Montana State Reference Network

Interim Budget Committee – Section E Report
December 2024

Also available online as a digital report: https://arcg.is/0uy5jO0

December 2024 Progress Update

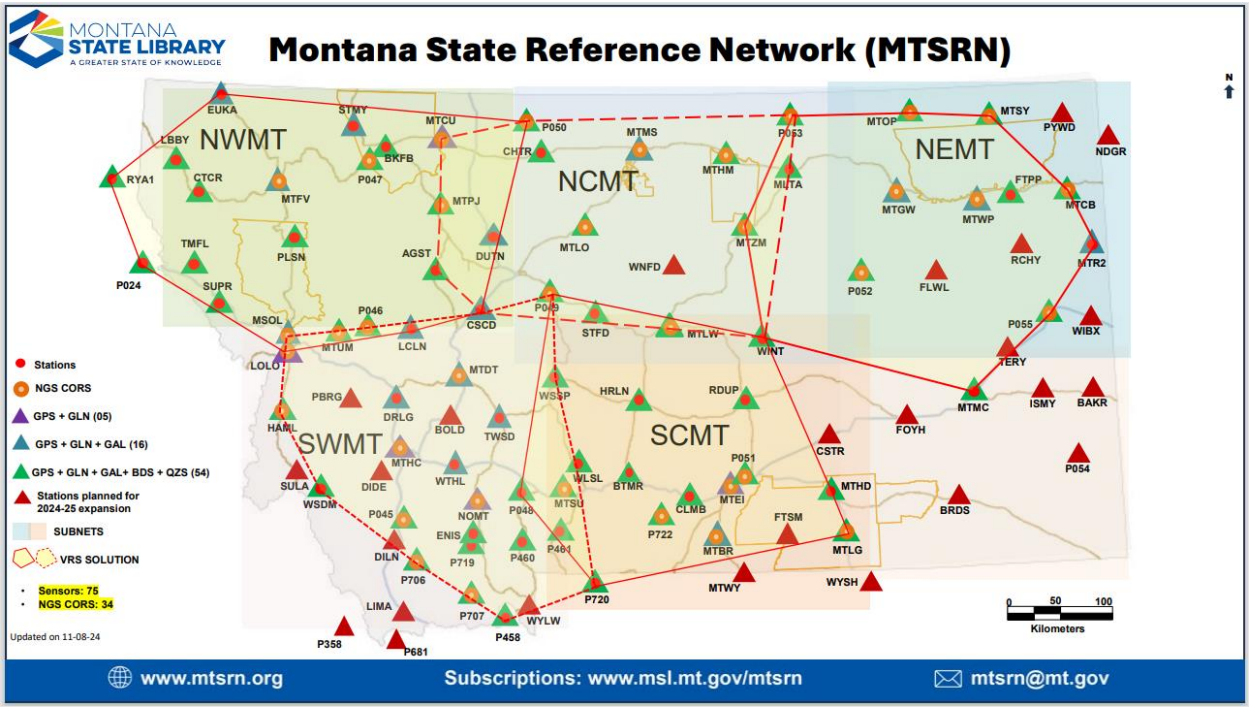
Published September 12, 2024, this informative video was designed by Real Marketing Solutions (RMS) to promote general awareness of the network and to attract new contributors and subscribers.

In September, Real Marketing Solutions (RMS) released a video highlighting the Montana State Reference Network (MTSRN). This video supports a strategic outreach and communications campaign aimed at raising awareness of the network, showcasing its impact on geospatial programs provided by the Montana State Library, and attracting new contributors and subscribers. Since its release, the video has been viewed 178 times.

As part of the MTSRN communications strategy, the Montana State Library collaborated with RMS and Frontier Precision to host two virtual training webinars. The first webinar focused on helping land surveyors understand how MTSRN enhances precision and efficiency in land surveying workflows, offering insight into integration strategies and solutions to common challenges. The second webinar explored how MTSRN data improves accuracy and mapping for GIS and Unmanned Aerial Systems projects. Both sessions featured Q&A opportunities, allowing participants to engage directly with experts from Montana State Library and Frontier Precision. Together, the webinars engaged 199 participants, each of whom will receive a limited trial login to use the network.

Other work in the last quarter included expanding the network through the addition of a new station in Wisdom, MT. This new station adds coverage for the southwest region of Montana with multi-signal support. MTSRN also upgraded signals for UNAVCO's Plate Boundary Observatory (PBO) stations, giving subscribers access to more satellite systems. This upgrade means increased reliability and precision across the state.

Revenue shortfalls continue to impact Montana State Library's ability to invest in network growth in the coming year. Montana Geospatial Information Act Revenue has yet to rebound from historic lows and remains significantly lower than appropriations. MSL continues to monitor revenue and is not making additional financial investments in the network beyond employing the operator. As an ongoing contributor and key partner, Montana Department of Transportation plans to add more than 20 new stations by the end of 2025. The MTSRN network map below shows the locations for planned expansion.



Montana State Reference Network (MTSRN) as of December 1, 2024. To view a live Sensor Map, visit Montana State Reference Network – Sensor Map (mtsrn.org)

MTSRN Objectives

Objective 1: Establish RTN administrative office and bring pilot network under Montana direction.

Status: Complete

- RTN coordinator hired: December 2021.
- MTSRN Extended Pilot launch date: March 2022.

- Status reporting: MTSRN status map published online, ongoing status reports to key stakeholders. Montana State Library published a new MTSRN webpage: Montana State Reference Network (mt.gov). Recent outreach: **MSL hosted two webinars on December 4, 2024 for land surveyors and GIS and UAS professionals with 199 participants. MSL also staffed informational booths at Montana Association of Counties in September and Montana League of Cities & Towns in October.**

Objective 2: Develop and implement a subscription-based funding model.

Status: In Progress

- RTN business plan: MDT coordinated with MSU on a study of business models for Statewide GNSS implementation. Based in part on the findings of that study, MSL, in partnership with MDT, has chosen to move forward with a state operated, subscription-based model which was authorized through the passage of Senate Bill 60 by the 2023 Legislature. In an effort to minimize administrative expenses and to keep subscriptions costs low, there will be limited subscription types, similar to the model successfully implemented in Utah, Utah TURN. The current subscription rate, beginning July 1, 2024, will be $1500 per login per year. As outlined in Administrative Rule 10.102.7003, MSL will evaluate the MTSRN operating costs each biennium to determine if the subscription rate needs to be adjusted.
- Customers subscribe to the RTN: The payment portal opened in April, and users can purchase subscriptions. Educational Use Agreements and Contributing Organization Agreements are now available.
- Revenue is generated from the subscription service. Except in certain circumstances described in administrative rules, effective July 1, 2024, MTSRN users will pay a $1,500 annual subscription fee, per login, to use the network. Fees maintain the operation of the MTSRN, including the cost for the network and support staff. Users that subscribed before June 1 received a one-time discounted rate of $1,200 to use the network through July 1, 2025.
- The five-year goal is to increase the number of paid subscribers to 500 for a self-sustaining network. **As of December 1, 2024, MTSRN has 69 paid subscribers, 4 contributor organizations agreements, and 5 educational user agreements.**

Objective 3: Operate the existing network and identify priority coverage areas.

Status: In Progress (Ongoing)

- The number of reference base stations increases to meet Montana's business needs: **75 base stations as of December 1, 2024. The count includes a new reference station in Wisdom, expanding the network in southwest Montana.** To achieve the goal of statewide coverage, we currently estimate that MTSRN will require a minimum of 131 stations at completion, though this number may be significantly impacted by station placement and other factors related to station performance. MSL projects that 160 stations are a more reasonable target for initial MTSRN network buildout. This number of stations should allow for statewide network coverage with some additional density and redundancy in priority areas to optimize network performance.

- **Montana Geospatial Information Act Revenue has yet to rebound from historic lows and remains significantly lower than appropriations. MSL continues to monitor revenue and is not making additional financial investments in the network beyond employing the operator.**
- Establish RTN working group: **The MTSRN Coordinator formed a Users Committee and a Technical Committee, both of which held their first meetings since the previous report. The Users Committee, open to paid subscribers, serves as a platform to share experiences and address concerns. Insights from these discussions inform the Technical Committee, which provides guidance and approves solutions for the MTSRN. The Technical Committee includes representatives from MSL, MDT, and other key partners involved in establishing the network. Moving forward, the Users Committee will meet quarterly, while the Technical Committee will convene biannually.**

MTSRN Glide Path

Year	2024	2025	2026	2027	2028	2029
Stations	80	100	140	160	160	160
Expenses						
Coordinator FTE	$116,662	$121,523	$125,169	$128,924	$132,792	$136,776
Tech FTE	$-	$74,880	$77,126	$79,440	$81,823	$84,278
Platform Hosting Fees	$80,000	$192,000	$224,540	$237,930	$237,930	$237,930
Admin Costs	$54,320	$56,000	$57,680	$59,410	$61,193	$63,028
Other Operating Costs**	$16,000	$55,000	$150,000	$200,000	$200,000	$225,000
Total Expenses	**$266,982**	**$499,403**	**$634,515**	**$705,704**	**$713,738**	**$747,012**
Subscriptions						
Subscription Target	0	100	150	250	350	500
Subscription Cost	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Subscription Revenue	**$-**	**$150,000**	**$225,000**	**$375,000**	**$525,000**	**$750,000**
Revenue Gap						
Revenue Gap	**($266,982)**	**($349,403)**	**($409,515)**	**($330,705)**	**($188,738)**	**$2,988**

*Revised 7/3/2024 after feedback from Interim Budget Committee – Section E.

**Other operating costs include outreach funding in FY24/25. During expansion this includes node costs and station purchases for new sites. This will shift to station replacement as buildout slows.