MSLN Annual Report

January 28

2014

Report from the Maine State Library and the Maine Department of Education to the Maine Public Utilities Commission for Funding Year 2014 (July 1, 2014 through June 30, 2015)

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. The Executive Director of Networkmaine was tasked with this responsibility on behalf of the MDOE and MSL by the Networkmaine Council and respectfully submits this Annual Report for FY 2014-2015. This report highlights the challenges faced by 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.

Year of Constraint

The past year has been one of constraint for the MSLN Project. The continued decline in reported revenues of retail two-way voice communications service providers from which the MTEAF assessment is derived has required the MSL and MDOE to take a hard look at their priorities for funding. For the FY2013-2014 funding year the MSL and MDOE originally requested $4.136M from the MTEAF. However, the MPUC projected that only $3.83M dollars would be available through the MTEAF (based on a 0.7% assessment) and left it to the MSL and MDOE to adjust the MSLN Project budget to reflect the lower available funding level.

In response to the constrained funding, the Networkmaine Council reduced the MSLN Project budget almost across the board. The Council reduced funding for Transport, Internet, Technical and Operational Services. While most of these reductions did not have an immediate negative impact on the schools and libraries they will have a negative impact in the long term if they are not addressed in some way. Renegotiated Internet Access contracts allowed for the reduction of funds budgeted for that service without negatively impacting the schools and libraries. However, the Council also reduced the amount of funding available to Transport Services which meant a much more conservative approach was taken in determining which schools and libraries received bandwidth upgrades for the FY2013-2014 funding year. As a result, multiple schools experienced poor performance and long lag times when accessing content on the Internet and elected to pay for additional bandwidth increases beyond what the MSLN Project was able to fund.

Another budgetary reduction was made for Technical Services by reducing the number of routers installed at the schools and libraries and extending the replacement cycle. While this action is a viable short-term budget fix, it is not sustainable in the long term as extending replacement cycles leads to a higher rate of failed equipment. Lastly, MTEAF funding for Operational Service was decreased by shifting financial support for one (1) FTE in Networkmaine's Network Operations Center to a new external contract. Clearly a solution beyond just reducing expenditures will be necessary if the MSLN Project is going to be able to meet the connectivity needs of Maine's K12 schools and libraries in the coming years.

MLTI Support Contract

On July 1, 2013 the University took on the support of the wireless (wi-fi) networks provided as part of Apple's solution for the MLTI program. Funding made available through this external contract is being put towards the staffing costs of Networkmaine's Network Operations Center (NOC). There is some amount of efficiency gained when the operational support of both the

MSLN Project and the MLTI Wi-Fi networks are provided by one organization. These efficiencies allowed the Council to reduce the amount of MTEAF funding budgeted for Operational Services for the MSLN Project for FY2013-2014 as described above.

E-Rate Discount Adjustment

The annual reports for the last few years have assumed a 68% reimbursement level from the E-Rate program in presenting the requests MTEAF funding. For the past three years Networkmaine has been successful in obtaining a 70% discount level for the MSLN Project. Based on this experience this year's funding request assumes a 70% reimbursement level from the E-Rate program. While this change does not generate any real increase in funding it does allow the Council to more accurately allocate funding to the various services provided through the MSLN Project. Given three straight years at a 70% E-Rate discount rate the risk associated with this budgetary change is viewed to be minimal.

Looking Forward

There is much uncertainty looking beyond the FY2014-2015 funding year. The existing Transport and Internet Access contracts for the MSLN Project are all expiring June 30, 2015 and will need to be rebid. While it is anticipated that any newly negotiated rates will be lower than the current rates, the current state of Maine's broadband industry make it difficult to formulate any reliable projections. It is also unclear whether Maine's broadband providers will be able to deliver the level of connectivity schools and libraries need within the all too real budgetary constraints.

Participation Fee

The Networkmaine Council has voted to establish a consortium participation fee assessed to K12 schools for the FY 2014-2015 funding year. The fee has been set at $1 per student and is anticipated to generate up to $180,000 in funding. The creation of this fee marks for first time in the eighteen (18) year history of the MSLN Project that participants have been required to contribute local funds towards the services provided through the project. The participation fees will help cover the operating costs of the MSLN Project. A portion of the fees will also be put towards replacing CPE equipment (routers) at the schools and libraries. With the participation fees in place, more MTEAF funds will be able to be put towards bandwidth upgrades for schools and libraries.

USF Reform

There are multiple USF related bills before the State Legislature that could have an impact one way or another on the MTEAF. If none of these bills result in an increase to the MTEAF, which is not anticipated, it is clear to the Networkmaine Council that additional funding sources will need to be found to sustain the services currently provided to schools and libraries through the MSLN Project.

The FCC is also in the process of totally revamping the E-Rate program. There are many rumors and speculations surrounding this restructuring. However, it won't be long before the FCC releases its final rule making. FCC Chairman Wheeler recently indicated in his official FCC Blog that some funding targeted towards high-speed connectivity would be made available perhaps as early as this year.

> "As part of our top to bottom review of E-Rate, the opportunity has opened to use existing funds to immediately begin to expand E-Rate funding targeted to high-speed connectivity to students in schools and libraries. These additionally available funds will begin to be put to work this year for schools and libraries. This will be done without affecting the program's existing structures and the 2014 program application process that is now underway."[1]

The MSL, MDOE, and the University have all been actively following and involved in these proceedings trying to guide them in a direction that will be beneficial to Maine. It is worth mentioning that the consortia model in use here in Maine has long been heralded by the FCC and others[2] as the most efficient and effective method of obtaining high-speed broadband connectivity for K12 schools and libraries. In fact, FCC staff and a number of third-parties looking to influence the FCC's E-Rate proceedings have reached out to various Networkmaine Council members to learn more about how we are structured and how we function.

Whatever action the FCC chooses to take with the E-Rate program, Maine needs to be ready take full advantage. As FCC Commissioner Jessica Rosenworcel recently stated in her remarks at an event hosted by the Sesame Workshop, a program focused on connectivity for schools and libraries must "support capacity – really high-speed broadband to all of our schools"[3] and, of course, libraries. Commissioner Rosenworcel goes on to define really high-speed broadband:

> "Let me put some numbers on that and tell you what I mean by really high-speed broadband. In the near term, we want to have 100 Megabits per 1000 students to all of our schools. By the end of the decade, we want to have 1 Gigabit per 1000 students to all of our schools."[4]

Online testing, cloud services, distance learning, and a shift to online educational content make reliable, fast, low-latency connectivity an absolute requirement for learning in our schools and libraries.

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[1] Wheeler; January 24, 2014; http://www.fcc.gov/blog/helping-american-students-compete-digital-world

[2] http://www.educationsuperhighway.org/reduce-costs.html

[3] Rosenworcel; January 24, 2014; http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0124/DOC-325251A1.pdf

[4] Rosenworcel; January 24, 2014; http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0124/DOC-325251A1.pdf

Recommendations for Funding Year 2014-2015

While the view of the future beyond June 2015 is not clear, the MDOE and MSL are confident that the plans and adjustments they have made for FY 2014-2015 will position the MSLN Project to meet the connectivity needs of Maine's K12 schools and libraries. Therefore, for Funding Year 2014-2015 (July 1, 2014 – June 30, 2015), 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

The demand for bandwidth continues to increase. This fact is demonstrated by the growth in the number of schools and libraries requiring 100Mbps or higher connectivity. The percentage of schools and libraries connected at 100 Mbps or higher number in FY2013-2014 totals 31%, up from just 19% in FY2012-2013. At the current pace, the demand for bandwidth is outgrowing available funding through the MTEAF.

The FCC's E-Rate program is very heavily utilized and has long struggled with being able to provide funding for much more than Priority-1 services (Internet and Telecommunication). The FCC has released a Notice of Proposed Rulemaking (NPRM) concerning the E-Rate program. It is widely expected that a major revamp of the program will happen in the coming year.

MSLN Bandwidth Distribution

- 10 Mbps
- 20 Mbps
- 50 Mbps
- 100 Mbps
- 200 Mbps
- 1000 Mbps
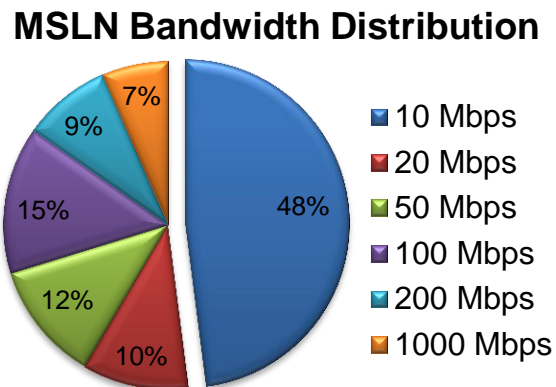
In Maine, opening up the MSLN Project to multiple transport providers in 2009 created a more competitive bidding process which allowed Networkmaine to secure more aggressive pricing for transport services. Unfortunately the five (5) year contract term for transport services is now hurting the project. The four to five year old negotiated rates now seem high compared to what is being offered on the open market today. This funding request is for the last year of the existing transport contracts. The MDOE and MSL anticipate that lower transport rates in the future will help close the current funding gap.

Assuming Federal E-Rate will pay a minimum of 70% for approved schools and libraries, it is anticipated that Transport Services will be provided at a cost to the MTEAF that is 7% above the budgeted costs for the FY2013-2014 funding year. This increase in cost is due to the projected need for bandwidth upgrades based on historical increases in demand by existing schools and libraries.

Anticipated impact on MTEAF is $2,227,000

B. Internet Access Services

Networkmaine's original contracts for Internet Access expired June 30, 2013, as such; Networkmaine released an RFP for Internet Access Service starting in FY2013-2014.

While the Internet Service providers that were awarded contracts remained the same, Cogent and Time Warner Cable – New England, Networkmaine was able to contract for Internet Access Service at a lower rate than available on their previous contracts. The MSLN Project is benefiting from both the decreasing unit cost of Internet Access Service and an increased use of settlement free peering with major content providers such as Google.

Settlement free peering slows the rate of growth in the needed Internet Access Services by redirecting traffic from content providers across multiple private peering points rather than across the commodity Internet. Networkmaine is leveraging Internet-2's Commodity Peering Service (CPS) to help manage the growth in Internet Access Services needed to support the MSLN Project. Between 40% - 50% of traffic coming into MSLN currently comes across CPS.
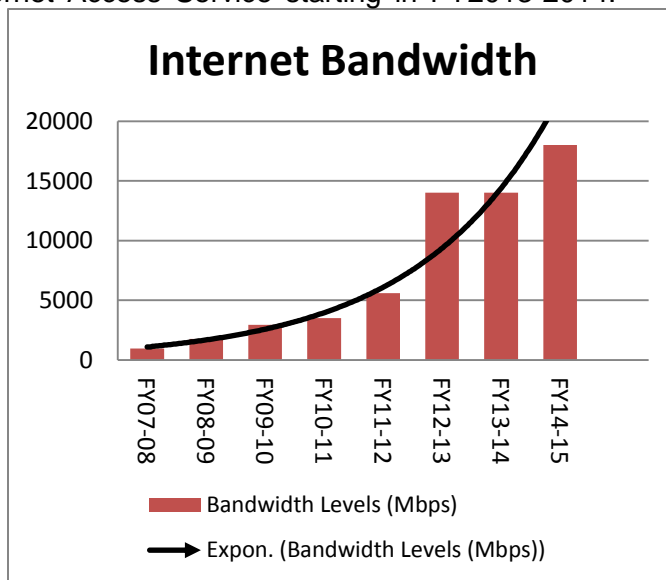
Assuming Federal E-Rate will pay a minimum of 70% for approved schools and libraries, it is anticipated that Internet Access Services will be provided at a cost to the MTEAF that is above the budgeted cost for FY 2013-2014 ($34K) yet still below the budgeted cost for FY 2012-2013 ($78K).

Anticipated impact on MTEAF is $51,300

C. CIPA Compliant Content Filtering

The MTEAF currently supports the full cost of providing a centrally 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 Internet Access Service, solutions for meeting the requirement are not eligible for E-Rate funding.

Networkmaine is using a cloud-based solution offered by OpenDNS to provide content filtering for the schools and libraries. This service eliminates both the fiscal and administrative burdens of maintaining servers to run content filtering software. Networkmaine's use of OpenDNS for the MSLN Project was featured in *Converge*[5]

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[5] http://www.convergemag.com/infrastructure/Maine-Moves-to-Cloud-Based-Internet-Filtering-for-Public-Schools-Libraries.html

magazine as the first state-network to leverage cloud-based technology to provide a CIPA compliance solution for its participants.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of content filtering for FY 2014-2015.

Anticipated impact on MTEAF is $87,600

D. Content Databases and E-Discovery Solution

The MSL and the MDOE recommend the continued subscription of electronic databases and 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 most of its patron base. MTEAF provides funding on behalf of the public libraries and K12 schools. Additional funding is also provided by the University of Maine System, Bates, Bowdoin and Colby colleges, and the state general fund through the Maine State Library.

E-Discovery

Prior to the implementation of OneSearch, located online at http://maine.gov/onesearch, library users in Maine faced challenges in selecting the appropriate resource for their research – to the average researcher, the MARVEL! databases present an often confusing array of options. OneSearch provides residents of the state a much needed 'Google-like' single starting point from which the full depth and breadth of the collection – both licensed electronic content and physical items – can be discovered. Combining content from the MARVEL! databases with the MaineCat statewide catalog, OneSearch not only provides a single-search-box interface to the wealth of content available at Maine libraries, it provides a consistent look and feel to researchers, and allows advanced researchers to refine the combined result sets in ways never before possible.

The MSL anticipates negotiating a contract with a new technology provider for its OneSearch E-Discovery Solution at a cost somewhat lower than the current solution. The marketplace for E-Discovery solutions has expanded over the last few years and the MSL feels it can obtain a solution that provides all the same benefits as its current solution but with an easier to navigate interface.

It is anticipated that the OneSearch E-Discovery solution will be provided at a cost to the MTEAF that is $20K below the FY 2013-2014 budgeted costs. The MSL and the MDOE recommend continued funding for the MARVEL! content databases and OneSearch E-Discovery Solution for FY 2014-2015 .

Anticipated impact on MTEAF is $682,600

E. Technical Services

Expenses for technical services that are not E-Rate eligible are included as part of this Technical Services category if they are not specifically spelled out in a separate funding request. These services include but are not limited to, constituent premise equipment (CPE) ($88K), construction costs for fiber optic entrances to schools and libraries

($20K), Internet 2 Secondary Group Participant fees ($39K), IPv4 address space ($8K), hardware and software maintenance fees for core networking equipment ($50K), colocation fees ($49K), core network equipment and software upgrades and replacements ($70K).

In addition, the MSL and the MDOE leverage MaineREN, Maine's Research and Education Network, as the optical backbone for MSLN ($69K). A 2.5 Gbps optical transport is dedicated for aggregating the traffic to/from the K12 schools and public libraries between MaineREN's optical nodes. Participating schools and libraries also share two 10 Gbps optical transports with other MaineREN participants to connect to both Internet 2 and one of the two contracted Tier 1 Internet Service Providers out of Cambridge, MA.

The MSL and the MDOE request that MTEAF funds be made available for the continued funding of Technical Services for FY 2014-2015.

Anticipated impact on MTEAF is $392,500

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, unlimited e-mail accounts with spam and anti-virus scanning, web site hosting, web content filtering, Domain Name Services, DHCP services, and IP address management.

This request for $363,900 will be matched with up to $180,000 in participation fees being collected from K12 schools. The MSL and the MDOE request that MTEAF funds be made available to contribute towards the costs to operate MSLN for FY 2014-2015.

Anticipated impact on MTEAF is $ 363,900

II. Administrative Services

The MDOE contributes $437,000 towards 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 has taken on 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 will 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 site[6] 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 last few years. Networkmaine makes improvements each year to incorporate feedback received in the previous year. Modifications are also made to reflect any changes in the E-Rate Program for the coming funding year.

Anticipated impact on MTEAF is $ 0

C. Contract Management

Networkmaine successfully negotiated five year contracts for transport services with three services providers; FairPoint Communications, Oxford Networks, and Time Warner Cable New England and three year contracts for Internet Access Services with Time Warner Cable New England and Dark Fiber Service with Maine Fiber Company. 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 all of 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 seven years after their service term as required by the E-Rate program rules. It will also manage all procurement efforts for

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

additional services in the future include the rebidding of Transport and Internet Access Services starting July 1, 2015.

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

Networkmaine is being assisted by the University of Maine System's Director of Sponsored Programs and Administration. The MSLN Project is being fully budgeted and accounted for by the Director of SPA.

Anticipated impact on MTEAF is $ 0

Appendix A
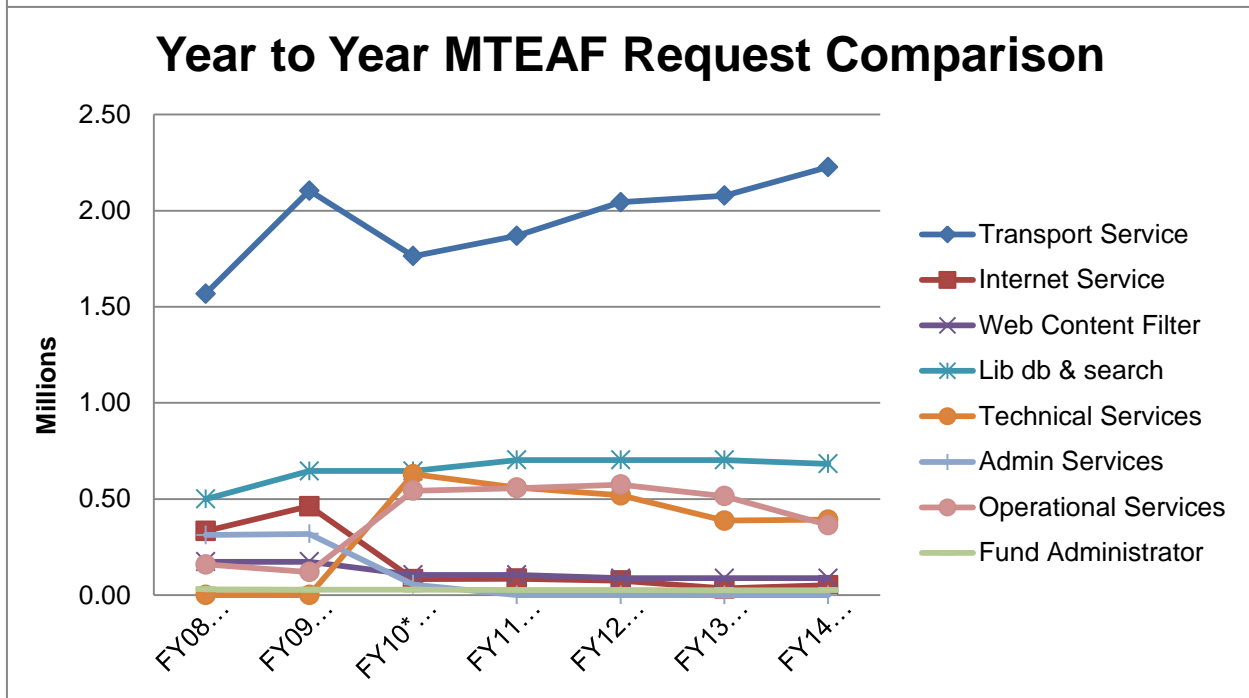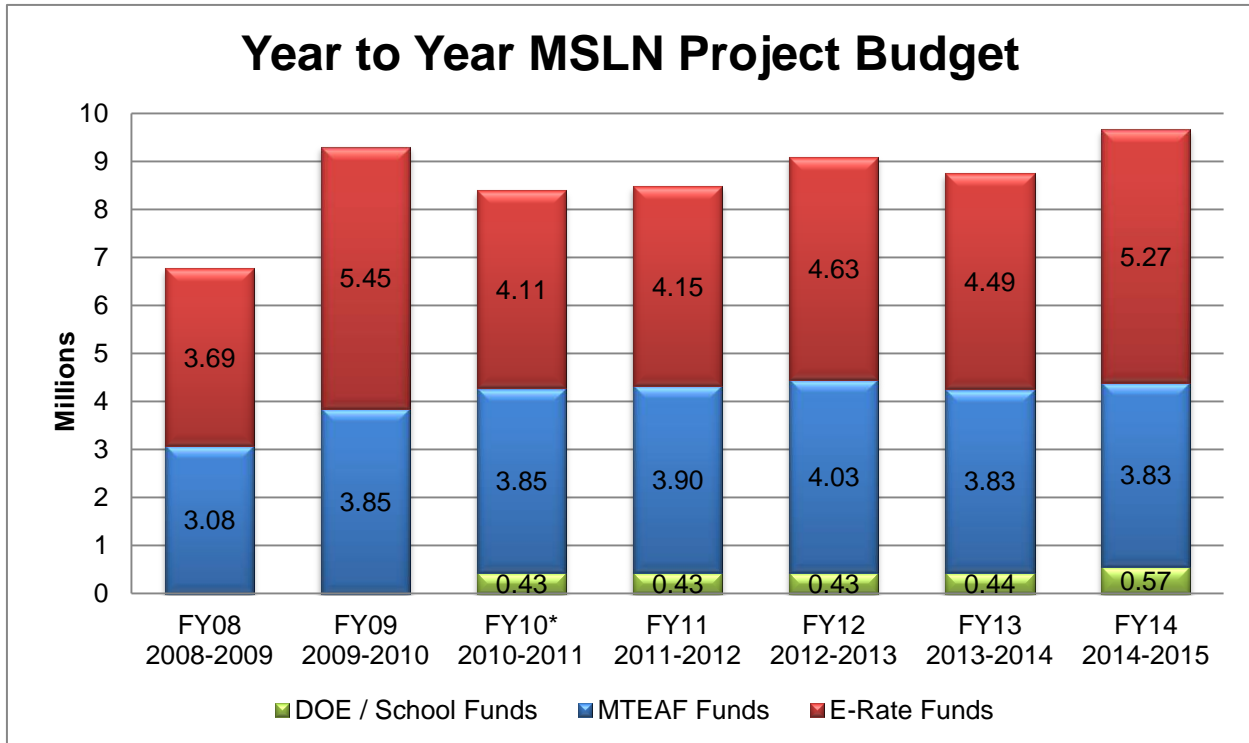
Comparison of MTEAF Funding: Funding Years 2011 - 2014

Services	2011-2012 Actual	2012-2013 Actual	2013-2014 Budgeted[7]	2014-2015 Requested
Transport Service[8]	$1,819,344	$2,013,394	$2,078,000	$2,227,000
Internet Service	$ 73,115	$ 78,675	$ 34,200	$ 51,300
CIPA Compliant Content Filter	$ 87,552	$ 87,552	$ 87,600	$ 87,600
Content Databases & E-Discovery	$ 699,110	$ 702,599	$ 702,600	$ 682,600
Technical Services	$ 470,975	$ 515,508	$ 387,500	$ 392,500
MTEAF Fund Administrator	$ 25,080	$ 26,400	$ 25,100	$ 25,100
Operational Services	$ 531,371	$ 539,197	$ 515,000	$ 363,900
Totals:	**$3,706,547**	**$3,963,325**	**$3,830,000**	**$3,830,000**

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[7] Adjusted down from requested amount of $4.136 M due to projected lack of MTEAF funding
[8] Cost prior to expected E-Rate reimbursement: 2014-2015 - $7,423,333

Appendix B

MSLN Project Budgets - Funding Years 2008 – 2014

Year to Year MSLN Project Budget

	FY08 2008-2009	FY09 2009-2010	FY10* 2010-2011	FY11 2011-2012	FY12 2012-2013	FY13 2013-2014	FY14 2014-2015
E-Rate Funds	3.69	5.45	4.11	4.15	4.63	4.49	5.27
MTEAF Funds	3.08	3.85	3.85	3.90	4.03	3.83	3.83
DOE / School Funds			0.43	0.43	0.43	0.44	0.57

☐ DOE / School Funds   ■ MTEAF Funds   ■ E-Rate Funds

Year to Year MTEAF Request Comparison

- ♦ Transport Service
- ■ Internet Service
- ✕ Web Content Filter
- ✱ Lib db & search
- ● Technical Services
- ╬ Admin Services
- ● Operational Services
- ─ Fund Administrator

*Networkmaine created in FY 10

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