Lecture 6: Local Knowledge and PPGIS

I. Housekeeping

A. Update on Exercises and Projects

1. Lab 5 due on Wednesday; Lab 4 will be returned to you shortly
2. Project 1 - Web Portfolio; Due Lecture 8
3. Project 2 - Will be assigned Recitation 8; Town and topic selection by Lecture 8.

B. Other Things

1. Portfolio critique in one week! We have 2 volunteers...
2. Feedback/Feed yourself session tonight at 6PM....quick show of hands

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II. Local Knowledge and PPGIS

A. Last Week: Mapping, GIS, and Planning

1. Mapping is an inextricable facet of our disposition and is fundamentally political
2. GIS is central to planning; NIS is growing in popularity
3. Data are subjective; Values are embedded in Census and administrative data sets

B. Today

1. Brief introduction to the concept of local knowledge
2. Brief introduction to PPGIS
3. Three Case Studies
4. Critique

C. Local Knowledge and PPGIS

1. Local knowledge is "the mixture of knowledge built up through practical experience and the frames of reference that people use to filter and give meaning to that experience." (Talen, 2000)
2. PPGIS (or BUGIS) - Public Participation GIS (or bottom-up GIS): It is both a process and a product


III. Lawrence, Massachusetts

A. Context and Problem

1. Homeownership rates in the City of Lawrence
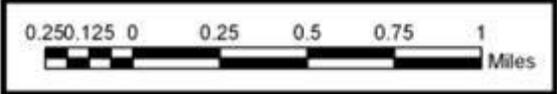2. Homeownership rates in the **North Common** neighborhood

B. Housing Demand

1. MIT students work with potential homebuyers to identify neighborhood assets and problems
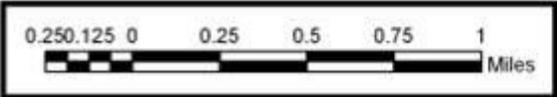2. **Maps** created to depict **resident perceptions**

City of Lawrence

North Common

0.25 0.125 0   0.25   0.5   0.75   1
Miles

City of Lawrence

0.25 0.125 0   0.25   0.5   0.75   1
Miles
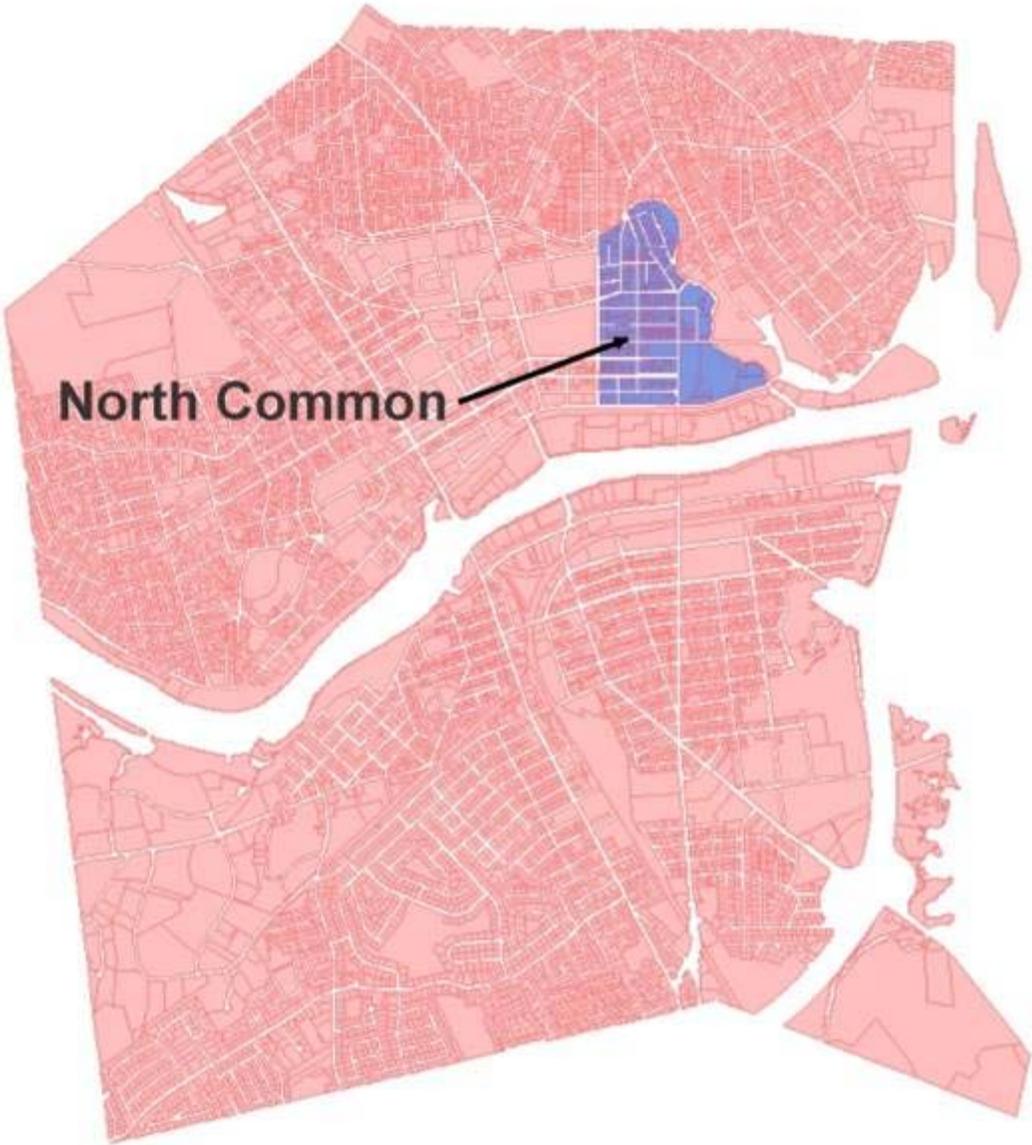
Legend

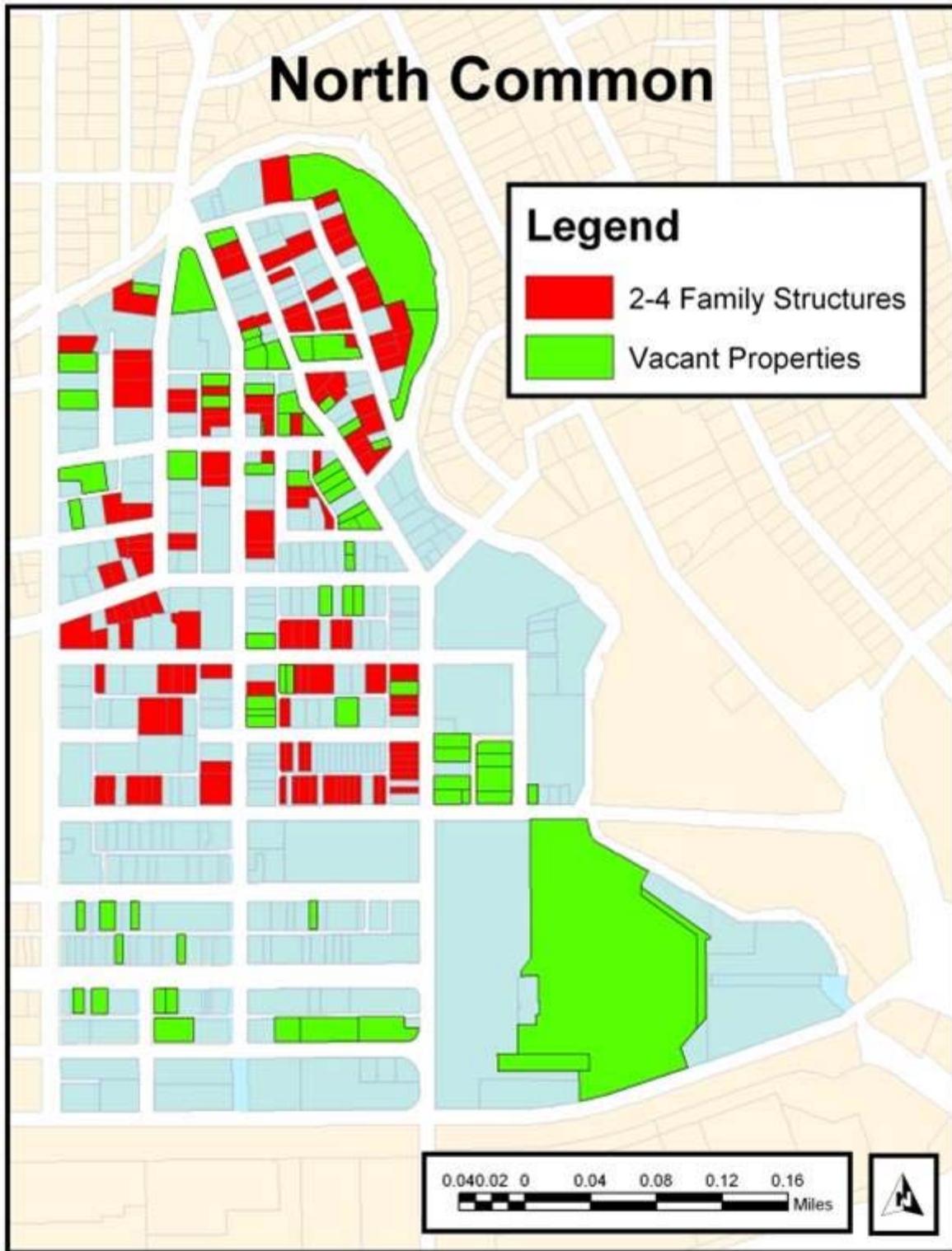|	
■ (magenta)	Schools - 1/8th Mile Buffer
■ (pink)	Schools - 1/4 Mile Buffer
♦	After School
⬡	Best Schools
★	Friends & Family
✚	Churches
▲	Children Play
📍	IDA Participants
⚑	Schools (2002)
■ (green)	Bad Areas
■ (tan)	Areas to Buy a Home
■ (blue)	North Common
□	Parcels (2003)

C. Impact: Visualizing Housing Supply

1. **Handheld** computers to collect neighborhood-level data
2. A inventory of housing stock **by zone** (no. of units, occupancy, condition, materials, photograph)
3. MIT students work with youth in the **field**
4. A GIS **project** for collective housing development decisions

    Subject Web Site
    Final Report

An inventory of housing stock by zone.

North Common

Legend
- 2-4 Family Structures
- Vacant Properties

0.040.02 0   0.04   0.08   0.12   0.16
Miles

A GIS **project**

IV. New Delhi, India

A. Context and Problem

1. Rapid urban growth/increased demand for basic services
2. Approximately 1,200 settlements; squatter population estimates about 3 million
3. Local agencies lack the information they need to better plan and deliver services
4. Delhi Jal Board (DJB) is obliged to provide water to all low-income settlements

B. Intervention - National Institute for Urban Affairs

1. Working to build community capacity and increase government responsiveness
2. New Sanjay Amar Colony is an informal settlement in eastern New Delhi
3. Planning, Learning, and Action (PLA) techniques
4. Community mapping exercises :

> Chalk is used to draw a map of the community directly on the ground - Figure **1**
> Residents are asked to use leaves, pebbles, and sticks to communicate important demographic information - Figures **2**
> Community volunteers and NIUA facilitators then transfer the information that is collected on the ground to paper - Figure **3**
> These maps are simply hyperlinked rather than spatially integrated with the existing data layers for New Delhi - Figures **4**, **5**

C. Impact Using Information to Leverage Improved Public Services

      i. Insufficient number of water taps
     ii. A preponderance of broken water taps
    iii. Insufficient water delivery and drainage systems
     iv. Unequal access to water taps
2. Actions
      i. Residents showed DJB engineers the location of existing taps, broken taps, low water pressure points, and etcetera
     ii. A construction crew broke ground to lay new pipelines, repair and install new stand posts
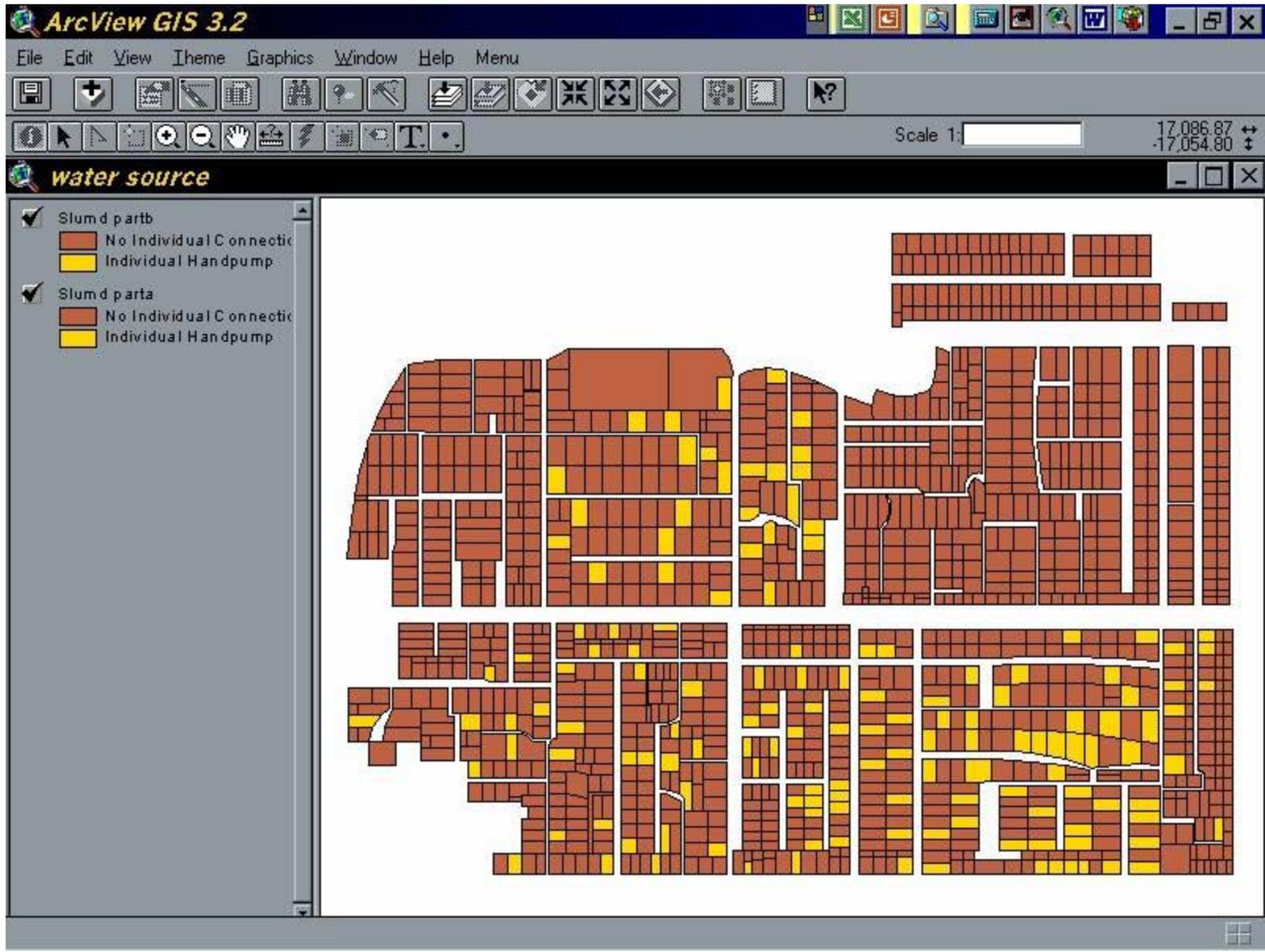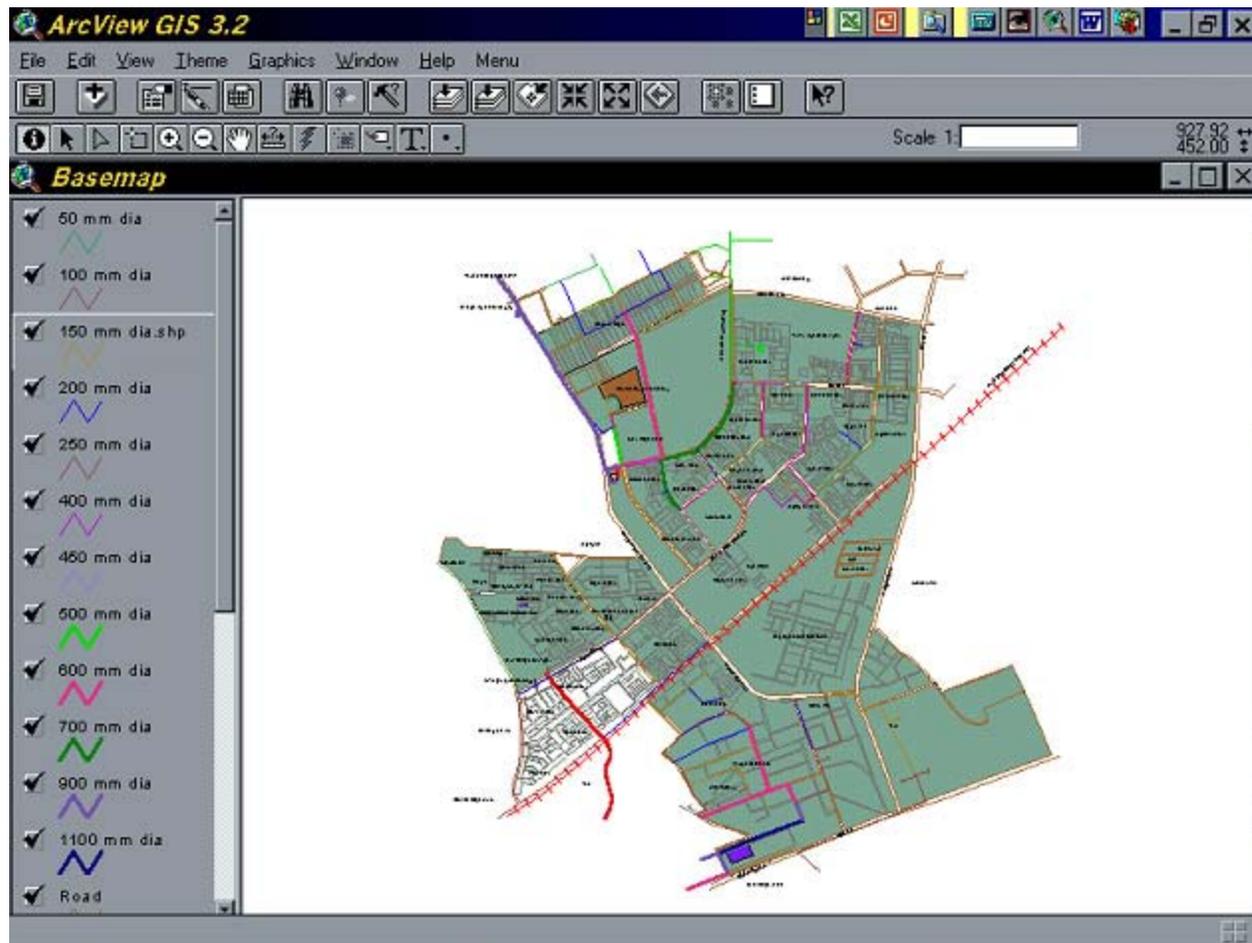
NIUA

Figure 2

Figure 3

Figure 4

Figure 5

V. Venice, Italy

A. Context and Problem

1. City departments collect and maintain a variety of data for various purposes
2. Most data is collected in ad-hoc manner and as needed
3. Data is archived in a variety of media and formats

B. Solution: City Knowledge

1. City workers would benefit from a more systematic organization of information
2. Maintenance
3. Management
4. Examples
   i. **Measurement** of canal width, depth, tidal currents, etc.
   ii. What causes canal **wall damage**?
   iii. A word about **boat traffic**
   iv. Boat wakes (Figures **1** and **2**) or clogged sewers (Figures **3** and **4**)?

B. Impact

1. Informing maintenance and management decisions

Content for the Venice case was borrowed from Fabio Carrera's doctoral dissertation.

VI. PPGIS

A. Case Study Critique

1. Compare and contrast these projects with one another
2. Compare and contrast one of these projects with Philadelphia's NIS
3. What are the strengths of PPGIS? Weaknesses?
4. What type of problems are particularly well-suited for PPGIS?
5. Under what circumstances would PPGIS be particularly problematic?