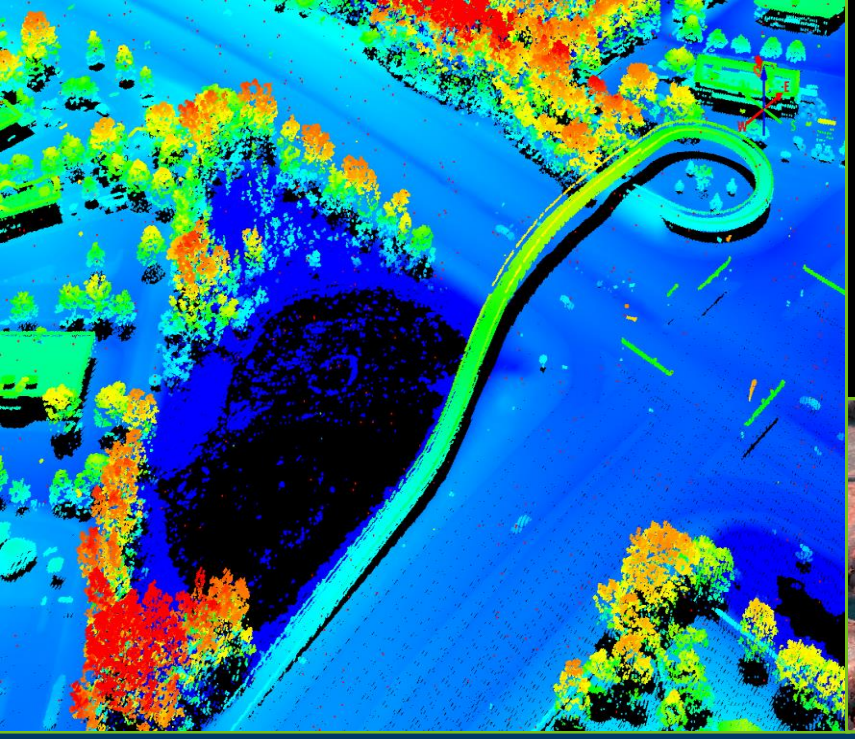
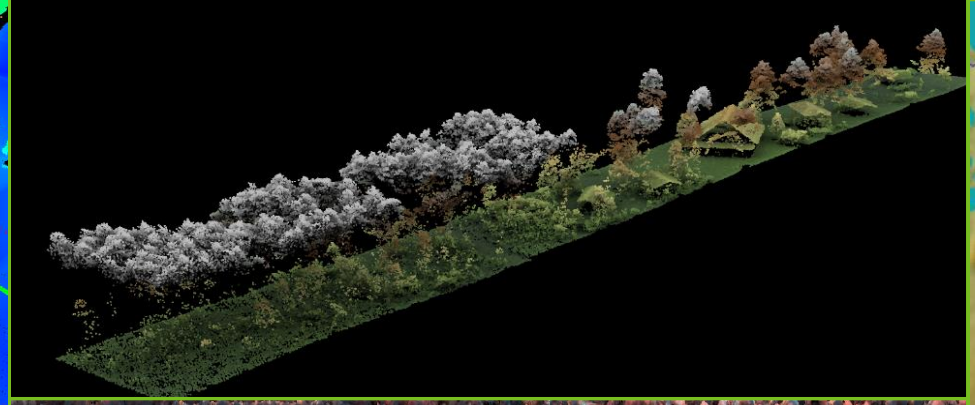
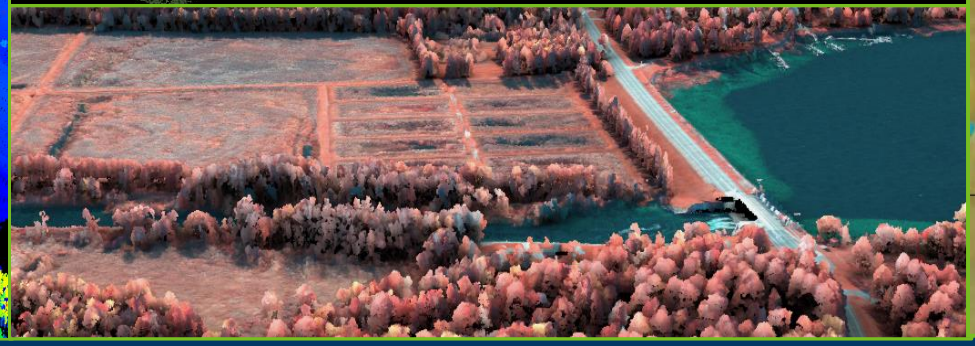
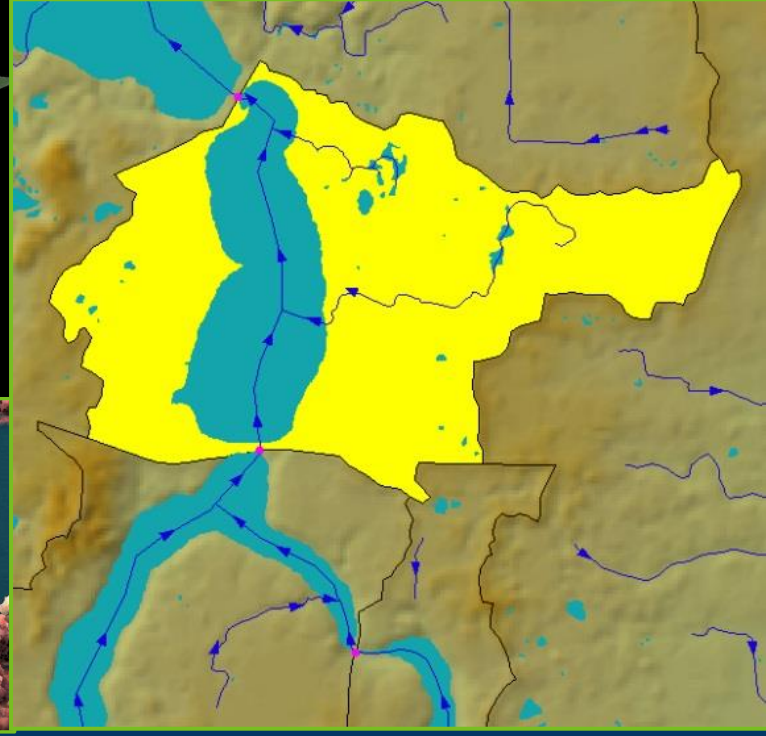








Lidar - Southern Minnesota Update

August 21, 2020 10:00-11:30 pm

Hosted by the Geospatial Advisory Council (GAC) 3D Geomatics Committee's Data Acquisition Workgroup

MINNESOTA IT SERVICES

Please stand by, we'll be starting at 10:05 pm

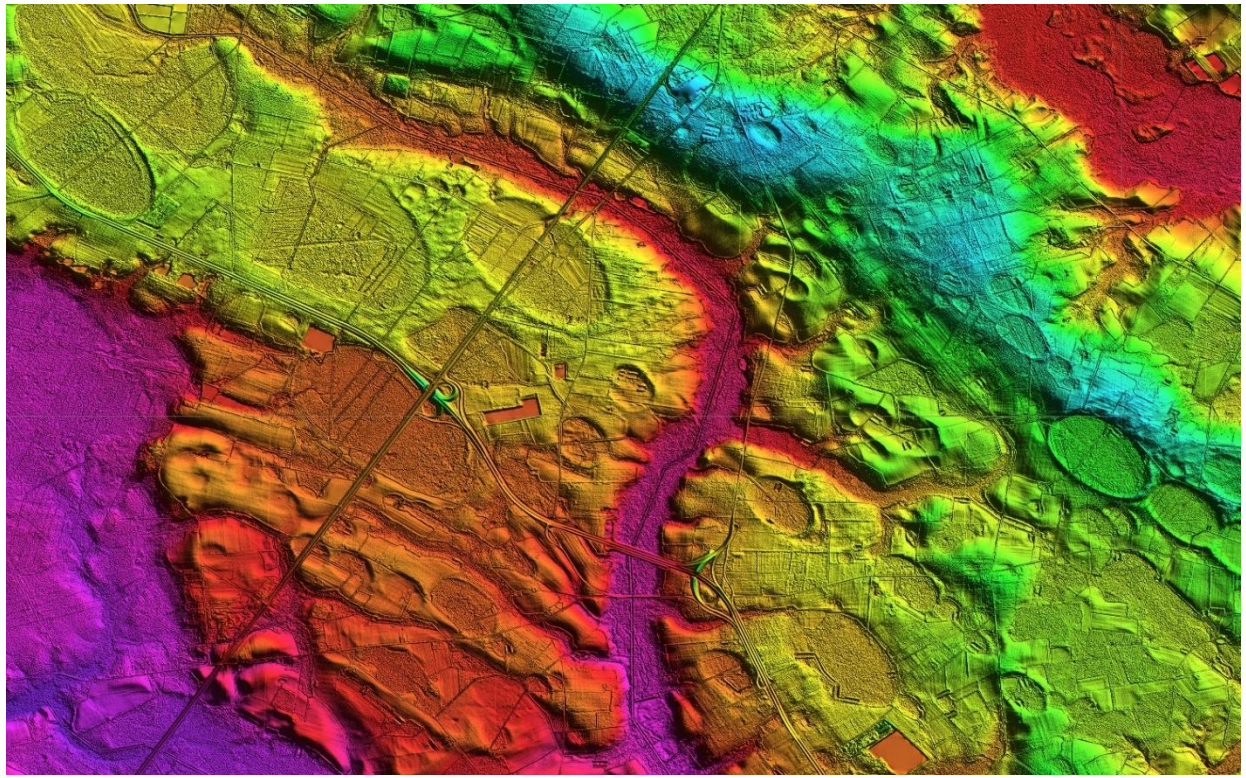
Welcome!

Thank you for joining us today!

We’re excited to meet with you today to discuss lidar acquisition planning efforts in Southern Minnesota.

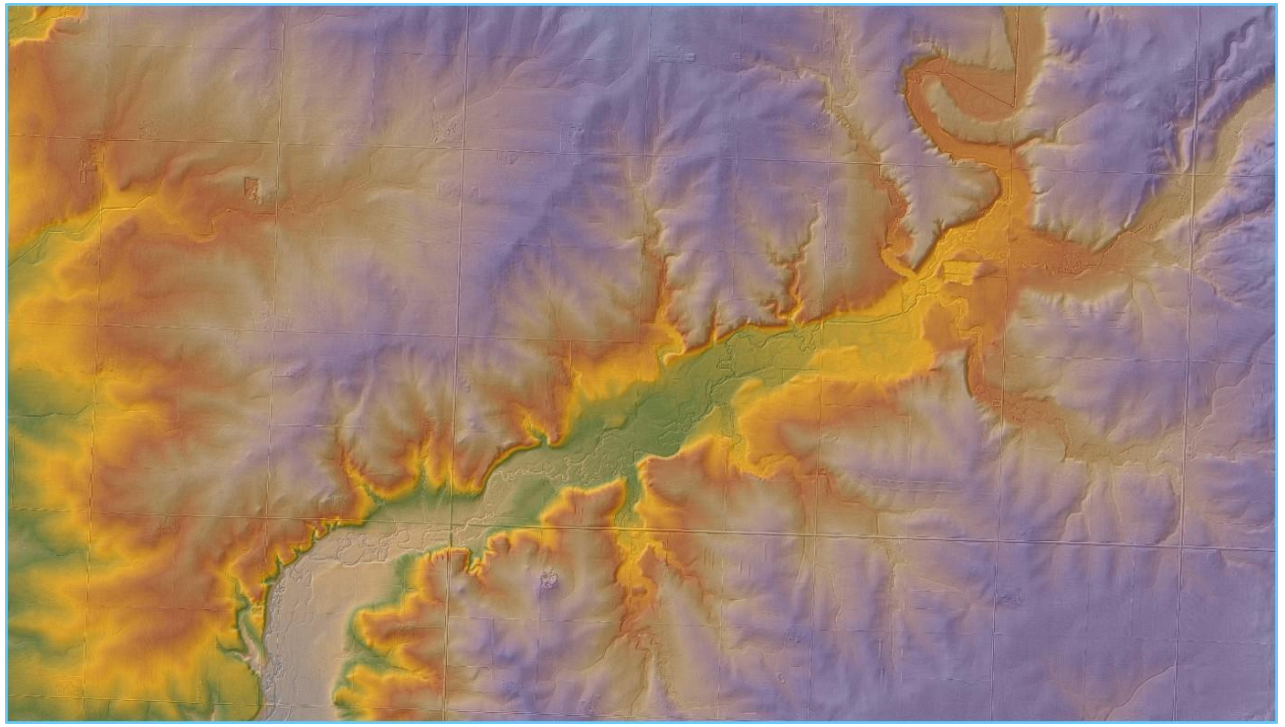
Members of the 3D Geomatics Committee Lidar Acquisition Workgroup will be sharing updates and information about planned collects for Minnesota.

We welcome your input today and going forward.



Goals for today

- Provide context for new lidar acquisition
- Share progress on lidar acquisition planning in southern Minnesota
- Invite you to participate and become involved in lidar work
- Provide time for questions and discussion



Agenda

Time	Topic	Presenter
10:05- 10:15	Welcome, Introduction and agenda overview	Dan Ross Minnesota Geographic Information Officer MnGeo
10:15-10:25	Spring 2020 Lidar Collection	Lisa Hanni, Goodhue County Surveyor
10:25-10:45	Intro to 3DGeo, Minnesota Lidar State Plan & National 3DEP program	Sean Vaughn
10:55-11:00	Progress on lidar acquisition planning statewide, and in southern Minnesota	Dan Ross Matt Baltes, NRCS
11:00-11:10	How you can get involved	Jennifer Corcoran
11:10-11:30	Information Sharing and Q & A	Gerry Sjerven

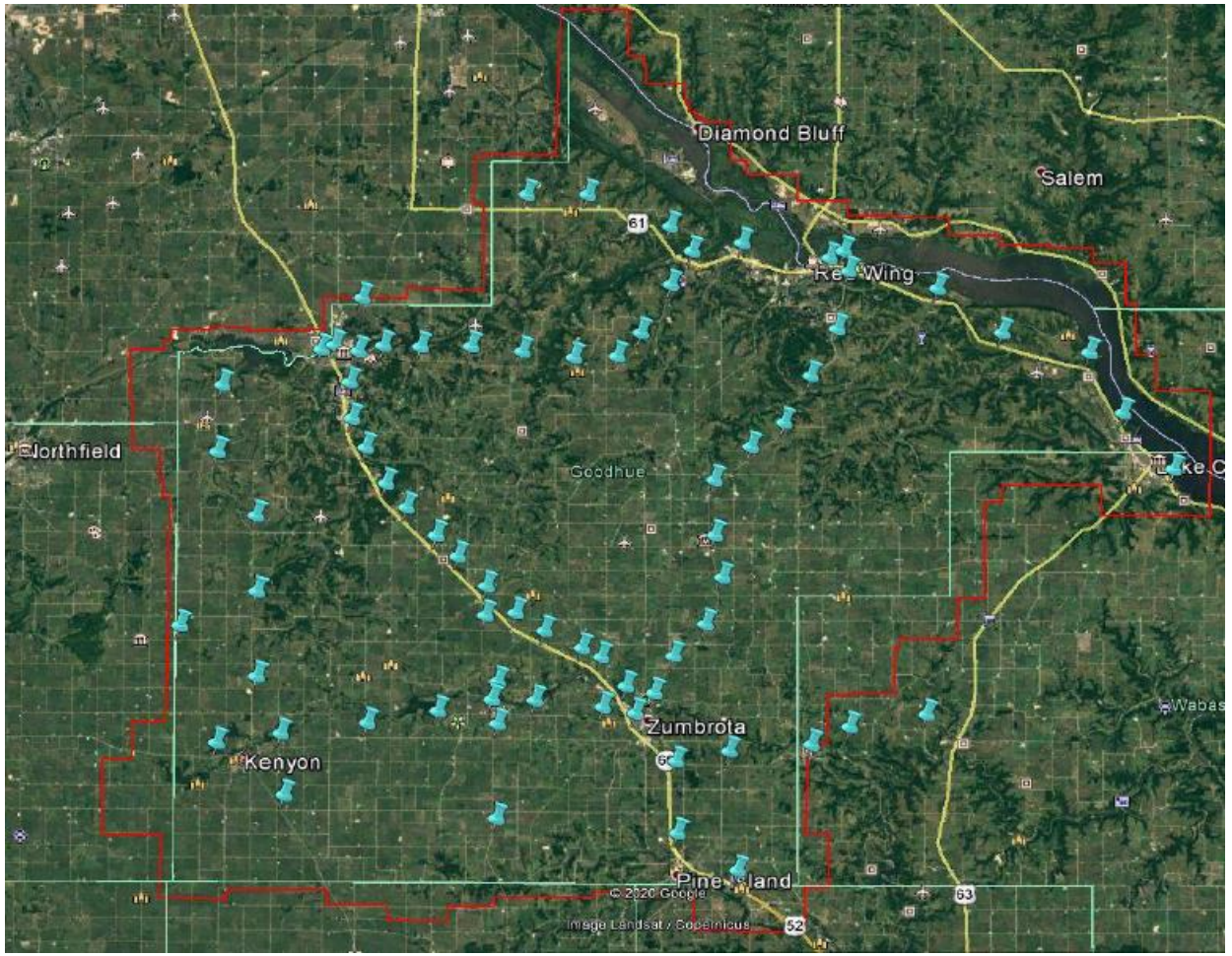
Meeting Housekeeping

- Please **mute** your microphone if you're not speaking
- Type in questions anytime into the **chat window**, and we'll address them during the Q&A section
  - Feel free to use your microphone during Q&A session
- Slides will be shared after the meeting

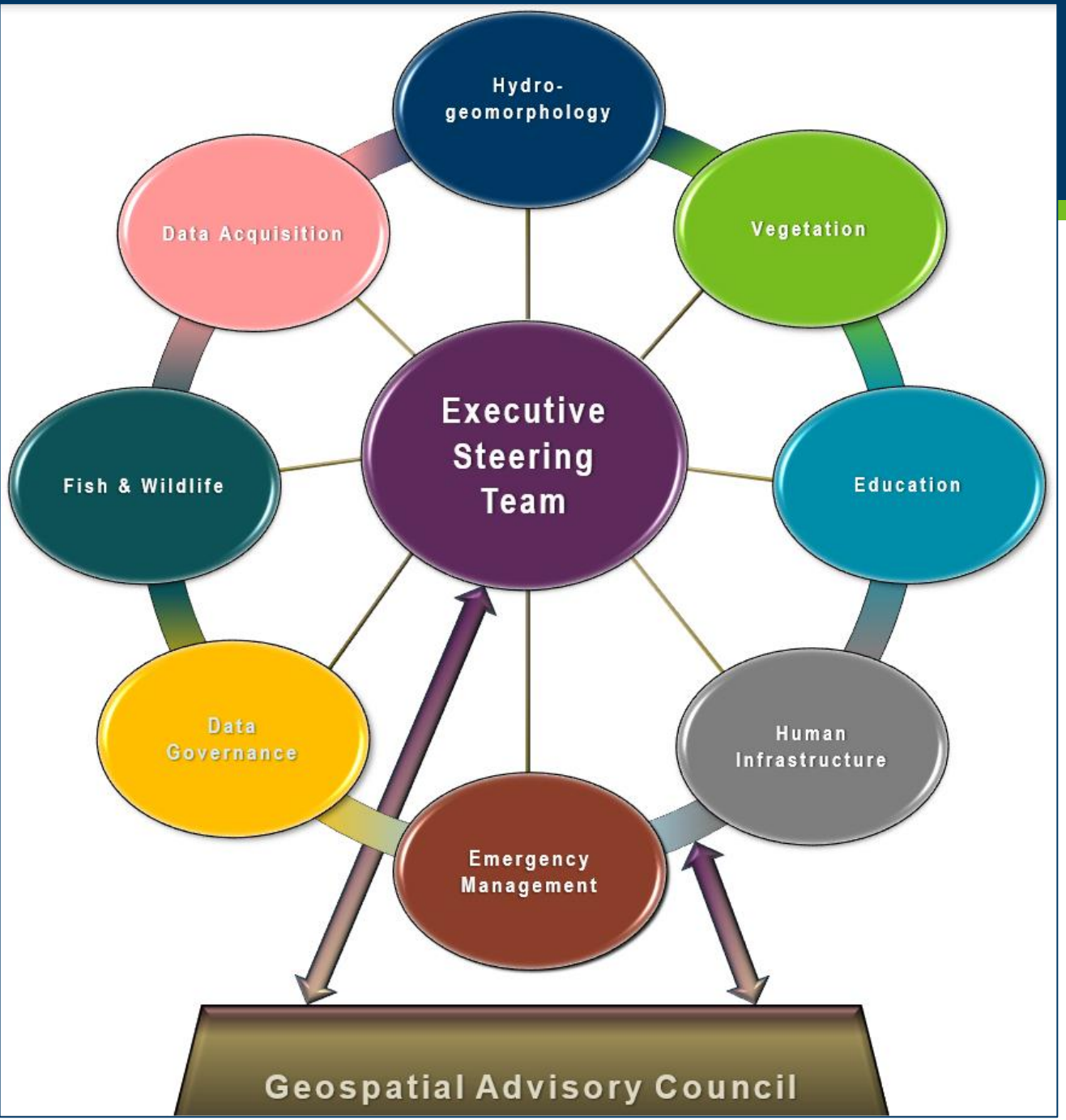
Goodhue County 2020 Lidar Collection

Lisa Hanni

Goodhue County Surveyor



Coordinating Minnesota's Lidar Acquisition



3DGeo Workgroups

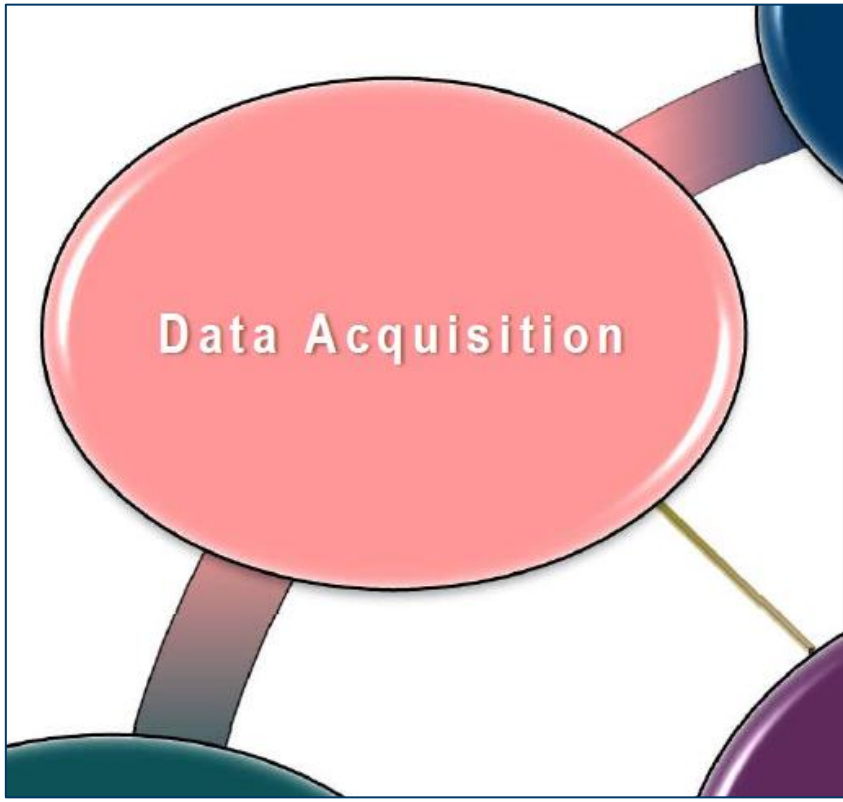
3DGeo Executive Steering Team

- Workgroups/Subgroups
  - Hydrogeomorphology
    1. Data Catalog
    2. Foundational Hydrography Data Stewards
    3. DEM Hydro-modification
  - Vegetation
  - Education
  - Human Infrastructure
  - Data Acquisition

3DGeo - Data Acquisition Workgroup

Mission:

- The Data Acquisition Workgroup promotes procurement of foundational 3D data for Minnesota.



Co-Chairs

- Sean Vaughn, Alison Slaats, and Gerry Sjerven

Lidar Acquisition Subgroup:

- Alison Slaats (MnGeo), Dan Ross (MnGeo), Jennifer Corcoran (DNR), Colin Lee (MnDOT), Sean Vaughn (MNIT DNR), Gerry Sjerven (MN Power), Matt Baltes (NRCS), Joel Nelson (U of MN), Joe Sapletal (Dakota Co), Andra Mathews (MnDOT), and Brandon Krumwiede (NOAA)


Bayview
Oneota
Proctor
West Duluth
DULUTH
Kingsbury
Creek
Knowlton
ST LOUIS BAY
NORTH CHANNEL
SOUTH CHANNEL
ST LOUIS CO
DOUGLAS CO
SUPERIOR
Billings Park
Riverside
Tallas Island
CHANNEL
Clough
Island
MINNESOTA
Smithville
Stewart
Dwights
Campground
Radio Towers
Indian Point Park
Norton Park
Fairmount Park

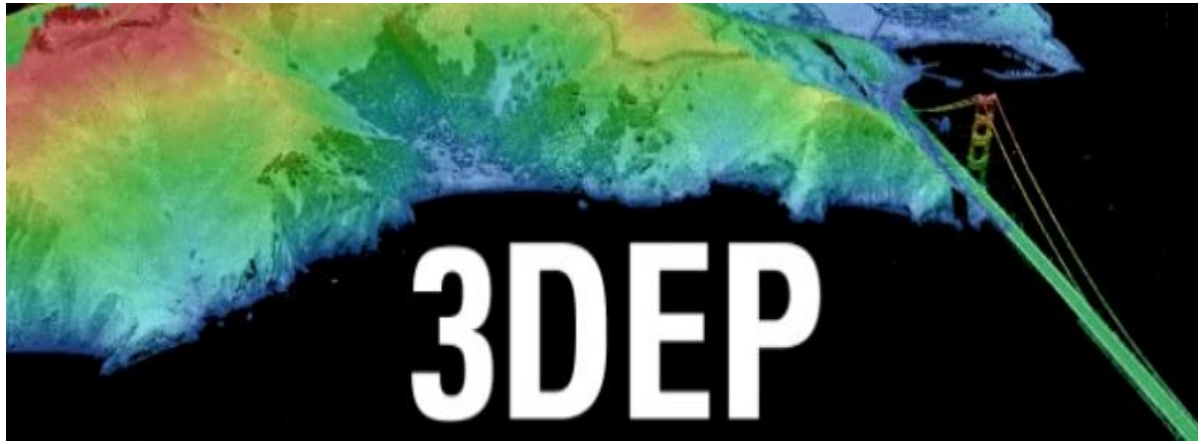
What:

3DEP

USGS 3D Elevation Program (3DEP)

3D Elevation Program (3DEP)

- **Systematically** guiding the collection of 3D elevation data in the form lidar data for the United States, and the U.S. territories
- Goal: elevation dataset for the nation **by 2023**

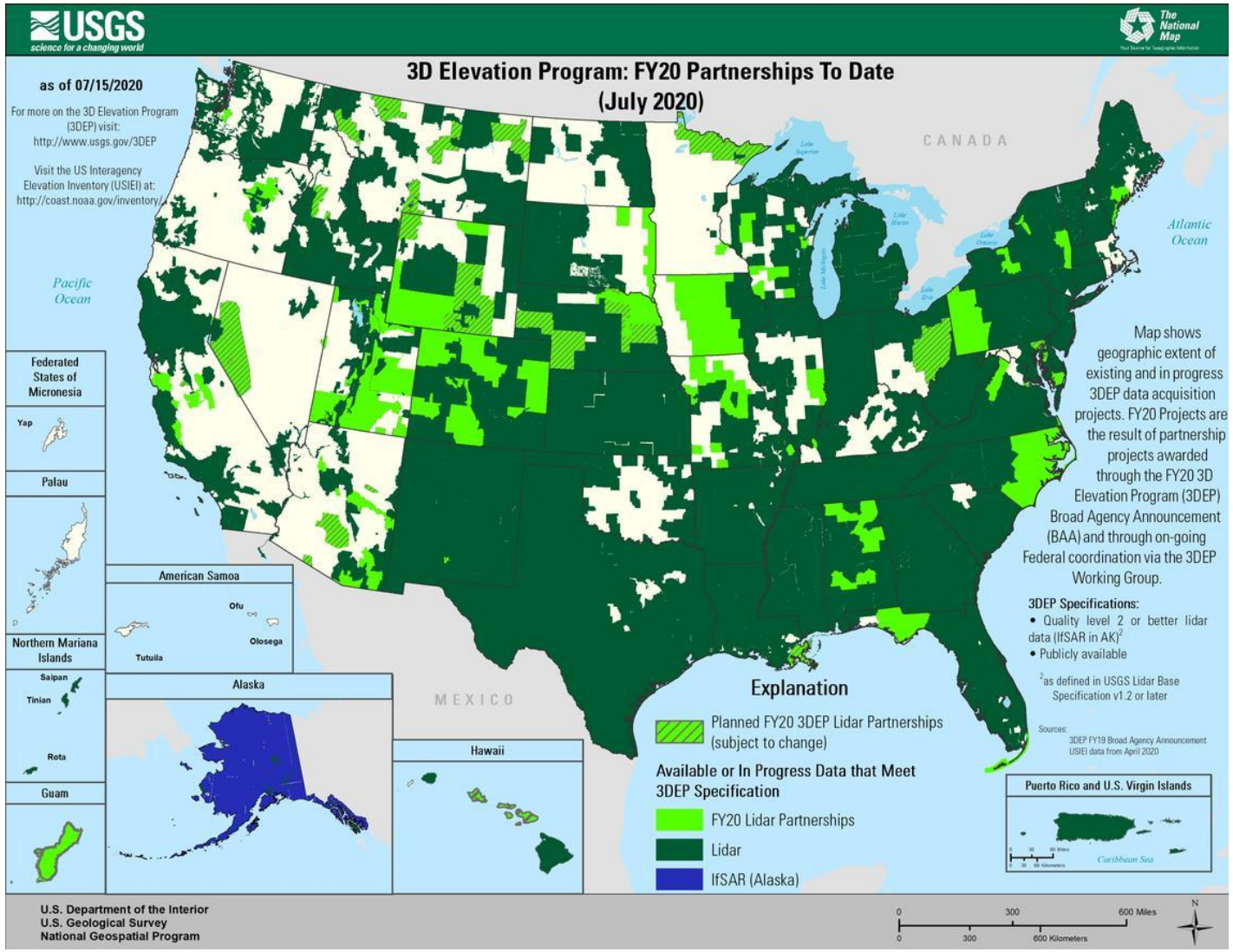


- Acquisition contracts are under two managerial mechanisms
  - GPSC
  - COOP

USGS 3D Elevation Program (3DEP)

Broad Agency Announcement (BAA)

- **Grant coordinating** mechanism 3DEP
- Guides **partnerships** between the USGS and other Federal agencies with other public and private entities seeking high-quality 3D lidar elevation data acquisition.
- USGS is **cost-sharing** via grant funds for QL2 or greater
- Grants through “BAA” process – **deadlines** are every fall (Oct/Nov)



National Enhanced Elevation Assessment (NEEA)

Business Use		Annual Benefits	
Rank		Conservative	Potential
1	Flood Risk Management	$295M	$502M
2	Infrastructure and Construction Management	$206M	$942M
3	Natural Resources Conservation	$159M	$335M
4	Agriculture and Precision Farming	$122M	$2,011M
5	Water Supply and Quality	$85M	$156M
6	Wildfire Management, Planning and Response	$76M	$159M
7	Geologic Resource Assessment and Hazard Mitigation	$52M	$1,067M
8	Forest Resources Management	$44M	$62M
9	River and Stream Resource Management	$38M	$87M
10	Aviation Navigation and Safety	$35M	$56M
:			
20	Land Navigation and Safety	$0.2M	$7,125M
	Total for all Business Uses (1 – 27)	**$1.2B**	**$13B**

- Conducted in 2011-2013
- Information gathered from every state and from 34 different federal agencies
- 602 Mission Critical Activities need significantly better data than available
- Between $1.2 and $13 BILLION in benefits annually
- **5:1 Return on Investment**

What is: High-density Lidar

What is lidar?

- **Lidar** stands for **li**ght **d**etection **a**nd **r**anging
- It is a **mapping technology** that uses a pulsed laser to measure the time it takes for emitted light to travel from a sensor to the ground or other objects and back.
- The sensor can **pulse** a laser beam hundreds of thousands of times per second, millions of returns ("**points**") are captured, resulting in a "point cloud" of three-dimensional measurements.

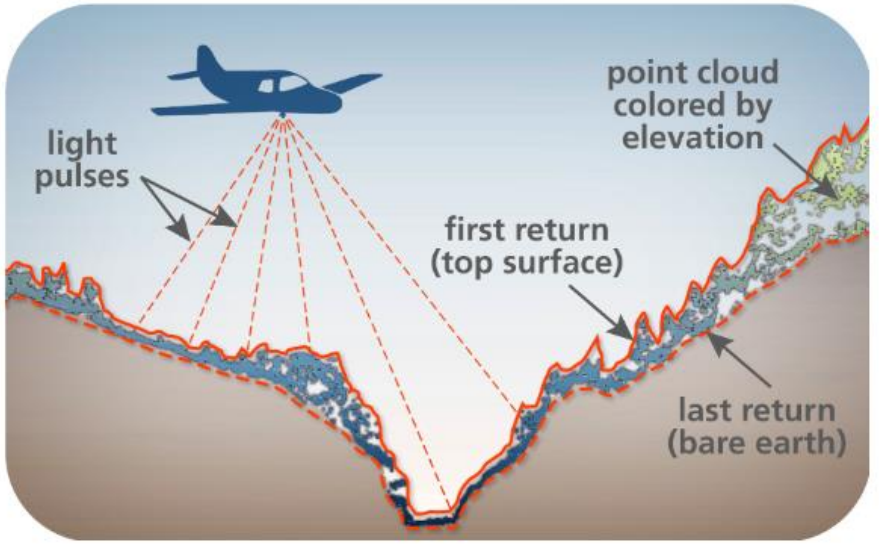
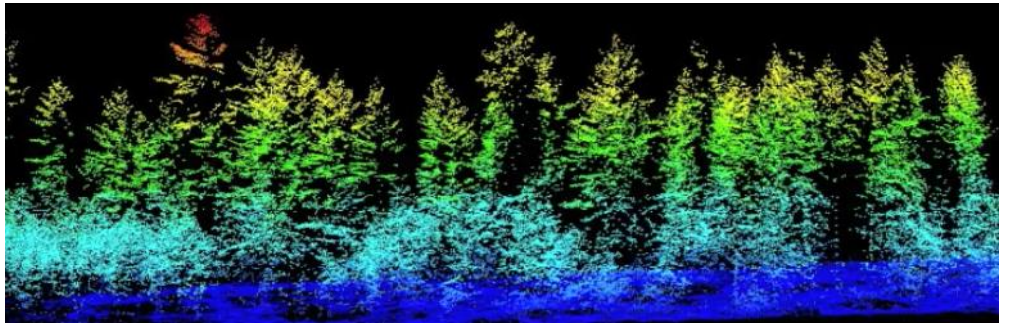


Image from the Washington Geological Survey



Need for High-density Lidar

- Higher-resolution and higher-quality lidar dramatically **improves** our ability to analyze the landscape in Minnesota, map assets, and assess resources
- Improved and **up-to-date** lidar provides the basis to analyze and plan for current and future scenarios, and make better informed decisions
- Enables practitioners, managers, and researchers to be more proactive than reactive. Due to **emerging applications**, the new lidar study to be released later this year is expected to see a higher ROI than the 5 to 1 return on investment.

Lidar Point Cloud Colorized by Photo

What is High Density Lidar?

High-Density lidar is defined by **two measures:**

1. Pulse Spacing
2. Pulse Density

LiDAR BASE SPECIFICATION (LBS)	LBS Table 1 Minimum Net Pulse Density and Spacing for a Single lidar Collection Mission	
Quality Level (QL)	**Aggregate Nominal Pulse Spacing (ANPS)** [m]	**Aggregate Nominal Pulse Density (ANPD)** [pulse/m^2]
QL-0	≤ 0.35	≥ 8.0
QL-1	≤ 0.35	≥ 8.0
QL-2	≤ 0.71	≥ 2.0
QL-3	≤ 1.41	≥ 0.5

3DGeo Committee Minimum → QL-1

USGS Base Specification Minimum → QL-2

Current Minnesota Data Holdings → QL-3

4X

16X

These two HD technical measures relate to flight mission planning and they **affect** the **subsequent**:

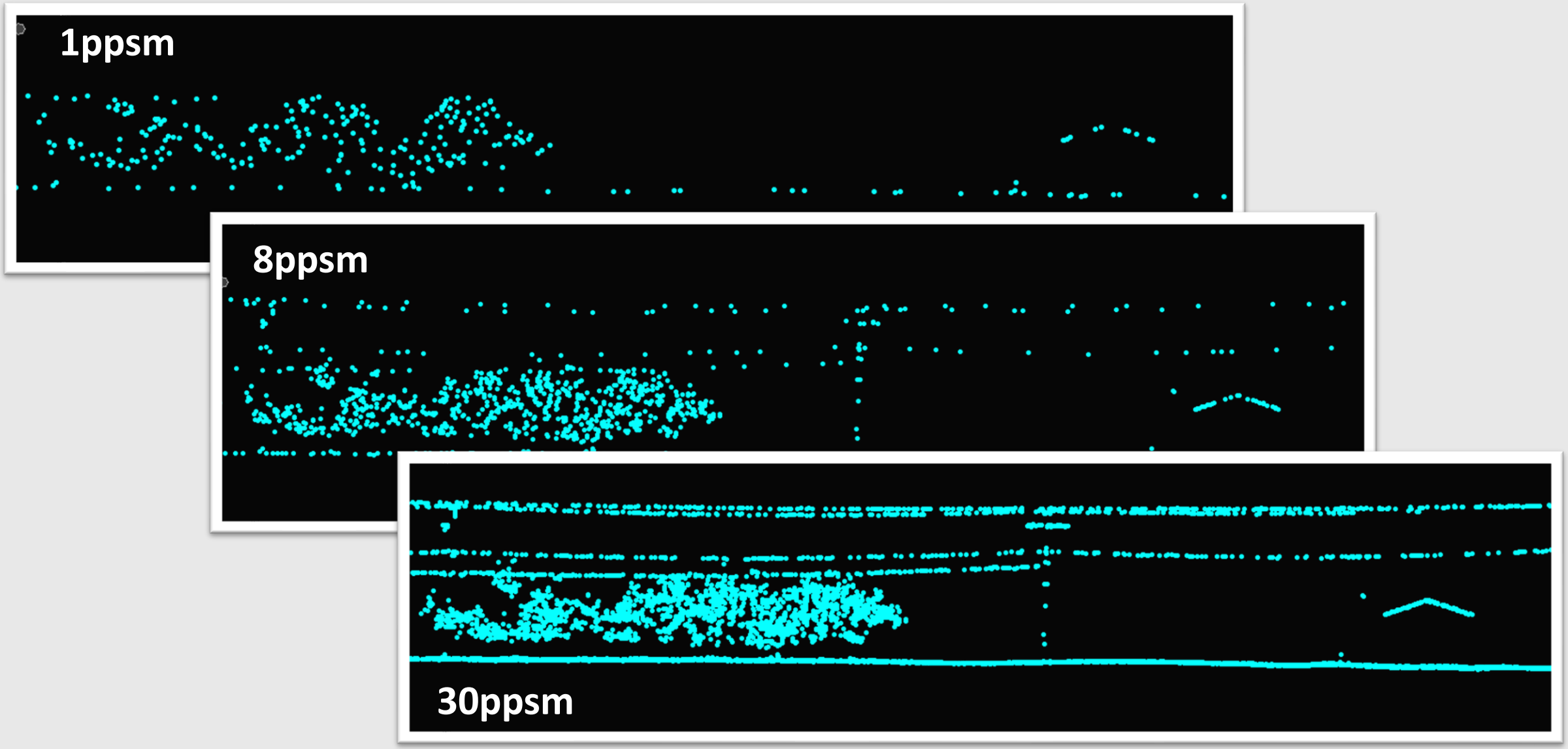
1. Point Density of the lidar Point Cloud
2. Derived Products

Improved Density = Improved Detail

- **QL1 = 8+ pulses per 1 square meter**
- **QL3 = 1 pulse per 2 square meters**

That's 16+ QL1 pulses per the same 2m area of QL3

“…but you already have Lidar”
Quality Matters



HD Lidar – Derived Products

Lidar Quality Levels Define Deliverable Specifications

- Minimum **DEM** Cell Size
- Minimum **Contour** Interval

3DGeo Committee Minimum →

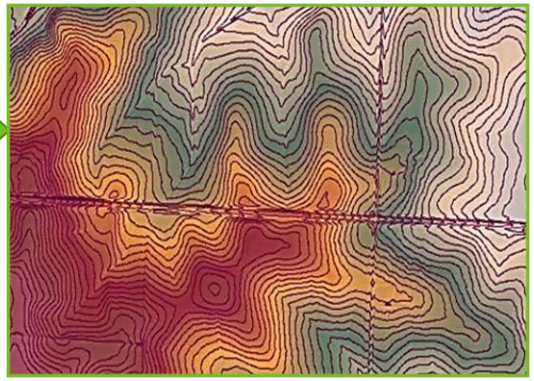
USGS Base Specification Minimum →

Current Minnesota Data Holdings →

LiDAR BASE SPECIFICATION (LBS)	LBS Table 6 Minimum DEM Cell Size		
Quality Level (QL)	**Minimum Cell Size** [m]	**Minimum Cell Size** [ft]	**Supported Contour Interval Accuracy** [ft]
QL-0	0.5	1.0	0.5
QL-1	0.5	1.0	1.0
QL-2	1.0	2.0	1.0
QL-3	2.0	5.0	2.0

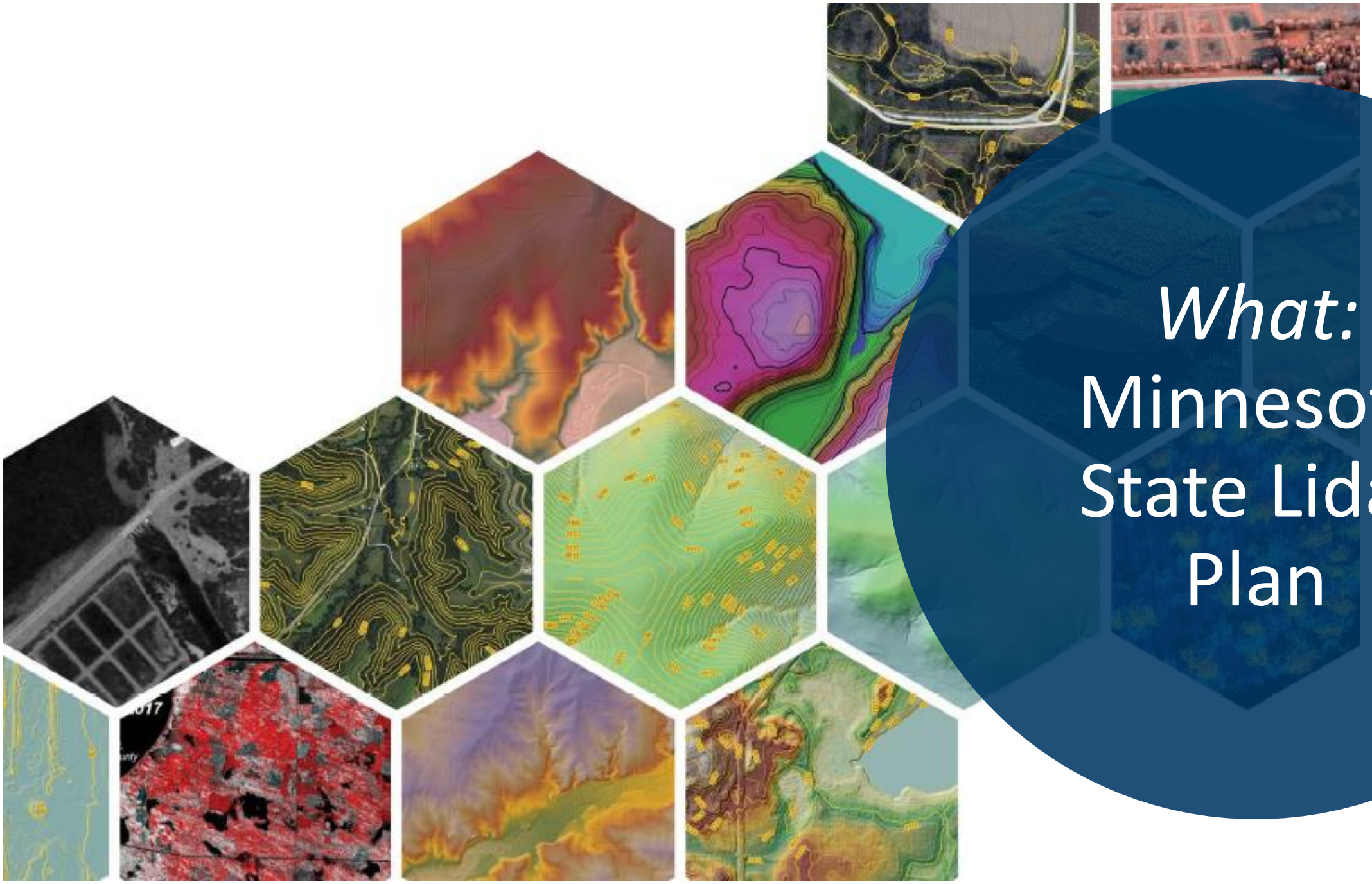
16X

2X



A High-density Pulse = High Density of Points = Highly Detailed Derived Products

QL1 = 16 grid cells per one QL3 cell
QL1 = 2 additional contour lines for every one 2-foot contour

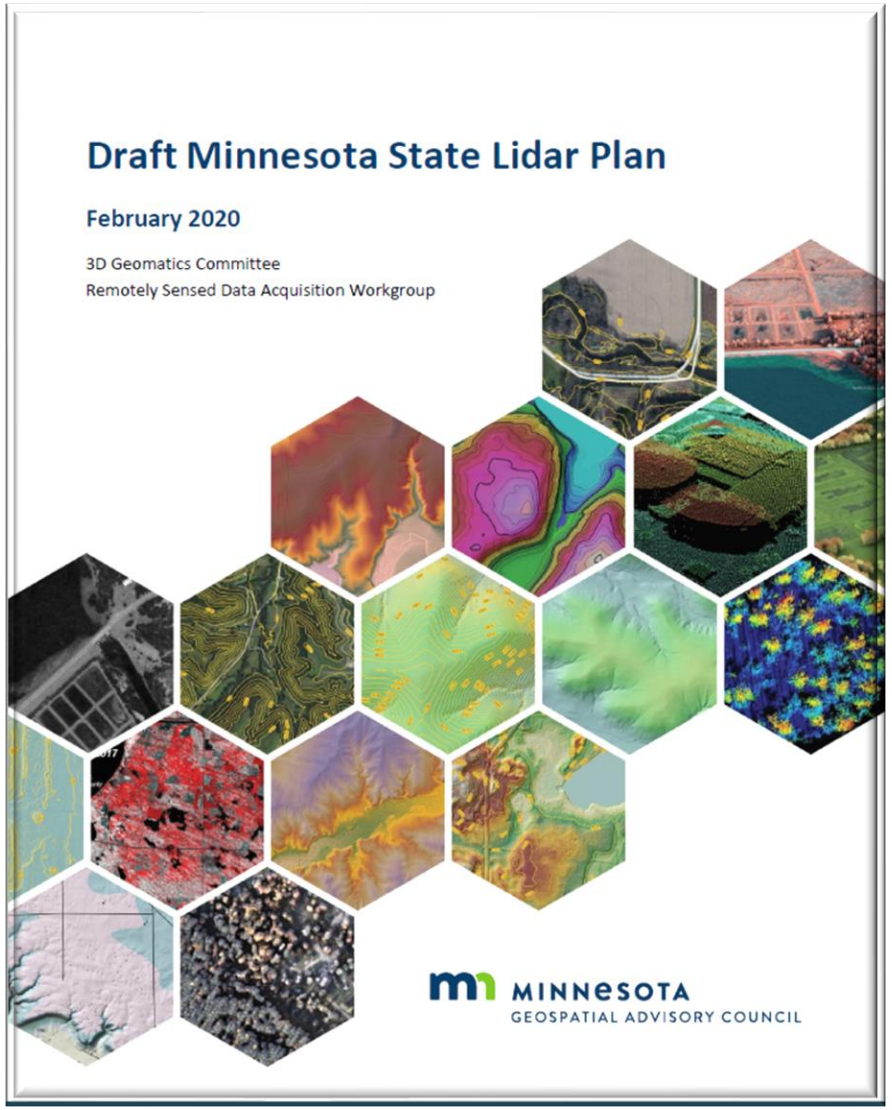


What: Minnesota State Lidar Plan

Overview of Plan

- Executive Summary & Introduction
- Background about Lidar
- Value and Benefit of Lidar to the State
- Lidar Acquisition Areas of Interest
- Lidar Acquisition Specifications
- Elevation Products to be Derived from Lidar
- Cost Estimates
- Data management and Distribution
- Outreach Plan
- Educational Needs and Support

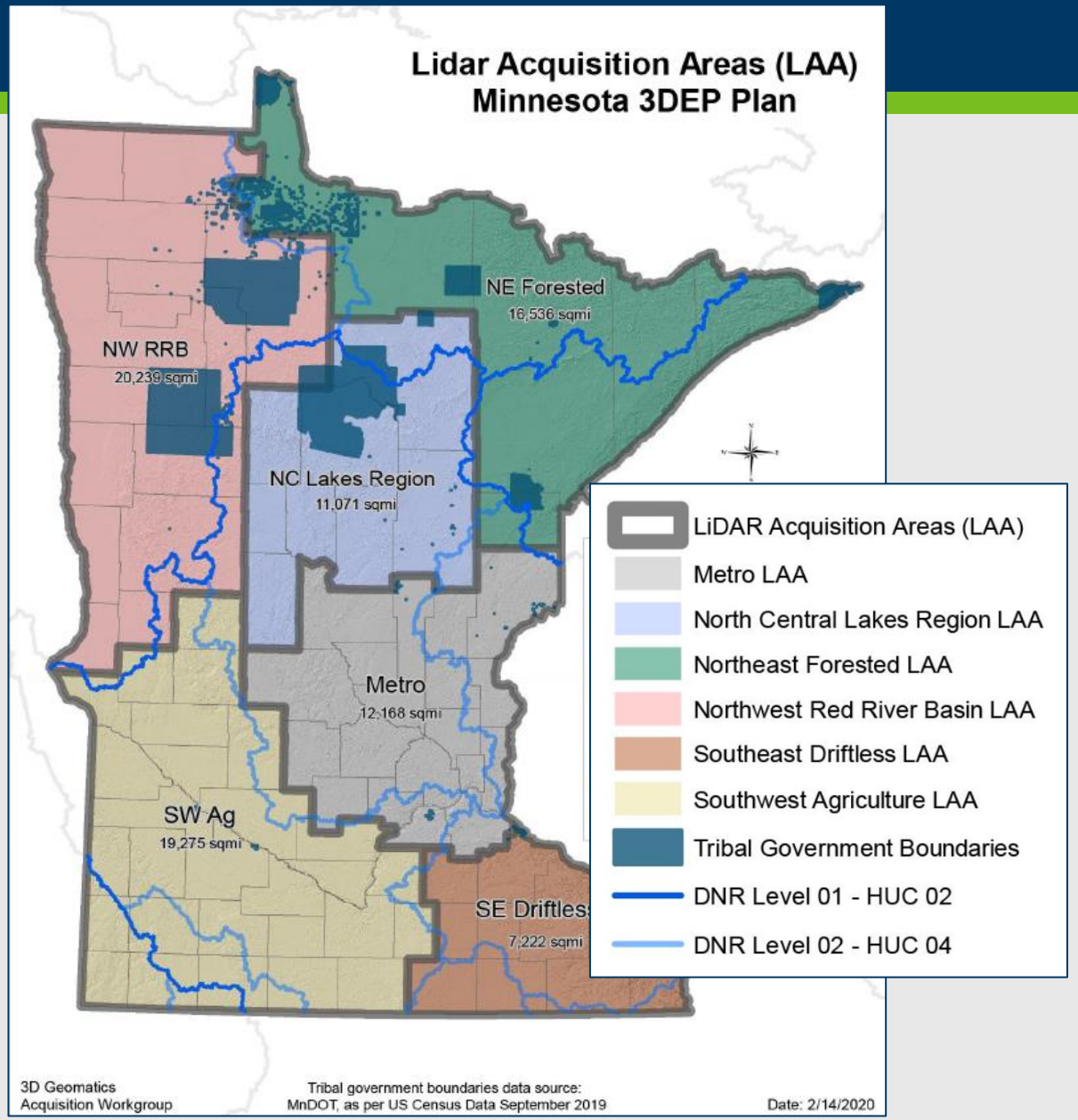
https://www.mngeo.state.mn.us/committee/3dgeo/acquisition/Minnesota_State_Lidar_Plan.pdf

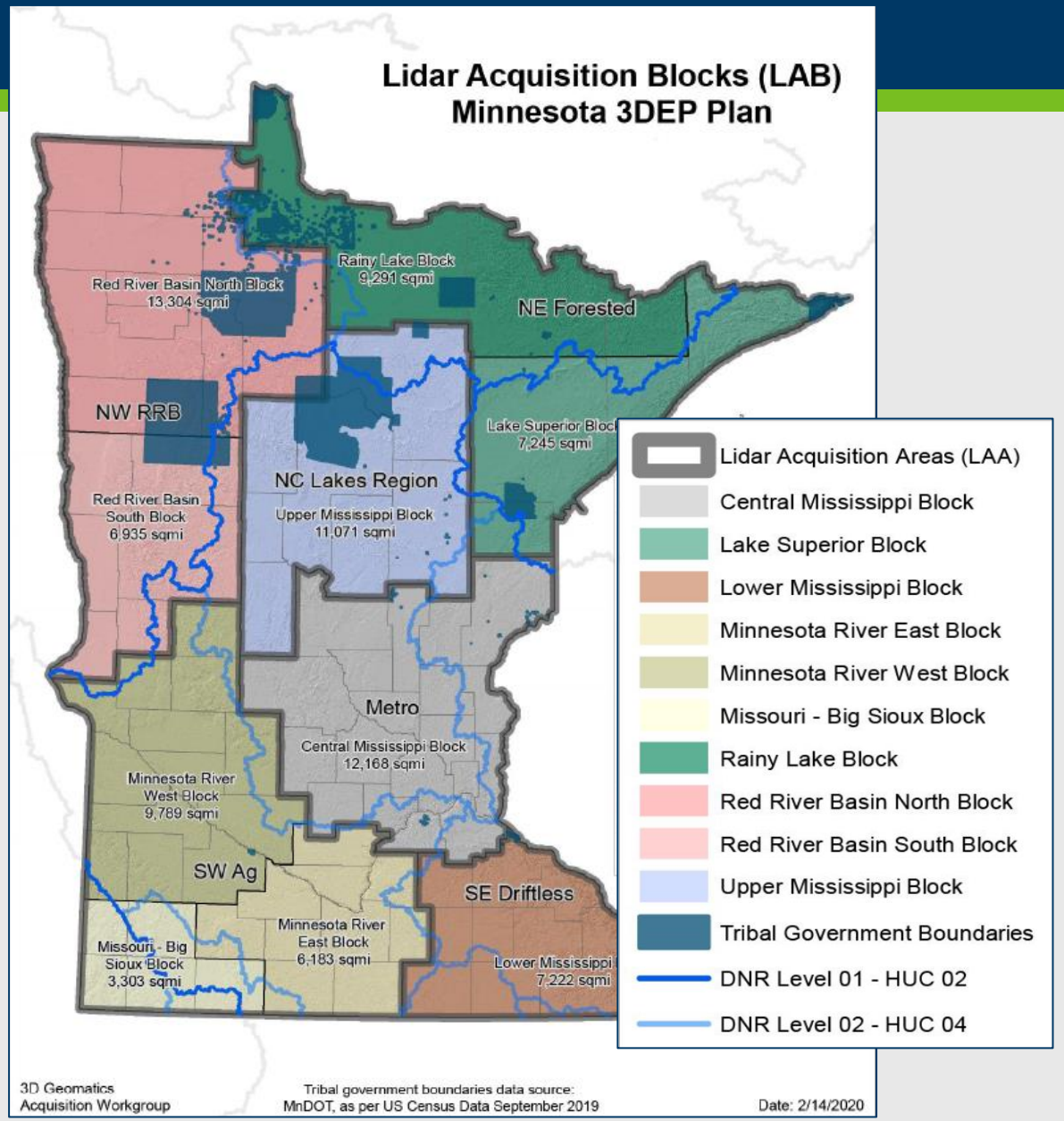


Story Map

http://bit.ly/MnLidarPlanStoryMap

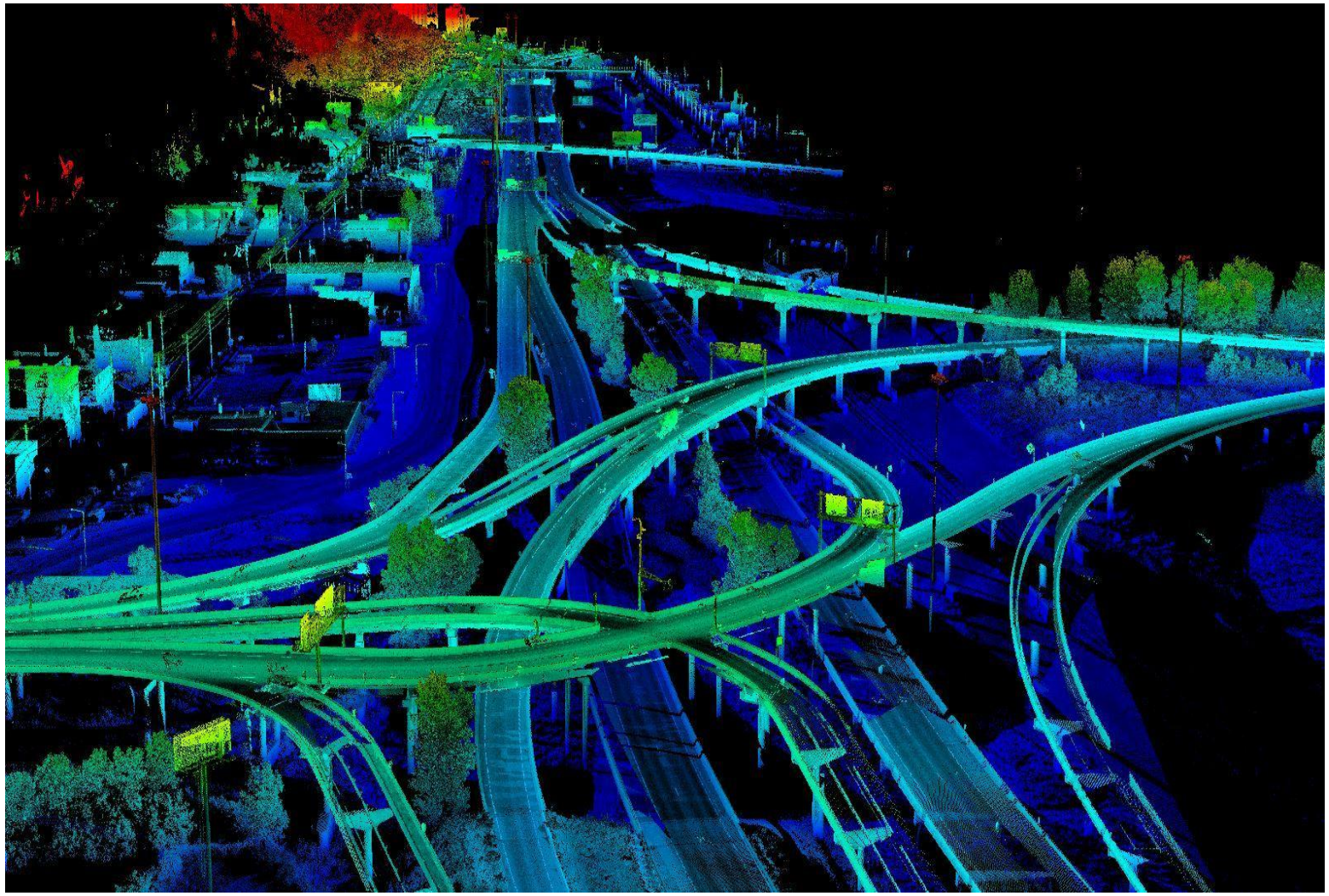
Lidar Acquisition Areas of Interest





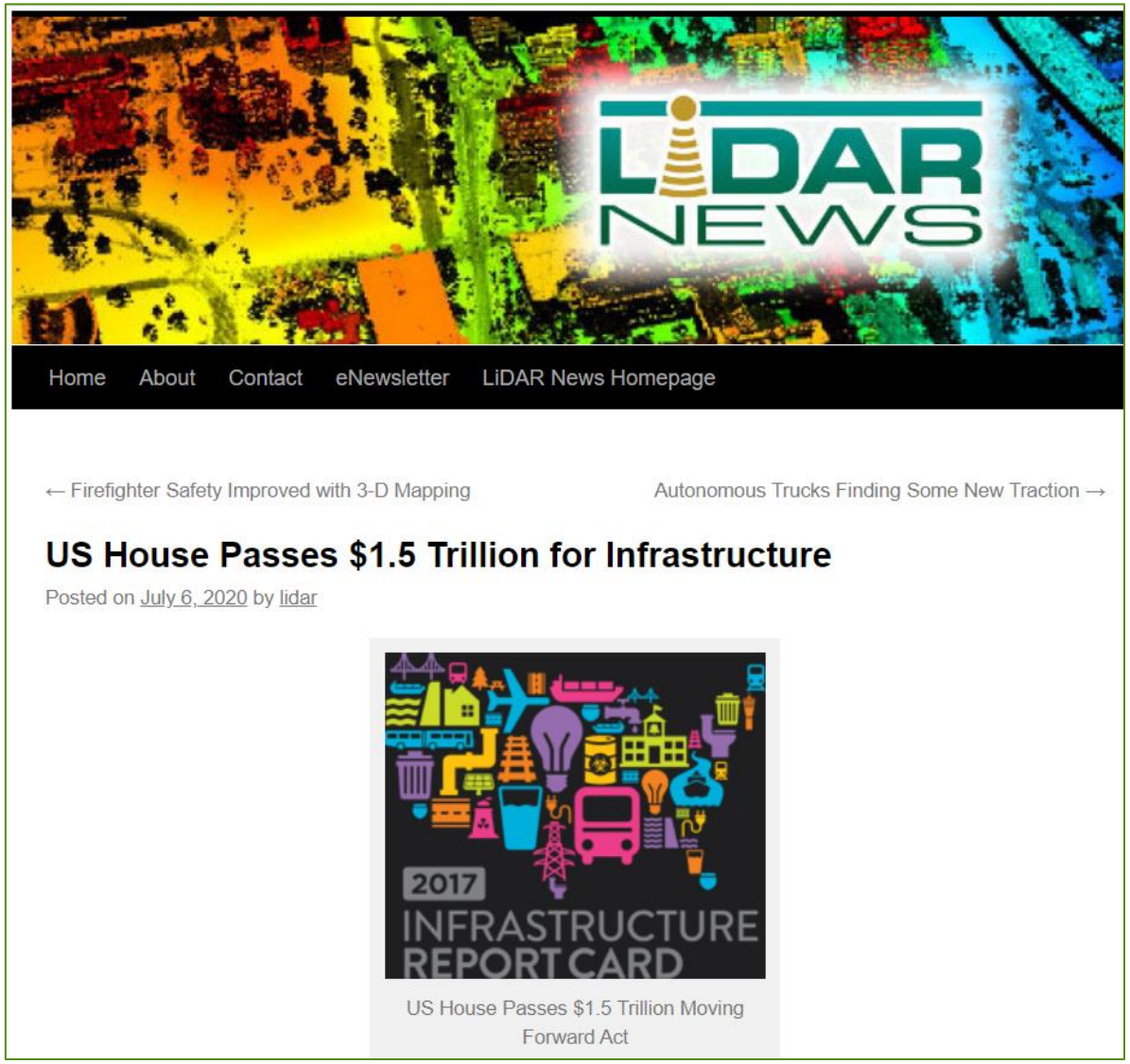
HD Lidar Examples: **Infrastructure**

- Transportation
  - 3d Design
  - Traffic operations
  - Signing and striping
  - Highway safety
  - Maintenance
  - Asset management
- Energy
  - Traditional
  - Renewable/Alternative
- Cultural/Historical Resources



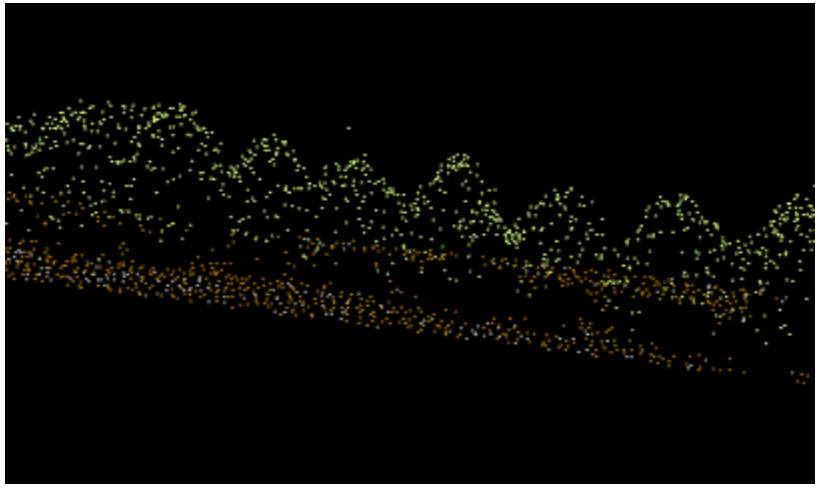
HD Lidar Examples: **Infrastructure**

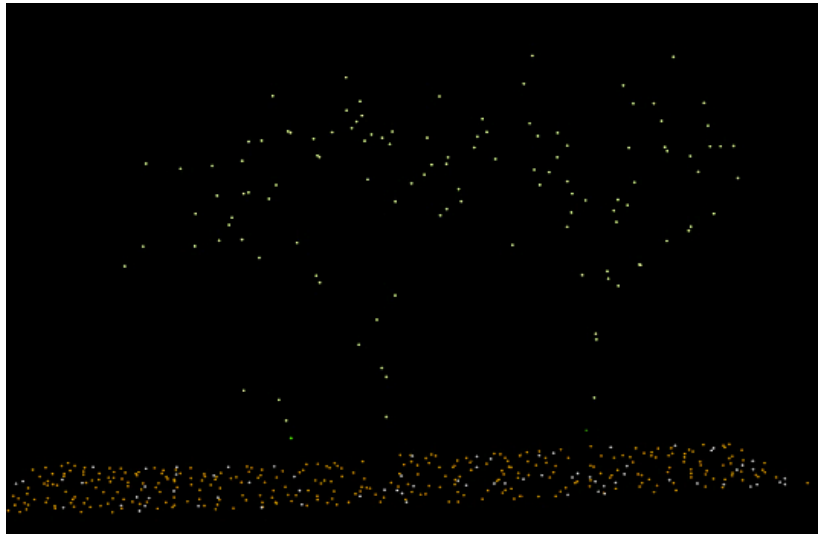
- Infrastructure
  - High dependence on Lidar
  - “House of Representatives prioritized modern, resilient, and sustainable infrastructure as part of America’s recovery.”



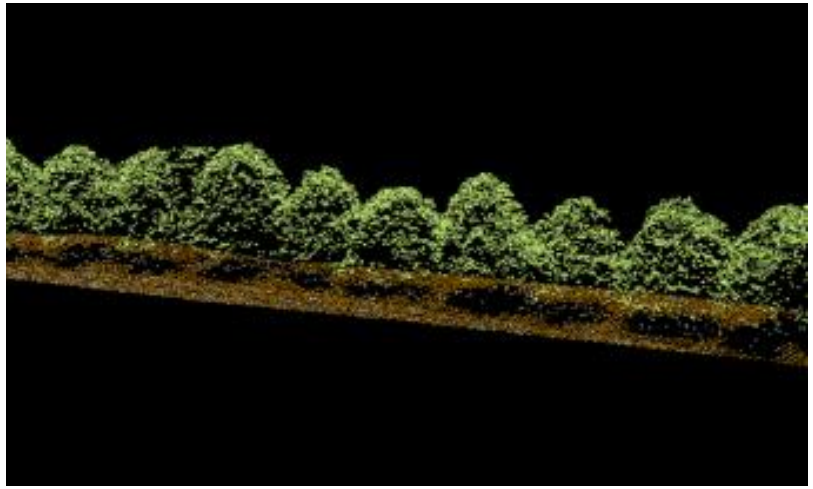
HD Lidar Examples: **Vegetation Mapping**

Low Density (QL3, 1ppm)



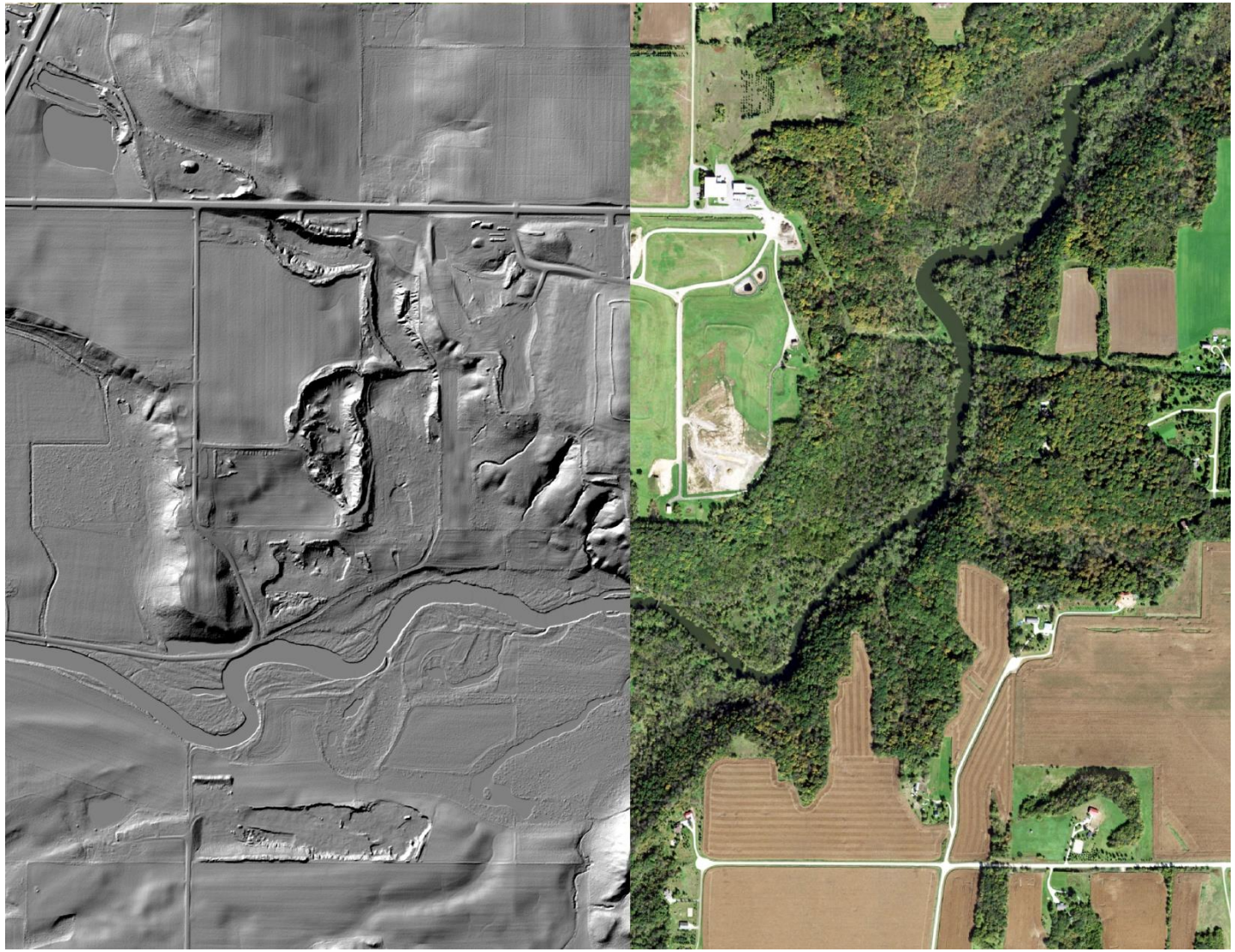


High Density (QL1, 8+ppm)



HD Lidar Examples: **Soil and Water**

- Model **movement of water** on the landscape
- Key **building block** of modeling processes
- Identification of best management practices (**BMP**)
- Wetland and vegetation management



HD Lidar Examples: **Floodplain Mapping**

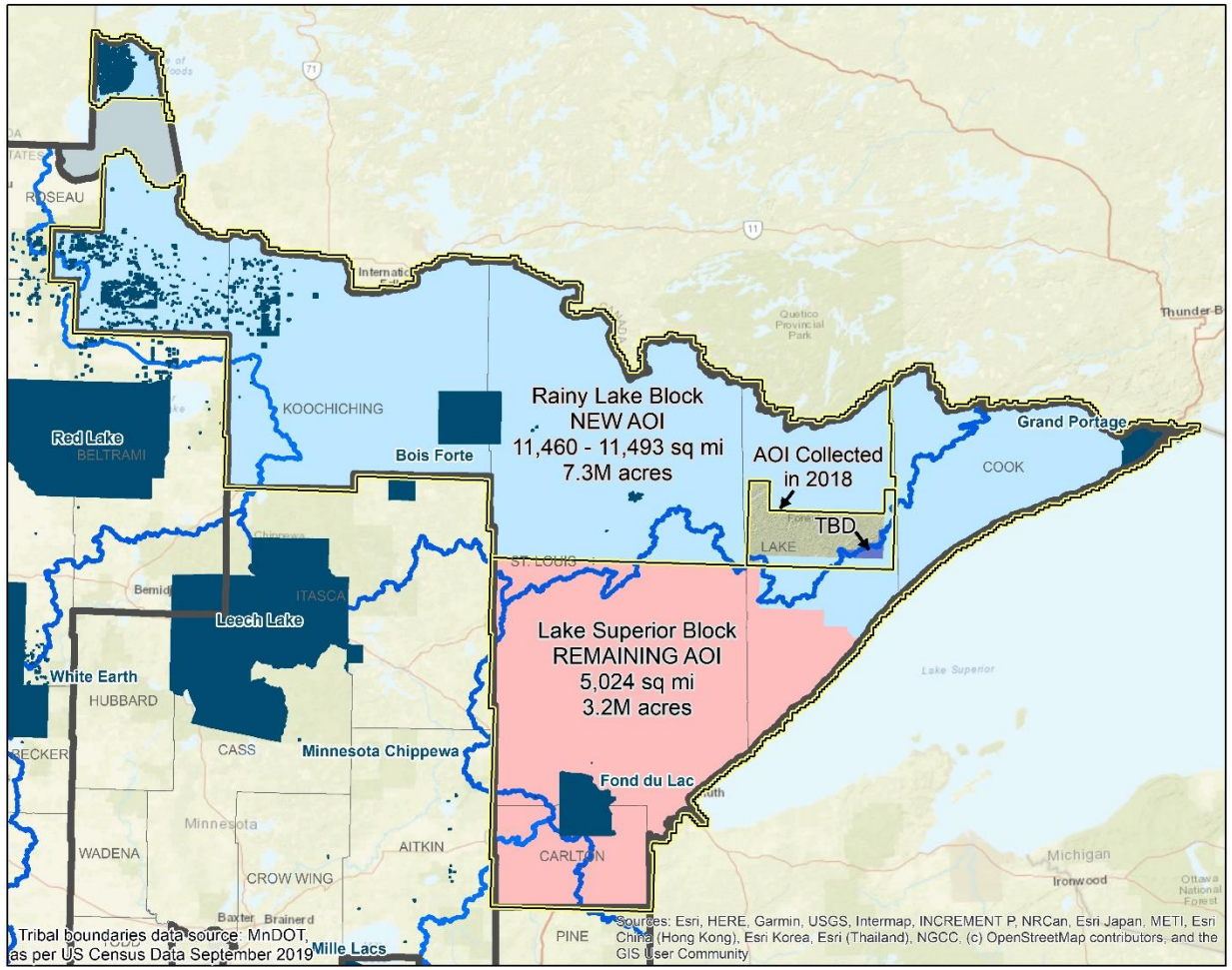
2020 - Progressive Approach

- We have an opportunity to be **proactive** and map this entire scene.
- New high density lidar not only maps this area of flood inundation but it **maps all the infrastructure assets** in the image.


Where:
Next Lidar
Collect

What is happening next?

- Our Rainy Lake Block BAA was successful!
  - With an additional area in the LS Block
- Circumstances pushed the collection to Spring 2021 (instead of 2020)
- Funding Agreements and invoicing are underway
- Statement of Work development begins soon



3DGeo & 3DEP – *Estimated* Timelines

Phase 1 – Planning & Grant Application

- Outreach and Planning (ongoing) – May/June/July
- Plan Revisions, 3DEP Webinar – August
- BAA application preparation – September
- BAA application due – October/November
- BAA announcement – December/January

…continues on the next column (the next year)…

Phase 2 – Data Acquisition & Delivery

- Funding Agreements, Statements of Work – Feb/March
- Survey in the field – March/April
- Acquisition – April/May (leaf off, snow free)
- Initial QA/QC – April/May
- Data Calibration and processing – 3-6 months
- Data QA/QC & Data distribution – 3-7 months

Total turnaround for an AOI = 20–26 months (from planning phase to data in-hand)

3DEP Program - Lidar Products

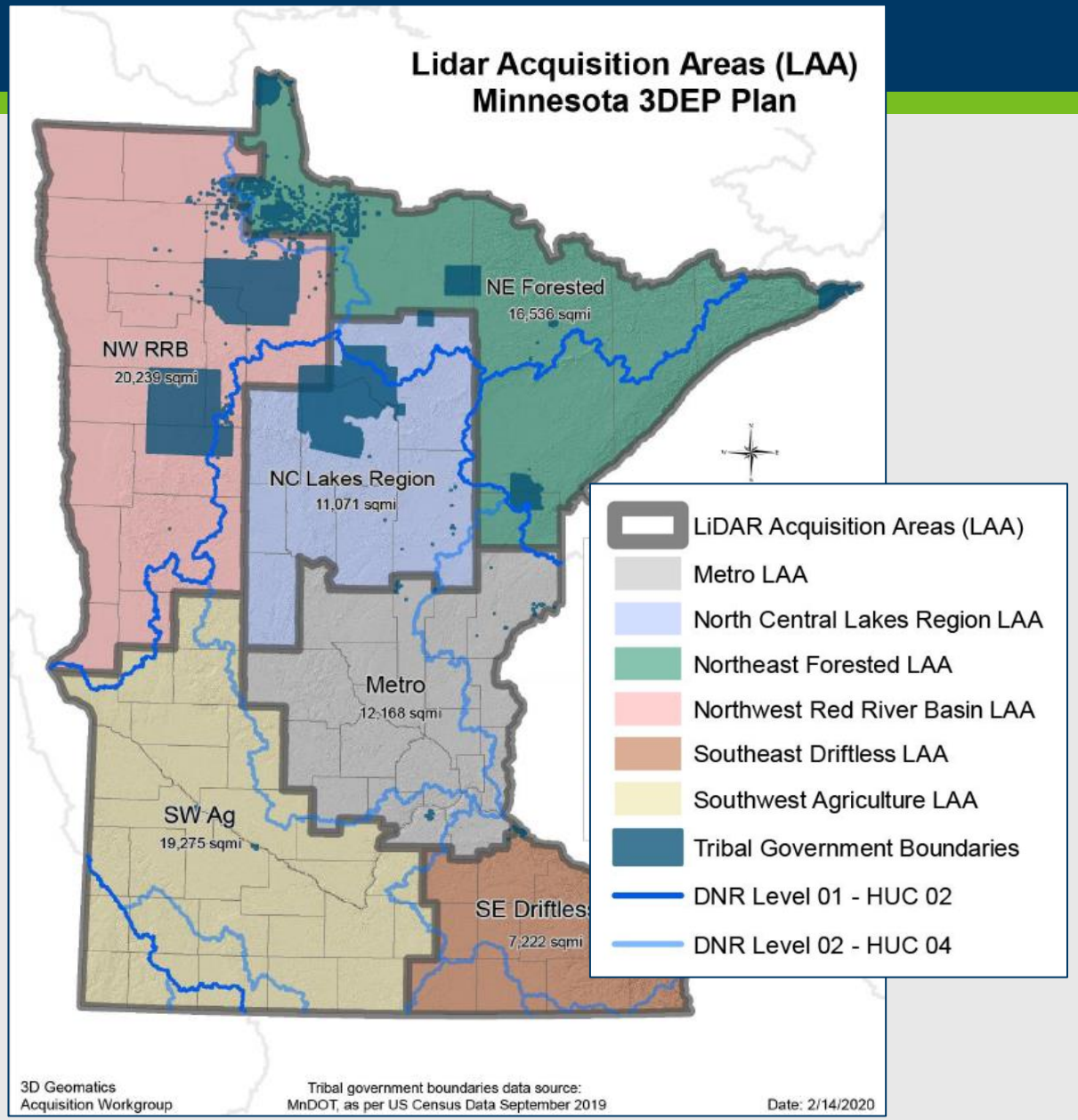
3DEP standard deliverables

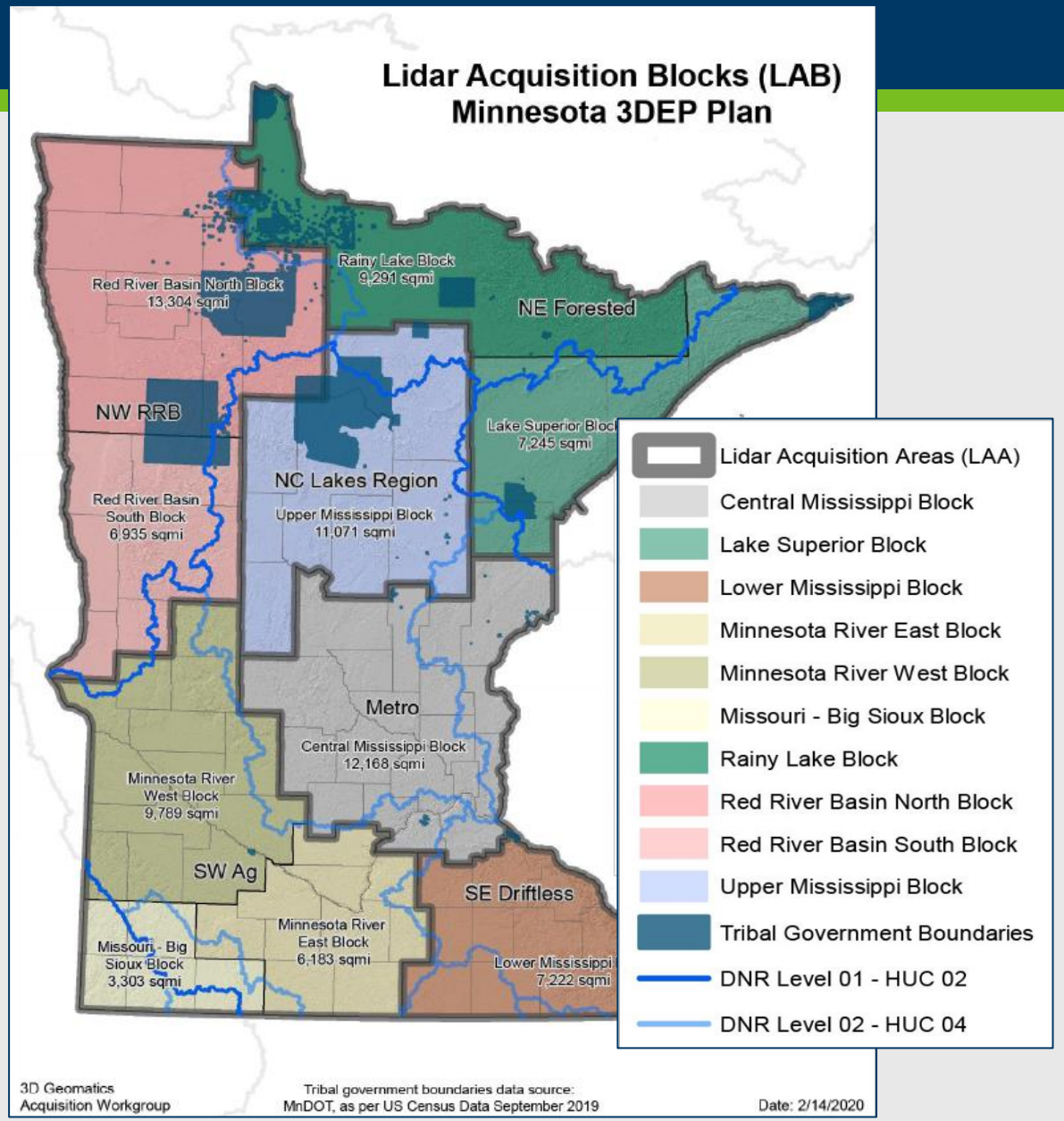
- Classified Point Cloud
- Bare-Earth Surface Raster (Digital Elevation Model)
- Lidar Swath Polygon
- Product metadata & Metadata Tags
- Reports
  - Survey
  - Collection/Mission
  - Processing
  - QA/QC

Possible added deliverables

- Improved hydrographic products
- 1-ft contour dataset
- Bare Earth point cloud
- Classification of high vegetation and buildings
- Intensity imagery, GeoTIFF

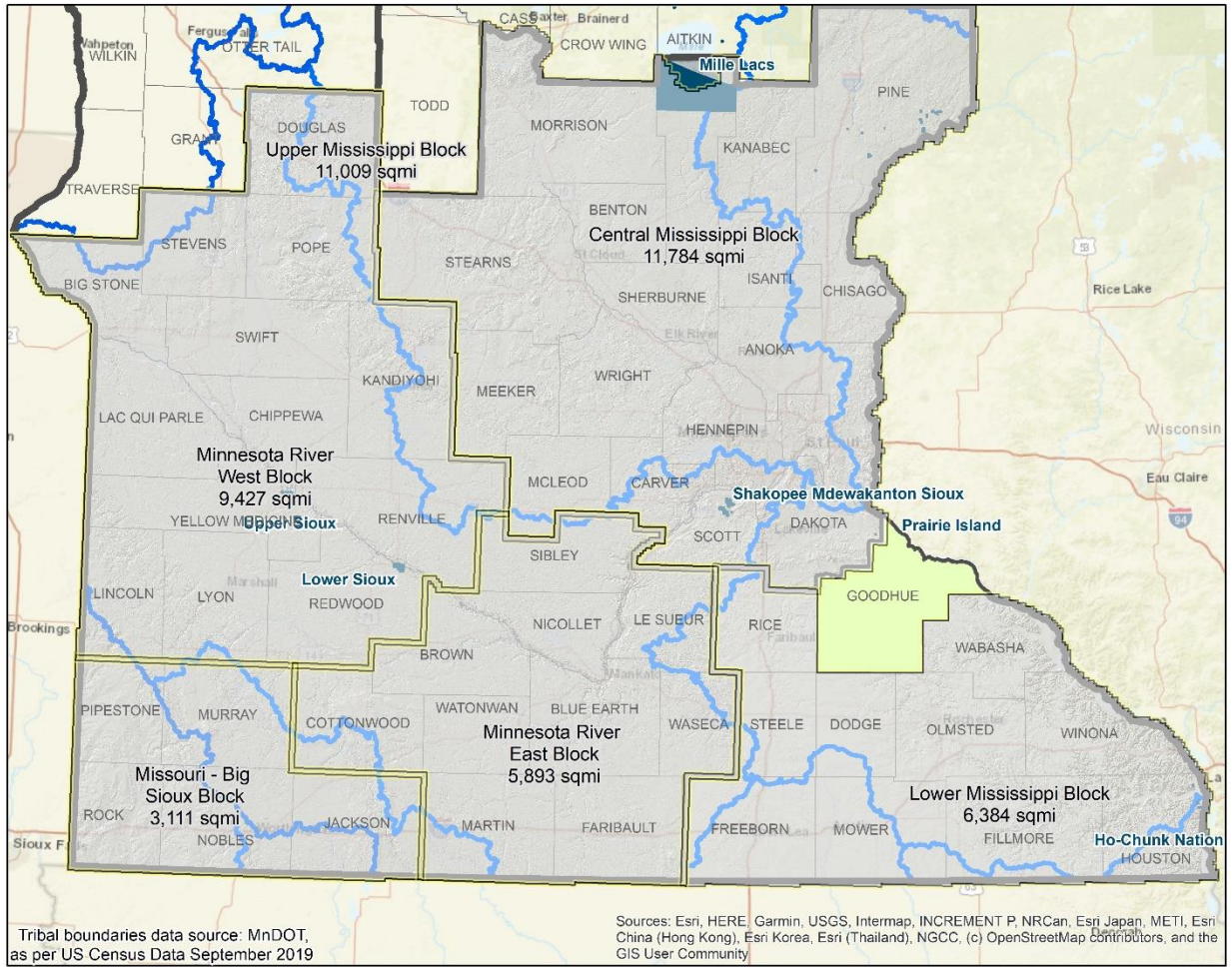
Lidar Acquisition Areas of Interest





What is happening now?

- Goodhue County successfully collected QL0 in Spring 2020!!
- Potential next Lidar Acquisition Block in the SE:
  - Lower Mississippi Block
- Expressed interest in Nobles and Washington Counties



NRCS Lidar Acquisition

NRCS Goals

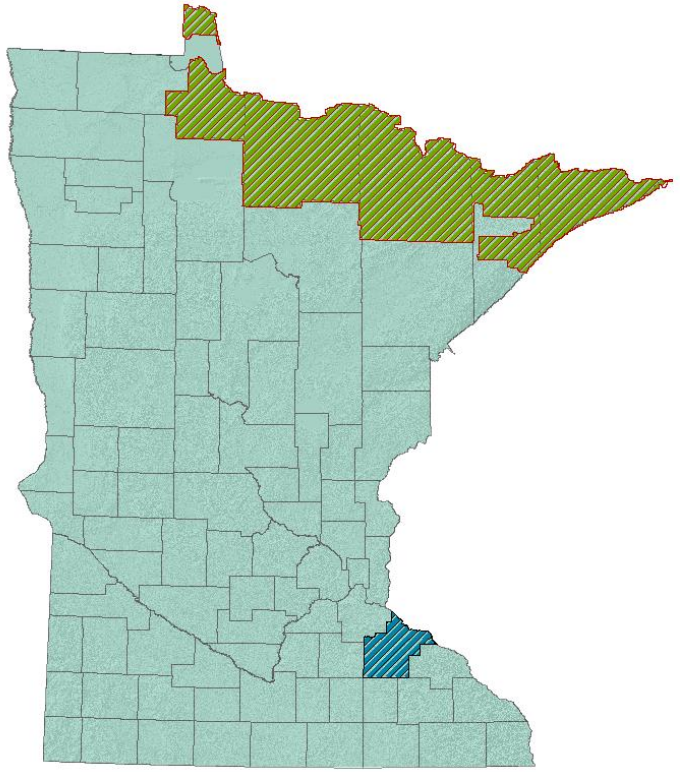
- Partner with multiple entities to leverage maximum federal funding for lidar acquisition
- Support and help implement the State Lidar Acquisition Plan
- Meet the lidar data needs of all partners within the state through collaboration and partnerships
- Commit to funding contributions until the state is complete

USDA United States Department of Agriculture

NRCS Lidar Acquisition

NRCS Fiscal Year 2019 Funding

- MN NRCS partnered & funded 2 successful projects
  - Rainy Lake Block in the NE and Goodhue County in the SE
- Rainy Lake Block
  - 10+ Financial Partners
  - MN NRCS contributed $70,000 and leveraged an additional $768,000 from NRCS National Office
- Goodhue County
  - 4 Financial Partners
  - MN NRCS contributed $30,000 and an additional $48,000 came from NRCS National Office



USDA United States Department of Agriculture

NRCS Lidar Acquisition

NRCS Fiscal Year 2020 Funding

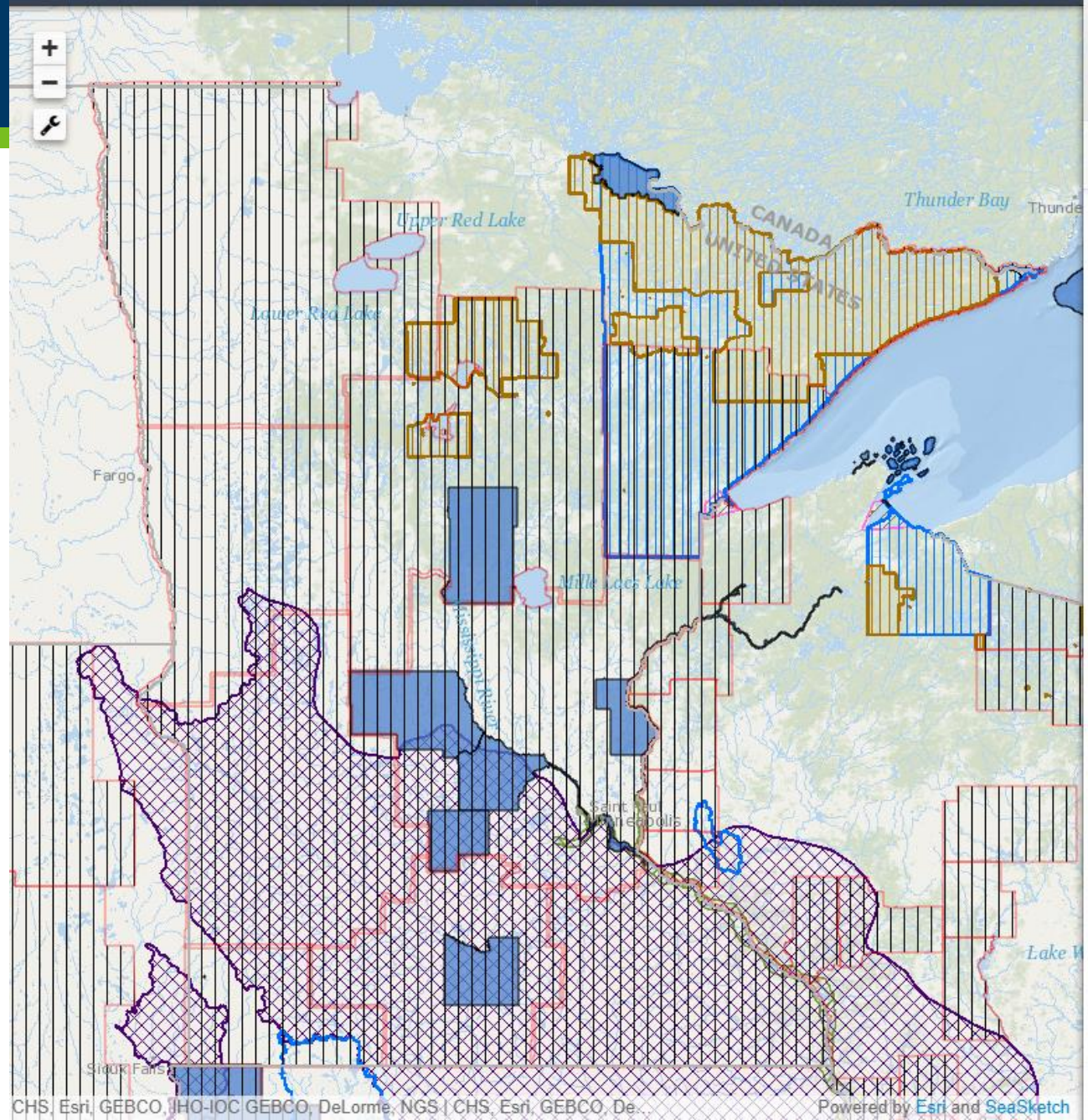
- MN NRCS has dedicated $1,000,000 dollars towards lidar acquisitions
  - Looking to partner and fund projects in the SE block at outlined in the State Lidar Plan.
  - Open to funding projects anywhere in the state we have partners ready to move forward and commit funding through the BAA process.
  - We are anticipating to leverage even more NRCS National Office Funds with these dollars.
  - The more partners that come together, the more contiguous data we can collect and the more money we can save the taxpayers.

USDA United States Department of Agriculture

How:
You can Help

Potential costs of lidar in Minnesota

Quality Level (QL)	Average Cost per mi2	Average Cost for Minnesota [millions]
QL-0	$445	$38.2
QL-1	$340	$29.4
QL-2	$200	$17.2
QL-3	*$175*	*$13.9*



Data Layers | My Plans | Participate

Data Layers | Basemap | Legend & Ordering

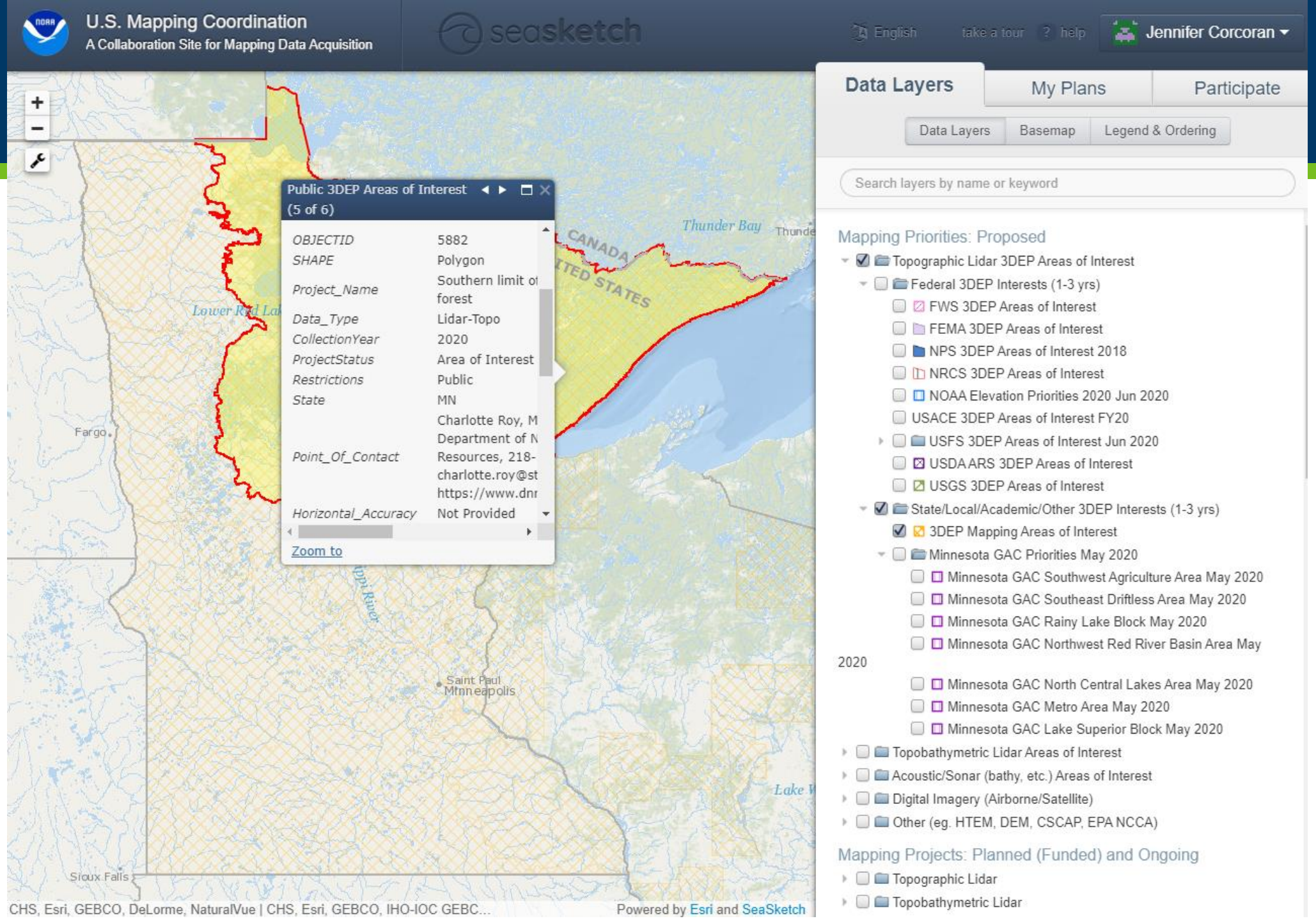
Search layers by name or keyword

Mapping Priorities: Proposed

- [x] Topographic Lidar 3DEP Areas of Interest
  - [x] Federal 3DEP Interests (1-3 yrs)
    - [x] FWS 3DEP Areas of Interest
    - [x] FEMA 3DEP Areas of Interest
    - [x] NPS 3DEP Areas of Interest 2018
    - [x] NRCS 3DEP Areas of Interest
    - [x] NOAA Elevation Priorities 2020 Jun 2020
    - [x] USACE 3DEP Areas of Interest FY20
    - [x] USDA ARS 3DEP Areas of Interest
    - [x] USFS 3DEP Areas of Interest Jul 2020
    - [x] USGS 3DEP Areas of Interest
  - [ ] State/Local/Academic/Other 3DEP Interests (1-3 yrs)
    - [ ] 3DEP Mapping Areas of Interest
    - [ ] Minnesota GAC Priorities May 2020
      - [ ] Minnesota GAC Southwest Agriculture Area May 2020
      - [ ] Minnesota GAC Southeast Driftless Area May 2020
      - [ ] Minnesota GAC Rainy Lake Block May 2020
      - [ ] Minnesota GAC Northwest Red River Basin Area May 2020
      - [ ] Minnesota GAC North Central Lakes Area May 2020
      - [ ] Minnesota GAC Metro Area May 2020
      - [ ] Minnesota GAC Lake Superior Block May 2020
- [ ] Topobathymetric Lidar Areas of Interest
- [ ] Acoustic/Sonar (bathy, etc.) Areas of Interest
- [ ] Digital Imagery (Airborne/Satellite)
- [ ] Other (eg. HTEM, DEM, CSCAP, EPA NCCA)

Mapping Projects: Planned (Funded) and Ongoing

- [ ] Topographic Lidar
  - [ ] FEMA Planned and Ongoing LiDAR Projects
  - [ ] NOAA OCM Maui County and Oahu AOIs FY20 Jan 2020


U.S. Mapping Coordination
A Collaboration Site for Mapping Data Acquisition
seasketch
English
take a tour
help
Jennifer Corcoran
Data Layers
My Plans
Participate
Data Layers
Basemap
Legend & Ordering
Search layers by name or keyword
Public 3DEP Areas of Interest
(5 of 6)
OBJECTID 5882
SHAPE Polygon
Project_Name Southern limit of forest
Data_Type Lidar-Topo
CollectionYear 2020
ProjectStatus Area of Interest
Restrictions Public
State MN
Point_Of_Contact Charlotte Roy, M Department of N Resources, 218- charlotte.roy@st https://www.dnr
Horizontal_Accuracy Not Provided
Zoom to
Thunder Bay
CANADA
Fargo
Saint Paul
Minneapolis
Sioux Falls
Mapping Priorities: Proposed
Topographic Lidar 3DEP Areas of Interest
Federal 3DEP Interests (1-3 yrs)
FWS 3DEP Areas of Interest
FEMA 3DEP Areas of Interest
NPS 3DEP Areas of Interest 2018
NRCS 3DEP Areas of Interest
NOAA Elevation Priorities 2020 Jun 2020
USACE 3DEP Areas of Interest FY20
USFS 3DEP Areas of Interest Jun 2020
USDA ARS 3DEP Areas of Interest
USGS 3DEP Areas of Interest
State/Local/Academic/Other 3DEP Interests (1-3 yrs)
3DEP Mapping Areas of Interest
Minnesota GAC Priorities May 2020
Minnesota GAC Southwest Agriculture Area May 2020
Minnesota GAC Southeast Driftless Area May 2020
Minnesota GAC Rainy Lake Block May 2020
Minnesota GAC Northwest Red River Basin Area May 2020
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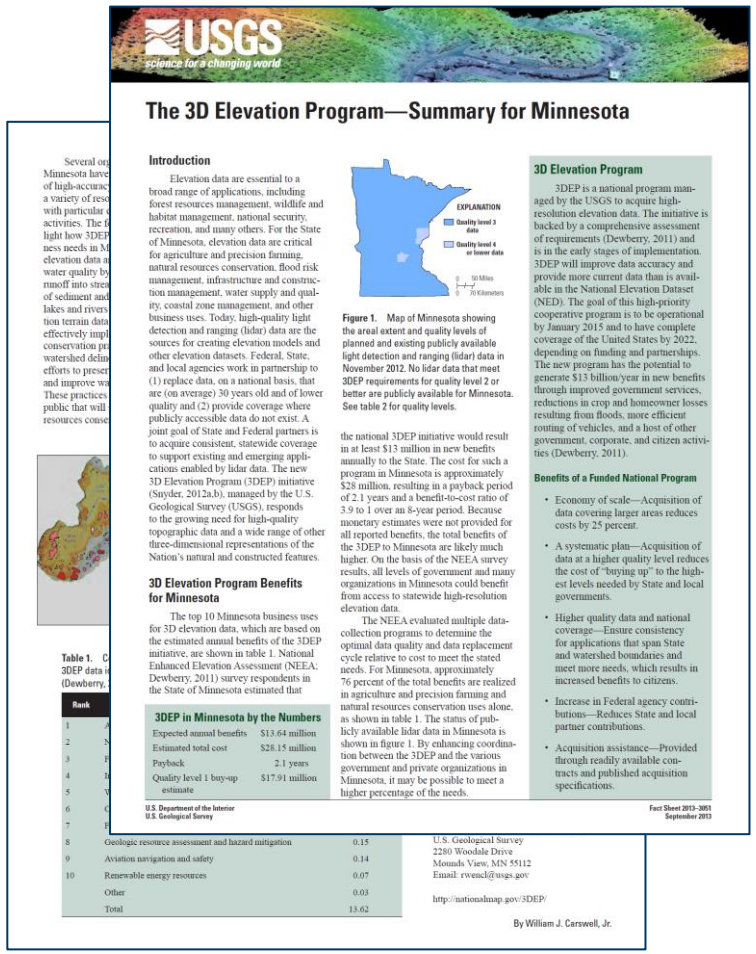
Topobathymetric Lidar
CHS, Esri, GEBCO, DeLorme, NaturalVue | CHS, Esri, GEBCO, IHO-IOC GEBC...
Powered by Esri and SeaSketch

Outreach and educational materials



USGS science for a changing world

The 3D Elevation Program—Summary for Minnesota

Introduction

Elevation data are essential to a broad range of applications, including forest resources management, wildlife and habitat management, national security, recreation, and many others. For the State of Minnesota, elevation data are critical for agriculture and precision farming, natural resources conservation, flood risk management, infrastructure and construction management, water supply and quality, coastal zone management, and other business uses. Today, high-quality light detection and ranging (lidar) data are the sources for creating elevation models and other elevation datasets. Federal, State, and local agencies work in partnership to (1) replace data, on a national basis, that are (on average) 30 years old and of lower quality and (2) provide coverage where publicly accessible data do not exist. A joint goal of State and Federal partners is to acquire consistent, statewide coverage to support existing and emerging applications enabled by lidar data. The new 3D Elevation Program (3DEP) initiative (Snyder, 2012a,b), managed by the U.S. Geological Survey (USGS), responds to the growing need for high-quality topographic data and a wide range of other three-dimensional representations of the Nation's natural and constructed features.

3D Elevation Program Benefits for Minnesota

The top 10 Minnesota business uses for 3D elevation data, which are based on the estimated annual benefits of the 3DEP initiative, are shown in table 1. National Enhanced Elevation Assessment (NEEA; Dewberry, 2011) survey respondents in the State of Minnesota estimated that

Figure 1. Map of Minnesota showing the areal extent and quality levels of planned and existing publicly available light detection and ranging (lidar) data in November 2012. No lidar data that meet 3DEP requirements for quality level 2 or better are publicly available for Minnesota. See table 2 for quality levels.

the national 3DEP initiative would result in at least $13 million in new benefits annually to the State. The cost for such a program in Minnesota is approximately $28 million, resulting in a payback period of 2.1 years and a benefit-to-cost ratio of 3.9 to 1 over an 8-year period. Because monetary estimates were not provided for all reported benefits, the total benefits of the 3DEP to Minnesota are likely much higher. On the basis of the NEEA survey results, all levels of government and many organizations in Minnesota could benefit from access to statewide high-resolution elevation data.

The NEEA evaluated multiple data-collection programs to determine the optimal data quality and data replacement cycle relative to cost to meet the stated needs. For Minnesota, approximately 76 percent of the total benefits are realized in agriculture and precision farming and natural resources conservation uses alone, as shown in table 1. The status of publicly available lidar data in Minnesota is shown in figure 1. By enhancing coordination between the 3DEP and the various government and private organizations in Minnesota, it may be possible to meet a higher percentage of the needs.

3DEP in Minnesota by the Numbers

Expected annual benefits	$13.64 million
Estimated total cost	$28.15 million
Payback	2.1 years
Quality level 1 buy-up estimate	$17.91 million

3D Elevation Program

3DEP is a national program managed by the USGS to acquire high-resolution elevation data. The initiative is backed by a comprehensive assessment of requirements (Dewberry, 2011) and is in the early stages of implementation. 3DEP will improve data accuracy and provide more current data than is available in the National Elevation Dataset (NED). The goal of this high-priority cooperative program is to be operational by January 2015 and to have complete coverage of the United States by 2022, depending on funding and partnerships. The new program has the potential to generate $13 billion/year in new benefits through improved government services, reductions in crop and homeowner losses resulting from floods, more efficient routing of vehicles, and a host of other government, corporate, and citizen activities (Dewberry, 2011).

Benefits of a Funded National Program

- Economy of scale—Acquisition of data covering larger areas reduces costs by 25 percent.
- A systematic plan—Acquisition of data at a higher quality level reduces the cost of "buying up" to the highest levels needed by State and local governments.
- Higher quality data and national coverage—Ensure consistency for applications that span State and watershed boundaries and meet more needs, which results in increased benefits to citizens.
- Increase in Federal agency contributions—Reduces State and local partner contributions.
- Acquisition assistance—Provided through readily available contracts and published acquisition specifications.

U.S. Department of the Interior
U.S. Geological Survey

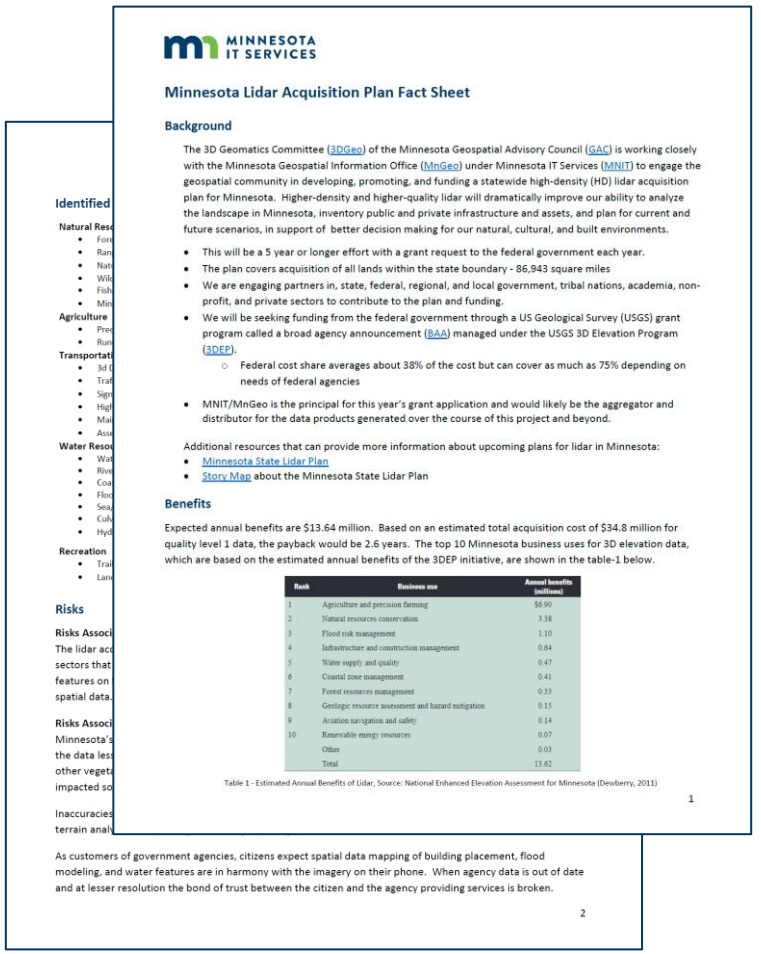
Fact Sheet 2013–3051
September 2013

Rank		
1	A	
2	N	
3	F	
4	I	
5	W	
6	C	
7	F	
8	Geologic resource assessment and hazard mitigation	0.15
9	Aviation navigation and safety	0.14
10	Renewable energy resources	0.07
	Other	0.03
	Total	13.62

U.S. Geological Survey
2280 Woodale Drive
Mounds View, MN 55112
Email: rwencl@usgs.gov

http://nationalmap.gov/3DEP/

By William J. Carswell, Jr.



MINNESOTA IT SERVICES

Minnesota Lidar Acquisition Plan Fact Sheet

Background

The 3D Geomatics Committee (3DGeo) of the Minnesota Geospatial Advisory Council (GAC) is working closely with the Minnesota Geospatial Information Office (MnGeo) under Minnesota IT Services (MNIT) to engage the geospatial community in developing, promoting, and funding a statewide high-density (HD) lidar acquisition plan for Minnesota. Higher-density and higher-quality lidar will dramatically improve our ability to analyze the landscape in Minnesota, inventory public and private infrastructure and assets, and plan for current and future scenarios, in support of better decision making for our natural, cultural, and built environments.

- This will be a 5 year or longer effort with a grant request to the federal government each year.
- The plan covers acquisition of all lands within the state boundary - 86,943 square miles
- We are engaging partners in, state, federal, regional, and local government, tribal nations, academia, non-profit, and private sectors to contribute to the plan and funding.
- We will be seeking funding from the federal government through a US Geological Survey (USGS) grant program called a broad agency announcement (BAA) managed under the USGS 3D Elevation Program (3DEP).
  - Federal cost share averages about 38% of the cost but can cover as much as 75% depending on needs of federal agencies
- MNIT/MnGeo is the principal for this year's grant application and would likely be the aggregator and distributor for the data products generated over the course of this project and beyond.

Additional resources that can provide more information about upcoming plans for lidar in Minnesota:

- Minnesota State Lidar Plan
- Story Map about the Minnesota State Lidar Plan

Benefits

Expected annual benefits are $13.64 million. Based on an estimated total acquisition cost of $34.8 million for quality level 1 data, the payback would be 2.6 years. The top 10 Minnesota business uses for 3D elevation data, which are based on the estimated annual benefits of the 3DEP initiative, are shown in the table-1 below.

Rank	Business use	Annual benefits (millions)
1	Agriculture and precision farming	$8.90
2	Natural resources conservation	3.38
3	Flood risk management	1.10
4	Infrastructure and construction management	0.64
5	Water supply and quality	0.47
6	Coastal zone management	0.41
7	Forest resources management	0.33
8	Geologic resource assessment and hazard mitigation	0.15
9	Aviation navigation and safety	0.14
10	Renewable energy resources	0.07
	Other	0.03
	Total	13.62

Table 1 - Estimated Annual Benefits of Lidar, Source: National Enhanced Elevation Assessment for Minnesota (Dewberry, 2011)

1

Identified

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Risks

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The lidar acc
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spatial data.

Risks Associ
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the data less
other vegeta
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Inaccuracies
terrain anal

As customers of government agencies, citizens expect spatial data mapping of building placement, flood modeling, and water features are in harmony with the imagery on their phone. When agency data is out of date and at lesser resolution the bond of trust between the citizen and the agency providing services is broken.

2

MINNESOTA

Minnesota State Lidar Plan – Announcement

Overview

The Minnesota 3D Geomatics Committee and the State Geospatial Information Office, MnGeo, have developed a draft Lidar Plan for the State of Minnesota that will help guide the acquisition of new statewide lidar data over the next five years.

The State Lidar Plan seeks to outline collection timelines, standards, end user needs, products, and storage/dissemination methods.

Call to Action

Please contact us for more on the State Lidar Plan.

- Identify and share requirements and business use cases
- Provide your desired areas of interest and product needs
- Let us know if you can help provide matching funds
- Check out the draft State Lidar Plan and StoryMap on the web

Need for Lida

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to save costs i
infrastructure,
forestry. Lidar
a multitude of

Funding Oppo

The USGS 3D E
data and creat
Nationwide. This program has been successful in our region, but our current lidar data does not meet the new specifications.

Every fall, the USGS has a call for proposals to apply for grant funding to match local partnerships. To receive federal funding, we must provide a non-federal funding match. We are currently reaching out to
high quality lid
be part of the

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and partner re
point cloud, di
others depend
More informat
and in the draf

Get involved: Contact
https://www.mngeo.state.

MINNESO
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State Lidar Plan

MINNESOTA

The Minnesota 3D Geomatics Committee and the State Geospatial Information Office, MnGeo, have developed a 5-year draft plan to help guide the acquisition of new statewide lidar data.

Deliverables proposed include a lidar point cloud, digital elevation model, canopy height model, and more depending on stakeholder needs and funding.

www.mngeo.state.mn.us/committee/3dgeo/

Get Involved!
- Let us know if you can help
- Share requirements and business use cases
- Provide areas of interest and product needs

MINNESOTA

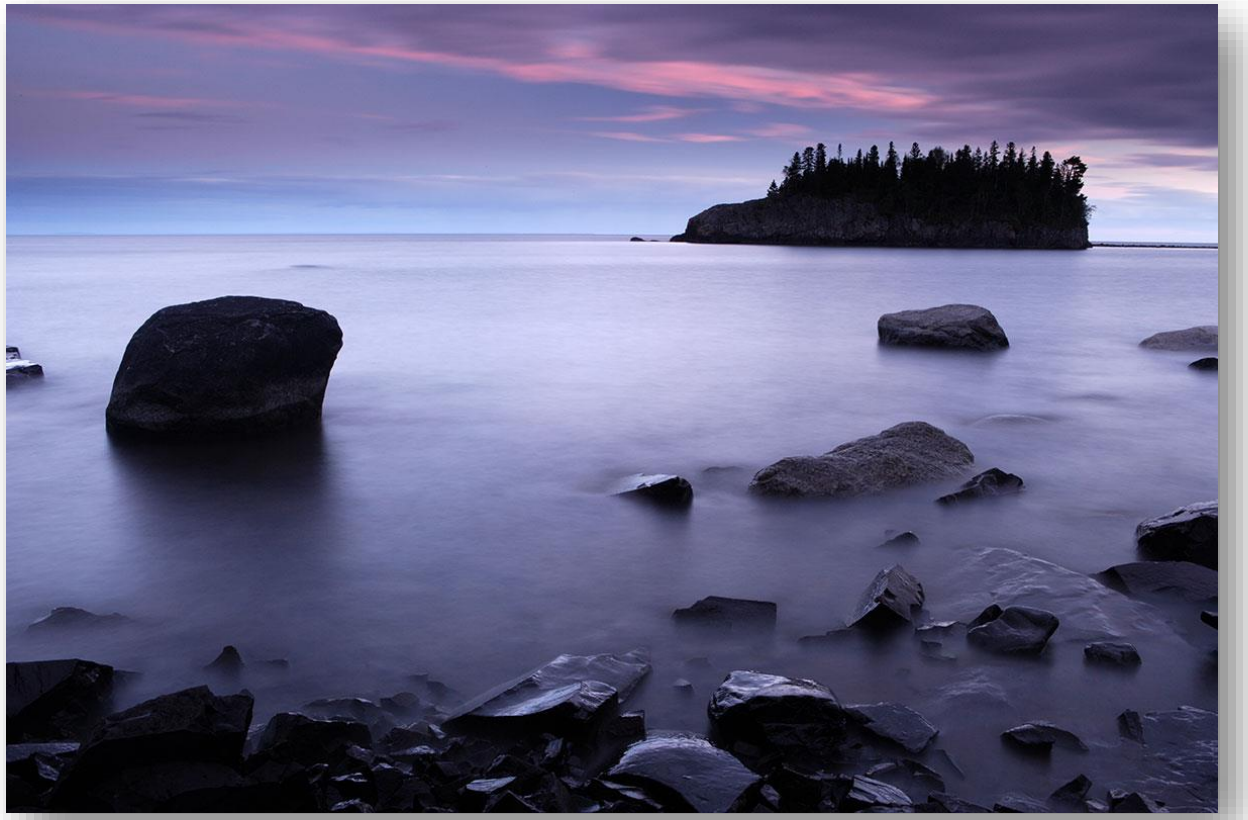
The Draft Minnesota State Lidar Plan

An introduction to lidar, how it is used in Minnesota, and the Minnesota State Lidar Plan.

http://bit.ly/MnLidarPlanStoryMap

Next steps

- We need partners to help fund lidar acquisition!
- Check out story map
- Stay in touch
  - Get on GovDelivery list (MnGeo email list)
  - Join 3D Geo Acquisition Group
  - lidar@state.mn.us



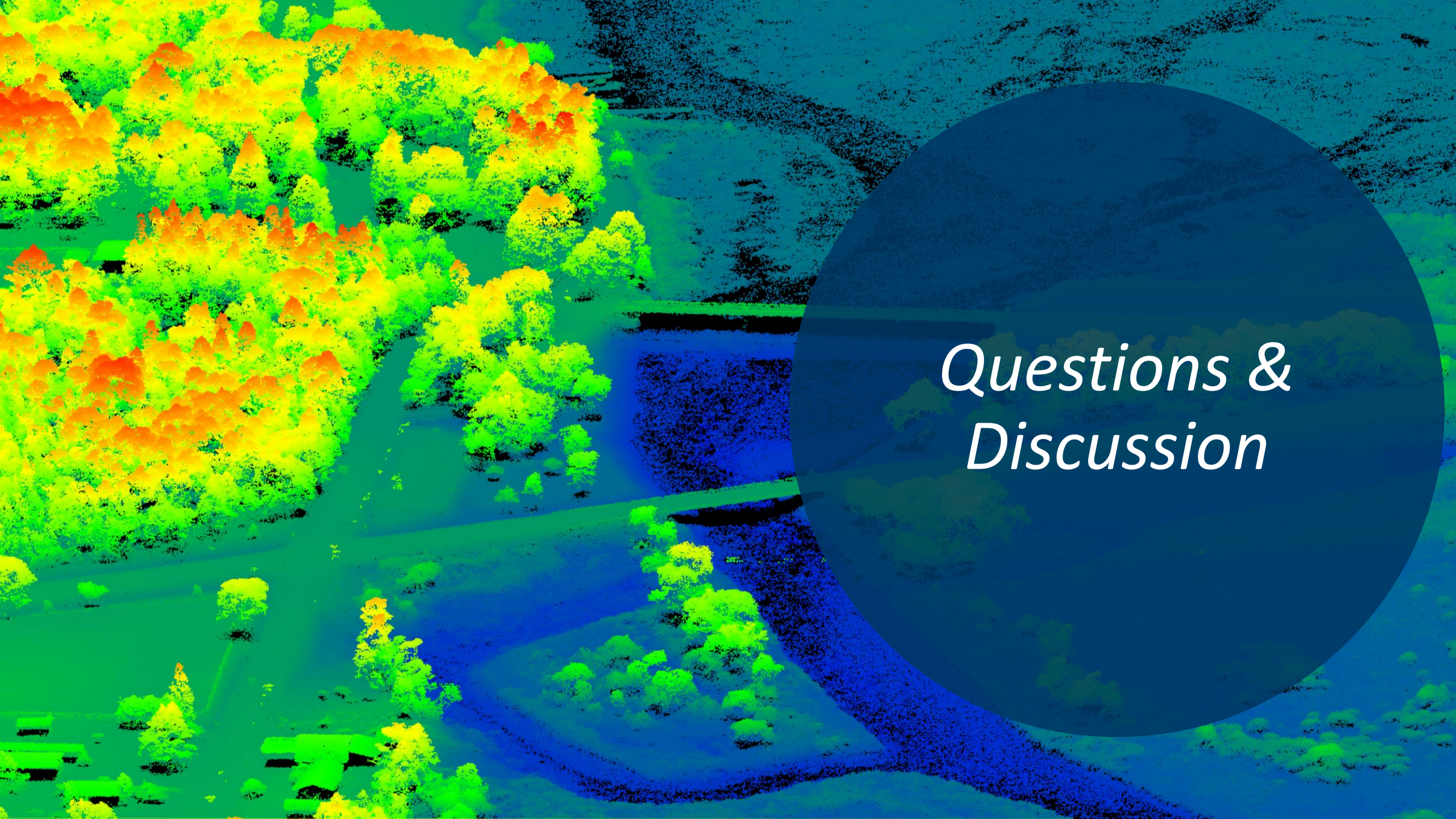
Additional Resources

Draft Minnesota State Lidar Plan

https://www.mngeo.state.mn.us/committee/3dgeo/acquisition/Minnesota_State_Lidar_Plan.pdf

Story Map about the Minnesota State Lidar Plan

http://bit.ly/MnLidarPlanStoryMap


Questions &
Discussion

Q & A

- What lidar products do you use?
- What do you gain/lose with/without lidar?
- How do we best fund this data, how do we 'sell' the need to our legislature?