Look What I Did

New Jersey Geospatial Forum
June 5, 2008

New Jersey State Atlas
http://www.njstateatlas.com/

John Reiser

Western Technologies Group, LLC

Jerry Jones

Utilizing Elevation data for Hydrologic Analysis

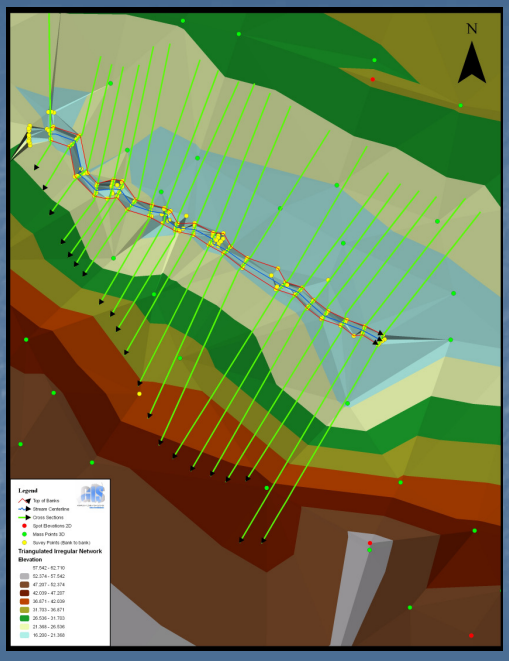
John Brockwell Monmouth County Office of GIS

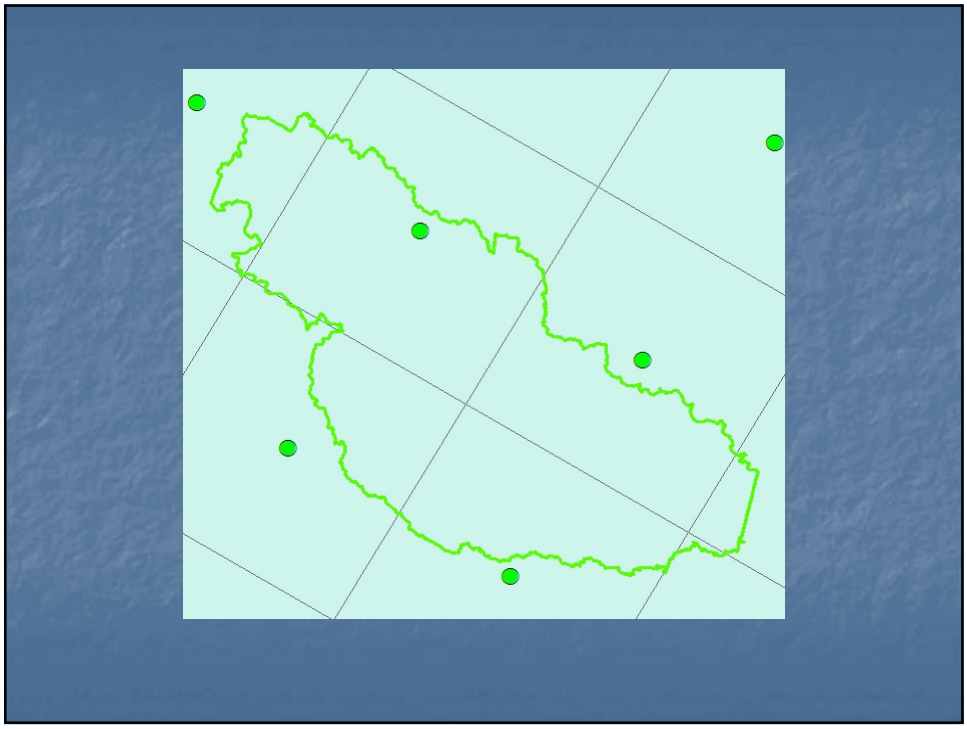
&

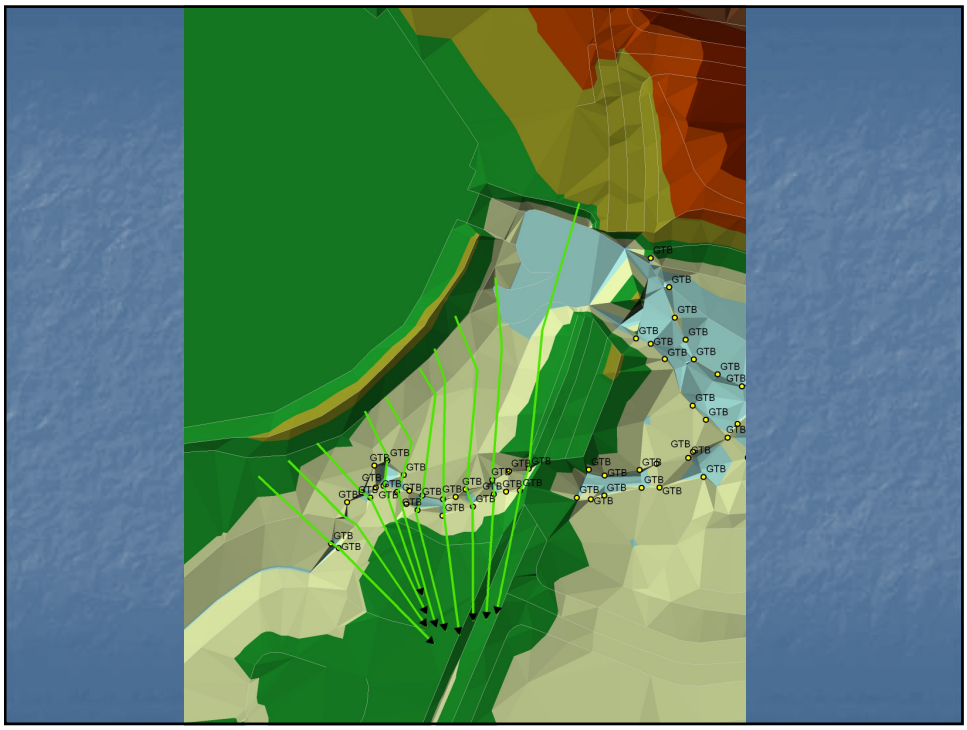
Kunal Patel NJ DEP Division of Watershed Management

Types of Elevation Data

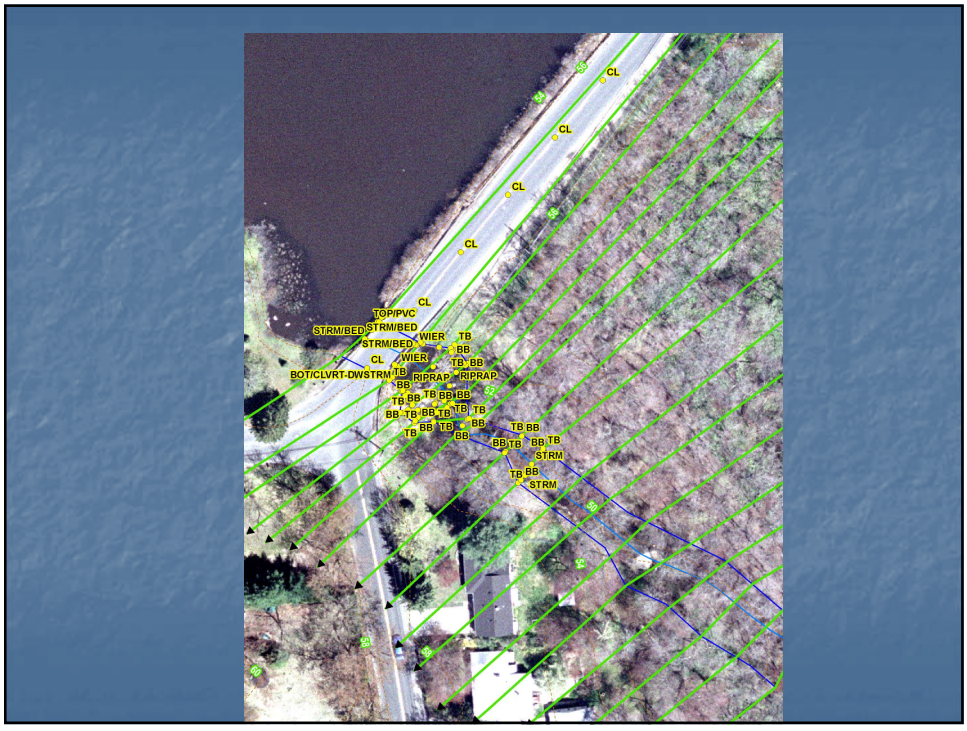
- LiDAR or Mass Points
- Coutour Intervals
- Spot Elevations
- Survey

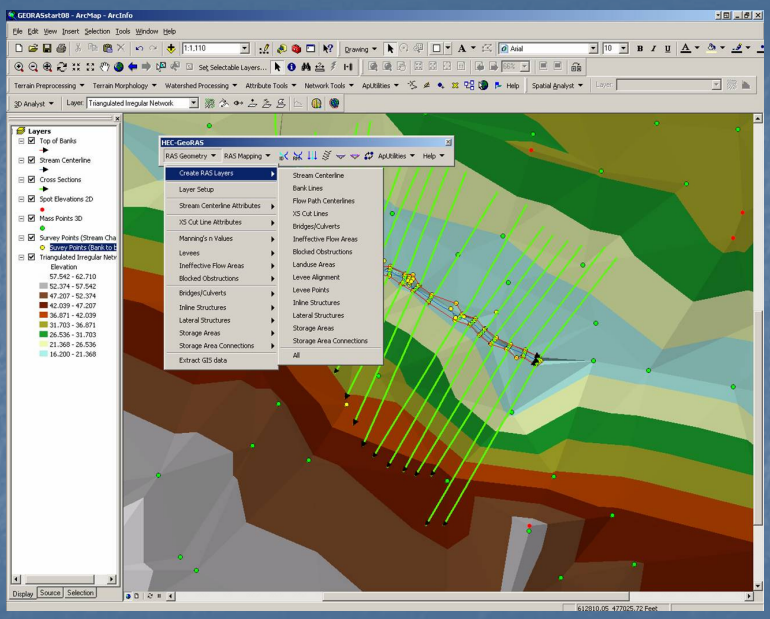







GTB


CL
TOP/PVC
STRM/BED
WIER
TB
BB
RIPRAP
BOT/CLVRT-DWSTRM
STRM

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REACH ID: W5
STATION: 542.228088379
NODE NAME: 21_W5
BANK POSITIONS: 0.7187, 0.7938
REACH LENGTHS: 41.235, 33.744, 26.450
NVALUES:
LEVEE POSITIONS:
INEFFECTIVE POSITIONS:
BLOCKED POSITIONS:
CUT LINE:
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        612947.217529741, 476996.2164777
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        612926.215529731, 476936.665477672
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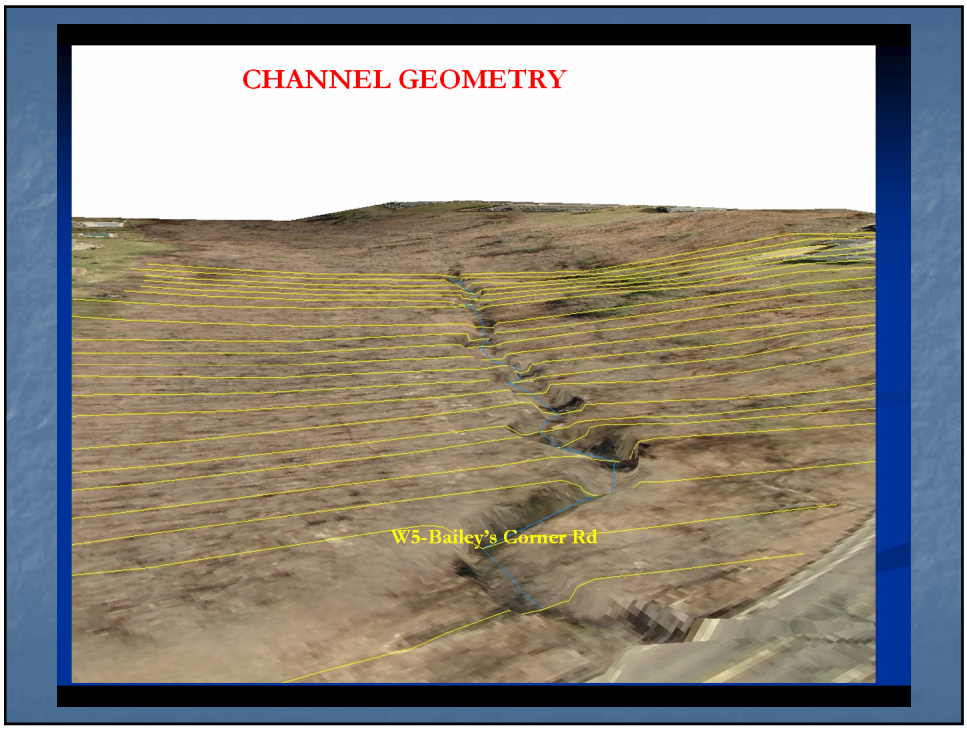
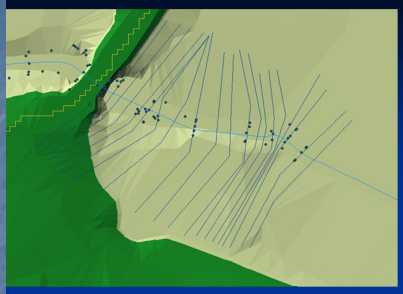
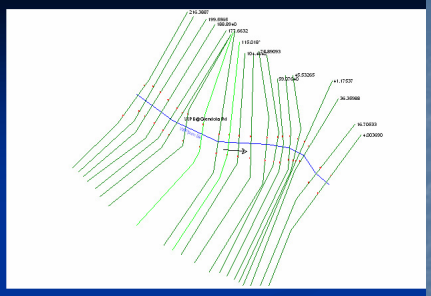
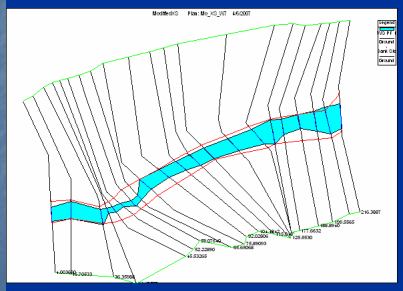
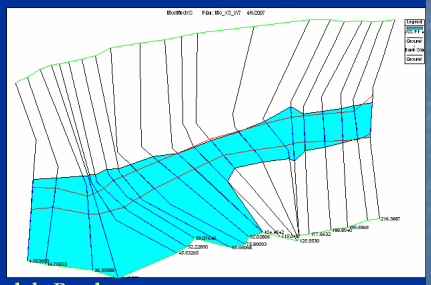

CHANNEL GEOMETRY
W5-Bailey's Corner Rd

CHANNEL GEOMETRY TO DEVELOP RATING CURVES





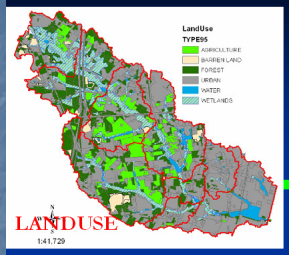




W7-Glendola Road

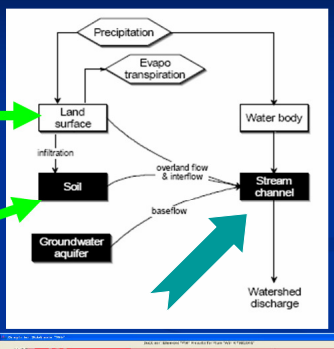
HEC-HMS representation of watershed runoff

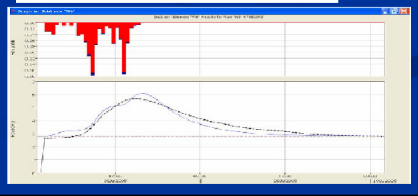
(Source: HEC-HMS Technical Reference Manual, March 2005)



CN

$$CNcomposite = \sum \frac{AiCNi}{Ai}$$





Enterprise GIS implementation supported through internet collaboration

Tom Tiner
Civil Solutions

"Look At What I Did…"
…more like what we did!

(Strategic Plan)

Enterprise GIS implementation supported through internet collaboration

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Pulling together the pieces…

- Consulting efforts between the County of Sussex and Civil Solutions have yielded an implementation strategy to deliver GIS and EDMS data to municipal and county clients.
  - ★ Previous Consulting Efforts
  - ★ County Initiatives Underway
  - ★ GIS Migration to Enterprise Solution
  - ★ Managing the Land
  - ★ Web-based Collaboration
  - ★ Network Architecture
  - ★ Conclusion

Re-engineering
"Business-process reengineering revamps work processes to eliminate non-value added activity and redundancy."*

**Taking Aim on Leadership: Capezio & Morehouse, 2001*

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Previous Consulting Efforts

- Municipal Shared Services
- Central Records Management Facility
- Records Management Assessment
  - ★ Risk/Pitfall & Mitigation
    - Wrong Tools = Prevent users from being caught "off guard"
    - Wrong functionality = develop based on business process and thoroughly tested
    - Performance shortfalls = infrastructure must be scalable for future growth

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County Initiatives Underway

- EDMS Pilot is Surrogate's Office
  - Estate/Will document 1993 - present
- Clerk's EDMS Program
  - Mortgage and Deeds
  - Hardcopy books to digital index
    - (Mortgagee, Grantor and Grantee)
  - Facilitate review by Realtors, Title Co and Public
- Engineering, Planning – Doc Imaging
  - 47 types – bridge, road opening, signage, etc
- GIS Web-based Data Distribution

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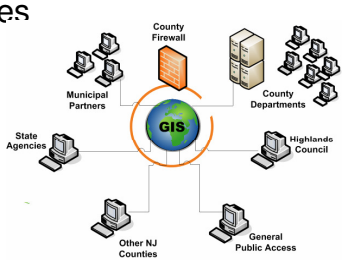
GIS Migration to Enterprise Solution

- Department Silo (vs.) Centralized Information Hub
  - Individual department databases
    - work within the department
    - Duplication of typical information
    - Legacy database design
    - Difficult integration
    - Limits productivity
    - Frustrates "outside" consumers



  - GIS as the "Hub"
    - Common connection point
    - Allows integration with multiple sources of information based upon a "shared" entity
    - In GIS, "shared" entity is geography

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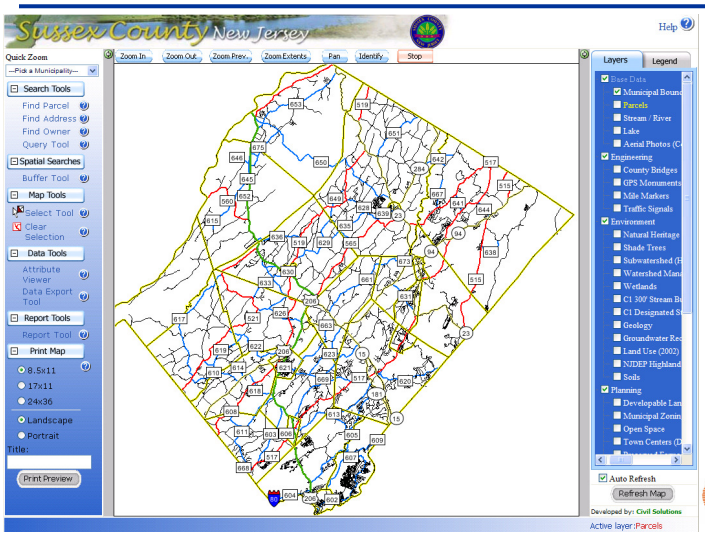
iDV – Internet DataViewer



Top 10

1. Pick a Municipality
2. Multiple Search
3. Build/Save Query
4. Data Extraction
5. Report Builder
6. Print Maps
7. Tree View
8. Metadata Access
9. Online Help
10. Admin Interface

Bonus: create as many as you like!

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Managing the Land = Public Service

- How to keep framework layers current?
  - ★ Must do – tax maps (supports parcels)
    - Require digital submissions (e.g., deed, minor/major)
  - ★ Communicate with municipal partners
    - Zoning - Open Space - Easements
  - ★ Must provide benefit to partners
    - GIS "hub" of information
    - Support future PAMS implementation
  - ★ Information filed with County Clerk
- Objective – develop collaboration client

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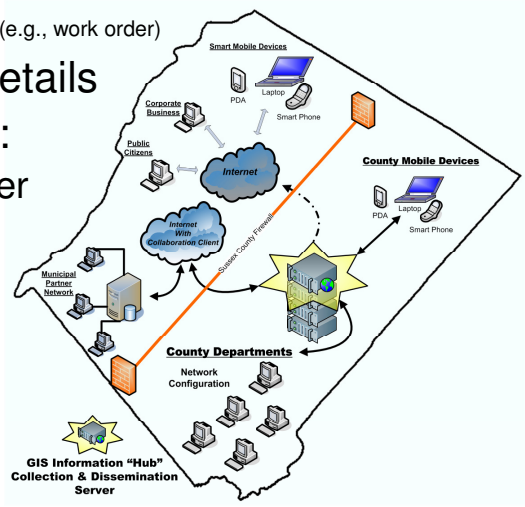
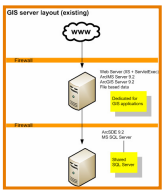
Web-based Collaboration

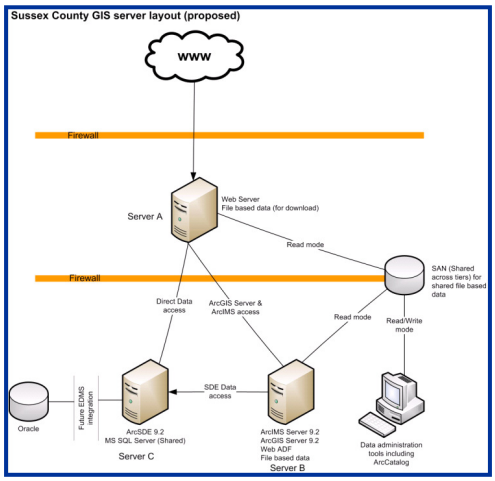
- Simple Interface (e.g., work order)
- County obtains details
- Municipal Return:
  - ★ Change Container
  - ★ GIS
  - ★ PAMS support
  - ★ EDMS
  - ★ Minimal Cost

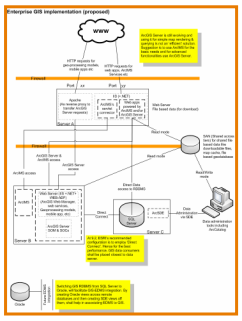


Network Architecture

Goal: Implement, measure, monitor and document infrastructure performance related to network infrastructure as necessary to create an overall Enterprise information exchange and dissemination solution for all stakeholders.







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Conclusion

- Method to maintain framework data
- Supports County and Municipal workflow
  - Digital submissions
  - Tracking all lot line changes
- Consolidates and shares services “GIS Portal”
- Tests network infrastructure / bandwidth
- Educates community on use of GIS and internet technology
  - iDV and collaboration client functionality
- Future to add EDMS distribution
- Future PAMS data maintenance vehicle

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That’s all folks!

Thank you…

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Understanding municipal real property data in a GIS context

Trish Long
City of Trenton

Analysis of Municipal Real Property Data in Trenton

Problem: Too many vacant properties in Trenton

Question: How much property owned by the City could potentially be redeveloped?

Goals: Gain a comprehensive understanding of all City-owned property

Establish baseline data (e.g., amount and location)

~7.5 sq. miles
residential population ~85,000
~30,000 parcels

Access, ArcInfo and Excel were used for the analysis.

Trish Long, AICP
City of Trenton
Department of Housing & Economic Development
June 2008

Step 1. Database "scrubbing“

	# of records	
Database of property owned by the City	1,657	
Records with 1-to-1 relationship with block/lot #s	1,603	(-54)
Reliable data	1,551	(-52)

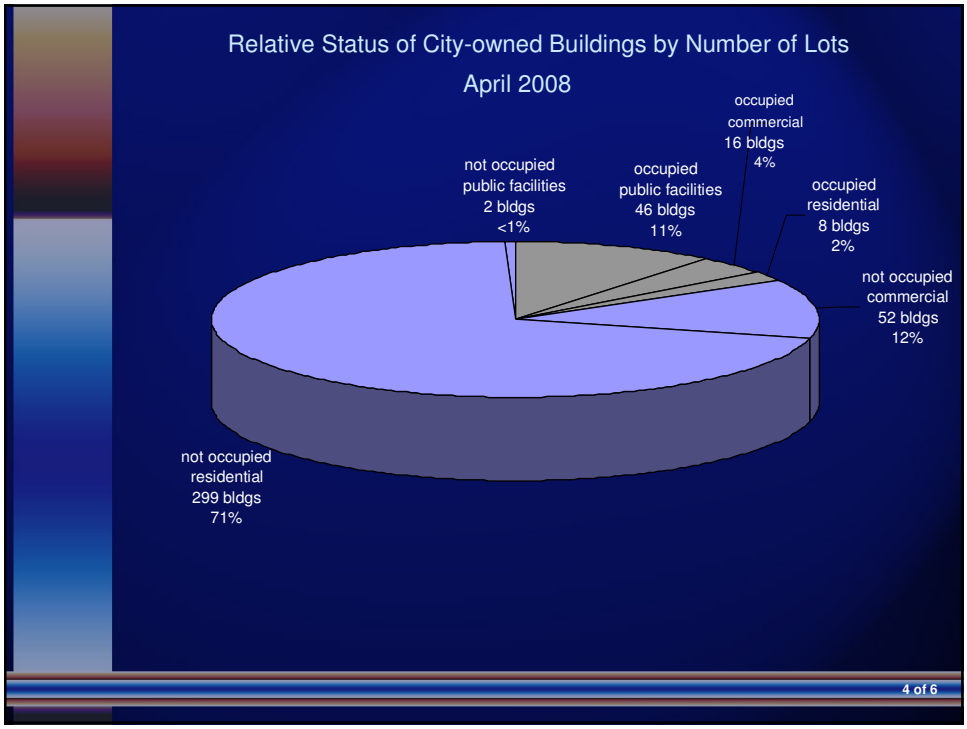
Step 2. Geocoding

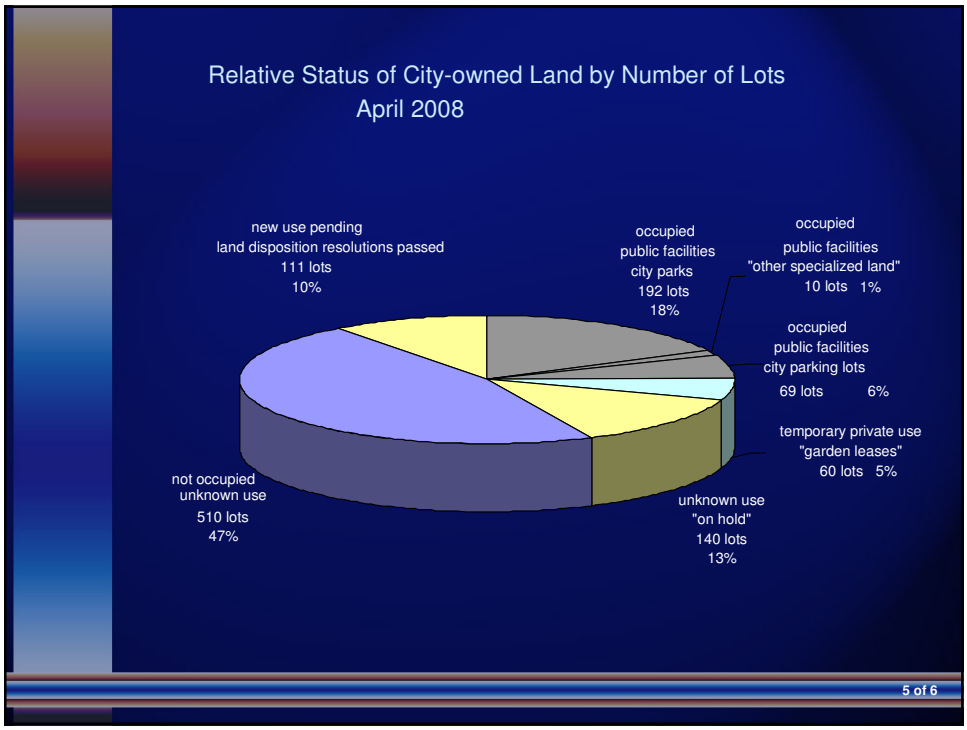
	# of records	
Successful match to GIS parcels	1,515	(-36)

Step 3. Reclassification

- Recode for building presence
- Recode for use of the land or building
- Add a field to store additional information
- Recode for occupancy
- Based on code combinations above, create a new field indicating if the property is "available" or not.

Step 4. Summarize and graph the results


Relative Status of City-owned Buildings by Number of Lots
April 2008
occupied commercial 16 bldgs 4%
not occupied public facilities 2 bldgs <1%
occupied public facilities 46 bldgs 11%
occupied residential 8 bldgs 2%
not occupied commercial 52 bldgs 12%
not occupied residential 299 bldgs 71%
4 of 6


Relative Status of City-owned Land by Number of Lots
April 2008
new use pending land disposition resolutions passed 111 lots 10%
occupied public facilities city parks 192 lots 18%
occupied public facilities "other specialized land" 10 lots 1%
occupied public facilities city parking lots 69 lots 6%
temporary private use "garden leases" 60 lots 5%
unknown use "on hold" 140 lots 13%
not occupied unknown use 510 lots 47%
5 of 6

Goals: Gain a comprehensive understanding of all City-owned property

Establish baseline data (e.g., amount and location)

Original Question: How much property owned by the City of Trenton could potentially be redeveloped?

Due to zoning and redevelopment regulations, not all "available" parcels can be developed.

Final step: GIS analysis using zoning and redevelopment area overlays to determine amount and location of "available" parcels that can be redeveloped

Next research question: How much privately-owned property in Trenton could potentially be redeveloped?

OpenLayers - An Open Source AJAX Mapping Viewer

Dejung Gewissler
NJOIT

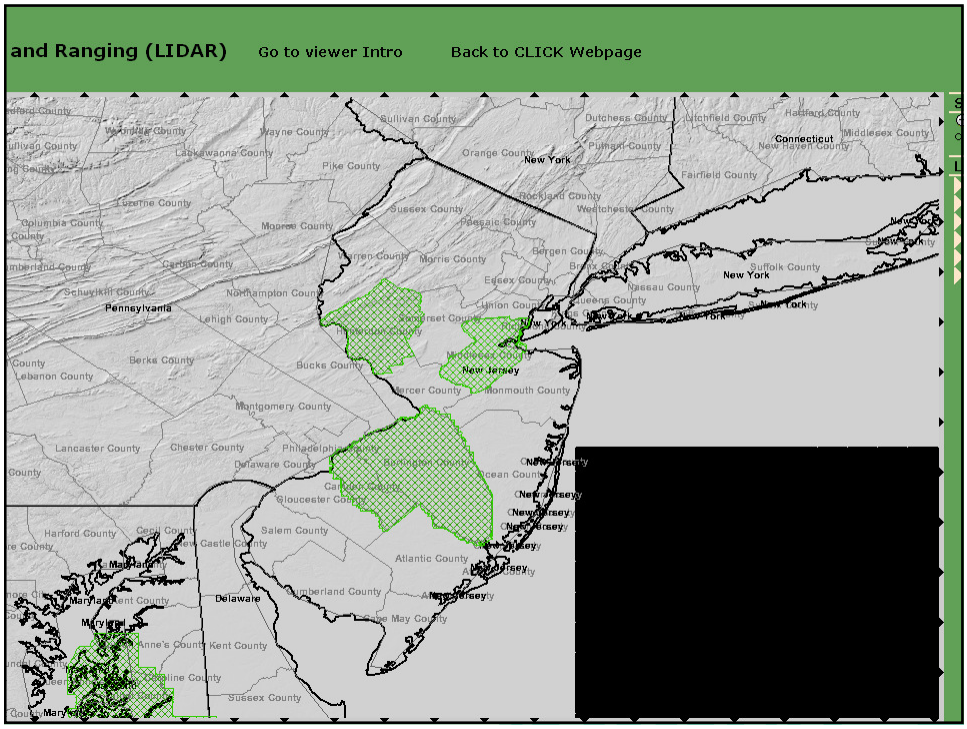
The Pitcher's Mound Controversy:

A Study in LiDAR

Gary Casabona

http://lidar.cr.usgs.gov/

- USGS "CLICK" site
- Discrete-return point clouds
- Click on "Publicly-Available LiDAR"
- Launch HTML/Javascript Viewer
- Navigate to your county
- Use "download" button to choose


and Ranging (LIDAR)
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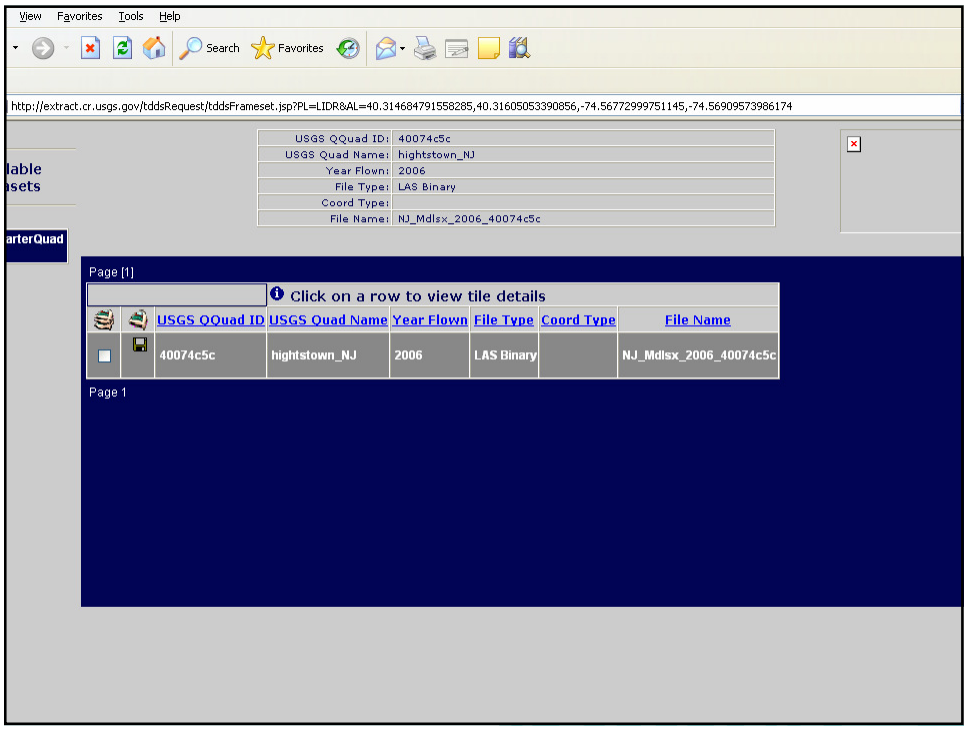
Back to CLICK Webpage
New York
Connecticut
Pennsylvania
New Jersey
Delaware
Maryland


View Favorites Tools Help
Search Favorites
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USGS Quad Name: hightstown_NJ
Year Flown: 2006
File Type: LAS Binary
Coord Type:
File Name: NJ_Mdlsx_2006_40074c5c
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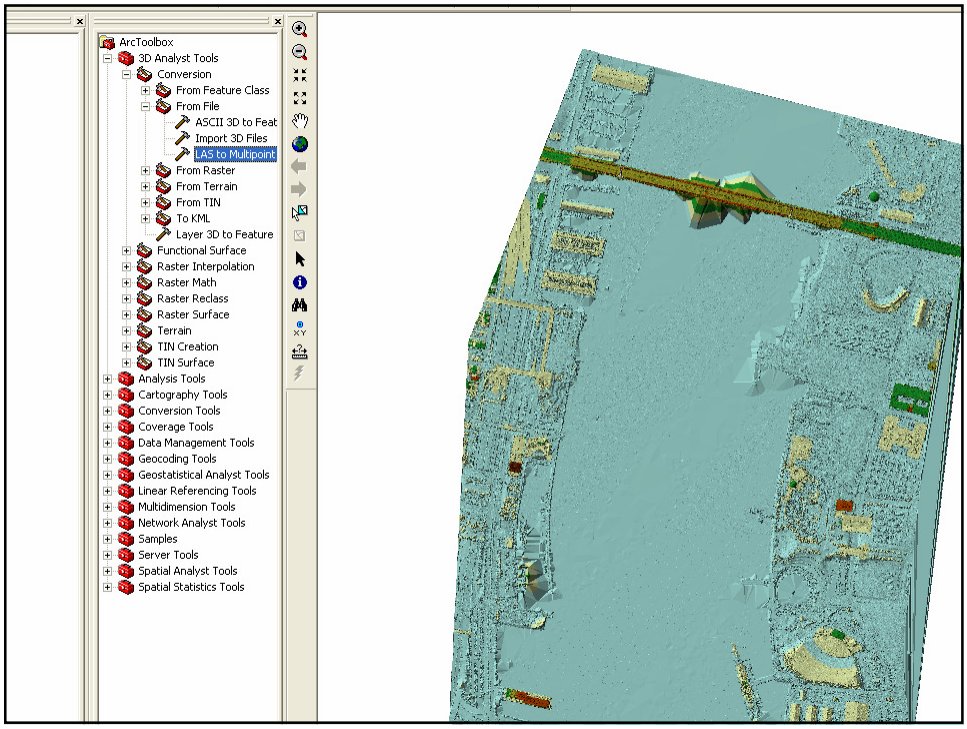
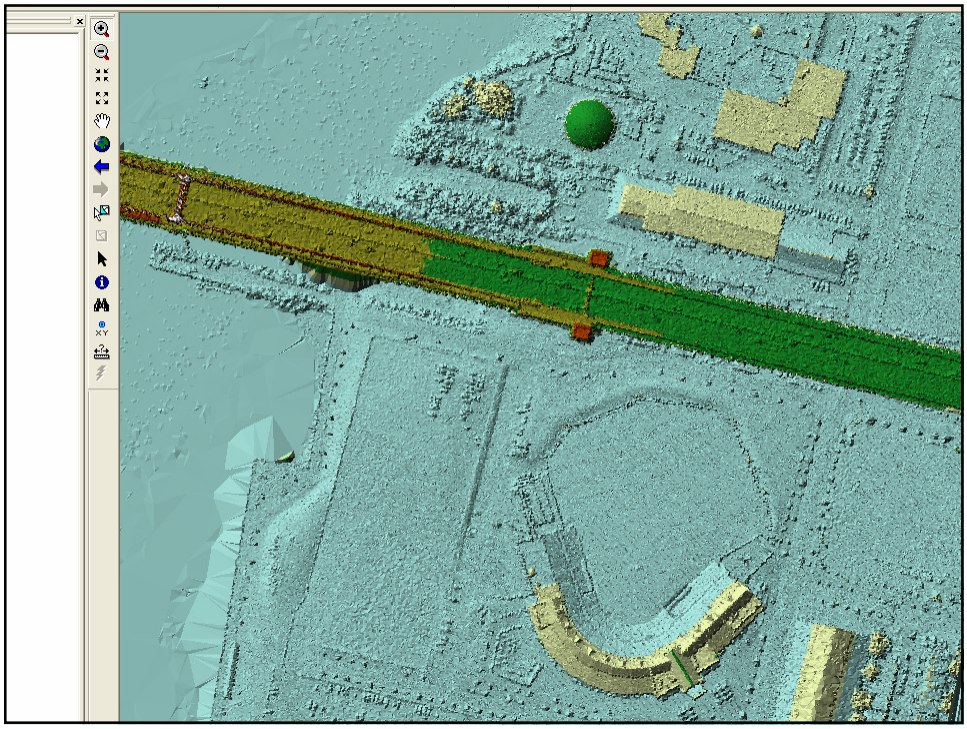
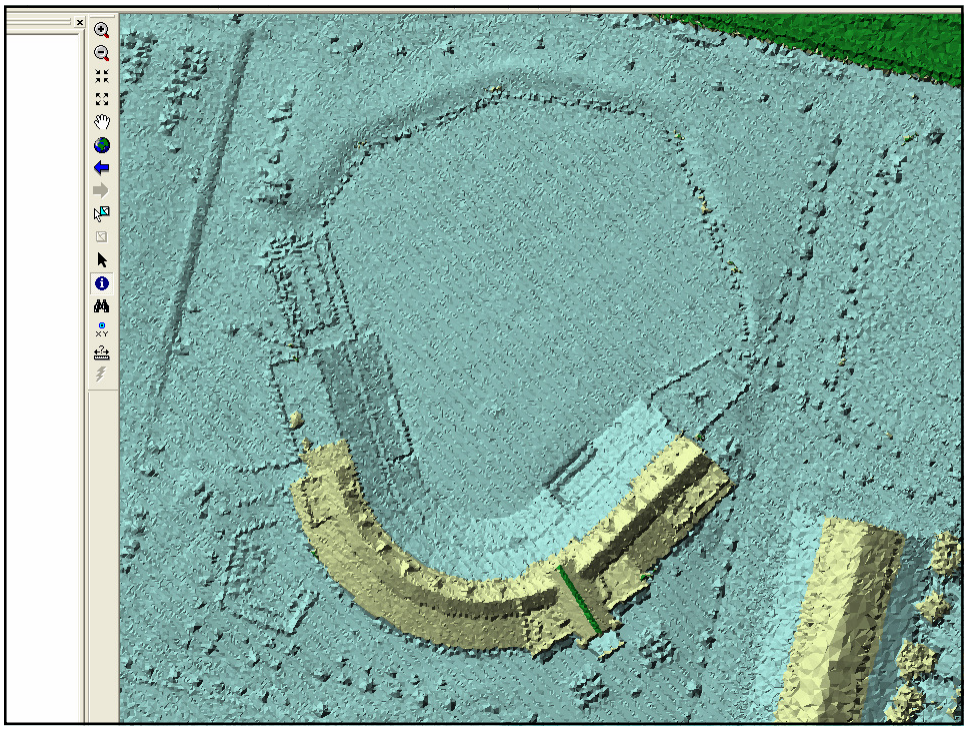
Click on a row to view tile details
USGS QQuad ID
USGS Quad Name
Year Flown
File Type
Coord Type
File Name
40074c5c
hightstown_NJ
2006
LAS Binary
NJ_Mdlsx_2006_40074c5c
Page 1



LAS to Multipoint to TIN

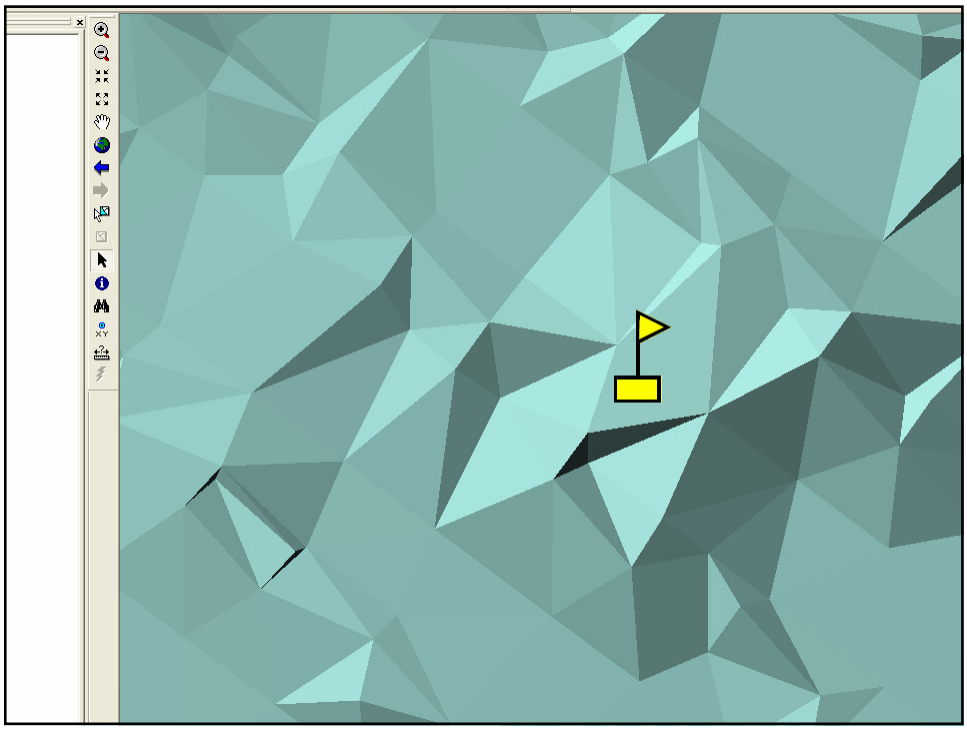
- 3d Analyst Tools -> Conversion tools
- Converts LAS input to Multipoint Shape
- 3d Analyst TOOLBAR ->
- Create/Modify TIN->
- Create TIN from Features





Complex “Field” and “Statistical” Investigation

- Used “I”-tool to collect 30 samples immediately outside of pitcher’s mound, then on top of mound.
- Mound 10.7 feet Outside 9.7 feet
- Paper nabkin calc $p<0.0005$
- Mound should be only 10 inches
- What happened to the other 2 inches!



Another Sports Cheating Controversy ?

- Not very likely ! Difference should be ~ 0.83 feet
- A second round of sampling gave Mound = 10.6 and Outside = 9.7
- Grain size of analysis, choice of data formats and environmental variables in Arc can influence outcome.
- Data looks good, or my methodology is sloppy, or both.

Regional Thinking

Taking a cross-border approach to address development issues

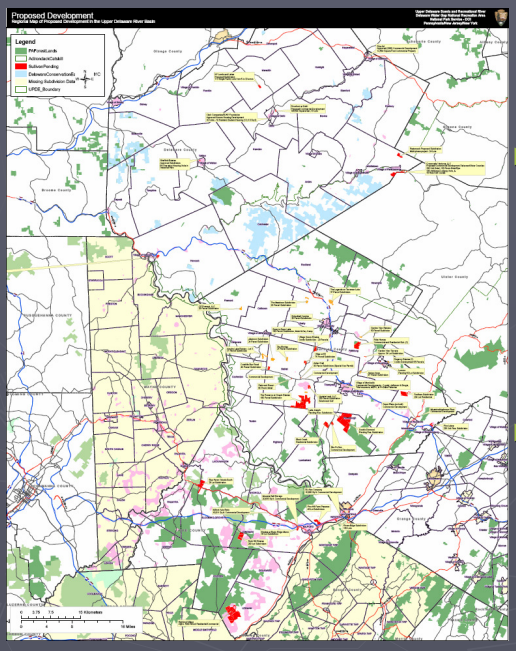
Kathy Commisso

National Park Service

Delaware Water Gap National Recreation Area

Forming Regional Groups

- Issues don't stop at political boundaries
- Issues don't stop at the River
- Delaware River common ground
- The need to look at how growth is affecting surrounding communities
- How do you balance economic growth with conservation?
- Two multi-state organizations have formed in the Upper Delaware River Basin
- Upper Delaware River Roundtable & Common Waters

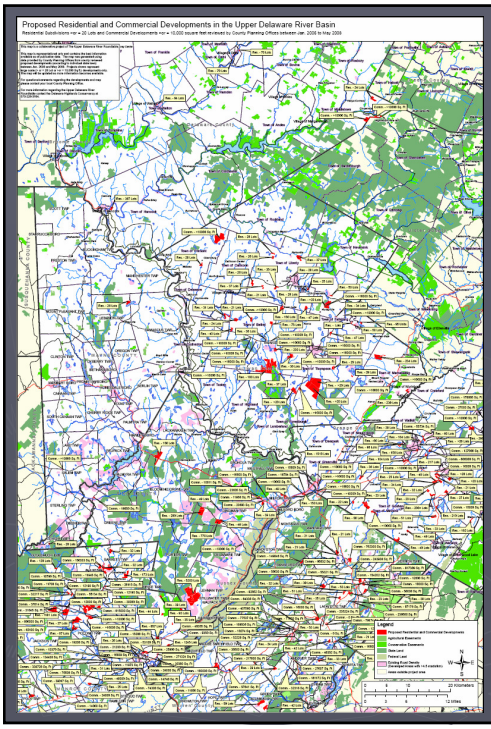


What started out small!!

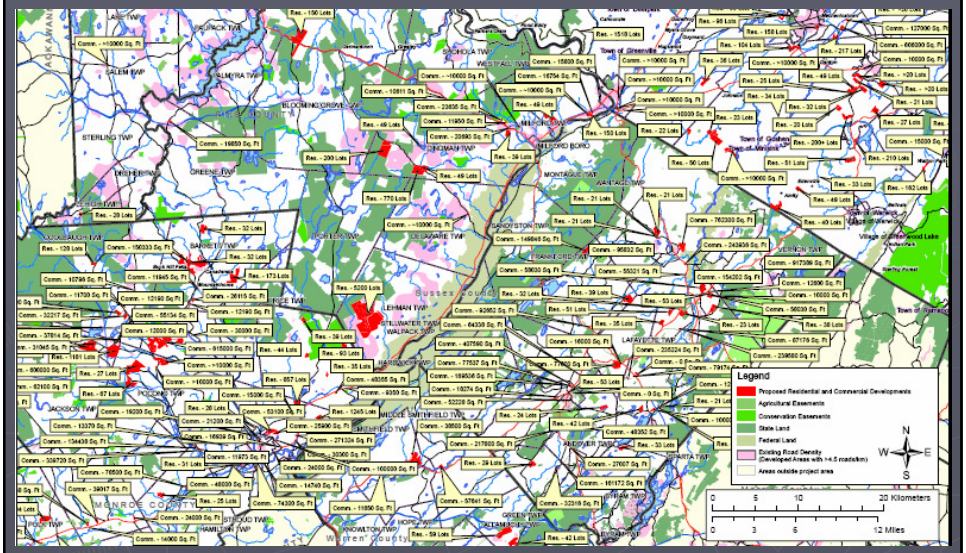
- Upper Delaware Scenic and Recreational River Superintendent volunteered the GIS Lab to generate a regional development map across the PA and NY border
- Where are the proposed developments in the region?

Has Grown…

- The Questions
  - Where are the current protected lands?
  - What areas are built up already?
  - Where are the growth coming from?
  - Where are the greatest number of proposals being addressed?
  - How will these proposals impact the surrounding communities?
  - We're not saying development is bad…



- Map includes:
  - 3 States,
  - 8 Counties,
  - 197 Municipalities, &
  - 2 NPS units
- Data includes:
  - Road density layers
  - State, county, municipal, and Federal protected lands
  - Conservation Easements
  - Agricultural Easements
  - Proposed developments
- Contributors:
  - National Park Service
  - County Planning & GIS offices
  - NYC DEP
  - Open Space Institute
  - Delaware Highlands Conservancy
  - The Nature Conservancy
  - State Agencies



Next Steps

- Getting map into the hands of municipalities
  - Grant obtained to print copies of poster map
  - Counties sent pdf version
- How do we keep the map current?
- Distributing the data digitally?
  - Sussex County IMS Site a likely possible solution
- Is this type of information useful in decision making?
- Should we look at smaller developments as well?
  - Rural counties have mostly small developments
- Just the first steps towards a Regional Atlas