

**MSLN
Annual
Report**

February 20

2018

**Report from the Maine State Library and the Maine
Department of Education to the Maine Public Utilities
Commission for Funding Year 18 (July 1, 2018 through
June 30, 2019)**

**Maine School
and Library
Network**

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Overview

The Maine Public Utilities Commission (MPUC) requires that the Maine State Library (MSL) and the Maine Department of Education (MDOE) present to the MPUC an annual plan that addresses how Maine Telecommunications Educational Access Fund (MTEAF) funds will be spent to address the connectivity needs of Maine schools and libraries. Networkmaine is a consortium formed by the MDOE, MSL, the State of Maine's Office of Information Technology and the University of Maine System to support participating Maine schools and libraries efficiently. This effort is known as the Maine School and Library Network (MSLN).

The Executive Director of Networkmaine was tasked by the Networkmaine Council with submitting this Annual Report for FY 2018-2019 on behalf of the MDOE and MSL. This report highlights the events impacting the Maine School and Library Network project over the past year, details how the requested funds will be spent to address the connectivity needs of Maine Schools and Libraries in the year to come, and includes the MDOE and MSL's request for Maine Telecommunications Educational Access Fund (MTEAF) funds.

Activity Report

Participation Fee

The Networkmaine Council voted to discontinue the assessment of a consortium participation fee to K-12 schools and public libraries for the coming year. When the participation fees were first initiated in FY14-15 it was expected that they would be temporary. Fortunately, with the relief achieved through the passing of L.D. 256 the consortium participation fees can be eliminated.

The annual participation fees generated approximately two hundred and fifty thousand dollars (\$250,000) in funding. These consortium participation fees, along with funding from the MDOE, were used to help cover the Internet Access Service and Operating Services costs of the MSLN project. With the passage of L.D. 256 the MDOE and MSL are seeking in this year's request to have MTEAF once again fully support the MSLN project.

National Recognition

The Networkmaine Consortium and MSLN project continue to receive national recognition for the level of connectivity it has been able to provide Maine's K-12 schools and public libraries and the cost effectiveness at which it is able to acquire these services. Education Superhighway, a non-profit focused on upgrading the Internet access in every K12 classroom in America, has recently ranked Maine in the top five states in the nation on affordability based on the percentage of school districts meeting a target of \$3.0/Mb or less.¹

Transport Services RFP

In October of 2017 Networkmaine released a RFP for Transport Services starting July 1, 2018. The RFP process was overseen by the University of Maine System's Strategic Procurement Office. Respondents were asked to provide three differing types of service;

1. E-LAN service for local transport services between schools or libraries within a district.

¹ <http://stateofthstates.educationsuperhighway.org/?postalCd=ME> accessed 02-08-2018

2. E-LINE service to connect these district networks along with individual schools and libraries to one or more Networkmaine Points of Presence.
3. Dark Fiber service to connect these district networks along with individual schools, libraries, and other entities to a Networkmaine Point of Presence.

Members of the evaluation team are listed in the table below.

RESOURCE NAME	ENTITY	TITLE
Jeffrey Letourneau	UMS	Executive Director NetworkMaine
Janet McKenney	ME State Library	Director of Library Development
Garret Pierce	UMS	Network Architect
Bret Van Dine	Millinocket School District	IT Director
Anne Perloff*	UMS	E-Rate Coordinator
Robin Cyr*	UMS	IT Strategic Sourcing Manager
*Non-voting Member		

The RFP resulted in proposals from seven (7) Transport Providers². All seven respondents received awards with the new contracts providing for much higher transport bandwidth at a lower overall cost than what Networkmaine incurs with the existing contracts. The total savings over the three year term of the resulting contracts is expected to be 4.75 million dollars.

CIRCUIT SIZE	NUMBER OF CIRCUITS	
	Mbps	2015 Contracts
5	2	0
10	9	4
20	3	0
100	450	248
200	41	172
300	76	16
400	5	4
500	37	29
600	6	6
700	12	5
800	3	4
900	2	5
1,000	58	93
1,100	0	3
1,600	0	1
2,000	0	6
10,000	0	3
Dark Fiber	112	192
	816	791

²FairPoint, Spectrum, Maine Fiber Company, First Light, Lincolnville Communications, UniTel, and Otelco

Looking Forward

Reliable, fast, low-latency network connectivity is an absolute necessity for our schools and libraries. It enables just about everything they do from the most traditional of services to the most modern and forward thinking. The Networkmaine Council has spent countless hours working to ensure that Maine's K-12 schools and public libraries have this necessity met through the MSLN project. The MTEAF was created by the Maine Legislature to carry out the policy goals of universal access, economic development and information access established by section 7101, subsections 1, 2 and 4, of Maine Revised Statutes.

This year's MTEAF funding request of \$3.72M is not based on the diminishing amount of funding PUC staff anticipates the MTEAF assessment will generate but rather on what is necessary to deliver the essential services described later in this report. The Networkmaine Council has taken many steps over the past six years to streamline the MSLN project wherever possible along with deferring expenses and reducing services. Despite these efforts, and as a last resort, the Council has had to charge participation fees to both schools and libraries in recent years.

FY18-19 will be a rebuilding year for the MSLN project with most attention focused on addressing the deferred replacement of aging network equipment and installing new transport services for hundreds of schools and libraries. Despite the costs associated with these efforts the cost of the MSLN project for FY18-19 is essentially the same (\$8.49M) as it was back in 2011 (\$8.48M). For the first time in many years, the MTEAF and federal E-Rate program can effectively support the MSLN project.

With the passage of L.D. 256 the MSLN project is back on solid ground and the future looks bright.

Recommendations for Funding Year 2018-2019

The MDOE and MSL are confident that the plans and adjustments they have made for FY 2018-2019 will position the MSLN project to meet the connectivity needs of Maine’s K12 schools and libraries. Therefore, for Funding Year 2018-2019 (July 1, 2018 – June 30, 2019), the MSL and MDOE respectfully submit the following recommendations for funding to the Commission for its consideration.

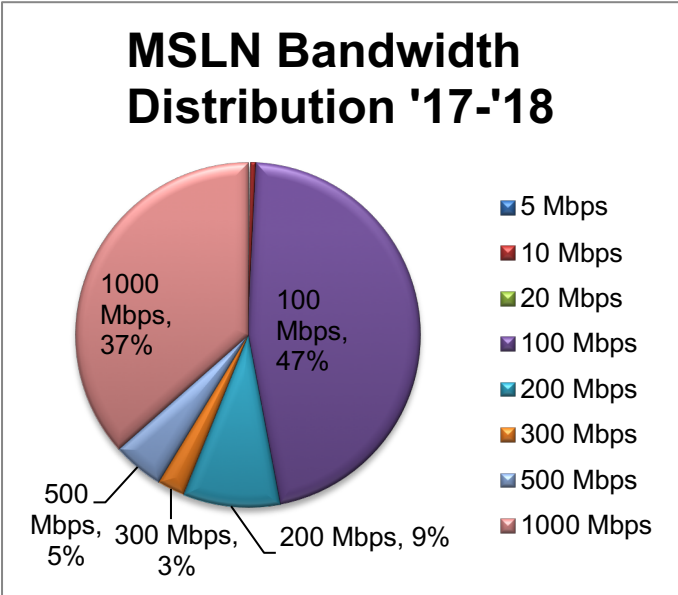
I. Continued Funding for Services

The MSL and the MDOE request continued funding for services to all qualified schools and libraries pursuant to 35-A M.R.S.A. § 7104-B(1) (referred to as MSLN) as further described below.

A. Transport Services

In October of 2017 Networkmaine released a RFP for Transport Services starting July 1, 2018 which resulted in awards to seven (7) Transport Providers³. This funding request is for the first year of the resulting contracts. The new contracts provide for much higher transport bandwidth at a lower overall cost than what Networkmaine incurs with the existing contracts.

This Transport Services funding request for FY18-19 is \$308,500 less than the current year. The total expenditure on Transport Services, both MTEAF and E-Rate funds, will be \$1.1M (\$7.2M -> \$6.1M) lower in the coming year than it is today. In this first year of the contracts there are one-time or non-recurring charges from various providers that are included in this request. It is anticipated that the total savings on Transport Service over the three (3) year term of these new contracts will be over \$4.5M.



This funding request assumes that Federal E-Rate program will pay a minimum of 71% for approved schools and libraries.

Anticipated impact on MTEAF is \$1,769,000

³FairPoint, Spectrum, Maine Fiber Company, First Light, Lincolnville Communications, UniTel, and Otelco

B. Internet Access Services

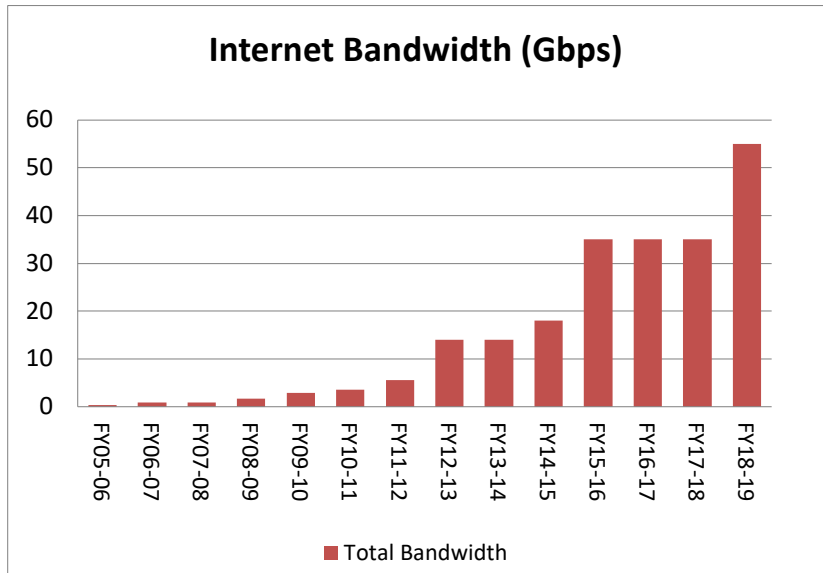
The MSLN project benefits from the decreasing unit cost of Internet Access Service, Networkmaine's increasing use of settlement-free peering with major content providers, and Networkmaine's on-net Content Delivery Network (CDN) caches.

The use of settlement-free peering and on-net CDN caches slows the rate of growth in the needed Internet Access

Services by redirecting traffic from content providers to multiple Internet exchange points and CDN caches. Networkmaine is using Internet2's Commodity Peering Service (CPS) to help manage the growth in Internet Access Services needed to support the MSLN project. Roughly 75% of traffic coming into MSLN currently comes from these other sources.

The MSL and the MDOE request that MTEAF funds be made available for acquiring Internet Access Service for FY 2018-2019

Anticipated impact on MTEAF is \$82,500



C. CIPA Compliant Content Filtering

The MTEAF currently supports the full cost of providing a centrally supported but locally managed content filtering solution that helps meet the requirements of the federal Children's Internet Protect Act (CIPA) while minimizing the administrative and technical burden on the schools and libraries. While CIPA compliance is a requirement to receive E-Rate reimbursement for eligible services, solutions for meeting the requirement are not eligible for E-Rate funding.

Networkmaine has contracted for a cloud-based solution to provide content filtering for the schools and libraries. Cisco Umbrella not only provides content filtering it also helps protect the schools and libraries from known malware and phishing sites.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of content filtering for FY 2018-2019.

Anticipated impact on MTEAF is \$101,000

D. Content Databases and E-Discovery Solution

The MSL and the MDOE recommend the continued subscriptions of electronic databases and an E-Discovery solution to provide statewide access for citizens through MARVEL, Maine's Virtual Library, as permitted by 35-A M.R.S.A. § 7104-B.

MARVEL!

Funding for the MARVEL databases comes from a variety of sources. MTEAF provides funding on behalf of the public libraries and K12 schools. The University of Maine System, Bates, Bowdoin and Colby colleges, and the state general fund through the Maine State Library also provide additional funding. This request will restore MTEAF support for these services to the FY16-17 funding level.

E-Discovery

A product called EBSCO Discovery Service™ (EDS) is "single search" solution used for the MARVEL databases. The system indexes metadata and content from the disparate MARVEL resources, normalizes the data and provides a simple interface for users. This provides a fast, streamlined, user-centric approach to searching the MARVEL databases and resources with the MaineCat statewide catalog. Prior to the implementation of a single search tool, located online at <http://libraries.maine.edu/mainedatabases/>, library users in Maine faced challenges in selecting the appropriate resource for their research – to the average user, the MARVEL online resources presented an often-confusing array of options. EDS provides residents of the state a much-needed 'Google-like' single starting point from which the full depth and breadth of the collection of online resources available while also offering an easier interface and results page for novice users.

The MSL and the MDOE recommend continued funding for the MARVEL content databases, online resources and the EBSCO Discovery Service™ single search product for FY 2018-2019.

Anticipated impact on MTEAF is \$682,600

E. Technical Services

Expenses for third-party services, equipment, software, and maintenance that are not E-Rate eligible are included as part of this Technical Services category if they are not specifically requested in a separate funding request. These services include but are not limited to, constituent premise equipment (CPE), Internet 2 US-UCAN fees, IPv4 address space, hardware and software maintenance for core networking equipment, and core network equipment upgrades and replacements. In this request funding for both site and core network equipment has been increased to start addressing the replacement of both core and site equipment deferred over the past few years.

The MSL and the MDOE leverage MaineREN, Maine's Research and Education Network, as the optical backbone for MSLN. Multiple 10 Gbps optical transports are dedicated for aggregating the traffic to/from the K12 schools and public libraries between MaineREN's optical nodes. In FY18-19, approximately 27% of MSLN participants connect directly to MaineREN either over leased dark fiber or via regional Transport Providers that deliver MSLN participants to the nearest MaineREN point of presence. Participating schools and libraries also share multiple 10 Gbps optical transports with other MaineREN participants

to connect to both Internet2 and contracted Internet Service Providers out of Cambridge, MA.

In addition to these traditional services, Networkmaine is now able to provide on-demand traffic scrubbing service to MSLN participants to mitigate the impact of distributed denial of service (DDoS) attacks. When a DDoS attack is detected against a school or library, Networkmaine is able to redirect Internet traffic destined to that school or library through a traffic scrubbing service that drops all traffic associated with the attack well before it reaches the school or library. Legitimate traffic is passed through untouched and the school or library is able to continue normal operations without disruption. This level of protection would normally be well beyond the financial means of a K12 school or library. Through a collaborative effort led by MIT, higher education institutions and state research and education networks across New England are sharing in the costs of the traffic scrubbing service delivering the benefits of this service to those who would never be able to afford it otherwise.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of Technical Services for FY 2018-2019.

Anticipated impact on MTEAF is \$535,000

F. Operational Services

Networkmaine provides the day-to-day operation and end user support for MSLN. These Operational Services involve Network Operations Center support services including but not limited to:

- Network monitoring
- Problem tracking and resolution
- Constituent premise equipment (CPE) configuration
- Transport and Internet access vendor management
- Network upgrade and installation management
- Technical security services
- Onsite technical support through the “Circuit Rider” program

In addition, Networkmaine provides schools and libraries with network design consultation, web site hosting, email hosting, Domain Name Services, DHCP services, and IP address management.

The MSL and the MDOE request that MTEAF funds be made available to contribute towards the costs to operate MSLN for FY 2018-2019. This year’s request is approximately \$256K more than last year’s. The increase is necessary in order to eliminate the Participation Fees charged to schools and libraries in recent years.

Anticipated impact on MTEAF is \$524,000

II. Administrative Services

The MDOE funds the administrative costs of MSLN through a Cooperative Agreement with the University. Along with this direct financial contribution by the MDOE, MSL provides in-kind contributions through staffing the State E-Rate Coordinator position for libraries. No MTEAF

funds are spent administering the MSLN project except for the fees paid by the PUC to the MTEAF fund administrator. The Administrative Services provided to the MSLN project are detailed below.

A. Fund Administrator

The MSL and the MDOE ask that the Commission re-authorize the expenditure of funds to pay for a fund administrator to assess carriers, collect funds from carriers and make payments from the Fund (as permitted by 35-A M.R.S.A. §§ 7104-B(2) and 7104(3)).

Anticipated impact on MTEAF is \$ 25,100

B. E-Rate Support

Networkmaine acts as the E-Rate Filing Consortium lead on behalf of participants in the MSLN project for all eligible services associated with the project. In that role, Networkmaine manages the entire filing process and certification of the federal E-Rate paperwork. In addition, Networkmaine fulfills the role of State E-Rate Coordinator for Maine's schools. Networkmaine's involvement in assisting schools with the E-Rate filing process for both MSLN project and non-project E-Rate eligible services include providing training, information dissemination, answering questions about the E-Rate filing process, and assisting schools with Program Integrity Assurance requests from USAC.

As in the past, Networkmaine is leveraging its web-based consortium enrollment site⁴ to ease the E-Rate process for the K12 schools and libraries. This site allows Networkmaine to greatly computerize and automate the data collection and form completion process. No longer are the schools and libraries asked to manually fill out information on paper forms that are readily available in both federal and state government data sources. Instead this data is automatically incorporated into the forms greatly reducing the chance of human error. The participating schools and libraries only need to fill out their site-specific information on the web site and confirm various certifications. Once completed the schools and libraries download the various forms (Letters of Agencies, Form 479s, etc.) from the web site which are already filled out with all the appropriate and provided information ready for them to sign and return to Networkmaine.

The consortium enrollment site has been well received over the years. Networkmaine makes improvements each year to incorporate feedback received in the previous year. Modifications are also made to reflect regulatory or process changes in the E-Rate Program for the coming funding year.

Anticipated impact on MTEAF is \$ 0

C. Contract Management

Networkmaine successfully negotiated contracts for transport services with seven services providers; FairPoint Communications, FirstLight, Spectrum, Maine Fiber Company, Lincolnville Communications, UniTel, and Otelco and contracts for Internet Access Services with Cogent Communications, FirstLight and Hurricane Electric. The entire procurement process from writing the RFPs to final contract negotiations is managed by the University of Maine System's Strategic Procurement Office. As the University of Maine System is the

⁴ <https://enroll.networkmaine.net>

customer of record on these contracts, its Strategic Procurement Office will continue to ensure that the contracts are adhered to and will maintain all required documentation related to the contacts for ten years after their service term as required by the E-Rate program rules.

Anticipated impact on MTEAF is \$ 0

D. Invoicing

Networkmaine handles all invoicing activities related to MSLN. These activities include receiving the invoices from the contracted service providers, verifying their accuracy, submitting the invoices for reimbursement from both the MTEAF and the E-Rate Program, reconciling payments, and maintaining records for the time frame required by the E-Rate Program rules. Networkmaine leverages UMS' Accounts Payable department and their electronic document management and imaging system for many of these activities.

Anticipated impact on MTEAF is \$ 0

E. Budgeting and Financial Management

The MSLN project budget is regularly reviewed and managed by the Executive Director of Networkmaine and the Networkmaine Council consisting of members from MDOE, MSL, OIT, UMS and appointed public school and library representatives. The University of Maine System's Director of Sponsored Programs and Administration monitors and accounts for the project budget.

Anticipated impact on MTEAF is \$ 0

Appendix A

Comparison of MTEAF Funding: Funding Years 2012 - 2018

Services	2012-2013 Actual	2013-2014 Actual ⁵	2014-2015 Actual	2015-2016 Actual ⁶	2016-2017 Actual	2017-2018 Budgeted	2018-2019 Requested
Transport Service ⁷	\$2,013,394	\$2,094,252	\$2,167,813	\$2,356,357	\$1,956,533	\$2,077,500	\$1,769,000
Internet Service	\$ 78,675	\$ 37,431	\$ 44,020	\$ 0	\$ 0	\$ 0	\$ 82,500
CIPA Compliant Content Filter	\$ 87,552	\$ 87,552	\$ 87,552	\$ 85,922	\$ 100,658	\$ 101,000	\$ 101,000
Content Databases & E-Discovery	\$ 702,599	\$ 657,116	\$ 682,600	\$ 580,000	\$ 682,600	\$ 500,000	\$ 682,600
Technical Services	\$ 515,508	\$ 349,994	\$ 404,470	\$ 523,769	\$ 309,927	\$ 291,700	\$ 535,000
MTEAF Fund Administrator	\$ 26,400	\$ 25,080	\$ 25,100	\$ 24,660	\$ 25,100	\$ 25,100	\$ 25,100
Operational Services	\$ 539,197	\$ 557,495	\$ 415,342	\$ 461,925	\$ 425,094	\$ 144,700	\$ 524,000
Totals:	\$3,963,325	\$3,808,920	\$3,826,897	\$4,032,633	\$3,499,912	\$3,140,000	\$3,719,200

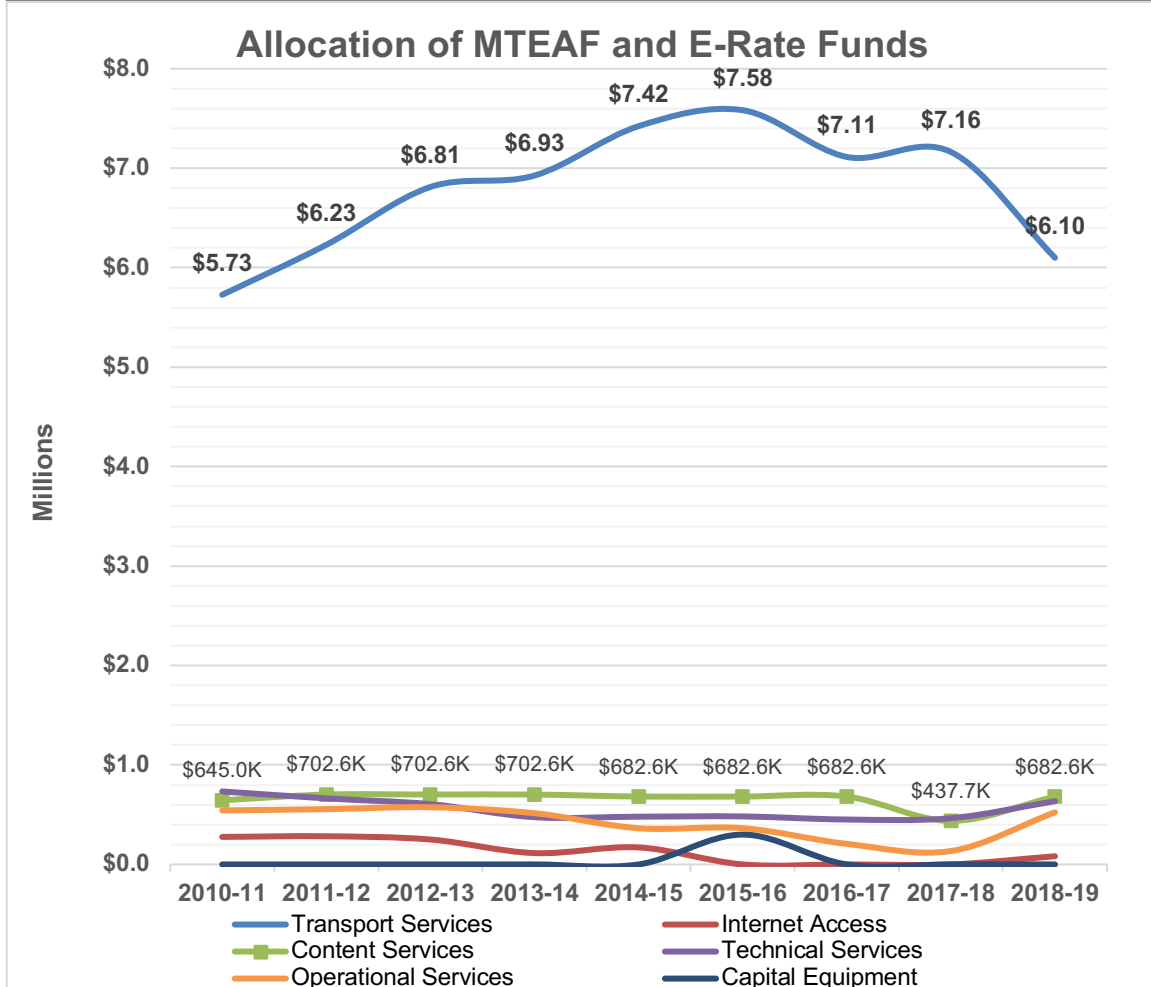
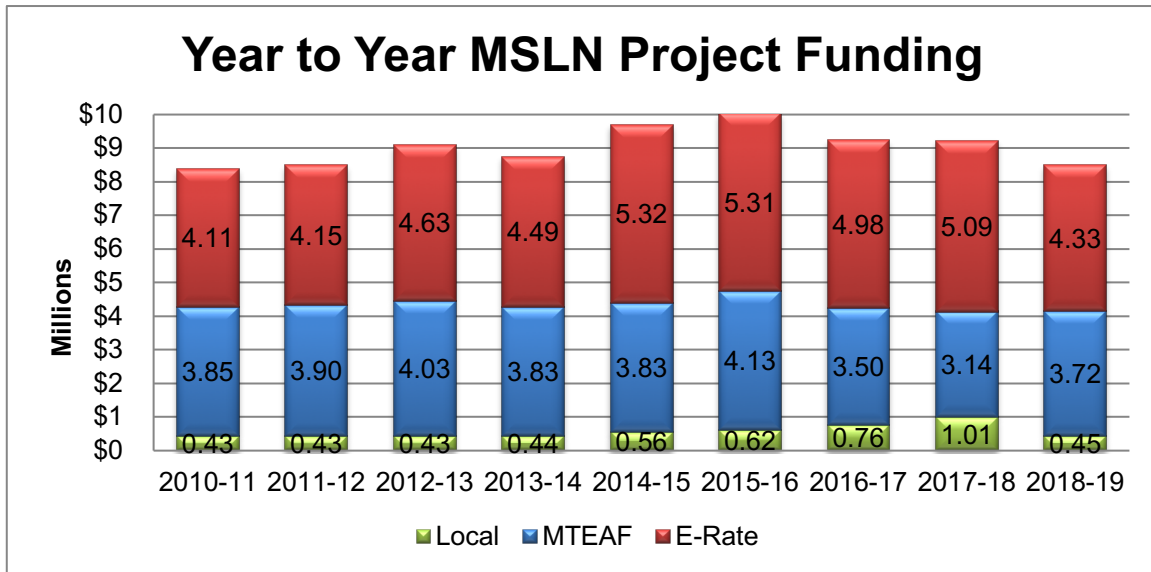
⁵ Adjusted down from requested amount of \$4.136 M due to projected lack of MTEAF funding

⁶ Includes \$300,000 in one-time costs associated with the new Transport Services contracts

⁷ Total cost prior to expected E-Rate reimbursement: 2018-2019 - \$6,100,000

Appendix B

MSLN Project Budgets - Funding Years 2008 – 2018



*Networkmaine established in FY 10-11

Appendix C

Networkmaine Council Members

- Maine State Library – James Ritter, State Librarian
- Maine Dept. of Education – Deborah Friedman, MLTI Project Manager
- Maine Office of Information Technology – Louise Robertson
- University of Maine System – David Demers, Chief Information Officer
- Library – Anne Davis, Gardiner Public Library
- Library – George Cooper, Portland Public Library
- School – Will Backman*, AOS 92
- School – Crystal Priest, RSU 80 / MSAD 4
- Ex-officio – Jeff Letourneau, Executive Director, Networkmaine (non-voting)

*Chairman