

# Supplementary Analysis of Private Schools and Libraries

## Introduction

Building on the ESH/CoSN Connectivity Cost Model, this analysis seeks to estimate the ongoing cost impact of private schools and libraries to the E-rate program.

## Private Schools

The base data set we used for understanding the number and type of private schools was the 2011-12 Private School Universe Survey (PSS)<sup>1</sup>, published by the National Center for Education Statistics.

We considered private schools in two categories: 1) Catholic diocesan and parochial schools, which we treated as schools in a school system similar to public school districts; and 2) all other private schools, which we treated as entirely independent schools for the purpose of this analysis.<sup>2</sup> Based on our analysis of the PSS data, we identified 6,392 schools in 176 dioceses, as well as 20,591 independent private schools.

Looking at existing data made available by USAC, many private schools do not currently file for E-rate reimbursement. We hypothesize that this is for two primary reasons:

1. Most private schools have small student populations (58% of all private schools report fewer than 100 students), significantly reducing their demand for bandwidth compared to most public schools.
2. Many private schools do not serve significant populations of students who would be eligible for the Free and Reduced Lunch program<sup>3</sup>, thus limiting the expected discount rate (and financial benefits) of filing for E-rate.

Based on these factors, we have estimated that 35% of independent private schools will file for E-rate discounts, and because of their relatively small FRL population, we estimate the average discount rate for those schools to be 40%. For Catholic schools, we expect nearly all school systems to apply, and for their average discount rate to reflect the current E-rate school average of 70%. Combining these two groups results in a weighted average discount rate of 54% for all private school applicants.

To understand the amount of bandwidth needed by each school, we used the most similar district size category in the baseline Connectivity Cost Model -- Tiny districts for independent private schools, and Large districts for Catholic school systems, with minor adjustments to reflect the smaller student populations.

With respect to service mix and pricing, we assumed that private schools were no different than public schools for the purposes of the model.

Based on this analysis, we expect the total cost impact to E-rate to be approximately \$241MM in ongoing expenses, reflecting 54% of the \$446MM spent by the schools that we believe will file for E-rate. This cost does not include the construction of new fiber connections considered in the baseline model, whether funded through amortized operating expenses or non-recurring cost subsidies.

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<sup>1</sup> Data and documentation on the PSS are available at <http://nces.ed.gov/surveys/pss/pssdata.asp>

<sup>2</sup> We recognize that some private schools outside the Catholic school system are affiliated together in school systems that may share resources for Internet access, but because the Private School Survey offers little data to quantify the number and size of these systems, we chose the conservative estimate of full independence.

<sup>3</sup> See, for example, the statistics for the State of Wisconsin at [http://news.dpi.wi.gov/news\\_free-and-reduced-lunch-eligibility-wisconsin-private-schools](http://news.dpi.wi.gov/news_free-and-reduced-lunch-eligibility-wisconsin-private-schools)

## Libraries

The base data set we used for understanding the number and type of libraries was the FY2012 Public Libraries in the United States Survey<sup>4</sup>, published by the Institute of Museum and Library Services.

The IMLS survey identifies 9,286 public library systems or administrative units. About 80% of these entities serve the public with one central library, while the remainder have multiple outlets within their administrative unit. Overall, there are 16,991 library buildings in the US, which we grouped into two categories: 9,278 libraries in 1,573 multi-outlet systems, and 7,713 single-outlet libraries.

Because public library systems are organized in a variety of governmental structures (e.g., municipal, county, taxing district), library legal service areas (LSAs) vary and do not always relate exactly to local community boundaries. Further, legal service area is not attributed at the individual building level. For these reasons, we used the high-level assumption that library outlets in urban and suburban areas would need 1Gbps of Internet access to meet the Commission's goals, while rural libraries would need 100Mbps of Internet access<sup>5</sup>. We fully expect that bandwidth needs will vary by library within geographies, but expect that the assumptions we've made should reflect real-world averages.

For library systems, we assumed 1Gbps of Internet access at the WAN aggregation point (frequently a main library branch) for the first four libraries, and an additional 1Gbps of Internet access for each additional five libraries. This implies a within-system library concurrency ratio of slightly more than 4:1, which correctly reflects that library use is less time-concentrated compared to a school environment where students in a classroom are frequently instructed to all perform the same actions at the exact same time. WAN circuits from the central library hub site to individual library outlets within a system are sized with the same method described above for Internet access to independent libraries.

With respect to service mix and pricing, we assumed that libraries were also no different than public schools for the purposes of the model.

Like private schools, there are a significant number of library systems across the US that do not file for E-rate discounts related to their Internet access costs. A leading reason library systems report they do not apply for E-rate is concerns about censorship related to content filtering systems related to the Children's Internet Protection Act. Based on the latest data from the American Library Association<sup>6</sup>, 37.4% of library systems do not file for E-rate. Because large urban library systems disproportionately do file for E-rate (70% compared to 59% for rural libraries), we assume that 30% of library systems and 40% of independent libraries will continue to choose not to apply.

This analysis results in an estimate of \$298MM total spend by libraries. Using an average discount rate for libraries of 73% based on historical averages, the total cost impact to E-rate is expected to be \$218MM. As with private schools, this cost does not include the construction of new fiber connections considered in the baseline model.

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<sup>4</sup> Data and documentation are available at [http://www.imls.gov/research/public\\_libraries\\_in\\_the\\_united\\_states\\_survey.aspx](http://www.imls.gov/research/public_libraries_in_the_united_states_survey.aspx)

<sup>5</sup> We also considered other methods for estimating bandwidth needs, including the LSA and the total county population divided by the number of libraries in each administrative unit. Since all methods yielded similar results (within 11% total E-rate cost for libraries), we chose the most conservative need estimate to account for the lack of population data at an individual outlet level.

<sup>6</sup> Provided as part of the Public Library Funding & Technology Access Study 2011-2012, available at: [http://www.ala.org/research/plftas/2011\\_2012](http://www.ala.org/research/plftas/2011_2012). See especially Figure 50 at [http://www.ala.org/research/sites/ala.org.research/files/content/initiatives/plftas/2011\\_2012/budget%2Bfunding-ipac.pdf](http://www.ala.org/research/sites/ala.org.research/files/content/initiatives/plftas/2011_2012/budget%2Bfunding-ipac.pdf).