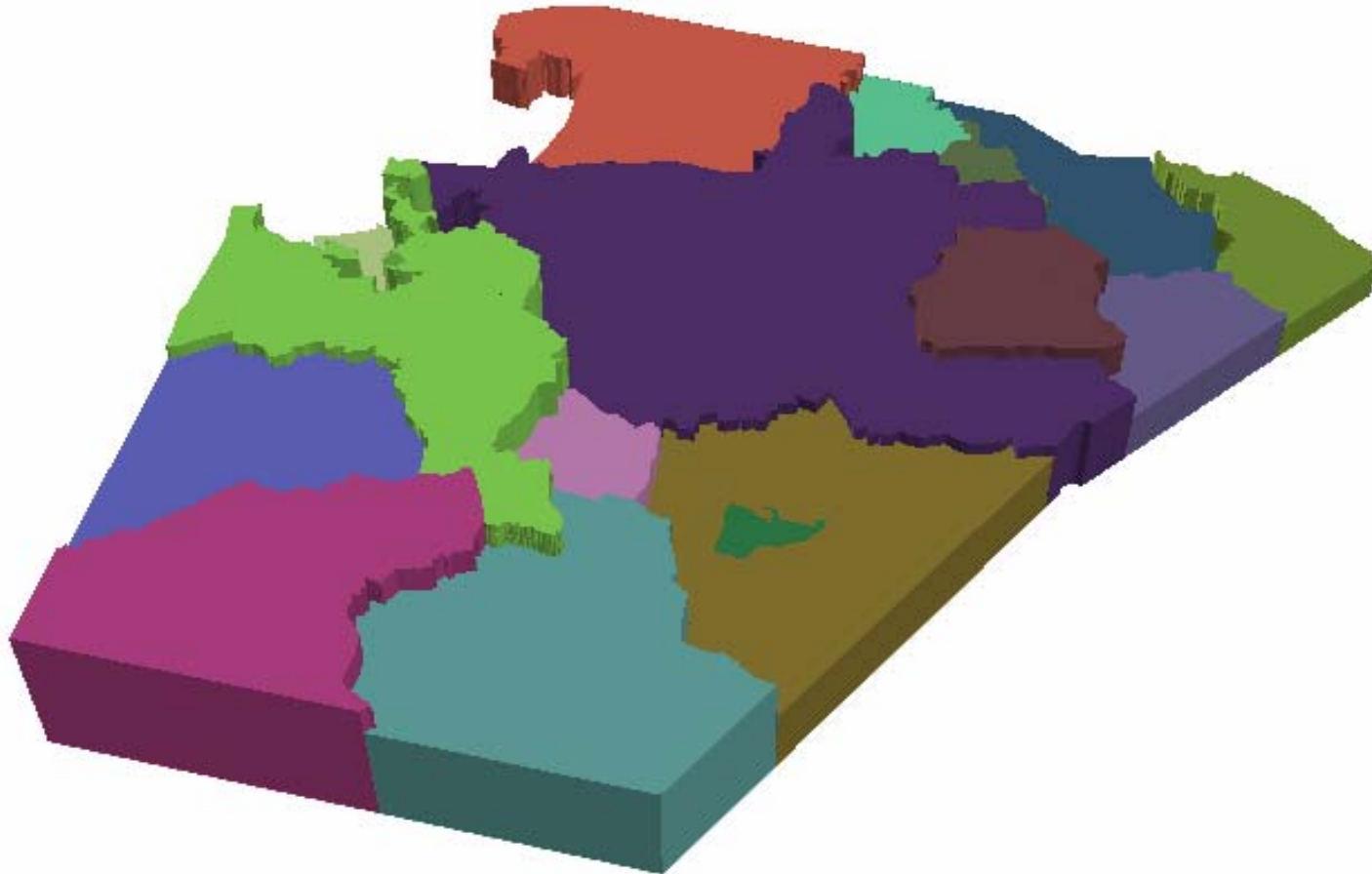
These detailed parcel-level forecasts of residential growth will produce a county-wide projection of basic enrollment needs.

Stakeholder Land Use Study

Planning Regions will be aggregated to a determined geometry and the Student Generating Potential by area can be compared.

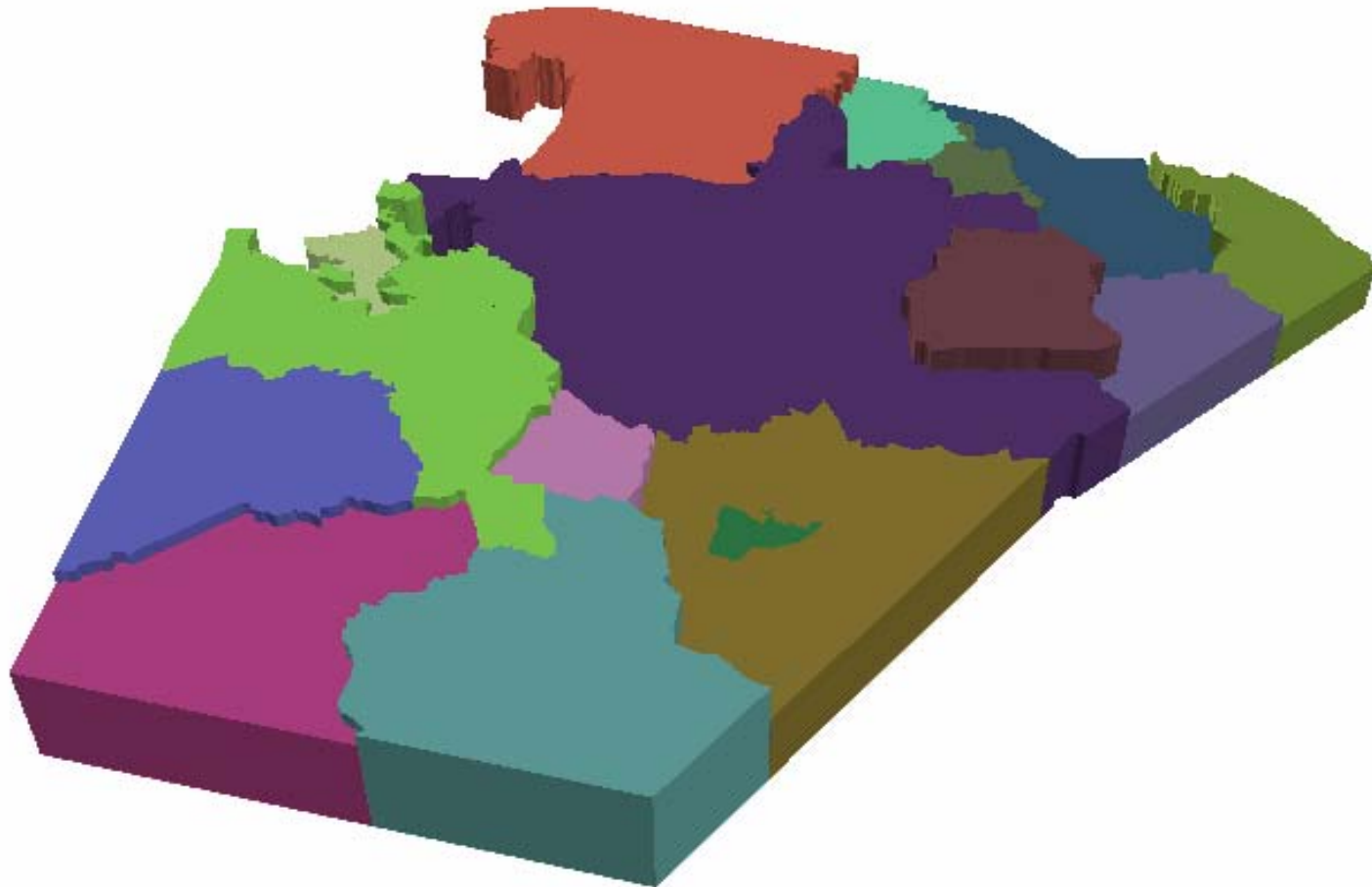


2005

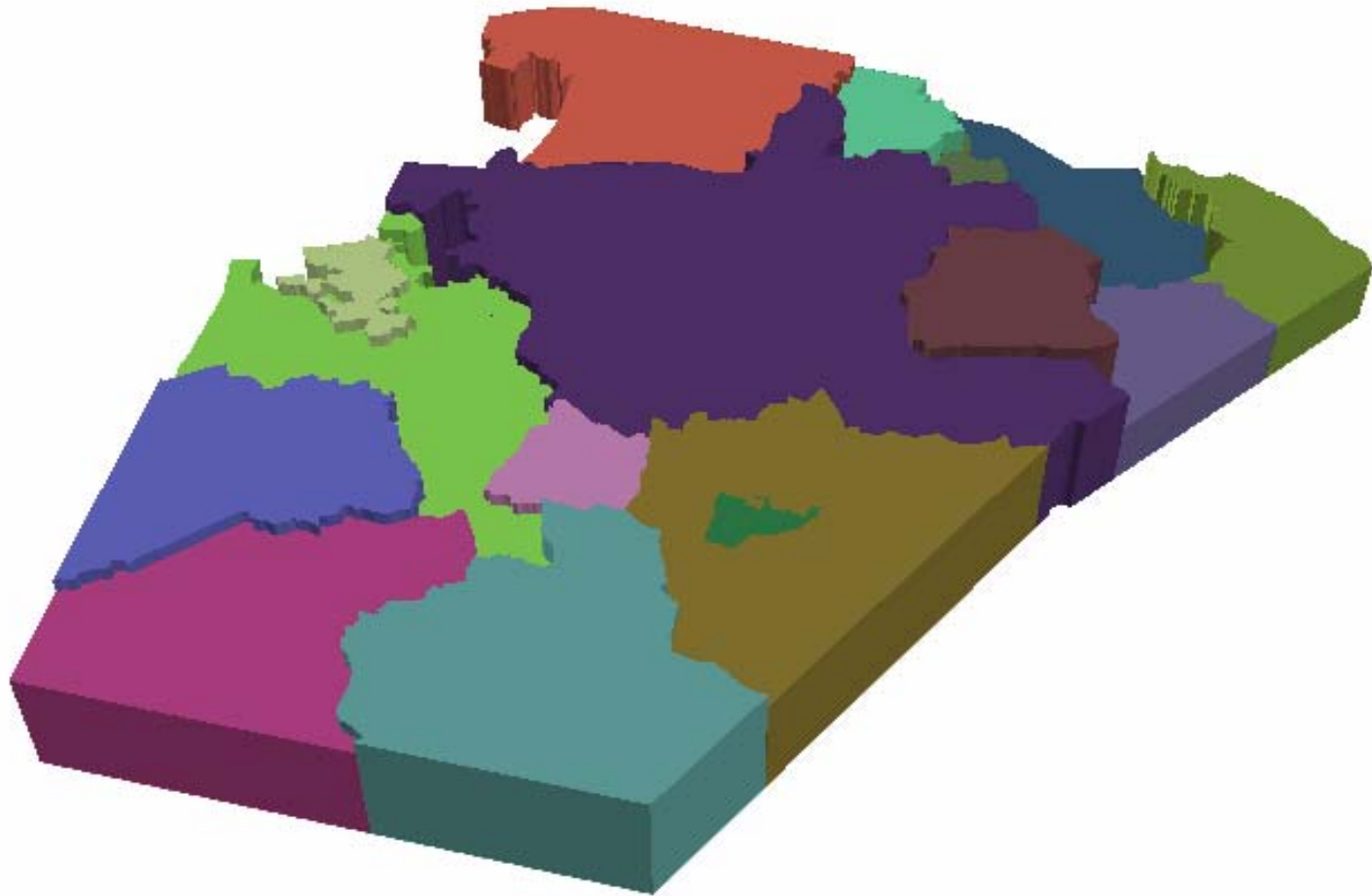


* Heights represent hypothetical relative growth.

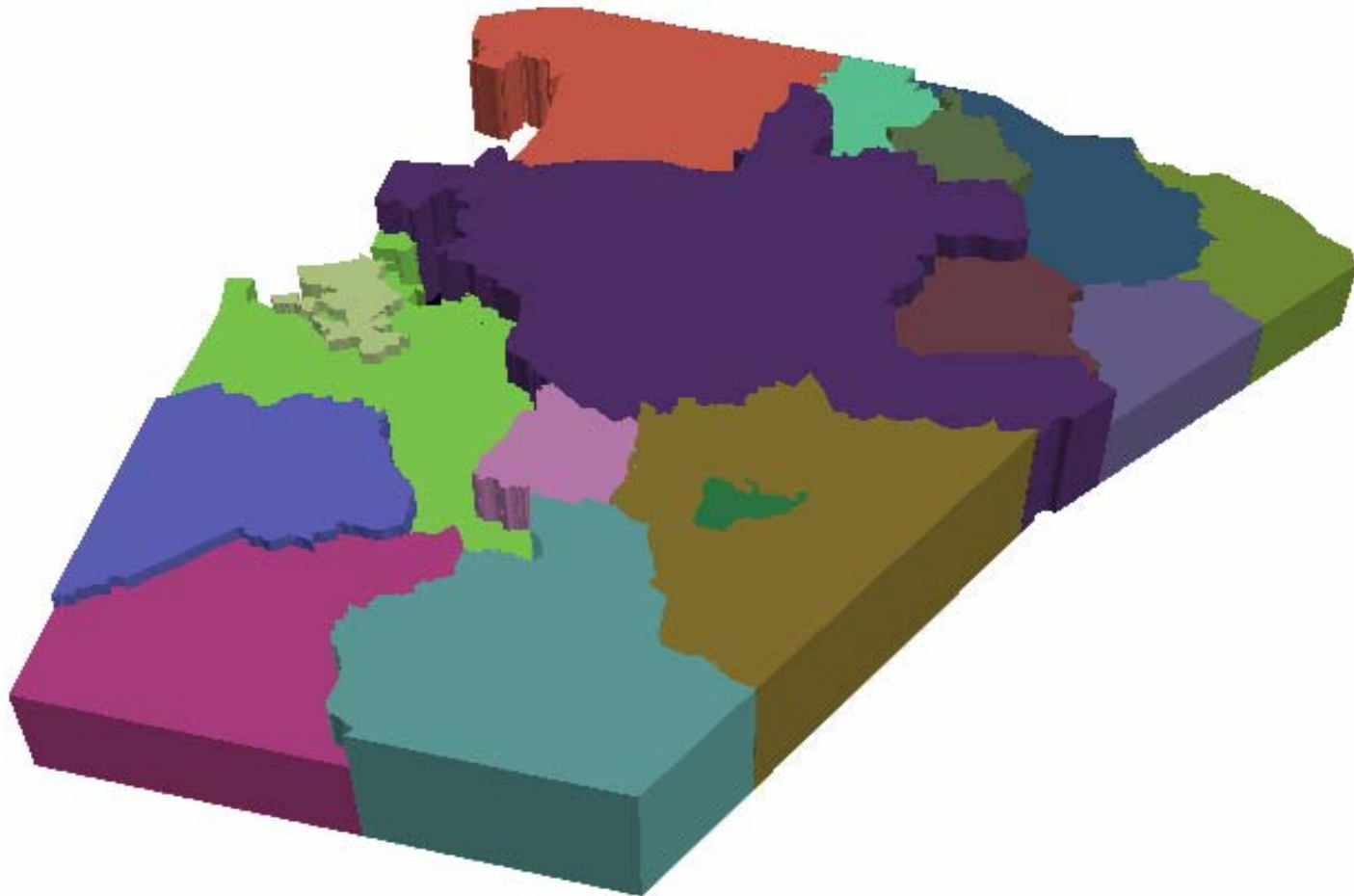
2010



2015



2025



Lab/WCPSS Student Generation Analyses

- Lab/WCPSS analysis will relate student generation potential to Land Use.
- The Land Use study data will provide a foundation for student population growth by residence.

Operations Research

The WCPSS Long-Range School Building Plan provides the opportunity to incorporate various constraints into the site selection process.

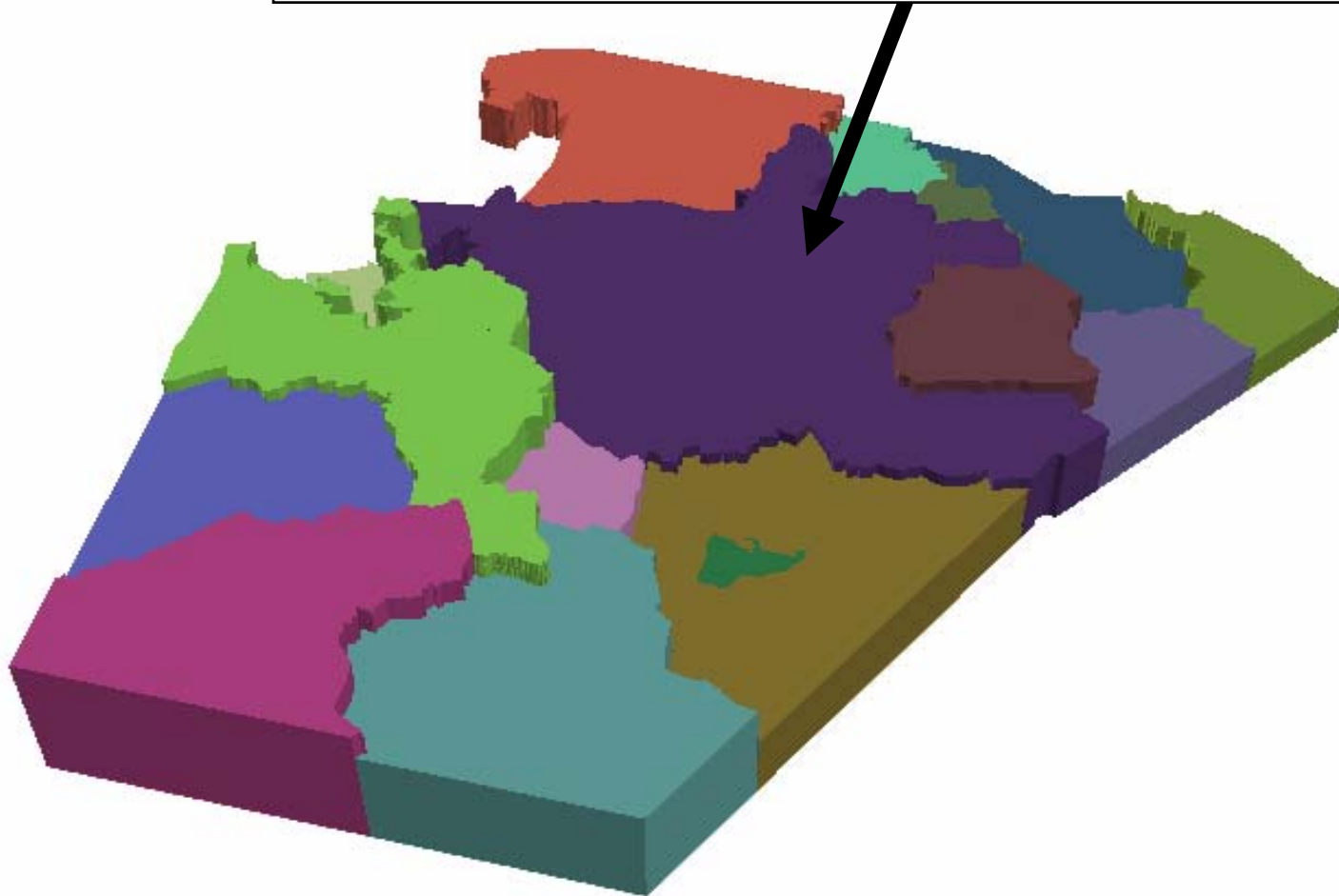
Phase III: April – June 2006

- Location of Optimal Sites
 - OR/Ed. Lab will work with WCPSS to evaluate school needs by municipality USA or HS area based on forecasted enrollment and projected school capacity.
 - Lab will use optimization models to generate system-wide pool of target areas for school site land banking.

2005

Raleigh 2005 K-5: 39,000

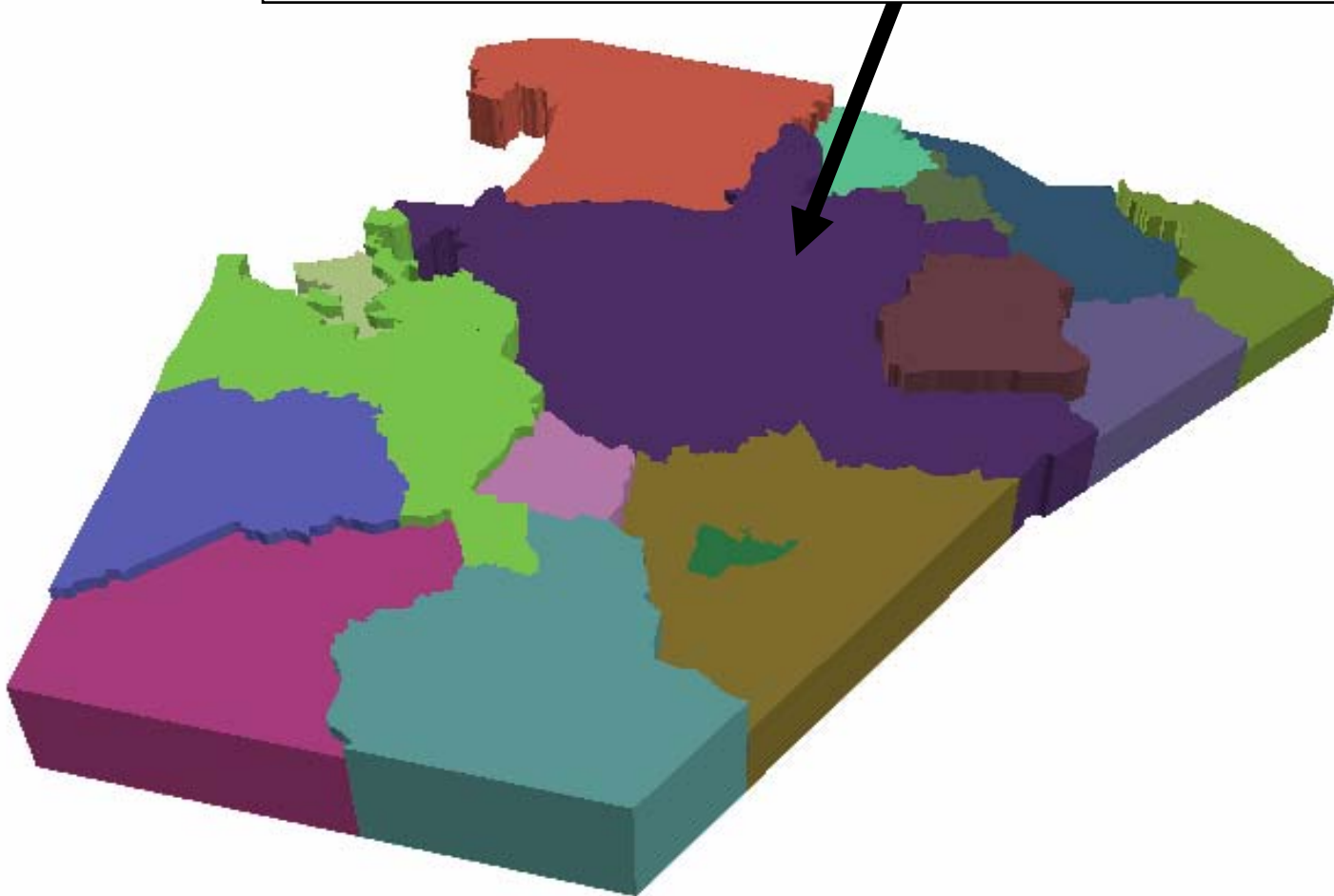
Raleigh Existing K-5 Capacity: 39,000



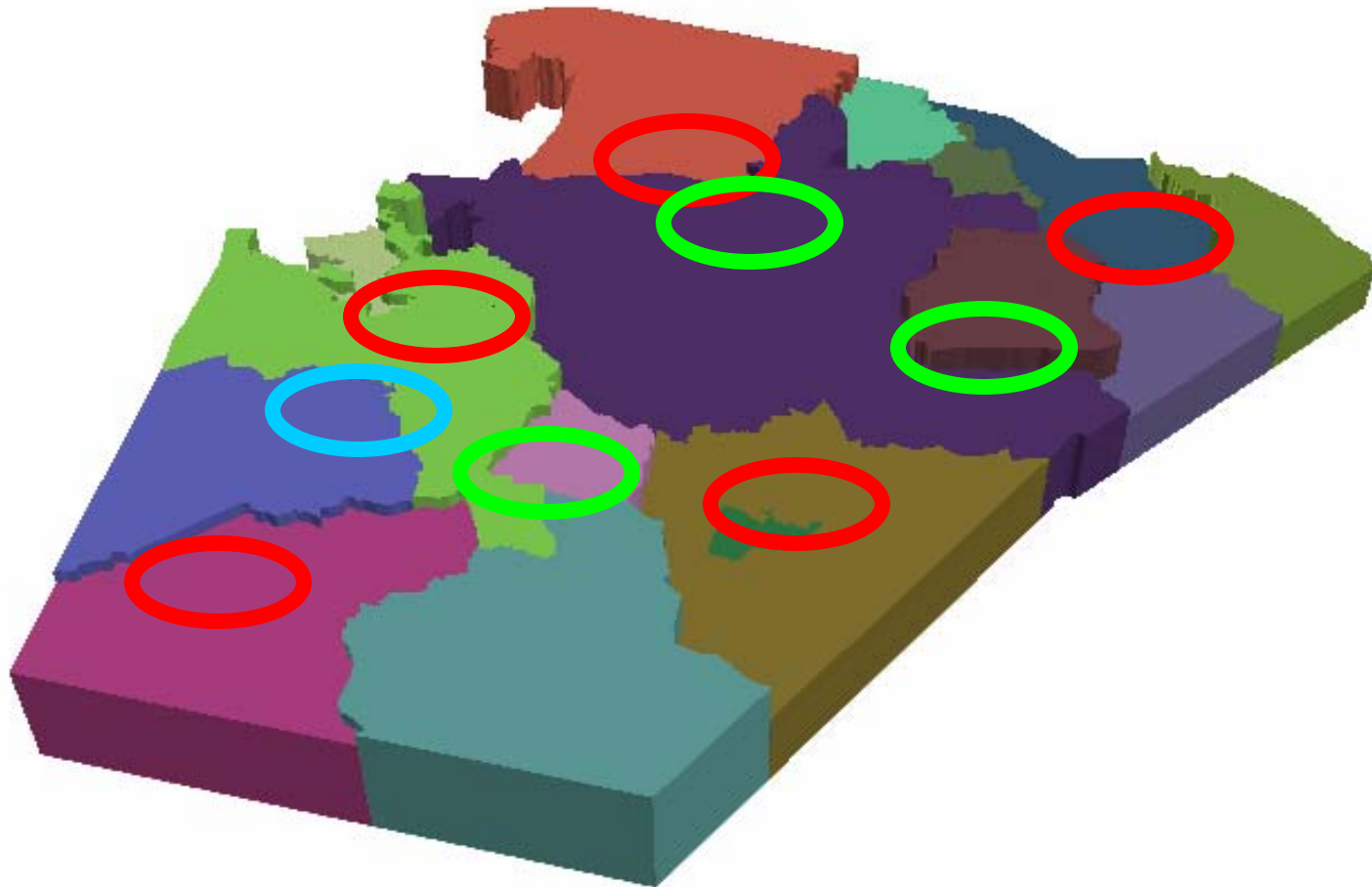
* Heights represent hypothetical relative growth.

2010

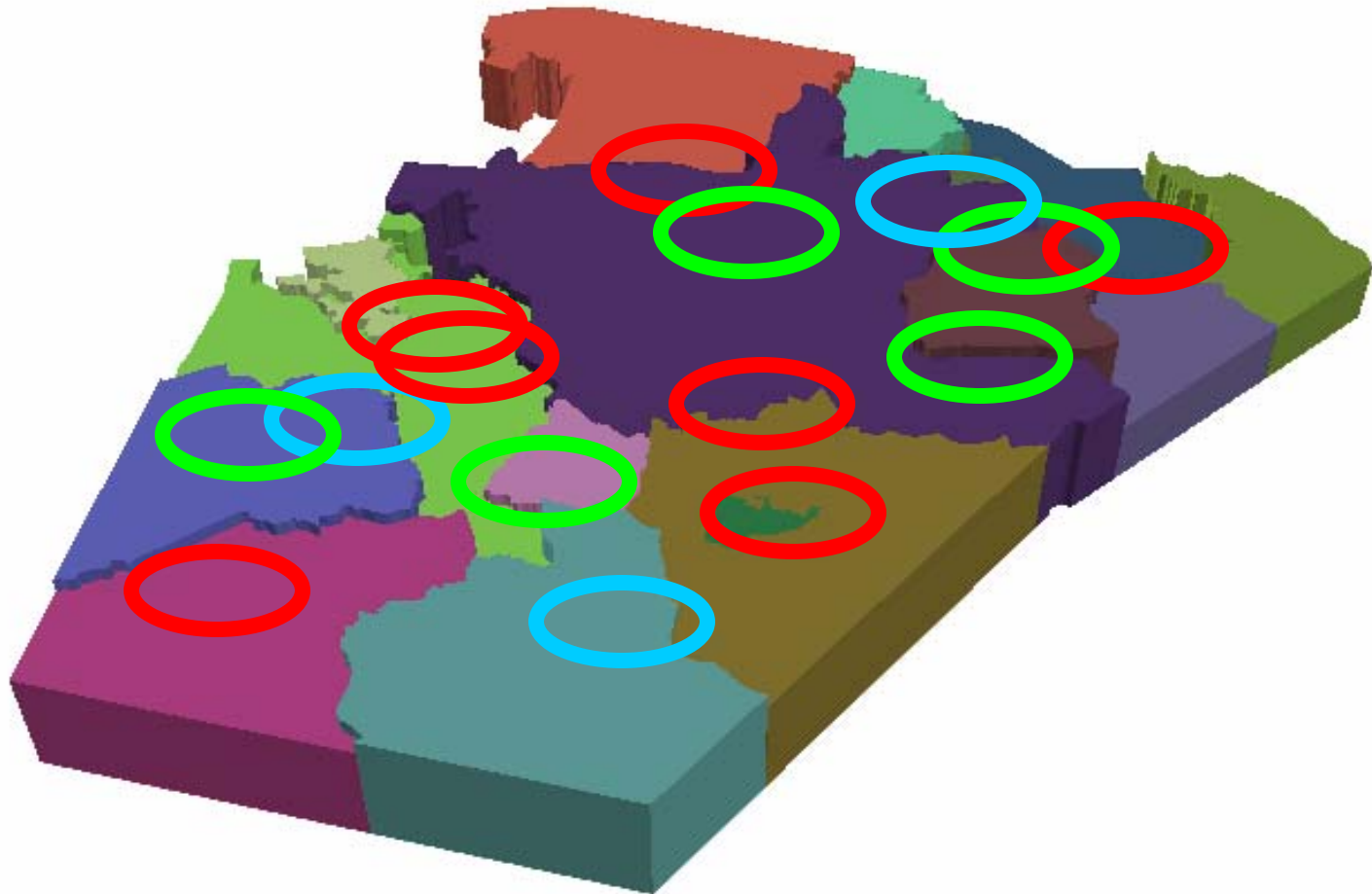
Raleigh 2010 Projected K-5: 40,000
Raleigh Existing K-5 Capacity: 39,000



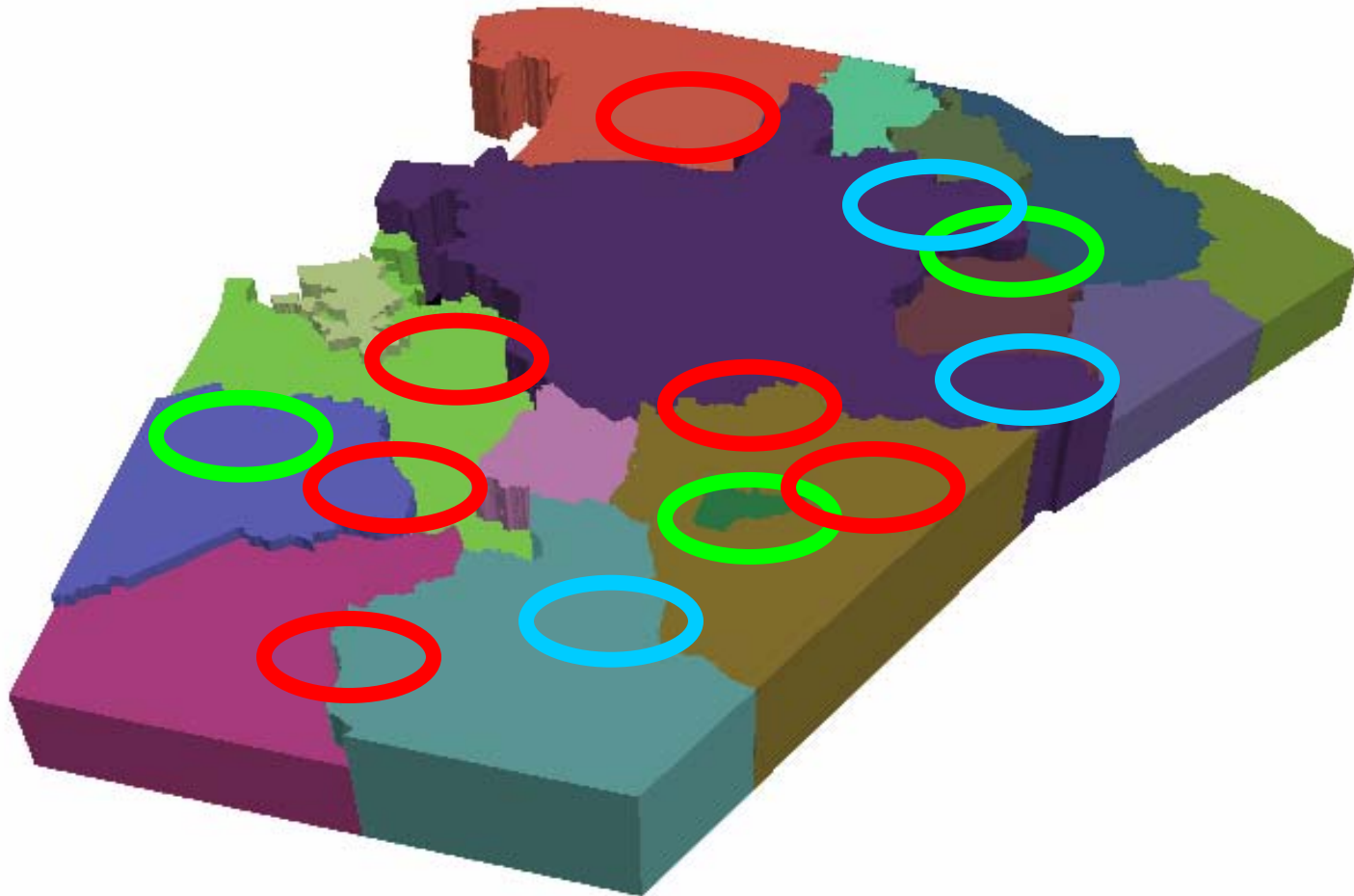
2010



2015



2025



Location of Optimal School Sites

- 5 - 20 years
- Capacity needs on a municipality USA or HS area resolution
- Target area “circles” identifying optimal school sites satisfying OR constraints

Final Products

- Geodatabase summary of county Long-Range residential Land Use plans.
- Land Use based student generating potential
- Student population distribution model
- Target areas for school site land banking
- Culture of collaboration between WCPSS Long-Range Plans and Community Long-Range Plans

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