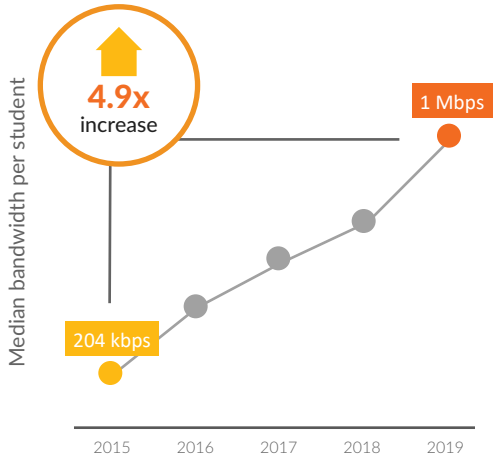
Montana | 2019 Connectivity Snapshot

21st century learning is increasing the demand for broadband. Schools need to continue to grow their bandwidth to make technology a part of learning in every classroom, every day.

BANDWIDTH



MEETING FCC BANDWIDTH GOALS:

100% of your students are meeting 100 kbps per student, and

20%

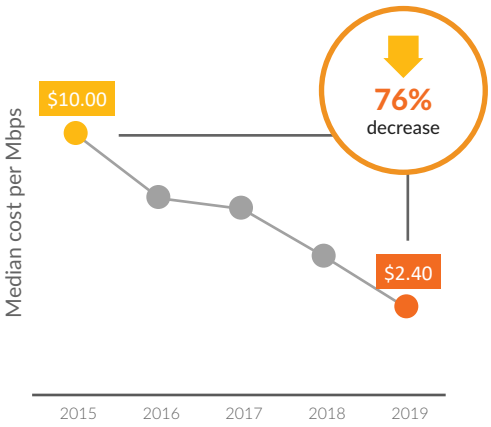
of your students are meeting 1 Mbps per student, in comparison to 24% nationally

"In order to prepare students for the jobs of the 21st century, we need to ensure that classrooms are equipped with 21st century technology. We have made great progress connecting Montana students to 100 kilobits per second, but as classroom bandwidth needs increase, we know we have more work to do to get to 1 megabit per second per student. We will continue working with local, state, and federal partners to make this a reality for every student in every classroom."

- Governor Steve Bullock

AFFORDABILITY

Taking advantage of improved affordability is the key to meeting the 1 Mbps per student goal.



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districts with expiring contracts have the opportunity to be upgraded without increasing costs to meet 1 Mbps per student*

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6,859

more students in Montana will have broadband that supports digital learning in every classroom, every day

FIBER

Since 2016, Montana has upgraded 64% of its unscalable schools to fiber.

450 schools now have scalable infrastructure, and only

62

schools still need to be upgraded to scalable infrastructure

WI-FI

E-rate funds have enabled Montana schools to upgrade Wi-Fi networks and bring broadband to every classroom.

$9 M

in federal Wi-Fi funding has been utilized in Montana since 2015

Source: USAC Form 471 2019 E-rate applications, n=255 of 299 school districts, n=467 of 512 schools, n=144,857 of 146,548 students

1 Mbps = 1,000 kbps

**The service providers serving these districts or consortia are offering better pricing to comparable districts in the state*

Education SUPERHIGHWAY

About the Metrics

BANDWIDTH

Median District Bandwidth per Student

We determine a school district's bandwidth by dividing the district's total monthly internet access bandwidth by the number of students. We determine the median district bandwidth per student by calculating the median of all districts in the state. The increase factor is generated by dividing the median bandwidth per student in 2019 by the median bandwidth per student in the first year represented on the chart.

Students meeting FCC Bandwidth Goals

We assess if a district is meeting the short-term (100 kbps/student) and long-term (1 Mbps/student) FCC Bandwidth Goals by dividing the district's total monthly internet access bandwidth by the number of students. We then sum the total number of students in every district meeting the goals.

To account for oversubscription, we discount the amount of bandwidth needed based on the size of the district:

Size	Meeting Long-term Bandwidth Goal
1-5 schools	1 Mbps per student
6-15 schools	850 kbps per student
16-50 schools	700 kbps per student
51-99 schools	400 kbps per student
100+ schools	170 kbps per student

AFFORDABILITY

Median Cost per Mbps

We determine the cost per Mbps at a district level by dividing the district's total monthly internet cost by the total monthly internet bandwidth. We then take the median cost per Mbps across all districts within the state.

Districts and Students with Expiring Internet Contracts and Better Deals

This metric shows the number of districts and students not meeting 1 Mbps/student with expiring internet contracts in 2020. These districts and students have an opportunity to upgrade their bandwidth to meet 1 Mbps per student without additional costs.

FIBER

Fiber Upgrades Since 2016

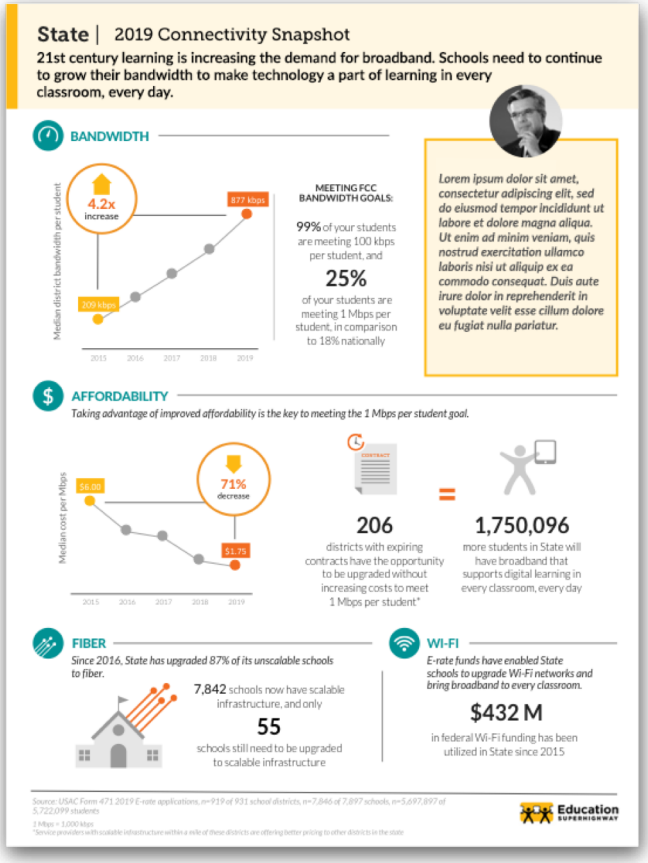
This metric shows the percentage of public K-12 schools that have been upgraded from a non-scalable connection to fiber since 2016.

% of Schools on Fiber

This metric shows the percentage of public K-12 schools in the state that are currently connected on a scalable fiber connection. Fixed wireless connections with capabilities of 1 Gbps are a sufficient option for some school districts.

Schools with or without scalable infrastructure

This metric reports on the availability of scalable infrastructure based on the FCC-recommended goal that every school's broadband infrastructure be scalable to 10 Gbps (which currently requires fiber). There are some cases in which a 10 Gbps connection is not required because of school population. In these cases, we made an assumption that these schools already have sufficient infrastructure. For schools where the connection type was unknown, we applied a set of rules to determine the connection type based upon extensive research.



WI-FI

"Wi-Fi funds" are E-rate Category 2 funds for schools to upgrade their internal connections. For funding years 2015 - 2019, the FCC provided every school with a Category 2 budget (adjusted yearly for inflation) of $150 per student or a minimum of $9,200 per school. We calculated the total Category 2 funding utilized by summing the funds requested by districts (excluding the requests denied by USAC) for Funding Years 2015 - 2019.