

Meeting Minutes: Minnesota LiDAR Committee Exploration Meeting

Date: **11/04/2015**
Time: 1:00 p.m. – 3:00 p.m.
Minutes prepared by: Susanne Maeder and Sean Vaughn
Location: MPCA Training Room 2, St Paul, MN

I. Meeting Timeline

- Introduction and Review of Topics (Sean Vaughn) 1-2 p.m.
- Group Discussion (All) 2-3 p.m.

II. Meeting Objective

Scope the possibility of reviving/restructuring the work of the former Elevation and Hydrography Committees and the existing LiDAR Research and Education Committee into a new committee to deal with LiDAR-related issues for Minnesota.

III. Attendance

Corcoran, Jennifer (DNR) Jennifer.Corcoran@state.mn.us

Leslie Everett evere003@umn.edu (may be a little late)

Huberty, Brian brian_huberty@fws.gov

Joel Nelson U of M nels1945@umn.edu

Loesch, Tim N (MNIT) tim.loesch@state.mn.us

Pete Jenkins (DOT) Peter.Jenkins@state.mn.us

Colin Lee (DOT) colin.lee@state.mn.us

Alan Laumeyer (Goodhue county) alan.laumeyer@co.goodhue.mn.us

Lyn Bergquist (DNR) – Hydro Committee lyn.bergquist@state.mn.us

Jim Solstad (DNR) Hydro/LiDAR james.solstad@state.mn.us

Lian Rampi, PHD Remote Sensing & Geospatial Analysis Lab/ U of M Forestry ortiz073@umn.edu

Aaron Spence (BWSR) aaron.spence@state.mn.us

Mark Olsen, MPCA mark.olsen@state.mn.us

Jen Crea, MPCA jennifer.crea@state.mn.us

Kris Parson, MPCA kristofor.parson@state.mn.us

Susanne Maeder MnGeo Susanne.maeder@state.mn.us

Sean Vaughn DNR sean.vaughn@state.mn.us

[Ron Wencl \(USGS\)](mailto:Ron.Wencl@usgs.gov) rwencl@usgs.gov

Joe Lewis jlewis@houstoneng.com

David Bendickson david.l.bendickson.mil@mail.mil

Brandon Krumwiede - NOAA Affiliate [brandon.krumwiede@noaa.gov]

Ben Gosack DNR ben.gosack@state.mn.us

Al Kean - BWSR al.kean@state.mn.us

Julie Westerlund DNR ECO Clean Water Coordinator julie.westerlund@state.mn.us

[Greg Ensor \(fugro\)](#)

WebEx Attendees:

Dan Ross MnGeo dan.ross@state.mn.us

Timothy Krohn timothykrohn@fdlrez.com (Fond du Lac) ???

Gjovik, Cameron (DOT) cameron.gjovik@state.mn.us (Duluth) ???

Beth Neuendorf (DOT) beth.neuendorf@state.mn.us

Bixby, Joshua J –(USFS) jbixby@fs.fed.us

Studtmann, John H. (City of Minneapolis) John.Studtmann@minneapolis.mn.gov

LeClaire, Keith R MVP USACE keith.r.leclaire@usace.army.mil

Pete Knutson (MPCA) pete.knutson@state.mn.us

[Greg Liknes Forest Resource Center St. Paul gliknes@fs.fed.us](mailto:greg.liknes@fs.fed.us)

Tyler Kaebisch, DNR Grand Rapids Tyler.Kaebisch@state.mn.us

Casey Scott (MPCA-Rochester) Casey.Scott@state.mn.us

Dennis Kepler DNR Grand Rapids dennis.kepler@state.mn.us [Ann Banitt USACE](#)

[Ann Banitt \(USACE\) Ann.M.Banitt@usace.army.mil](mailto:Ann.M.Banitt@usace.army.mil)

[Schwieder, Christiane - NRCS, Rochester, MN Christiane.Schwieder@mn.usda.gov](mailto:Christiane.Schwieder@mn.usda.gov)

[Molly Shoberg \(St. Louis County\) ShobergM@StLouisCountyMN.gov](mailto:ShobergM@StLouisCountyMN.gov)

[Baltes, Matthew – \(NRCS, Thief River Falls, MN\) Matthew.Baltes@mn.usda.gov](mailto:Matthew.Baltes@mn.usda.gov)

IV. Notes from Slide Presentation Delivered by Sean Vaughn

Committee Mission:

- Coordinate and Collaborate on LiDAR related topics and issues in Minnesota
- Guide LiDAR collection, management, dissemination, application, and derived products (including Hydrography) for Minnesota.

Outcomes:

- Consensus on need for a new committee
- Indication of level of interest for member participation
- Interest in serving as committee chair, co-chair, or workgroup leader
- Intent to move forward to develop charter and work plan
- General outline of issues to be included (beyond what was listed in meeting announcement)
- Outreach to include policy as well as technical staff (we have been preaching to the choir)
- Expanding to include emerging areas of application and expertise, outreach to include management as well as technical staff

LiDAR Outreach:

- Improving education directed at both technical and managerial staff about the business needs and emerging sciences related to LiDAR.
- Build support for more LiDAR and hydro-terrain analysis training.
- Have coordinated approaches to ancillary data collection (i.e. culverts, digital dam breach lines) that allow for the development of hydro-modified DEMs.

LiDAR Collection:

- Planning for and promoting coordinated LiDAR collections.
- This committee will help guide plans for new statewide, regional and project-based LiDAR collections that meets national 3DEP standards.
- Although a new statewide collect may appear to be a lofty goal at this point in time Minnesota needs to be poised for drafting proposals in the 3DEP process.

LiDAR Data Management and Data Dissemination:

- Steering decisions, and building support and coordinated approaches to management and dissemination,
- Support for increased hardware and software needs for managing LiDAR data including future LiDAR collections.

LiDAR-Derived Next Generation Hydrography:

- Support the development of an updated, denser hydrography base derived from LiDAR: developing the process for creating this update; developing a strategy for creating statewide layers (including coordination and funding).
- Revisit the processes by which this raw data is converted to DNR Hydrography and NHD.

Terrain Analysis:

- Support and monitor the creation of statewide products for hydro-terrain analysis (e.g., SPI, CTI etc.).
- Guide hydro-modification activities that support conservation practices so that the funds being expended to create hydro-modified DEMs result in more consistent products that can be made available to other users.

Link to full presentation by Sean Vaughn: [Link to powerpoint.](#)

V. Group Discussion Following Presentation

Name	Comment
Les Everett (U of M)	Federal agency research grants – need to see data (require data to be?) published to a publicly-available database – a public database.
Julie Westerlund (DNR Clean Water Coordinator)	She is currently reviewing 99 Clean Water Fund Grants. Many projects include hydro-modification of DEM's to identify areas to apply BMP's. A multi-agency group to discuss this would be good. But people are already doing this now. You have to get up front of the issue in order to be able to influence how the work gets done.
Tyler Kaebisch (DNR Resource Assessment, Grand Rapids)	DNR Resource Assessment has received a \$1 million LCCMR grant to collect high-density LiDAR for 500,000 acres primarily to support Forestry. Research indicates

Name	Comment
	that for the money it would be possible to collect Bathymetry LiDAR 8-12 pulse per meter, side-by-side LiDAR + Imagery.
Dennis Kepler (DNR Forestry Administrative Supervisor, Grand Rapids)	Regarding the 500,000-acre LiDAR collect: the primary driver for this collect is Forest Inventory. Project is funded as of 7/1/2016. It is time to start thinking about how to define and structure the collect, criteria, etc. They are collecting information on what people want – but the primary need is to support Forest Inventory.
Tyler Kaebisch (DNR)	They are open to suggestions to make the LiDAR collect most beneficial to the most parties.
Tyler Kaebisch (DNR)	Interested in participating in any follow-up group. Interested in participating in this group as a member or co-chair.
Joel Nelson (U of M)	Regarding grants stipulation that data generated by grants be made publicly available – how does that get done? BWSR for state grants?
Dan Ross (MnGeo)	MnGeo can host (through Minnesota Geospatial Commons)
Tim Loesch (DNR)	The Commons is not good at distributing tiled data. MnTopo has been the solution for LiDAR and LiDAR derived products distribution and may be the model for distributing the results of new grant projects
Sean Vaughn (MNIT@DNR)	DNR is being asked to serve up these new products and is hesitant to do so because the assumption is that these project-based hydro-modified DEM's are all the same, and in fact they are not.
Susanne Maeder (MnGeo)	If the new products to be distributed are hydro-modified DEM's there is a reluctance to share them the same way because different project/area products may not be produced the same way. They are not the same product. Requiring good documentation would at least make it clear what processes were used to create a particular hydro-modified DEM, and what the purpose was, so that the user could decide whether the product was appropriate for their use. Straight LiDAR data might be distributed via MnTopo, and the current standard derived products (contours, hillshade). Derived products such as hydro-modified DEM's might be treated differently if they are not consistent from area to area. (Note that for current LiDAR data distribution, there is metadata for different data collects in the Commons, but the metadata all points to MnTopo for data distribution).
Sean Vaughn (MNIT@DNR)	(DNR) Sean was earlier assigned the job of coming up with “Best Practices” for DEM hydro-modification. That was not possible because, in his advisory group, people advised different methodologies – largely because they had different end uses for the hydro-modified DEM. So now the realization is that, depending on the purpose for which you are creating a hydro-modified DEM, the recommended best practice would be different. Have all of the digital dams been removed? Does this project really represent the hydrology (i.e., will water flow correctly using this DEM? Could we create a “Breach Lines” database to serve up with unmodified DEM's?
Sean Vaughn (MNIT@DNR), Other	Could this committee help guide what the different products might be, and what the best practices are for each?
Jennifer Corcoran (DNR)	This whole issue of hydro-modification is a rabbit-hole that the entire committee could spend a lot of time on and everyone may not be interested in. She would

Name	Comment
	encourage the creation of a couple of sub-groups, one to deal strictly with hydro-modification, another to deal with forestry (her particular interest)
Standards for processing	Tyler Kaebisch, Jennifer Corcoran, Molly Schomberg, Greg (Ensor? Liknes?), interested in such a group– primarily in vegetation, forestry. There is also group interested in the hydro-modification side. So for standards and best practices, there is an interest in at least two sub-areas – vegetation (forestry) and hydrography (hydro-modified DEM’s to actually extracting new hydrography linework (streams and watersheds)
General Interest in pursuing a group (Tim Loesch (MNIT@DNR), Ron Wencil, (USGS), other)	Yes, there is definite interest. Group is leaning towards an umbrella committee, with working groups as needed. Working groups might tackle such topics as elevation in general (new 3DEP elevation creation), best practices and standards as they relate to vegetation (forestry) and hydrography (DEM hydro-modification).
Joel Nelson (U of M)	The original Elevation Technical Advisory Committee that create LiDAR had lofty goals. This group needs to do the same.
Ron Wencil (USGS)	He is making people aware of the Committee Structure in place. The State Geospatial Advisory Council has committees that work under it – many were created under the original Governor’s Council on Geographic Information. The relationship of committees and working groups to the State Geospatial Advisory Council is being revisited, but there are in place guidance, workplan outlines, and specifications for active committees (for them to report to the Council), that any new group needs to be aware of.
Dan Ross (MnGeo)	Once we decide where the group wants to take this, we can formalize a relationship with the State Geospatial Advisory Council.
Al Kean (BWSR)	Integrating this group with other existing structures - such as the State Geospatial Advisory Committee – gives the group more visibility and, potentially, more influence. Technical subcommittees or work groups can bring information and recommendations up to a committee that has more visibility and more of a policy focus. This is also where you can talk about funding.
???	For any group a charter, and workplans, turns the interest and intent into actionable items.
Brian Huberty (USFWS)	Need integrated committees; themes→ problems→ solutions (which technologies); Some overall issues: applications (forestry, hydrography, wetlands, vegetation), technologies, political, data distribution.
Brian Huberty (USFWS)	Other topics not covered here: tile drainage, Canada using InSAR technology
Brandon Krumwiede (NOAA)	Geomorphometry overall includes terrain analysis, hydrography, bathymetry (other LiDAR technologies are available to create bathymetry).
What would be the commitment?	<p>There may be interest in joining these committees, but first people need to have an idea what would be the general level of commitment. How often would committees meet, for how long? Would there be work to be done between meetings? What are people getting into? People need to know the level of commitment in order to decide whether they want to be involved and to gain managerial support to commit their time to this project.</p> <ul style="list-style-type: none"> - Umbrella Committee to meet bimonthly with chair and co-chair? - Assignments between meetings?

Name	Comment
	- At least two work groups. Meeting frequency unspecified
Ron Wencil (USGS)?	Elevation (3DEP), Hydro are national interests (USGS). Need to identify owners/stewards of elevation, hydro at state level.
Tim Loesch (MNIT@DNR)	IT Consolidation has hampered this – State datasets were created to support agency programs, but the staff that formerly created and stewarded the data at the agency level are no longer part of the agency.
Tim Loesch (MNIT@DNR)	There is no authoritative state data layer for hydrography
Susanne Maeder (MnGeo)	There are two in the state – DNR 24K hydrography and NHD (to meet federal reporting)
Tim Loesch (MNIT@DNR)	Through the Buffer Initiative in the DNR Environmental and Water Resources Division, the hydrography layer is being scrutinized more and more, and none of the available data stands up at the field level that is being required for this initiative. Need support to build a layer at this level of detail. <i>This is really a new business case.</i>
Al Kean (BWSR)	<p>MN.IT serves agencies, but is not part of those agencies. Can we identify a Task Force to help outline what this new group might be? What are the charter elements? How does it relate to state structure? Have it be a Task Force or a White Paper to outline what it is. We don't know if agencies will support. Create something for leadership to react to?</p> <p>Next Steps: organize around a Task Force.</p> <ul style="list-style-type: none"> • Send out an email to all parties to have them identify their highest priorities for LiDAR-related data needs. • Identify the mission and major issues • Identify staff willing to participate in the Task Force
Task Force Membership	Sean Vaughn, Jennifer Corcoran, Tyler Kaebisch DNR, Susanne Maeder, Dan Ross MnGeo, Aaron Spence BWSR, Kris Parson MPCA, Pete Jenkins MnDOT, Karl Hillstom MDA, Les Everett Joel Nelson U of M
Matt Moore (DNR)	ID uses for LiDAR
Brandon Krumwiede (NOAA)	Great Lakes Initiative has a bottom-mapping work group (Bathy LiDAR) – identifying needs and potential derived products.
Ron Wencil USGS	Reminder about USGS National Assessments. Completed a National Assessment on Elevation data in 201x, and just completing the Hydrography Assessment. There is a state section for each. Reminder of cross-state and cross-national elements of the national datasets
Ron Wencil USGS	The next national elevation initiative is 3DEP. NED is dead.

VI. Summary | Decisions Made

- There is interest in pursuing establishment of a new committee built by a taskforce that is created to buildout the design of a new committee.
- Most likely organizational structure is an umbrella committee, with working groups organized as needed. Working groups might include:

- Pursuing a new LiDAR collect that meets 3DEP
 - Hydrography interest group (including hydro-modification guidelines for various purposes)
 - Forestry/Vegetation interest group
- Umbrella Committee would probably meet bimonthly, and needs a chair and co-chair
 - No specifics on work groups yet
- Rather than starting with a “Committee”, start with a Task Force that would help outline what this committee might be.
- Next Steps: organize around a Task Force.
 - Send out an email to all parties to have them identify their highest priorities for LiDAR-related data needs.
 - Identify the mission and major issues
 - Identify staff willing to participate in the Task Force
 - Identified at meeting: Sean Vaughn, Jennifer Corcoran, Tyler Kaebisch DNR, Susanne Maeder, Dan Ross MnGeo, Aaron Spence BWSR, Kris Parson MPCA, Pete Jenkins MnDOT, Karl Hillstrom MDA, Les Everett, Joel Nelson U of M