

Local Government Joint Constituency Group Meeting

February 22, 2018

New Jersey Geospatial Forum

Agenda:

9:30 – 9:45 Welcome and Introductions (Coffee and Donuts provided)

9:45 – 10:15 OGIS Map Services Overview – Brian Embley NJOGIS

10:15 – 11:00 NJGIN Update – Edith Konopka, Brian Embley NJOGIS

11:00 – 11:15 Break

11:15 – 11:45 Parcels Dataset – Pat McDonald NJOGIS

11:45 – 12:45 Lunch Break (Bring lunch or takeout from Neal's Deli next to baseball stadium)

12:45 – 1:15 Elevation/LIDAR Data Update – Doug Schleifer, Maya Thomas, Brian Embley NJOGIS

1:15 – 2:00 Road Centerlines/Addresses – Pat McDonald NJOGIS

2:00 – 2:15 Break

2:15 – 2:45 GIS and NG911 – Andy Rowan, State GIO, NJOIT

2:45 – 3:15 OSPRI – Stephanie Bosits, Doug Schleifer NJOGIS

3:15 – 3:45 pm NJDEP Update – Craig Coutros, BGIS/NJDEP

3:45 – 4:00 Closing

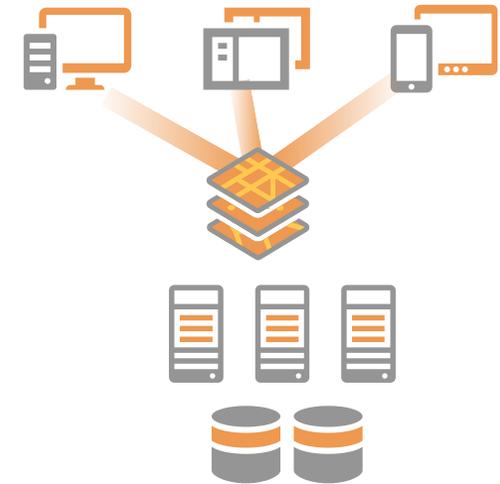
NJOGIS Map Services

Brian R. Embley, Solution Architect

brian.embley@tech.nj.gov

What is a map service?

- Specialized web service
 - Servers: HTTP/S
 - Clients: Desktop apps, mobile apps, AGO web maps, web apps
 - Types, Formats
- Benefits
 - Real time connection
 - Best available data
 - Access anywhere



Available NJOGIS Map Services

- 5 categories: basemaps, enterprise data, elevation, geocoder & imagery
- Most in NJSP, imagery WGS84
- 500,000 requests/month
- Consume in desktop & mobile apps, AGO web maps, web apps
- **Basemaps** – cached raster tiles
 - Fast display
 - Lightweight for server
 - Fixed symbology
 - Static, periodic updates



Color



Roads



Light Gray



Admin Boundaries



Parcels



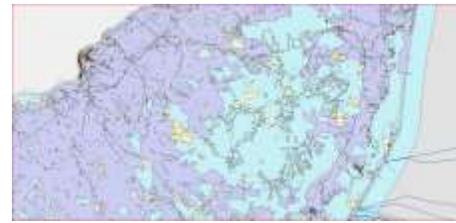
Highlands

Enterprise Data

- Dynamic Map Services/WMS
 - Addresses
 - Parcels
 - Environmental
 - Government Boundaries
 - Tiling Grids
 - Hydrography
 - Land Use Land Cover
 - Structures & Critical Infrastructure
 - Transportation
 - Utilities
- Query supported
- NJOGIS Open Data Site
- Fixed Symbology
- Feature, Vector Tile services



Jurisdictional Boundaries



Utilities



Transportation



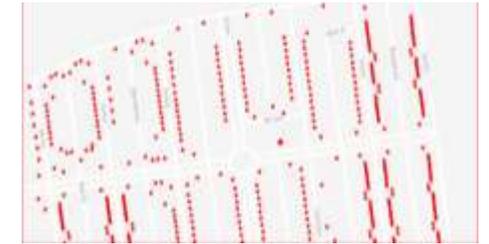
Critical Infrastructure



LULC



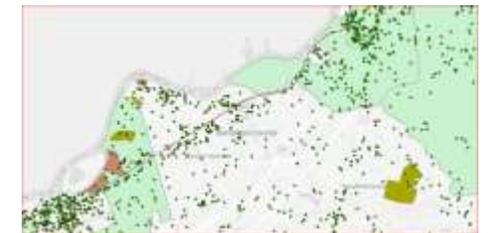
Hydrography



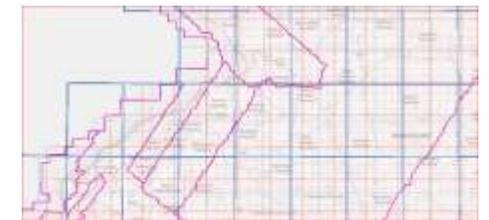
Address Points



Parcels



Environmental



Grids

Imagery

2015 Natural Color (1ft leaf off)

2015 Infrared (1ft leaf off)

2013 Natural Color (1m leaf on)

2012 Natural Color (1ft leaf off)

2012 Infrared (1ft leaf off)

2010 Natural Color (1m leaf on)

2007 Natural Color (1ft leaf off)

2007 Infrared (1ft leaf off)

2006 Natural Color (1m leaf on)

2002 Infrared (1ft leaf off)

1995 Infrared (1m leaf off)

1930 Black White (2m, not ortho)

Historical Maps

Color Topo 24K

Topo 24K

Topo 100K

1977 Tidelands Basemaps

1970 NJDEP Wetlands Basemap

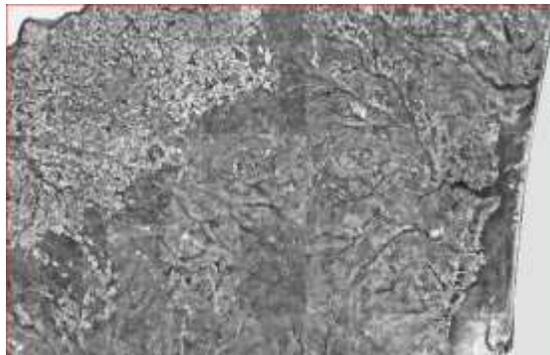
- WMS format
- LizardTech Express Server
- Dynamic Requests, limited caching
- NJGIN website for URLs, lyr files
- Future: 2015 color raster tile cache service



2015 Natural Color



Historical Maps



1930 Black & White

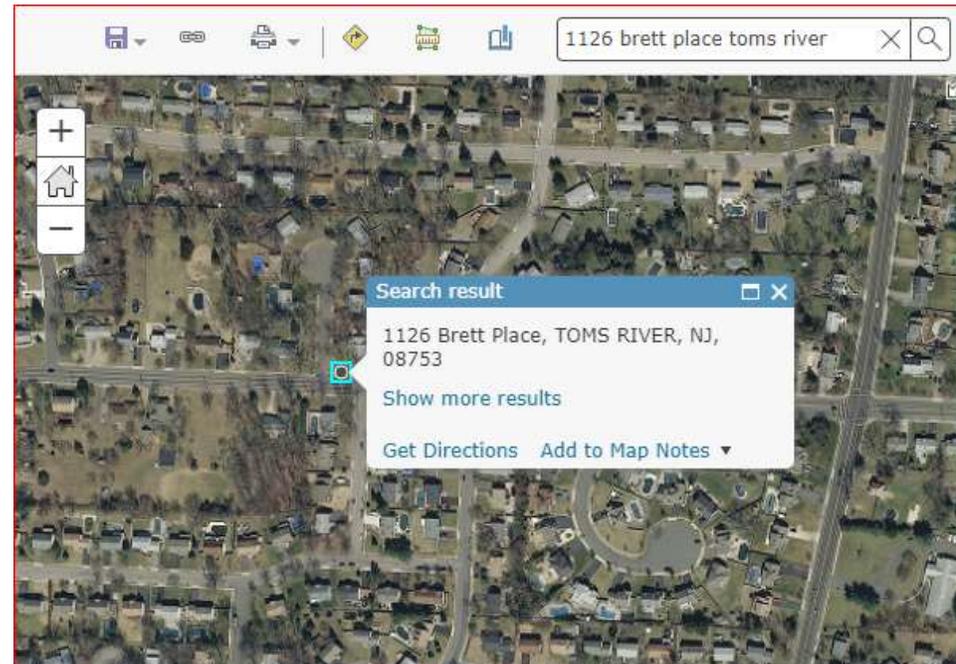
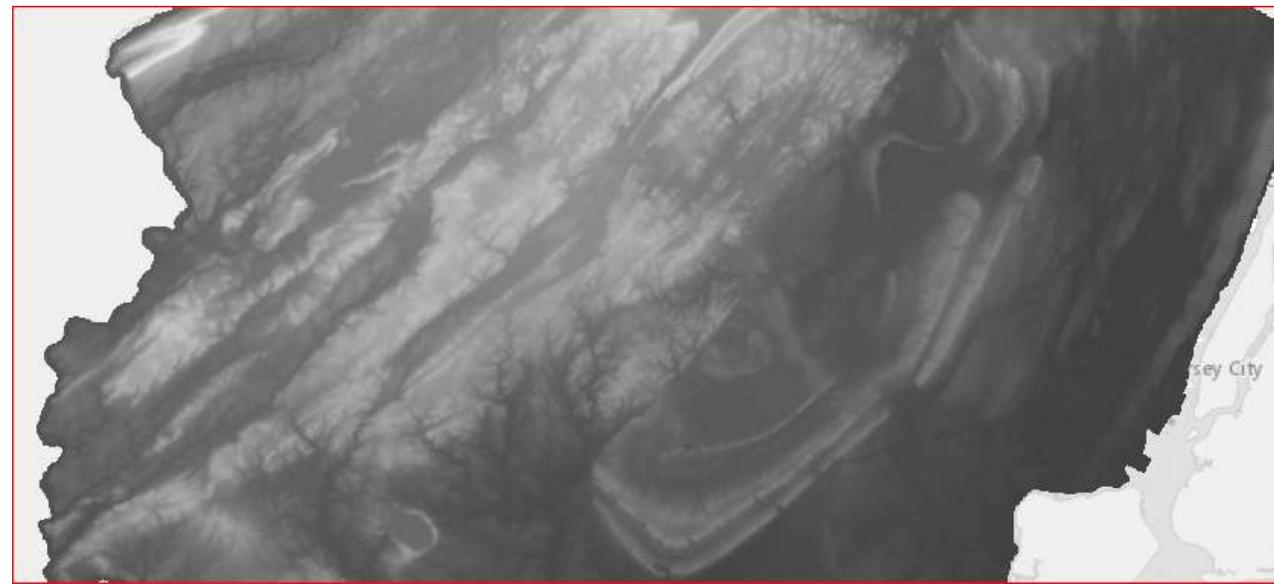


2002 Infrared



Color Topo 24k

- Elevation
 - Image
 - 10 ft DEM
- Cascading Geocoder
 - Address Points
 - Roads
 - Intersections



Access

- Services Directory - <http://geodata.state.nj.us/arcgis/rest/services>
- NJOGIS ArcGIS Online - <http://newjersey.maps.arcgis.com>
- NJOGIS Open Data site - <http://njogis-newjersey.opendata.arcgis.com>
- NJGIN Website – <https://njgin.nj.gov>

Documenting and Cataloging Data

Writing and publishing formal metadata

Edith Konopka

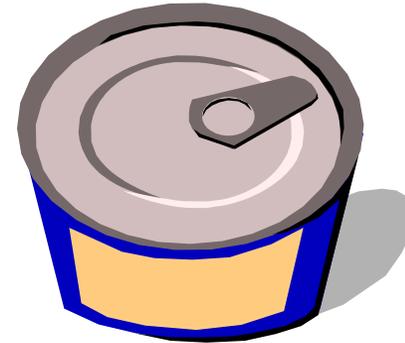
Data and metadata administration and management

Edith.Konopka@tech.nj.gov

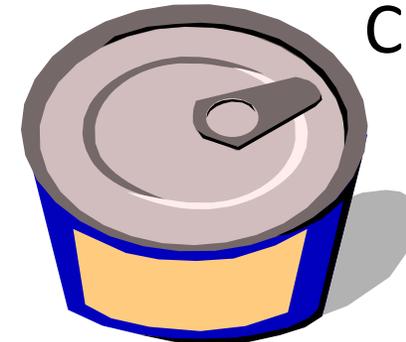
Why do we care?

- Preserve data value over time
- Understand valid uses
- Enable cost-effective sharing, distribution
- Provide legal protection

Which
one
would
you
eat?



Tuna?



Cat food?

Past and present standards

- Federal Geographic Data Committee-Content Standard for Digital Geospatial Metadata (FGDC-CSDGM)
 - FGDC-STD-001-1998
 - FGDC endorsed
 - Xml files -> stylesheets, html etc

Past and present standards

- ArcGIS
 - ArcGIS Metadata version 1.0
 - Not FGDC endorsed
 - Set style can support other standards
 - Store info
 - Export CSDGM or ISO 19115:2003 - ISO 19139:2007 xml
 - Xml files -> stylesheets, html, AGO, REST content, JSON

Present/future standards

- “ISO”
 - Geographic Information – Metadata ISO 19115: 2003
 - Xml encoding: ISO 19139: 2007
 - Still in use, but superseded by:
 - Geographic Information – Metadata – Part 1: Fundamentals ISO 19115-1 2015
 - Xml encoding: ISO 19115-3 2016
 - Endorsed by FGDC
 - Includes Service-specific metadata, formal ways to link records
 - Requires additional ISO standards for info on
 - Data Quality
 - Feature Catalog (Entity and Attributes)
 - Spatial References

Tools – Present

- Authoring

- Several for CSDGM and ArcGIS

- ArcCatalog 10.3.1 or later (Pro editor still not as good)

- AGO

- EPA MD editor (several) <https://www.epa.gov/geospatial/epa-metadata-editor>

- ISO 19115-1; catalog interface or xml editor

- Validation

- Metadata Parser <https://mrdata.usgs.gov/validation/>

- NOAA ISO rubric <https://www.ngdc.noaa.gov/docucomp/recordServices>

Tools - Present

- Publication
 - NJGIN – FGDC-CSDGM only
 - AGO/Open Data – ArcGIS only (pick a style)
 - GIS Inventory – FGDC-CSDGM harvest, circling drain
 - Data.gov – transform MD from states etc to CKAN JSON via CSW or Esri Open Data or ...

HELP – New NJGIN MD help page coming

- What are metadata?
- Why read metadata?
- Why write metadata?
- How to start?
 - Reading
 - Gathering info
 - Selecting tool
 - Cataloging
 - Fully documenting
 - Publishing
 - Editing existing metadata
- Links to more details

HELP – New MD help documents coming

Transitioning FGDC to ArcGIS MD

Transitioning from FGDC to ArcGIS metadata, FGDC style

Version 1.9

Contents

Summary	1
Things to remember	1
Set-up and preparation	2
Upgrading	4
Edits	5
Optional edits	8
Preparing metadata for publication	9
Appendix I - ArcGIS Editor features	12
Appendix II - Required elements for NJGIN	15
Appendix III - Pick lists for NJGIN	16
Appendix IV - Complete list of NJDEP full metadata elements in Editor	19

Twenty Questions about Geospatial Data

Twenty Questions about Geospatial Data

(to ask in preparation for writing formal metadata)

https://njin.state.nj.us/oit/gis/NJ_NJGINExplorer/docs/MD_TwentyQuestions.docx
https://njin.state.nj.us/oit/gis/NJ_NJGINExplorer/docs/MD_TwentyQuestions.pdf

- 1) What is the subject of the data set? Be as specific and succinct as possible. Is there a file name by which the data set generally is known and/or distributed? [Title, Native Data Set Environment].
- 2) What is the approximate geographic location of the project? Please provide a general description such as a state plus county and/or city name, watershed management area name, or other general locator. [Title, Place Keywords]

Future metadata support

- Training?
- One on one site visits?
- Online cataloging editor?
- Online validation?
- Harvest from NJGIN to ?
- ?

NJGIN Update

Brian R. Embley, Solution Architect

brian.embley@tech.nj.gov



new jersey geographic information network

Login

Register

LAUNCH EXPLORER

Home

About NJGIN

Browse Data +

Data Downloads

Job Postings +

Address and Geocoding

Metadata +

NJ Geospatial Forum

Orthoimagery-LiDAR +

Road Centerlines Data

NJ Office of GIS Open Data

Regional Data Portals +

Resources +

User Directory

Contact Us

Metadata SpotLight



[NJ Economic Opportunity Act of 2014 Boundaries](#)



[New Jersey College and University Boundaries by Parcel](#)



[Critical Environmental and Historic Site Boundaries of...](#)

Quick Search

Choose content type:

<All Content Types> ▾ ?

Choose content theme:

<All Content Themes> ▾ ?

Optional Keyword (e.g. river):

Start Search

[Full Search] ?

News And Events

[Archives](#)

Local Government Joint Constituency Group Meeting, Feb 22

Change to web service for 1977 Tidelands imagery

NJ MODIV database tables updated for tax year 2016 now available

Open Space and Preservation Resources Inventory (OSPRI) in PAD - US schema available for New Jersey

Esri software is available to state agencies and cooperative purchasing participants through the M7003 contract

Parcels data updated November 01, 2017

Municipal, county and state boundaries data for New Jersey updated as of July 2016

GIS Events Calendar

FEBRUARY 2018						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			



NJGIN Metadata Records

Current State

- 1085 Md records in NJGIN
- 891 State Owned (NJDEP, NJOIT, Pinelands, Highlands, SmartGrowth, etc)
- 104 County Owned

County Ownership Breakdown

27	Mercer
22	Sussex
21	Cape May
12	Atlantic
10	Somerset
4	Hunterdon
3	Union
3	Monmouth
1	Bergen
1	Cumberland

County Content Types

59	Offline Data
37	Map Service
7	Downloadable
1	Application



Vintage of County Owned

1	2003
3	2005
2	2006
91	2008
5	2009
1	2010
1	2011

Open Data Site

<https://njogis-newjersey.opendata.arcgis.com>



- 136 items
- 13,000 searches per month
- Services, data files, apps, documents, AGO web maps
- Data Download
- Supports FGDC Md record

Vision for NJGIN 3.0

The screenshot displays the NJGIN website interface. At the top left is the 'njgin' logo with the tagline 'new jersey geographic information network'. To the right are 'Login' and 'Register' buttons. Below the logo is a 'LAUNCH EXPLORER' button. A vertical navigation menu on the left includes: Home, About NJGIN, Browse Data, Data Downloads, Job Postings, Address and Geocoding, Metadata, NJ Geospatial Forum, Orthoimagery-LiDAR, Road Centerlines Data, NJ Office of GIS Open Data, Regional Data Portals, Resources, User Directory, and Contact Us. The main content area is divided into four sections: 'Metadata SpotLight' with three items (NJ Economic Opportunity Act of 2014 Boundaries, New Jersey College and University Boundaries by Parcel, and Critical Environmental and Historic Site Boundaries of...), 'Quick Search' with dropdowns for content type and theme, and an optional keyword field, 'News And Events' with an 'Archives' link and several news items, and 'GIS Events Calendar' showing a calendar for February 2018 with the 20th highlighted.

- Build on Open Data site
- NJGIN Website refresh

The screenshot shows the OGIS State of New Jersey - GIS Open Data website. The header includes the OGIS logo and the text 'State of New Jersey - GIS Open Data'. Below the header is a large green banner with the text 'New Jersey Geographic Open Data' and a search bar. The background of the banner features a green-tinted image of the New Jersey State Capitol building.

Discussion

- What types of data requests do you get? How do you answer them?
- Do you require any data sharing agreement for requestors?
- How do you document your datasets?
- If you author Md, what tool do you use?
- If you use ArcGIS Desktop, do any of you use ArcGIS Pro?

Break 11:00 - 11:15

NJ Statewide Parcels

Patrick McDonald

Data Development, Maintenance and Coordination

patrick.mcdonald@tech.nj.gov

NJ Statewide Parcel Standards

- Draft statewide parcel standards are currently being developed by the NJ Office of GIS (NJOGIS)
- Will be distributed to county and municipal parcel data stewards for review and comments before implementation.
- Future meeting between parcel data stewards and NJOGIS may be needed as part of the review, comments and implementation process.

Why do we Need a Statewide Parcel Standard?

- We need to standardize parcels statewide.
- Improve parcel accuracy and create better understanding of how parcels should be delineated.
- Keep parcels focused on GIS needs.

How is NJOGIS Developing the Statewide Standards?

- Research of several states within the northeastern United States.
 - Massachusetts
 - Connecticut
 - Maine
 - Rhode Island
 - Vermont
- Previous meetings, discussions and information submitted by parcel data standards.
- NJOGIS observations from statewide parcel reviews.

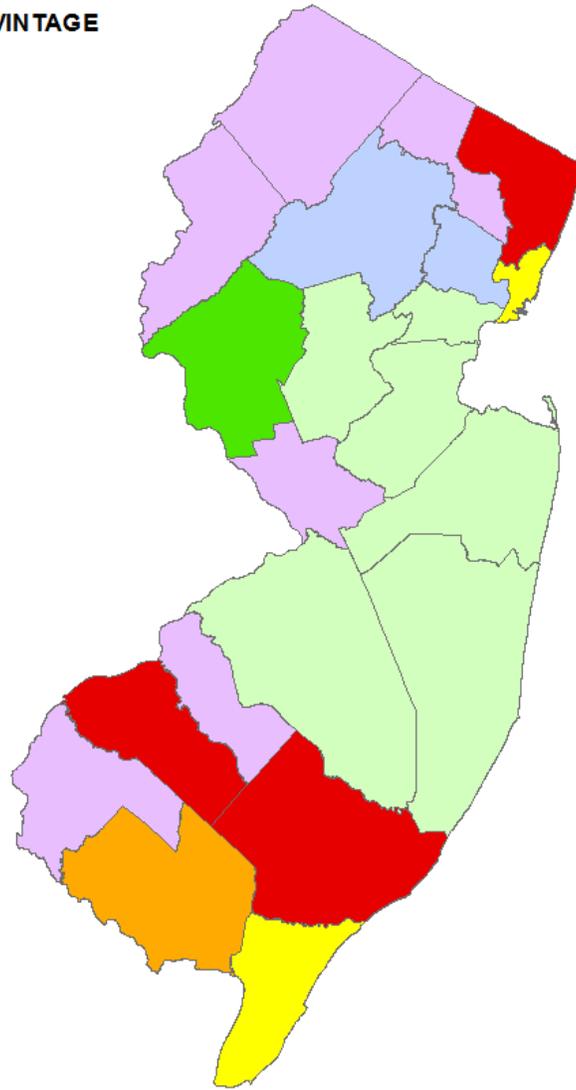
What will be included in the Statewide Parcel Standards

- Multiple parcel accuracy levels
- Subtypes will be established.
- Minimum typology rules.
- Method of handling additional lot parcels.
- Various methods for handling condominiums.
- Methods for representing QFARM and non-QFARM, billboards and cell phone towers.
- Parcel coincidence with state, county and municipal boundaries.
- Attribute schema changes

LEGEND

PARCEL VINTAGE

- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018



Present Workflow Between NJOGIS and Parcel Data Stewards – Submittal and QA/QC Process

- NJOGIS requests updates from parcel data stewards on an infrequent basis.
- The entire updated parcel dataset is run through a QA/QC process:
 - Check/Repair Geometry Tools
 - Topology Checks
 - Edge Matching reviewed.
 - Parcels analyzed for duplicate PAMS_PIN values.
 - Parcels analyzed for PAMS_PIN values that do not match the concatenation of the MUN, BLOCK, LOT and QCODE fields.
 - Parcel/MOD-IV matched rate is determined.

Present Workflow Between NJOGIS and Parcel Data Stewards – Statewide Parcel Processing

- Processing model is run to update statewide parcel composite:
 - Deletes all existing county parcels and tax blocks in statewide composite.
 - Updated county parcels are appended into statewide parcel composite.
 - Update county parcels are dissolved to create county tax blocks and appended into statewide tax blocks.
- Python tool is run to create the statewide parcel/MOD-IV composite.
- Updated parcels are posted to NJGIN and distributed to all of the state ArcGIS Servers and Enterprise Geodatabases.
- Review feature class is sent to parcel data steward.

Future Workflow Between NJOGIS and Parcel Data Stewards

- Annual parcel updates for counties that routinely update parcels.
- Update schedule for remaining counties to be worked out with each data steward.
- Updated parcels will be run through an enhanced QA/QC process.
 - Change detection process will be run between published county parcels and updated county parcels.
 - Updated county parcels will be brought into county publication parcels.
 - Remaining QA/QC process will be the same.
- Statewide parcel composite processing will remain the same.

Thoughts for the future

- Ways to improve file geodatabase exchange between NJOGIS and counties.
 - Still use county/consultant FTP site if one is available.
 - Possible use of NJOGIS ArcGIS Online site.
- If anyone feels there are MOD-IV fields that NJOGIS does not currently publish but are needed, please let us know after the presentation or contact us by email.
- How many counties have adopted the NJ parcel schema?
- NJOGIS would like to begin meeting with county parcel data stewards to increase our understanding of their parcel maintenance workflow.
- Are there counties that are having trouble routinely determining what parcels need updating? Can they get assistance from other counties that have more established procedures for determining parcel updates.

Parcel Best Practices

- NJOGIS will be working on a best practices guide as part of the NJ Parcel Standards.
- Check and maintain topology throughout the editing process.
- Perform data attribute validation on a regular basis. NJOGIS can provide queries and expressions we use if needed.
- Keep condominium representation as simple as possible. Only make them as complex as they have to be to achieve your needs.
- Verify that parcels properly align with appropriate features on orthophoto base map.
- Where possible, create tax block first, then begin to break tax block into individual parcels.
- In subdivisions, rights-of-way must be consistent on both sides of the road.
- Keep right-of-way widths consistent with tax maps other source documents.

Lunch Break 11:45 – 12:45

Elevation/LiDAR Data Update

Doug Schleifer, Manager
doug.schleifer@tech.nj.gov

LiDAR Holdings

LiDAR Collections Available		
Area	Date	Size
Statewide Derived 10 foot DEM	2004-2011	30 GB
DVRPC Collection (QL2)	2015	1.3 TB
Burlington, Camden, Gloucester and Mercer counties		
Northeast NJ (QL2)	2014	428 GB
Bergen, Essex, Hudson, Middlesex, Monmouth and Union counties		
Meadowlands (QL1)	2014	98 GB
Includes areas of Carlstadt, East Newark, East Rutherford, Harrison, Hasbrouck Heights, Jersey City, Little Ferry, Lyndhurst, Moonachie, North Arlington, Ridgefield, Rutherford, Seacaucus, Teterboro, Union City, Wood Ridge		
Coastal	2011	274 GB
Atlantic, Ocean and Southern Monmouth counties		
Salem	2009	90 GB
Inland areas of Salem not included in CAFRA		
Cape May, Cumberland, Salem	2008	260 GB
Salem County is CAFRA area only		
Highlands	2008	920 GB
Morris County, Parts of Hunterdon, Passaic, Somerset, Sussex and Warren		
Warren Sussex (areas not in Highlands)	2008	40 GB
Hunterdon	2007	25 GB
Trenton and Newark Cities	2007	2.5 GB

LiDAR Projects

Northwest NJ Acquisition

Project partners: USGS 3DEP Program, NJDEP, NJDOT, NJOIT and NJ Highlands Council

Planned acquisition start date: 3/2017, postponed to 2/2018

- Hunterdon
- Morris
- Passaic
- Somerset
- Sussex
- Warren

South NJ Acquisition

Project partners: USGS 3DEP Program, NJDEP and NJOIT

Planned acquisition start date: 3/2017

- Atlantic
- Cape May
- Cumberland
- Salem

Ocean County Acquisition

Agency: FEMA

Planned acquisition start date: 3/2017

LiDAR Projects

Specification

USGS 3DEP Program – Quality Level II (QL2)

Products

Classified point cloud

- Point Density: 2 points/sq. meter
- Vertical Accuracy RMSEz: 10cm or better
- Nominal Pulse Spacing (NPS): 0.70m
- Nominal Pulse Density (NPD): 2 points/sq. meter
- Horizontal Datum: NAD83
- Vertical Datum: NAVD88 with most recent version in GEOID 12A
- Tide-coordinated: Data collection of +/- 2 hours from mean low tide for tidal rivers and estuaries

Tile-based bare earth Digital Elevation Models (DEMs)

- 1 meter post spacing
- “Hydro-flattened” water bodies
- Tiling schema 5000 feet x 5000 feet (matching the existing New Jersey orthoimagery tiling schema)

Documentation

- Metadata

LiDAR Projects

Additional information

USGS National Geospatial Program Lidar Base Specification

<https://pubs.usgs.gov/tm/11b4/pdf/tm11-B4.pdf>

Geospatial Strategic Business Plan for the State of New Jersey

https://njgin.state.nj.us/oit/gis/NJ_NJGINExplorer/docs/StrategicBusinessPlan.pdf

Elevation/LiDAR Data Update

Data Access

Maya Thomas, GIS Specialist
maya.thomas@tech.nj.gov

Accessing LiDAR page on NJGIN

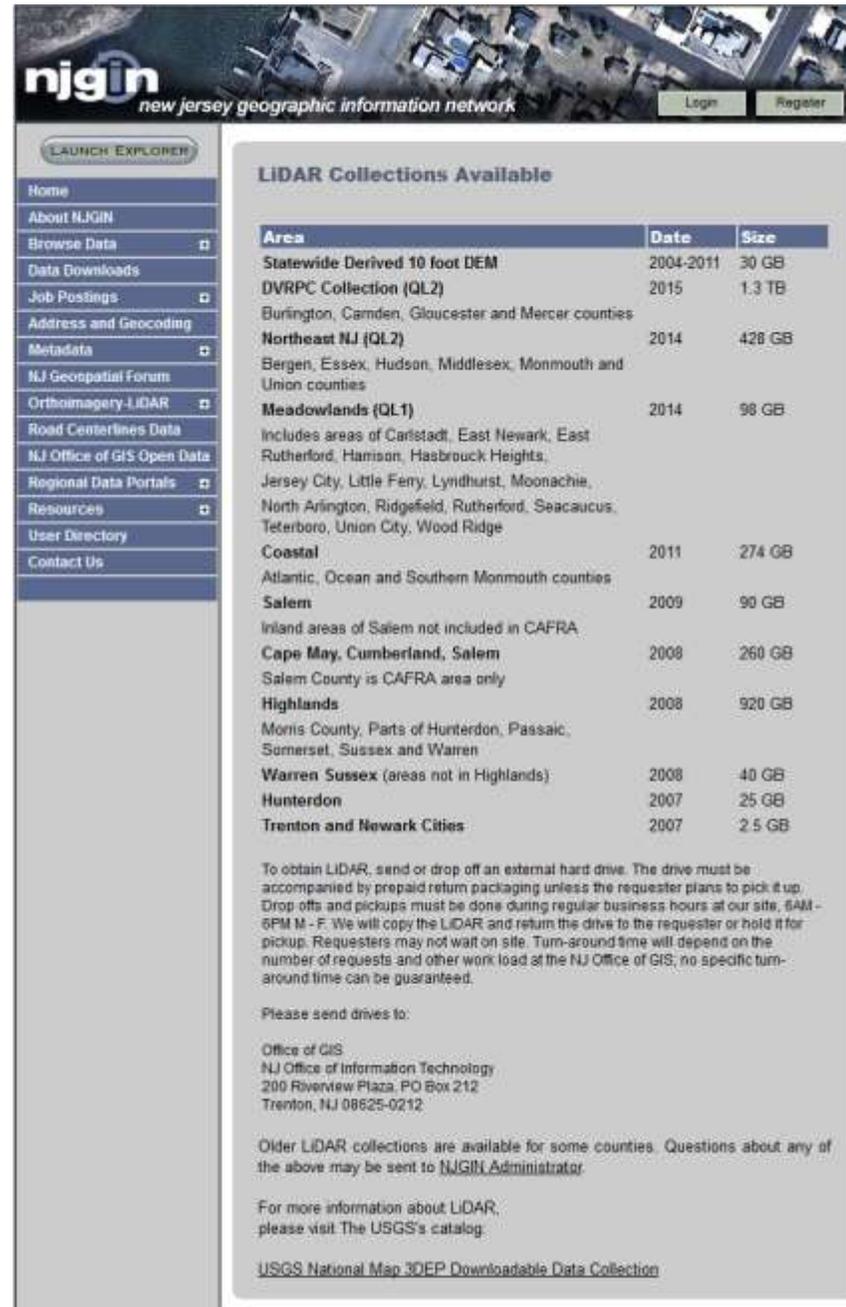
The screenshot shows the NJGIN website interface. The top navigation bar includes the NJGIN logo, the text "new jersey geographic information network", and "Login" and "Register" buttons. Below the navigation bar is a "LAUNCH EXPLORER" button. The left sidebar contains a vertical menu with the following items: Home, About NJGIN, Browse Data, Data Downloads, Job Postings, Address and Geocoding, Metadata, NJ Geospatial Forum, Orthoimagery-LiDAR, Road Centerlines Data, NJ Office of GIS Open Data, Regional Data Portals, Resources, User Directory, and Contact Us. The "Orthoimagery-LiDAR" item is highlighted with a red box. The main content area is divided into several sections: "Metadata SpotLight" with three items, "Quick Search" with dropdown menus and a search button, "News And Events" with a sub-section "Information Warehouse" containing "Obtain 2015 Imagery", "WMS Instructions", and "LiDAR" (highlighted with a red box), and "GIS Events Calendar" showing a calendar for February 2018. At the bottom of the "News And Events" section, the text "New Jersey LiDAR Collections Available" is highlighted with a yellow box. The footer contains the text "This site is managed by the NJ Office of Information Technology, Office of GIS." and the OGIS logo.

Orthoimagery-LiDAR

LiDAR

New Jersey LiDAR Collections Available

LiDAR page on NJGIN



njgin
new jersey geographic information network

Login Register

LAUNCH EXPLORER

- Home
- About NJGIN
- Browse Data
- Data Downloads
- Job Postings
- Address and Geocoding
- Metadata
- NJ Geospatial Forum
- Orthomagey-LiDAR
- Road Centerlines Data
- NJ Office of GIS Open Data
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- User Directory
- Contact Us

LIDAR Collections Available

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Warren Sussex (areas not in Highlands)	2008	40 GB
Hunterdon	2007	25 GB
Trenton and Newark Cities	2007	2.5 GB

To obtain LiDAR, send or drop off an external hard drive. The drive must be accompanied by prepaid return packaging unless the requester plans to pick it up. Drop offs and pickups must be done during regular business hours at our site, 9AM - 5PM M - F. We will copy the LiDAR and return the drive to the requester or hold it for pickup. Requesters may not wait on site. Turn-around time will depend on the number of requests and other work load at the NJ Office of GIS; no specific turn-around time can be guaranteed.

Please send drives to:

Office of GIS
NJ Office of Information Technology
200 Riverview Plaza, PO Box 212
Trenton, NJ 08625-0212

Older LiDAR collections are available for some counties. Questions about any of the above may be sent to [NJGIN Administrator](#).

For more information about LiDAR, please visit The USGS's catalog.

[USGS National Map 3DEP Downloadable Data Collection](#)

How to retrieve elevation data

- Send hard drive to OGIS with data request, contact information, and return method
 - Provide pre-paid return label (and packaging, if necessary)
 - We will notify you for pick up, 6am-6pm Mon-Fri (no waiting)
- No specific turn-around time, depends on our workload

Office of GIS
NJ Office of Information Technology
300 Riverview Plaza, PO Box 212
Trenton, NJ 08625-0212

njgin@oit.nj.gov

(609) 633-9103

Introducing the LiDAR & DEM Info Web App

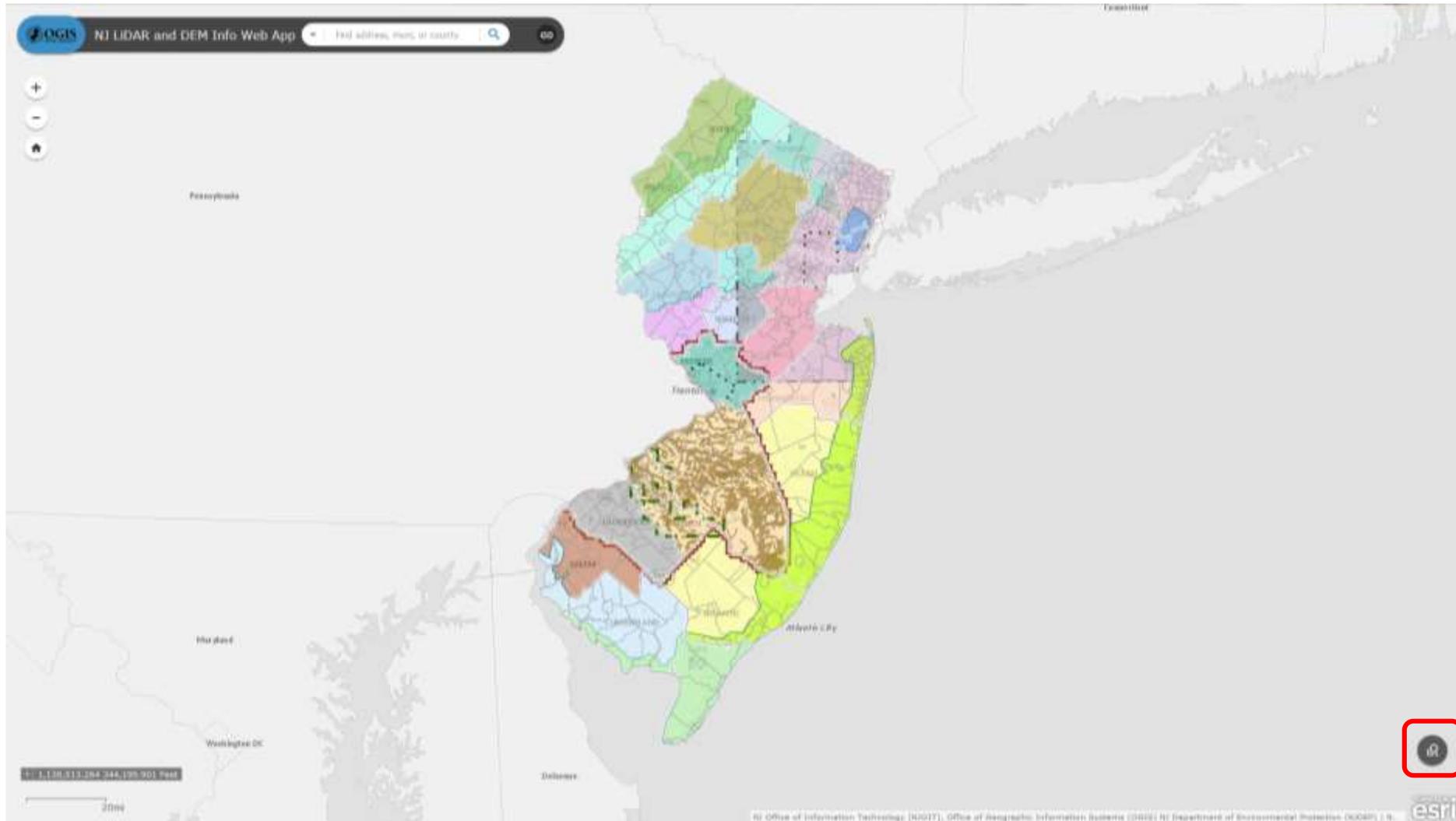
Questions Answered

- What elevation products are available for my county or municipality?
- What elevation products are available for a particular site?
- What historical projects are available?

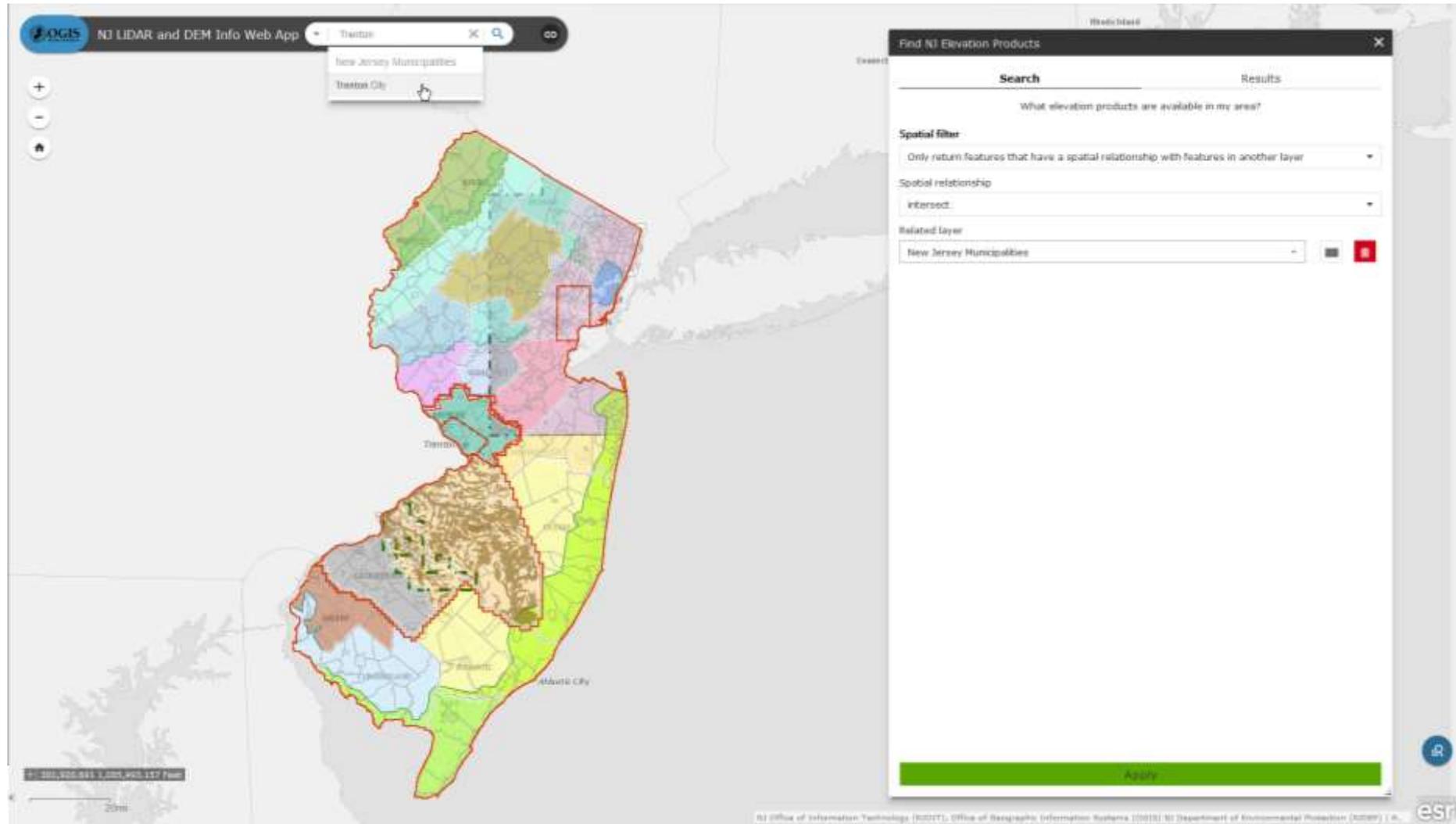
Metadata Details

- Quality level
- File size
- DEM resolution
- Point density
- Returns
- Elevation products available
- ...and much more!

LiDAR & DEM Info Web App Preview



LiDAR & DEM Info Web App Preview



LiDAR & DEM Info Web App Preview

The screenshot displays the 'NJ LiDAR and DEM Info Web App' interface. The main map shows a geographic area of New Jersey with various colored overlays representing different data layers. A search results panel is open on the right, titled 'Find NJ Elevation Products'. The search query is 'What elevation products are available in my area? _Query result:'. The results show 4 features found, with the first feature being 'DVRPC 2015'. The details for this feature are as follows:

Property	Value
Project Name/Year	DVRPC 2015
Metadata	Yes
File Size	1.3 TB
Collection Month	April
Leaf On/Off	Off
NPS (m ²)	0.7
Horizontal Confidence	1 Meter
Tide Coordinated	No
Tide Window	
Coordinate System	UTM
Point Density (m ²)	8
Vertical Accuracy (FVA 95%)	0.025 m (0.082 ft)
Horizontal Datum	NAD83/2011
Horizontal Units	Meters
Vertical Units	Meters
Vertical Datum	NAVD83
Collection Standard	USGS V 1.2
Quality Level	2
LAS File Version	1.4
Bit/Line	8.00
Return Classes	1,2,7,8,9,10,11,16
Raw Earth DEM	Yes
DEM Resolution	1 Meter
Infinite Values	Yes
Tiling Structure	National Grid
DEM Format	PHU
Hydro Flattened	Yes
Hydro Enforced	No
Hydro Broadness	Yes
Contours	No
Contractor	Quantum Spatial
Lead Agency	DVRPC
Partners	USGS
Processing Software	TerraScan, TerraModeler, GeoCue, Global Mapper

LiDAR & DEM Info Web App Preview

DVRPC 2015

Project Name/Year	DVRPC 2015
Metadata	Yes
File Size	1.3 TB
Collection Month	April
Leaf On/Off	Off
NPS (m ²)	0.7
Horizontal Confidence	1 Meter
Tide Coordinated	No
Tide Window	
Coordinate System	UTM
Point Density (m ²)	8
Vertical Accuracy (FVA 95%)	.0925 m. (.297 ft.)
Horizontal Datum	NAD83/2011
Horizontal Units	Meters
Vertical Units	Meters
Vertical Datum	NAVD88
Collection Standard	USGS V 1.2

Quality Level	2
LAS File Version	1.4
Returns	8.00
Return Classes	1,2,7,8,9,10,17,18
Bare Earth DEM	Yes
DEM Resolution	1 Meter
Intensity Values	Yes
Tiling Structure	National Grid
DEM Format	IMG
Hydro Flattened	Yes
Hydro Enforced	No
Hydro Breaklines	Yes
Contours	No
Contractor	Quantum Spatial
Lead Agency	DVRPC
Partners	USGS
Processing Software	TerraScan, TerraModeler, GeoCue, Global Mapper

NJ Road Centerlines and Address Points

Patrick McDonald

Data Development, Maintenance and Coordination

patrick.mcdonald@tech.nj.gov

Purpose of NJ Statewide Road Centerlines and Address Points

- Two of the most important datasets for Next Generation 911.
- Can be used in many of the current emergency dispatch systems.
- Provides statewide geocoding capabilities.
- Road centerline dataset is still shared with NJDOT on an annual basis for their use in updating the NJ Roadway Network.

Road Centerline Status

- Large amount of local government assistance is needed to correct and maintain the statewide road centerlines:
 - Add new or missing roads
 - Travel Direction – large amount of one-way roads are still listed both directions.
 - Incorrect segment names
 - Address ranges do not reflect the actual address range.
 - Overlapping address ranges.
 - Many private roads are currently listed as public.
- NJOGIS will attempt in the future to update address ranges using the current address points.

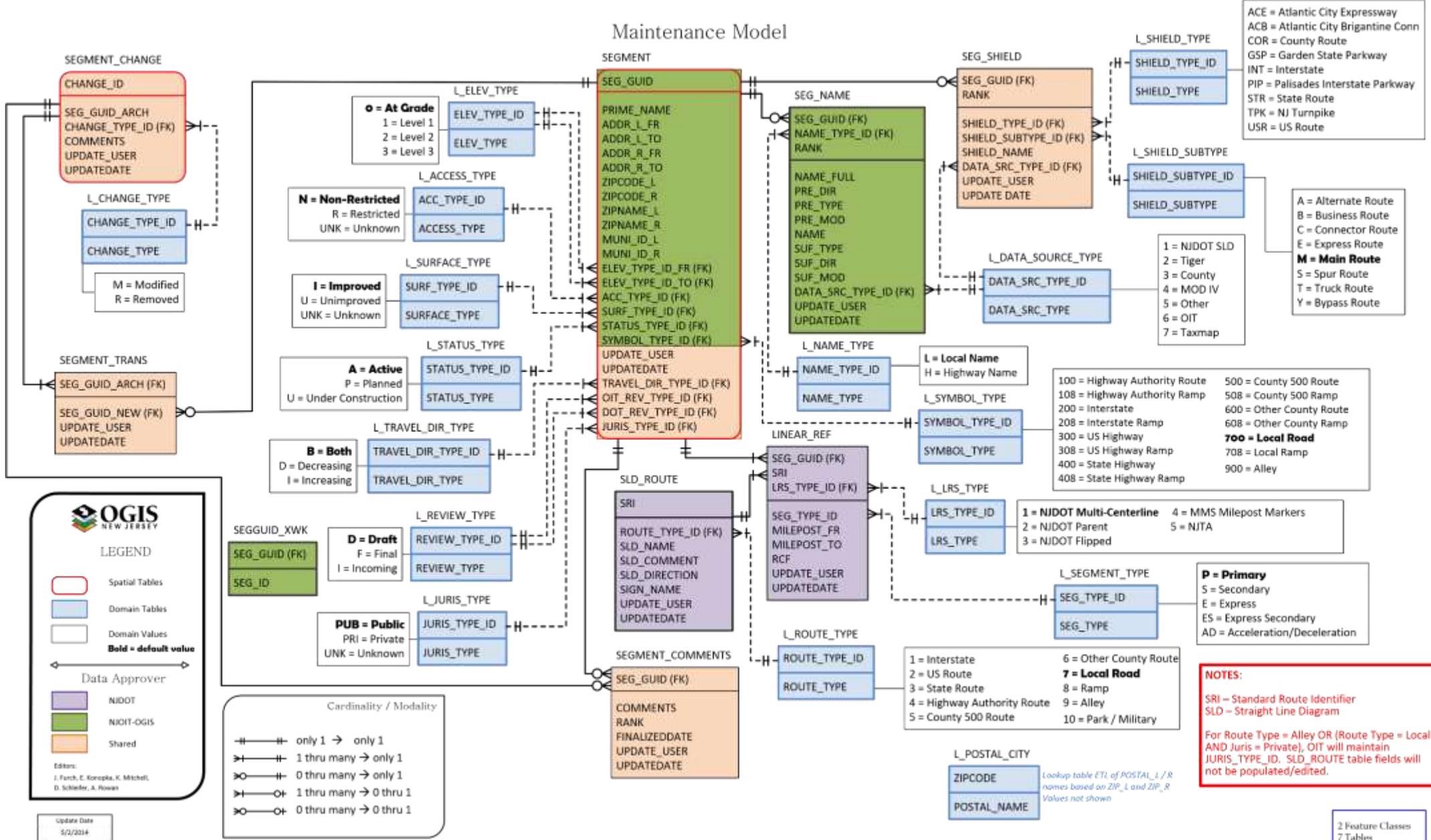
Statewide Address Point Status

- Address Points were initially generated from MOD-IV data and parcels.
- Additional address points were obtained from counties and municipalities that were maintaining them:
 - Monmouth County
 - Morris County
 - Sussex County
 - Montgomery Township, Somerset County
- Most of the address points are currently located along the right-of-way line. For local governments that provided address points, the point is located at actual address location.

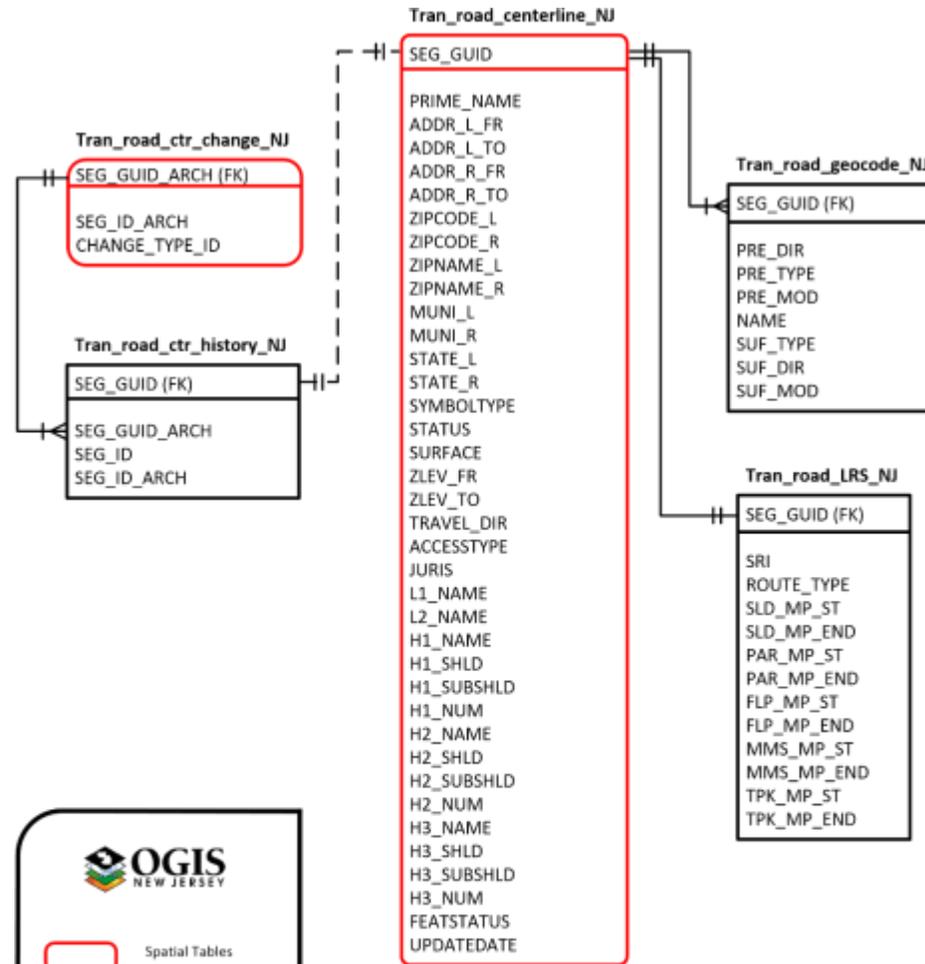
Statewide Address Point Status

- Local government assistance is needed to complete, correct and maintain the statewide address points:
 - In most jurisdictions, a substantial amount of addresses are missing, including the following:
 - Apartments
 - Office complexes
 - Shopping center units
 - Many address points derived from MOD-IV may be incorrect or not in use.
- If any local governments or PSAPs currently have address points, please provide them to us so we can incorporate them into the statewide address points.

Maintenance Model



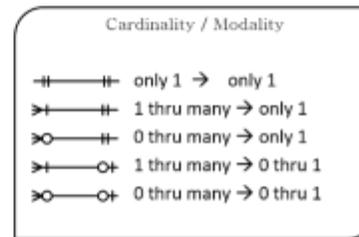
Publication Model



Spatial Tables
 Non-spatial Tables

Editors:
 J. Furch, E. Konopka, K. Mitchell,
 D. Schletter

Update Date
7/8/2014



Proposed Road Centerline Data Model Schema Changes

- Changes will not happen until 2019 at earliest
- SEG_ID field will be deprecated after all remaining uses for it have been completed.
- Symbol Type field – Additional type of 800 for access roads.
- Jurisdiction Type – Current values: Public, Private and Unknown. Revise to the following:
 - A – Authority/Commission
 - F – Federal
 - S – State
 - C – County
 - M – Municipal
 - P – Private
 - Unknown
- If anyone has dependencies on the current jurisdiction values, please let us either at the end of this presentation or contact us by email.

Proposed Road Centerline Data Model Schema Changes

- SEG_NAME (Segment Name) table will need to be revised to handle current NENA requirements. This will also require changes to the NJOGIS ETL process that creates the publication model that is posted on NJGIN.
- The current road centerline LRS information will be deprecated:
 - There are numerous issues with the information presently in the LRS that have existed since the creation of the NJ Road Centerlines.
 - The road centerlines will no longer be used to generate the NJDOT Roadway Network, which was the primary purpose for the LRS information in the road centerlines model.
 - If there any counties who currently have direct dependencies on the LRS continuing to be part of the road centerlines, please let us know after the presentation or contact us by email.

Methods of Obtaining Road Centerline and Address Updates

- ArcGIS Desktop
 - Utilizes NJ Road Editor Addin.
 - Geodata Service
 - Direct replication of NJ Road Centerline maintenance model.
 - Allows batch updating of segment names, address points and Landmarks.
 - Can copy or trace roads from existing data.
 - Check out/Check in as a file geodatabase.
 - Easiest to setup on remote end.
 - Generally provides best performance for the remote user.
 - Does not allow multiple editors or versions.
 - Requires a new check out after each check in.

Methods of Obtaining Road Centerline and Address Updates

- Geodata Service (continued)
 - Two-way synchronization using enterprise geodatabase.
 - Allows multiple editors and versions on the remote end.
 - Can be hard to setup for remote users.
 - Performance can vary greatly depending on enterprise geodatabase setup on remote users end.
 - Offline Check out/Check in as file geodatabase.
 - Requires manual exchange of replicated data.
 - Does not allow multiple editors or versions.
 - Requires a new check out after each check in.
- ArcGIS Pro
 - Will be supported in future. NJOGIS is in the very early stages of looking into using Pro with the road centerlines.

Methods of Obtaining Road Centerline and Address Updates

- Web Editor
 - Powerful web application.
 - Primarily intended for non-desktop GIS users, such as PSAPs or local government without GIS capabilities.
 - No type of batch update tools.
 - Can not copy or trace roads from another dataset.
 - Very basic drawing tools.
 - Requires the most effort by NJOGIS during the QA/QC process.
- Other methods of participating in road/address updates have to be established on a case-by-case basis.

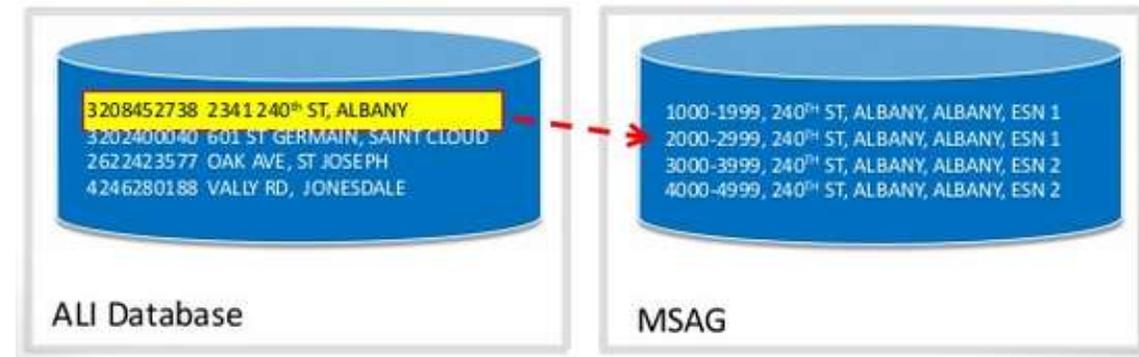
Break 2:00 – 2:15

GIS and NextGen 9-1-1

Andy Rowan

Deputy CTO/State GIO

9-1-1 Past and Present



- First 911 system February 1968 (Happy Birthday!)
- Mid-1970's, first automated location information – “Enhanced 911” – E911
- Call routing by tabular lookup using phone number as database key
- Works well for landline phones – operator has caller location even if the caller doesn't know, or can't speak
- Reliable enough that SOP became to ask the nature of the emergency first, before location: “9-1-1, what is your emergency?”

“9-1-1, Where is Your Emergency?”

- Now 80% of 911 calls are from wireless
- In E911, wireless device location is included in the data stream, but system is NOT able to use it for call routing
- Wireless calls are routed by tower location, sometimes with bad results
- Location comes through as a point on the map, no dispatchable address
- Many operators now answer “9-1-1, **where** is your emergency?”



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BUSINESS

Why Uber Can Find You but 911 Can't

Accurate location data is on smartphones, so why don't more wireless carriers use it to locate emergency callers?

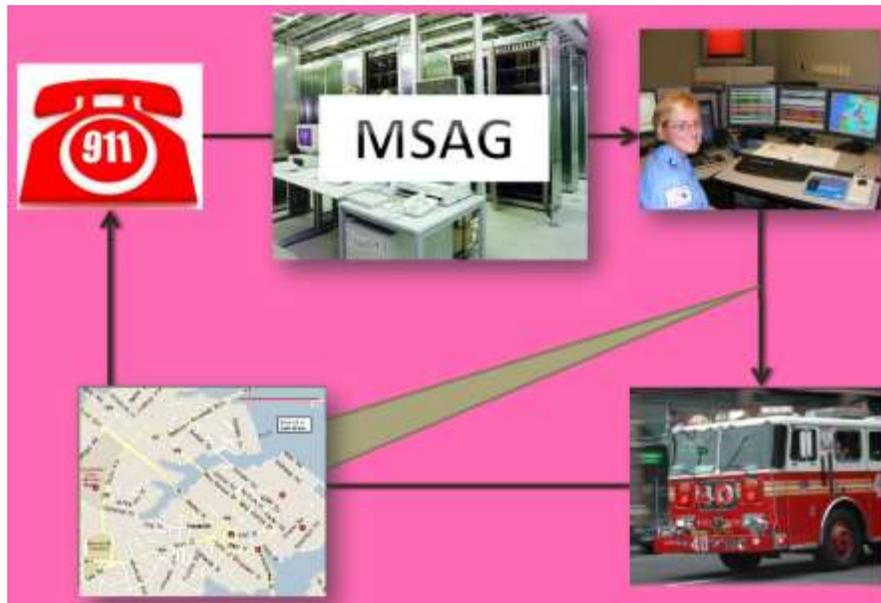
Bad Results, Like How Bad?

- Georgia, December 2014, Shanell Anderson drove into a lake and couldn't get her doors open
- Her call to 911 was routed to the neighboring county
- That PSAP's system didn't have road data for her county, and the operator couldn't figure out the location
- Shannel Anderson was pulled from her submerged vehicle, but later died
- Other things went wrong after the call routing went wrong, but the call routing started those in motion

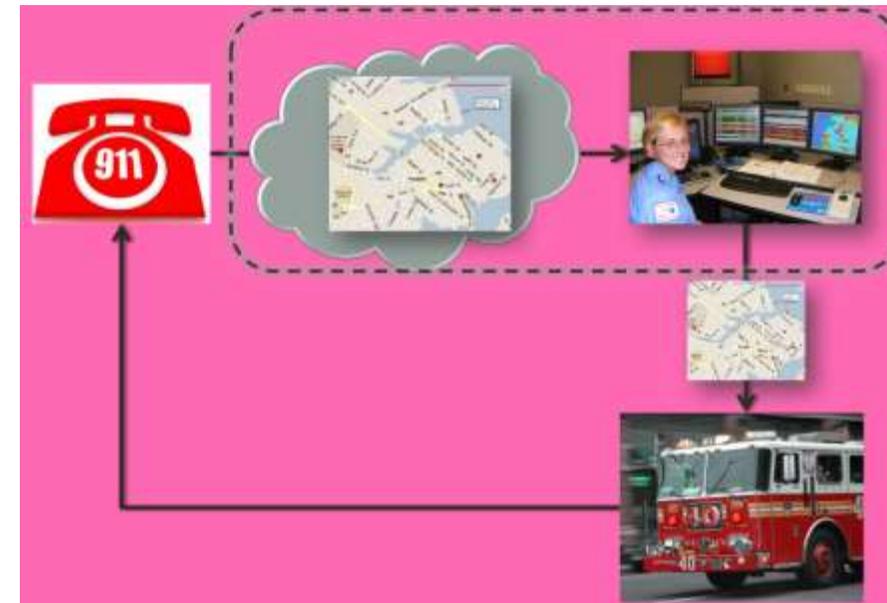


GIS Has a Bigger Role in NG911

E-911



NextGen 911



Graphics from K Liljequist

What is Next-Gen 9-1-1?

- Private network separate from the publicly switched telephone network, connected by gateways
- IP-based network can receive input as voice, text, video, and can take from or send to automated systems (collision notification, burglar alarm, etc.)
- PSAP failover more robust and dynamic
- Wireless call routing based on device location
- Conversion of wireless device to dispatchable address by reverse geocoding
- Landline call routing based on GIS lookup of address
- Explicit requirements for how quickly GIS data corrections must be entered

Some Terms

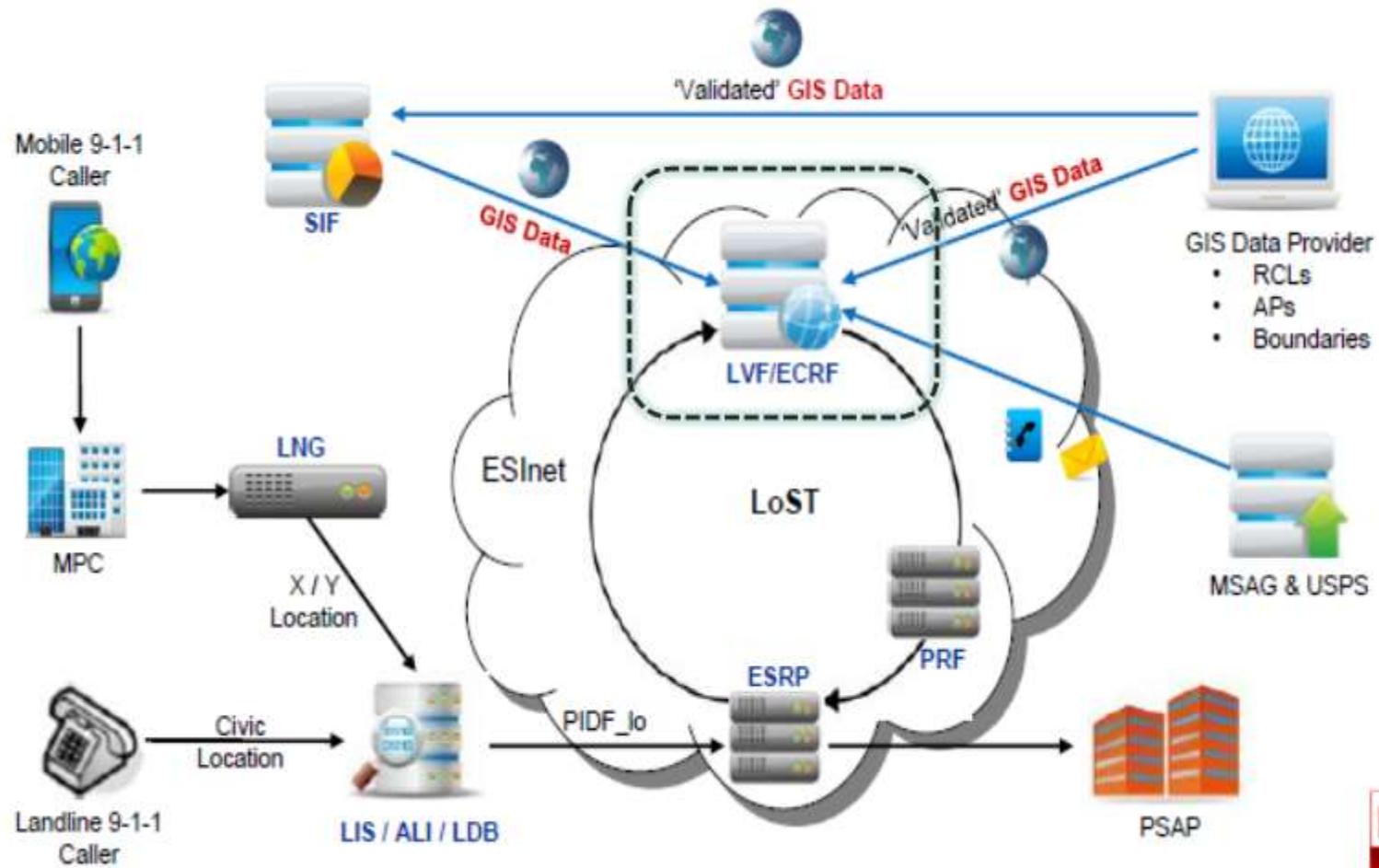
E-911

- **ALI:** Automatic Location Identification (Looks up address based on phone number)
- **MSAG:** Master Street Address Guide (tabular list of address ranges and corresponding emergency service zones)

NextGen 911

- **i3:** The NENA standard that defines NextGen 911 technology
- **ESINet:** Emergency Services IP Network (the NG911 network)
- **LIS:** Location Information Server (provides wireless locations)
- **LVF:** Location Validation Function
- **ECRF:** Emergency Call Routing Function

GIS Data is the Core of i3



GIS Layers Required/Highly Recommended for NG911

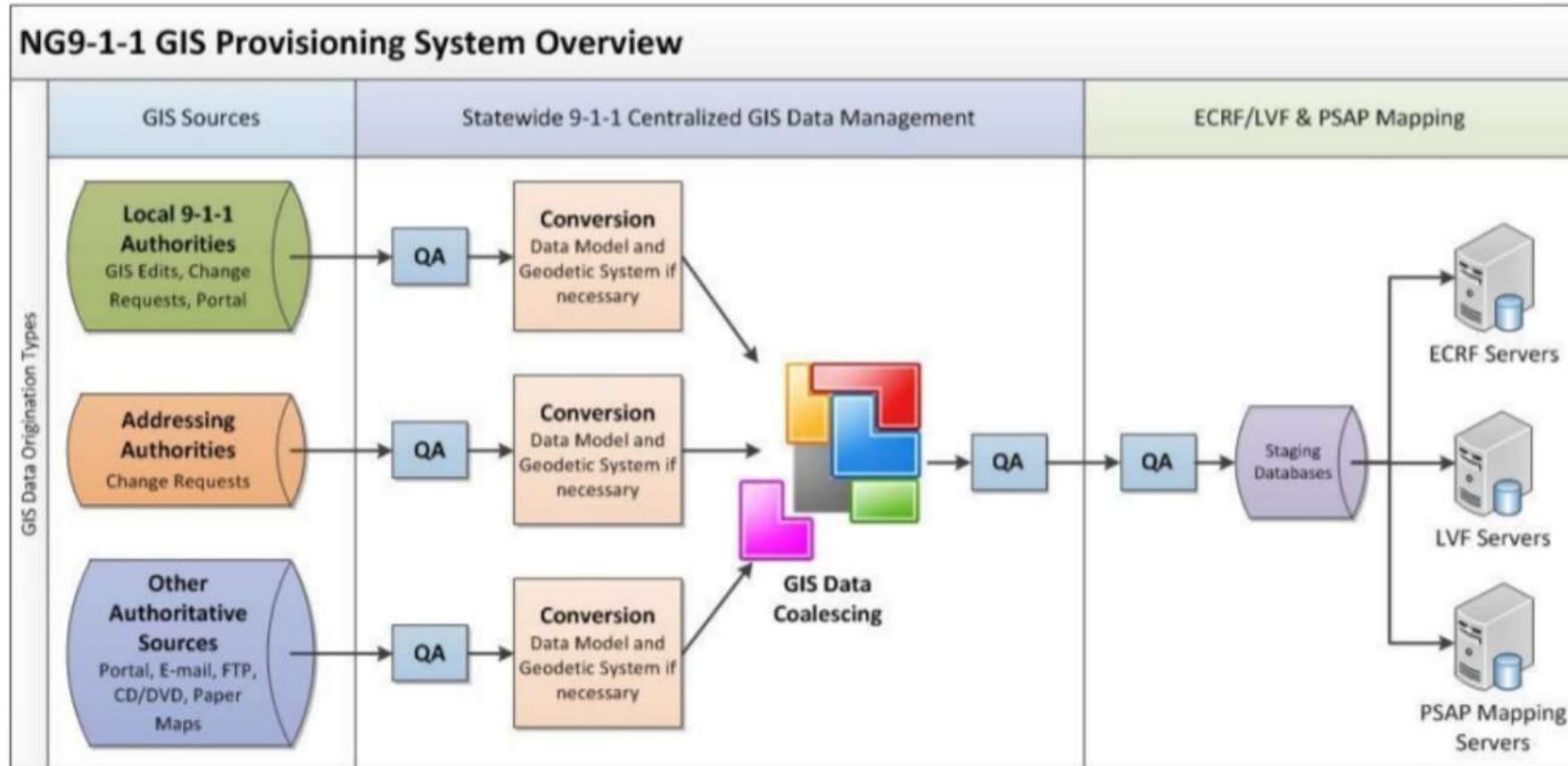
- Road centerlines with address ranges
- Address points
- PSAP jurisdiction boundaries
- Emergency service boundaries (police, fire, EMS)
- Municipal/county/state boundaries
- Road name aliases
- Cell sectors

- Highway mileposts (optional)

What is New Jersey Doing at the State Level?

- State will issue an RFP to replace the current contract for E-911 call routing with a contract for NextGen network (ESINet) and call routing
- Retooling of PSAPs is left to the locals
- In the absence of full ECRF capability, NG911 falls back to MSAG
- Apart from the RFP, the GIS community needs to work toward a configuration that will support NG911

Where We Need to Get



Graphic from Stacen Gross, GeoComm

Goals for GIS to Support NG911

- Highest quality, complete GIS data in required layers
 - A challenge, to be sure, but also a huge opportunity to build data assets
- Open data exchange statewide and with other states
 - There is nothing in these data sets that justifies marking them as sensitive, we must make sure they continue to be available for non-911 purposes
- Data management workflows that 911 staff can sustain
 - Lessons learned: keep it simple
- QA and data distribution

NJ Open Space and Preservation Resources Inventory (OPSRI)

Stephanie Bosits

Stephanie.Bosits@tech.nj.gov

Doug Schleifer

Doug.Schleifer@tech.nj.gov

New Jersey Office of GIS

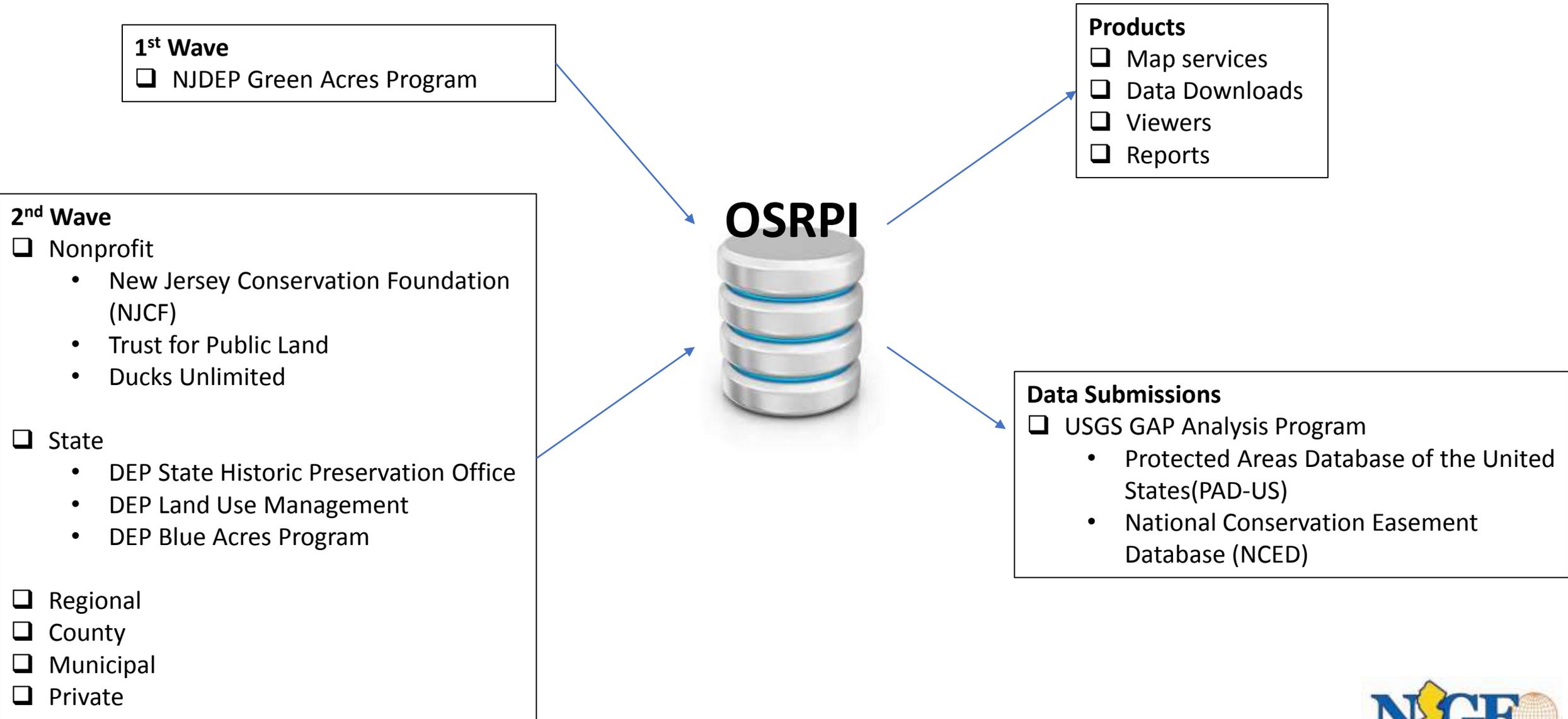
Project Background

- Existing wealth of open space and preservation data maintained by various entities across the state
- New Jersey Geospatial Forum's Preserved Lands/Open Space Task Force initiative to create a comprehensive database
 - Open Space and Preservation Resources Inventory (OSPRI)
- Scalable GIS database with wide-ranging utility for municipal, county, regional, state and Federal agencies, nonprofit organizations and the public.

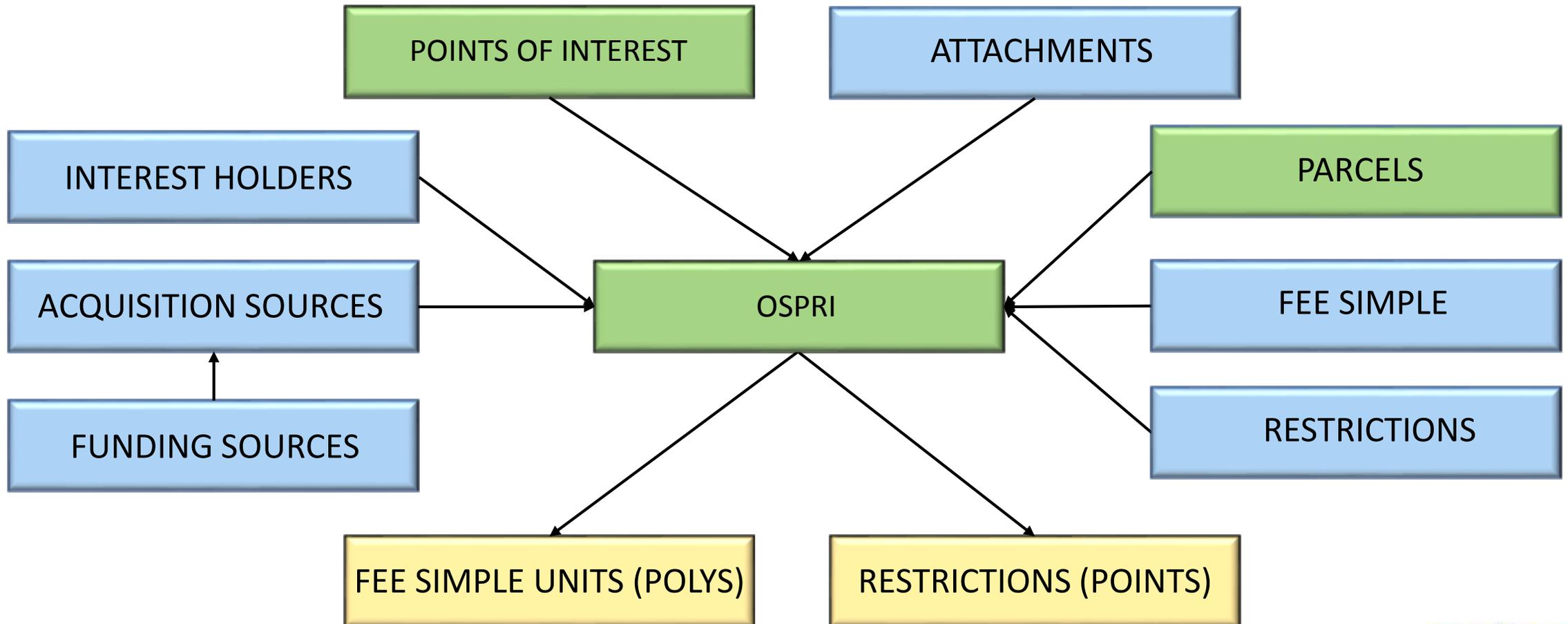
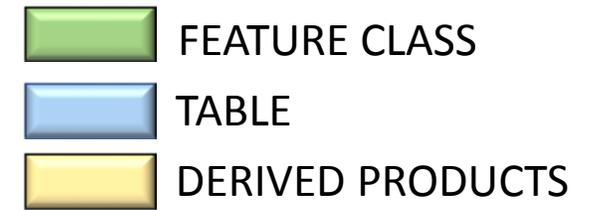
Tasks

1. Design a robust data model that fits the needs of the industry
2. Populate the database with data from NJDEP Green Acres Program
 - Extensive dataset designed solely for Green Acres needs
 - Extract the data pertinent to OSPRI model
 - Ensure a seamless flow of Green Acres data into OSPRI in the future
3. Create custom ETL processes to ingest other valuable data sources
4. Host and maintain OSPRI at OGIS
5. Produce services and mapping products from this central database
6. Push out updates to other key data aggregators

Data Flow



Data Model



OSPRI

Municipal Code	
Block	
Lot	
Qualifier	
Right of Way	
Access Type	Public Access Restricted Access No Access Unknown
Protection Status	Partially Preserved Not Preserved Fully Preserved
Designation Date	
Primary Use	Athletic Facility Beach Boat, Ramp, Dock or Marina Campground Canal....

Manager	<i>Entity</i>
Information Source Date	
Information Source	<i>Entity</i>
Spatial Feature Source	<i>Entity</i>
Spatial Feature Source Type	Deed Other Site Plan Subdivision Plan Survey with coordinates
Spatial Feature Type	Parcel Feature Delineated Feature

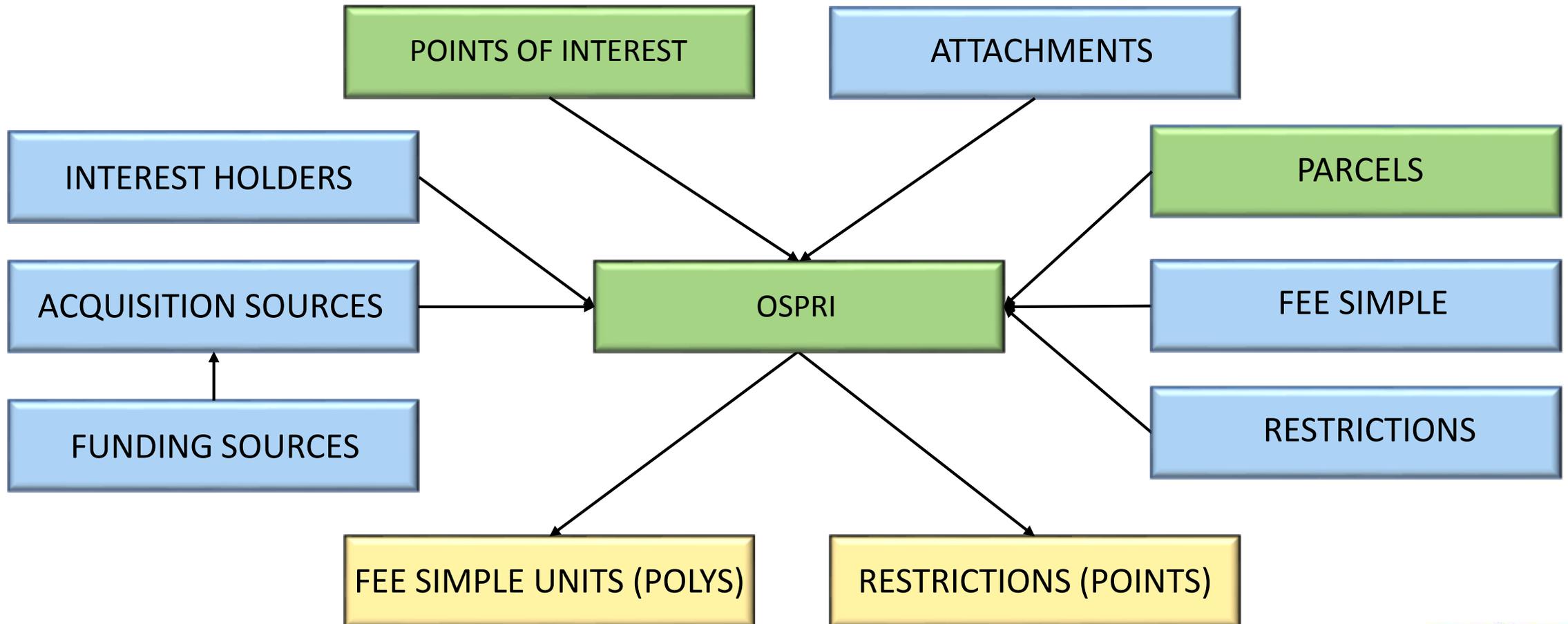
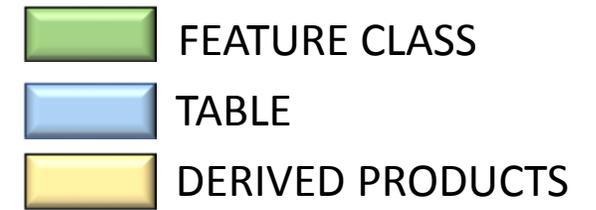
The Entity Domain

- Comprehensive list of all stakeholders associated with any record in the OSPRI database
- Domain applied to multiple fields in multiple tables
- Values constantly being added
- Similar to PAD-US standards

Entity Class Types
County
Federal
Municipal
Nonprofit
Private
State
Regional

ID	Top Level Name	Branch Level Name	Program Level Name
S4001000000	New Jersey Department of Environmental Protection		
S4001000001	New Jersey Department of Environmental Protection		Green Acres Program
S4001030100	New Jersey Department of Environmental Protection	Division of Parks and Forestry	
S4001030105	New Jersey Department of Environmental Protection	Division of Parks and Forestry	Forest Fire Service

Data Model



FEE SIMPLE

RESTRICTIONS

- Record single/multiple type(s) of restrictions on a property
- Record names and uses specific to both the fee and individual restrictions

Restriction Types:

- Deed Restriction
- Easement
- Funding or Donation Agreement
- Open Space Tax Provision
- ROSI Restriction
- Statute or Constitutional Provision
- Term Easement

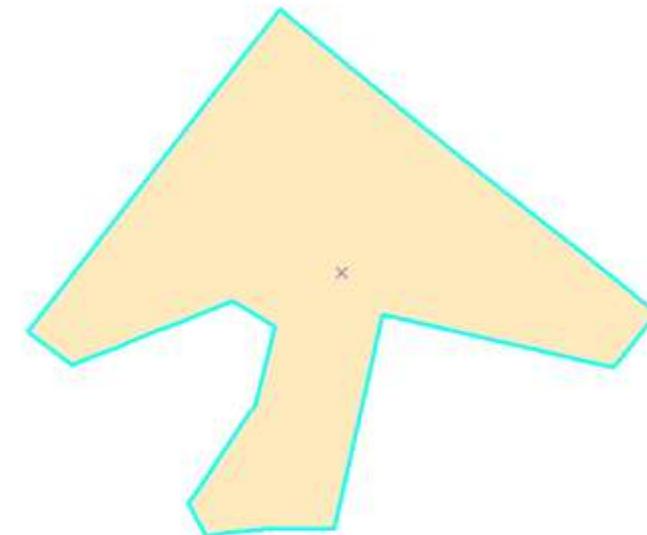
INTEREST HOLDERS

- Use the entity domain to populate as many interest holders are relevant to a property

Interest Types:

- Secondary Right of Enforcement
- Restriction
- Lease or Use Agreement
- Fee Simple

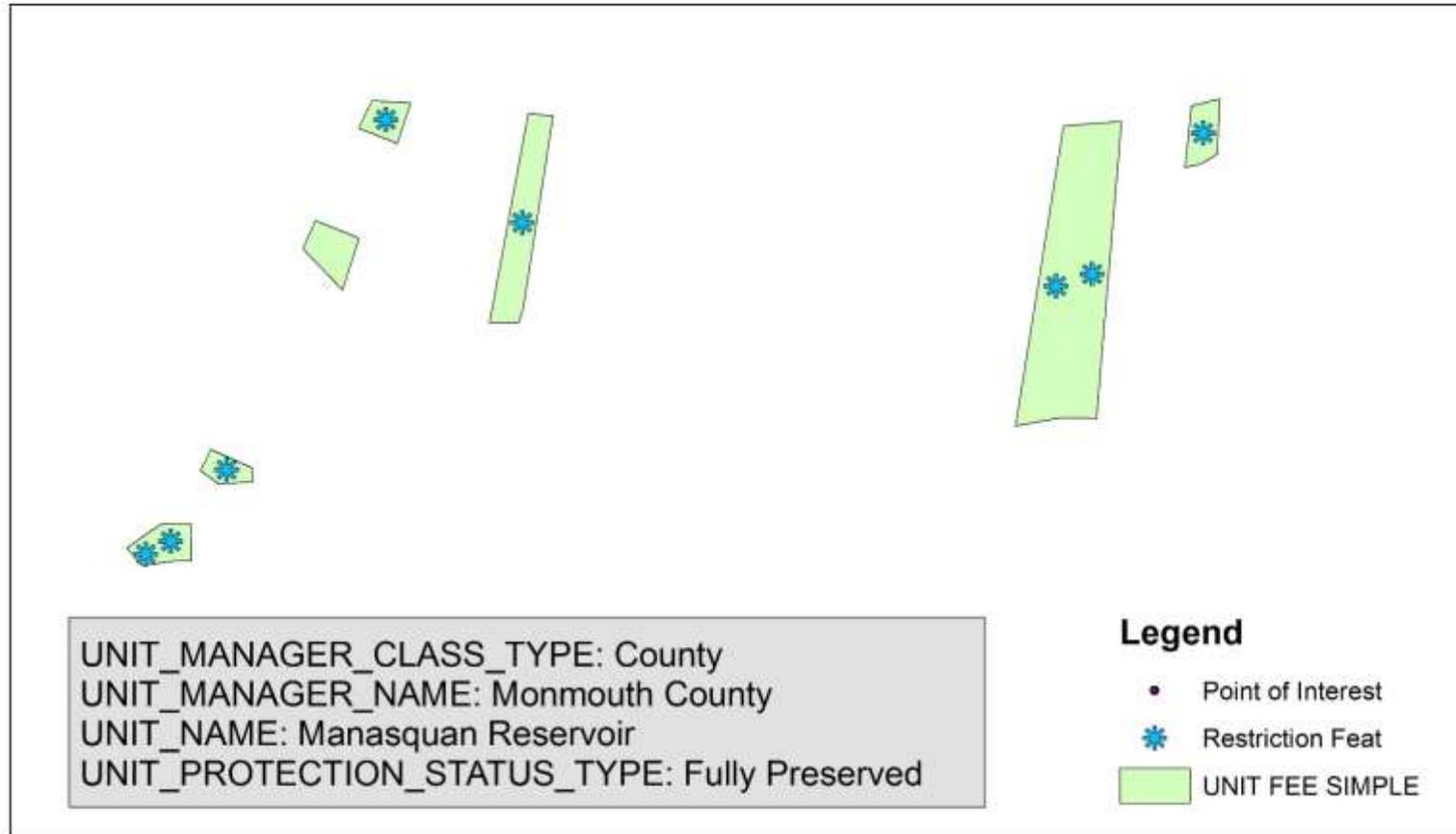
- OSPRI
 - Franklin Township, Warren
 - ACQUISITION
 - FEE_SIMPLE
 - Quail Brook Golf Course and Park
 - INTEREST HOLDER
 - Fee Simple
 - Restriction
 - ORIGINAL_FUNDING
 - PARCEL
 - Point of Interest
 - RESTRICTION
 - Funding or Donation Agreement
 - ROSI Restriction
 - Restriction Feat
 - UNIT FEE SIMPLE - OSPRI
 - Quail Brook Golf Course and Park

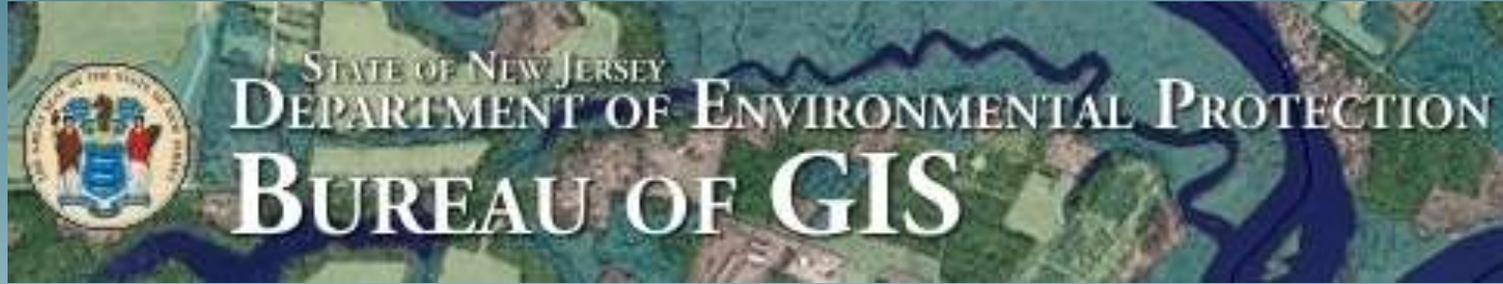


Attachments (0)

OBJECTID	54
MUNI_CODE	Franklin Township, Warren
BLOCK	424.10
LOT	63.04
QUALIFIER	<Null>
ROW_FLG	<Null>
PCL_GUID	<Null>
MANAGER_ENTITY_GUID	Somerset County
ACCESS_TYPE	Public Access
ACRE_AMT	53.83
ACRE_SRC_TYPE	ROSI
DESIGNATION_DATE	<Null>
PRIMARY_USE_TYPE	Golf
PROTECTION_STATUS	Fully Preserved
INFO_SRC_DATE	<Null>
INFO_SRC_ENTITY_GUID	New Jersey Department of Environmental Protection, Green Acres Program
SPATIAL_ADJUSTMENT_FLG	<Null>
SPATIAL_FEAT_SRC_ENTITY_GUID	<Null>
SPATIAL_FEAT_SRC_TYPE	Tax Map
SPATIAL_FEAT_TYPE	Parcel Feature

Bringing it all together





Project Updates

NJ OGIS / County Coordinators Meeting

Craig Coutros
GIS Specialist
NJDEP Bureau of GIS
February 22, 2017



Projects

- ▶ NJDEP Mapping Contest: Thursday April 19
- ▶ GeoWeb 3.0
- ▶ Web Mapping – Interactive Maps
- ▶ New Jersey LiDAR Update
- ▶ Impervious Surface Mapping
- ▶ Land Use Change Detection & Mapping
- ▶ Upper Wetland Boundary Mapping
- ▶ National Hydrography Dataset Update (NHD)
- ▶ Municipal Stormwater Regulation Program (MS4)



Mark your calendars.....

31st Annual NJDEP GIS Mapping Contest

April 19, 2018

10:00 am – 12:30 pm

Public Hearing Room, 1st Floor, 401 East State Street, Trenton, NJ

Governor Phil Murphy • Lt. Governor Sheila Oliver
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Applications

NJ-GeoWeb 3.0 NJDEP's interactive web mapping application ...

Upcoming classes (held from 9:00 am - 3:00 pm):

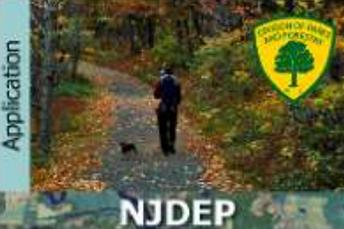
- Mar 7, 2018 - Full
- May 16, 2018

To register or for more information , [Send E-Mail!](#)

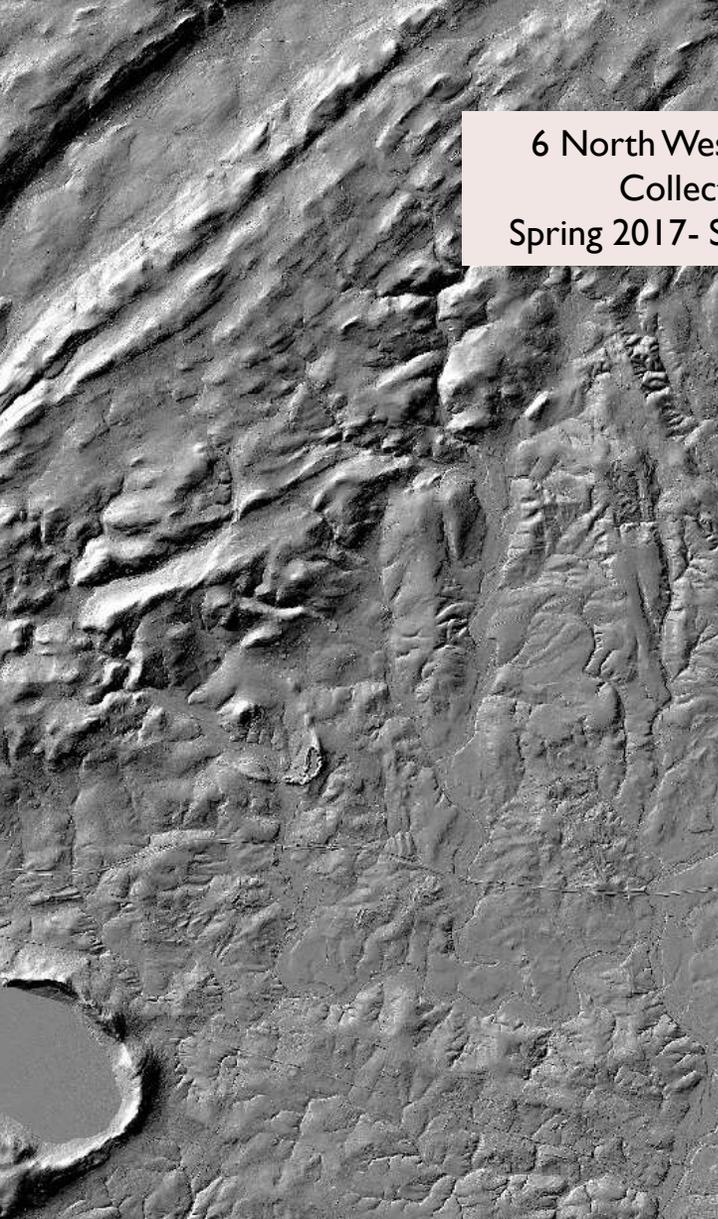
NJDEP's interactive web mapping applications

	Public Access Map
	Stop Illegal Dumping

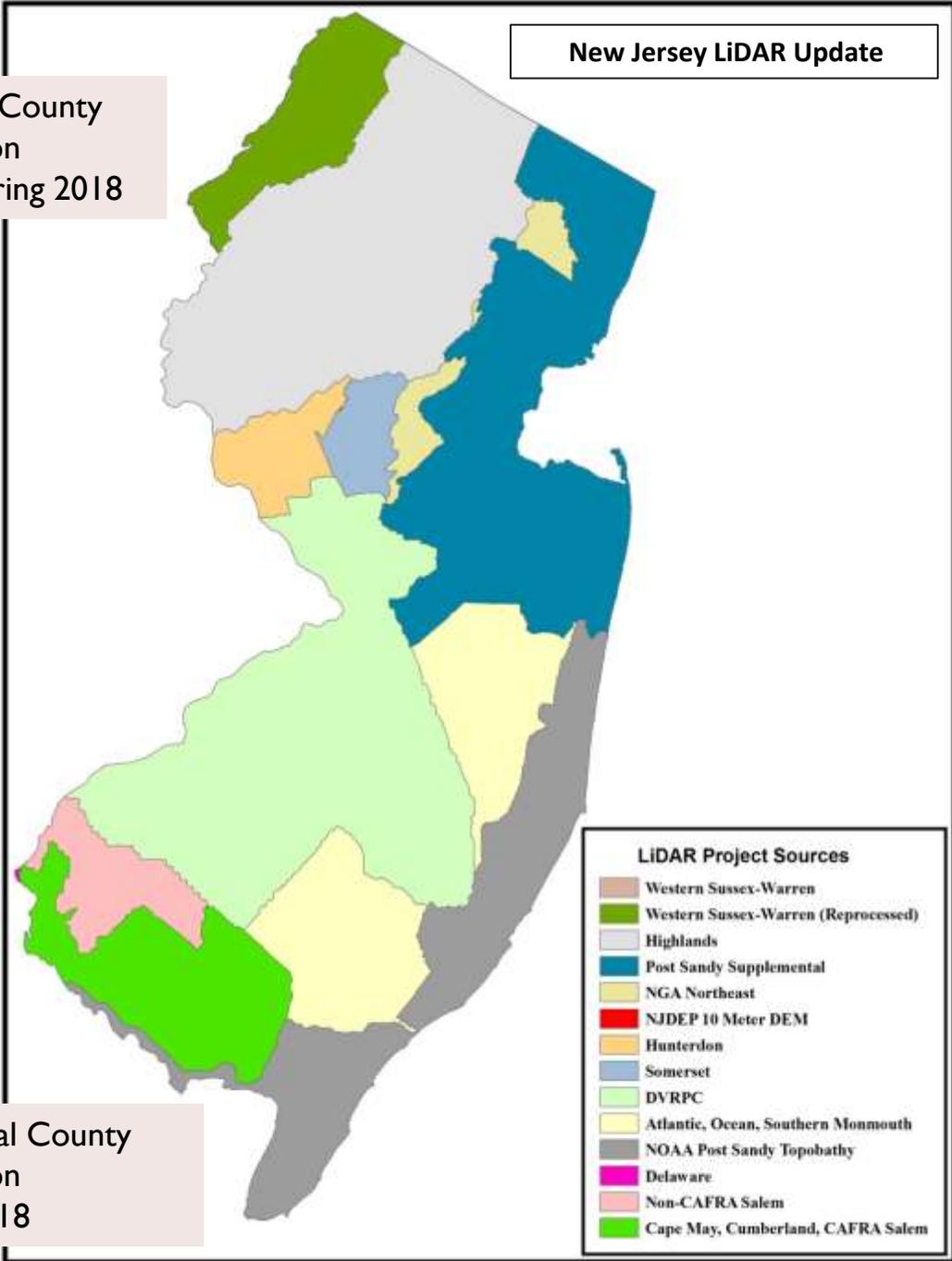
NJDEP's ArcGIS Online Gallery

	<p>Trail Tracker - The Interactive Trails Map of NJ State Parks Web Mapping Application by NJDEPBGIS. Last Modified 8/17/17. An interactive map to highlight trails and points of interest within New Jersey's State Parks.</p>
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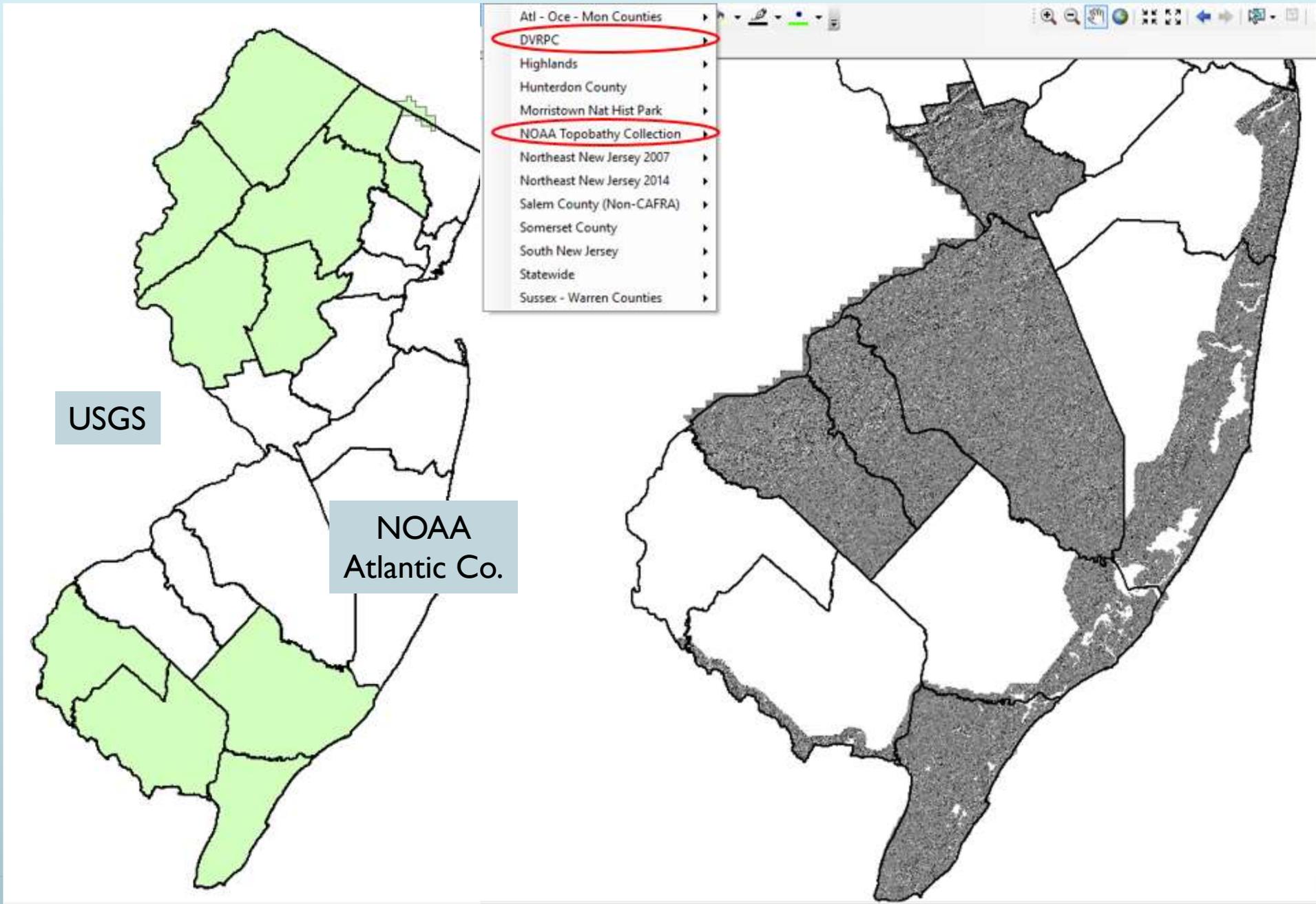




6 North West County
Collection
Spring 2017- Spring 2018



5 South & Coastal County
Collection
Spring 2018



New Jersey Department of Environmental Protection Impervious Surface Mapping

- NJDEP's Use(s) of Data
- Develop automated mapping workflow to map impervious surface areas
- Automated mapping of Impervious Surfaces across the State of New Jersey
 - Utilizes 2015 image layer
 - All hardscape areas including:
 - Buildings
 - Road Surfaces
 - Other Paved
 - Ex. Parking Lots, Sidewalks, Patios, driveways

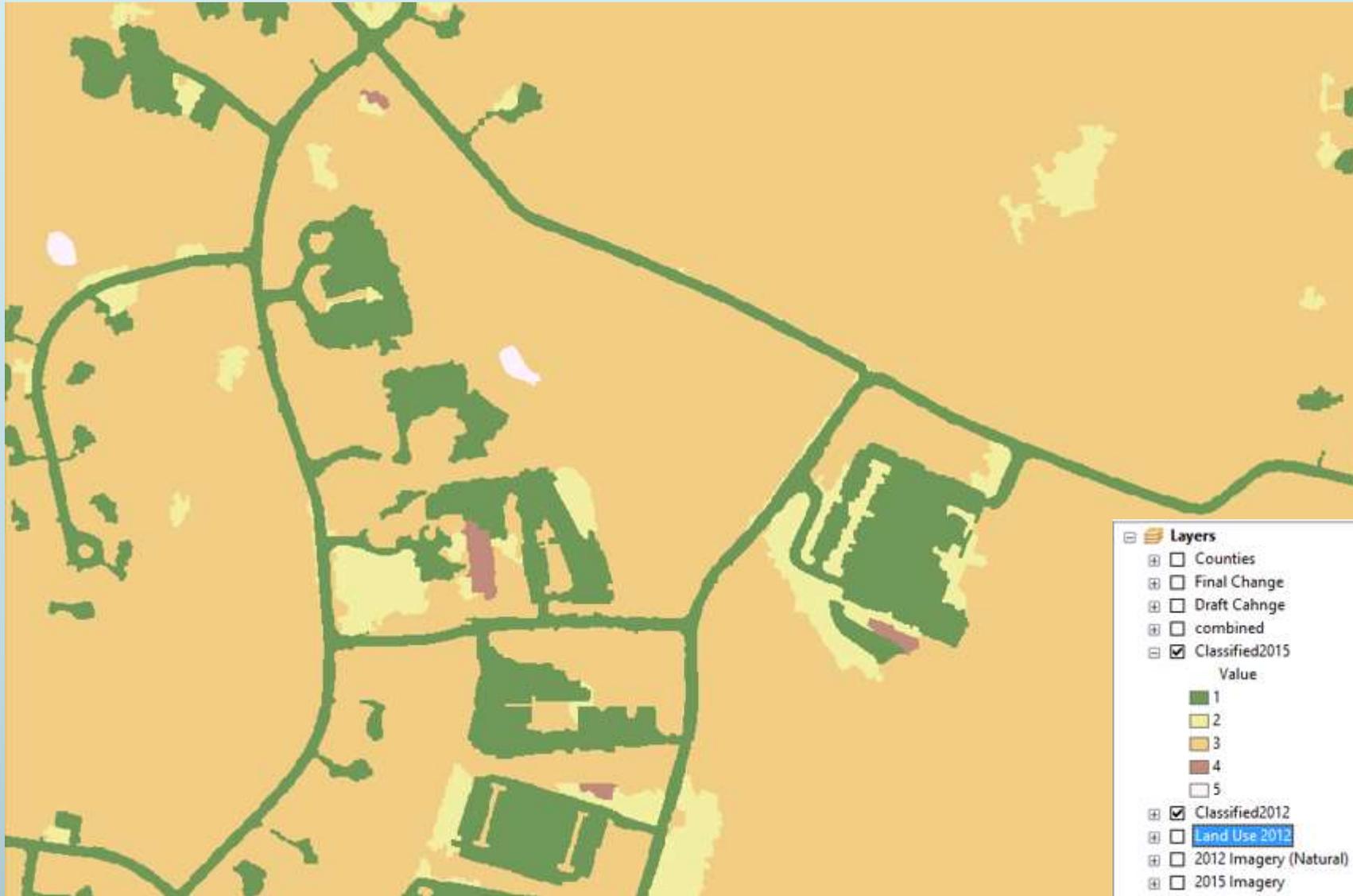
Impervious Surface Mapping



Land Use Change Detection & Mapping 2012 Classified



Land Use Change Detection & Mapping 2015 Classified



Land Use Change Detection & Mapping

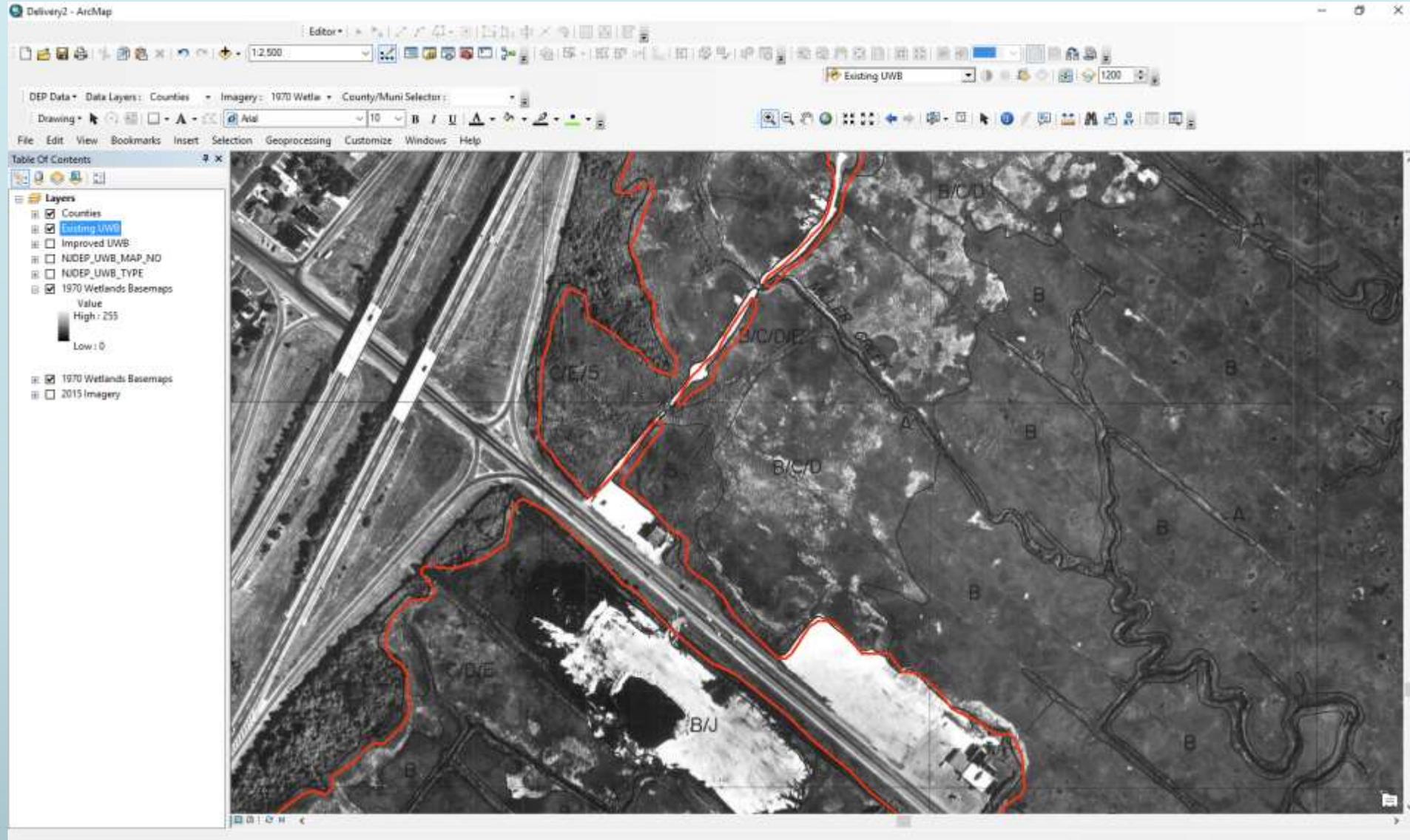
2012 – 2015 Change Mapping



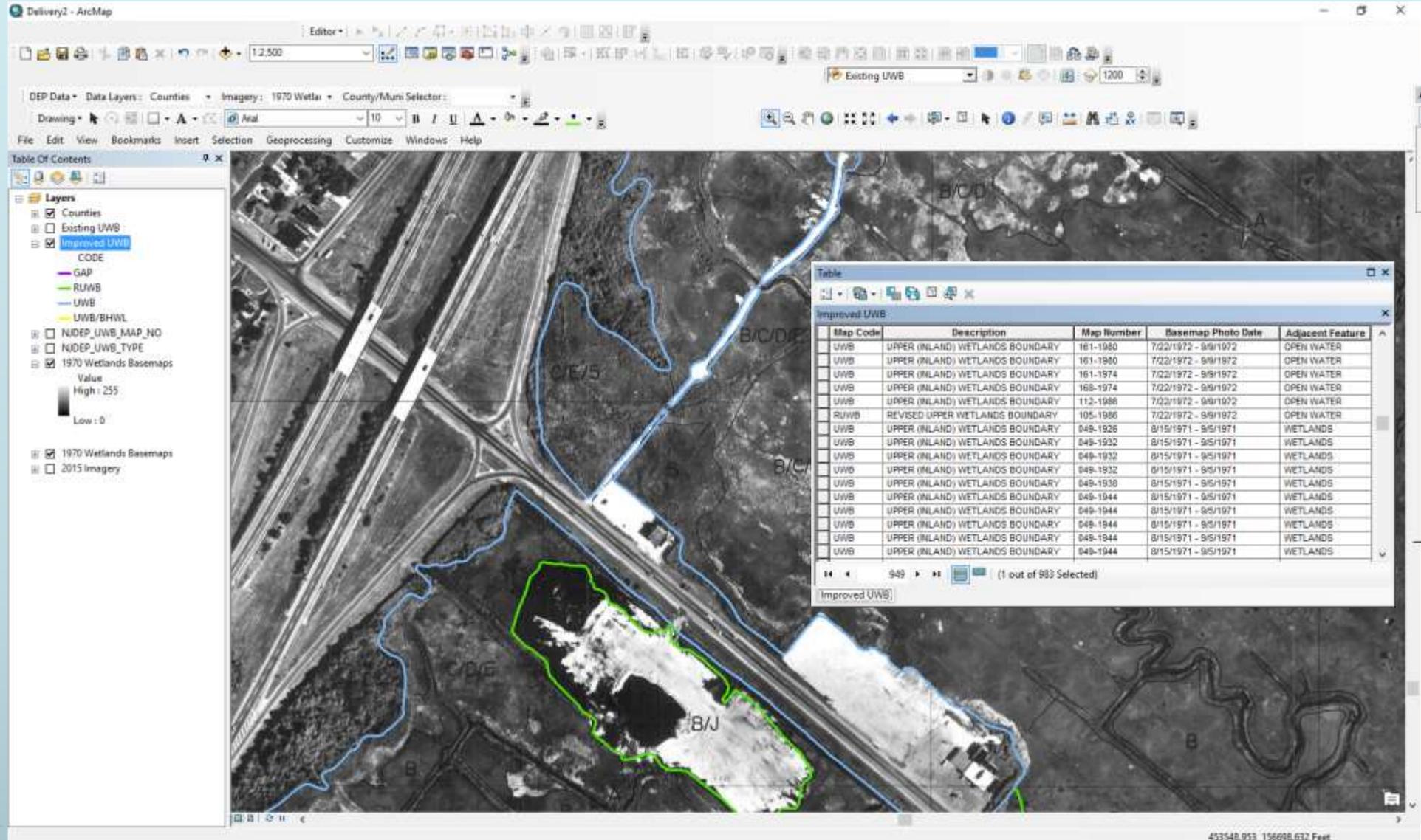
Land Use Change Detection & Mapping 2012 – 2015 Change Mapping



Upper Wetland Boundary Update (current version)



Upper Wetland Boundary Update (updated version)

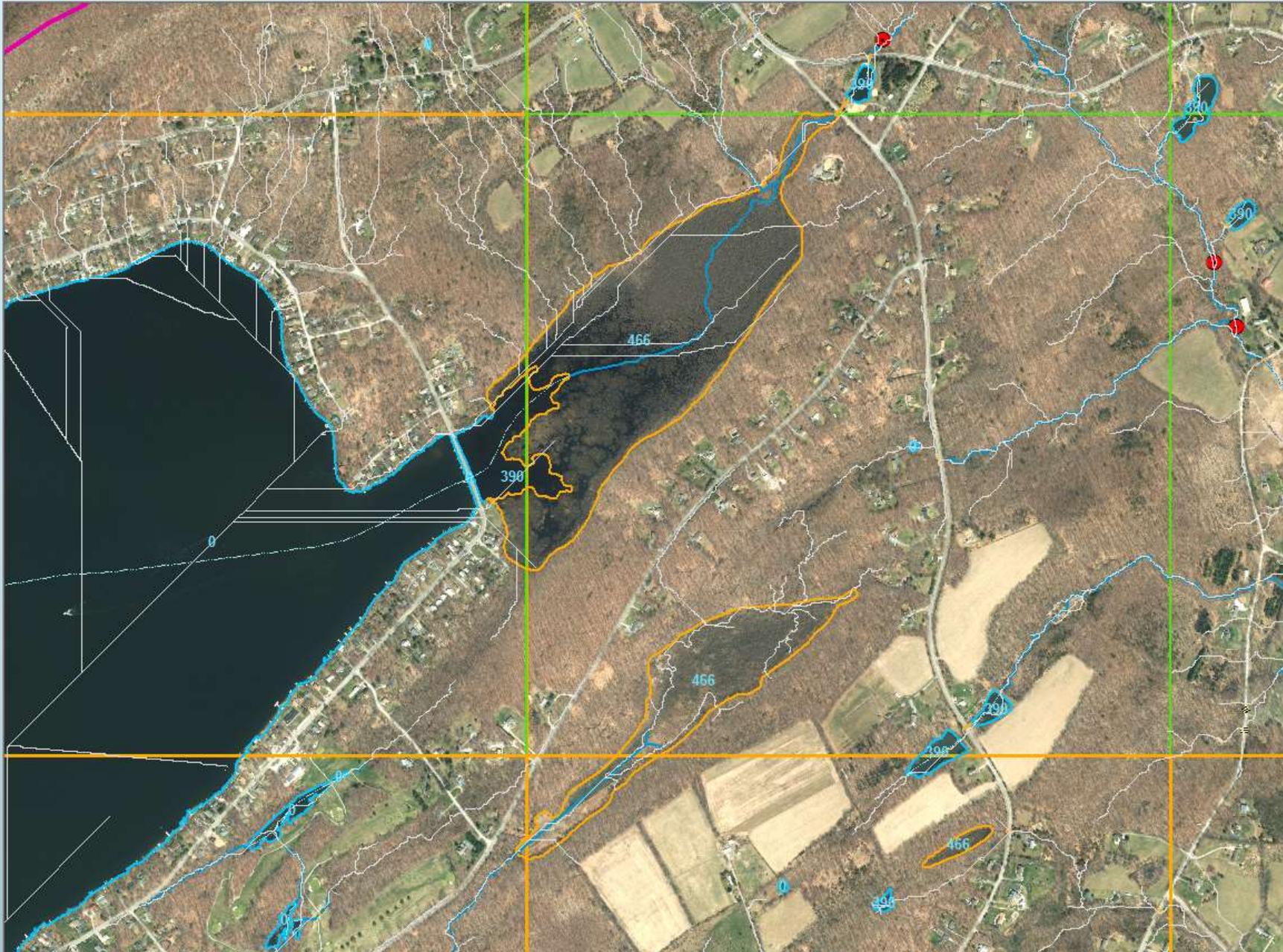


453548.953 156698.632 Feet

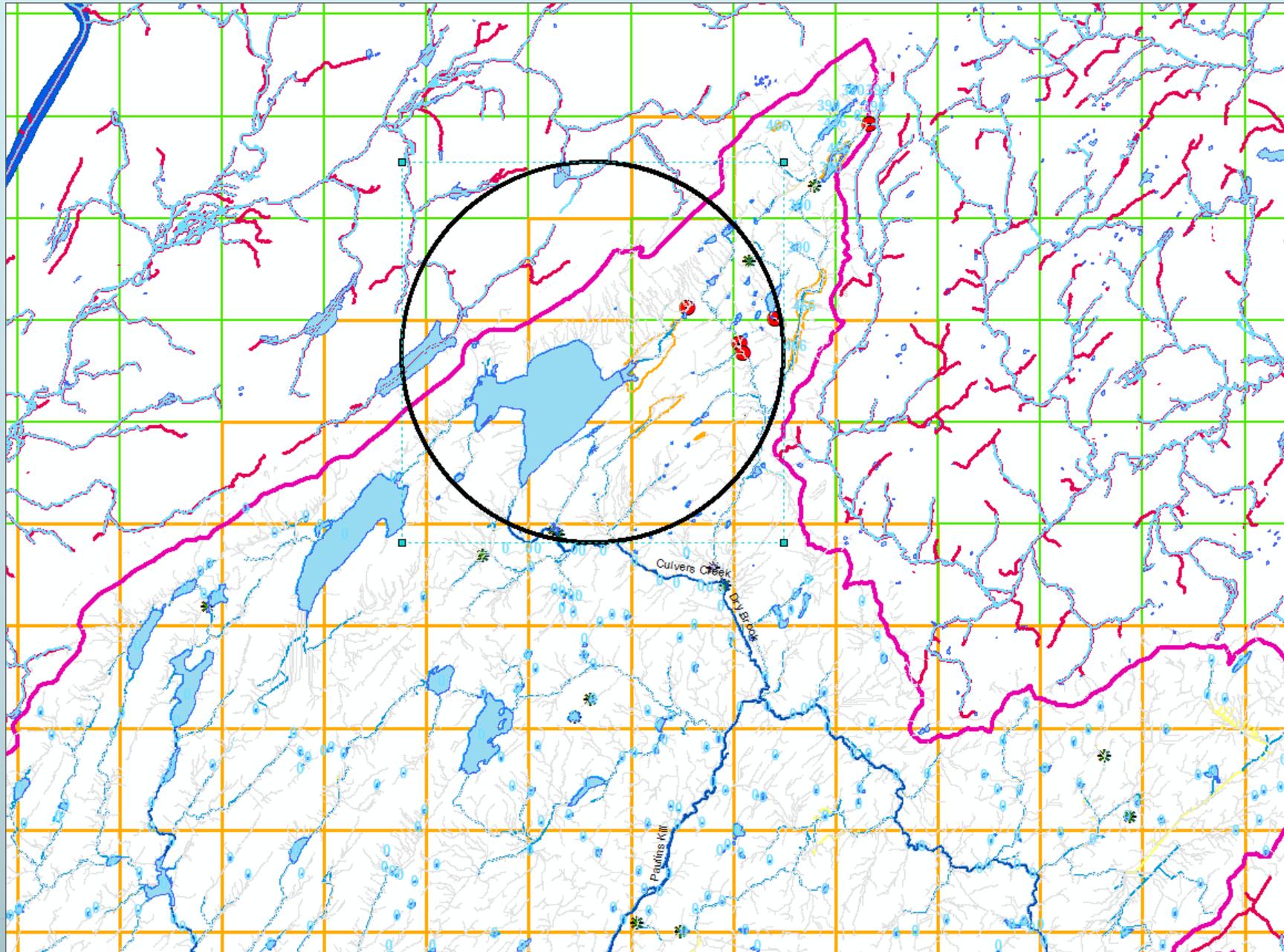
**GIS DATA CONVERSION SERVICES:
UPDATE HYDROLOGIC DATA LAYERS, NHD-
FLOWLINE AND NHDWATERBODY & NHDAREA.**



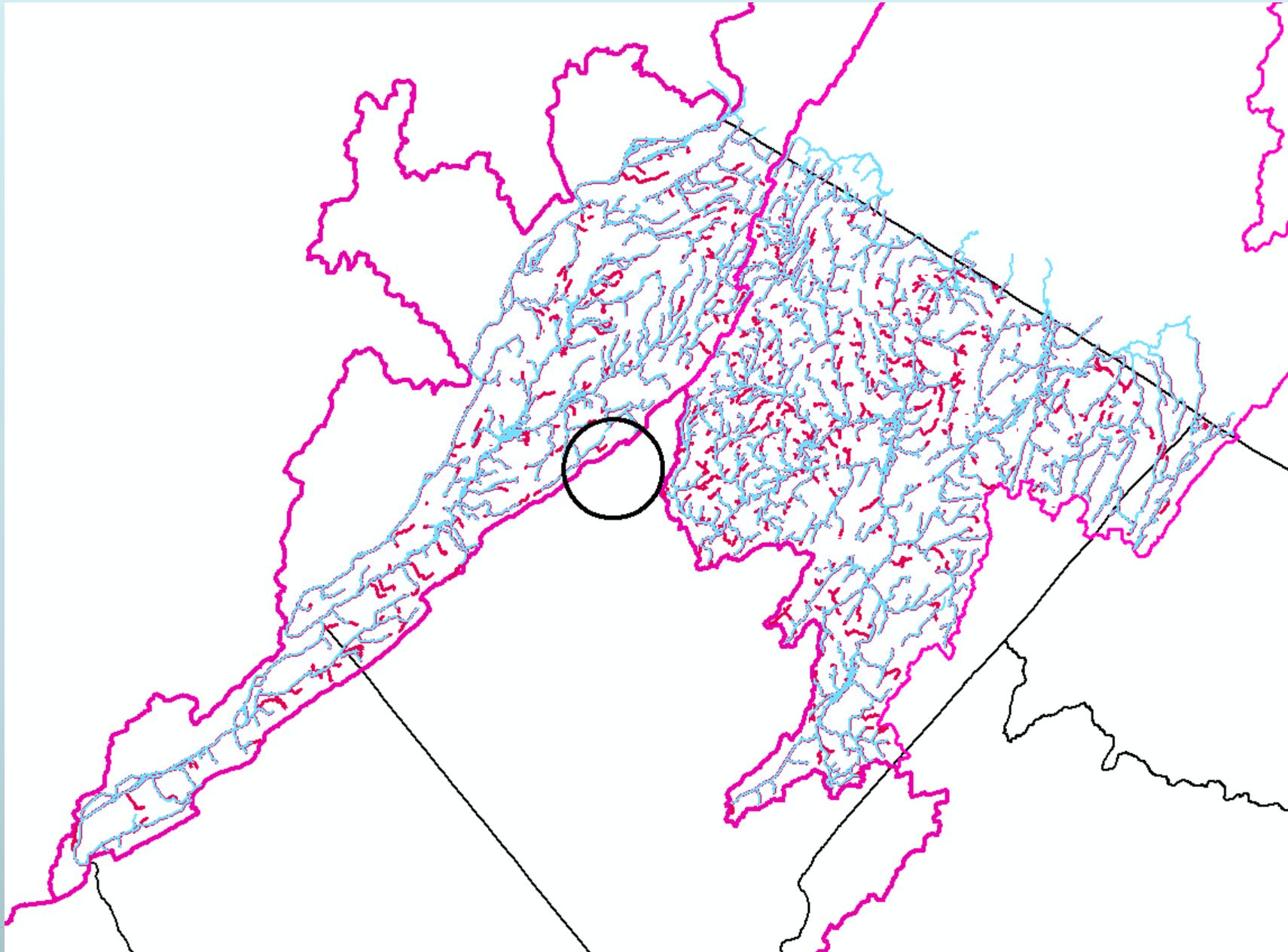
DEM (Digital Elevation Model) data source for Drainage Lines



2015 New Streams added from LiDAR Source (red)

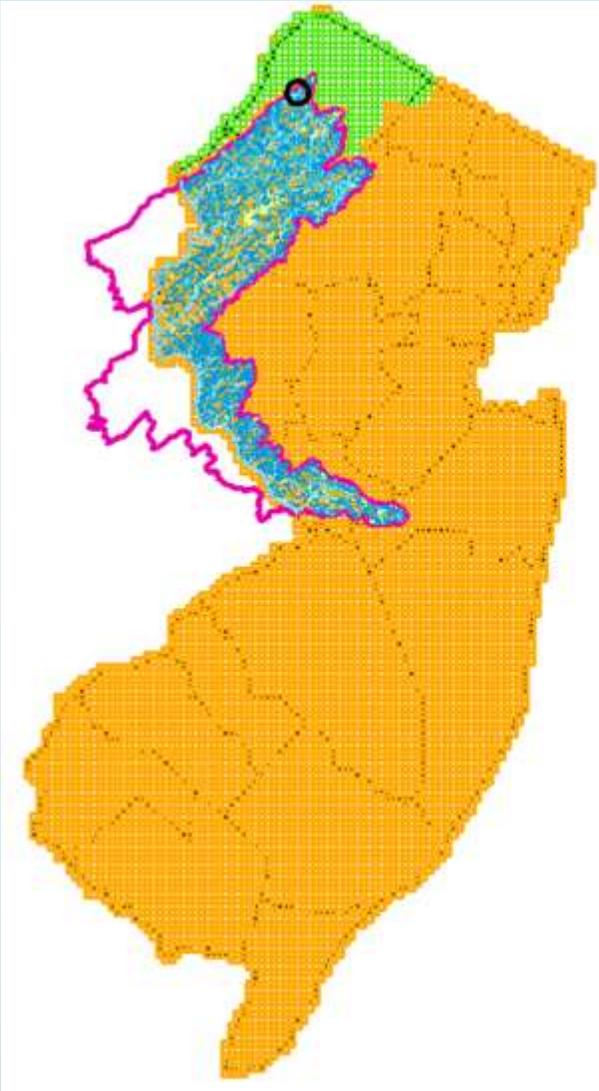


2015 New Streams (red)



Hydrography

Update Status
Green = Complete
Orange = Incomplete



NHDFlowline_MDMU

- 334, 33400, Connector
- 334, 33400, Culvert
- 336, 33600, Canal/Ditch
- 428, 42803, Pipeline: underground
- 460, 46003, Stream/River: Hydrographic Category = Intermittent
- 460, 46006, Stream/River: Hydrographic Category = Perennial
- 558, 55800, Artificial Path

NHDWaterbody_MDMU

- Canal/Ditch, 33600, Canal/Ditch
- Lake/Pond, 39001, Lake/Pond: Hydrographic Category = Intermittent
- Lake/Pond, 39004, Lake/Pond: Hydrographic Category = Perennial
- Reservoir, 43601, Reservoir: Reservoir Type = Aquaculture
- Reservoir, 43611, Reservoir: Reservoir Type = Settling Pond
- Reservoir, 43612, Reservoir: Reservoir Type = Sewage Treatment Pond
- Reservoir, 43613, Reservoir: Reservoir Type = Water Storage; Construction Material = Nonearthen
- Reservoir, 43614, Reservoir: Reservoir Type = Water Storage; Construction Material = Earthen; Hydrographic Category = Intermittent
- Reservoir, 43615, Reservoir: Reservoir Type = Water Storage; Construction Material = Earthen; Hydrographic Category = Perennial
- Reservoir, 43624, Reservoir; Reservoir Type = Treatment
- Reservoir, 43625, Reservoir: Reservoir Type = Disposal; Construction Material = Earthen
- Spillway, 45500, Spillway
- Stream/River, 46003, Stream/River: Hydrographic Category = Intermittent
- Stream/River, 46006, Stream/River: Hydrographic Category = Perennial
- Swamp/Marsh, 46600, Swamp/Marsh

Municipal Separate Storm Sewer Systems (MS4s)

http://www.nj.gov/dep/dwq/msrp_home.htm

Bureau of Nonpoint Pollution Control

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Municipal Stormwater Regulation Program

The Municipal Stormwater Regulation Program was developed in response to the U. S. Environmental Protection Agency's (USEPA) Phase II rules published in December 1999. The Department issued final stormwater rules on February 2, 2004 and four (4) NJPDES general permits authorizing stormwater discharges from Tier A and Tier B municipalities, as well as public complexes, and highway agencies that discharge stormwater from municipal separate storm sewers (MS4s). Public complexes include certain large public colleges, prisons, hospital complexes and military bases. Highway Agencies include county, state, interstate, or federal government agencies that operate highways and other thoroughfares.

The general permits address stormwater quality issues related to new development, redevelopment and existing development by requiring regulated entities to implement Statewide Basic Requirements (SBRs).

Municipal Stormwater Permit Status

The Department has issued the final renewal permits for Tier A and B municipalities on November 9, 2017 and will become effective January 1, 2018. Two of the four Municipal General Permits have expiration dates of February 28, 2014. However, these permits will remain in full force and effect until renewal permits are issued. Until then, continued implementation of all aspects of your Public Complex or Highway General Permit(s) is required. You will be notified once draft permits are available and have the opportunity to comment on any proposed changes at that time. If you have any specific questions on the renewal process or the recent renewal of the Tier A and Tier B MS4 General Permit(s), please contact your case manager or you may email, stormwatermanager@dep.nj.gov. The Department appreciates your continued cooperation in this matter.

***New** - Online Reporting specifications for MSRP Annual Report and Certification can be found under specific permit category below.

- Tier A Permit (effective 01/01/2018)
- Tier B Permit (effective 01/01/2018)
- Highway Agency Permit
- Public Complex Permit

General Program Documents

Title	Type	PDF Format
▶ Tier Assignment List (pdf, 108Kb)	Guidance	
▶ Tier A and B Assignment Map	.jpeg	
▶ Stormwater Program Coordinator Information Update Sheet(pdf, 28Kb)	Form	

MS4 Group

Overview

Content

Members



Private MS4 group

owned by NJDEPBGIS

Description

Private MS4 data group

Latest Content

[View All Group Content](#)



MS4 Infrastructure Editing...

by NJDEPBGIS

Created: Feb 21, 2017

Updated: Sep 14, 2017

View Count: 242



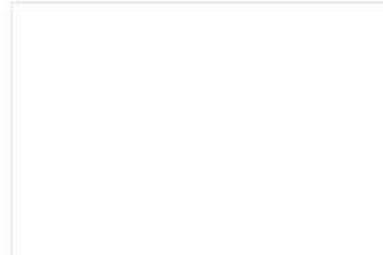
Stormwater Management B...

by NJDEPBGIS

Created: Feb 17, 2017

Updated: Mar 3, 2017

View Count: 203



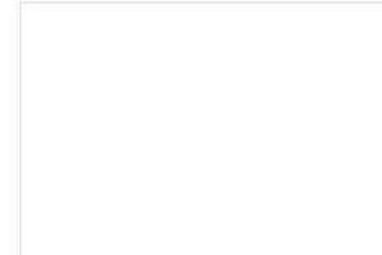
Subsurface Infiltration and...

by NJDEPBGIS

Created: Feb 24, 2017

Updated: Mar 3, 2017

View Count: 179



Outfalls

by NJDEPBGIS

Created: Feb 24, 2017

Updated: Mar 3, 2017

View Count: 191



Municipal Separate Storm Sewer Systems (MS4s)

Data Submittal Options

- AGO Application
- Excel Template
- GPS Data Dictionary

A	B	C	D
Local ID	Owner Type	Outfall Type	Pipe Mater
	County		
	Federal Government		
	Municipality		
	Private		
	School District		
	State		
	Other		
	Unknown		

Stormwater MS4 - Data Dictionary Editor

Name: Stormwater MS4
 Connector: NJDEP_B045 Last revised: 01/30/2017
 Version: TerraSync V9.00 and later

Features:

- Start
- Basin
- Culvert
- Greeninfra
- Inlet
- MTD
- Outfall
- Subsurface
- End

Attributes:

- Local ID
- County
- Municipality
- RoadName
- OwnerType
- OutfallType
- PipeMaterial
- PipeHeight_Inches

Outfall: [Map View]

Outfall_ID: [Map View]

Headwall Structure: Stone

County: [Map View]

Municipality: [Map View]

Road Name: [Map View]

Owner Type: [Map View]

Discharge Type: [Map View]

Organization: [Map View]

Facility Name: [Map View]

Outfall Type: [Map View]

Pipe Material: [Map View]

Pipe Height: [Map View]

Zoom to: [Map View]

Attributes:

- Longitude
- Latitude
- Local ID: 001
- AGOL CREATOR
- AGOL CREATE DATE
- AGOL LAST EDITOR
- AGOL LAST EDITED DATE
- GlobalID_Str

Attachments: Photo1.jpg

Edited by Nathan.McLean on 5/23/17 at 2:14 PM

Zoom to Get Directions Edit

<input checked="" type="checkbox"/> Outfalls	<input checked="" type="checkbox"/> Stormwater Management Basin	<input checked="" type="checkbox"/> Culvert	<input checked="" type="checkbox"/> Green Infrastructure	<input checked="" type="checkbox"/> Storm Drain Inlets	<input checked="" type="checkbox"/> Manufactured Treatment Device	<input checked="" type="checkbox"/> Subsurface Infiltration/Detention System
Organization	Organization	Organization	Organization	Organization	Organization	Organization
<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency	<input type="radio"/> Highway Agency
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Local Government Joint Constituency Group Meeting

February 22, 2018

New Jersey Geospatial Forum

Patty Leidner, pleidner@co.hunterdon.nj.us