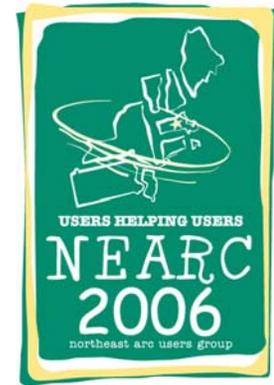


The RI LC/LU04 Project

- **Rhode Island**

- RIDOA/Statewide Planning & RIGIS
- RI Dept. of Environmental Mgmt.
- The University of Rhode Island, EDC
- Mapping & Planning Services Inc

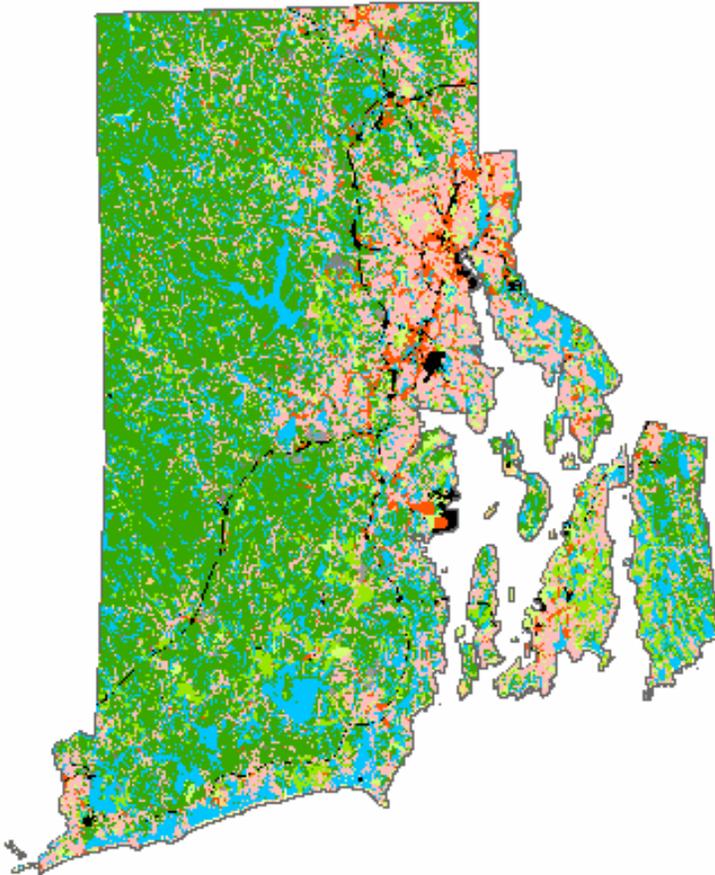


NEARC 2006 Groton, CT

- **Sanborn – Ann Arbor, MI Office**



Existing Land Cover/Land Use Digital Data in the RIGIS Database



- **1988&1995 Land Cover/Land Use (LC/LU) digital data sets from RI Statewide Planning**
- **Photo interpretation from B&W prints by Resource Mapping, Univ. of MA, Amherst**
- **Manual digitizing from mylar overlays on USGS Quad 1:24,000 base**
- **Anderson Level 3 (modified) feature attributes**
- **(Wetlands were inserted from a separate data set in 1988)**

The Need for New Land Use Mapping



1995 Vector Land Use over 2003 Orthophoto showing New Residential Development in Forested Area and spatial mismatch of 1995 vector data over 2003 orthophoto base

LC/LU0304 Project Initiation

- **RFP Issued in February 2006**
- **Awarded to the Sanborn Map Co. in April**
- **Project Started in July 2006**
- **Sanborn is using a Semi-Automated approach employing GIS and Remote Sensing software tools**

Project cost \$110,000



The project area will include all of Rhode Island and extend ½ mile into Connecticut and Massachusetts

Base Level Information for LC/LU0304



**New Base Map Data
RIDOT/RIGIS 2003-
2004 digital color aerial
photography**

And

**RIGIS (1997) Vector
Roads, Hydro &
Coastal Shoreline**

Minimum Mapping Unit

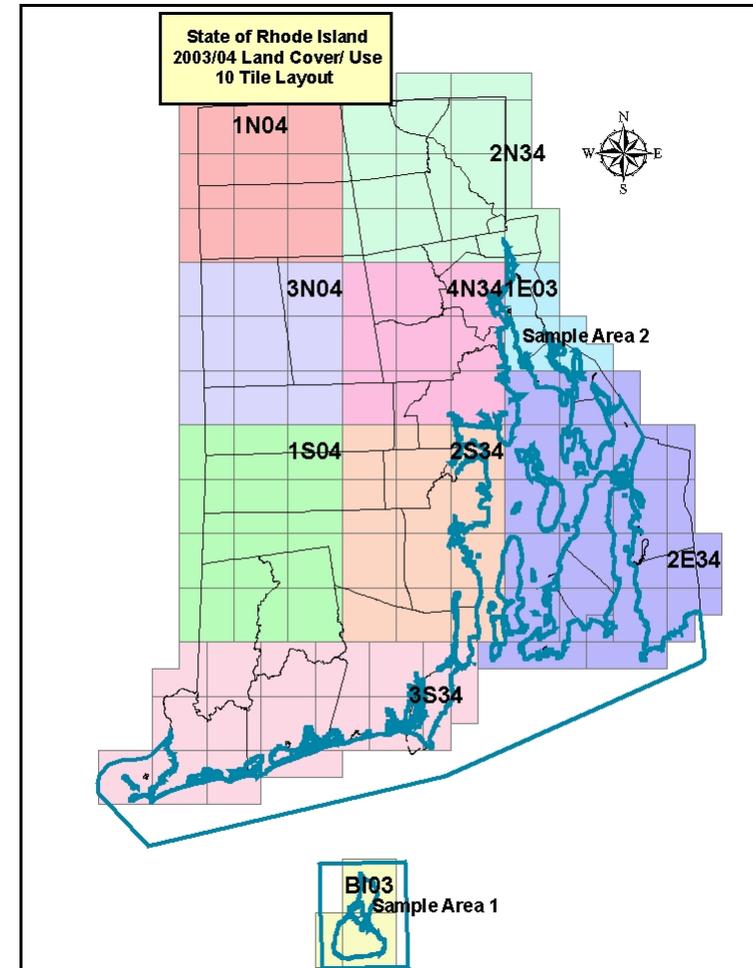
1/2 Acre Resolution

Feature Attribute Coding

Anderson Level 3

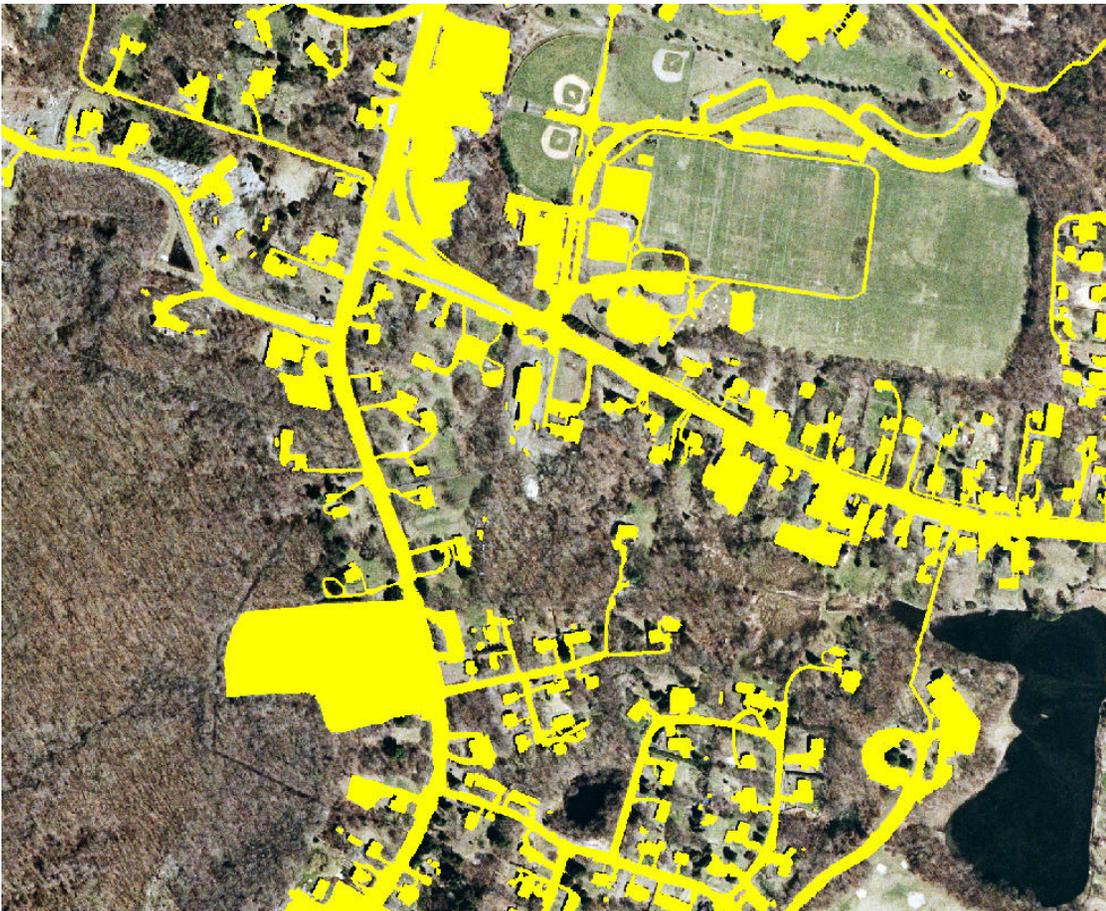
Project Development Sequence

- **Initial Pilot Data Set of 1 square mile area set rules for polygon Delineation/ Coding/Photo Interpretation (Completed Oct. 2006)**
- **Two preliminary sample production of smaller tiles for reassuring the pilot methodology works in other areas (In Progress Nov. 2006)**
- **Ten production tiles (including previous sample areas) to yield a final seamless statewide data set (Project Completion June 2007)**



Project Methodology

1. Create Impervious Data Set for Identification of Developed Land



- Automated extraction using Feature Analyst
- Manual cleanup
- QC check

Project Methodology

2. Identify Impervious Data Features



- Label impervious with 1995 land use layer
- Check and Correct Mislabeled Features
- -



Resulting from actual Land Use Changes or:

- Caused by poor registration of orthos or prior land use coding changes
- Automated tool to clean up
- Manual cleanup for adjoining land uses that are miscoded because of misalignment issues.

Project Methodology

3. Apply Primary Buffers



- Impervious Buffers Based on Buffer Distance Rules for Land Use Types
- - 60 ft for Residential,
- 10 ft for Industrial or Commercial etc.
-

Exclude water as a buffer growth region

Eliminate roads of less than a 200' width (Not shown on this graphic)

Project Methodology

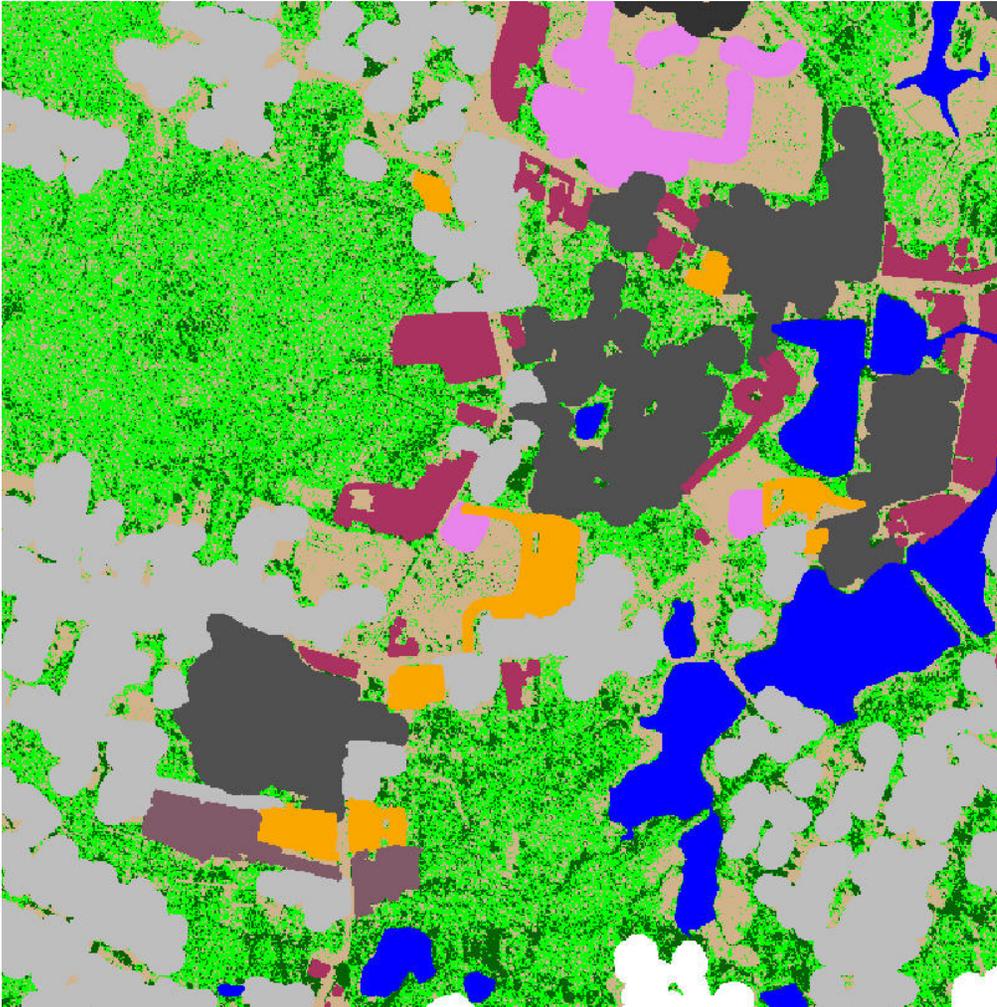
3. Segmentation of Pervious (Non-Developed) Areas



- Process that creates vector segments from the imagery
- Segments are based on similar radiometric and spectral properties
- Primary buffers used as input to prevent buffers from bleeding into urban classes

Project Methodology

4. Classification of Pervious (Non-Developed) Areas



- Classify pervious land cover (**green areas**) into natural classes such as deciduous, coniferous and brush land
- **Model with primary** buffer layers
- Only non-forested wetlands will be delineated.

Final Pilot Area Land-Use Classification

- LU polygons smoothed
- Polygons < 1/2 Acre eliminated
- LU classes meet at road centerline



Summary

- **New statewide LC/LU data set for general land use planning efforts**
- **Statewide impervious surface data for related natural resource protection and analysis studies**
- **Development of a knowledge base for future efforts using remote sensing techniques for LC/LU change detection analysis**

