

Minutes: 3D Geomatics Committee Hydrogeomorphology Workgroup

Date: 6/11/2019
Time: 10:00 a.m. – 11:30 a.m.
Location: Skype online meeting



I. Attendance | Hydrogeomorphology Workgroup

Accountable: Ann Banitt (ACOE); Andrea Bergman (MNIT@DNR); Jen Crea (MNIT@MPCA); Matt Drewitz (MNIT@BWSR); Tyler Grupa (MNSU-WRC); Tom Hollenhorst (EPA); Brandon Krumwiede (NOAA Affiliate); Rick Moore (MNIT@DNR); Sarah Porter (EWG); Christiane Roy (USDA-NRCS); Kiah Sagami (HEH); Jamie Schulz (MNIT@DNR); Sean Vaughn (MNIT@DNR)

Informed: Lyn Bergquist (MNIT@DNR); Joe Brennan (USDA-NRCS); Whitney DeLong (UMN); Chuck Fritz (IWI); Ben Gosack (DNR-EWR); Kevin Hanson (ACOE); Keri Hedin (Fond du Lac); Brian Huberty (USFWS); Alan Laumeier (Goodhue Co); Rick Lorenzen (MNIT@DNR); Grit May (IWI); Joel Nelson (UMN); Doug Norris (DNR-EWR); Jill Pohjonen (DNR-EWR); Emily Resseger (Met Council); Ben Richason (SCSU); Casey Scott (MPCA); Aaron Spence (BWSR); Angus Vaughan (MPCA); Barbara Weisman (DNR-EWR); Andy Williquest (MNIT@DNR)

Guests: Linse Lahti (DNR); Clint Little (DNR); Jeff Weiss (DNR-EWR); Steve Kloiber (MNIT@DNR-EWR); Kelsey Forward (DNR); Geoff Maas (MetroGIS); Kari Guerts (MNIT@DNR-FOR)

II. Current Projects of Interest: Metro Stormwater Geodata Project – Geoff Maas, MetroGIS Coordinator

Presentation about the Metro Stormwater Geodata Project

The Long-Term Goals of the project (from Geoff's presentation to the GAC):

“Creation of a transfer standard and supporting documentation that supports the work of engineering, municipal, county, regional, state, federal and other interests in creating, maintaining, federating and sharing geospatial data representing stormwater system features”

Next meeting: August – Ben Gosack: Watershed Health Assessment Framework

Notes (refer to slides for specific content):

- What is [Metro GIS](#)?
 - Voluntary collaborative
 - independent entity

- All levels of government
 - Private sector
 - Academic
 - Non-profit
 - Met Council – host agency, sends a representative to MetroGIS
 - Maintain an annual work plan of priority projects
 - Stormwater plan – 2nd priority
 - Policy board – elected/appointed leadership
 - Coordinating committee – senior managerial/technical staff
 - Data on the Geospatial commons
 - Can search on MetroGIS
 - 7 counties
 - Parcels
 - Parks and trails
 - Road centerlines
 - Address points (8 counties, working to get 10 counties for 911)
 - Metrogis.org
- Purpose
 - Define the business needs for a stormwater transfer standard, “who needs what?”
 - Develop a prototype standard
 - Publish prototype standard and sample data for testing and review
 - Why
 - Functional need – data creation, maintenance, sharing and federation
 - Philosophical – complex topic, wide interaction, water is shared inter-jurisdictional resource
 - Challenge – shared method to represent all stormwater features
 - Convey water, treat water, hold water, drains water
 - Example – Minnehaha Creek Watershed District
 - Multiple entities storing information in different formats (2 dozen entities?)
 - Interest in access to data that can be used by all
 - How to translate from various formats into points/lines/polygons for general use
 - Multiple needs on same system - Larger rain events
 - Infrastructure capacity
 - Maintenance and tracking
 - Hazard mitigation
 - Environment and health
- Overview of the project
 - April-June 2018 –
 - Establishment of project (working on base started 2008-2010)
 - Business needs documentation
 - Drafting a project charter
 - Initial scope of work

- June 2018 – present
 - Steering committee
 - Creation of prototype standard
- Business needs –wide range of needs identified (slide)
 - Documentation available on their [website](#)
- Input meetings
 - Steering team – 25 members
 - [Charter](#)
 - Project [Summary Document](#)
- Steering Team meetings
 - 7 meetings, move around the metro, many small group meetings in between to keep things moving forward
 - Work in field session of what is being done
 - Presentations at conferences and interested groups
 - Membership
 - State, fed, regional, local
 - Private engineering
 - WSD/WMO
 - Esri
- Prototype standard (in development)
 - Robust domain values
 - Lines/Points/Polygons
 - Data stored in points
 - Municipal separate storm sewer system (MS4) reporting – added schema in domains so have consistent data coming into PCA
- Current status of current work
 - MPCA has completed review of inspection schemas
 - Prototype standard development – approval for testing in late July
 - Pilot project – to test prototype standard – invite community to review
- What’s next?
 - “As Built Translation” – ‘structures’ team
 - Guide on how to translate to the schema
 - Pilot sites selected, just started collecting data
 - Will be publishing the sample data along with documentation for the community to review
 - Selection exercise – areas selected
 - Within those areas, 12 sites selected area where special needs exist
 - Overlap of jurisdiction
 - Special features/needs
 - Timeline
 - Summer 2019 – collect data
 - Late summer/Fall 2019 – translate data into the prototype standard

- Late Fall/Winter 2019 – publish pilot data for stakeholder comment and review
 - Late Winter/Spring 2020 – review stakeholder input, revise standard
 - Lake Spring/Summer 2020 – publish revised standard for review
 - Late Summer/Fall 2020 – Determine fitness for adoption
- Peter L. Croswell: The GIS Management Handbook – this project charter will be included in the next edition of this book
- If interested in participating:
 - Email Geoff
 - Check out the website
 - Provide feedback and input during review fall 2019
 - Let others know who may be interested in being involved

Questions/Comments?

- Andrea – Similar issues with developing standards in the hydrogeo workgroup
 - How do they all meld together? How does the process/protocol affect our processes?
 - The background/attribute is more important than the actual geometry sometimes
- Rick – Will there be a network model?
 - Yes – long term goal to have network available for metro needs – need standard first, then will expand the pilot to include the network framework to see how it
 - Flow modeling community has expressed a lot of interest
- Sean – How much upper level support are you receiving?
 - Projects have a champion – someone at the policy level, have found to be very helpful. Geoff updates them every few months. Can advocate for the project at the level needed to continue moving it forward.
 - Don't need to be actively involved, periodic updates only. Can request info when needed.
 - Touches are light and soft – let them know to ask when needed
 - Sean – not a lot of involvement right now with DNR. Would like to see IT more involved with this now. Jen and DNR data stewards. Geoff has brought a lot of life to this project. Would love to be liaisons to help support the effort. In the past was only a concept. Now it is an actual “thing.”
 - Geoff – presented to PCA in the past, they were waiting to see what came of it
 - Sean – Where does the water go? Critical for watershed delineation. Foundation for how contaminants are moving.
 - Geoff – has already been done with other datasets (roads, address, etc.) so there was an example of benefit
 - Technical people are good at the solution. Need to start higher, see what we need – and drill down to the technical details
 - Groups are working together to iron out the details – heated discussions welcome! When people disagree, it shows they care and are engaged. Everyone has buy in once the process has been worked through. Find they have more in common than not.
 - “One eye in the microscope, one eye in the telescope”
 - Sean – sometimes we are promoting concepts. Geoff has a product
- Kari – how will it be sent out to be tested? How to ensure the agencies that are invested are reached?

- Geoff – wide outreach efforts. Constantly expanding email list. Presentations to many different groups, conferences, technical groups
- Kari – comments go back to the governing body?
- Geoff – yes. Long term piece, many different interactions/ interactions before will become ‘final’
 - Some people have never done asset management for these features – becoming more aware of other people’s world. Understanding of ‘why’ becoming reality.
- Sean – adaptability
 - Geoff – long term goal to expand beyond the metro area. Once it is out there, the ‘metro’ boundary will fall away. Will become statewide.
- Rick – breachline subgroup – pulling in data from many sources. For this project are you pulling together with all data or working with a subgroup?
 - Geoff – have just begun to collect the data. Goal is to cast the net wide, data is coming in in all sorts of different ‘quality.’ Working to do additional work to pull together data, field testing, data is less articulated than other data sets they have worked with in the past. Some cities ‘have the data’ but they are missing attributes. Would like people to start thinking about these attributes when collecting data. Standards are the “ideal” to work toward.
- Sean – people here have a strong support for standards. There has been no communication of hydrography standards since 2011. We need standards and documentation to fall back on, losing the institutional memory as staff retires.
 - Geoff - if find this a challenge, ramp it down. Make a pilot area that is small enough to make it just like you want/need. Share this with others to see if it works for everyone. Pick it apart, kick the tires, you will end up with a worthwhile product, and can scale it up from there.
 - Have people that are really committed to quality of data and resources
 - Make a dataset that looks how you want, then shop it around, use it
 - Make the product good and people will want to use it
- Rick – Esri rep?
 - Geoff – Yes, Mike Koutnik. They did a webinar on network utilities model – watching closely to test assumptions of this model to be sure it works for users. No other efforts like this in the country.
 - Sean – This is cutting edge for a large metropolitan area. Critical to understand water movement across the landscape
 - Geoff – Chicago area – haven’t been able to get entities willing to work together there
 - Kari – Storm events have been a big wake-up call for needs of this type of information
 - Geoff – Data is politically neutral. If these data can be used to save money, everyone is interested

III. In-depth Discussion on Presentation

How will this standard effect the efforts of this workgroup?

- Sean – missed opportunity that this effort started before the Hydrogeo workgroup was in place. May have been more involvement if this group had existed. Need liaison between.

- Emily – willing to be a liaison
- Rick – slides – lots of good information on them if people want to take a closer look
- Sean – should this be brought up with the GeoWRT? Keep DNR informed
 - Andrea – yes! Appropriate place to do this for DNR.
 - Sean – concerned that EWR will be uninformed. Need to shepherd the outreach to be sure EWR staff are aware of this
 - Emily – Geoff is willing to give this talk as much as needed

Will this data effect other hydrography data?

- Jamie - Will this be kept separate or melded in with existing hydro data?
 - Andrea – natural vs. manmade features. Does it stay separate, or become part of the core data so that it is combined and in sync?
 - Sean – if this becomes outstate there are more linkages with existing dataset. Metro is a massive system that dumps into the natural systems. Has to be more involvement and preparedness to bring the data together maybe not as a merged dataset, but existing side-by-side.
 - Andrea – every town will eventually have this. How do we sync it?
 - Sean – every city have storm sewers and they effect the hydrography datasets. Watershed delineation dataset, where had digitized watersheds would totally change if knew of a stormwater system there. Many small metro entities don't have the data – a private engineering co has the data. Systems are not tied together
 - Jen – NHD does incorporate this data.
 - Sean – what % is included?
 - Jen – on an “as needed” basis. So small areas, some clustering in metro areas. Will be attempting to increase this in the future. Storm water ponds is area of big interest with little information
 - Sean – to build this out statewide would take a lot of \$\$\$. Clean water money would fit the bill

IV. Steering Team and Subgroup Reports (25 min)

- LiDAR Acquisition Update – Sean
 - Steering team update
 - Most of the members migrated into the acquisition workgroup
 - Small subgroup formed to write the state acquisition plan
 - Began working on this 2 weeks ago
 - Authors will bring everything back to the workgroup then back to the steering team
 - 6 people, would like a few more
 - Dan Ross reached out to MNIT Central contracting authorities – green light to meet with vendors to answer questions that the subgroup has about LiDAR acquisition. Need to be cautious, ask all the vendors all the same questions in

- order to not create a conflict of interest. Cannot capture results and bring directly into an RFP. New ground for everyone
- Met with Goodhue county – announced in December that they were collecting their own data
 - Met with Lisa, encouraged that they are seeking LiDAR as a quality level of 0 (highest quality/density, highest cost)
 - Appeared they have funding for imagery acquisition, looking for state money to pay for LiDAR collection
 - AI – Goodhue flying imagery in spring 2020, looking to see if could partner for LiDAR as a pilot project. Existing LiDAR is getting to be 8 years old. Imagery will be flown no matter what, looking to piggy-back to collect LiDAR if possible.
 - Sean – Goodhue always been a pioneer in imagery and LiDAR acquisition
 - Question is always about what the cost will be, hoping that meeting with the vendors will give an approximate cost for acquisition
 - Announced last week that MnDOT will not be a partner for anything less than Q1, want Q0 but would tolerate Q1. Not sure what that means since they are interested only in corridors and not regional acquisition.
 - Q1 is the goal, seek buy-up to Q0.
 - Data Catalog update – Jamie
 - No new update – input received from Emily Resseger of Met Council.
 - Breachline Subgroup updates – Rick
 - Currently working on adding to the map
 - Adding HEC from Red River – low confidence data
 - Sean – data for Red River has plagued the ability to establish a more concise approach to creating hDEMs. Adopted that need hDEM early on. Modified to facilitate modelling for 100 and 500 year flood events. Incorrect messaging was that “Red River valley is done”. Had a life of its own. Worked has continued in this area by many groups to make data useful today. The message hurt the ability to do further work at a higher quality level.
 - Rick – map of Authoritative Breachline data availability
 - Shows the completeness of data created
 - Shows the confidence of the data created
 - Green areas are done?
 - Sean - We shy away from the term ‘done’. The green areas mean it has high confidence and a level h3DEM completeness. The data exists in a high level, but some additional breachlines may be needed. Also review of data is always important. Need to feel good about the final product that is served out
 - Who is creating the breachlines?
 - Rick – datasets from IWI, HEI, WSN, water resources center, DNR

- Sean – this work occurs in other places throughout the state, these are the big players in this work. Doesn't include Brian Gelders work.
- Clint – work in the NE – lots of culvert inventories that were incomplete. Assumptions made that culverts exist at driveways, road intersections, etc. What could have been done better? Used the best data available at that time.
 - Sean – Tyler Kaebisch's work stopped at a point where the watercourse work stopped. Effort to add in additional features around that. But didn't complete the entire flowline feature.
 - Clint – goal was to update the 24K DNR hydro. Features were incorrect. Updated features extended to headwaters and to the lake. Didn't have manpower to field check the other features. There was no breachline standard at that time. Assumption made that they would put the source of the breachline into the attributes, didn't happen. Would like imagery date, culvert inventory info, etc. Was all a new process, hindsight 20/20.
 - Sean – would be good presentation to the breachline group. Lessons learned!
 - Clint – Two Harbors area – lots of assumed culverts that don't exist. Storm pond outflow not correct.
 - Sean – how to remedy?
 - Clint – underground water conveyance features also complicate things. Hydrology so altered it is hard to represent.

V. Meeting Schedule

Due to busy schedules and the ESRI conference, we will be skipping the July meeting date

Next Meeting will be **August 13**

Future Meetings

Date: 8/13/2019

Time: 10:00 a.m. – 11:00 a.m.

Location: Skype online meeting

Agenda items: (submit proposed agenda items to [Jamie Schulz](#))