MiSEN

Michigan Statewide Educational Network

2025 | Annual Report

Report from the Michigan Statewide Educational Network for Funding Year 2024-2025

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Introduction

Michigan is one of the leading states in the nation to provide high-capacity bandwidth to students state-wide. The Michigan Statewide Educational Network (MiSEN), located at 2413 W Maple Ave, Flint, MI 48507, has provided quality network connectivity to Michigan's K-12 school children since the State awarded the Technology Readiness Grant (TRIG) to create the network. As a 501(c)(3) corporation MiSEN receives the bulk of its funding through the status under E-Rate as that of a non-applicant consortium lead representing its ISD consortium members.

MiSEN's mission is to connect 100% of Michigan Intermediate School Districts (ISDs), Local Education Agencies (LEAs), and Public-School Academies (PSAs) with the networking capacity needed to deliver modern digital learning content to the classroom.
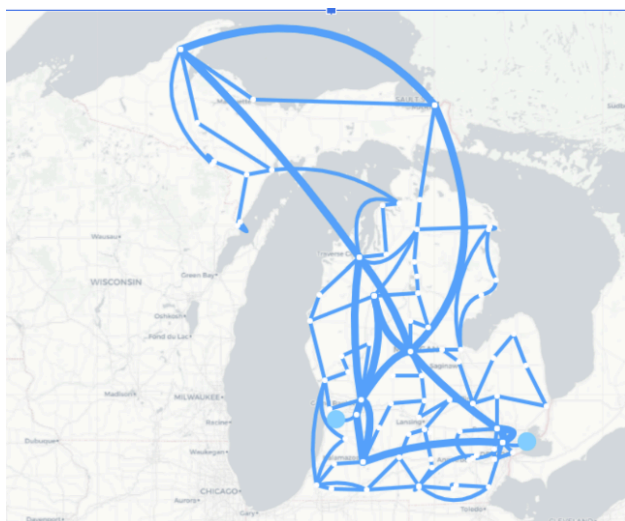
MiSEN-provides 10 Gigabit connectivity to Michigan Intermediate School Districts at a low cost by purchasing consortia-based services and delivering them across a reliable fiber-optic State Education Network (SEN). MiSEN primarily services K-12 entities with connectivity between the Intermediate School Districts for network transport and internet access.

MiSEN's support structures are managed in partnership with the Intermediate Schools Districts to connect all Schools. MiSEN was established out of the TRIG Grant Funding provided to consortiums in service to schools. Due to the wise investments of these dollars and the strategy to leverage E-Rate funding, MiSEN has been able to sustain operations for nearly a decade. It is uniquely positioned to continue this success due to the partnerships established by its managing board, advisory, and staff.

Governance & Partnerships

The MiSEN Board consists of one superintendent from each of the ten MAISA regions. This structure ensures equitable representation and access across the state which is central to our mission.

The MiSEN Advisory Committee includes ISD technical representatives from the ten regions and partnering organizations. The Advisory addresses technical and educational impacts at every stage of the network's operation and expansion. Partnerships include the Michigan Department of Education (MDE), Michigan Association of Intermediate School Administrators (MAISA) and their projects, including MichIT and MiSecure. The Michigan Department of Technology, Management and Budget (DTMB) has provided valuable strategic support since MiSEN's inception. The Michigan Education Technology Leaders (METL), made up of Intermediate School District Technology leaders, provides task force support and avenues for feedback from all areas of our State.

Schools, school districts, and public libraries voluntarily elect to participate in the MiSEN consortium by signing Letters of Agency. This allows MiSEN to contract for services and file for E-Rate subsidies on their behalf.

This report highlights MiSEN's initiatives over the past year and details how funds will be spent to

address the connectivity needs of Michigan schools and library members in the coming year.

Network

MiSEN operates a Statewide Educational Network (SEN) connecting fifty-eight (58) SEN Nodes throughout Michigan and two (2) regional ISP data centers. This builds on the local ISD initiatives to create their own Fiber Networks by connecting across the state. The SEN is a fully managed, leased-lit transport service provided by Merit Network, Inc. (Merit), MiSEN's network transport provider. The SEN consists of 40 Gbps, 100 Gbps, and 200 Gbps core backbone services that deliver 10 Gbps to 100 Gbps transport service to each Node. Every ISD has at least two diverse WAN circuits.
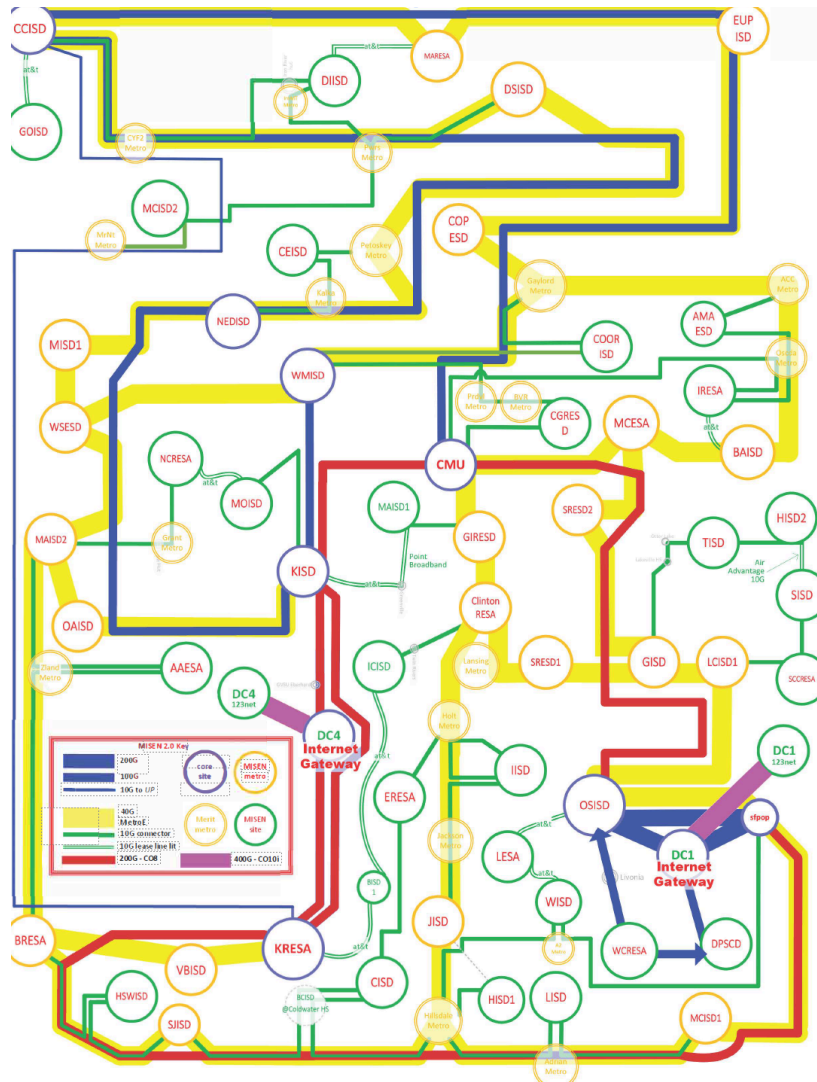
2024-25 Statistics

Year	# of ISDs Connected to SEN for Statewide Access	# of ISDs Connected for Primary Internet Access	# of ISDs Connected for Resilient Internet Access
2023	52	40	7
2024	52	46 ⬆️	3 ⬇️
2025	55 ⬆️	48 ⬆️	3

Students Served — Over 1 Million ⬆️
Transport Capacity — 200 Gbps
Internet Access Capacity — 300 Gbps ⬆️
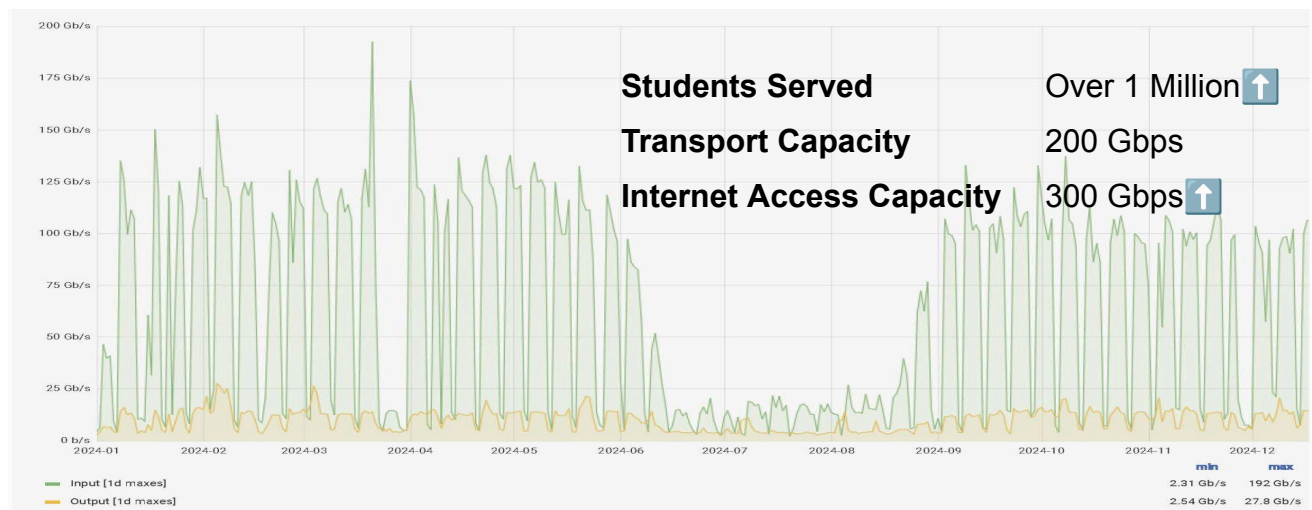
Activity Report

Time Period	Service Uptime	Maintenance Tickets	Service Tickets	Peak Utilization of Internet Access Bandwidth	# of DDoS Mitigated Events
January 2024 to June 2024	99.99%	175	150	223.4 Gbps	444
June 2024 to January 2025	99.99%	120 ⬇️	66 ⬇️	261 Gbps	209 ⬇️
January 2025 to March 2025	99.99%	60	34	278 Gbps ⬆️	104 ⬇️

Total Non-E-Rate Reimbursement from ISD Members $ 102,758.00

MiSEN E-Rate Participation Disbursement $ 3,541,237.36

The theme of this past year has been one of increasing connectivity through collaboration with our partners to support the network's capacity to meet the growing needs of member districts, schools, and libraries. In addition, MiSEN focused efforts on procurements and grant applications to continue to improve cyber-security and provide value as new FCC and E-Rate opportunities arose. Details of these initiatives are shown below.

Feasibility Study

MiSEN worked hand in hand with MAISA to evaluate the feasibility of connecting the remaining 20% of ISDs, districts, and PSAs to the SEN. This includes estimating the required fiber construction efforts needed to connect the underserved districts and buildings. The specific objectives of the feasibility study included:
- Digital Equity
- Improved Service Delivery, Continuity, and Security and Educational Opportunities
- Facilitated Technical and Professional Support
- Reduced Operational Costs

As self-reported in the feasibility study, there are:
- 70 Public school sites not connected to their local district
- 79 Public school sites that are underserved for network connectivity
- 60 Public Districts not connected to their ISD
- 4 ISDs not connected to the SEN for transport.
- Of the Public School Academies surveys in the PSA Participation Survey, only 12 responded.

The feasibility of meeting the goal to connect all underserved and unconnected sites increases exponentially with the utilization of E-Rate. Utilizing E-Rate stretches the return on investment to 300% or $0.70 in federal reimbursement for every $1 spent. In addition, Connectivity Grant funding (see below) will secure three years of MiSEN's operating budget, providing the lead-time needed to secure sustainability funding or develop a self-funding model that minimizes impact on members.

It is estimated that $270M would provide funding to support the consolidation and remove the barriers for the sites identified in this study to establish connections for local and cross-regional collaborations. MiSEN recommends leveraging available Federal and State funding sources (i.e., E-Rate, State matching funds, Broadband Equity, Access, and Deployment (BEAD) Program collaboration) to lower the implementation costs. Any remaining dollars after the connection costs and all disbursements from the E-Rate program should be used by MiSEN to maintain capacity, implement new technologies, and enhance connectivity equitably for all students across the State of Michigan. Ongoing funds could be used to support additional unconnected or underserved sites that missed responding in the initial data collection window. Below are links to the full feasibility study and data summaries:
MiSEN Consolidation Feasibility Study
MiSEN_Connection_Update_Dashboard Report.pdf
MiSEN Region Connectivity Summary 2024.pdf

Legislative Ask

MiSEN Partnered with MAISA to develop and lobby for legislative support for ongoing funding for the State Education Network. MAISA included MiSEN's Legislative Ask in its educational legislative recommendations for this year. Below are references you can share when supporting the MiSEN request for funding and authorization to Procure for Schools and Libraries.

MiSEN Legislative Ask One Pager
MiSEN History and Impact

MiSEN 12c Connectivity Grant

MiSEN is proud to support the 12c Consolidation Connectivity Grant, helping connect the entities identified in the connectivity feasibility study. This grant also allows MiSEN to sustain its operations while assisting eligible educational entities in joining the State Education Network (SEN) for regional and state collaboration, high-speed transport and internet services, and cybersecurity protection, including DDoS mitigation.

Connectivity Grant Support		
FY 24-25 Student Enrollment Impact	Location	Targeted Connectivity
2558	Eastern UP ISD (6 entities)	2025
4919	AMA ESD (5 Entities)	2025
4159	Charlevoix Emmet ISD (6 Entities)	2025
2287	Cheboygan Otsego Presque ESD (8 Entities)	2025
311	The Fairview School (C.O.O.R)	2025
131	Betsie ValleySchool (NWED)	2025
80	Michigan School of the Deaf (GISD)	2025
667	St. Joseph County ISD (2 Entities)	2025
Grant Support for over 15,112 Students in 2025		
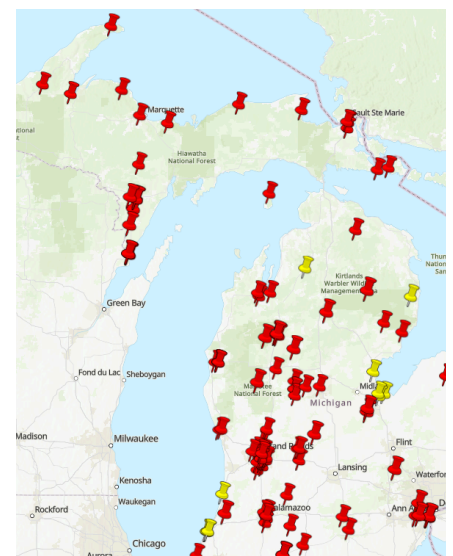
Identified Entities:

⚲ Unconnected

⚲ Underserved

Increased Internet Available Bandwidth to 300 Gbps

In May 2024, the MiSEN Board approved the increase of available Internet Access (IA) through our provider,123NET, to 300 Gbps total capacity for Fall 2024. This included:
- Increasing the IA bandwidth at our DC1 location from 130 Gbps to 200 Gbps
- Increasing the IA bandwidth at our DC4 location bandwidth from 50 Gbps to 100 Gbps
- Providing a contracted max IA bandwidth of 300 Gbps (total increase of 100 Gbps)

This service order is a tier within the existing contract. MiSEN Staff noted that this increase would sustain the network for the 2024-25 fiscal year but that increased capacity would be needed in the next fiscal year.

State Education Network (SEN) Capacity Study & Next Generation Planning

MiSEN staff & advisory developed the design requirements for the next version of the State Education Network to assist with the evaluation of current contract extensions and the FY26 E-Rate cycle. The existing SEN v2.0 network is approaching critical upgrade needs that will necessitate not only upgrading specific SEN Node bandwidth but also increasing the bandwidth of the associated backhaul services that provision them. These design requirements include the following objectives:

Capacity

- Provide adequate bandwidth transport capacity and adequate backhaul services to support each SEN Nodes for the next ten (10) years
    - Each SEN Node must be provisioned by at least two diverse backhaul services capable of ensuring 99.99% uptime at the SEN Node's contracted bandwidth
    - Each SEN Node backhaul service must be CAPABLE of providing the sum of all the SEN Nodes provisioned on the associated backhaul service at their contracted maximum upgradeable bandwidths, without incurring "additional" backhaul upgrade costs at the time of upgrading one or all of the SEN Nodes
    - Each SEN Node's backhaul services must be able to access at least two diverse MetroE nodes, which in turn are capable of accessing two diverse SEN Core Backbone nodes, which in turn are capable of accessing the two diverse data centers, DC1 and DC4
    - SEN MetroE regional backhaul rings maintained at 40 Gbps or upgraded to 100 Gbps or 400 Gbps backhaul bandwidth capacity as required
    - Data Centers, DC1 and DC4, must be provisioned with resilient 400 Gbps Core Backbone ring backhaul service, capable of being upgraded to at least 800 Gbps

Monitoring

- Implement the necessary strategies, methods, and mechanisms for MiSEN to monitor, manage, and provision the required bandwidth increases based on at least the following growth factors:
    - Michigan K12 student counts
    - Attaching ALL Michigan K12 buildings on the SEN
    - Provisioning ALL K12 buildings' statewide intranet and Internet bandwidth and access needs
    - Provisioning the K12 community with statewide services in addition to Internet Access and DDoS as they become available via the SEN e.g. firewall, filtering, caching, cyber security detection and prevention, direct peering, telephony, online curriculum and instruction, student assessment testing, one-to-one

initiatives, off-campus access to K12 resources, State of Michigan (SOM) K12 systems, etc.

Network Equipment

- The SEN v3.0 upgrades will refresh the on-premises equipment of all 10 Gbps and 20 Gbps SEN Nodes and, at least, the on-premises equipment at the MetroE 100 Gbps and 400 Gbps SEN Node locations
- The network backhaul delivery services (MetroE and Core Backbone) will transition from dedicated SEN hardware to a shared network hardware services model regulated by the SLA provisions of the contract
- SEN traffic will remain isolated and secure on shared network equipment within the SEN Transport Network

SEN Dynamic Routing Capability

- Develop clear dynamic routing decision specifications SEN Node, MetroE, and Core Backbone traffic to facilitate specific automated failover procedures

Membership Agreement, Annual Checklists, and Letters of Agency

As part of developing the Membership Agreement, MiSEN's legal council has provided an opinion letter supporting the belief that MiSEN only needs a Letter of Agency for the ISDs and libraries connected to the SEN. ISDs have statutory authority to procure on behalf of their LEAs. MiSEN has collected Annual Checklists (technical contact and network information) and updated Letters of Agency from all ISDs and participating Libraries.

The MiSEN Board approved a Membership Agreement for implementation during 2025. This agreement identifies the roles and responsibilities of the participating members and MiSEN as well as clarifies key administrative and technical tasks, including:

- Letters of Authorization
- 479s for CIPA compliance
- Membership fees and invoice restrictions
- Connected entities and addresses for E-Rate filing
- Technical and administrative contacts
- Bandwidth Forecasts
- Procedures for connecting new entities

MiSEN reviewed this agreement with members during their individual member review sessions.
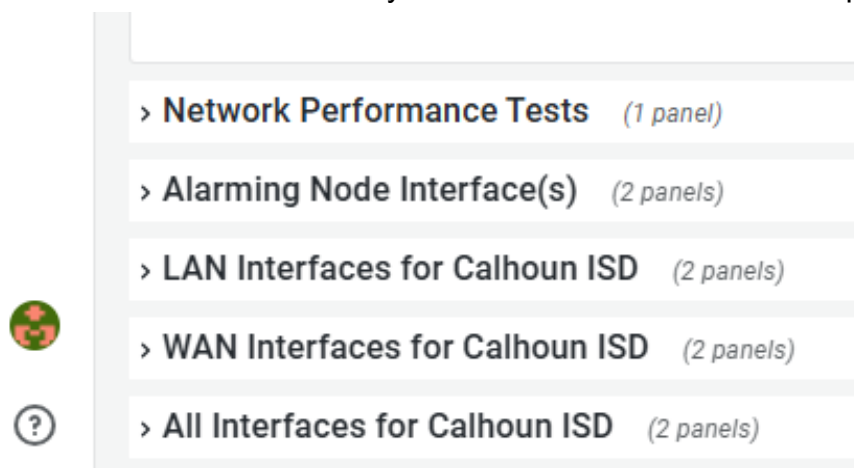
Network Monitoring

MiSEN coordinated with Merit in enhancing the Global NOC portal for users. This included:

- The addition of two more values to assist in capacity planning: daily and 30-day peak utilization for every WAN and LAN interface.

Navigation tabs: Site Performance | Alerts/Tickets | Link Utilization Listing | Link Utilization Map | Communication Matrix | Help

General / Link Utilization Listing

Member: All

Link Utilization Listing

Link Name	Capacity	Output Utilization	Output Utilization %	Max Day Output	Max Month Output	Input Utilization	Input Utilization %	Max Day Input	Max Month Input
(1D) 123.Net DC1 to (Cloud) 123.Net DC1 - 200 ...	200 Gb/s	11.0 Gb/s	5.5%	12.9 Gb/s	19.1 Gb/s	77.5 Gb/s	38.7%	99.4 Gb/s	118.8 Gb/s
(OISD) Oakland Schools to (1D) 123.Net DC1 - 2 ...	200 Gb/s	8.2 Gb/s	4.1%	9.7 Gb/s	15.7 Gb/s	50.5 Gb/s	25.2%	61.2 Gb/s	78.6 Gb/s
(ONETWONE) Byron Center To (Cloud) 123.Net ...	100 Gb/s	6.4 Gb/s	6.4%	7.3 Gb/s	9.6 Gb/s	46.2 Gb/s	46.2%	56.4 Gb/s	73.9 Gb/s
(WCRESA) Wayne RESA to (DSOA) Detroit Schoo...	100 Gb/s	3.2 Gb/s	3.2%	3.7 Gb/s	8.4 Gb/s	21.5 Gb/s	21.5%	30.6 Gb/s	35.7 Gb/s

- Updated logic for Alerting thresholds
- Added an alert to monitor for failover between Data Centers with the Internet provider
- Added Interface Descriptions for ease of identification
- Enhanced User Interface to Identify LAN vs WAN interfaces more quickly

> Network Performance Tests *(1 panel)*

> Alarming Node Interface(s) *(2 panels)*

> LAN Interfaces for Calhoun ISD *(2 panels)*

> WAN Interfaces for Calhoun ISD *(2 panels)*

> All Interfaces for Calhoun ISD *(2 panels)*

- Improved load times on Links utilization and Site Performance pages.

In addition, MiSEN Operations team is now receiving alerts in an email and SMS messaging directly from the interface monitoring to ensure notification of all network outages without the need to log into the portal.

Information Sharing and Marketing

The MiSEN Staff regularly participates with these partnering organizations for coordination, collaboration and advocacy:
- Michigan Technology Leaders (METL) & Cybersecurity Task Force
- MAISA - Mich Council & MichIT Leadership
- Michigan Association for Educational Data Systems (MAEDS)
- MiSecure Advisory
- MiGreatDataLake Advisory
- MiCloud Advisory
- Regional Technology Director meetings (as requested)
- State E-Rate Coordinators' Alliance (SECA)
- Schools, Health & Libraries Broadband (SHLB) Coalition

This past year MiSEN Staff have partnered in presentations and exhibitor booths at various organizational events including:
- MSBA Presentation with MiSecure
- State Cybersecurity Conference Presentation with MiSecure

- MACUL Presentation and Booth
- MSBO Booth
- MAEDS Fall & Spring PD Presentations
- Merit Member Conference Presentation
- SHLB Washington DC Fly-in

These events provided opportunities for the MiSEN Director and Infrastructure team to share how the SEN bridges networks to connect entities across the state for collaboration and low-cost Internet, as well as provide knowledge regarding Network and Cybersecurity topics. Appendix F is one example of the Broadband facts shared.

Regional Support Activities

This past year MiSEN supported the following members with Regional Activities to the State Educational Network. This support included:

- Facilitating WAN designs with high availability often across multiple counties
- Providing technical resources for guidance
- Mentorship of new engineering staff
- WAN efficiency configuration reviews (firewall configurations, IP changes)
- Advanced Firewall / Routing troubleshooting
- Emergency network support for hardware
- Emergency support for fiber outages
- Network documentation creation
- SIP troubleshooting
- NTP abuse identification and resolution
- Technical troubleshooting with network service providers to resolve ongoing issues
- Internet troubleshooting for State Assessment providers to identify issues on the internet during the testing window.
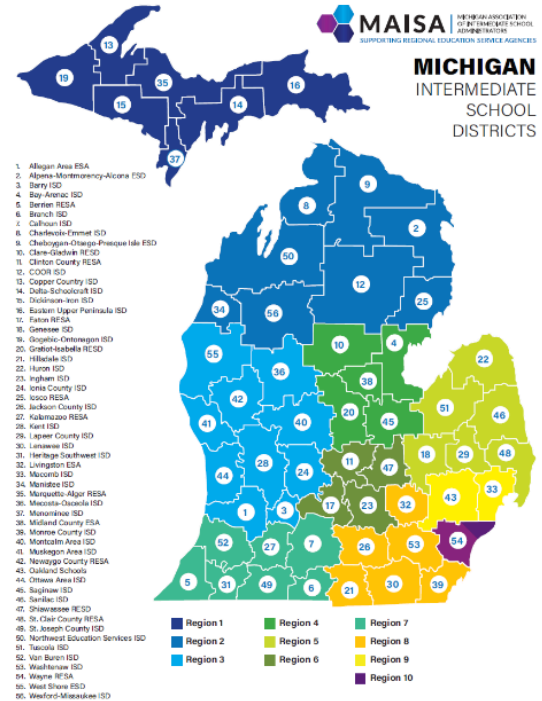
Some Specific projects to highlight include:

Region	Location	Support
2	Ionia RESA	Completed MiSEN IA attachment, BGP configuration support with current transport vendor
9	Oakland Schools	Completed increase capacity through port resilience
1	Delta Schoolcraft ISD	Assistance with planning for MiSEN Internet Access Service attachment beginning 7/1/2025
4	Branch ISD	Exploring MiSEN Direct Connection options
1	Dickinson Iron ISD	Exploring MiSEN Internet Access transition

7	Clare Gladwin RESD	Emergency equipment replacement
7	Midland ISD	Router configuration assistance

Routing Security

MiSEN continues to work with all ISDs who maintain ownership of "public" IPs from American Registry of Internet Numbers (ARIN) to review and update all Internet Routing Registry (IRR) data. The IRR data provides valuable documentation for other internet users to properly understand each respective ISD and LEA's public routing policies. In previous years, MiSEN has implemented Routing Public Key Infrastructure (RPKI) Route Origin Authorization (ROA) records. These records prevent the district's IP addresses from being hijacked either via configuration errors or malicious intent and is considered a modern evolving internet security technology.

As of April 2025, 55.91% of the internet has implemented this technology. MiSEN is very involved with changes and best practice implementations of RPKI. Constant review of these configurations ensures the security posture of the SEN for our public routing infrastructure.

FCC Cybersecurity Pilot Application

MiSEN filed the E-Rate Form 484-Part 1 on Friday, November 1, 2024, including over 250 districts in its application. The MiSEN Consortium requested a maximum budget of 4.5 million dollars. According to E-Rate Central, approximately 4,750 applications were initiated during the open window period. The FCC released the list of selected entities, but MiSEN was not included. It appears that all 16 selected MI entities had a 90% discount rate, which placed MiSEN below the eligibility threshold.

State and Local Cybersecurity Grant Applications

MiSEN submitted two applications for State and Local Cybersecurity Grant Program (SLCGP) grants in partnership with MiSecure. One is for a statewide cybersecurity training effort for IT staff. The idea is to develop a cohort-style team that progresses through a purchased training program together. They'll meet regularly and proceed to obtain a credential/certification. This effort would build on the MiSecure community of practice. The requested amount was ~$200,000, supporting approximately three people per ISD.

The other application would address network-level security on the MiSEN network for ~$1.5 Million. This request is under the MSP (managed service provider) category and identified the following areas of need:

1. Detecting and preventing threats in real-time using Network Detection and Response (NDR) technology
2. Provide whole-of-network level monitoring to inspect traffic at both the ingress and egress locations, delivering intrusion detection services.
3. Provide monitoring of internal network resources using an internal network monitoring/scanning system such as the CIS Albert Network Monitoring and Management

4. A security information and event management (SIEM) type service that ingests data from multiple sources within the network. It includes analysis, response, and alerting for detections.

Hotspot & Bus Wifi RFP

The FCC added WiFi HotSpots to the E-Rate service eligibility list. MiSEN submitted a Form 470 and completed the RFP process for HotSpots and Bus Wifi service with multiple providers awarded. This allows our individual member districts and libraries to utilize this RFP award in their E-Rate evaluations, saving districts time and effort.

Summary

Reliable and resilient network connectivity is an absolute necessity for Michigan's schools and libraries of Michigan. It enables everything from the most traditional instructional services and operational functions to the most modern and innovative services provided to and by these institutions. The MiSEN Advisory and staff have spent countless hours working to ensure that Michigan's K12 schools and public libraries meet this essential need through the MiSEN project. This year's MiSEN $6M budget, combined with funding from the original TRIG funds and anticipated Federal E-Rate funding reimbursements ($3.5M), supported the delivery of the essential network services described in this report.

Recommendations for Funding Year 2025-2026

The MiSEN Director and Board are confident that the plans and adjustments for FY 2025-2026 will position the MiSEN project to meet the connectivity needs of Michigan's K-12 schools and public library members for the upcoming 2025-2026 year. These adjustments will further support the Connectivity Grant's efforts to sustain the operations of the Statewide Education Network while working to connect the identified underserved or unconnected entities.

I. Core Network Services

A.   Transport Services
- MiSEN operates a Statewide Educational Network (SEN) connecting fifty-eight (58) SEN Nodes throughout Michigan and two (2) regional ISP data centers.
- The SEN is a fully managed, leased lit transport service provided by Merit Network, Inc. (Merit); MiSEN's network transport provider.
- The SEN consists of 40 Gbps, 100 Gbps, and 200 Gbps core backbone services, delivering 10 Gbps to 100 Gbps transport service to its SEN Nodes.
- Every ISD has at least two diverse WAN circuits.
- MiSEN has a service order in place to increase our 100 Gbps backbone connections between aggregation locations to 400 Gbps for 2025-27, based on 5 & 10-year projections
- MiSEN also has a service order for the Merit Network Transport contract to:
    - Increase the Metro Ethernet (Metro E) transport to 100 Gbps in the West Region and 400 Gbps in the East Region
    - Upgrade WAN Transport Core Backbone services in Lower Michigan to 400 Gbps.

This Service is included in the FY25 E-Rate filing and, if approved by USAC, will be reimbursed at the MiSEN Consortium discount rate (estimated at 75%). MiSEN covers the non-discounted portion of this service to ensure equitable service delivery across the state.

B.   Internet Access Services
- MiSEN Provides Internet Access (IA) at two geographically diverse data centers (Byron Center and Southfield/Detroit Internet Exchange) for load balancing and resiliency. 123Net's SOC 2/Type 2 / HIPAA / PCI-DSS, SSAE-16 compliant, Tier 3 facilities offer a state-of-the-art controlled environment, power, and security with matchless network connectivity, carrier diversity, and an SLA-backed power and network uptime guarantee.
- The SEN is currently under contract for 300 gigabits and could burst up to 400 gigabits of IA traffic as required.
- MiSEN works proactively with an ISD Engineering team to review and anticipate traffic increases through regular capacity planning. ISDs are only required to provide estimated bandwidth usage annually.

In the coming year, MiSEN will increase its IA capacity by 100 Gbps to accommodate the 400 Gbps capacity needed. Access to two Michigan internet Exchanges will allow MiSEN to explore direct peering opportunities in the future.

This Service is included in the FY25 E-Rate filing, and if approved by USAC, it will be reimbursed at the MiSEN Consortium discount rate (estimated at 75%). Members pay a modest Membership Fee to support the network's overall operational expenses.

C.   DDOS Mitigation

MiSEN pays for DDoS Mitigation services. The service utilizes BGP Flowspec to mitigate out-of-norm traffic extremely fast (less than 30 seconds) without any manual intervention. MiSEN has contracted for a Mitigation Service through our 123NET Contract.

The funds requested are from MiSEN, as this service is not yet eligible under the E-Rate Service list. This Service is provided at no cost to the MiSEN Consortium members.

D.   Network Services

Kalamazoo RESA provides network engineering support, day-to-day operation, and member support for MiSEN. These Technical Services include but are not limited to:

- Network monitoring
- Problem tracking and resolution
- Constituent premise equipment configuration
- Transport and Internet access vendor management
- Network upgrade and installation management
- Technical security services
- Onsite technical support

In addition, MiSEN provides schools and libraries with network design consultation and IP address management.

II. Operational Services

Expenses for operational services–including third-party services, equipment, software, and maintenance–are included in this category if they are not E-Rate eligible and not part of a separate funding request. These services typically include, but are not limited to, equipment, dues and fees, IPv4 address space, hardware and software maintenance for staff and services, legal services, audit services, and liability insurance. Members pay a modest Membership Fee to support the network's overall operational expenses.

III. Business Services

The Genesee ISD acts as the Fiduciary for MiSEN. As such, there is a contract for all Business Services with GISD including:

- Accounts Payable
- Budget Development, Amendments
- Audit Preparation
- Bank Account Reconciliations
- Financial Reporting
- Credit Applications
- Insurance Claims (Liability)
- Purchase Orders
- Financial Analysis
- Bidding Process
- Management and Oversight

In addition, GISD will provide the same services for the 12c Connectivity Grant Services contract.

IV. Technical Management Services

The Genesee ISD acts as the Fiduciary for MiSEN. As such, there is a contract for Technical Services with GISD including:

Management Services
The MiSEN Director will provide project oversight, day-to-day Project Management, Coordination of staff, as well as resource and budget allocation. The Director will oversee the entire procurement process from writing the RFPs to final contract negotiations, in collaboration with the E-Rate and Technical Consultants.

Administrative Support Services
The Administrative Assistant handles Scheduling Meetings, Meeting Support, recording of minutes, and all invoicing activities related to MiSEN. These activities include receiving the invoices from the contracted service providers, verifying their accuracy, submitting the invoices for reimbursement for the E-Rate Program, reconciling payments, and maintaining records for the time frame required by the E-Rate Program rules.

In addition, GISD will provide these same services for the 12c Connectivity Grant Services contract.

V. Consultant Services

E-Rate Support
MiSEN acts as the E-Rate Filing Consortium Lead, managing all eligible services for project participants. MiSEN contracts with E-Rate Central to manage the entire filing process and verify federal E-Rate paperwork. Additionally, E-Rate Central supports schools with MiSEN project and non-project E-Rate eligible services, providing training, information dissemination, application filing support, and assisting schools with Program Integrity Assurance (PIA) requests related to MiSEN.

Network Architecture
MiSEN supports a complex bridge network that requires high-level expertise in network architecture design. For this service, MiSEN consults with Michael Andrews on a per-project basis.

Fiber and Network Engineering Support
MiSEN retains contract services with Lapeer ISD for the following services, in the event of a Network issue requiring fiber troubleshooting, repair, or replacement) including, but not limited to, the following:
- Outside plant-related services
- Network-related services
- Mapping services (of both existing and new infrastructure)
- Maintenance and repair services
- Meeting with local school districts, intermediate school districts, consortiums of school districts, governmental entities, vendors, and other stakeholders as necessary.

MAISA Partnership Support

This is an agreement between the Michigan Association of Intermediate School Administrators (MAISA) and Michigan Statewide Education Network (MiSEN) to provide leadership, consulting, advocacy, application development, and structured collaboration with all statewide MiCH IT service areas. Specific Services include:

- Staffing for Connectivity Grant Project Manager
- Work with the SEN Director to develop MiSEN Management System
- Represent and advocate for the SEN with strategic stakeholder groups
- Develop & execute Legislative Ask
- MICH IT Collaboration Network

Acknowledgments

The MiSEN Leadership as part of this annual report is formally acknowledging and thanking the following individuals and groups:

- The MiSEN Board and Staff for their dedication and diligent work in operating and expanding the network.
- Michael Andrews and David Childs, who were the original designers of MiSEN and still serve as trusted advisors today.
- The MiSEN Advisory for their collaboration in developing a network whose collective value exceeds the sum of its individual parts.
- E-Rate Central and Joe Polasek, for their partnership and E-Rate support.
- Kalamazoo RESA and Lapeer ISD for their support for Network Engineer Staff and Fiber Plant /Engineering support.
- Genesee ISD for acting as our fiscal agent and providing support with Staffing and Business Services.
- Merit Network and 123NET as partners in this service delivery model.
- Shiawassee RESD for their sponsorship of the Connectivity feasibility study and contract to support Unconnected and Underserved entities through the Consolidation grant.
- Members of MAISA, the Michigan Educational Technology Leaders, and MichIT for their support in the data collection and completion of the feasibility study.
- MDE, DTMB, and the MI legislature, whose support is critical and integral to SEN's future

Appendix A

MiSEN Financials: Funding Years 2014/2015 – 2023/2024
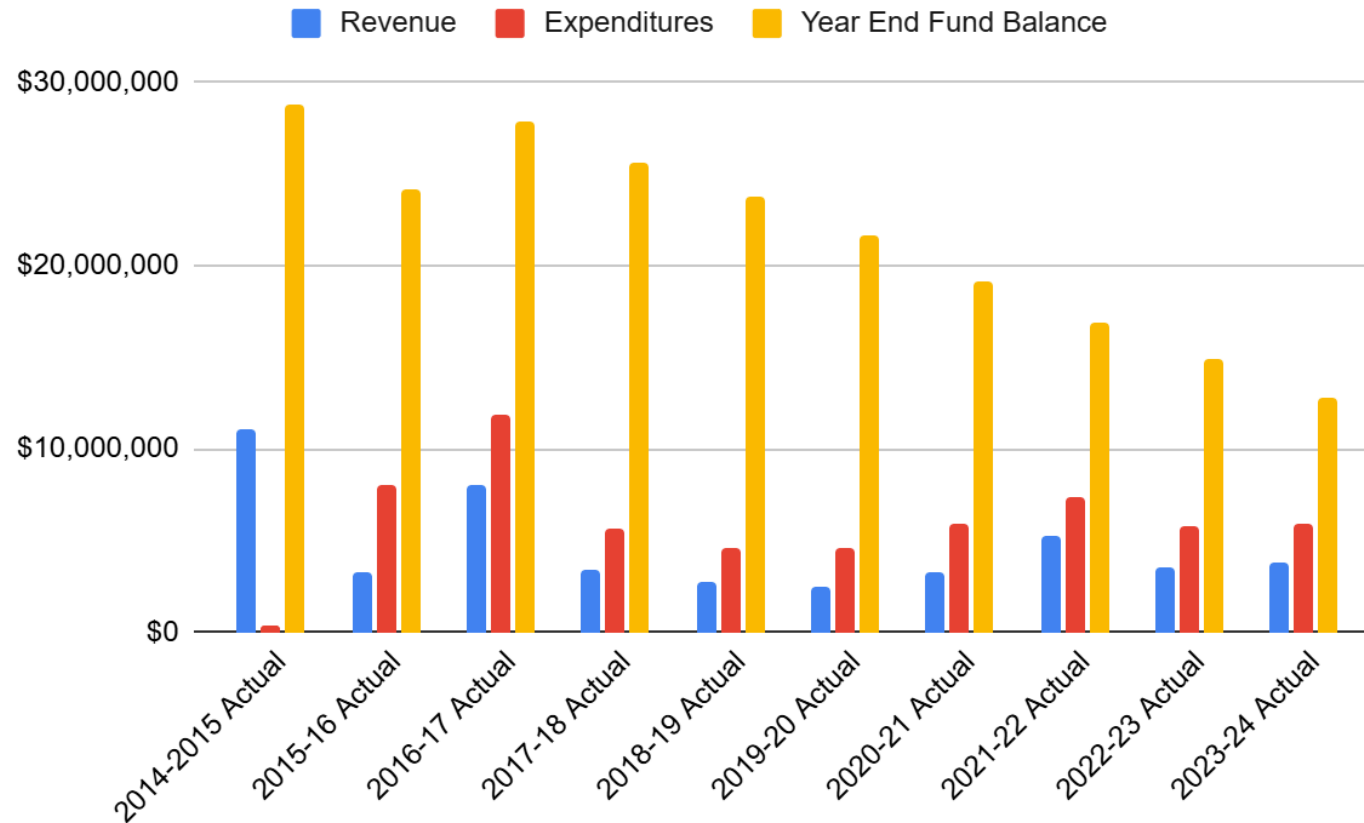
	2014-2015 Actual	2015-16 Actual	2016-17 Actual	2017-18 Actual	2018-19 Actual	2019-20 Actual	2020-21 Actual	2021-22 Actual	2022-23 Actual	2023-24 Actual
Revenue	$11,059,405	$3,310,446	$8,071,116	$3,402,192	$2,718,783	$2,505,190	$3,316,204	$5,257,329	$3,584,534	$3,804,379
Expenditures	$358,153	$7,984,900	$11,819,134	$5,668,604	$4,590,932	$4,602,895	$5,905,287	$7,414,623	$5,724,946	$5,885,495
Year End	$28,824,736	$24,150,283	$27,911,985	$25,645,573	$23,773,423	$21,675,718	$19,086,635	$16,929,342	$14,926,284	$12,753,839

Appendix B

MiSEN Cumulative E-Rate Reimbursements: Funding Years 2016 – 2023

Legend: Funding Year, Total Reimbursments

Funding Year	Total Reimbursements
2016	$8,143,915.96
2017	$10,194,041.01
2018	$12,542,535.59
2019	$14,891,671.43
2020	$18,138,206.19
2021	$22,174,877.48
2022	$25,634,039.41
2023	$29,175,276.77
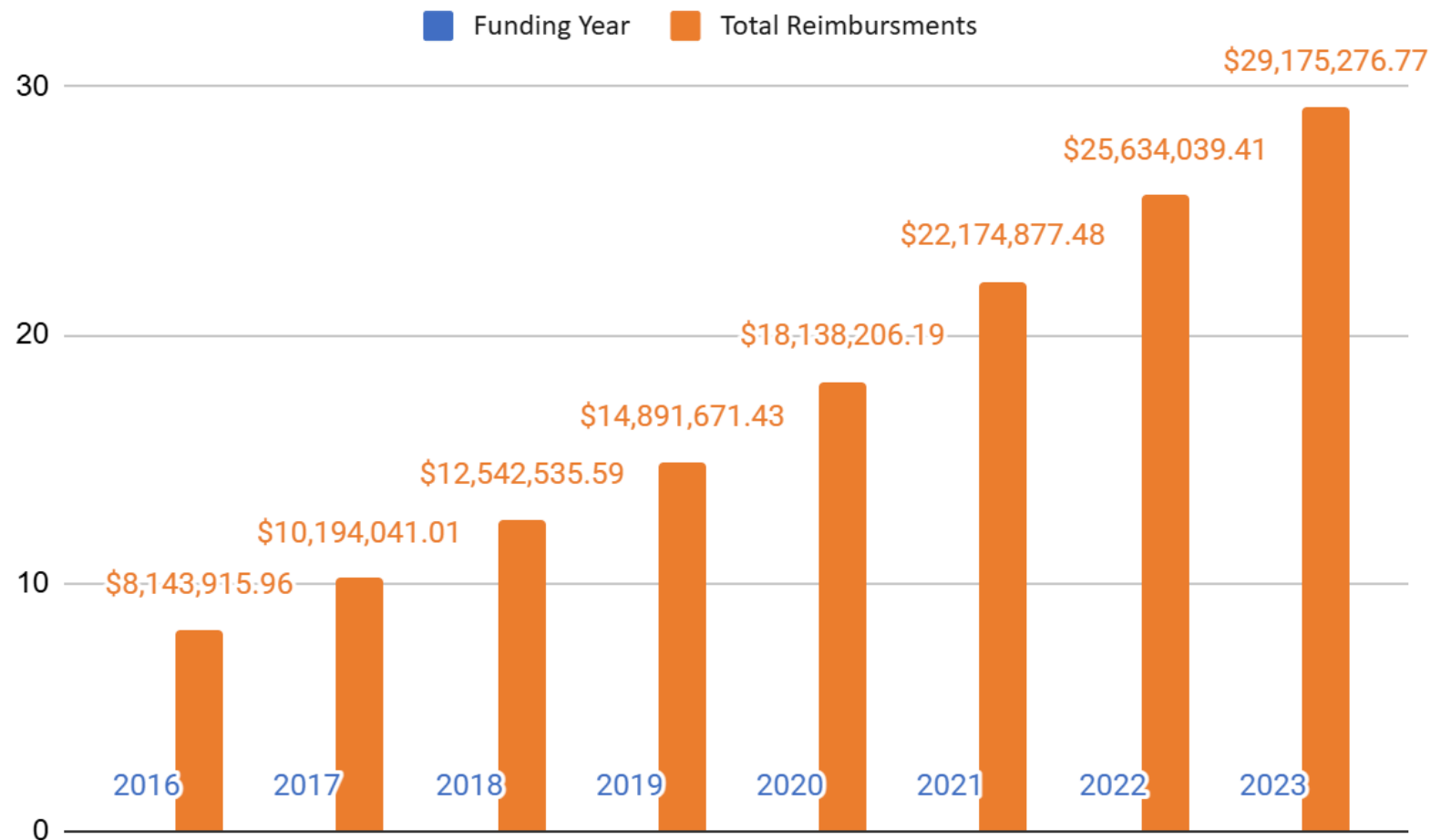
Funding Year	Fiscal Year	Annual Reimbursements*	Total Reimbursements
2016	2017	$8,143,915.96	$8,143,915.96
2017	2018	$2,050,125.05	$10,194,041.01
2018	2019	$2,348,494.58	$12,542,535.59
2019	2020	$2,349,135.84	$14,891,671.43
2020	2021	$3,246,534.76	$18,138,206.19
2021	2022	$4,036,671.29	$22,174,877.48
2022	2023	$3,459,161.93	$25,634,039.41
2023	2024	$3,541,237.36	$29,175,276.77

MiSEN requests E-Rate reimbursement funds from the FCC by March of each year for the upcoming school year in which the services will actually be delivered e.g. March 2024 for July 1, 2024 – June 30, 2025. The FCC must then approve the E-Rate funds being requested (a process that can take until December of the upcoming school year). MiSEN cannot request the actual reimbursement payments until a) the FCC approves funding, b) the services have been rendered and invoiced by the service provider and c) MiSEN has paid the service provider's invoice(s). Once MiSEN has requested the actual E-Rate reimbursement payments, payment can easily take 3-6 months before MiSEN is reimbursed. The result is that the actual receipt of the E-Rate reimbursement payments from the FCC is typically 4-8 months after the services have been delivered, assuming the FCC approved them in a timely manner. This results in up to half or more of the E-Rate reimbursements for a specific school year being received in the following fiscal/school year. This can easily require MiSEN to float the payment of these delayed reimbursements across fiscal years, with all of the related budgeting and accounting complexities associated with such delays.

Appendix C

MiSEN Strategic Plan Targets

	NOW		NEXT		LATER
C ▾	Study MiSEN Connections Unserved and Capacity Growth. Build the connections model for School sites.	P ▾	Establish RFP and E-Rate filing plan and timeline for connecting Unconnected and Underserved Schools	C ▾	Develop templates for RFI, RFP to connect additional sites.
P ▾	Audit ISD Connections and execute Master Agreements with all parties.	P ▾	Develop a MiSEN Data System	P ▾	Exploration / Implementation of new Erate opportunities: Fiber Maintenance, Firewalls, Cybersecurity for the SEN
C ▾	Establish a Communication Plan to Build understanding of what MiSEN provides to prepare for the legislative ask for sustainable funding	P ▾	Support Regional Connectivity requests - design and E-Rate for Matching Funds	N ▾	State-wide - USF WAN bid by region- fiber build-out
P ▾	Explore direct connect to SEN for secure private transport (MiCLOUD via AWS, DRC connection for Assessment Delivery)	P ▾	Connect SEN, MiNOC, and MiSecure engineering to a community of support for ISDs	C ▾	MiSEN/MiSecure to develop cybersecurity recommendations for the SEN (E-Rate pilot /SLCGP)

Status Key

U Unknown
N Not Started
P In Progress
c Completed

MiSEN
Michigan Statewide Educational Network

Appendix D

2024/2025 Michigan Statewide Educational Network Board Members

Mr. Dave Schulte	President	Shiawassee RESD
Mr. Doug Leisenring	Treasurer	Delta Schoolcraft ISD
Mr. Rich Franklin	Secretary	Barry ISD
Dr. Stephen McNew	Exec Comm. Dir	Monroe ISD
Dr. Terance Lunger	Exec Comm. Dir	Calhoun ISD
Mr. Jamie Huber	Board Member	COP ESD
Dr. Daveda Colbert	Board Member	Wayne RESA
Mr. John Searles	Board Member	Midland ESA
Mr. Kenneth Gutman	Board Member	Oakland Schools
Dr. Steven Tunnicliff	Board Member	Genesee ISD
Mr. Dave Judd	Ex-Officio	MDE

Appendix E

2024/2025 Michigan Statewide Educational Network Advisory Members

Region	Location	Member
1	Copper Country ISD	Josh Hiner
2	COOR ISD	Josh Hayes
3	Mecosta-Osceola ISD	Fred Sharpsteen
3	Muskegon Area ISD	Myles Sylva
3	Ottawa ISD	Troy Calgaro
3	Educational Technology Assoc	Patrick Wroble
3	Kent ISD	Tim Lillis
4	Clare-Gladwin RESD	Ken Chinavare
5	Genesee ISD	Kevin Kickbusch
5	Lapeer County ISD	Shawn Gartee
5	St Clair County RESA	Steven Tenniswood
5	Lapeer County ISD	Matt Molloseau
6	Clinton County RESA	Pete Klein
6	Ingham ISD	Mike Lilly
7	St Joseph County ISD	Ben Daugherty
8	Livingston ISD	David Larson
9	Oakland ISD	Christopher Hammond
10	Wayne RESA	Kurt Rheaume
	MiCH/MAISA	Tom Johnson
	MiCH/MAISA	Tammy Evans
	MiCH/MAISA	Matt McMahon
	MiCloud/MAISA	Mike Coats
	MDE	Joe Polasek

Appendix F

Michigan Statewide Educational Network Services by Intermediate School District Matrix

District/Agency	Transport Network	Internet Access (Primary)	Internet Access (Resilient)	E-Rate Category 1 Filing	E-Rate Consulting support	Network Engineering support	FiberPlant Support	Security service: DDoS	MiSEN IP Allocated
Allegan Area ESA	X	X		X		X		X	
Alpena Montmorency Alcona ESD (AMA)	X	X		X	X	X	X	X	X
Barry ISD	X	X		X		X		X	
Bay Arenac ISD	X	X		X				X	X
Berrien RESA	X	X		X	X	X		X	
Branch ISD	X	X		X		X		X	
Calhoun ISD	X	X		X	X	X		X	
Charlevoix-Emmet ISD	X	X		X	X			X	X
Cheboygan Otsego Presque ESD (COPESD)	X	X		X	X			X	X
Clare-Gladwin RESD / CGRESD	X	X		X		X		X	
Clinton County RESA	X	X		X		X		X	
COOR ISD (Crawford,Oscoda,Ogemaw,Roscommon)	X	X		X		X		X	X
Copper Country ISD aka REMC1 SPIN	X	X		X				X	X
Delta-Schoolcraft ISD	X	X		X				X	
Dickinson-Iron ISD	X	**		X				**	
Eastern Upper Peninsula ISD (EUP)	X	X		X	X	X	X	X	X
Eaton RESA	X	X		X		X		X	X
Genesee ISD	X	X		X		X		X	X
Gogebic-Ontonagon/ISD Western UP	X	X		X				X	
Gratiot-Isabella	X	*		X		X		*	
Heritage Southwest ISD/Lewis Cass	X	X		X	X	X		X	
Hillsdale ISD	X	X		X		X		X	
Huron ISD	X	**	X	X		X		X	
Ingham ISD	X	X		X		X		X	X
Ionia ISD	X	X		X		X		X	
Iosco RESA	X	X		X		X		X	X
Jackson ISD	X	X		X		X		X	
Kalamazoo RESA / KRESA	X	X		X	X	X		X	
Kent ISD	X	X		X		X		X	
Lapeer County ISD	X	X		X		X		X	X
Lenawee.Monroe Technology Consortium	X	X		X		X		X	

ISD									
Livingston ESA	X	X		X		X		X	
Macomb ISD	***	***		***				***	
Manistee ISD	X	X		X		X		X	X
Marquette-Alger RESA	X	**		X				**	
Mecosta-Osceola ISD / MOISD	X	X		X	X	X		X	X
Menominee ISD	X	X		X				X	
Midland ESA	X	X		X		X		X	
Monroe ISD	X	X		X	X	X		X	
Montcalm ISD	X	X		X	X	X		X	X
Muskegon Area ISD	X	X		X		X		X	X
Newaygo RESA	X	X		X				X	X
Northwest ESD	X	X		X		X		X	X
Oakland ISD	X	X		X				X	X
Ottawa ISD	X	X		X				X	X
Saginaw ISD	X	X		X				X	
Sanilac ISD	X	**	X	X		X		X	
Shiawassee RESD	X	X		X		X		X	X
St Clair County RESA (SCCRESA)	X	*		X				*	X
St Joseph County ISD	X	X		X	X	X	X	X	
Tuscola ISD	X	**	X	X		X		X	
Van Buren ISD	X	X		X	X	X		X	
Washtenaw ISD	X	X		X		X		X	X
Wayne RESA	X	X		X				X	
West Shore ESD	X	X		X		X		X	X
Wexford-Missaukee ISD	X	X		X		X		X	X
TOTAL ISDs served	**55**	**48**	**3**	**55**	**13**	**40**	**3**	**51**	**25**

* Entity is Service Provider for Internet Access and cannot leverage MiSEN E-rate Internet Service

** Entity is currently under another Provider Contract

*** Entity has Opted out of Services

Appendix G

Michigan Statewide Educational Network Facts

Broadband Facts

Michigan Statewide Educational Network (MiSEN)

State Education Network: Transport & Internet Access*

Fixed Broadband Consumer Disclosure

MiSEN Service Membership Fee	Scaled by Discount
This monthly price is an introductory rate	No

There are no fees for E-Rate eligible entities for data transport services.
No equipment fees for usage of this service.

Link to Membership Agreement.
    https://www.misen.org/terms-of-contract

Additional Member Charges & Terms	
E-Rate Consulation and Filing	$0.00
Technical Network Consulting	$0.00
Fiber Optic Construction and Maintenance Consulting	$0.00
IRR & RPKi/ROA Security	$0.00

Discounts & Bundles	
DDoS Protection Services	$0.00
Network Status and Ticketing Portal	$0.00

Speeds Provided with Plan - Minimum Starting Bandwidth

Minimum Download Speed	10	Gbps
Minimum Upload Speed	10	Gbps
Typical Latency	<20	ms

Internet Bandwidth Monthly Member Price	$.09 per Mb/s
Price before E-Rate Eligible Discount	

Price adjusted with compliance of a properly filed E-Rate Form 479 certifying compliance with the Children's Internet Protection Act.

Network Management Policy
    https://www.misen.org/annual_report
Privacy Policy
    https://www.misen.org/about_misen

Member Support
Phone:	(810) 591-4428
E-mail:	info@misen.org
Website:	https://www.misen.org/misen_staff

Learn about the terms used on this label. Visit the Federal Communications Commission's Consumer Resource Center.
                    https://www.fcc.gov/consumers

*MiSEN is a 501(c)(3) organization procuring broadband service on behalf of E-Rate eligible institutions in the State of Michigan and is not an internet service provider.

This document is for promotional purposes only and not intended to be a fact sheet under the FCC's guidance.

Glossary of Terms

MiSEN (Michigan Statewide Educational Network): A 501(c)(3) corporation that provides network connectivity to Michigan K-12 schools, ISDs, LEAs, and PSAs.

SEN (Statewide Educational Network): The fiber-optic network operated by MiSEN that connects ISDs across Michigan.

ISD (Intermediate School District): A regional educational service agency that provides support services to local school districts within its boundaries.

LEA (Local Education Agency): A public board of education or other public authority legally constituted within a state for either administrative control or direction of, or to perform a service function for, public elementary or secondary schools in a city, county, township, school district, or other political subdivision of a state, or such combination of school districts or areas as are recognized in a state as an administrative agency for its public elementary or secondary schools.

PSA (Public School Academy): Commonly known as charter schools in Michigan, they are public schools of choice that operate independently of traditional school districts.

TRIG (Technology Readiness Grant): A state grant that provided initial funding for the creation of the Statewide Educational Network.

E-Rate: A federal program that provides discounts to schools and libraries for telecommunications, internet access, and internal connections.

Consortium Lead: In the context of E-Rate, an entity that applies for funding on behalf of a group of eligible members (like MiSEN is for ISDs and libraries).

WAN (Wide Area Network): A network that covers a broad geographical area, often using transmission facilities provided by common carriers.

Gbps (Gigabits per second): A unit of data transfer rate equal to one billion bits per second, often used to measure network bandwidth.

ISP (Internet Service Provider): A company that provides internet access to individuals and organizations.

DDoS (Distributed Denial of Service): A type of cyberattack in which multiple compromised computer systems attack a target, such as a server, website, or other network resource, and cause a denial of service for users of the targeted resource.

MAISA (Michigan Association of Intermediate School Administrators): An organization supporting regional education service agencies (ISDs) in Michigan.

METL (Michigan Education Technology Leaders): A group made up of Intermediate School District Technology leaders in Michigan.

Letter of Agency: A document signed by schools and libraries that voluntarily elect to participate in the MiSEN consortium, allowing MiSEN to act on their behalf for E-Rate and contracting purposes.

SEN Node: A physical location on the Statewide Educational Network, often at an ISD, where network connectivity is distributed.

Leased-Lit Transport Service: A network service where a provider leases a fiber-optic connection that is already "lit" or active, providing data transport.

Backbone Services: The high-capacity central part of a network that interconnects various networks and provides a path for data exchange.

WAN Circuit: A communication pathway connecting geographically separated locations in a wide area network.

Uptime: The percentage of time that a service or system is available and functioning correctly.

E-Rate Reimbursement: Funds paid back to E-Rate applicants after eligible services have been delivered and paid for.

Feasibility Study: An assessment to determine the practicality and potential of a proposed project or initiative, in this case, connecting remaining underserved and unconnected educational sites.

BEAD (Broadband Equity, Access, and Deployment) Program: A federal program aimed at expanding high-speed internet access across the United States.

Legislative Ask: A formal request for legislative support and funding

Connectivity Grant: Funding provided to support the connection of underserved and unconnected entities to the State Education Network.

IA (Internet Access): The ability for users to connect to and use the internet.

Data Center: A facility housing computer systems and associated components, such as telecommunications and storage systems.

SOC 2/Type 2, HIPAA, PCI-DSS, SSAE-16: Various compliance and security standards relevant to data centers and service providers.

Tier 3 Facility: A data center classification indicating a high level of reliability and redundancy.

Peering: A voluntary interconnection of administratively separate internet networks for the purpose of exchanging traffic between their users.

BGP Flowspec: A Border Gateway Protocol extension used for the rapid and automated mitigation of network traffic anomalies, such as DDoS attacks.

Network Monitoring: The ongoing process of observing a computer network to identify and resolve issues, track performance, and ensure security.

RFP (Request for Proposal): A solicitation document that an organization issues to potential vendors inviting them to submit proposals for a specific project or service.

FCC Cybersecurity Pilot: A Federal Communications Commission program exploring E-Rate funding for cybersecurity services.

SLCGP (State and Local Cybersecurity Grant Program): A federal grant program to improve cybersecurity capabilities at the state and local levels.

NDR (Network Detection and Response): A category of security tools that focuses on detecting and

responding to suspicious activity and threats on a network.

SIEM (Security Information and Event Management): A system that collects and analyzes security logs and event data from various sources to provide real-time monitoring and alerting.

Hotspot: A physical device where people can obtain internet access, typically using Cellular technology.

Bus Wifi: Internet connectivity provided on school buses, often using satellite or cellular data.

Fiduciary: A person or organization that acts on behalf of another person or persons, putting their clients' interest ahead of their own, with a duty to preserve good faith and trust.

RFI (Request for Information): A solicitation document used to gather information from potential suppliers about their capabilities and solutions.

USF (Universal Service Fund): A federal program that helps make communication services affordable for all consumers and supports specific programs like E-Rate.

MiSecure: A collaborative effort in Michigan focused on cybersecurity for educational entities.

MiCloud: A state-level initiative or service related to cloud computing for educational purposes.

DRC (Direct Routing Connection): A dedicated network connection to a cloud provider, offering more consistent and often lower-latency connectivity.

IP Address Management: The administration of IP addresses within a network, including allocation, tracking, and security.

CIPA Compliance (Children's Internet Protection Act): A US law requiring schools and libraries that receive E-Rate funding to certify that they have certain internet safety policies and technology in place.

PIA (Program Integrity Assurance): A review process conducted by the Universal Service Administrative Company (USAC) to ensure compliance with E-Rate rules and regulations.

IPv4 Address Space: The pool of numerical labels assigned to devices participating in a computer network utilizing the Internet Protocol for communication.