MSLN Annual Report

April 28

2017

Report from the Maine State Library and the Maine Department of Education to the Maine Public Utilities Commission for Funding Year 17 (July 1, 2017 through June 30, 2018)

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 2017-2018 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

Budget Reduction

PUC staff has estimated a MTEAF assessment level of $3,140,000. Following MDOE's and MSL's guidance, the Networkmaine Council has reduced this year's MTEAF funding request by $360K (~10%) from last year to stay within the anticipated funding availability. This year's funding request is nearly $1.0 million less than just four (4) years ago.

One hundred and fifteen thousand dollars ($115K) of the reduction is achieved by estimating additional E-Rate funding being available due to changes in how the Universal Service Administrative Company (USAC) calculates consortia discounts. The remaining two hundred forty-four thousand nine hundred dollars ($244,900) is achieved by deferring network equipment replacements and reducing online content subscriptions licensed for the schools and libraries. Funding to replace aging network equipment is reduced by ($56,300 or 48%) and content subscriptions by ($182,600 or 27%).

Participation Fee

The Networkmaine Council voted to continue to assess 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. Unfortunately, unless relief is achieved through the passing of L.D. 256 the consortium Participation Fees are likely to not only become permanent but significantly grow over time.

The annual Participation Fees are projected to generate approximately two hundred and fifty thousand dollars ($250,000) in funding. These consortium Participation Fees will be used to help cover the Internet Access Service and Operating Services costs of the MSLN Project. If L.D. 256 passes in some form and results in additional MTEAF assessments being collected in the coming funding year than is currently anticipated, the Networkmaine Council will, with concurrence of the PUC, seek to reduce or eliminate the Participation Fees to the schools and libraries.

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 four states in the nation on affordability based on the percentage of school districts meeting a target of 3.0 Mbps or less.[1]

> "The Maine School and Library Network is nearly universally recognized as a Thing Maine Does Right."
> Tim Schneider, Maine Public Advocate, Testimony on L.D. 256

In addition, Maine public libraries now rank in the top 10% nationally based on national figures from a Digital Inclusion Survey, conducted by the Information Policy & Access Center at the University of Maryland.

It is worth mentioning that the FCC and others have long heralded the consortia model used here in Maine as the most efficient and effective method of obtaining high-speed broadband connectivity for K12 schools and libraries. In fact, FCC staff and several third-parties looking to help schools and libraries across the country take best advantage of the E-Rate program continue to engage with various Networkmaine Council members to learn more about how we are structured and operate.

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. However, the continued decrease in MTEAF funds available each year has reached a tipping point.

> "For us and members of our community… MSLN… is more than just an information network, it's a community connection, with real tangible value. The MSLN enabled us to offer immediate assistance to a dozen businesses when their office complex burned two years ago. One business estimated they were able to save thousands of dollars in lost wages and business interruptions by having our network available…"
> Nancy E. Crowell, Director of Scarborough Public Library, Testimony on L.D. 256

This year's MTEAF funding request of $3.14M is sized based on the total amount PUC staff anticipates the MTEAF assessment will generate. It is not large enough to meet the funding needs of the MSLN Project. The $3.14M request represents the smallest MTEAF funding request since 2008 (see Appendix B) yet is the maximum amount that the MTEAF can be expected to provide. It is anticipated that without legislative action next year's MTEAF assessment will be even smaller.

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[1] http://stateofthestates.educationsuperhighway.org/?postalCd=ME accessed 03-01-2017

The Networkmaine Council has taken many steps over the past five 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.

The cost of the MSLN project is essentially the same today ($9.23M) as it was back in 2009 ($9.30M). The primary difference is that in 2009 the MTEAF and federal E-Rate program covered the entire cost of the MSLN project where now in 2017 they fall $1.0M dollars short. Schools, libraries, MDOE, and MSL contribute $755K toward closing the budget gap created by the lack of MTEAF funding. (See Appendix B) The rest of the gap has been closed by deferring expenses and reducing services.

Representative Martin Grohman's bill, L.D. 256, "An Act To Ensure Continued Availability of High-speed Broadband Internet at Maine's Schools and Libraries", has brought the MSLN Project's funding challenges to the public's attention. In a February 15, 2017 editorial the Portland Press Herald, in referring to MSLN, stated that it is *"imperative that lawmakers in Augusta reach an agreement on a proposal to maintain this vital service"*[2] as *"[m]odern life requires high-speed internet, but in much of Maine, those connections are only in one of the hundreds of local schools or libraries that are part of a statewide network."*[3]

> "[TAM does not] oppose *the underlying goal of maintaining a vibrant school and library broadband network."*
> Ben Sanborn, Telecommunication Association of Maine, Testimony on L.D. 256

Many people and organizations testified in support of MSLN and its continued existence during the hearing for L.D. 256. As would be expected, several schools and libraries along with various related associations testified in support of MSLN and the bill. However, they were not the only ones. Organizations whose constituents benefit from MSLN also testified in support including the Maine Broadband Coalition: *"The Maine School Library Network is… essential… and it is critical that Maine maintains that network for schools, communities and businesses."*[4], AARP: *"Many of Maine's seniors live in unserved and underserved broadband areas. Public libraries… provide free broadband with the comfort of library staff available for assistance as needed."*[5] and the Maine Farm Bureau: *"It is imperative that we maintain this network or risk losing it."*[6].

L.D. 256 with the amendment jointly drafted by members of the Networkmaine Council and industry representatives has wide-spread support. At the time of the writing of this report the bill has gone through committee resulting in divided report (10-2). If L.D. 256, as amended, becomes law and stabilizes MTEAF, the MSLN Project will be back on solid ground. If it does not, with the MTEAF no longer able to provide the funding levels required, the MSLN Project will cease to exist in its current form after the 2017/18 funding year.

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[2] "Our View: Maine should go to bat for rural internet funding." Editorial. Portland Press Herald, Feb. 15, 2017. http://www.pressherald.com/2017/02/15/our-view-maine-should-go-to-bat-for-rural-internet-funding/ accessed 02-15-2017

[3] Ibid.

[4] L.D. 256: An Act To Ensure Continued Availability of High-speed Broadband Internet at Maine's Schools and Libraries. Hearing before the Committee on Energy, Utilities and Technology, 128th Legislature. Maine (2017) (Testimony of Peggy Schaffer, Maine Broadband Coalition.)

[5] Ibid., (Testimony of Amy Gallant, AARP)

[6] Ibid., (Testimony of Theresa Kelly, Maine Farm Bureau)

Recommendations for Funding Year 2017-2018

The MDOE and MSL are confident that the plans and adjustments they have made for FY 2017-2018 will position the MSLN Project to meet the connectivity needs of Maine's K12 schools and libraries. Therefore, for Funding Year 2017-2018 (July 1, 2017 – June 30, 2018), 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 FY14-15 Networkmaine released a RFP for Transport Services starting July 1, 2015 which resulted in awards to five (5) Transport Providers[7]. This funding request is for the third year of the resulting contracts. The current contracts provide for much higher transport bandwidth at a lower overall cost than what Networkmaine incurred at the end of the previous contract in FY14-15.

However, this year's funding request for Transport Services is $315,000 more than when the Networkmaine Consortium was first formed in FY10-11. The total expenditure on Transport Services, both MTEAF and E-Rate funds, will be $1.4M ($5.7M -> $7.1M) higher in the coming year than in FY10-11 despite the significant decrease in the per megabit rates charged by the providers. In other words, the schools' and libraries' demand for bandwidth has outpaced the decreasing cost of bandwidth. A RFP for Transport Services is due to be released in the late summer / fall time frame so that new contracts can be in place for July 1, 2018. New contracts have the potential of reducing the overall cost of Transport Services to the MSLN Project starting in FY18-19.
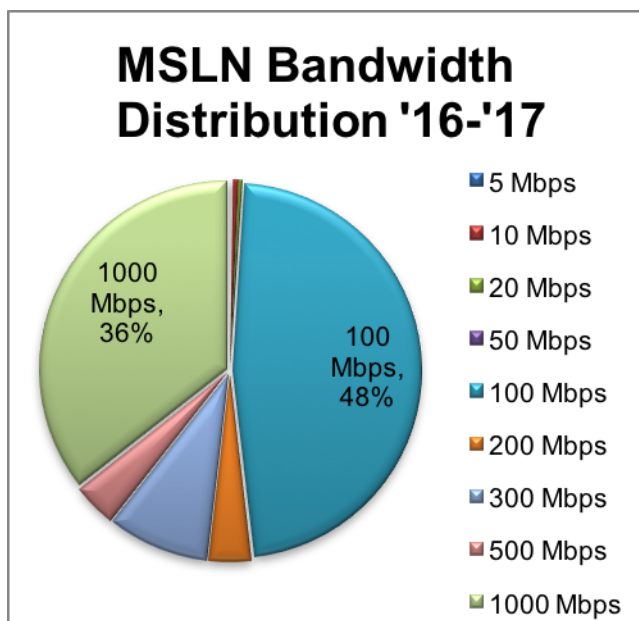
This funding request assumes that Federal E-Rate program will pay a minimum of 71% for approved schools and libraries, up 1% from the 70% anticipated for the current year. It is anticipated that Transport Services will be provided at a slightly lower cost to the MTEAF as the current year.
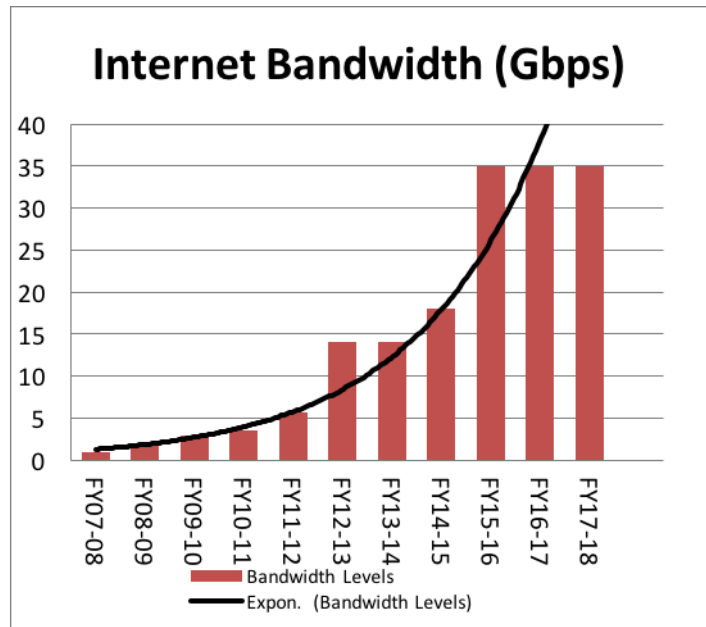
Anticipated impact on MTEAF is $2,077,500

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[7]FairPoint, Time Warner Cable, Maine Fiber Company, Oxford Networks, and Lincolnville Communications

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.

Internet Bandwidth (Gbps)

For Funding Year 2017-2018, the cost of acquiring Internet Access Service, $40,000, for the MSLN Project will be funded by the annual Participation Fees paid by the schools and libraries.

Anticipated impact on MTEAF is $0

C. CIPA Compliant Content Filtering

The MTEAF currently supports the full cost of providing a centrally support 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. The company that provides the service, OpenDNS, was recently purchased by Cisco which has repackaged the filtering service to include additional security features. As a result of this repackaging, the cost of the content filter has increased this year.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of content filtering for FY 2017-2018.

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. Given the projected decrease in available funding generated by the MTEAF assessments, the MSL and MDOE have reduced the funding requested for these content services by 27% from last year. It is hoped that the negative impact on students and library patrons can be minimized through aggressive renegotiation with the content subscription providers and carefully selecting specific content subscriptions for elimination.

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.

E-Discovery

A product called EBSCO Discovery Service ^{TM} (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 ^{TM} single search product for FY 2017-2018.

Anticipated impact on MTEAF is $500,000

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 addition, 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. Over 100 MSLN participants connect directly to MaineREN over leased dark fiber. Participating schools and libraries also

share three 10 Gbps optical transports with other MaineREN participants to connect to both Internet 2 and contracted Internet Service Providers out of Cambridge, MA.

Deferring the refresh of both site and core network equipment has resulted in a twenty percent (20%) reduction in the requested funding for Technical Services. Continuing to defer the replacement of aging hardware greatly increases the risk of equipment failure. The loss of Internet connectivity is extremely disruptive given much of a school's and library's daily activities are dependent on that connection.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of Technical Services for FY 2017-2018.

Anticipated impact on MTEAF is $291,700

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, 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 2017-2018. This year's request is approximately $62K less than last year's request and $315K less than the 2015-16 Funding Year. The reduction in this request is accomplished by continuing to shift the costs of Operational Services to the schools and libraries by charging Participation Fees. As noted above, the MSL and MDOE expect to use this year's Participation Fees to fund Internet Access Services and a larger portion of the Operational Services. This request will be matched with $210K from the Participation Fees being collected from K12 schools and public libraries and $183K from the MDOE.

Anticipated impact on MTEAF is $144,700

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. Due, in part, to Networkmaine's assistance, approximately $12 Million of E-Rate funds have been committed to Maine in the 2016-2017 funding year.

As in the past, Networkmaine is leveraging its web-based consortium enrollment site[8] 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 five services providers; FairPoint Communications, Oxford Networks, Time Warner Cable New England, Maine Fiber Company, and Lincolnville Communications and contracts for Internet Access Services with Cogent Communications and FirstLight. 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 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

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[8] https://enroll.networkmaine.net

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 2011 - 2017

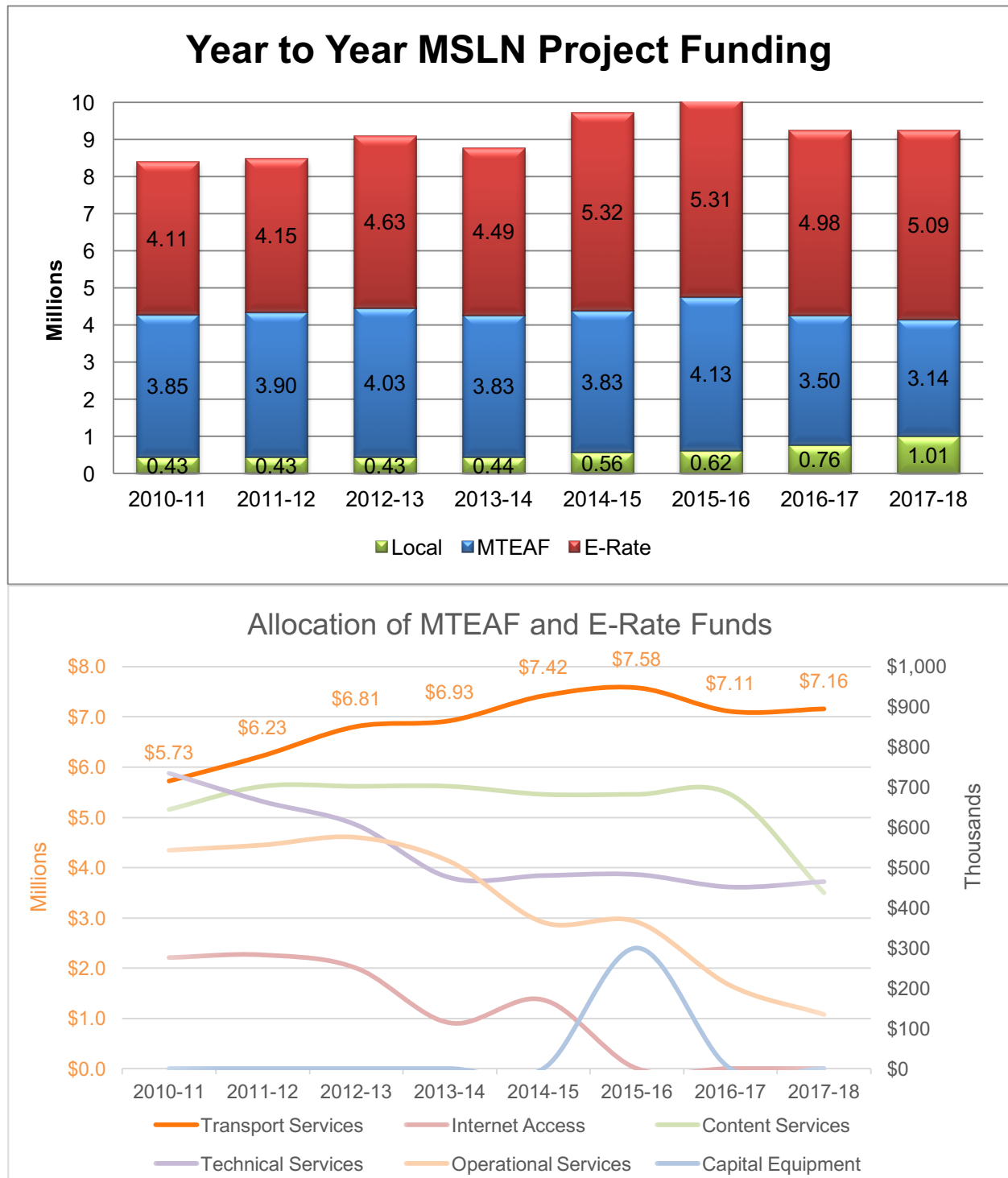| Services	2011-2012 Actual	2012-2013 Actual	2013-2014 Actual[9]	2014-2015 Actual	2015-2016 Actual[10]	2016-2017 Budgeted	2017-2018 Requested
Transport Service[11]	$1,819,344	$2,013,394	$2,094,252	$2,167,813	$2,356,357	$2,134,000	$2,077,500
Internet Service	$ 73,115	$ 78,675	$ 37,431	$ 44,020	$ 0	$ 0	$ 0
CIPA Compliant Content Filter	$ 87,552	$ 87,552	$ 87,552	$ 87,552	$ 85,922	$ 87,600	$ 101,000
Content Databases & E-Discovery	$ 699,110	$ 702,599	$ 657,116	$ 682,600	$ 580,000	$ 682,600	$ 500,000
Technical Services	$ 470,975	$ 515,508	$ 349,994	$ 404,470	$ 523,769	$ 364,000	$ 291,700
MTEAF Fund Administrator	$ 25,080	$ 26,400	$ 25,080	$ 25,100	$ 24,660	$ 25,100	$ 25,100
Operational Services	$ 531,371	$ 539,197	$ 557,495	$ 415,342	$ 461,925	$ 206,700	$ 144,700
Totals:	**$3,706,547**	**$3,963,325**	**$3,808,920**	**$3,826,897**	**$4,032,633**	**$3,500,000**	**$3,140,000**

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[9] Adjusted down from requested amount of $4.136 M due to projected lack of MTEAF funding

[10] Includes $300,000 in one-time costs associated with the new Transport Services contracts

[11] Total cost prior to expected E-Rate reimbursement: 2017-2018 - $7,163,800

Appendix B

MSLN Project Budgets - Funding Years 2008 – 2017

Year to Year MSLN Project Funding

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
E-Rate	4.11	4.15	4.63	4.49	5.32	5.31	4.98	5.09
MTEAF	3.85	3.90	4.03	3.83	3.83	4.13	3.50	3.14
Local	0.43	0.43	0.43	0.44	0.56	0.62	0.76	1.01

■Local ■MTEAF ■E-Rate

Allocation of MTEAF and E-Rate Funds

Transport Services values: $5.73, $6.23, $6.81, $6.93, $7.42, $7.58, $7.11, $7.16

— Transport Services — Internet Access — Content Services
— Technical Services — Operational Services — Capital Equipment

*Networkmaine established in FY 10

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 – Dick Thompson, Chief Information Officer
- Library – Anne Davis, Gardiner Public Library
- Library – George, 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