

# Institute for Transportation Research and Education Operations Research and Education Lab (OR/Ed. Lab)

## *Integrated Planning for School and Community*

A series of data-based and policy-driven processes for forecasting school enrollment and determining the best locations for new schools and how they will affect future attendance boundaries through the applications of operations research methodologies.

- Forecasting
- Land Use Studies
- Planning Segment Analysis
- Capacity Analysis and Forecast
- School Location Optimization
- School Attendance Boundaries Optimization

# OR/Ed. Lab Clients

- ▶ Alamance County Schools - 02, 03
- ▶ Asheboro City Schools - 04
- ▶ Bladen County Schools - 04
- ▶ Buncombe County Schools - 98, 99
- ▶ Brunswick County Schools – 03, 04
- ▶ Chapel/Carrboro Schools - 95, 96, 97, 98, 99, 00, 01, 02
- ▶ Chatham County Schools - 04
- ▶ Craven County Schools - 96, 97, 98, 99, 00, 01, 02, 04
- ▶ Iredell-Statesville Schools - 98, 99, 00, 01, 02, 03, 04
- ▶ Gaston County Schools - 98, 99, 00, 01, 02, 03, 04
- ▶ Granville County Schools - 02, 03, 04
- ▶ Guilford County Schools - 94, 95, 96, 97, 98, 04
- ▶ Harnett County Schools - 98, 99, 00, 01, 02, 03
- ▶ Haywood County Schools – 99
- ▶ Hertford County Schools – 01
- ▶ Hoke County Schools - 99
- ▶ Johnston County Schools - 95, 96, 97, 98, 99, 00, 01, 02, 03, 04
- ▶ Lenoir County Schools – 03
- ▶ Moore County Schools - 04
- ▶ Mooresville Graded Schools - 99, 00, 01, 04
- ▶ Nash-Rocky Mount Schools - 04
- ▶ New Hanover County Schools - 95, 96, 97, 98, 99, 00
- ▶ Onslow County Schools – 03, 04
- ▶ Orange County Schools - 95
- ▶ Richmond County Schools - 00
- ▶ Rock Hill, SC School District #3 - 02, 03, 04
- ▶ Pitt County Schools - 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 00, 01, 02, 03, 04
- ▶ Stokes County Schools, 05
- ▶ Union County Schools - 99, 00, 01, 02, 03, 04
- ▶ Wayne County Schools - 95
- ▶ Wake County Schools – 97, 04

# Current WCPSS Long Range Planning: *Student Projection Model*

- ▶ System level forecast projects out for 20 years
- ▶ Forecasts adjusted and updated jointly by Wake County Planning and WCPSS
- ▶ System level forecast is allocated into six planning areas based on historical growth



# Current WCPSS Long Range Planning: Challenges

- ▶ Planning areas have limited connectivity to attendance boundaries or nodes
- ▶ Planning area level forecasts do not consider county and municipalities' long range land use plans
- ▶ Lack of opportunity to develop an understanding among county and municipalities on the forecasted school population
- ▶ Land acquisition approach addresses near-term needs (less than 5 years)

# WCPSS Long Range Planning: *Proposed framework*

- ▶ Develop a consensus-based long range school planning process that involves Wake County government, city/town governments and WCPSS (*stakeholders*)
- ▶ **Starting point of agreement:** Wake County/WCPSS Student Projection Model
- ▶ Anticipated Outcomes:
  - Development of "OR/Ed. Planning Regions"
  - Identify pool of school target areas for long range planning
  - Near-term decision support for school sites and attendance boundaries

# WCPSS Long Range Planning

## *Development of "OR/Ed. Planning Regions"*

- ▶ OR/Ed. Planning Regions are to be constructed jointly by stakeholders.
- ▶ System level projection from Student Projection Model is allocated to the OR/Ed. Planning Regions. The allocation mechanism is based on a comprehensive land use study based on land use data supplied by stakeholders.
- ▶ Consensus building with stakeholders on allocated growth.

# WCPSS Long Range Planning

## *Identify pool of target areas for land banking*

- ▶ Pool of Target Areas: In each *OR/Ed. Planning Region*, analyze projected school capacities with land use data and student generating potential
  - Input: forecasted school-age population in a defined area, school capacity, # of new schools needed and capacity
  - Output: Pool of school target areas



# WCPSS Long Range Planning

## *Decision support for near-term school sites*

- ▶ When the time comes to make a final decision on school sites, target areas will be evaluated based on:
  - WCPSS: Cost of development, availability of utilities, student reassignment history, Healthy Schools, transportation distance, etc.
  - OR/Ed. Lab: Recent student growth data, Healthy Schools, transportation distance, student reassignment history, demographics, etc.
- ▶ Output: a policy-driven, data-based process to select school sites from pool of banked sites

# Long Range Planning Framework

*Student Projection Model*



**NC STATE UNIVERSITY**



*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     |

