



E-rate Program Participation Among Nevada Schools

**Including a Comparative Analysis of
Nevada and Utah E-rate Disbursements
for Funding Year 2015**

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J. Brent Legg
Vice President, Education Programs
Connected Nation
blegg@connectednation.org
202.340.6446

Introduction

The federal Schools and Libraries Universal Service Fund, commonly referred to as “E-rate,” is the nation’s largest education technology funding program. Since it was created in 1997, the E-rate Program has provided over \$3.4 billion to K-12 schools and public libraries in Nevada alone—funding that has supported the purchase of telecommunications and Internet services. Funding is provided in the form of discounts for eligible services that range from 20% to 90% depending on the level of poverty and urban/rural status of the population served.

In 2014, the FCC took several major steps to modernize and better target the E-rate Program to support broadband service. The FCC stated that “the E-rate Program must evolve to focus on providing support for the high-speed broadband that schools need to take advantage of bandwidth-intensive digital learning technologies,” noting that “access to high-speed broadband is crucial to improving educational experiences and expanding opportunities for all of our nation’s students, teachers, parents and communities.”¹ As a result, in two 2014 orders, the FCC increased funding for the E-rate Program by 60%, established explicit broadband and Internet connectivity targets for schools, dedicated \$1 billion in funding to every K-12 school to support on-campus network and Wi-Fi capacity, modified program rules to lower the upfront cost of fiber optic construction, and provided additional funding for states that directly help schools to upgrade broadband capacity. In addition, the FCC began to phase out E-rate support for voice telephone and other non-broadband services, in order to encourage schools to transition their services to broadband platforms.

The Nevada Department of Education has contracted with Connect Nevada to study how Nevada K-12 schools are accessing and using the E-rate Program. The purpose of this analysis is to determine whether any state policy changes could support Nevada schools in the opportunities the FCC’s E-rate modernization creates. In 2015, Nevada schools—including public school districts, private schools, and charter schools—collected \$14 million in Internet, broadband, WAN, and telephone discounts from the E-rate Program. These discounts for Nevada schools are smaller than the discounts received by neighboring jurisdictions—particularly in Utah, which received \$30.8 million from the E-rate Program in 2015. Generally speaking, while Nevada has 0.8% of the nation’s K-12 students, Nevada schools have only received 0.4% of E-rate support since 2013.

In this report, Connect Nevada studies data recently released by the E-rate Program to better understand and explore how Nevada schools are using the program. In particular, the Nevada Department of Education asked Connect Nevada for a “comparative analysis” of this data between Nevada and Utah for the 2015 funding year. Because many of the FCC’s rules designed to incentivize and lower the costs of large-scale broadband upgrades were not in effect until 2016, the data released for the 2015 funding year provides a useful baseline for how Nevada

¹ Federal Communications Commission, *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Order, 29 FCC Rcd 8870 (2014) at ¶ 1.

schools were using E-rate for Internet and broadband connectivity before the changes brought by the FCC modernization effort.²

This analysis demonstrates that in 2015:

- All but one Nevada public school district applied for and received E-rate funding in Funding Year (FY) 2015 for Category 1 Internet or WAN services.
- In general, Utah K-12 schools had better Internet and WAN connectivity than their demographic counterparts in Nevada. All public school districts in Utah (which include charters) had a median Internet and WAN connectivity of 1 Gbps download, and several have median speeds of 2 Gbps. In Nevada, only Clark and White Pine districts have comparable median speeds, and many school districts in Nevada are connected with median speeds of 1.5 Mbps and 5 Mbps.
- The superior connectivity in Utah is both the result of greater per-student investment in connectivity in Utah, but also the operation of the Utah Education and Telehealth Network (UETN), which acts as a centralized network operator and purchasing consortium of E-rate connectivity for Utah public and charter schools.
- Nevada schools pay a wide range of costs for connecting schools. Even among rural districts, prices per median megabit per student range by several orders of magnitude, from \$0.40 per median megabit per student in Elko to \$35.37 per median megabit per student in Humboldt to over \$200 per megabit per student in Esmeralda.
- A district-to-district comparison of connectivity and costs between Nevada and Utah schools is not possible due to the E-rate consortium applications filed by UETN, which obtains a statewide blended average E-rate discount of 71% for all districts. However, Utah schools pay considerably less for connectivity on a per student basis than Nevada schools, by a factor of more than four to one.
- Utah schools are also better positioned to weather the transition of E-rate funding support from a fund that supported **all** telecommunications services purchased by K-12 schools (including voice service) to a fund that supports **only** broadband service. Less than half (48%) of Nevada's use of E-rate funds in 2015 supported Internet and WAN connectivity for schools. The remaining funds are vulnerable to the FCC's phase-out of subsidies for voice telephone service, which will decline in coming years. In contrast, 77% of the support collected by Utah from E-rate went to support school Internet and WAN connectivity.

² The Universal Service Administrative Company, or USAC, is a nonprofit corporation that administers the E-rate Program pursuant to a contract with the FCC. In the 2014 modernization orders, the FCC ordered USAC to begin to release more granular data on E-rate applications, connectivity, and spending to the public. The first year in which USAC has released this data is for Funding Year (FY) 2015, which ran from July 1, 2015 to June 30, 2016. Applications for E-rate funding needed to be submitted by March 2015. The application window for FY2016 closed in May 2016 for schools and July 2016 for libraries and consortia; USAC has not released a final list of funding commitments and summary data for FY2016 as of the release of this report. For more information on the USAC data and its limitations, see the section labeled Data and Methodology, *infra*.

This report begins with a general demographic comparison of Nevada and Utah, with particular regard to comparisons of K-12 public education spending generally. These demographic differences matter, because the E-rate Program provides different levels of discounts to K-12 schools based on the income and rural nature of the district, ranging from a 20% discount for the wealthiest urban districts to a 90% discount for the poorest rural districts. In addition, because E-rate is a discount program, a higher rate of E-rate collections by one district also implies a higher spending by that district on E-rate services, all other factors being equal. As a result, any comparison of how two different districts use and benefit from the E-rate Program cannot simply compare dollars received from the program and must take into account these demographic and spending differences. Following the general demographic comparison of Nevada and Utah, this report discusses Nevada public school district E-rate requests in 2015 and showcases a comparative analysis of E-rate disbursements for FY2015 between Nevada and Utah. An addendum is also included summarizing the data sources and methodologies employed in this report.

Background: Nevada and Utah Demographic and Spending Comparison

In order to understand and compare school technology spending and compare the use of E-rate funds by Nevada and Utah schools, it is first important to compare the school systems of both states more generally. Because the E-rate Program offers different discounts based on school demography, a complete comparison of purchasing decisions needs to incorporate these demographic differences.

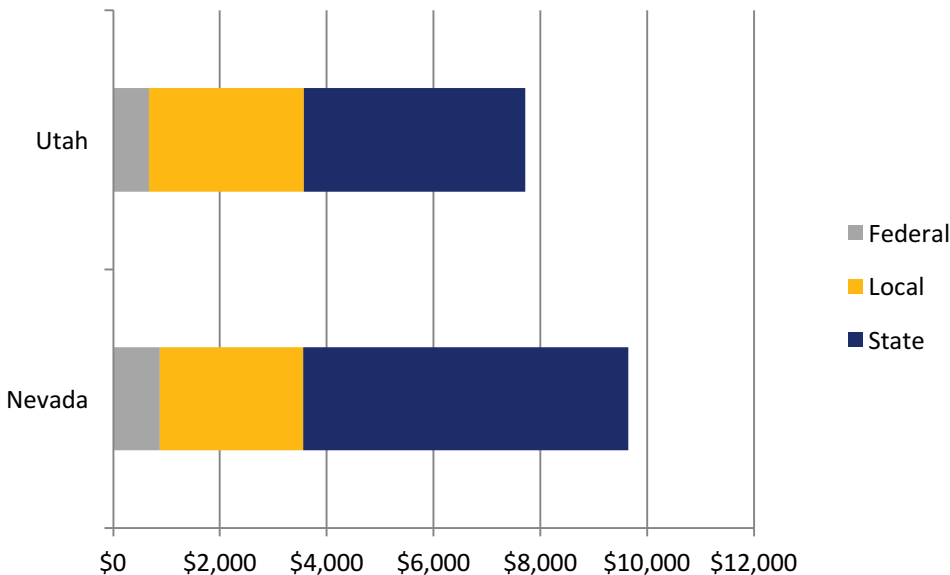
Nevada and Utah are neighboring states, similar in size and total population, but the distribution of K-12 schools, the nature and manner in which both states purchase and utilize K-12 school connectivity, and their respective total spending on schools and technology are significantly different. Table 1 on the following page highlights many of these differences.

Table 1. Demographic Differences in K-12 Education in Nevada and Utah.

	Nevada	Utah
State Demographics		
Population	2,890,845	2,995,919
% Minority	24.8%	10.8%
% Rural	5.8%	9.4%
Area	110,622 sq. miles	84,899 sq. miles
Median Household Income	\$56,361	\$55,869
K-12 Education Demographics		
K-12 Students in Public Schools	451,832	625,093
% Students in Poverty	19.2%	13.2%
% Minority Students	64%	23.7%
% Students in Charter Schools	5.4%	8.8%
Total Annual spending/pupil	\$8,414	\$6,500
Rural and Urban Characteristics of School Districts		
Number of School Districts	17	41
Number of “Rural” Districts (as defined by current E-rate rules)	6	14
Number of K-12 students in “Rural” Districts	29,126	42,615
Number of K-12 Schools in “Rural” Locations (as defined by current E-rate rules)	112	186
K-12 Public School Spending on Internet and WAN Connections (2015)		
Total Spending (Local, State and E-rate)	\$8,831,275	\$33,857,713
Total Spending (Local, State and E-rate) per pupil	\$19.55	\$54.13
E-rate Distributions (2015)		
E-rate Distributions for All Eligible Services	\$14,061,834	\$30,804,668
E-rate Distributions for Category 1 Internet and WAN	\$6,753,530	\$23,722,589
E-rate Distributions for Category 1 Internet and WAN per pupil	\$14.94	\$37.95
% of E-rate Distributions used for Category 1 Internet and WAN connections	48%	77%

For all public education services, on a per pupil basis, in 2014 Nevada spent \$8,414, while Utah spent considerably less—\$6,500. Generally speaking, the difference in this spending arises from the greater per-pupil contribution the state of Nevada shoulders, compared to federal and local sources.

Chart 1. Annual Revenue Per Pupil, by Source (2014).



Source: U.S. Census Bureau, *Public Education Finances: 2014* (June 2016), Table 11
<http://www.census.gov/content/dam/Census/library/publications/2016/econ/g14-aspef.pdf>

With regard to connectivity, however, Utah spends more per pupil than Nevada. Data from the Universal Service Administrative Company (USAC) show that when all funding sources (local, state, and E-rate) are combined, Utah spends \$54.13 per year per pupil on Internet and WAN connectivity, compared to \$19.55 in Nevada. These investments are the total cost before application of any E-rate discount. In total, Utah public schools invest 0.8% of their combined total per-pupil spending on Internet and WAN connectivity, while Nevada schools spend only 0.2%.

With regard to what portion of these investments in Internet and WAN connectivity can be recovered from the E-rate Program, demographic differences have a direct impact. The E-rate Program offers a sliding scale of discounts based on the rural nature of a public school district and the relative level of poverty in that district. Chart 2 shows distribution of public school districts by E-rate discount category between the two states. All Nevada school districts receive an E-rate discount ranging from 60-80%, while Utah districts are eligible to receive discounts ranging from 50%-90%.³

³ As noted above, because UETN operates as a statewide E-rate consortium, it files for and receives a blended E-rate discount rate for all of its school district applicants. That statewide consortium discount rate is calculated by reference to the underlying discount rate to which each member school district qualifies for. In FY2015, this blended rate for Utah was 71%. The discount rates shown in Charts 2 and 3 for Utah provide entries for each of the constituent member districts of the UETN consortium. In addition, these discount rates are for Category 1 Internet and WAN services. Because the FCC is starting to phase out E-rate support for legacy voice telephone service, different discounts apply to those services. The complete, current discount matrix can be seen here: <https://www.fundsforlearning.com/info/2014/09/discount-rate-calculation-overview>.

Chart 2. Number of Public School Districts by E-rate Discount Category.

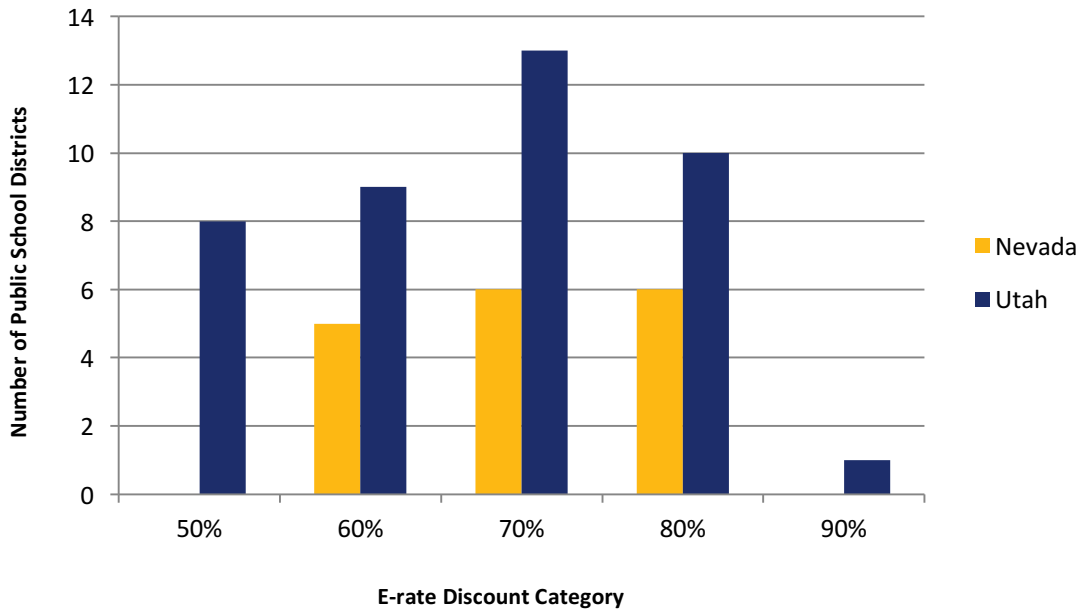
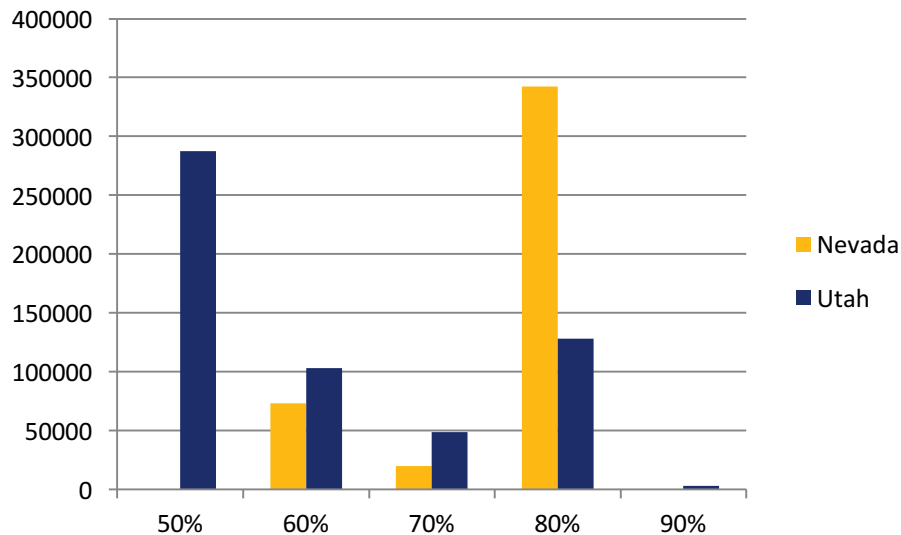


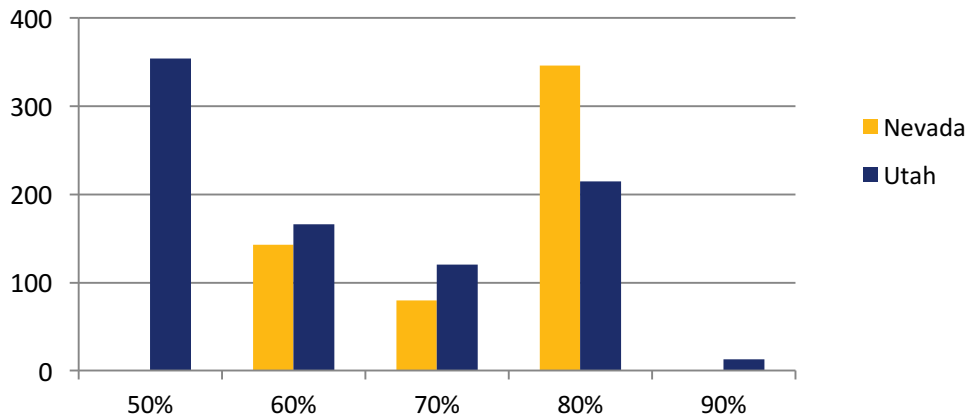
Chart 3 shows the distribution of student body population by E-rate discount matrix. This demonstrates that substantially more Nevada students attend schools in high discount rate eligible districts than in Utah, due to the fact that about 73.6% of Nevada’s K-12 students are enrolled in Clark County School District, which is an 80% discount-eligible district.

Chart 3. Student Population in Nevada and Utah Schools, Sorted by E-rate Discount Category.



In addition to this different distribution of student population, the distribution of school instructional buildings that are connected with Internet and WAN connections is also vastly different between Nevada and Utah.

Chart 4. Distribution of Instructional Buildings, by E-rate Discount Category.



Because UETN operates as a statewide consortium for E-rate services in Utah, it is able to obtain a single, statewide E-rate discount rate for all of its members. This rate is calculated by averaging the discount rate of all participating districts, without any weighting by student body or district size. In FY2015, this discount amounted to 71%. Charts 3 and 4 demonstrate that this approach has benefitted Utah significantly. If Utah’s school systems were to participate in the E-rate Program independently, districts containing the plurality of students and instructional buildings in Utah would receive discounts of only 50%.

This analysis implies that if Nevada and Utah schools purchased the same level of connectivity per pupil at the same price, Nevada schools would be collecting significantly more in E-rate discounts than Utah schools, due to the preponderance of Nevada students and facilities in 80% discount districts. **The fact that Nevada schools today on the whole receive considerably less than Utah from the E-rate Program is both the result of the dramatically lower pre-discount per pupil total investment (\$19.55 per pupil compared to \$54.13 in Utah) in connectivity as well as the consortium benefits of UETN, which are explained in greater detail below.**

Of course, the fact that Utah spends more on Internet and WAN connectivity, both before and after E-rate discounts are applied, would not necessarily mean that Utah schools are better connected in a cost-effective manner (although, in fact, that is the case, as we will later demonstrate). To make this comparison, the following sections of this report develop and compare various measurements of cost effectiveness of this investment. In particular, this report will explore the total cost per median megabit of Internet/WAN connectivity on a per student basis, and then compare how much of this cost is being covered by the E-rate Program, broken down by E-rate discount category. This approach will indicate how much of the burden of connecting schools to the Internet is being borne by state and local funding sources and will help identify the areas in which Utah schools may better leverage the E-rate Program to boost connectivity.

Nevada Public School District E-rate Requests in 2015

Data made available by USAC show the overall level of connectivity and amounts spent on Internet and WAN access for K-12 schools in Nevada in the 2015 E-rate funding year, the most recent year available. Table 2 below provides summary information for Category 1 Internet and WAN connectivity for all 17 public school districts in Nevada. According to the USAC data, one school district, Pershing County, did not request or receive funding for Internet or WAN connectivity in FY2015. The counties are listed in ascending order by E-rate discount rate. Five Nevada counties have discount rates of 60%, six have discount rates of 70%, and six have discount rates of 80%.

Table 2. E-rate Discount Rate Per County.

School District	Total Eligible Requests for Internet or WAN Service	E-rate Discount Rate	Amount Paid by State or Local Sources	Amount Paid by E-rate	Student Population	Median Mbps (Downstream) Purchased	# of Lines Provided	Total Eligible Requests per Median Mbps per Student	Eligible Requests Paid by State/ Local Sources per Median Mbps per Student	Eligible Requests Paid by E-rate per Median Mbps per Student
Douglas County	\$152,531	60	\$61,012	\$91,519	6130	135	15	\$0.18	\$0.07	\$0.11
Eureka County	\$61,680	60	\$24,672	\$37,008	246	10.75	2	\$23.32	\$9.33	\$13.99
Lander County	\$2,064	60	\$826	\$1,238	1121	1.5	1	\$1.23	\$0.49	\$0.74
Storey County	\$68,193	60	\$27,277	\$40,916	398	90	14	\$1.90	\$0.76	\$1.14
Washoe County	\$674,240	60	\$269,696	\$404,544	65550	250	108	\$0.04	\$0.02	\$0.02
Churchill County	\$40,241	70	\$12,072	\$28,168	3675	100	11	\$0.11	\$0.03	\$0.08
Elko County	\$399,300	70	\$119,790	\$279,510	9945	100	30	\$0.40	\$0.12	\$0.28
Humboldt County	\$186,598	70	\$55,979	\$130,618	3517	1.5	22	\$35.37	\$10.61	\$24.76
Lincoln County	\$166,301	70	\$49,890	\$116,411	973	175	4	\$0.98	\$0.29	\$0.68
Pershing County	\$0	70	\$0	\$0	710					
White Pine County	\$90,640	70	\$27,192	\$63,448	1349	2000	14	\$0.03	\$0.01	\$0.02
Carson City	\$127,901	80	\$25,580	\$102,320	7760	50	26	\$0.33	\$0.07	\$0.26
Clark County	\$3,733,594	80	\$746,719	\$2,986,875	320532	1000	360	\$0.01	\$0.00	\$0.01
Esmeralda County	\$107,340	80	\$21,468	\$85,872	78	5.75	14	\$239.33	\$47.87	\$191.46
Lyon County	\$210,000	80	\$42,000	\$168,000	8104	200	18	\$0.13	\$0.03	\$0.10
Mineral County	\$32,400	80	\$6,480	\$25,920	463	75	2	\$0.93	\$0.19	\$0.75
Nye County	\$700,509	80	\$140,102	\$560,407	5214	20	50	\$6.72	\$1.34	\$5.37

Table 2 provides the *median* Megabits per second (Mbps) downstream speed of Internet and WAN connectivity for all instructional buildings in each corresponding district. Reporting *average* connection speeds would potentially skew results in districts where some schools might have gigabit connectivity speeds that are 1000x greater than single megabit connections. Also, for larger districts, Table 2 combines connectivity contracts and purchase costs from different providers for several school districts. Focusing on the median level of Internet and WAN connectivity and the median cost for that connectivity at the district level allows for a better means of comparing the results of multiple procurements on an overall, district-wide basis.

Table 2 shows that there are wide differences in connection speeds and prices paid among public school districts in Nevada:

- Churchill County and Elko County have similar levels of poverty, similar levels of connectivity (a median connectivity speed of 100 Mbps) and yet the cost per median

megabit per student in Churchill County is only \$0.11, compared to \$0.40 in Elko—nearly 4 times more. Elko’s larger student body population is not enough to help it obtain better prices for connectivity.

- The median school connection speed in White Pine County is 2 Gbps, the fastest in the state.
- The median school connectivity speed in Carson City is 50 Mbps, and the price Carson City pays for that connectivity on a per median megabit per student basis is substantially higher than the other metro districts in the state--Clark County and Washoe County.

This disparity in K-12 school connectivity among Nevada districts is in part the result of the manner in which Nevada districts participate in the E-rate Program itself. Because the E-rate Program pays the vast majority of Internet and WAN connectivity for Nevada schools, different approaches to the E-rate system by individual school districts can have a significant effect.

In general, Nevada school districts are left to purchase broadband, Internet, WAN and Wi-Fi connectivity on their own. Unlike other states that have funded state E-rate coordinators, local Nevada public school staff must individually learn and follow FCC rules that require competitive bidding and proposal review before E-rate funds are released. The Nevada School E-rate Survey conducted by Connected Nation in July 2016 indicated that **many district connectivity bid solicitations received only one—or in some cases, zero—responses from area service providers**. If a request for proposal (RFP) is not publicized widely or there is a general lack of competition for broadband services in a geographic area, contracted-for prices could be inconsistent among and within district requests and may be unnecessarily high.

The Nevada School E-rate Survey also found that 15 of the 17 public school districts utilize paid, for-profit E-rate consultants to handle the E-rate Form 470 bidding process and subsequent Form 471 paperwork to secure funding. The importance of compliance with E-rate Program rules, and the fact that E-rate pays for the majority of Internet and WAN connectivity costs, make the investment in third-party consultants (or dedicated internal E-rate resources) necessary expenses for most districts.

Nevada vs. Utah: A Comparative Analysis of E-rate Disbursements for FY2015

As discussed above, K-12 public schools in Utah purchase and procure Internet and WAN connectivity through UETN—a significantly different approach than in Nevada, where school districts and charter schools apply for E-rate support on their own.

In Utah, all traditional and charter schools have access to a statewide education network engineered, operated, and maintained by UETN—but in most cases over fiber connections that are leased from the state’s telecommunications carriers. UETN aggregates demand for Internet connectivity among schools and other anchor institutions and also provides application services over its statewide WAN. By obtaining connectivity through UETN, Utah schools are able to take advantage of the E-rate Program without having to file the paperwork themselves (although some larger districts do for certain services). Moreover, UETN frequently combines multiple school districts on joint procurements and contracts.

Essentially, UETN acts not only as an underlying network operator, but also serves to coordinate and consolidate demand for school connectivity as well as manage a centralized E-rate administrative process. For certain shared WAN services, UETN acts as the “provider” and receives E-rate funds directly from USAC. For most services, UETN contracts with Internet and broadband service providers and pays the post-discount amount, and those providers receive the remaining subsidy from USAC. In both situations, individual school districts in Utah generally do not have a specific “cost” or have a precise contracted price for connecting a school or building for Category 1 services.

UETN’s approach to connectivity offers the opportunity for significant operational efficiencies. For example, UETN connects all school districts on a statewide WAN, and those WAN connections are connected to the global Internet through one of only a handful of Internet Points of Presence (POPs). This offers resiliency in Internet traffic routing and also allows for greater volume discounts for web traffic. In Nevada, each school district independently contracts for Internet access and may not necessarily have high-volume purchasing power and network resiliency in case of failure. In addition, as a statewide E-rate consortium, **UETN qualifies for a statewide E-rate discount calculation, which in FY2015 was 71%. Operating as a consortium effectively allows it to increase the E-rate discount rate for many schools in the state**, especially since UETN is able to consider high discount rate (90%) head start academies as public school districts.⁴

Table 3 on the following page shows **that public school districts in Utah have significantly higher rates of school connectivity than Nevada districts**. All but two districts in Utah have median connectivity of a gigabit, and the two districts with less than a gigabit (Dagget County and San Juan County) have median connectivity of 100 Mbps.⁵ It should also be noted that San Juan County, which is in extreme southeast Utah (known as the “four corners” area, where Utah, Colorado, New Mexico, and Arizona meet), is in the process of a multi-million dollar fiber upgrade to gigabit speeds.

⁴ As demonstrated in Charts 3 and 4, this approach effectively increases the discount rate for the plurality of students and instructional buildings in Utah, which would only qualify for a 50% discount without the UETN consortium.

⁵ This data was provided by UETN to Connected Nation, and is gathered from public records in Utah. In Utah for E-rate purposes, charter schools are regarded as part of the local school district in which they are located geographically. As a result, this report of median speeds includes charter schools located in that district. However, the student body population includes only K-12 public schools and not charter schools.

Table 3. Median Broadband Speeds in Utah School Districts.

School District	Student Population	Median Mbps (Downstream)	Median Mbps (Downstream) per Student
ALPINE	74,432	1,000	74.43
BEAVER CO.	1,542	1,000	1.54
BOX ELDER	11,585	1,000	11.59
CACHE CO.	16,456	1,000	16.46
CANYONS	34,620	2,000	17.31
CARBON CO.	3,141	1,000	3.14
DAGGET CO.	207	100	2.07
DAVIS	70,166	2,000	35.08
DUCHESNE CO.	5,151	1,000	5.15
EMERY CO.	2,280	1,000	2.28
GARFIELD CO.	927	1,000	0.93
GRAND CO.	1,490	1,000	1.49
GRANITE	67,519	2,000	33.76
IRON CO.	8,813	1,000	8.81
JORDAN	51,738	1,000	51.74
JUAB	2,385	1,000	2.39
KANE CO.	1,192	1,000	1.19
LOCAN CITY	5,970	1,000	5.97
MILLARD CO.	2,804	1,000	2.80
MORGAN	2,766	1,000	2.77
MURRAY CITY	6,001	1,000	6.00
NEBO	31,865	1,000	31.87
NORTH SANPETE	2,567	1,000	2.57
NORTH SUMMIT	1,036	1,000	1.04
OGDEN CITY	12,485	1,000	12.49
PARK CITY	4,779	1,000	4.78
PIUTE CO.	302	1,000	0.30
PROVO CITY	14,351	1,000	14.35
RICH CO.	478	1,000	0.48
SALT LAKE CITY	23,179	1,000	23.18
SAN JUAN CO.	2,849	100	28.49
SEVIER	4,602	1,000	4.60
SOUTH SANPETE	3,169	1,000	3.17
SOUTH SUMMIT	1,510	1,000	1.51
TINTIC	263	1,000	0.26
TOOELE CO.	13,870	1,000	13.87
UNITAH CO.	7,895	1,000	7.90
WASATCH CO.	6,311	1,000	6.31
WASHINGTON CO.	28,076	1,000	28.08
WAYNE CO.	485	1,000	0.49
WEBER CO.	31,081	1,000	31.08

Because schools in Utah do not apply individually to USAC for Internet and WAN connectivity, the FY2015 Form 471 data released by USAC does not allow for a direct comparison of the relative cost of connecting a specific location. However, when analyzed on a statewide basis, the **USAC data indicate that Utah as a whole is paying considerably less on a per median megabit per student basis than Nevada.** Indeed, the cost data submitted by UETN to USAC for Internet and WAN services show that the **prices paid for providing service to all K-12 districts in Utah rival that of the costs paid by the metropolitan districts in Nevada to connect their schools.**

The net takeaway is that the different approaches taken by Utah and Nevada in the pursuit of E-rate funding result in significant differences in the connectivity costs in each state. As shown below, the relative cost of connecting the median school in Utah school districts throughout the state is on par with the cost of connecting median urban schools in Nevada. This measurement shows that Utah’s approach toward school connectivity results in a much more efficient use of federal and state dollars.

Table 4. Internet Costs per Median Megabit per Student in Utah.

Total Contracted-For Cost	Median Connectivity	Student Body Population	Cost per Median Megabit per Student	Cost per Median Megabit per Student borne by E-rate	Cost per Median Megabit per Student borne by State and Local Sources
\$33,857,713	1,000 Mbps	625,093	\$0.054	\$0.038	\$0.016

Table 4 calculates the cost of connectivity per median megabit per student for Utah schools. Because of UETN’s consortium procurement model, individual district costs per median megabit cannot be calculated, this statewide number for Utah can be compared against the per median megabit per student costs Table 2 shows for Nevada school districts. Excluding Clark County, Nevada schools would benefit greatly if their costs of connectivity were to drop to levels comparable to Utah. Chart 5 shows that the total cost per median megabit per student paid (pre-discount) for all districts excluding Clark County are significantly higher than \$0.054 across all E-rate discount categories.⁶

⁶ Because of its size and large student body population, including Clark County in the 80% discount category would lower that total cost per median megabit per student to \$0.01.

Chart 5. Total Cost Per Median Megabit per Pupil, Nevada (excluding Clark County, 2015).

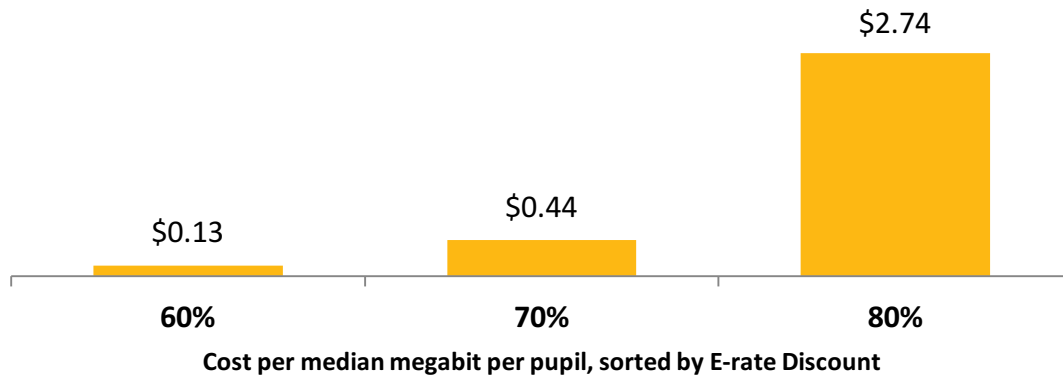
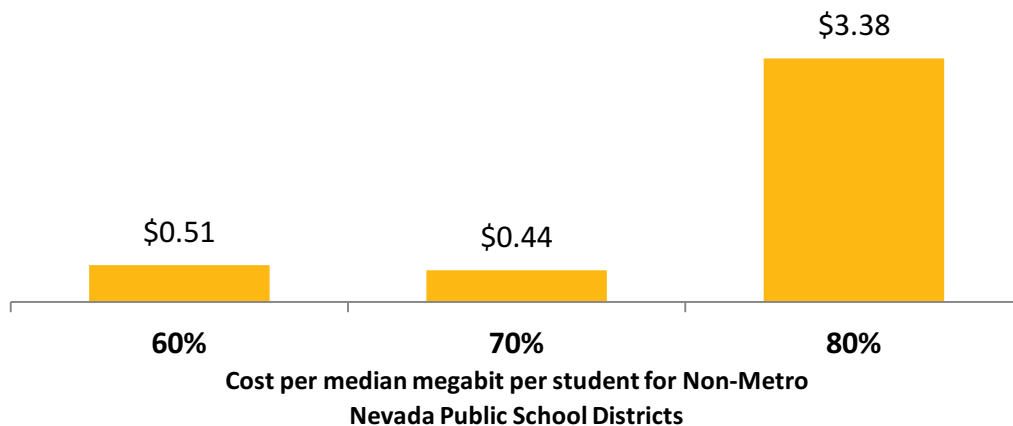


Chart 6 below shows that the per median megabit per student costs borne in Nevada are even higher when the analysis is limited to the 14 Nevada public school districts that are not in metropolitan areas (i.e., excluding Clark County, Carson City, and Washoe County).

Chart 6. Total Cost Per Median Megabit per Student (Non-Metro Districts).



This analysis shows that non-metro public school districts in Nevada pay substantially more for connectivity on a relative basis than the costs submitted by UETN for public and charter schools in Utah. Therefore, while public schools in Utah collectively spend more on Internet and WAN connectivity than Nevada schools, Utah schools do appear to receive greater value for this investment in terms of per-student speeds and associated costs.

Conclusion

On the whole, Nevada schools today receive considerably less than their counterparts in Utah from the E-rate Program. Nevada spends less money (combined local + state + federal) per student for Internet and WAN connectivity than Utah (\$19.55 versus \$54.13), but due to the

efficiencies gained by UETN in operating its own competitively-bid leased network, Utah delivers a significantly lower cost per megabit per student than Nevada districts, which currently pursue connectivity and E-rate support on their own. Through years of focused leadership on the issue, Utah has managed to leverage the E-rate Program and the collective buying power of a single statewide entity to build fiber infrastructure in even the most remote parts of the state, whereas many districts in Nevada routinely receive only one—and in some cases, zero—bids for service when they seek to solicit new service options, leaving most districts with little option but to pay higher costs.

The UETN consortium also results in a higher discount rate for the vast majority of schools in Utah than they would receive were Utah schools were to participate in the E-rate Program independently. As a statewide E-rate consortium, UETN receives a statewide E-rate discount calculation, which in FY2015 was 71%. Operating as a consortium effectively allows it to increase the E-rate discount rate for many schools in the state, especially since UETN is able to consider high discount rate (90%) head start academies as public school districts. Currently, five Nevada counties have discount rates of 60%, six have discount rates of 70%, and six have discount rates of 80%. If combined into a single statewide consortium, Nevada's statewide discount rate would be approximately 71%. If Clark County were to opt out, the rate would drop only one percentage point to 70%, since all districts regardless of enrollment size are weighted equally. This would benefit districts like Washoe County significantly, since it currently only qualifies for a 60% discount.

In summary, the data show that Nevada could significantly reduce its per megabit per student costs through the efficiencies gained by forming a single statewide E-rate filing consortium. Doing so would also leverage the state's collective buying power and the strategic planning across districts that would naturally occur to improve provider competition, increase investment in rural areas, and thus dramatically impact the speed and reliability of services across Nevada.

Addendum: Data and Methodology

Information regarding state populations, demographic make-up (minority, rural, median household income) as well as land area calculations come from the United States Census Bureau. The share of students living in poverty, the share of minority students, and the share of students in charter schools was originally collected by the National Center for Educational Statistics (NCES).

Data on Internet and Wide Area Network (WAN) spending—including total E-rate commitments, E-rate distributions for Internet and WAN, and total spending on Internet and WAN—comes from the Federal Communications Commission (FCC) Form 471 filings from 2015. E-rate is a program funded by the FCC's Universal Service Fund and overseen by the Universal Service Administrative Company (USAC). Eligible applicants include public and private schools, libraries, school districts, consortia, and/or consultants representing those entities.

Connectivity data for Utah public schools was derived from public records and was provided by the Utah Education and Telehealth Network to Connected Nation.

Applicants file an FCC Form 471 to request discounts on eligible expenses, including those for eligible data transmission services, Internet access costs, WAN costs, and voice services (grouped together as “Category 1” charges). Funds for eligible internal connections, managed internal broadband services, and basic maintenance expenses related to internal Internet connections can also be requested and are grouped together as “Category 2” expenses. The spending amounts documented in this report are all Category 1 expenses for data transmission services, Internet access costs, and Wide Area Network (WAN) costs, excluding any costs for voice services or Category 2 expenses.

The level of discount that schools and school districts can receive is based on two factors: the share of students represented by that entity who are eligible for the National School Lunch Program, and whether the applicant is considered urban or rural. Schools and school districts are categorized by USAC to be rural if they are not located in an "Urbanized Area" or "Urban Cluster" with a population of at least 25,000 residents. If more than one-half of the schools in a school district are considered rural, the school district is eligible for a rural discount. Schools are categorized as “rural” in this report using these same definitions.

Using these parameters, schools and school districts are considered eligible for discounts on eligible Category 1 and Category 2 expenses as shown below:

Table 5. Category 1 and Category 2 Discount Matrix.

% of students eligible for the National School Lunch Program	Category One		Category Two	
	Urban	Rural	Urban	Rural
Less than 1%	20%	25%	20%	25%
1% - 19%	40%	50%	40%	50%
20% - 34%	50%	60%	50%	60%
35% - 49%	60%	70%	60%	70%
50% - 74%	80%	80%	80%	80%
75% - 100%	90%	90%	85%	85%

In this report, district discount rates represent the rates for eligible requests made at the school district level. Consortia are also eligible to apply for funding. In the state of Utah, UETN offers at least some services to every public school in the state. Funding requests in such situations are difficult to parse related to how much funding benefits a particular school district, as UETN is considered the applicant for thousands of service requests covering multiple schools and districts. For the analysis in this report, Connected Nation received non-confidential information from UETN that documented the median connectivity of public and charter schools in Utah that are connected to UETN. Connected Nation used this information in conjunction with the USAC Form 471 database to generate the spending estimates contained in this report.