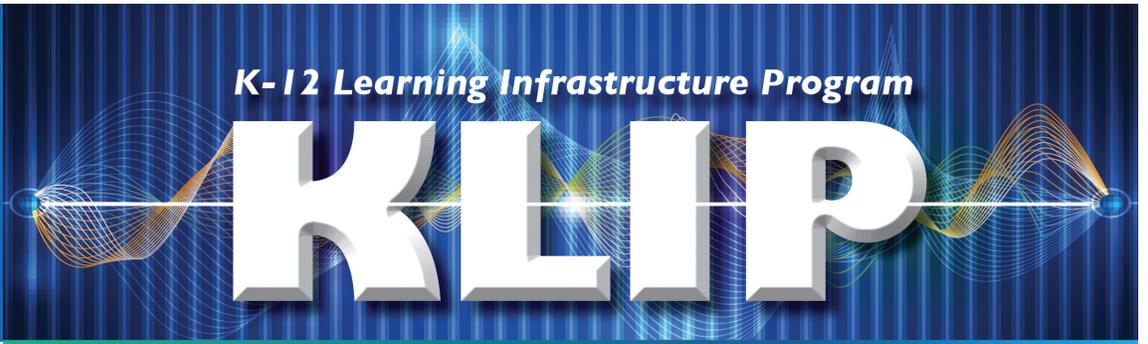


2017 Broadband Connectivity Capability Survey REPORT



Cutting Edge Technology for Virginia Public Schools

Executive Summary

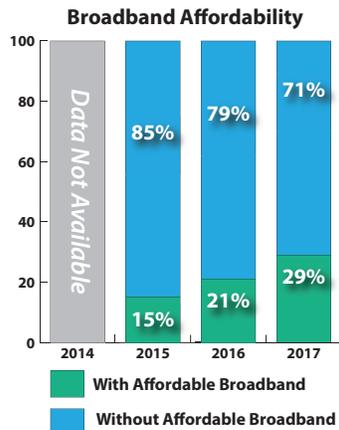
To support greater broadband access for Virginia students, teachers and administrative staff, the Virginia Department of Education (VDOE) established the **K-12 Learning Infrastructure Program (KLIP)** in 2015. KLIP has made significant progress increasing broadband connectivity. Survey results combined with other information reveal that 99% of public school buildings in Virginia are now connected to high-speed fiber and 122 divisions of 132 are exceeding the minimum bandwidth goal set by the Federal Communications

Commission (FCC) of 100 kbps per student. Additionally the cost of bandwidth for schools is becoming more affordable with bandwidth costs decreasing as school divisions increase the

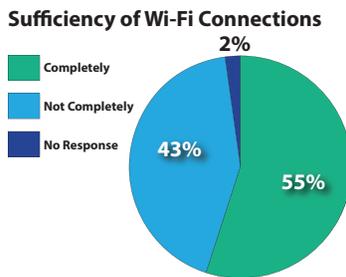
amount of bandwidth needed to support digital learning. Results indicate that Virginia's public school system is currently in a good position to provide classroom connectivity that supports digital learning and the Board of Education's Profile of a Virginia Graduate. However, challenges do remain.

include building their own fiber networks using E-rate and the Virginia Public School Authority (VPSA). These efforts have saved substantial funds while increasing bandwidth. However results show that some Virginia school divisions where there may be only one Internet service provider still pay more for Internet access than their counterparts in other locations in the state where competition exists. Survey results also suggest a number of other

To decrease costs school divisions have leveraged state contracts and other competitive measures to

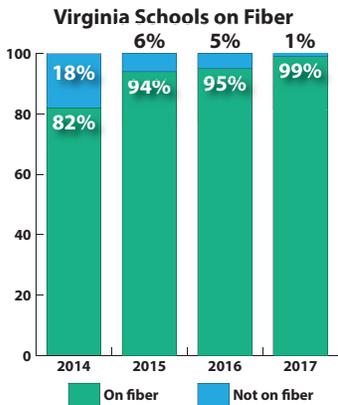
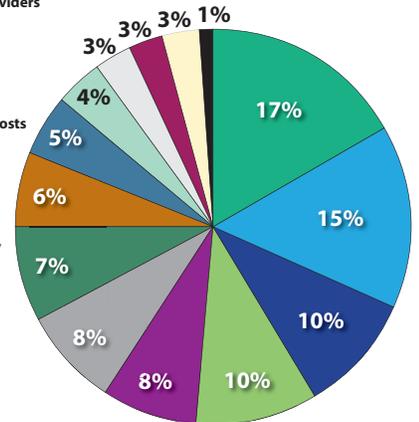


In 2017, only 29% of Virginia school divisions met the benchmark.
Source: EducationSuperHighway

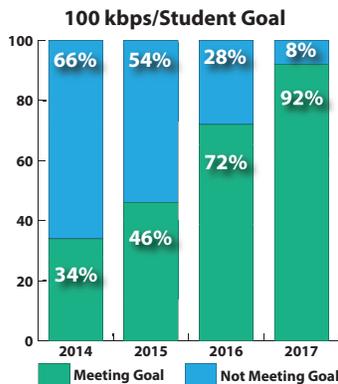


Barriers to Connectivity

- Additional division personnel
- Lack of competitive pricing due to few providers
- Lack of Internet providers in the area
- No barriers to increasing connectivity at any point on the network
- Cannot afford bids for monthly recurring costs
- Cannot afford bids for capital/upfront, nonrecurring expenses
- Additional training or professional development for current staff
- Poor LAN infrastructure (switches, routers, wiring capability)
- Other - please explain
- Wide Area Network (WAN) transport between buildings
- Poor/Lacking wireless network capability
- Internet provider at capacity and cannot provide more bandwidth

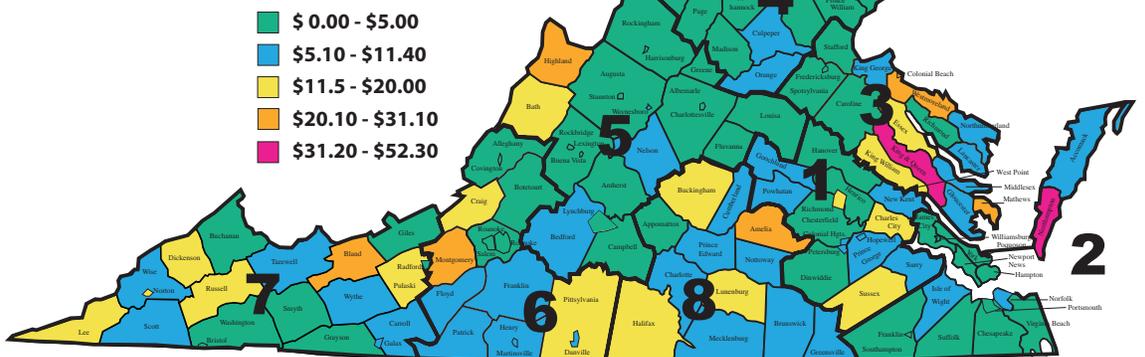


School buildings connected to fiber increased from 82% in 2014 to 99% in 2017
Source: EducationSuperHighway



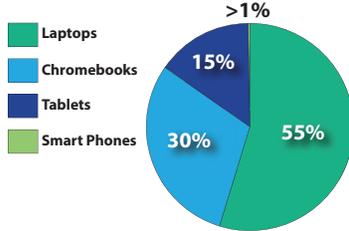
Today in Virginia, 122 divisions of 132 are exceeding the minimum bandwidth goal of 100 kbps per student.
Source: EducationSuperHighway

Cost per Megabit per Second (Mbps) for School Internet Access



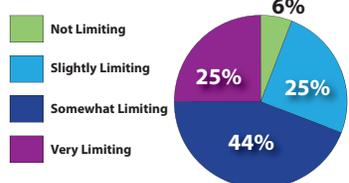
activities and factors that will require continual diligence to routinely evaluate, support and upgrade bandwidth in schools to meet student needs. High level information shows that there are almost 1 million mobile devices across all public school divisions in Virginia. These mobile devices are being deployed to support one-to-one programs so that students can access educational content

Student Computing Devices

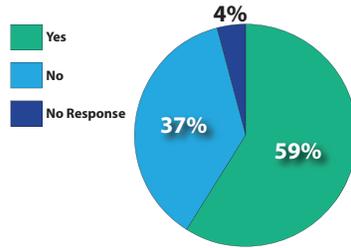


targeted to their needs. Information security is a concern as well for school technology directors. The findings show that 53 divisions or 40% need additional personnel to support information security. In addition, 82 divisions reported they had never had an information security audit. School divisions in Virginia are also implementing digital and web-based learning programs requiring students to work and collaborate on assignments not only at school but also outside of the classroom. However the results also confirm that a large number of low-income and rural students are finding themselves caught in the "Homework Gap" and struggling to keep up due to a lack of home broadband connectivity. Ninety-two divisions indicated the lack of Internet access outside of school is either "Very" or "Somewhat" limiting.

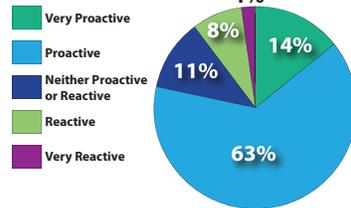
Internet Outside of School



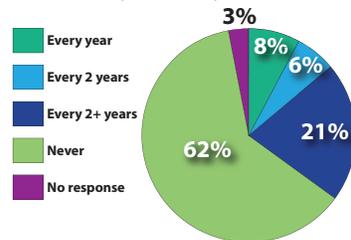
Information Security Policy



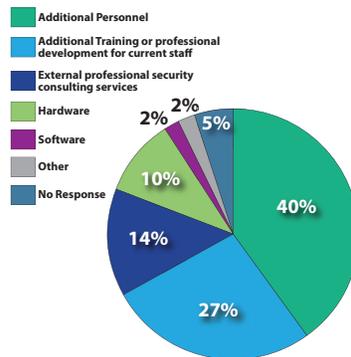
School Division Rating on Information Security



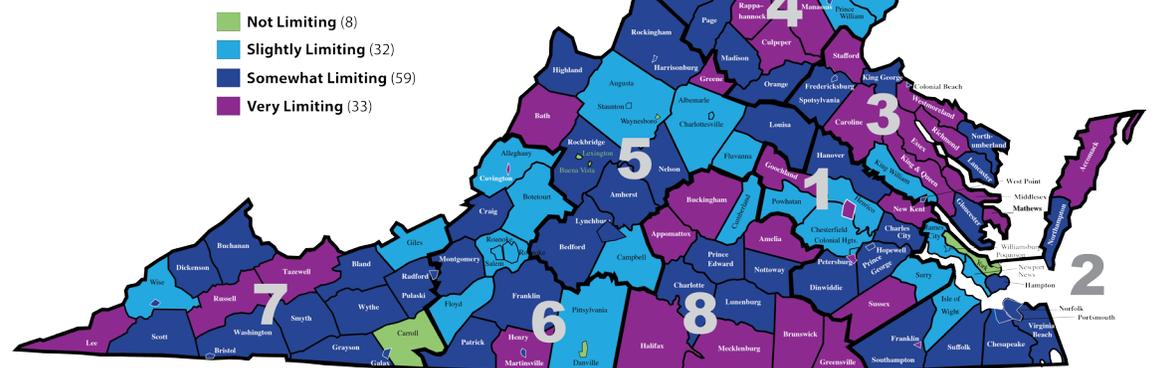
Third Party Security Audit



Priority Resources Needed for Information Security

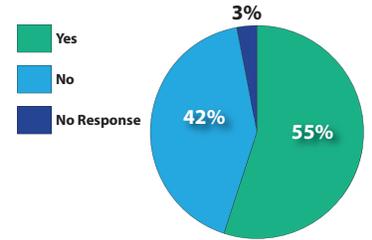


School Divisions with Access to Internet Outside of School

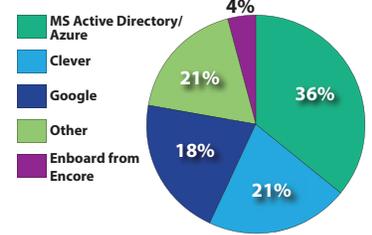


To continue building upon the broadband successes of Virginia's school divisions and the KLIP program and to meet current and future needs, the VDOE recommends additional funding and support for divisions' broadband programs, a heightened focus on information security, ongoing analyses of the school broadband landscape, and a state-level stakeholder-driven strategy with recommendations for connectivity that supports digital learning.

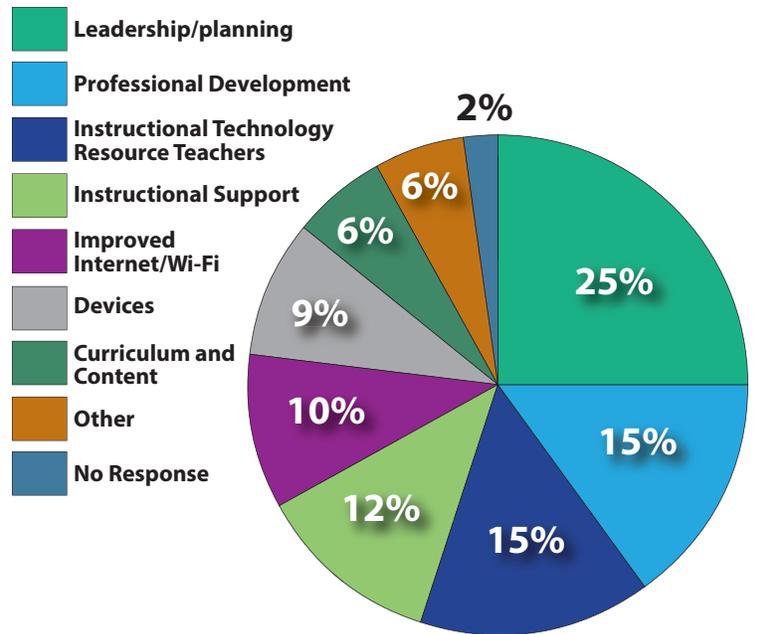
Single Sign On Technology



Primary SSO Providers



Resources Needed to Support Digital Learning



To see the entire report go to: http://www.doe.virginia.gov/technology/edtech_plan/infrastructure_program/index.shtml