

# CARVER PUBLIC SCHOOLS

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## Technology Plan

Prepared for the Carver School Committee  
March 14, 2016

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# Technology Vision Committee

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# Carver School Committee

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# Technology Vision Committee Consultation

Dr. Lee McCanne, Director of Technology and School Libraries, Weston Public Schools

The committee wishes to thank Weston Public Schools for sharing Dr. McCanne for his consultation, free of charge

# Executive Summary

This plan is for FY2017-FY2019 based on the following assumptions:

- District Infrastructure Update Completed by June 30, 2016
- District Infrastructure will support Bring Your Own Device (BYOD) for all buildings
- District operating budget will support a minimum of \$35,000 per year for ongoing replacement cycle of technology devices and purchase of curriculum specific devices (i.e. 3-D printer for Tech Ed courses)
- FY2018 District operating budget will include a line item for the increase in band-width service to support the increase in technology devices in each building (renegotiate Comcast service agreement)
- All Technology Capital Requests for FY2017-FY2019 will be dedicated to the Carver Middle High School.
- The Carver Elementary School Building Project will include the purchase of 450 Chromebooks and 18 charging carts, one projection system per classroom and large group meeting spaces (based on current best price of projectors and interactive screen systems)
- SMART Interactive White Boards will no longer be available for purchase in the future
- I-Pads (180 @ CMHS and 150 @ CES) will continue to be supported at each school
- Assistive Technology devices will be purchased through District operating budget and grants for special education
- Licenses and software will be purchased through line items within the District operating budget
- By FY2019, Carver Middle High School will maintain a blended technology environment which supports both BYOD and some use of one-to-one based on curriculum and teaching and learning needs
- After FY2019, Capital Requests will be shared by Carver Elementary School, Carver Middle High School, and District-Wide Needs.
- Teachers will each have a Chromebook or like device for classroom use.

After surveying other districts regarding device procurement, a majority of districts operate in a hybrid environment, offering both iPads and Chromebooks in the preK-12 environment. Many districts towards the latter part of high school open their wireless access for a Bring Your Own Device (BYOD) to allow students the autonomy to bring their own device they feel comfortable with and will likely bring to college or use after graduation. Cloud-based computing has allowed for what is referred to as “device agnostic” environments that work with iPads, laptops, Chromebooks, Androids, and other emerging mobile solutions.

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Carver  
Public  
Schools

## 3 Year Tech Plan Capital Budget FY17-FY19



### Carver Elementary School

**FY17**

No capital requests due to construction of new school.

**Total Capital Request—\$ 0**

**FY18**

18 carts, 450 Chromebooks, new projection systems included in new elementary school project.

**Total Capital Request—\$ 0**

**FY19**

No capital requests due to new elementary school.

**Total Capital Request—\$ 0**



### Carver Middle High School

500 Chromebooks @ \$220.00 each\*\*

**Total Capital Request—\$110,000**

450 Chromebooks @ \$220.00 each\*\*

**Total Capital Request—\$100,000**

Re-evaluate technology infrastructure  
Replace projection systems—TBD

**Total Capital Request—\$100,000**

Carver Public Schools Operating Budget—\$35,000 is dedicated each fiscal year to replace and update tech devices.

\*\*Based on current prices. CPS will request bids for all tech equipment in accordance with MGL Chapter 30b

## Vision: Teaching and Learning

**“Whether college, high school, elementary school, or preschool age, today’s students are going to face challenges heretofore unknown. The pace of change is accelerating, and it’s estimated that 70 percent of them will end up in jobs not yet invented. They will collaborate with people on multiple continents, struggling to solve problems we don’t yet recognize.”**

**“Collaboration, dialogue, and rigorous challenge should define the learning environment. ... Today’s students and tomorrow’s citizens need to think, evaluate, and explore. They will need the creativity and the courage to challenge traditional ways of doing and working, and to forge new paths and solutions”**

*from graduation speech, Hampshire College, Jonathan Lash (2015)*

## Vision Statement

The technology vision for Carver Public Schools is to transform the educational experience through the use of flexible and individualized technology that enhances curriculum and promotes rigorous learning for all students.

## Implications

PreK-12 Education and beyond is experiencing a *Digital Shift*. As a result **EVERY TECHNOLOGY DECISION** becomes an ***EDUCATIONAL DECISION***. In the Technology enhanced classrooms, all students will be flexible and interactive digital learners.

# In the Technology enhanced classrooms

## There will be LESS

- Whole class lectures
- Worksheets
- Reading textbooks and answering questions at the end of the chapter
- Activity of the day with pre-planned outcomes
- Teachers posing questions with only one right answer
- Oversimplification for struggling students
- Instruction without assessing baseline knowledge
- Rote memorization of facts and terminology

## There will be MORE

- Students discussing and researching open-ended questions
- Engagement of students as self-directed learners
- Student led instruction
- Multiple sources used to investigate student question that lead to deeper understanding of main ideas
- Access to curriculum through multiple modalities
- Student presentations in multi-media formats
- Use of formative assessments to inform instruction
- Performance based assessments that acknowledges student's individual strengths and interests
- Performance based assessments that acknowledges students' individual strengths and interests
- Students accessing multiple sources of content specific information
- Collaboration that supports students' voice in learning
- Systems thinking and modeling to give a context for ideas and content to be learned



## Vision Process

**July-August 2015 - Administrative Leadership Team read *Vision: The First Critical Step in Developing a Strategy for Educational Technology***

**August 2015 - Administrative Retreat: Worked with facilitator Dr. Lee McCanne to define a vision statement to guide our work in creating a Vision and framework for a strategy**

**September- October 2015 - Bring together a Technology Vision Committee to determine next steps**

**November 2015 - Work in building level teams to develop building – based Educational Technology Action Plans. Survey students (CMHS), parents, and teachers. School Committee reads *Vision* book.**

**March 2016 - Carver Public Schools 2017-2019 Technology Plan presented to School Committee for adoption**

## **CMHS Educational Technology Leadership Goal 1:**

**In order to provide a technology enhanced learning environment that best meets the individualized learning needs of our students, the District will ensure support for 1:1 Devices (either Bring Your Own Device (BYOD) or school-issued) and each classroom will be equipped with an interactive display system by FY 2019.**

## **CMHS Educational Technology Leadership Goal 2:**

**The District wide Technology Committee will work with the Library/Media Specialist and other teachers to design and implement a learning commons to support a variety of project-based, online, and hybrid learning experiences within the current library space by June of 2019.**

### **CMHS Educational Technology Leadership Goal 3:**

**The district will provide on-going high quality professional development for all staff which promotes and supports the shift from using technology as an enhancement for teaching and learning to using technology to transform teaching and learning experiences for all students and teachers.**

## **CES Educational Technology Leadership Goal 1:**

**In order to provide a technology enhanced learning environment that best meets the individualized learning needs of our students, the district will ensure wireless support for Bring Your Own Device (BYOD) and every classroom in grades 3-5 will have a cart with 25 devices. A smart projection and interactive screen system will be part of the technology equipment provided for all classrooms in the new school in 2018.**

## **CES Educational Technology Leadership Goal 2:**

**The Elementary Tech Vision Committee will work with the Library teacher and all teachers to design and implement a plan for the new elementary school learning commons to support a variety of project-based, online, and hybrid learning experiences to be implemented in the new school in FY2018 – FY2019.**

## **CES Educational Technology Leadership Goal 3:**

**The district will provide on-going high quality professional development for all staff which promotes and supports the shift from technology enhancement of teaching and learning to using technology to transform the teaching and learning experiences for all students and teachers.**

# Technology Action Plan

**CMHS Educational Technology Leadership Goal 1:** In order to provide a technology enhanced learning environment that best meets the individualized learning needs of our students, the District will ensure support for 1:1 Devices (either Bring Your Own Device (BYOD) or school-issued) and each classroom will be equipped with an interactive display system by FY 2019.

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Purchase 500 Chromebooks	CMHS	<ul style="list-style-type: none"> <li>• Develop a plan for the deployment of new devices with the first phase of 1:1/BYOD rolled out by grade-level or department</li> <li>• Continue to use 180 iPads and carts to transform instruction in classrooms</li> </ul>	Increase access and use of technology by all students	Deployment or new devices	September 2016	Administration and Teachers
Research and create preparation plan		<ul style="list-style-type: none"> <li>• Analyze and project bandwidth needs for 1:1/BYOD environment</li> <li>• Review what insurance or user fees other districts have found successful in a 1:1 roll out</li> </ul>	Plan of how bandwidth and procedures will support 1:1/BYOD	Budgeting and execution of plan	June 2017	Administration and Technology Department
Develop a plan to replace current projectors that are end-of-life with appropriate device	CMHS	<ul style="list-style-type: none"> <li>• Evaluate life-span of current projection devices and create a replacement plan</li> <li>• Investigate option in terms of optimal projection solution</li> <li>• Begin to replace LCD projectors in 2018</li> </ul>	Provide teachers with the ability to effectively project interactively with new devices	Selection of optimal devices	October 2016	Administration and Teachers



**CMHS Educational Technology Leadership Goal 2: The District wide Technology Committee will work with the Library/Media Specialist and other teachers to design and implement a learning commons to support a variety of project – Based, online, and hybrid learning Experiences within the current library Space by June of 2019.**

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Convene a committee of teachers and students to develop a Learning Commons Model	CMHS	<ul style="list-style-type: none"> <li>Establish a schedule of regular meetings</li> <li>Develop a plan for implementation of a Learning Commons, completion date 2018</li> </ul>	A formal plan for the development of Learning Commons	Minutes of committee meetings	January 2017	Students, Teachers, and Administrators
Send a group of teachers to visit current middle and/or high school Learning Commons & Makerspace(s).	CMHS	<ul style="list-style-type: none"> <li>Develop a layout and plan for the reconfigured library and computer lab spaces to create a Learning Commons and Makerspace(s) environment.</li> </ul>	Reports and notes of groups who visited other schools	Completion of layout	January 2017	Administration and Teachers
Redesign space within the building to support the development of learning commons	CMHS	<ul style="list-style-type: none"> <li>Reconfigure existing library spaces and computer labs for Learning Commons and Makerspace(s)</li> <li>Create a dedicated space for online courses</li> </ul>	Increase opportunity for students to learn in a variety of settings using a range of technologies	Reconfigured library and computer lab spaces completed	June 2018	Administration and Teachers

*\*Learning Commons: also known as scholars' commons, information commons or digital commons, are education spaces similar to libraries and classrooms that share space for information technology, remote or online education, tutoring, collaboration, content creation, meetings and reading or study.*

*\*Makerspace: a physical location where people gather to share resources and knowledge, work on projects, network, and build. "Makerspace(s) is a general term for a place where people get together to make things. Makerspace(s)s might focus on electronics, robotics, woodworking, sewing, laser cutting, programming, or some combination of these skills" (Roslund, S. and Rodgers, E.P., 2015).*

**CMHS Educational Technology Leadership Goal 3: The district will provide on – going high quality professional development for all staff which promotes and supports the shift from using technology as an enhancement for teaching and learning to using technology to transform teaching and learning experiences for all students and teachers.**

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Provide teachers with PD on using technology to transform teaching and learning	CMHS	<ul style="list-style-type: none"> <li>• Survey teachers on professional development needs</li> <li>• Develop a range of voluntary professional development offerings for technology integration for teachers and administrators</li> </ul>	Increased teacher's ability to effectively integrate technology and develop problem-based learning	Percentage of teachers participating in professional development	June 2017	Administration and Principals

**CES Educational Technology Leadership Goal 1:** In order to provide a technology enhanced learning environment that best meets the individualized learning needs of our students, the district will ensure wireless support for Bring Your Own Device (BYOD) and every classroom in grades 3-5 will have a cart with 25 devices. A smart projection and interactive screen system will be part of the technology equipment provided for all classrooms in the new school in 2018.

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Purchase 450 Chromebooks* and 18 carts for classroom use.	CES	<ul style="list-style-type: none"> <li>• Prepare for 450 Chromebook* purchase with new building technology funding (18 classroom carts with 25 Chromebooks* each)</li> <li>• Research projection systems for classroom use</li> <li>• Continue to use 150 iPads and carts to transform instruction in classrooms until the new building is completed</li> </ul>	1 cart per classroom in grades 3-5	Complete the purchase by target date of 2018	2018	Administrators and Teachers

*\*final device decision will be made closer to the time of purchase based on availability and suitability.*

**CES Educational Technology Leadership Goal 2: The Elementary Tech Vision Committee will work with the Library teacher and all teachers to design and implement a plan for the new elementary school learning commons to support a variety of project-based, online, and hybrid learning experiences to be implemented in the new school in FY2018 - FY2019.**

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Convene a planning group of teachers and administrators to plan for the integration of digital and project-based learning in the Learning Commons	CES	<ul style="list-style-type: none"> <li>Align Learning Commons curriculum project model with the 2011 MA Curriculum Frameworks and the 2013 Revised MA Science/Technology, and Engineering Standards <i>based on the Next Generation Science Standards</i></li> </ul>	Aligned curriculum and project model for students in grades preK-5	Completion of aligned curriculum and project model	2018	Administrators and Teachers

**CES Educational Technology Leadership Goal 3: The district will provide on – going High quality professional development for all staff which promotes and supports the shift from technology enhancement of teaching and learning to using technology to transform the teaching and learning experiences for all students and teachers.**

Action Steps What are we going to do?	Site	Strategies for Success How are we going to do this?	Anticipated Outcomes Why are we doing this?	Measurement How will we measure?	Target Date	Implemented by whom?
Provide professional development on how technology is used to personalize and transform teaching and learning	CES	<ul style="list-style-type: none"> <li>• Provide annual technology integration professional development.</li> <li>• Target existing curriculum technology components (i.e.: Everyday Math digital curriculum, Reading Street online components, etc.)</li> <li>• Utilize existing FOSS units and other STEM curricula to develop project-based learning opportunities (i.e.: interacting with demonstration cranberry bog onsite)</li> </ul>	Teachers will transform teaching and learning with the use of digital solutions specific to curriculum	Completion of 30 hours of professional development	2016-2018	Administrators and Teachers

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## Appendix A: DESE Needs Assessment

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### **Technology Plan 2016-2019**

**Carver Public Schools  
3 Carver Square Blvd.  
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Phone: (508) 866-6100**

*Last revision: 1/11/2016*

Benchmark 1 Commitment to a Clear Vision and Implementation Strategies			
<b>A. Vision Statement</b>			
The district's technology plan contains a clearly stated and reasonable set of goals and implementation strategies that align with the district-wide school improvement plan. The district is committed to achieving its vision by the end of the school year 2018-2019.	Met	The Carver Public Schools has self-assessed its technology status against the Massachusetts Local Technology Plan Guidelines and surveyed, staff, parents, and students.	The technology vision for Carver Public Schools is to transform the educational experience through the use of flexible and individualized technology that enhances curriculum and promotes rigorous learning for all students.
<b>B. Technology Team</b>			
The district has a technology team with representatives from a variety of stakeholder groups, including school committee members, administrators, and teachers. The technology team has the full support of the school superintendent to implement the plan.	Met	The Carver Public Schools Technology Committee is made up of students, teachers, administrators, parents, and community members and is aligned with the District Improvement Plan.	The Administrative Leadership Team convened a district-wide Technology Self- Assessment and Planning Committee in the fall of 2015 in order to revise the existing technology plan. We will continue to maintain an active Technology Committee which meets regularly throughout the school year.
<b>C. Technology Tools and Services Needs Assessment</b>			
1. The district assesses the technology products and services that will be needed to improve teaching and learning.	Met	The district wide Technology Committee regularly assesses the tools and services that best serve the learning needs of our students in order to enhance curriculum and promote rigorous learning for all students. As a result of a comprehensive network assessment in 2014-2015, the district implemented a network management and upgrade in 2015-2016.	In order to improve access for students, staff, and visitors, the district completed a comprehensive upgrade of all access points, installation and replacement of switches, replacement of servers, migration of servers, increased use of cloud-based data storage and remote network management (2015-2016)
2. The technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire.	Met	The Carver Public Schools' technology plan includes an assessment of the services and products that are currently being used and that the district plans to acquire, and reports this information annually to the Department of Elementary and Secondary Education.	Over two years (2014-2016) the Technology Committee under the direction of the Director of Curriculum, Instruction, and Technology planned for and purchased technology tools that best meet the learning needs of students and the instructional needs of teachers. The Technology Self-Assessment and Planning Committee recommends the purchase of devices that best fit the teaching and learning needs for example, a mixture of I-pads, Chromebooks, Nooks, and other devices that have the appropriate apps and software. A single electronic device type will not meet the learning needs of all students.

<b>D. Budget</b>			
1. The district recognizes that technology plays a critical role in achieving its goals. The district has a budget that will ensure the implementation of its long-range technology plan.	Met	The Carver Public Schools operating budget includes staffing, infrastructure, hardware, software, professional development, support, and contracted services (including telephone services).	The District will continue to support technology as part of our operating budget, supported by federal, state, and local funds. The new elementary school project will bring funding to increase the technology capacity of the elementary school. Most of the funds can be spent on technology enhancement because the district infrastructure of servers is already complete. Over the past three years a capital article was supported at town meeting. This allows the schools to increase capacity and to implement a regular replacement cycle of devices and infrastructure.
2. The budget includes staffing, infrastructure, hardware, software applications, professional development, support, and contracted services.	Met	The Carver Public Schools operating budget includes staffing, infrastructure, hardware, software, professional development, support, and contracted services (including telephone services).	We will continue to revisit the technology budget to ensure it includes appropriate staffing, infrastructure, hardware, software, professional development, support, and contracted services.
3. The district seeks funding for technology programs from federal, state, and private resources, as well as from academic departments that are supported by technology. The district explores ways that technology can reduce costs and create efficiencies in other areas of the district budget.	Met	The Carver Public Schools budget for technology is supported by the local operating budget, as well as Title II-A (professional development). We currently subscribe to several online services such a school lunch system called “Nutri Kids”, E-SPED and use copy machines that are also serve as printers.	We will continue to research additional funding opportunities (private and public grants) and submit applications for appropriate funding to enhance and bring in additional programs.
4. For districts that plan to apply for E-rate reimbursement, the technology plan specifies how the district will pay for the non-discounted portion of their costs for the services procured through E-rate.	Met	The Carver Public Schools plan to continue to apply for E-rate reimbursement where appropriate. The non-discounted portion of the services procured through E-rate are paid from the operating budget.	We investigated the partnership with an outside firm to assist us with maximizing our E-rate reimbursement and determined our local filing was the most efficient.
<b>E. Evaluation</b>			
1. The district routinely consults with technology staff before purchasing technologies items, to ensure that the items are appropriate, cost-effective, and sustainable.	Met	The Carver Public Schools Technology Committee evaluates the effectiveness of technology resources toward attainment of educational goals on a regular basis.	We will continue to evaluate the effectiveness of technology resources toward attainment of educational goals on a regular basis.
2. The district's technology plan includes an evaluation process that enables it to monitor its progress in	Met	The Carver Public Schools Technology Plan includes an evaluation process that enables it to monitor its progress in achieving its goals and to make mid-course corrections	We will continue to evaluate the district technology plan against our goals and make corrections as needed.



achieving its goals and to make mid-course corrections in response to new developments and opportunities as they arise.		in response to new developments and opportunities as they arise.	
<b>Benchmark 2 Technology Integration and Literacy</b>			
<b>A. Technology Integration</b>			
1. Outside Teaching Time - Over 90% of teachers use technology every day, including some of the following areas: research, lesson planning, organization, administrative tasks, communications, and collaboration. Teachers explore evolving technologies and share information about technology uses with their colleagues.	Met	100% of teachers in the Carver Public Schools use technology every day, including some of the following areas: lesson planning, administrative tasks, communications, and collaboration. Teachers share information about technology uses with their colleagues.	We will continue to support the infrastructure needed so that teachers can access technology on a daily basis, and provide opportunities for teachers to share information about technology with their colleagues.
2. For Teaching and Learning - At least 90% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data analysis, communications, and collaboration. Teachers integrate evolving technologies that enhance student interest, inquiry, analysis, collaboration, and creativity.	Not Yet Met	At least 85% of teachers use technology appropriately with students every day to improve student learning of the curriculum. Activities include some of the following: research, multimedia, simulations, data interpretation, communications, and collaboration.	We will continue to support the infrastructure needed for teacher/student technology use, as well as continue to build awareness of the Massachusetts Instructional Technology Standards. The district infrastructure is designed to support the use of at least two devices per student and staff.
<b>B. Technology Literacy</b>			
1. At least 90% of eighth grade students show proficiency in all the <i>Massachusetts Technology Literacy Standards and Expectations</i> for grade eight <sup>3</sup> .	Not Yet Met	The Carver Public Schools' goal is for at least 100% of eighth grade students show proficiency in all the Massachusetts Recommended PreK-12 Instructional Technology Standards for grade 8.	We will administer an annual student technology skills assessment for Grade 8 students.
2. 100% of teachers are working to meet the proficiency level in technology, and by the school year 2014-2015, 90% of teachers will have	Not Yet Met - 90%	Observational evidence supports the statement that 100% of teachers are working to meet the proficiency level in technology	The district provides professional development for teachers and other staff to become proficient in a variety of digital devices and online tools.

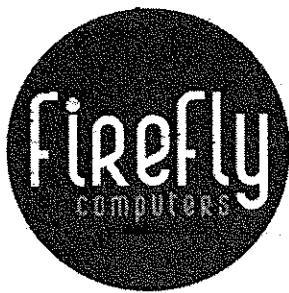
mastered 90% of the skills in the Massachusetts Technology Self-Assessment Tool (TSAT). <sup>4</sup>	mastered		
<b>C. Staffing</b>			
1. The district has a district-level technology director/coordinator.	Met	Carver has a district-level Director of Curriculum, Instruction, and Technology who oversees all aspects of the instructional technology initiatives.	The district employs two Technology Support Specialists and contracts for off-site network management
2. The district provides one FTE instructional technology specialist per 60-120 instructional staff to coach and model.	Met	Carver has one full-time instructional technology teacher at the elementary school and one at the middle high school.	The district to support an efficient fully staffed technology department and provides stipends for website management
3. The district has staff specifically dedicated to data management and assessment.	Met	Carver has a full time Information Services Coordinator who handles district data management and reporting. Assessment data is handled by the Director of Curriculum, Instruction, and Technology, as well as building-based personnel.	The budget will continue to support the Information Services Coordinator to handle district data management and reporting. Assessment data will continue to be handled by the Director of Curriculum, Instruction, and Technology, as well as building-based personnel.
<b>Benchmark 3 Technology Professional Development</b>			
<b>A</b>			
At the end of five years, at least 90% of district staff will have participated in high-quality, ongoing professional development that includes emerging technology issues, technology skills, universal design, and research-based models of technology integration.	Met	The Carver Public Schools currently provides technology professional development for all staff. In addition, we have made online technology professional development resources available to all staff to meet individual needs.	We will continue to investigate additional opportunities for technology professional development as needs arise and changes in in technology evolve. In 2015-2016 the district provided 60 hours of professional development for four teachers to become proficient in online and hybrid instructional platforms.
<b>B</b>			
Technology professional development is sustained and ongoing and includes coaching, modeling best practices, district-based mentoring, study groups, and online professional development.	Met	Carver Public Schools provides a variety of opportunities for staff to engage in ongoing professional development and coaching through a menu of in district and out – of – district workshops and courses.	We will continue to investigate additional opportunities for technology professional development including the sharing of best practices through Professional Learning Communities and building and district workshops and courses.
<b>C</b>			
Professional development planning includes an assessment of district and teachers' needs. The assessment is based on the competencies listed in the Massachusetts Technology Self-Assessment Tool. <sup>5</sup>	Met	The Carver Public Schools has a Professional Development Committee. The district annually administers a teacher technology needs assessment survey and uses the results for technology professional development planning.	We will continue to assess staff technology needs in order to determine needs for technology support and professional development.

D			
Administrators and teachers consider their own needs for technology professional development. <sup>6</sup>	Met	The Carver Public Schools annually administers a teacher technology needs	We will continue to assess staff technology needs in order to determine needs for technology support and professional development.
<b>Benchmark 4 Accessibility of Technology</b>			
<b>A. Hardware Access</b>			
1. By 2014-2015, the district has an average ratio of one high-capacity, Internet-connected computer for each student. (The Department will work with stakeholders on a regular basis to review and define high-capacity computers.)	Not Yet Met	Carver Public Schools currently supports 400 high capacity electronic devices to support the learning needs of students at the middle high school. The infrastructure supports the use of 2 devices per student, staff and visitors in each school building. The elementary school has 280 high capacity electronic devices to support the learning needs of students.	With the elementary school building project the school will gain 450 additional high capacity electronic devices, a smart technology projection and interactive white board system for every learning space. The middle high school will continue to support a smart technology projection and interactive white board system for every learning space.
2. The district provides students with emerging technologies appropriate to their grade level.	Not Yet Met	The Carver Public Schools provides students with access to portable and/or handheld electronic devices appropriate to their learning needs including assistive technology.	The district will continue to support the use of portable and/or handheld electronic devices to support instructional goals. See Technology Action Plan for action steps related to this.
3. The district maximizes access to the general education curriculum for all students, including students with disabilities, using universal design principles and assistive technology devices.	Met	The Carver Public Schools maximizes access to the general education curriculum for all students, including students with disabilities, using technology in classrooms with universal design principles and assistive technology devices.	We will continue to investigate and invest in assistive technology options in order maximize access to the general education curriculum for all students.
4. The district has procurement policies for information and instructional technologies that ensure usability, equivalent access, interoperability and SIF compliance <sup>7</sup> .	Met	The Carver Public Schools has procurement policies to ensure that new technologies are usable, accessible, and operable within the current technology setting.	The will continue to require that purchase orders including technology items be signed off on by appropriate technology staff.
5. The district provides technology-rich classrooms, with access to devices such as digital projectors, electronic whiteboards, and student response systems.	Not Yet Met	As technology devices are rapidly evolving, the district will evaluate new devices which will meet the individual learning needs of students and the instructional needs of teachers.	The district will budget for and purchase the devices and infrastructure support to best meet the every-changing needs of students and teachers.
6. The district has established a computer replacement cycle of five years or less.	Not Yet Met	Over the past five years the district evaluates all electronic devices and provides replacements in a timely fashion. A five year plan is no longer a viable way to support replacement of electronic devices. A yearly plan is more efficient to meet the needs of students and staff.	In order to provide equity in access to technology, the district will provide a device for every student, as needed, and support the platform for Bring Your Own Device (BYOD).

<b>B. Internet Access</b>			
1. The district provides connectivity to the Internet for all computers in all classrooms in all schools, including wireless connectivity.	Met	The district has completely renovated the technology infrastructure and a wireless connectivity for all students, staff and visitors is available in all buildings	We will conduct frequent wireless audits order to maintain a fully connected infrastructure for all users.
2. The district provides an external Internet connection to the Internet Service Provider (ISP) of 100 Mbps per 1,000 students/staff.	Met	The district infrastructure renovation provides this standard.	In addition to the local network the district uses cloud based network management.
3. The district provides bandwidth of at least 10/100/1 Gb to each classroom. At peak, the bandwidth at each computer is at least 100 kbps. The network card for each computer is at least 10/100/1 Gb.	Met	The Carver Public Schools provides bandwidth of at least 100/20 Gb to each classroom. All classrooms and administrative areas have access to wireless via Meraki Access Points	We will continue to provide the resources necessary in order to support bandwidth-intensive activities such as streaming video and audio. More bandwidth will be necessary as we move to a Bring Your Own Device (BYOD) environment.
<b>C. Networking (LAN/WAN)</b>			
1. The district provides internal wide area network (WAN) connections from the district to each school between schools of at least 1 Gbps per 1,000 students/staff.	Met	We maintain a WAN with 10Gb links between sites (buildings and Central).	We plan to upgrade the switches between district buildings in order to provide the same level of quality service.
2. The district provides access to servers for secure file sharing, backups, scheduling, email, and web publishing, either internally or through contracted services.	Met	The Carver Public Schools provides access to internal servers for secure file sharing, backups, scheduling, and email after a complete reconfiguration of the network/servers in 2015-2016 . Our web publishing services are provided through an outside agency via a shared content management system.	We will continue to provide the resources necessary for secure file sharing, backups, scheduling, email, and web publishing.
<b>D. Access to the Internet Outside the School Day</b>			
1. The district provides access to its computer labs before and after school to ensure that students and staff have adequate access to the Internet outside of the school day.	Met	The district provides access to computers, the internet, etc. both before and after school.	
2. The district disseminates a list of up-to-date list of places where students and staff can access the Internet after	Not Yet Met	The Carver Public Library provides Internet access outside of the school day.	We will work with any additional community groups that provide Internet access outside of the school day.

school hours.			
<b>E. Staffing</b>			
1. The district provides staff or contracted services to ensure that its network is functioning at all times.	Met	The district contracts with a network management vendor that assumes 24/7 troubleshooting and quarterly “health checks.” Additionally, technology staff has a high skill level for managing network and sought additional training with vendor to be able to optimize network productivity (policies, etc.)	We will respond to annual strategic planning to increase bandwidth and optimize network support.
2. The district provides resolves technical problems within 24 hours, so that they do not cause major disruptions to curriculum delivery. The district provides clear information about how to access technical support, which can be provided in person or remotely.	Met	The district maintains access to technology staff via helpdesk. Since major network overhauls are near completion, rates of resolution are continuing to increase. The aim is to resolve within 24-hours.	Procurement of new technologies will help decrease issues, pertaining to classroom technology.
3. The district provides at least one FTE person to support 400 computers. Technical support can be provided by dedicated staff or contracted services.	Met	The Carver Public Schools employs 2 FTE dedicated technical support personnel for ~600 computers.	As technology changes, the budgeted personnel positions will be evaluated to see if a third person is needed to support the district; based on number of devices, network complexity, and curricular demands.
<b>Benchmark 5 Virtual Learning and Communications</b>			
A. The district encourages the development and use of innovative strategies for delivering high-quality courses through the use of technology.	Met	VHS; VLA; STE (electives)	Developing a computer programming pathway with the intent of AP Computer Programming.
B. The district deploys IP-based connections for access to web-based and/or interactive video learning on the local, state, regional, national, and international level.	Met	Discovery Education, Study Island , Language! Live Lexia, Dreambox, Front Row	We will continue to provide access to web-based learning systems, and will continue to investigate learning management systems as appropriate/feasible.
C. Classroom applications of virtual learning include courses, collaborative projects, field trips, and discussions.	Met	Discovery Education, WeVideo, Curriculum-based Apps Google Apps for Education	We will continue to investigate and share online resources, particularly those that are free.
D. The district maintains an up-to-date website that includes information for parents and community members.	Met	The district maintains an up-to-date and accurate web site using a shared content management system. Information for parents and community is constantly updated by a	We will continue to support a shared content management system and provide training to those who need to have access to the tools to update the site.

		network of administrators, office staff, and teachers.	
<b>Benchmark 6 Safety, Security, and Data Retention</b>			
A. The district has a CIPA-compliant Acceptable Use Policy (AUP) regarding Internet and network use. The policy is updated as needed to help ensure safe and ethical use of resources by teachers and students.	Met	The current Carver AUP can be found at <a href="http://www.carver.org">www.carver.org</a> > Administration > Technology	We will review the AUP annually and update as necessary.
B. The district educates teachers and students about appropriate online behavior. Topics include cyber-bullying, potential risks related to social networking sites and chat rooms, and strategies for dealing with these issues.	Met	ADL (Anti-Defamation League) “A World of Difference” program Advisory Program (9-11)	Will be developing a Digital Citizenship (vertical scope and sequence) in 2016-2017
C. The district has a plan to protect the security and confidentiality of personal information of its students and staff. <sup>10</sup>	Met		
D. The district complies with federal and state law <sup>11</sup> , and local policies for archiving electronic communications produced by its staff and students. The district informs staff and students that any information distributed over the district or school network may be a public record.	Met	The Carver Public Schools complies with federal and state law, and local policies and uses an e-mail archiving system produced by its staff. The district informs staff and students via the AUP that any information distributed over the district or school network may be a public record.	We will continue to comply with federal, state, and local policies around electronic communication and network access.



*The Very Best In Low Cost,  
High Powered Computing*

## Quotation

**Quote# 622168**  
Expires: 02/12/2016

## Terms

Net 30 Days

**FireFly Computers**  
4463 White Bear Parkway, Suite 102  
Saint Paul, MN 55110  
www.fireflycomputers.com

## Customer

**Carver Public Schools**  
**Stephen Mahoney**  
Phone: 508-866-6167  
Email: MahoneyS@carver.org

## Account Manager

**Ben Erickson**  
Phone: 866-950-8868 x109  
Fax: 612-392-2155  
Email: ben@fireflycomputers.com

Product Details	Quantity	Unit Price	Extended Price
<b>Lenovo N21 Chromebook 4GB</b>	25	\$159.00	\$3,975.00
Durable Construction			
Intel Dual-Core 2.16 GHz Processor			
4GB DDR3 RAM			
16GB SSD			
Dual-band AC Wireless + BT			
Rotating Webcam			
Up To 9.5-Hours Battery Life			
1-Year Warranty			
<b>Chrome Management Console</b>	25	\$25.00	\$625.00
<b>Chromebook Cart</b>	1	\$649.00	\$649.00
LLTM30-B 30 tablet unit w/ Power			
Charges up to 30 Tablets at Once			
Two Storage Shelves Hold 15 Tablets Each			
Adjustable Top Inner Shelf/1" Increments			
1" Rubber-Coated Dividers Guard Tablets			
Padded Top Work Surface			
Two 16-Outlet Vertical Outlets			
Locking Cabinet with Two Keys			
Four 5" Casters; Two Lockable			
Side Pull Handle / Ventilation Holes			
<b>Sub Total</b>			<b>\$5,249.00</b>
Tax			\$0.00
Shipping			\$0.00
<b>Grand Total</b>			<b>\$5,249.00</b>

Please fax purchase orders to 612-392-2155

## Special Offers / Notes

\*Freight Included

# SALES QUOTE

GovConnection, Inc.  
732 Milford Road  
Merrimack, NH 03054

**Account Executive:** Kimberly Fusco  
**Phone:** (800) 800-0019 ext. 34253  
**Fax:**  
**Email:** kfusco@govconnection.com

**# 24030546.01-W1**

PLEASE REFER TO THE ABOVE  
QUOTE # WHEN ORDERING

**Date:** 1/26/2016  
**Valid Through:** 2/25/2016  
**Account #:**

**Account Manager:**  
**Phone:**  
**Fax:**  
**Email:**

**Customer Contact:** Stephen Mahoney  
**Email:** mahoneys@carver.org

**Phone:** (508) 866-6167  
**Fax:** (508) 866-2920

QUOTE PROVIDED TO:	SHIP TO:
AB#: 1857531 <b>CARVER SCHOOL DEPT</b> ACCOUNTS PAYABLE 3 CARVER SQUARE BLVD CARVER, MA 02330  (508) 866-6844	AB#: 4662530 <b>CARVER SCHOOL DEPT</b> 60 S MEADOW RD CARVER, MA 02330  (508) 866-6844

DELIVERY	FOB	SHIP VIA	SHIP WEIGHT	TERMS	CONTRACT ID#
5-30 Days A/R/O	Destination	Small Pkg Ground Service Level	.00 lbs	NET 30	

Important Notice: --- THIS QUOTATION IS SUBJECT TO THE FOLLOWING Terms of Sale: All purchases from GovConnection, Inc. are subject to the Company's Standard Terms of Sale, which describe important legal rights and obligations. You may review the Company's Standard Terms of Sale on the Company's website: [www.govconnection.com](http://www.govconnection.com), or you may request a copy via fax, e-mail, or mail by calling your account representative. The only exception to this policy is if your order is being placed under any one of our many national, state, educational or cooperative Agreements, in which case the Terms and Conditions of your Purchase Order are already pre-negotiated and stated in that Agreement. No other Terms and Conditions shall apply and any other terms and conditions referenced or appearing in your Purchase Order are considered null and void. Please refer to our Quote Number in your order.

* Line #	Qty	Item #	Mfg. Part #	Description	Mfg.	Price	Ext
1	25	18417533	80MG0001US	TopSeller N21 Chromebook Celeron N2840 2.16GHz / 4GB / 16GB SSD / ac / BT / WC / 3C / 11.6" HD / Chrome OS Lenovo Commercial Systems	Lenovo Commercial Systems	\$ 185.25	\$ 4,631.25
2	25	17970425	CROSSWDISEDU	Acad. Google Chrome OS Management Console License Google	Google	\$ 27.00	\$ 675.00
3	1	14382302	24-302-085	PowerShuttle 30 Tablet / Ultrabook Charging Cart, AC only Ergotron	Ergotron	\$ 1,129.00	\$ 1,129.00
4				Optional White Glove Service below (cost is per Chromebook):			\$ -
5	0	15918826	4531616	Google White Glove Service Wilmington Config SVC	Wilmington Config SVC	\$ 10.00	\$ -
<b>Subtotal</b>						<b>\$ 6,435.25</b>	
<b>Fee</b>						<b>\$ 0.00</b>	
<b>Shipping and Handling</b>							<b>CALL!</b>
<b>Tax</b>							<b>Exempt!</b>
<b>Total</b>						<b>\$ 6,435.25</b>	

**\*Lease for as low as:** \$214.55/Mo.





## SALES QUOTATION

QUOTE NO.	ACCOUNT NO.	DATE
GTBM675	8453800	1/25/2016

**BILL TO:**  
CARVER SCHOOL DEPARTMENT  
3 CARVER SQUARE BLVD

**SHIP TO:**  
CARVER SCHOOL DEPARTMENT  
Attention To: CANDY BARRIE  
3 CARVER SQUARE BLVD

Accounts Payable  
CARVER , MA 02330-1200

CARVER , MA 02330-1200  
Contact: STEPHEN MAHONEY

Customer Phone #508.866.6170

Customer P.O. # N21 AND CART  
QUOTE

ACCOUNT MANAGER		SHIPPING METHOD	TERMS	EXEMPTION CERTIFICATE
SARAH HEGAN 866.849.5197		FEDEX Ground	NET 30 Days-Govt/Ed	GOVT-EXEMPT
QTY	ITEM NO.	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
25	3577022	ACAD GOOGLE CHROME OS MGT LIC Mfg#: CROSSWDISEDU Contract: TCPN - Technology Solutions R5106 R5106	25.48	637.00
1	2811281	Electronic distribution - NO MEDIA ERGOTRON 30 CHROMEBOOK CHARGING CART Mfg#: 24-302-085 Contract: TCPN - Technology Solutions R5106 R5106	1,190.00	1,190.00
25	3601717	LVO TS TP N21 N2840 16GB 4GB Mfg#: 80MG0001US Contract: TCPN - Technology Solutions R5106 R5106	201.48	5,037.00
SUBTOTAL				6,864.00
FREIGHT				0.00
TAX				0.00
				US Currency
TOTAL				6,864.00

CDW Government  
230 North Milwaukee Ave.  
Vernon Hills, IL 60061

Fax: 847.990.8154

**Please remit payment to:**  
CDW Government  
75 Remittance Drive  
Suite 1515  
Chicago, IL 60675-1515

# Appendix B: Data Collection and Analysis

CES Parent Technology Survey

CMHS Student Technology Survey

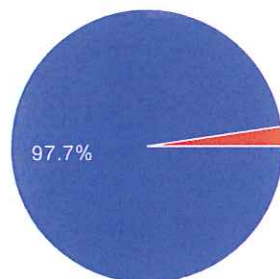
# 129 responses

[View all responses](#)[Publish analytics](#)

## Summary

### CES Parent Technology Survey

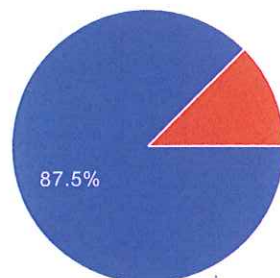
Do you have Internet access at home?



Yes **126** 97.7%

No **3** 2.3%

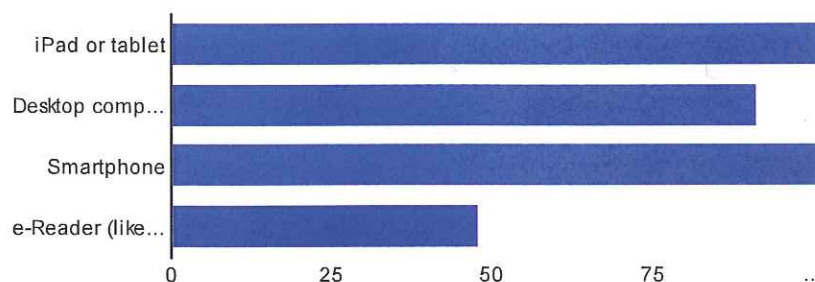
Do you allow your child to use devices to access the Internet at home?



Yes **112** 87.5%

No **16** 12.5%

Which devices do you use to access Internet at home?

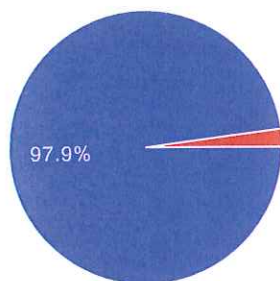


# 517 responses

[View all responses](#)[Publish analytics](#)

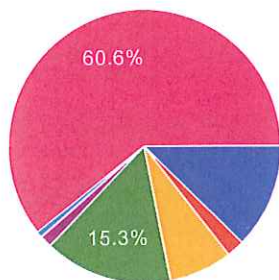
## CMHS Student Technology Survey

Do you have internet access in your home?



Yes	<b>506</b>	97.9%
No	<b>11</b>	2.1%

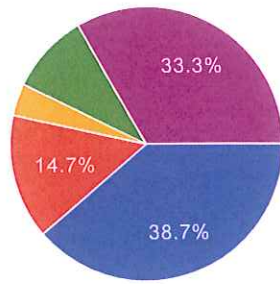
What device(s) do you use to access the internet at home? (Check all that apply)



laptop	<b>52</b>	10.1%
iPad	<b>9</b>	1.8%
desktop computer	<b>31</b>	6%
phone	<b>64</b>	12.5%
Chromebook	<b>6</b>	1.2%
Kindle or Nook	<b>3</b>	0.6%
Other	<b>254</b>	49.4%

What advantages do you see to using a device over pen/paper to complete school work?

If we became a BYOD (Bring Your Own Device) school what is the main device that you could bring everyday?



laptop	184	38.7%
iPad	70	14.7%
Chromebook	18	3.8%
I do not have a device I can bring	45	9.5%
Other	158	33.3%

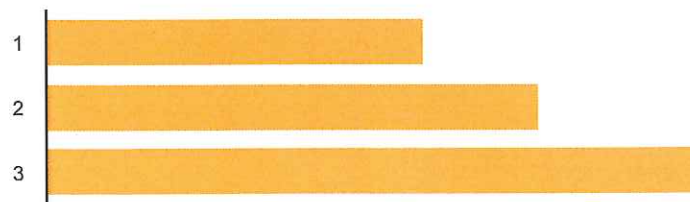
iPad [What device would you prefer to use at school? (rank them in order of preference)]



1 is the most preferred  
3 is the least preferred

3 144 31.6%

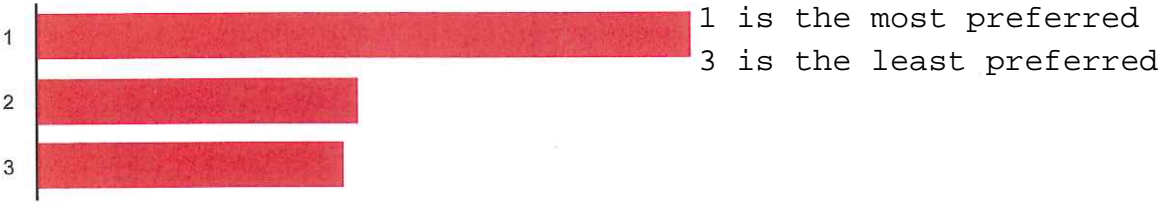
Chromebook [What device would you prefer to use at school? (rank them in order of preference)]



1 is the most preferred  
3 is the least preferred

1 112 24.8%  
2 146 32.3%  
3 194 42.9%

**Laptop [What device would you prefer to use at school? (rank them in order of preference)]**



1	238	51%
2	117	25.1%
3	112	24%