

NYSAMPO
GIS Working Group Meeting
Tuesday, December 1, 2015

Participating:

- A/GFTC– Kate Mance ☎
- ECTC – Mike Perry
- GTC – Chris Tortora
- HOCTS – Matt Pawlusik, Erin Tylutki, Jeff Quackenbush
- PDCTC – Stephanie Rockwell ☎
- NYMTC– Munnesh Patel ☎
- SMTC – Jason Deshaies, Liz Hassett
- UCTC – David Staas ☎

- NYS ITS – Kevin Hunt
- RSG – Erich Rentz ☎

Agenda:

1. NYSDOT Main Office GIS Activities Update (Kevin Hunt)
2. SMTC Transportation Atlas Presentation
3. A look at Windows 10
4. General discussion of pavement scoring and traffic counts
5. Individual MPO updates as desired by attendees
6. GIS Working Group Plan 2016-2017

Proceedings:

1. NYSDOT Main Office GIS Activities Update (Kevin Hunt) [KH].
 - Overview of topics:
 - NYSDOT Oversize/Overweight (OS/OW) Permitting System
 - Enterprise Linear Referencing at NYSDOT
 - New York State Esri Enterprise Licensing Agreement (ELA)
 - New York State IT Re-Organization
 - NYSDOT OS/OW Credentialing System
 - Since start of 2015 NYS ITS has been working with a vendor called “ProMiles” (Austin, TX)
 - They will replace the OS/OW automated permitting system end to end
 - Automated route proposal system for OS/OW vehicles
 - Automated Permitting
 - Online portal for commercial vehicle providers

- ProMiles have worked on similar implementations for other states
 - Have received positive feedback from their clients
 - Doing a great job so far
- The new OS/OW system uses the NYS “Streets” layer as well as NYS restriction data (bridges, construction maintenance events, etc.)
 - The system uses ProMiles GIS routing software
 - The system is implemented by ProMiles GIS personnel
 - The system will be maintained by ProMiles
- Testing and fine-tuning with the permitting office has been taking place since June
- JQ: Is the “Streets” layer a different product than the “Allroads” product?
 - It is separate from the mile points network
 - It is the NYS Streets routable system
 - Maintained by the GIS program office
 - GIS program office collects and commits edits with GeoLynx
- Hope that through using the streets network improvements will be made to the networks’ navigability
 - Historically this has not been a priority
- ProMiles looked over the state system to ensure that turn restrictions were current
 - May not have caught all issues on local roads
 - Once the process is completed an update will be available
- JQ: How do we get an update Streets layer?
 - I can send one out now but it will not have all the updates
 - MP: How will the update differ from the data available on the clearinghouse?
 - The layer is setup for network analyst
 - JD: have been having some issues with the layer
- Side note: do not use the streets layer for geocoding
 - Use the GIS programs office geocoding services
 - Working on finalizing the address database
- JQ: Are you, KH, still the best contact for GIS services related needs?
 - Yes, still supporting DOT.
 - JD: Regions are hard to go through.
 - JQ: The region has no presence in Utica, we go through main office instead.
 - I can send you some contact information for individuals from the regional offices.
 - If you sent me an email and haven’t heard back, do not hesitate to send another email or follow-up with a call.
- Enterprise Linear Referencing at the NYSDOT (presentation from NYGeoCon)

- Enterprise Linear Referencing at NYSDOT is really the state's implementation of Esri Roads and Highways
- Use LRS for limited things like accidents and RIS
 - Many alternative GIS layers for specific tasks; alternative GIS layers are unconnected to the LRS and each other.
 - JQ: Does NYSDOT have a vision to make the LRS more holistic and these alternative data sources more interoperable?
 - We are trying to provide a better mechanism to maintain business data on the mile point system.
 - Roads and highway will keep that data in the right place.
 - Changes to the network will update events.
- Current State of the NYSDOT LRS
 - NYSDOT's Roadway Inventory System (RIS) maintains roadway attributes for all public roads. This is the system of record for the mile points.
 - The initial Roads and Highways implementation will cover the entire federal aid system.
 - Highway data services will continue building the local streets outside of Roads and Highways.
 - The current RIS is available on the NYS GIS Clearinghouse website:
 - <http://gis.ny.gov/gisdata/inventories/member.cfm?organizationID=539>
 - JQ: The RIS just covers the federal aid network?
 - The feature class is limited to the federal aid network; the tabular data has everything.
 - CT: Is the non-primary direction available?
 - It is coming this year
 - FHWA told NYSDOT to focus on this task
 - CT: Found discrepancies between calculated road miles and RIS reported mile points?
 - Still being worked on
 - Undetermined what will be maintained in the GIS
 - Working on how divided and undivided highways are represented.
 - Feedback is appreciated. Want to know downstream implications of changes.
- NYSDOT Enterprise LRS project
 - Developed project goals based on ARNOLD Requirements
 - Maintain a single representation of the NYS highway network
 - Allow NYSDOT business units to more easily maintain asset locations and highway locations using the Mile point LRM

- Enable business system and data integration through the common location reference (Mile point system)
- Project team members include
 - NYSDOT
 - NYS ITS
 - Esri
- Project centers on configuring and implementing the Esri Roads and Highways solution to maintain NYSDOT's Linear Reference System
- The project has been active for a few years
 - Partially due to resource constraints on the NYSDOT and NYS ITS
 - Will still pay dividends
- Includes integration with key NYSDOT business systems:
 - Accident Location Information System
 - Want a mile point on every accident location
 - Roadway Inventory System
 - Enterprise Asset Management System (AgileAssets)
- One of the justifications for the project was consolidation of NYSDOT LRM maintenance
 - Separate maintenance was happening for separate data sources with someone in the middle trying to maintain the relationship between data sources
 - Going forward, maintain the LRS within Roads and Highways geodatabase and then the program maintains the integration with the street network
 - CT: Is Roads and Highways a toolset?
 - Yes, a toolset that works within the ArcGIS suite of software. The final workflow has not been determined. The likely workflow is that NYSDOT will maintain and produce layers. Eventually the agencies may take on an increased role.
- We want to replace the paper based LHI process with Roads and Highways
 - JQ: This has not already happened?
 - This is the goal, but there are some issues that need to be worked through in order to reconcile the geometric length differences between RIS and Roads and Highways. Roads and Highways will make everything easier eventually, still maturing.
- MP: Where is NYSDOT finding the greatest amount of inaccuracy during this process? Urban or rural?

- Mike Fey is the contact for such questions.
- The majority of the work has been completed including nearly everything outside of NYC.
 - FHWA wanted ARNOLD in place last June; NYSDOT has requested extensions to get the work done.
- JQ: How do we get a copy of this network?
 - Reach out to Mike Fey.
- Near term goals:
 - Get Roads and Highways in place
 - Get the mile point data conflated to the NYS Streets network
- Roads and Highways reflects an entirely new data model that is more similar to the old coverage system
- Esri developed a way to pull changes made to the centerline in GeoLynx to inform changes in Roads and Highways
 - This is more complicated than anticipated; many of the changes are noise that do not need addressing
- NYS Streets updates made in GeoLynx are copied into Roads and Highways nightly
- Roads and Highways is essentially an extension in ArcGIS
 - There are separate, Roads and Highways specific, tools for making and maintaining each type of change
- There is a web-based tool called “Roadway Characteristics Editor” that extends ArcGIS server to provide a business data editing environment.
 - Disappointingly, events cannot be changed on the map using drag and drop procedure; changes are made by entering mile point locations
 - JQ: Maybe we could use this web-based tool for scoring.
 - NYS has a direct channel to supply Esri feedback and can help guide the direction of development; Esri is working actively on improving Roads and Highways.
- LRS Web-service REST API is coming; will provide external systems access to the LRS
 - This will further integrate the mile points system with other NYSDOT business systems (ALIS, RIS, AgileAssets)
- Using the mile points system will create a unified Linear Referencing Platform
- Our focus is make sure this is a feasible tool for Highway data services to maintain the mile point network including not only federal aid system but the entire network; this tool should help maintenance once the system is in place.

- JD: Maintaining everything on the mile points system will be helpful for us as we maintain events ourselves; perhaps eventually we can assist in maintenance
 - The does sound like a great idea, but may not be on the immediate horizon.
 - Seeing what came from GeoLynx, there will need to be some compromises made in the crowd sourcing maintenance efforts
 - There may be mile points that still do not match 100%
 - JQ: Are there target spatial tolerance thresholds?
 - There has been discussion with stakeholders, including Esri.
 - Want to get the system in place and then figure out where/when to make changes that are most effective. More work now may not be that useful
 - Targeting January/February to have highway data services taking on maintenance
 - Getting the final environments in place
 - Getting the final geodatabase in place
- Questions?
 - JQ: What attribution will the network offer?
 - The mile point layer will be similar to what exists now; very little attribution.
 - When local municipalities are asked to review the data they are asked to verify lanes and speed limits, but these pieces are optional.
 - JQ: Is the ultimate goal of this endeavor to get every road with a name represented?
 - Yes, the mile point network needs to cover all public roads.
 - Determining what is public vs. private has been a main issue.
 - Executives have gotten involved because this concerns funding.
 - If everyone loses 1~2% of their roads, no problem because funding goes down equally.
 - Need to commit all the changes at the same time rather than piecemeal to ensure that effects are felt at the same time.
 - There has been resistance to the results and therefore resistance to releasing changes to the RIS prior to the grand reveal.

- MPa: Where does project level data come into the Integrated Enterprise LRS? Specifically, from Program Support System (PSS)?
 - In October, to meet new Federal Management Information System (FMIS) guidelines, NYS worked to update the network behind the PSS to use the current (2014) mile point system.
 - Agency is still working on a PSS replacement system. The old system is still in place (for the next year or two) while the new system is developed.
 - The new PSS will leverage Roads and Highways.
- CT: Will the LRS eventually replace the RIS?
 - For now, NYSDOT will continue to leverage RIS where it works well; will maintain a mile point network that is the system of record for other systems in Roads and Highways.
 - Discussions have begun on replacement for RIS.
 - AgileAssets, with their system and Roads and Highways, will propose a scope of work for a RIS replacement.
 - I think yes, there needs to be a way for business data to live on mile point data, and need to continue system integration.
 - For now, an update in Roads and Highways needs to be made in the RIS as well. These systems are not connected directly.
 - JQ: Sounds like this is screaming for a true, integrated enterprise solution
 - Yes, but the RIS and Highway data services people decided during scoping this was not possible.
 - Roads and highways does not have the granularity needed to update the RIS.
 - RIS would have needed to be in Roads and Highways.
 - JQ: Is the RIS nothing more than dynamic segmentation?
 - Also has all the business data. Hard to maintain. Glad that we are not on the bleeding edge.
 - CT: When speaking of the RIS, what is classified as business data?

- Pavement characteristics, any attributes on the RIS; any asset that is located on the highway network.
 - JD: On our own we can maintain a lot of this business data,
 - Hope to have GIS Program office give training to people (at the counties and/or MPOs) who can then commit updates to the streets database. Need trust in the individuals.
 - If the LRS continues to use the NYS Streets network there will continue to be a connection with other data.
 - There are some representational challenges and concessions. For instance, roundabouts need to be represented as intersections in the LRS.
 - MP: Who maintains 911? County? Would it make sense for the MPO to maintain?
 - MP: Need more coordination and partnership with the county.
 - One goal of the new system is to provide a streets layer that work for 911
 - A big part of the LRS project is getting everyone on the same network and lessening the need for independent local networks.
- New York State Esri Enterprise Licensing Agreement (ELA)
 - The current ELA provides the following services for MPOs:
 - Single use ArcGIS for Desktop Basic bundled with:
 - Spatial Analyst
 - Network Analyst
 - Concurrent use ArcGIS for Desktop Advanced (ArcInfo)
 - Spatial Analyst
 - Network Analyst
 - 3D Analyst
 - Publisher
 - Is this satisfactory? Are MPOs making use of both these licenses?
 - Received a revised proposal that changed the concurrent license to a single use license. Do the MPOs need the functionality supported by concurrent licensing?
 - JQ: Yes; the concurrent license is very important.
 - JQ: I am happy if you maintain the current licensing.
 - JD: What is the news on ArcGIS Online and ArcGIS Pro? Are these items that will be added to our licensing?
 - The MPO licensing is through a centralized contract through NYS Office of General Services (OGS) that is now about seven years old. The contract does not have provisions for adding ArcGIS Online or ArcGIS Pro as the contract predates these services.

- OGS needs a new contract with Esri.
- OGS working on a new contract with Esri.
 - Working in fits and starts over the past few years. In 2014 OGS decided that they would not deal with these contracts separately. Put out an umbrella RFP for all IT provider services (software, hardware, etc.) with a set of terms and conditions that are acceptable to the state.
 - There is typically a negotiation period to develop such a contract.
 - Proposals have been submitted and OGS is in the review process. It is unclear how long this process will take and it is unclear where the GIS software contract sits in the queue.
 - While the new contract develops, the new ELA must stem from the old contract.
 - We are restricted from talking to Esri about the new contract due to rules set in the proposal/contracting process.
- The only alternative is for an MPO, or group of MPOs, to develop an agreement with Esri separately.
- The path of least resistance for the new ELA is a one year extension of the current ELA.
 - The current ELA ends at the end of December.
 - The old, centralized contract ends at the end of January.
 - Need the new agreement in place by the end of January to ensure no service interruptions.
 - This is the most likely scenario.
- Once OGS comes to an agreement on a new contract a new ELA can be developed that would supersede the current ELA.
- JQ: Is there any danger that the MPOs will not have an ELA in 2017?
 - Doubtful.
- Part of the reason to keep the new ELA simple is that it is the path of least resistance.
 - Mitigates risk.
 - Will need to look at ArcGIS Online later.
- Bill Johnson, the Geographic Information Officer, has expressed an interest in administering a centralized ArcGIS Online implementation at a high level to organize the content.
 - JQ: Our agency has access to ArcGIS Online through the other services we purchase. We are already publishing online. The state might be missing this opportunity to centralize.

- JD: We are still locked out of ArcGIS Pro because it requires an active ArcGIS Online account.
 - It sounds like Esri is getting pressure and thinking of making changes to this arrangement.
- ArcGIS Pro is still outside of the state's scope of vision.
 - Concerning because Esri is positioning Pro as a replacement to desktop.
 - JQ: The talk is that there is a five year window before Pro replaces Desktop.

2. SMTC Transportation Atlas Presentation [JD; LH]

- The Atlas is a printed book of maps presenting information about existing transportation-related conditions in the Syracuse area.
 - A PDF of the Atlas is available for download from the SMTC website here:
 - <http://www.smtcmpo.org/LRTP2050/LRTP2050.asp>
- The Atlas was presented at NYGeoCon
- What prompted the Atlas' development?
 - SMTC had wanted to develop the Atlas for some time
 - Re-wrote LRTP from scratch; this gave the agency an excuse
- Has become a standalone reference
 - Answers many frequently asked questions
- Some background on the Atlas:
 - The Atlas' content focuses on transportation
 - Demographic data developed from 2010 decennial census data; 2006 - 2010 American Community Survey (ACS)
 - The Atlas was developed wholly by the agency
 - Everything was done in-house, except printing
 - Everyone at the agency contributed
 - 7+ staff members were involved in the project
 - Main staff included 3 senior planners, 2 analysts, 2 junior planners
 - Leveraged software included:
 - ArcGIS
 - Adobe Illustrator
 - Adobe InDesign
 - Microsoft Office (Word & Excel)
- Some background about the Atlas development project:
 - The Atlas development project was a 2-year process
 - 1st year was mostly data collection and developing map template

- 2nd year it became more of a priority - bulk of the work was done during that time
 - Could have be condensed into 18 months with more foresight
 - LH managed the project for the first year, a Senior Planner became the PM the second year as the effort became integrated with the LRTP development
 - Project scheduling was condensed to coincide with the LRTP development
 - The Atlas became integrated with the LRTP
- Atlas development process
 - Develop list of maps for the Atlas had; list went through the whole committee
 - The data was gathered in ArcMap
 - JQ: Were all the maps developed using ArcMap?
 - Yes; every map started in ArcMap; the final touches were done in illustrator
 - The maps were exported to Adobe Illustrator (.ai)
 - Adobe Illustrator applied final touches while the text was gathered in Word
 - Illustrator can do a lot of the cartographic components that are difficult in ArcMap like moving highway shields
 - Illustrator was used for the development of infographics and charts
 - Finally, page layout was done in InDesign where text and graphics were assembled onto pages.
- Printing lessons learned
 - The process requires working with the print shop from the start
 - The printer, and printing a document like the Atlas, requires details that most individuals would not typically think about
 - For instance, having color to the edge of the page (aka “bleed to edge”) required each page be slightly larger than the final product
 - Printing each Atlas was not cheap
 - Approximately \$10.50 per copy
- SMTC is happy with the product
- MP: Would regenerating all the maps and data be difficult? How much time would updating these maps take for a new year?

- Considerably less time than the original development. The process would involve: updating the data in ArcMap, exporting to Adobe Illustrator, making basic changes in Illustrator, and replacing the old maps in InDesign.
- The Central New York Regional Transportation Authority (Centro) Onondaga County Transit System map is another example of SMTC using this workflow (ArcMap and Adobe) for map production.
 - The map can be found here:
 - <http://www.centro.org/images/System%20Maps/2015-10-01%20Onondaga%20County%20System%20Map.pdf>
 - JQ: Transit lines that overlap appear parallel (swim lane style). Did SMTC move the transit routes manually?
 - Yes. This is much easier in Adobe than in ArcMap

3. A look at Windows 10 [ET]

This section was highly visual. ET led the group through an interactive demonstration of Windows 10 features.

- JQ: HOCTS installed Windows 10 on 2 new computers. In general, we have found that Windows 10 is not so bad.
- It looks very familiar, not vastly different
- Customizable “Start” menu
 - The Start menu is back
 - Apps and controls can be pinned to the Start menu like weather and mail
 - Can link to your Microsoft account
- Programs are called Apps
- Search is better
- Introduction of Cortana, a Windows assistant program similar to Siri
- Any ArcGIS issues?
 - No Windows 10 specific problems, yet
- KH: Why did you install Windows 10?
 - JQ: Wanted a test bed
- Windows 7 mainstream support ended January 13, 2015 and support will decline going forward
- Microsoft Edge is the new web browser in Windows 10
- Windows 10 is more customizable than their other software

4. General discussion of pavement scoring and traffic counts [JQ]

- Pavement scoring
 - Everyone has seen our maps
 - Starting to get traction with how we approach pavement scoring
 - Not only do we do our federal aid, as general planners we contract with the municipalities to do the county roads as well
 - Also contracted with county for 911 for addressing
 - Using the same techniques as before, MP has improved our approach by taking pictures
 - MP: Still using the same camera (Ricoh); have upgraded to a GX8
 - It is the best for the job because it will shoot as low as 5 second intervals
 - Captures GPS every time they shoot
 - Would be interested to see if we can capture video
 - Saw a tutorial on “How to make your own GoogleStreet View”
 - <http://google-latlong.blogspot.com/2013/12/create-your-own-street-view.html>
 - Can help collect a more accurate representation
 - Tying the pavement scoring to the LRS mile points system would be really helpful
 - KH: This should not be that far down the line. Years rather than decades.
 - Right now the pavement scoring is a custom dataset that gets a bit messy.
 - LH: Ended up taking on pavement scoring because of discrepancies between the state, county and city data.
 - Created an access database to manage the data. Shared the results with the county and city.
 - Did the work for free.
 - Federal Aid only
 - Will do this every year.
 - Started by mapping all the routes and then used network analyst to determine the fastest routes. Exported the routes to Access. Went to the field, marked up the routes, and then pushed everything back to GIS.
 - Used personal vehicles.
 - Will think about incorporating more of HOCTS’ process.

- We tie ours directly to the GIS. Use symbology that displays a route red when it has yet to be scored. Really facilitates the process.
- Originally used road scoring averages, found that this lost integrity. Now break links where conditions change.
- MP: This year I did 527 miles.
 - Did this in less than 4 total weeks; needed to use shared staff.
 - Sun angle is important. Need the angle to be right.
- CT: My process is to send people out with printed directions and have conditions entered as they go; the system is due for an overhaul probably.
- In my area, the trend line for the conditions varies between counties:
 - Oneida is seeing real decline in conditions
 - Herkimer's road scoring are consistent and declining more slowly
- MP: As we accumulate more data (now we have three years of data); the city is seeing more of a crunch and having a harder time keeping up.
- The counties do use our scoring to prioritize projects
 - MP: Finding that we need to return the scores back to the commissioners ASAP.
- Traffic counts
 - ArcGIS Online traffic count application
 - Wanted to use ArcGIS Online to pass data back to the public
 - Once you understand the language of ArcGIS Online, you can spin stuff up really easily.
 - Looking forward to ArcGIS Online facilitating sharing.
 - I would recommend getting someone in your organization to learn the AGOL language (aka, how it works, the lingo, and the protocols)
 - Cannot publish services with their current ArcServer account, yet. Want to publish services through ArcGIS Online without consuming credits
 - Traffic counts can be popular and a traffic count map could consume their credits quickly
 - JD: What consumes credits?
 - Analysis hits the system the hardest, but just viewing consumes credits.
 - The counties have HOCTS do the counting
 - Companion piece to the pavement scoring

- Region does not do counts anymore; the region gave HOCTS their equipment when they stopped doing counts.

5. Individual MPO updates as desired by attendees [JQ]

- Would anyone like to present an update or broch a topic for discussion?
 - [No Responses]

6. GIS Working Group Plan 2016-2017 [JQ]

- Would anybody like changes made to the 2014-15 GIS Working Group plan?
 - No dissent.