



Water Information System

Troy Blandford

Prepared for the Water Policy Interim Committee | Sept. 12, 2024

AGENDA



- What is the Water Information System and why is it important?
- Featured data, maps and apps
- Mapping Montana's rivers, streams, and lakes (hydrography)
- High-resolution elevation (LiDAR) data and relevance to water resources

Natural Resource Information System (NRIS)

**Natural Heritage Program
(NHP)**

**Water Information System
(WIS)**



Watershed health

Precipitation

Temperature



Forecasts



Reservoir storage



Water rights

Flood risk

Streamflow measurement

Drought

Snow



Water Supply

Technical reports



Water quality

Remotely sensed data



Groundwater



Source water

Fish/Aquatic life



Montana Fish, Wildlife & Parks

Agricultural water use



Irrigation Infrastructure



US ARMY CORPS OF ENGINEERS

Reservoir storage

Streamflow measurement



Water quality



Montana Water Information System

- Coordinate with water data providers
- Facilitate water data discovery and access (neutral and non-regulatory; library patron confidentiality)
- Update and maintain the Montana Hydrography Dataset

TITLE 90. PLANNING, RESEARCH, AND DEVELOPMENT
CHAPTER 15. NATURAL RESOURCE INFORMATION SYSTEM
Part 3. Information System

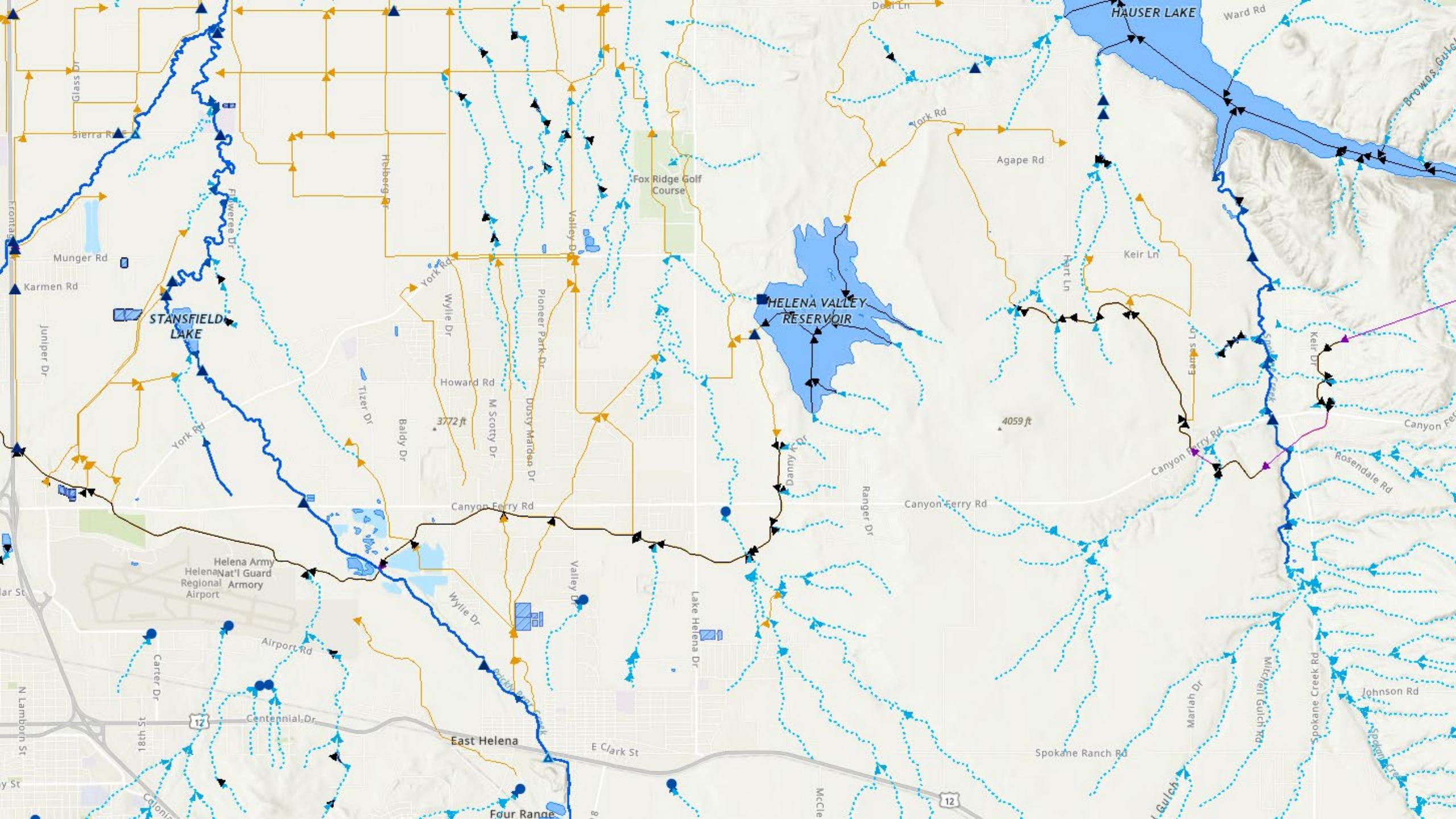
Water Information System

90-15-305. Water information system. (1) There is a Montana water information system, to be operated within the natural resource information system referred to in **90-15-301** and that is to be considered a part of the system.

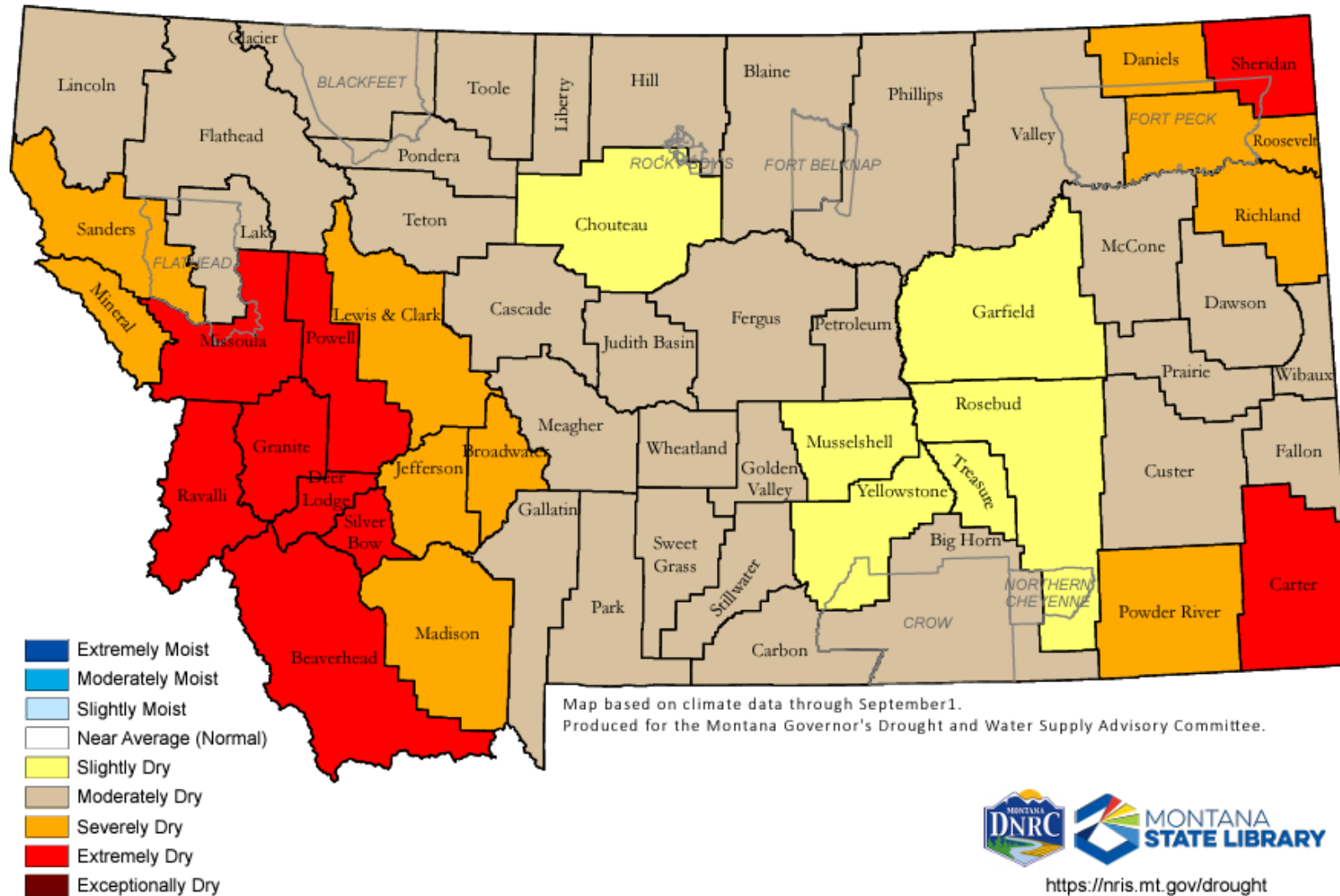
(2) The Montana water information system shall make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources, out-of-state water resources that affect the state, existing and potential uses, and the existing and potential demand.

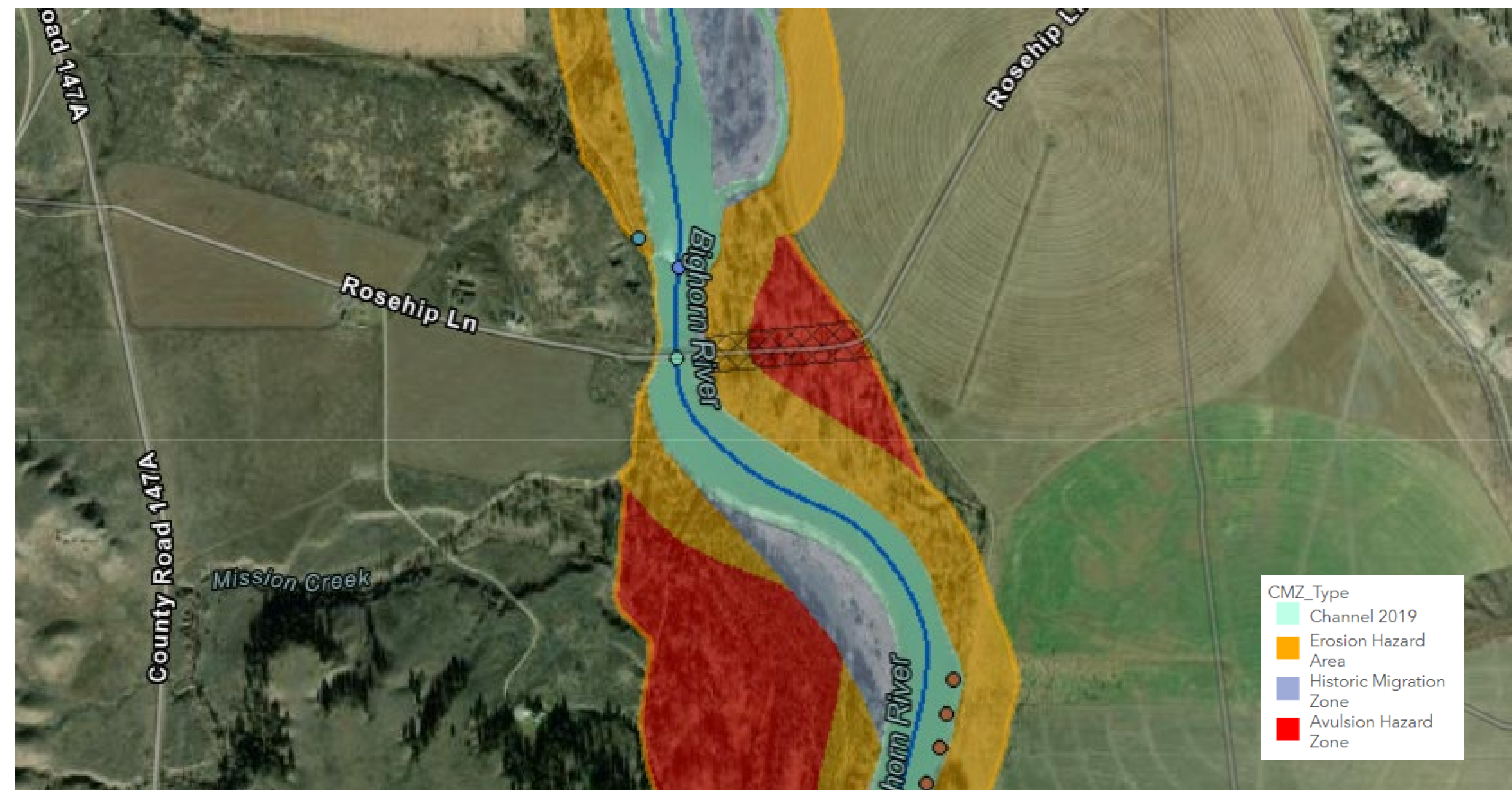
Featured Products:

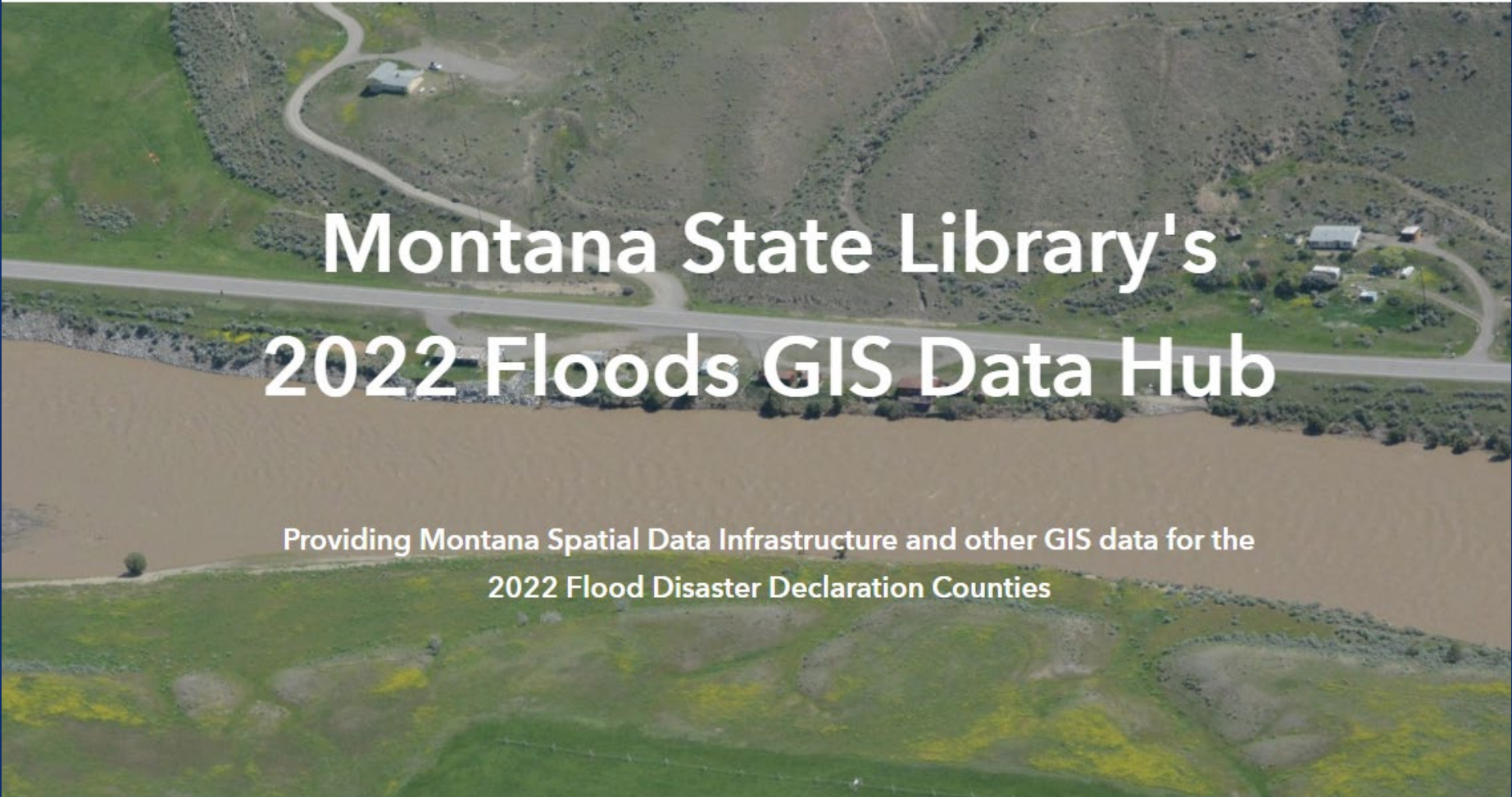
- Statewide Hydrography Dataset • GIS data, web services, and applications
- Digital Atlas • Yellowstone River Clearinghouse • Statewide Aerial Imagery
- Watershed Boundary Dataset • Elevation and Lidar Data • Cadastral Application
- Snowpack and Water Supply Maps in coord. with NRCS • Drought Monitoring in coord. with DNRC
- Digital Gallery of Water Maps . . . and more



Montana Drought Status by County - September 7, 2024







Montana State Library's 2022 Floods GIS Data Hub

Providing Montana Spatial Data Infrastructure and other GIS data for the
2022 Flood Disaster Declaration Counties

Browse and download data:

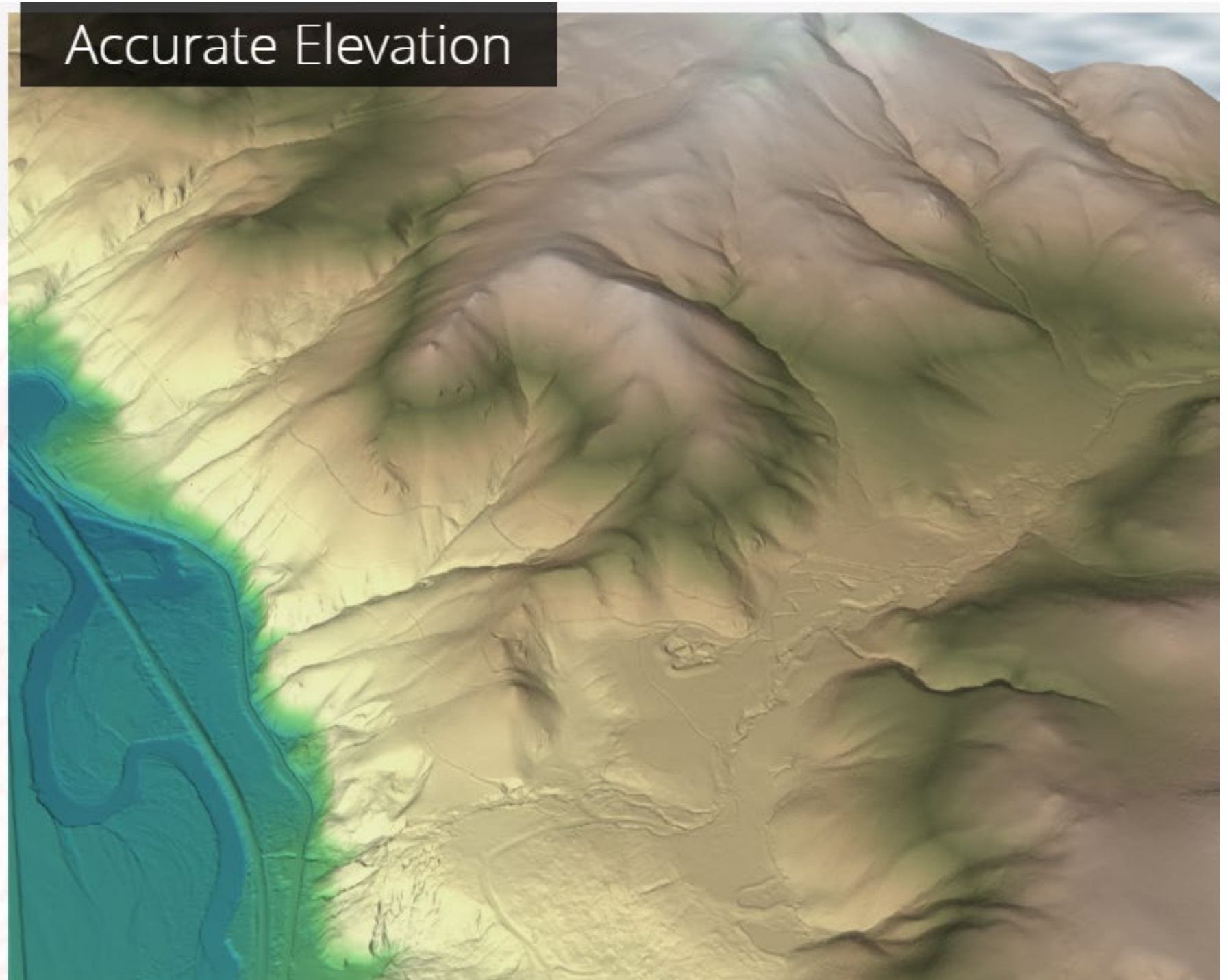


LiDAR

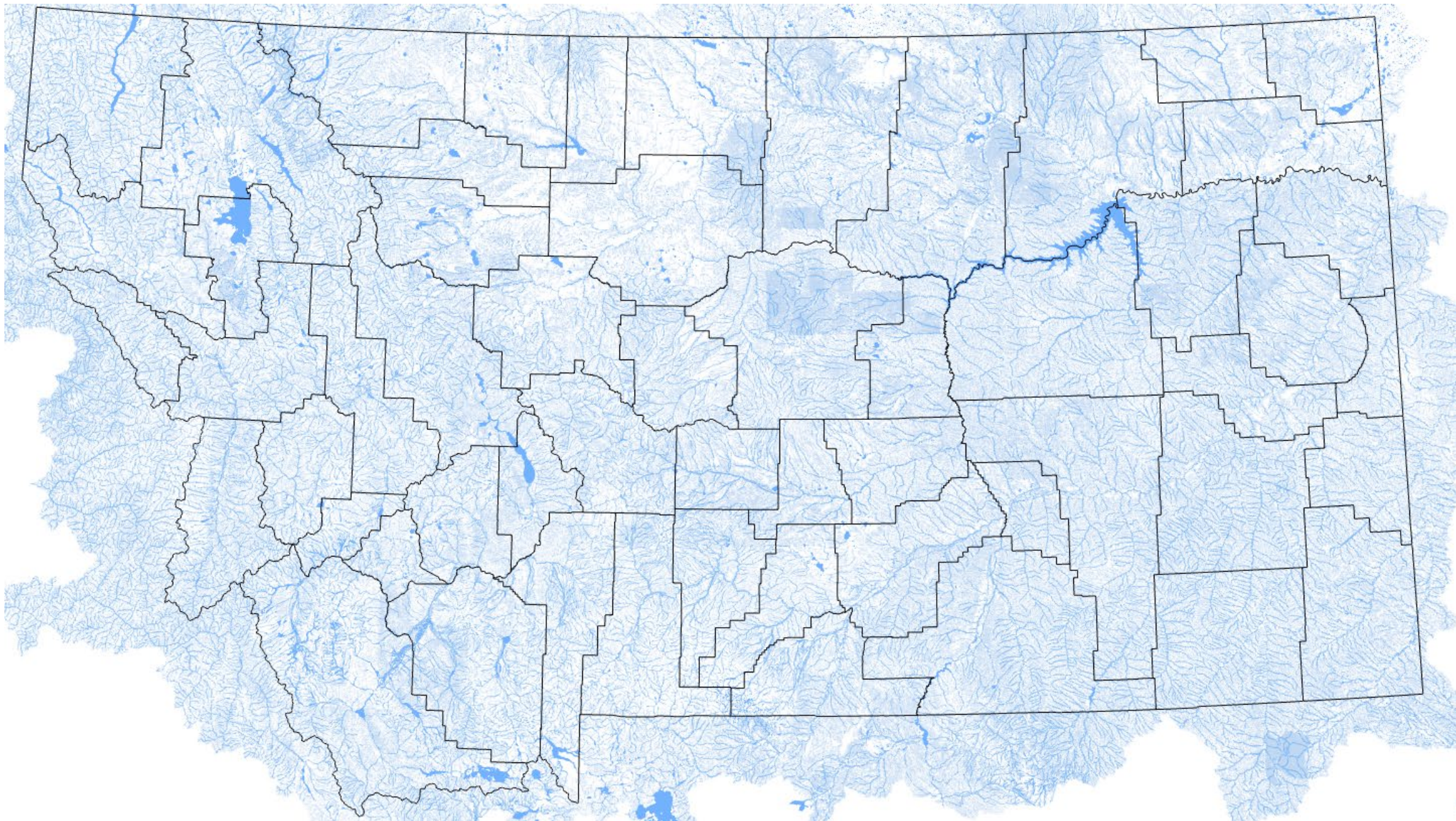
High-resolution, high-accuracy elevation data

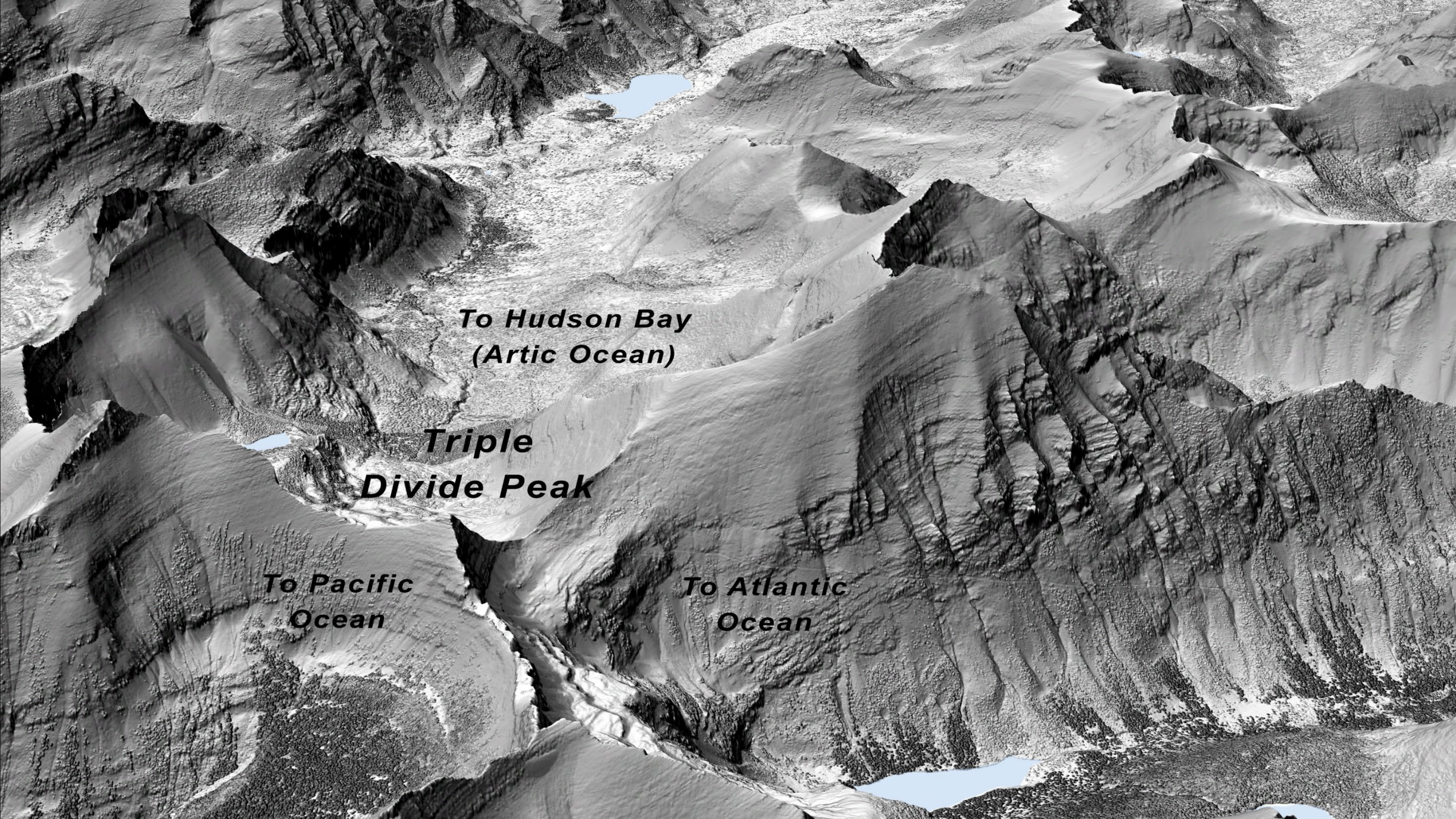


Accurate Elevation



Mapping the State's rivers, streams, lakes and other waterbodies



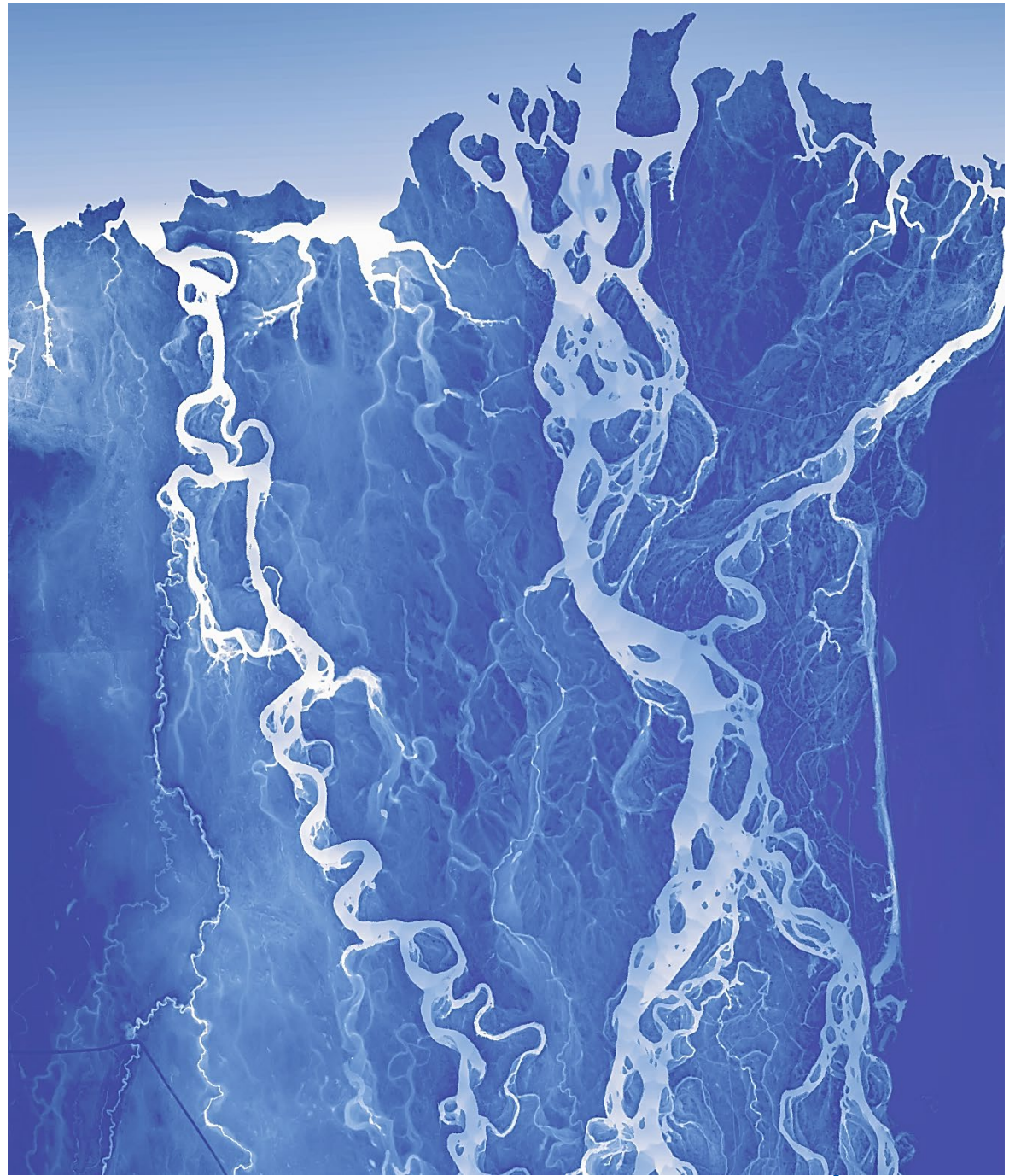


*To Hudson Bay
(Arctic Ocean)*

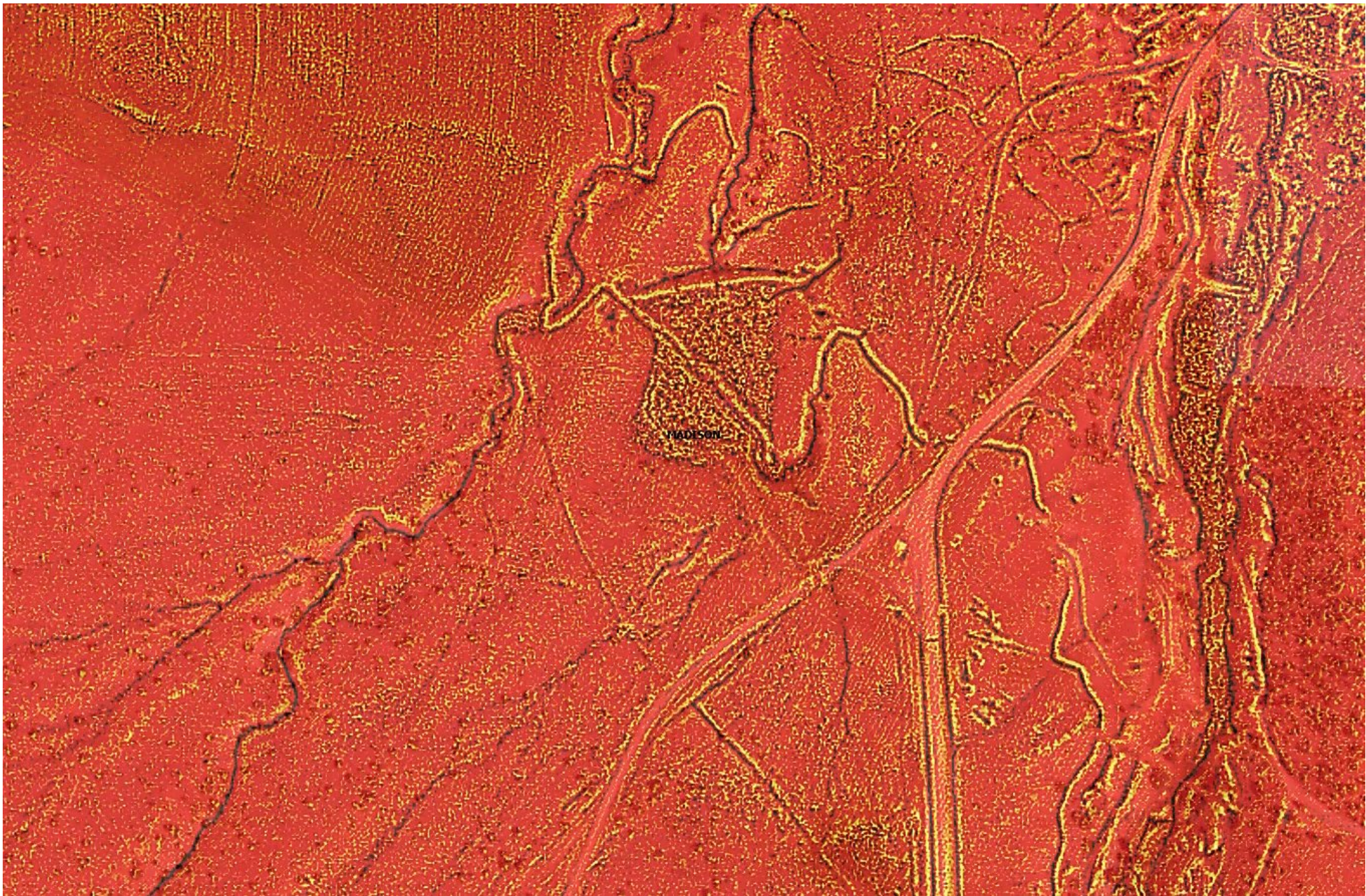
*Triple
Divide Peak*

*To Pacific
Ocean*

*To Atlantic
Ocean*

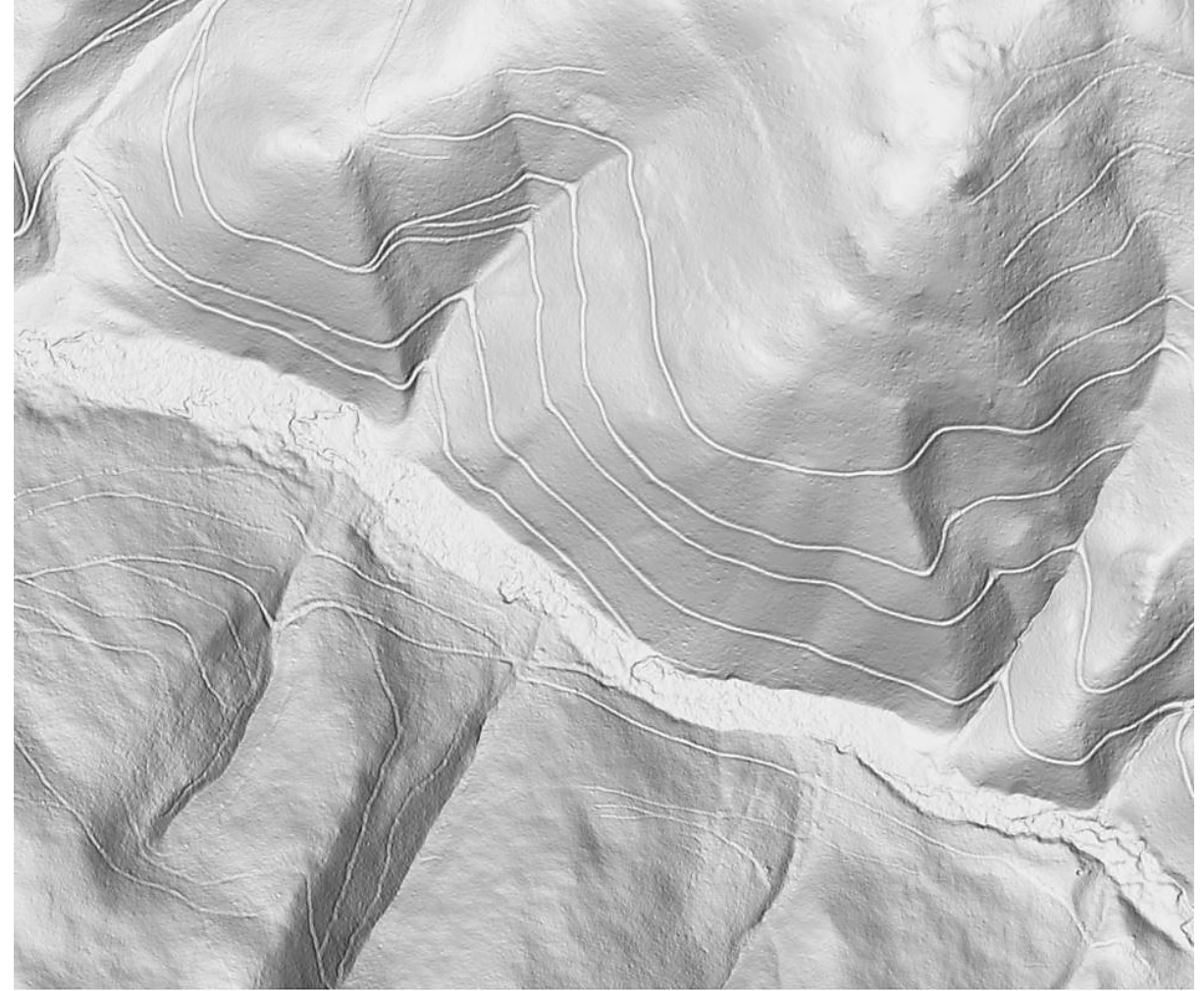




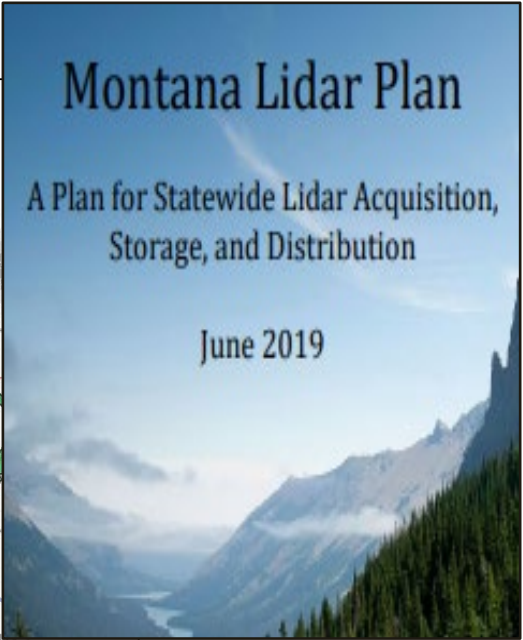
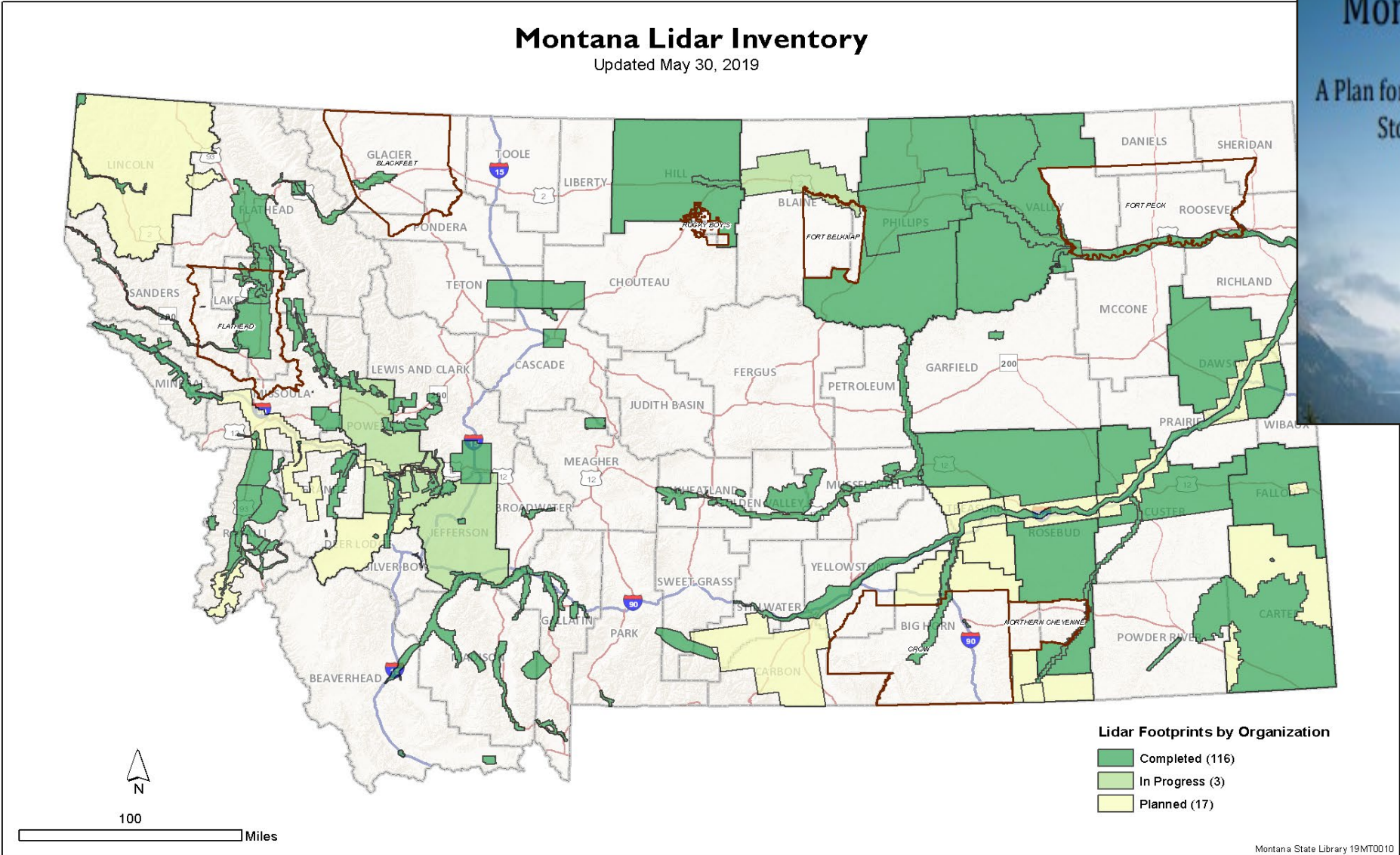


Hydrographic Position Index for mapping canals and ditches

Aerial imagery (left) and LiDAR (right)

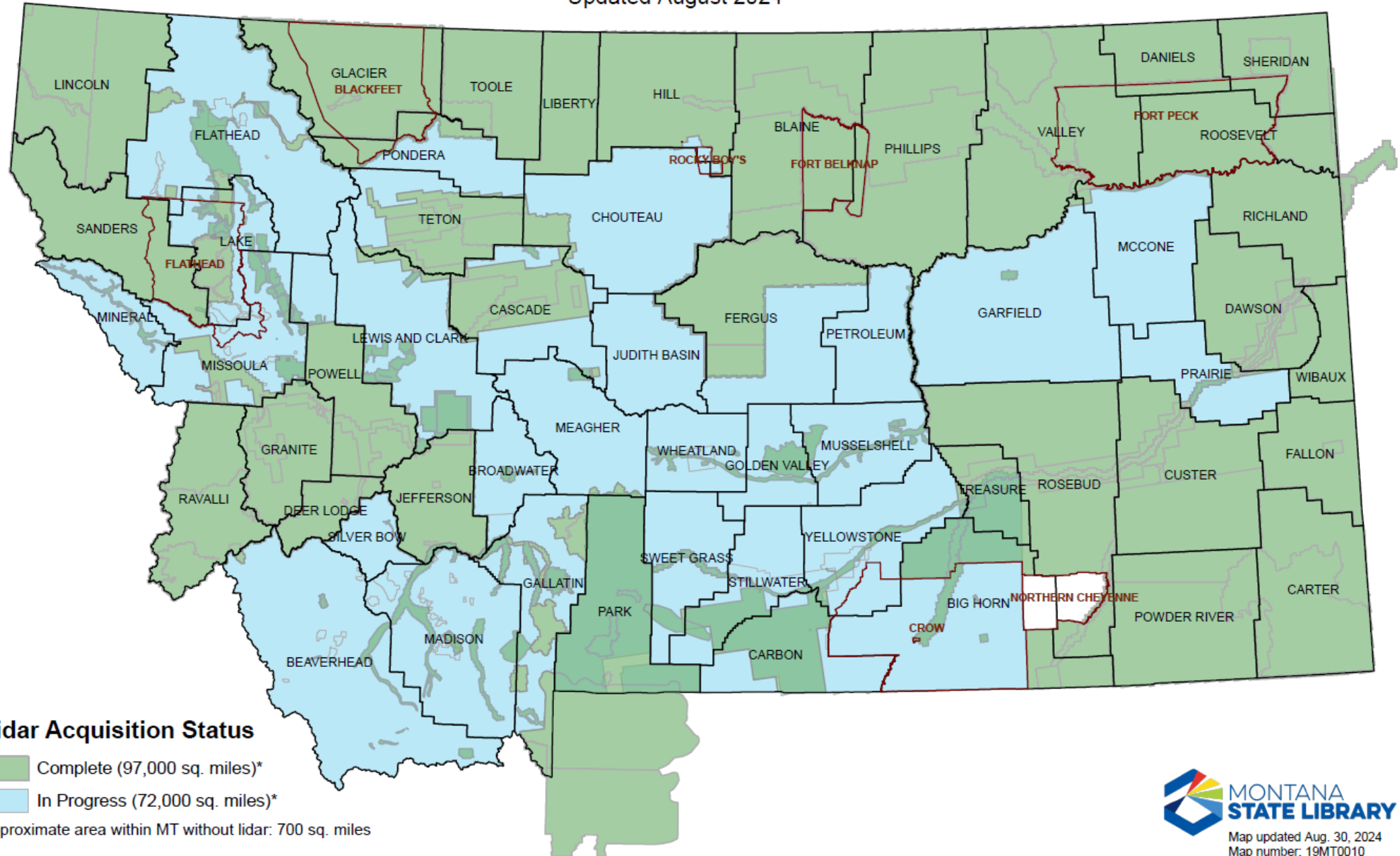


Montana Lidar Plan, June 2019



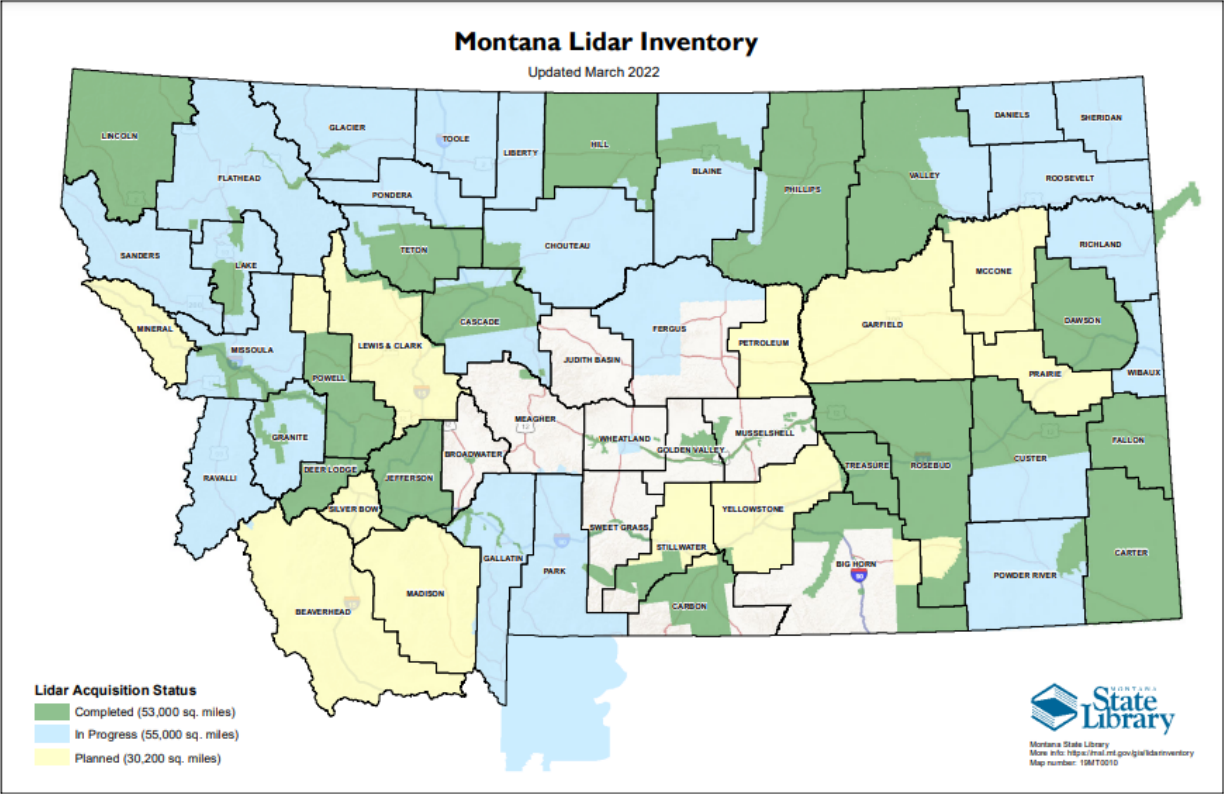
Montana Lidar Inventory

Updated August 2024

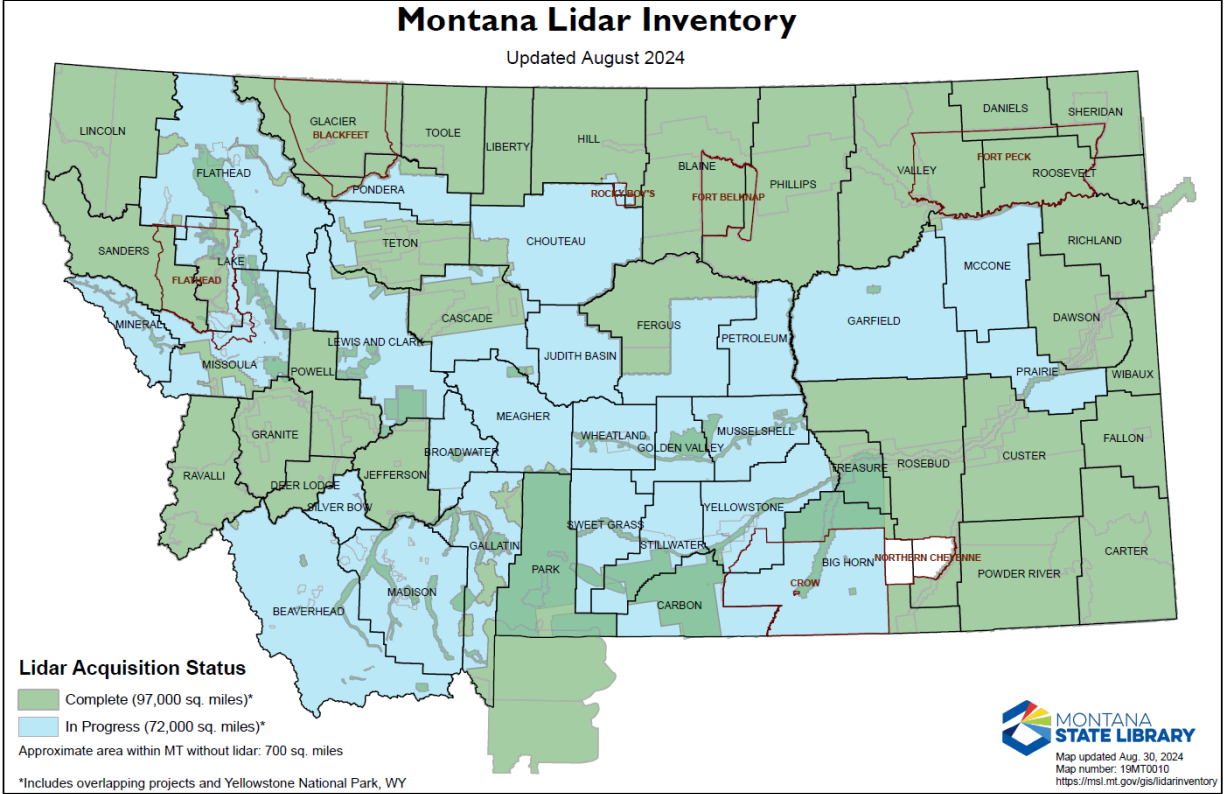


Map updated Aug. 30, 2024
Map number: 19MT0010
<https://msl.mt.gov/gis/lidarinventory>

Lidar Status March 2022



Lidar Status August 2024



Thank You Lidar Funding Partners

- USGS 3D Elevation Program
- FEMA and MT DNRC Floodplain Program
- USDA Natural Resources Conservation Service
- United States Forest Service
- Bureau of Land Management
- United States Fish and Wildlife Service
- Confederated Salish and Kootenai
- Blackfeet Nation
- Fort Belknap Indian Community
- Fort Peck Tribes
- MT DNRC Trust Lands and Water Resources Divisions
- Glacier National Park
- USGS Northern Rocky Mountain Science Center
- Bureau of Indian Affairs

Montana Lidar Inventory

The screenshot displays the Montana Lidar Inventory web application. At the top, the title "Montana Lidar Inventory" is shown next to the Montana Spatial Data Infrastructure - Elevation logo. Below this is a navigation bar with four tabs: "Introduction", "1. Acquisition Status Map" (which is active), "2. View, Download, and Request Data", "3. Collaborate - Submit Areas of Interest", and "4. Use Examples".

The main interface is titled "Montana Lidar Viewer". It features a left-hand sidebar with a list of filterable categories, each with a toggle switch. These categories include: "Viewable lidar projects", "Downloadable lidar projects", "Lidar projects available by request", "Lidar projects not yet at the State Library", "Completed lidar acquisitions", "In-progress lidar acquisitions", "Planned lidar acquisitions", "Completed lidar projects that are less than 5 years old", "Lidar projects that have contours", "Lidar projects that have building footprints", "Quality Level 1 lidar (~8 points per square meter)", and "Quality Level 2 lidar (~2 points per square meter)".

The central area is a map showing a topographic view of a mountainous region, divided into a grid of quadrats. A search bar at the top of the map area contains the text "search places" and a magnifying glass icon. Below the search bar are icons for home, layers, measurement, and printing. The map is labeled with several quadrat names: "Monitor Peak, 45110b6", "Quadr: Mineral Mountain, 45110b5", "Quadr: Mount Wallace, 45110b4", "Quadr: Gardiner, 45110a6", "Quadr: Ash Mountain, 45110a5", "Quadr: Specimen Creek, 45110a4", and "to Peak, 45110a7".

On the right side of the map, a pop-up window titled "(1 of 3)" is displayed. It contains the text: "Quads with downloadable lidar: Specimen Creek 45110a4". Below this, it explains: "The link below will provide a .zip file containing the bare-earth DEM, Digital Surface Model, intensity and hillshade for all lidar projects available by download within the selected quad. Some quads only have partial coverage. Metadata and reports are not available by quad and can be found instead through the projects layer." A blue link "Click here to Download" is provided, followed by a "Zoom to" button and a close button.

<https://msl.mt.gov/gis/lidarinventory>

Thank you.

Troy Blandford
Water Information Lead
tblandford@mt.gov



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