

# FUTURE READY LEARNING

## NEEDHAM PUBLIC SCHOOLS TECHNOLOGY PLAN 2018 - 2023



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## INTRODUCTION

As technological, social, and environmental change in the world has accelerated, there has been a growing dissonance between traditional ways of teaching and new ways of learning. As we add new devices and ubiquitous connectivity and adopt a more contemporary vocabulary about teaching and learning, we need to ensure that the new technologies are coupled with systems and structures that enable us to adapt and reimagine the core learning experiences in ways that are well-suited to the modern contexts of life and work. We are no longer only focusing on becoming *better* but rather on becoming *different*. Rethinking our long held beliefs about how children learn best in light of the new modern contexts for learning that technology provides serves as the central premise of our technology plan.

While the plan outlined here reflects both our district goals as well as other ongoing initiatives, it also attempts to imagine a modern context for teaching and learning that is *different* rather than just *better*. It envisions an environment in which students are learning 21st century skills along with academic content, teachers are innovating and incorporating new best practices, and instruction is informed by data. However, it goes deeper than that. We are looking toward nurturing cultures in schools where both adults and children are learners who have deep agency and ownership over their learning.

In 2018, this technology plan, unlike those previously developed, is less about the acquisition and placement of devices, the development of infrastructure, and access to peripherals but rather more about how teachers, students, administrators and staff are interacting with these smart machines and working together in new and deeper ways to impact student outcomes and operational effectiveness. While not ignoring the former, our emphasis is now more clearly on the latter. This assumption served as an underlying principle for our vision for technology in the Needham Public Schools.

Guided by the *Future Ready Framework* and the *National Educational Technology Plan*, this report is focused on the eight essential conditions that need to be in place in order for the district to have a strong technology program that supports innovative, digitally-enabled teaching, student-centered learning, and efficient information and business systems that effectively support administrative functions. Each section of the report is focused on one or more of these conditions.

Since these eight elements or gears collectively contribute to the overall strength of the program, the team also developed a vision statement that would guide future programmatic decisions for that aspect of the program. Data from parents, teachers, administrators, students and staff surveys as well as document reviews and focus groups for these various constituencies served to inform the district's current status with respect to each gear. Key findings from this data are presented here and helped to shape the recommendations for future growth and development that are included in this report.

## TECHNOLOGY PLANNING COMMITTEE MEMBERS

We would like to thank the members of the committee who gave freely of their time, insights, and expertise to the development of this plan.

|                         |  |
|-------------------------|--|
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| Hans Batra (NHS)        | Math Teacher                                 |
| Sam Bookston (NHS)      | Technology Integration Specialist            |
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| Aaron Pressman          | School Committee, Special Project Consultant |

## VISION FOR TECHNOLOGY IN NEEDHAM PUBLIC SCHOOLS

A shared forward-thinking vision for teaching, learning and organizational productivity serves as the foundation of the planning and use of technology within the Needham Public Schools. The knowledge base along with input and feedback from a range of constituencies informed and helped to shape this vision for technology.

*Needham Public Schools is committed to creating an environment in which students and staff become curious problem-solvers, thoughtful innovators, independent lifelong learners, and socially responsible global citizens. Their work is supported and enhanced by modern and efficient digital tools that make learning more meaningful, relevant, and student-centered. Students are engaged, excited, and experience deeper understanding. Learning and operations are supported by a well-maintained technology infrastructure, efficient information systems, and knowledgeable support staff that enable digital-age leadership, streamlined workflow, and effective practices.*

### Student-Centered Learning

At the core of our planning framework is the concept of Student-Centered Learning. Current and new technologies make it possible to design instruction that is more targeted to individual student needs by recognizing the different ways that they acquire knowledge. Learning opportunities are tailored to challenge and inspire them. While there are many definitions of this approach to teaching and learning in the literature, we have proposed that in the Needham Public Schools:

*Student-centered learning is a flexible, competency-based approach to instruction that enables students to meet essential learning goals. Students and teachers are entrusted to share ownership of their learning through experiences that are tailored around their strengths, needs, interests, choice, and social and emotional well-being. Students learn to reflect, think critically, and solve complex problems in a differentiated, collaborative, supportive, relevant, and digitally connected environment.*



## GEAR 1: CURRICULUM, INSTRUCTION, & ASSESSMENT

### Gear Overview<sup>1</sup>:

Through a more flexible, consistent, and personalized approach to academic content design, instruction, and assessment, teachers will have robust and adaptive tools to customize the instruction for groups of students or on a student-to-student basis to ensure relevance and deep understanding of complex issues and topics. Providing multiple sources of high quality academic content offers students much greater opportunities to personalize learning and reflect on their own work, think critically, and engage frequently to enable deeper understanding of complex topics. Data are the building blocks of diagnostic, formative, and summative assessments—all of which are key elements in a system where learning is personalized, individualized, and differentiated to ensure learner success.

### Vision:

*Curriculum, instruction, and assessment are tightly aligned and engage students in 21st century skills of creativity, communication, collaboration and critical thinking. Deeper learning is promoted by student-centered curriculum and technology-augmented instruction. Robust, adaptive tools & digital resources that support student-centered learning, teaching, and assessment are readily available in all classrooms and learning spaces.*

### Current Status:

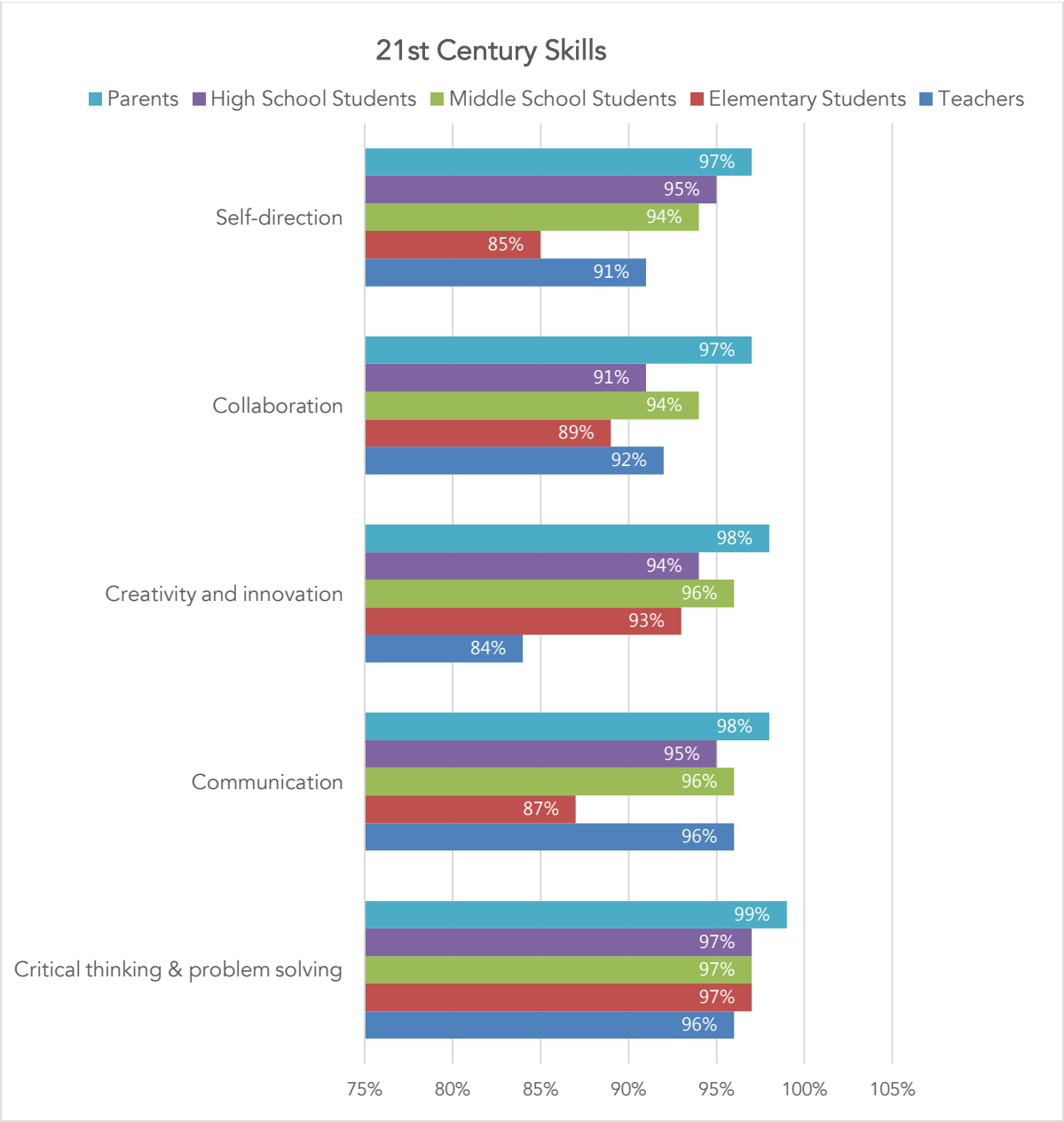
The strategic planning teams' vision for teaching and learning in the digital age links curriculum, instruction, and assessment so that students are able to engage in and acquire 21st century learning skills and learn at a deeper level. We see curriculum and instructional practices that are standards-aligned, research-based, and enriched through authentic, real-world problem solving. Students and teachers have robust and adaptive tools to make learning accessible to all and to ensure that students have opportunities to develop deep understanding of content as well as complex real-world issues. Assessments are embedded as part of the learning process and progress towards learning goals is evaluated through various performance tasks. Students also have opportunities to develop skills to successfully navigate online assessments. Data and associated analysis occurs on a regular basis and serve to inform instruction, so that lessons are modified and differentiated to ensure all learners succeed.

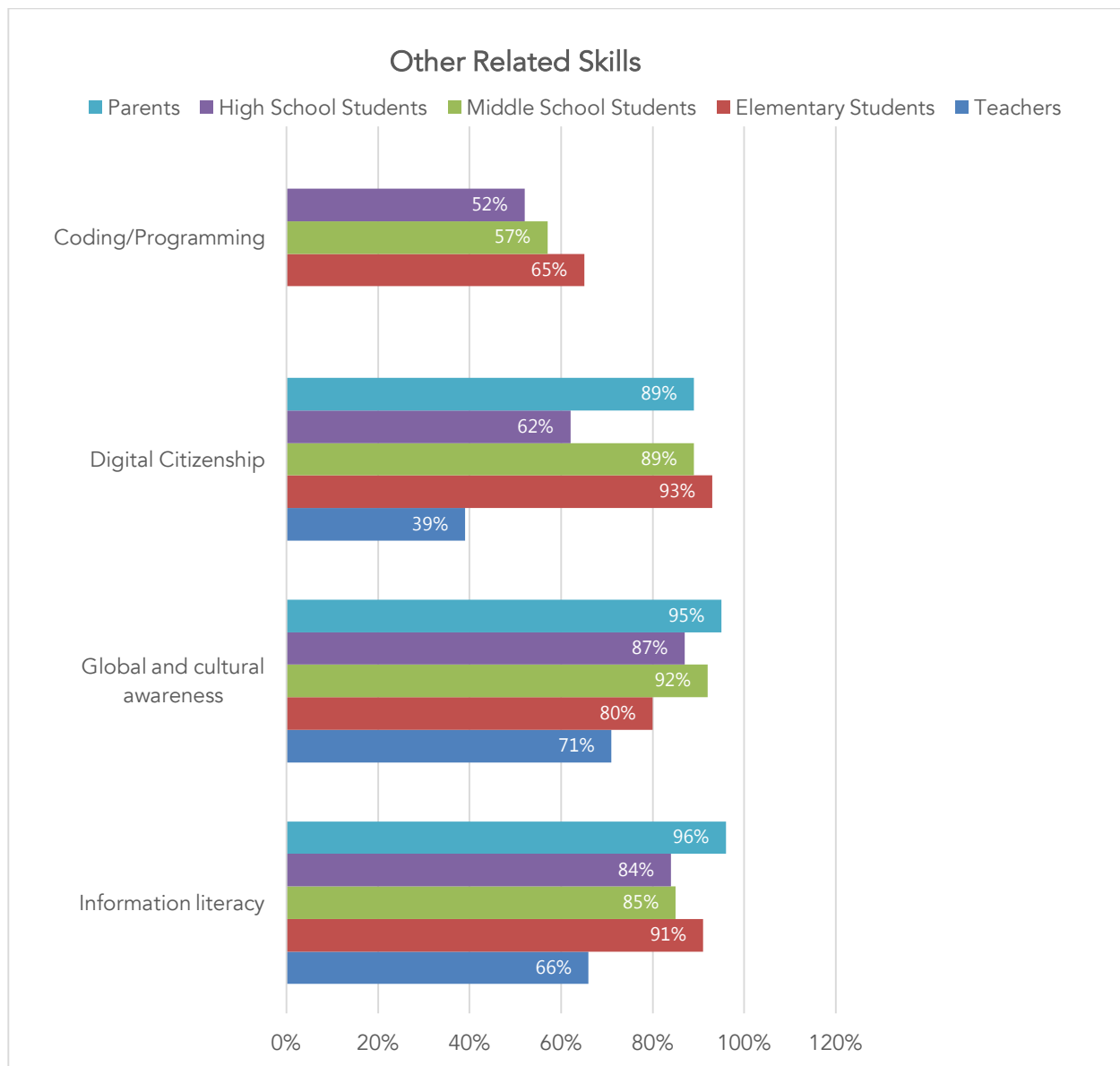
When asked about priorities for teaching and learning that are supported by technology, administrators, teachers, parents and students all expressed a strong desire to use technology to incorporate critical thinking and problem solving, communication, creativity and innovation, collaboration and self-direction skills (i.e. "21st Century Skills"). Developing digital citizenship skills was a higher priority for parents (89%), elementary (93%) and middle school (89%) students. It was less of a priority for teachers (39%) and high school students (62%). Technology was viewed as a support rather than the means for developing these skills.

At all levels, parents, teachers and students, felt that it was very important for students to practice critical thinking & problem solving, communication, collaboration and creativity skills in their school work. Among teachers (98%) and parents (97%) developing these skills was a high priority. Most teachers (73%) feel that we should be assessing students on their attainment of these skills although only 59% say that they actually do so. The charts below summarize the priorities of various constituencies regarding the importance of acquiring 21<sup>st</sup> century and other technology skills.

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<sup>1</sup> As defined in the Future Ready Framework

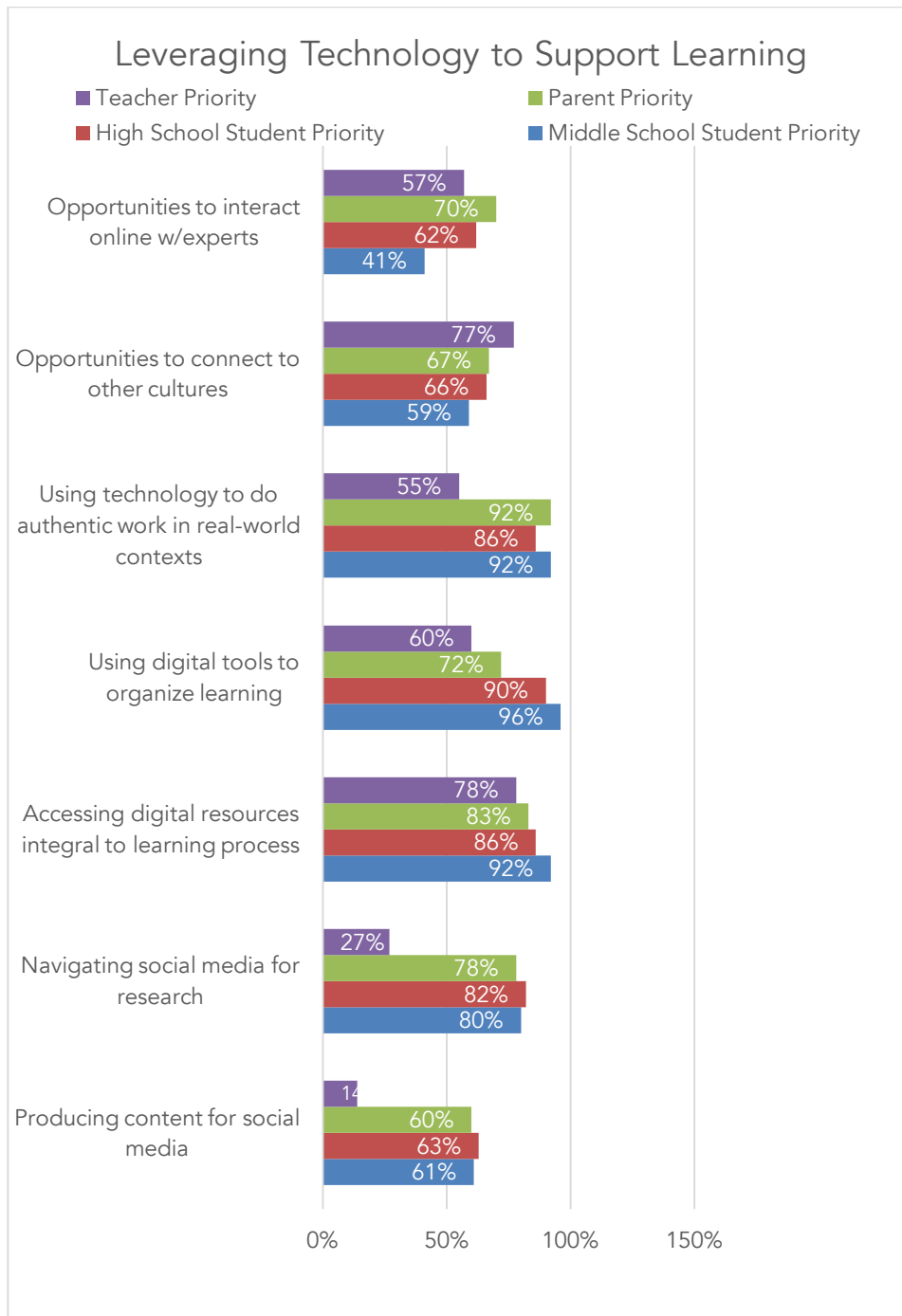




The district has committed to instruction practices geared to student-centered learning. Today's technologies make it more possible than ever to personalize learning for all students. Nearly all teachers (91%) and a large majority of parents (86%) felt that students should have the opportunity to experience student centered learning but slightly less than half of the teachers (46%) said that leveraging technology to create student-centered learning experiences was a priority. Important components of student-centered learning are fostering students' shared ownership of their own learning and enabling them to learn at a faster or slower pace. A significant number of teachers (88%) said that they emphasize helping students to develop the skills necessary to share ownership of their own learning. Using technology to help students to learn at their own pace was seen as slightly less of a priority by teachers (59%), parents (68%), and middle (69%) and high school (74%) students.

Priorities among students, teachers, and parents for leveraging technology for other tasks that contribute to a more student-centered learning experience are shown below.





### Assessments

Assessments are the third pillar of a robust system of teaching and learning. They are embedded as part of the learning process. Progress towards learning goals is evaluated through various performance tasks. Here also, technology plays an important role. It provides opportunities for students to receive real-time feedback in ways that increase the rate and depth of learning, and that enable data-informed decision making. Slightly more than half of the teachers (51%) reported that they use digital tools to gather data to guide learning for students. It is important to note that there are many other types of non-digital assessments that are widely used throughout the district to inform instruction. Data is often collated and

reports developed and shared to help inform instruction. However, as more and more digital assessment tools are introduced and the access to devices for administering these assessments become more prevalent, we anticipate greater use of and efficiencies in easy access to real time data to support student-centered instructional practices.

While the surveys provided a brief snapshot of the current status of beliefs and practices with respect to curriculum, instruction, and assessment, it was the focus groups and the responses to our open-ended questions that lent additional insight into our practices and areas for growth.

### 21st Century Skills

Students' and parents' comments regarding 21st Century skills helped us to realize that we need to get greater clarity as to what these skills are, ensure a common understanding of how students demonstrate them, and how they are explicitly taught. As one student said,

*"A lot of the time, teachers will just put us into groups and give us the project, and then they let us divide it up by whose strengths, like, and in which categories. They just, kind of like expect us to split up the work or do it all together."*

*"When teaching 21st century skills, the trick is to be mindful that success has many different forms. School would be a happier place if we could accept other forms of success/celebrate and reward all types of strengths."*

Incorporating digital citizenship as we integrate technology into teaching and learning was another area for growth as evidenced not only by the survey numbers but also from our parents' and students' comments. Sixty-four parents made reference to this in the survey comments and students also recognized this in our focus group conversations.

*"It is so important that kids learn how vulnerable they are on the internet--both from adult predators and other children bullying and or sharing inappropriate content. It would be great if kids were learning how to protect themselves online in school, as well as at home."*

*"Teachers could spend more time on digital citizenship - teachers only remind us of plagiarism and stuff if we're writing an essay."*

Additionally, parents also wanted more support from the schools in guiding their children in judicious use of technology, particularly as we move into the 1:1 environment.

*"Schools need to do much more to help parents navigate difficult social media situations with their children, do much more to foster sense of responsible digital citizenship and ....help parents enforce responsible technology use."*

Consistency of practice was another theme that emerged. Parents of students who had participated in the 1:1 program and the students themselves were most emphatic about this. Frequently mentioned was consistency with respect to resources used within a discipline/grade level, a central location for student homework, class resources that would be used by all teachers, and clarity about specific technology skills that teachers should emphasize and students should acquire at each grade level. Focus group participants and survey comments also repeatedly referenced ensuring that students acquired keyboarding, coding, and information literacy skills.

An overarching theme in all the anecdotal data collected was that of balance in the use of technology.

*"I want to make sure that technology is one among various tools for learning, and that it capitalizes on opportunities where technology can deepen or augment the learning as opposed to incorporating it for its own sake."*

*"Maintain the proper balance of technology with "old school" teaching methods that teach social skills needed for the real world.....Too much reliance on technology tools to socialize and communicate is not good for the next generation of students who will have to interact with actual people, face to face."*

### **1:1 Program**

The 1:1 program that began in sixth grade at the High Rock School four years ago seems to have had a positive influence not only on our students' learning but also on that of their teachers.

#### **Teachers**

The teachers (67%) feel that the district has provided a wide range of professional learning opportunities about the effective use of technology as well as the support necessary to integrate technology into teaching and learning (92%). At the four-year point, they are more secure in their ability to integrate technology into teaching and learning (68%) and are more confident than teachers at any other level in their ability to innovate learning through their use of technology, digital content, and media (63%). They feel strongly about the importance of acquiring digital skills, knowledge, and expertise with 21st Century skills in order to integrate them into their instructional practice (90%).

A number of teachers attribute their learning and growth to the ongoing support they receive from their Instructional Technology Specialists. As one teacher said,

*"The only reason I have been able to integrate technology so quickly and successfully into my class has been the incredible accessibility, knowledge, and enthusiasm of our Instructional Technology Specialist. Our most important investment remains in people power--not necessarily the technology itself. The green screen or 'explain everything' or stop motion or VR sets are only useful if someone helps me think about how to use them, helps me troubleshoot when things go wrong, and helps keep me up to date on the constantly evolving world of tech."*

Teachers feel that the 1:1 experience has enabled them to help their students to effectively apply digital tools to organize their own learning (86%), to become good digital citizens (49%) and to further develop 21st century skills (94%).

However, teachers have not lost sight of the fact that "technology is the tool, not the end goal" and that "it can't be a replacement for the act of thinking, writing and communicating face to face." They readily acknowledge that "some students find the iPad more distracting than helpful." They also feel that we "should pay attention to how much aggregate screen time we are asking students to engage in, and whether that is really in their...best interest." Balance was a theme that emerged from both teachers and parents. As one teacher said, we should strive for "a healthy balance (time on digital devices) of technology in the learning environment" and ask ourselves, "does it work best for the assignment at hand or not?"

## Students

From the perspective of the Middle School students who are participating in the 1:1 program, the access to the iPad helps them to be more engaged (79%), collaborative (82%), creative (86%), and knowledgeable (91%). They saw the technology as helping to make working together in small groups easier (71%), providing opportunities to learn both in and outside of the classroom (84%), to learn at a slower or faster pace (69%) and to learn in ways that best fit their learning style (82%). Nearly all students (91%) feel that they can use digital tools to organize their own learning but they also recognized that their device could be distracting at times. Middle School students told us that the iPad:

*"...has affected me because if I don't understand something, I have access to a device that teaches non-stop"*

*"...has made me more willing to do my homework because I don't have to find papers and it's less stressful deciding if you finished all your homework and when it's due. I think it helped me a LOT and organized me plus formed good habits."*

*"has affected my learning experience because I know where everything is, I can organize it, and I can look at and go back to all of the work I've done."*

*"I used to forget there was homework for classes, forget to bring homework assignments in, had trouble organizing group projects outside of school. Now with the iPad loads of things have become sooooo much easier."*

*"...was a little distracting in the beginning but then I got used to it. I can personalize it, save things, and bring it home with me to always use the same iPad for all of my work."*

Ninth graders, who have been part of the 1:1 program for the last three years, had their iPads replaced with Chromebooks this year. They, like their counterparts at the middle school, felt that having a 1:1 device helped them to be more organized (80%), engaged (62%), collaborative (86%), creative (62%), and knowledgeable (86%). They too acknowledged the ease at which they could be distracted by websites and social media on their devices (22%). For most, the change to Chromebooks was a welcome experience, but for some, the iPad was the preferred device.

*"I have not had my learning experience lessened by the Chromebook. It has been very helpful for me to take notes and is great when teachers assign homework on them. If you were to lose it on paper you are done, but if you use your Chromebook, it's on there. If you don't have your Chromebook you just have to log in to google and access it from there. I think adding the Chromebooks is great. Just think they are a little too slow for everyone though."*

*"A Chromebook has definitely helped my learning. I have found myself using google drive more and organizing my documents on that. It is easy to access, and school Chromebooks are very useful for those who don't have their laptop or don't prefer to buy one."*

*"I like it much better than iPads, but it does have limitations as opposed to a MacBook or another computer type."*

*"It has been harder to learn when I have a Chromebook than I did when I had an iPad."*

## Parents

Parents of students participating in the 1:1 program felt that their child benefits from having digital tools to organize his/her own learning and having access to digital resources that are integral to the learning process (87%). They believe that technology plays a significant role in ensuring that their children have

opportunities to learn both in and out of school (78%). Their comments in the survey and in focus groups, while positive, expressed a great deal of consensus on areas for further growth within the program. They would like to see:

- Consistency of resources in each discipline and practices among teachers.
- Clarity of expectations regarding the continuum of technology skills students should acquire at each grade level.
- Judicious use of technology balanced with a continued focus on more traditional learning tools and the development of social/emotional skills.
- Partner with and support parents in ensuring students are safe on the internet and practice good digital citizenship skills.
- Support for teachers to continue to learn new technologies and how to meaningfully incorporate them into their teaching.

Here are a few representative comments from the parents:

*"Centralize the resources, please! Every teacher has a different website, calendar, way to turn things in and place to post homework. Ridiculously confusing and inefficient."*

*"Teaching moderation of use of devices so that kids growing up in a digital generation also develop self-regulation, patience, the ability to delay gratification, etc. Kids need to have and hopefully appreciate "downtime" for their brains to develop."*

*"Human interaction is just as important as technology. Technology should enhance the experience, not dominate it."*

*"It is imperative to emphasize the proper and safe way to use technology. As technology rapidly evolves, our kids need to understand the benefits in using new technology to further their learning. They also need to understand how to protect themselves and how to conduct themselves in a digital community."*

*"Learning how to cope with technology (e.g. its ability to distract, the potential for online bullying) is as important as enhancing learning through technology."*

*"Keep in mind that technology is not a magic bullet that makes learning happen. It's a valuable avenue to give students and teachers access to information, but it's not the only avenue."*

## Summary

Overall, the 1:1 program in the Needham Public Schools seems to have had a positive impact on both teaching and learning. It has enabled teachers to reflect on the kinds of experiences they are able to provide for students and extend what's possible in the classroom. Teachers feel that they have the support they need and are interested in continued professional learning in this area. Students feel that it has improved the learning process, keeps them more organized, collaborative, and engaged. Parents have been influential in helping us to understand the implications of the program beyond the school day and reminded us of the importance of communication, coherence, consistency, and balance. While we are well on our way towards the next phase of implementing the 1:1 program, the information we have gathered will help us to reflect on what we have learned from this process about areas for further growth and improvement within the program. Our key takeaways for this year is that it is important to provide easy access to devices as we integrate technology seamlessly in the teaching and learning process. We should integrate the technology when it adds value to learning and ensure that our students have the knowledge and skills to be safe when navigating online environments.

## GOALS GEAR 1: CURRICULUM, INSTRUCTION, AND ASSESSMENT

### *Goal 1 - 21st Century Skills*

Develop a common understanding of 21st century learning skills, incorporating the recommendations from the Portrait of a Graduate work, to serve as a framework for teaching and learning in the 21st century.

- Plan for how 21st century learning skills would be introduced and incorporated into instructional practices across the district.
- Review current digital citizenship curriculum and instructional practices to determine where and how digital citizenship is currently taught throughout the district. Develop and implement a plan to ensure all students experience this learning.
- Develop/adopt/adapt rubrics that describe “21st Century Skills” performance expectations for students at each level.

### *Goal 2 - Leveraging Technology to Personalize Learning*

Empower students and teachers with the resources and skills necessary to leverage technology for their teaching and learning.

- Investigate, pilot, and ultimately implement a learning management system that would be used by all teachers and students.
- Identify technology skills that students should develop at each grade level and develop an implementation plan so that students have the requisite skills to take full advantage of technology resources.

### *Goal 3 - Assessment*

Provide teachers and administrators with easy access to student data to inform instruction.

- Investigate, pilot, and evaluate a data management system to provide access to a range of student data.
- Ensure that curriculum leaders, building administrators, and teachers are able to use the system to access data to inform instruction.



## GEAR 2: PERSONALIZED PROFESSIONAL LEARNING

### Gear Overview<sup>2</sup>:

Technology and digital environments can increase professional learning opportunities by expanding access to high-quality, ongoing, job-embedded opportunities for professional growth for teachers, administrators, staff and other education professionals. Moreover, “when carefully designed and thoughtfully applied, technology can accelerate, amplify and expand the impact of effective teaching and operational practices. However, to be transformative, educators, administrators and staff need to have the knowledge and skills to take full advantage technology-rich environments.<sup>3</sup>

It includes these elements:

- Shared Ownership and Responsibility for Professional Growth
- 21st Century Skill Set
- Diverse Opportunities for Professional Learning

### Vision:

*Needham Public Schools is committed to providing high quality, multi-modal professional learning opportunities that are relevant to the experience levels of all teachers, administrators, and staff, encourage risk taking and innovation, and provide strategies and support to enable them to be effectively implemented.*

### Current Status:

Needham Public Schools provides a range of professional learning opportunities for teachers, administrators, and staff. These offerings are designed to enable teachers and staff to not only acquire the knowledge and skills to grow professionally but also to integrate these skills into teaching, learning, and personal productivity. The fact that the school department has provided each elementary school with one and each secondary school with one and a half to two Instructional Technology Specialists is indicative of its commitment to supporting the learning and growth for all its staff in the area of technology. In addition to part-time teaching responsibilities, these Specialists provide just-in-time, one-on-one, job-embedded learning opportunities for staff, and they support teachers as they integrate various tools into their instructional practice.

Examples of other professional learning opportunities provided in schools or by the district include:

- Courses and workshops both after school and during the summer (High School Tech Camp is a perennial favorite and attracts large numbers of participants each year).
- Opportunities to visit similar classrooms in Needham and in other districts to observe and learn about new technology practices.
- Technology demonstrations during faculty meetings with follow up learning during CPT time.
- Technology Ed Camp during Early Release days, that offer a range of learning opportunities where teachers are sharing their knowledge or helping their colleagues on a particular area of technology use.
- Attending technology related conferences (e.g. Ed Tech Teacher, MassCUE, etc.)

<sup>2</sup> As defined in the Future Ready Framework

<sup>3</sup> National Education Technology Plan, p.5

- Contracted professional developers who have provided job-embedded workshops for staff.
- Participation in the FUSE program at the high school to strengthen coaching skills and to prepare for creating effective blended learning experiences for students.
- Technology related workshops offered by the TEC and the ACCEPT Collaboratives.
- Teachers helping teachers on an ad-hoc basis.
- Professional learning opportunities for office support staff (secretaries bookkeepers, etc.) on office productivity tools during early release days.

Teachers and staff overwhelmingly felt that learning how to use and integrate technology into their practice and increase their productivity is essential. Approximately half of our experienced teachers (>7 years) and nearly 60% of our newer teachers (4-6 years) felt comfortable with their ability to integrate technology into teaching and learning. As one teacher said,

*"Technology can inform my instruction, grading, and organization. I love all instruction on technology and embrace professional growth there."*

Through surveys and focus groups, they said that it is important to:

- develop skills in effective uses of technology for digital learning (99%).
- acquire digital skills, knowledge, and expertise with 21st Century skills to integrate these skills into teaching and learning (96%).

A number of teachers and staff are already personalizing their own professional learning by taking online courses (72%) and by using online collaboration tools to interact with colleagues as part of their professional learning network (80%).

Although Needham Public Schools provides many opportunities for professional learning, only 65% of the teachers and staff felt that the range of offerings was adequate. This is indicative of the fact that either they are not aware of all the offerings that are available to them (22% said they were "not sure") or that they are at different places in their continuum of comfort with technology and the opportunities could be better tailored to their needs. When asked about their preferred areas for professional growth, responses were equally spread across a variety of domains. Most responses centered around the following areas:

- Integration of digital learning into the curriculum
- Using technology to become more efficient
- Developing instructional practices and professional competencies necessary to support digital learning in the classroom
- Using technology to develop student creativity and innovation skills
- Supporting learning through more use of teamwork and collaboration

The introduction of various mobile digital devices (laptops, iPads, Chromebooks) to the classrooms over the last several years along with the advent of the student 1:1 program has served as a catalyst for the district and schools to provide a wide range of professional learning opportunities. These opportunities have encompassed not only learning to use the technology but have also had an additional focus on teaching and learning. We envision this continuing as the 1:1 program moves forward into grades 11-12 over the upcoming years.



Other drivers for personalized professional learning are changing demographics and increased globalization that are altering the nature of work and the world that our students will inherit. As we research, discuss, debate, and articulate the key attributes, skills, and qualities we want for our students as part of the community's work on developing a portrait of a Needham graduate, there has been an increased focus on ensuring that our students are equipped with skills for the "21st Century." Therefore, educators need to master a variety of new, research-based instructional strategies to better engage students and prepare them for college and beyond. In doing so, they broaden their own 21st Century skill set. Given these many professional learning needs, we would be remiss to not leverage the many technology platforms that have the potential to provide personalized professional learning opportunities for teachers.

The district also needs to be more strategic about identifying expectations for digital learning and helping teachers, administrators, and staff to determine their own areas for growth. There should be a wide variety of modalities recognized by the district through which all staff could choose to meet their personal professional learning needs.

## GOALS GEAR 2: PERSONALIZED PROFESSIONAL LEARNING

### *Goal 1 - Promote Shared Ownership and Responsibility for Professional Growth*

Cultivate a culture of shared ownership and responsibility for professional learning and growth among teachers, administrators, and staff.

- Identify and communicate the technology skills and knowledge that are essential for all staff to acquire in order to effectively engage in the districts' digital community.
- Encourage schools to develop leadership teams or standing technology committees that collaboratively work to determine areas of growth for professional learning of educators with respect to the identified essential knowledge and skills.
- Communicate with district digital leadership to develop opportunities to address identified needs.
- Develop strategies to effectively communicate available professional learning opportunities.

### *Goal 2 - Develop 21st Century Skill Set*

Educators should have multiple opportunities to expand their capacity to incorporate a 21st century skills into their instructional practices.

- Design a variety of opportunities for leaders and teachers to acquire/assess their understanding of Needham's definition of "21st Century Skills" and to learn to incorporate them into their practice.

### *Goal 3 - Provide Diverse Opportunities for Professional Learning*

Expand access to high-quality, ongoing, and multi-modal learning opportunities for professional growth for teachers, administrators, staff and all education professionals.

- Curate and communicate viable online professional learning opportunities that align to district's essential technology skills and knowledge, operational productivity, and teaching and learning goals.
- Develop the capacity of interested staff to create and offer online or hybrid learning opportunities for teachers, administrators, and other staff.
- Incorporate ongoing opportunities as part of the orientation and mentoring process for teachers, administrators, and staff new to the district to acquire the knowledge and skills necessary for them to be successful members of the district's digital community.
- Create differentiated professional learning opportunities (ed camps, workshops, individual assistance, peer support, conferences, lab classroom visits, etc.) that engage staff in furthering their personal professional growth.
- Increase the capacity of Instructional Technology Specialists to provide coaching opportunities for teachers to learn more about effective technology supported learning experiences for students.



## GEAR 3: ROBUST INFRASTRUCTURE

### Gear 3 Overview:

When employed as part of a comprehensive educational strategy, the effective use of technology provides tools, resources, data, and supportive systems that increase teaching opportunities and promote operational efficiency. High quality, high speed technology and infrastructure systems within a school district are essential to the advancing of digital learning.

It includes these elements:

- Adequacy of Devices; Quality and Availability
- Robust Network Infrastructure
- Adequate and Responsive Support
- Formal Cycle for Review and Replacement

### Vision:

*Throughout the Needham Public Schools, all students and staff have access to a technology infrastructure that is equitable, fast, secure, and reliable. Tools, devices, resources, data, and supportive systems that increase teaching and learning opportunities and promote administrative efficiency are readily available to support our vision for student-centered learning. Technologies are continually monitored and updated to ensure the advancement of digital-age learning and operational efficiency.*

### Current Status:

Technology is used throughout the district to support instruction and the efficient day-to-day operation of the school system. The district currently supports approximately 7,200 devices across all schools and the administration building. Of these, there are 2,000 computers (laptops and desktops), 2,800 iPads, and 2,400 Chromebooks. All schools are connected to the Internet through a fiber connection with a speed of 2 gigabits per second. The network has firewall protection as well as Internet filtering, both of which are compliant with the Children's Internet Protection Act. Every school has a wireless network connection that reaches throughout the building.

Standard profiles of the digital environment for classrooms, special area spaces, labs, and office areas at each level has enabled more efficient budgeting, management of replacement cycles, and distribution of equipment. These profiles are as follows:

#### Elementary Classrooms

- Teacher laptop
- Interactive projection
- 6 classroom digital devices
  - Grades K-2 iPads
  - Grades 3-5 Chromebooks
- Shared carts of iPads, Chromebooks, & laptops provide on-demand one-to-one environment
- Universal wireless access
- Shared printers strategically placed throughout the school for ease of access

#### Middle School Classrooms

- One-to-one student iPads
- Teacher laptop & iPad
- Interactive projection
- Shared carts of Chromebook and laptops
- Specialized instructional/learning labs, evolving to more innovation spaces
- Universal wireless access
- Shared printers strategically placed throughout the school for ease of access

### High School Classrooms

- Teacher Laptop
- Interactive projection
- Specialized instructional/learning labs
- Fall 2017-2020: one-to-one rollout--one grade/year, starting with grade 9
  - In the 2018-2019 school year, half the school will be 1:1
  - Fall 2020 - entire school will be 1:1
  - Optional BYOL or district provided Chromebook
- Shared carts of iPads, Chromebooks, & laptops
- Universal wireless access
- Shared printers strategically placed throughout the school for ease of access

### Office Areas

- Desktop or laptop computer
- Universal wireless access
- Shared printers strategically placed throughout office areas for ease of access
- Scanners to support particular operations

### Specialized Lab Spaces

In each of the schools there are specialized technology labs, or tech centers that are equipped to meet the specialized purposes that they serve.

#### Elementary Tech Center (One/School)

- Classroom set of computers, display capabilities, printers
- Robotics and a variety of electronic peripherals to teach the technology portion of the STEAM program.
- Items for green screen video, stop motion animation, and voice recording for innovative student/class projects

#### Middle School Tech Centers (High Rock: 1; Pollard: 2)

- Classroom set of computers, display capabilities, printers
- Items for green screen video, stop motion animation, virtual reality, and voice recording for innovative student/class projects

#### High School Specialized Labs

- General technology lab equipped similarly to the middle school tech centers
- Lab for television production
- High-end tech lab for graphic arts

### Students Support Services Learning Spaces

- Specialized spaces for student support services are equipped with technology based on needs analyses that align to the size of the space and the work and type of instruction taking place. In light of the 1:1 program and the shift to mobile technology, there is a need to reassess and re-establish the profiles associated with these learning spaces.

## Replacement Cycle

The replacement cycle for desktop computers is five years, laptop computers are four years, and other mobile devices (iPads, and Chromebooks) have a useful life expectancy of 3 years. The standard profiles described above will require periodic modification and adjustments as technology advances. Potential innovative or replacement technologies will need to be evaluated and piloted regularly and replacement standards adjusted accordingly. However, it is important to note the with rapidly changing technology and limited finances, at any given time, facilities across the district will be equipped with comparable technologies that may have differences in particular features and functionality. The department has and will continue to maintain an accurate inventory of classroom and school technology in order to inform planning and purchasing.

Focus groups and surveys informed us that there are mixed reviews of the choice of the 1:1 devices at each level. Preferences for iPads and Chromebooks, vary at middle and high school with some advocacy for laptops at the high school level. As we budget for replacement devices, we will need to continue to monitor our mobile devices and how they effectively meet educational objectives.

## Projection Systems

The model classroom profile at each level includes a system at the front of the classroom to share device screens with the entire class. In the past, the district had standardized on SMART interactive whiteboards with projectors. Teachers have invested considerable time and effort in developing lessons (i.e. SMART Notebooks) using this technology and are reluctant to change. However, these types of interactive whiteboards are no longer being manufactured. They are a legacy solution that enabled students to interact with technology when there were only 1-2 computers per classroom. The district is now investigating various options and evaluating their effectiveness for teaching and learning at all levels. Non-interactive whiteboards and projectors are being compared to both interactive and non-interactive flat panels with an eye towards adding the capability to share the screen of a mobile device to the projector or panel from anywhere in the room, thus providing distributed interactive capabilities.

As technologies evolve, specific equipment solutions will also need to evolve. Teacher volunteers, who pilot and provide feedback on new technologies, have proved to be invaluable in helping to determine the effectiveness of next generation technologies and have enabled the district to make prudent decisions and investments going forward.

## Enterprise Systems

The district provides a wide range of enterprise level digital tools to support various teaching and administrative functions. For example:

- Every employee has a G Suite account. G Suite, a hosted solution by Google, and commonly known as Google Apps, is a collection of applications that includes the typical array of office suite tools - email, storage, documents, spreadsheets, presentations, calendars, shared calendars, drawing, and more. Within the G Suite universe, the district has its own domain and administrative control over accounts and vetted applications. Students have Google Apps for Education accounts and these are activated and introduced starting at grade two. This suite of tools is provided at no cost to the district through Google educational partnerships.
- PowerSchool, the district's student data management system, maintains electronic student records including attendance, scheduling, and grading.
- The school nurses use SNAP, a system that automates the student health records and enables them to efficiently record and access the immunization and health histories of our students.

- At the high school, Naviance, a college and career readiness software package helps to manage college planning and application process.
- Other administrative applications include our professional development management system (*My Learning Plan*), the web content management system (*Web Presence*), and our curriculum mapping software (*Atlas*).
- eSped is used by special education teachers to access and manage individualized education plans.
- Each school library has an online library automation system (*Destiny*) that is browser-based and includes circulation, cataloging, searching, and reporting.
- District contracts with two online payment services that enable families to pay for school lunch, sports fees, Community Education and other school fees through a secure online system.

A comprehensive list of enterprise level digital tools used within the district appears in *Appendix B*.

As in other fields, enterprise systems in education evolve to meet the needs of the organization. Systems that are not yet on the list above, but are being considered include a student registration system, a learning management system, and a data management system. These are a few examples of enterprise systems that would meet the information, instruction and data needs of various constituencies. Several years ago, the Needham Public Schools centralized student registration. During this process, the ITS Department developed an in-house database for parents to register their child/children in the District. The District has now outgrown this solution. The ITS department would like to shift to an integrated, secure system that moves data securely into *PowerSchool* and allows parents the ability to update emergency contacts and demographics in real time. A learning management system (LMS) is a software application for the administration, documentation, tracking, reporting, and delivery of educational courses. Adopting a K-12 LMS will create a single portal for blended teaching and learning for all students, parents, and teachers. A data management system would provide a unified location for all student demographic and assessment data for easy access by principals, teachers and other support staff.

Some enterprise systems are procured and managed by IT Services. However, there are many that the ITS Department is simply supporting the operation of the product and an administrative or academic department is the “owner” who supplies the product expertise, implementation strategies, and access privileges. As these systems come up for reevaluation, IT will partner with the departments to support the technical aspects of assessing the product. It is incumbent upon the managers of various departments to take on the management of their systems in consultation with the technology department, with each department sharing their unique knowledge and expertise to ensure that systems run efficiently and meet the needs of the district. Another support function that the ITS department provides is identifying the enterprise systems that are critical to the operation of the schools (ex: payroll, student information system, etc.) in order to have backup and recovery processes in place. Again, the identification of these systems is done collaboratively with the departments whose functions are primarily supported by those applications

## Network

The school wide area network uses a fiber backbone between buildings, and network features include:

- Centralized & redundant firewalls
- Centrally managed HP Procure switches
- Local Area Networks (LANs)

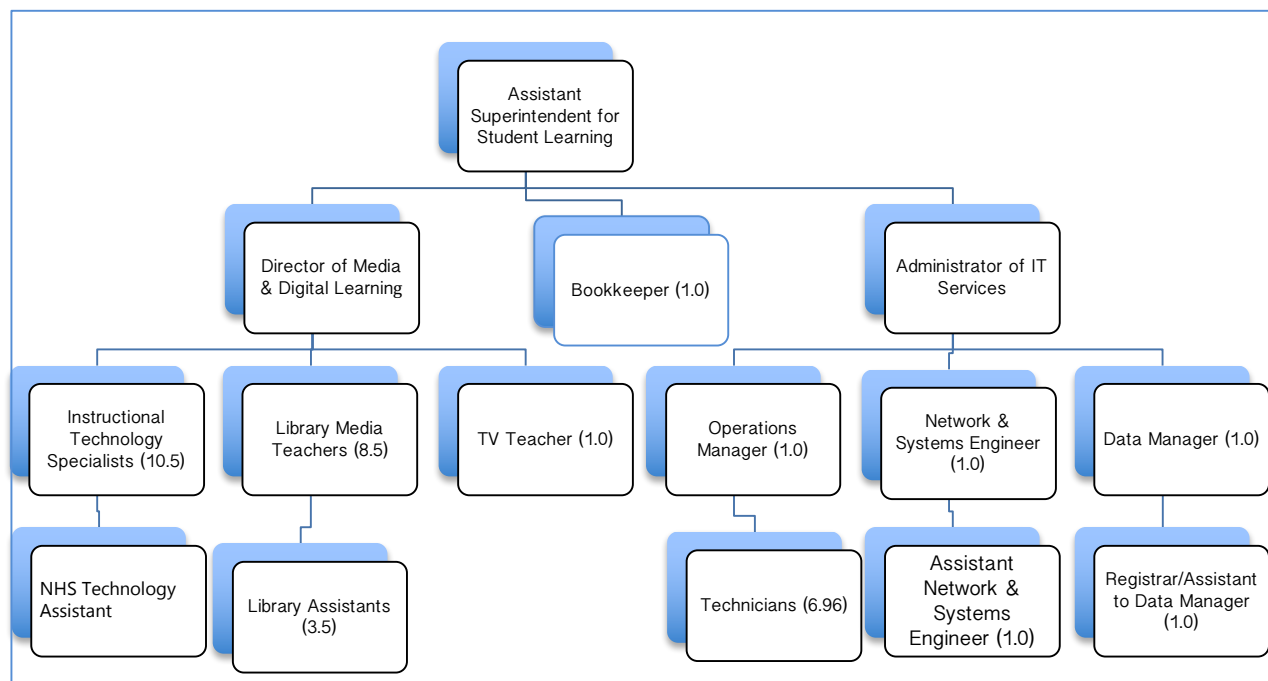
- o Fiber between closets
  - o Copper to endpoints
- Gigabit to every endpoint
- Wireless network built out and now in replacement cycle
- Virtual server environment and some physical sharepoints

The speed between buildings is a mix of 1 Gbps and 10 Gbps, with plans in place to have all connections between buildings at 10 Gbps by the 2020 school year.

The State Educational Technology Directors Association (SETDA)<sup>4</sup> and the Federal Communications Commission (FCC) adopted recommended Internet speeds and wide area networks (WAN) speeds for schools. These guidelines state that medium sized school districts like Needham, should have at least 1.0 Gbps per 1,000 users by 2018, and should increase to at least 2.0-3.0 Gbps per 1,000 users by 2021. By virtue of our infrastructure and the contracted internet service, we are meeting these guidelines. The network infrastructure in Needham now provides dependable, efficient access, which enables students to participate in virtual and augmented activities, create content, learn to code, take mandated online tests, and collaborate and communicate with peers.

### Technology Program Structure

In 2014, the Technology Department was reconfigured to better service and support the needs of administrators, teachers, students and staff.



<sup>4</sup> The Broadband Imperative II: Equitable Access for Learning.  
<https://www.setda.org/wp-content/uploads/2016/09/SETDA-Broadband-ImperativeII-Full-Documents-Sept-8-2016.pdf>

The organizational structure consists of a Director of Media and Digital Learning who oversees the teaching, learning and library components of the program and the Administrator of Information technology (IT) Services who is responsible for supporting administrative operations as well as the overall infrastructure, hardware deployment and repairs. In the recent years, he has had significant responsibility in the technology roll out of school building additions (e.g. HS, Mitchell modulars, Williams, etc.) as well as phone systems, electronic key systems and security cameras. Together with the Assistant Superintendent for Student Learning and with the help of the staff pictured in the organization chart above, they manage all aspects of the technology program.

Data from surveys and focus groups indicate that this reorganization structure has had positive effects on the support that staff feel they receive with respect to their use of technology. Staff feel that they have access to digital resources that are integral to the learning process (74%). They have consistent and reliable access to the Internet (97%); have consistent & reliable access to the needed technology (82%); and when they have a technical issue with devices or the network connectivity it is handled professionally, quickly, and efficiently (77%).

IT services technology support is housed at Broadmeadow and the 6.96 FTE technicians are centrally dispatched. The electronic ticketing system (*Samanage*) is used by all the employees in the district to report issues and request support. During FY2018, there were a total of 3,910 support tickets generated. A summary of support incidents by device and by school can be found in *Appendix C*. The shift from technicians being assigned to specific buildings took place four years ago and has been very successful and well-received. It has increased efficiency, allowed the department to build expertise and specializations, while at the same time increased redundancy in technicians' skill sets and introduced flexibility in the staffing model.

Over time, technology support staff has increased proportionally to address the needs of a growing number of teachers, expanded student enrollment, and the introduction of the 1:1 program. As the district continues to evaluate its staffing needs, one important area for consideration will be the expanding scope of the department's responsibilities and the increasing complexity of many of the systems. Various building systems are becoming more technology dependent and have resulted in additional facility responsibilities being shifted to the Administrator of IT Services (e.g. phones, security cameras, electronic keys). These new areas of oversight have made it difficult for one person to address a multitude of new needs while also managing a very complex operation and will have to be included when determining future staffing needs.

### Device Preference

Within our review of the infrastructure, the type of student device selected for the 1:1 program was a concern among some middle and high school students and parents. Their comments indicated that there is a range of opinions regarding the optimal device.

*"The Chromebook much better than iPad as it was impossible to type papers on an iPad, so that's gotten easier/better. More interesting ways to learn via internet content (videos, outside websites, etc.)"*

*"I believe the Chromebook has been helpful - ability to have a computer that they can rely on for their work and the ability for them to be productive everywhere and anywhere. However, we have struggled with the quality and the speed."*



*"The iPad program at the middle school is much more developed and utilized than the Chromebook program. The Chromebook has been slow and under-powered, although this could be a problem with internet bandwidth as well as the actual device. Switching to a device for 9th grade that has no touch screen is a very odd choice."*

*"It is our opinion that the iPad program in middle school was better: iPads actually connected to the WiFi reliably, you could get apps to assist in notetaking, and they were easier to use. The display on the Chromebook isn't as good quality as that on the iPad, and you cannot zoom in/out."*

The 9<sup>th</sup> graders, who had three years of experience with the iPad and had just received Chromebooks, were generally happy with the performance of their new device. A built-in keyboard was a much-appreciated addition. They did, however, miss the capability that they previously had with their iPads to markup text (Notability) and use a finger or stylus to write/solve math problems. A number of them had mentioned that the Chromebooks were slow and that some rooms (at High School) have unreliable WiFi. Since speaking with students, the WiFi network at the high school has been upgraded which addressed a number of issues related to the speed of the Chromebooks. The most important takeaway from students is that, regardless of the device, they are strongly in favor of having "consistent and reliable access to technology" (92%) in order support their learning.

## GOALS GEAR 3: ROBUST INFRASTRUCTURE

### *Goal 1 - Adequacy of Devices and Systems*

Continue to provide diverse and appropriate technology devices to support powerful digital learning, professional productivity, and operational efficiency.

- Continue to review the profile of “digital ready environments” at each level and ensure that all spaces are equipped with the appropriate digital tools needed for effective teaching and administrative functions.
- Use pilot classrooms at each level to provide teacher input in order to better assess potential innovative or replacement technologies.
- Conduct a review of administrative technology applications and processes to assess efficiency and usefulness and develop strategic plans to implement findings.
- Conduct a needs analysis of spaces for student support services to ensure they are equipped with the appropriate technology to meet the program’s learning objectives.
- Replace the existing district student registration system with a modern, secure, multi-functional system.

### *Goal 2 - Robust Network Infrastructure*

Continue to monitor bandwidth and infrastructure to ensure reliable access to online resources for teaching, learning, and school administration.

- Continue to provide ongoing monitoring for network efficiency and capacity, to ensure appropriate bandwidth for teaching, learning, and administrative functions. This includes capacity for full implementation of 1:1 in grades 6 - 12, access to PreK-12 online digital resources, state-mandated online testing, and ongoing administrative functions.
- Continue to evaluate the effectiveness of the tools and processes that are used to manage software and devices and revise or update as needed.
- Identify critical systems that are needed to run schools and refine the plan for disaster recovery of these critical systems. Test systems annually.

### *Goal 3 - Adequate and Responsive Support*

Continue to provide technical and instructional support, to ensure that administrators, teachers, and students are able to effectively use new technologies.

- Review technology support staffing relative to the 1:1 initiative and complexity and the increasing number of technology systems being supported (e.g. telephones, door access, security cameras, etc.).
- Ensure that technical and instructional support staff have access to personalized professional development specific to their role.

### *Goal 4 -Formal Cycle for Review and Replacement*

Continue to monitor technology life cycles and inventory (software, hardware, and infrastructure) to ensure that upgrades, additions, and replacements occur in a timely and proactive manner.

- Adhere to the established replacement cycle of software, hardware, and infrastructure.
- Continue to implement the 1:1 model in grades 6 through 12.
- Establish a formal process for periodic assessment and review of strategic enterprise systems.



## GEAR 4: BUDGET AND RESOURCES

### Gear Overview<sup>5</sup>:

An effective budget development and review process is guided by a deep understanding of school finance at the District, State, and Federal levels. Funding a digital learning environment requires strategic, short-term and long-term budgeting that leverages the use of learning-enabling technology and resources to optimize student learning. All budgets at the district and the school level are aligned in order to prioritize student learning and cost-efficiency, with consistent funding streams for both recurring and nonrecurring costs. It includes these elements:

- Efficiency and Cost Savings
- Alignment to District and School Plans
- Consistent Funding Streams

### Vision:

*Needham Public Schools will implement strategic short-term and long-term budgeting that supports the district Strategic Technology Plan. Consistent funding streams for both recurring and non-recurring costs to ensure the plan's sustainability are a regular part of budget development.*

### Current Status:

Budgeting for technology spans across the capital and operational budgets. Equipment that has a useful life of 5 years or more and an acquisition cost of more than \$5,000, is defined as a capital expense. Included in this area are desktop computers, projection systems, networking hardware, and other items that meet the above criteria.

The operational budget includes mobile devices (iPads, laptops, Chromebooks), supplies, software, software subscriptions, staffing, professional development, repairs and maintenance, printer toner, some peripherals, Internet access, and other items that are not covered in capital. E-rate funds provide resources for eligible hardware and services, and will continue to do so. In purchasing technology equipment, supplies, and software, the district takes advantage of collaborative purchasing and the state contract system to ensure optimal pricing and realize cost savings.

- Challenges in the budget and in the budgeting process will continue to be ensuring that annual needs, capital expenses, mobile devices, and the growing need for digital resources (i.e. digital textbooks, learning management system, high-quality curriculum materials, e-books) when there are always competing demands.
- Growing enrollments, additional staffing, full-day kindergarten, and space reconfigurations will impact future budget development and increase both operational and capital expenses.
- New construction will entail adjustments to our forecasts for replacing equipment. These projects often include funding for technology but the replacement of that technology must be added to future budgets. For example, we must expect and plan for sudden “jumps” in the replacement budget for refreshing the technology in the new High School addition and in the new Sunita Williams Elementary School. For each project, all of the technology will have been purchased at the same time and will require replacement at the same time, hence, causing an inevitable spike in future budget requests. Concurrently, it is important to simultaneously budget for professional development so that all staff can take full advantage of the new capacities that are brought about through the replacement cycle.

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<sup>5</sup> As defined in the Future Ready Framework

## GOALS GEAR 4: BUDGET AND RESOURCES

### *Goal 1 - Efficiency and Cost Savings*

Continue strategic purchasing practices by actively seeking opportunities for efficiencies and cost savings.

- Encourage curriculum and grade level leaders to work with their teams to review and evaluate open education (free) resources to adopt as appropriate.
- Develop awareness of the cost of printing by creating an analysis of paper and toner costs per school (per pupil) and make available to all staff to review.
- Analyze ticket system reports to compare relative costs of devices and to evaluate the life-span expectancy.

### *Goal 2 - Alignment to District and School Plans*

Budgeting and funding of technology will be clearly linked to the goals set forth in this plan, and expenditures will support this plan.

- Budget for hardware, software, and professional development to meet the goals of this plan and to support the teaching, learning, and administrative needs of the district.
- Continue to budget for specialized hardware and software for programmatic needs (ex: fine arts labs, world language lab, coding, TV studio, Da Vinci Workshop).

### *Goal 3 - Consistent Funding Streams*

Continue to fund technology through both operational and capital funding streams and review budgets to verify that adequate funding is maintained particularly in light of technology innovations and prior infrastructure investments

- Ensure annual operating and capital budgets are appropriate and provides the funding for devices, software, subscriptions, staffing, and professional development as outlined in this plan.
- Provide funding to replace and update enterprise software systems as indicated by periodic reviews.



## GEAR 5: DATA & PRIVACY

### Gear Overview<sup>6</sup>:

Data and privacy are foundational elements of digital learning. A personalized, learner-centered environment uses technology to collect, analyze, and organize data to improve the effectiveness and efficiency of learning. Data is the building block of diagnostic, formative, and summative assessments—all of which are key elements in a system where learning is personalized, individualized, and differentiated to ensure learner success. The district ensures that sound data privacy and security policies, procedures, and practices are in place at the district, school, classroom, and student levels.

It includes these elements:

- Data and Data Systems
- Data Policies, Procedures, and Practices
- Data-Informed Decision Making
- Data Literate Education Professionals

### Vision:

*Policies and procedures are in place to protect the privacy of student and staff data and to ensure compliance with applicable laws and regulations. Administrators, educators, and staff have access to data to support instruction and decision-making and they understand their responsibilities with respect to data privacy and ethical use of data.*

### Current Status:

The district complies with applicable laws and regulations regarding data privacy. School Committee policy IJNDB-1, *Staff Responsible Use of Digital Resources*, includes a data confidentiality section that directs Needham school employees in appropriate privacy and confidentiality procedures around data. The district has practices in place for using data to improve instruction and to make decisions. A few examples of data-driven practices are:

- Principals and department leaders review MCAS data with teachers to set instructional areas of focus for the upcoming year.
- Elementary teams use reading assessment data from benchmark assessments administered regularly over the course of the year and teacher grade level teams analyze this data with literacy coaches.
- Elementary teams use math assessment data and training has been provided for teachers on data analysis and reading reports.
- District has provided training on using data to inform instruction for instructional leaders.
- Principals use district wide survey data to inform school goals.
- Common assessments are used by all teachers and results are analyzed by grade level or content area teams.
- Data is used extensively for course placement decisions.

We select software products after careful vetting to ensure that the digital tools meet our needs and that the vendor meets industry standards for data privacy and security. We are part of a consortium of schools that leverages the power of the group to ensure vendors meet our conditions of data privacy. Additionally, the district uses security safeguards such as firewalls and control of physical access to servers and files. From our surveys and focus groups we learned from both parents (97%) and teachers (75%) that it is important to take steps to ensure data privacy. Eighty-two percent of high school students, 87% of middle school students, and 95% of elementary students said that they were proactive about keeping their online data private.

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<sup>6</sup> As defined in the Future Ready Framework

## GOALS GEAR 5: DATA AND PRIVACY

### *Goal 1 - Data and Data System*

Implement a data management system that will improve end-user access to data for instruction and informed decision-making

- Provide access to demographic and assessment data to help inform instructional practice and meet the needs of individual students.
- Pilot a central repository system for data to inform teaching and learning and district administration.

### *Goal 2 - Data Policies, Procedures, and Practices*

Ensure that the district has up-to-date policies, procedures, and practices that address legal, ethical, and safety issues related to the privacy and security of data, and the usage of data, technology, and the Internet.

- Maintain policies for responsible and ethical use of technology, review them regularly, and update as needed.
- Investigate the *Trusted Learning Environment Seal (CoSN)* and determine feasibility for adoption in the district.

### *Goal 3 - Data-Informed Decision Making*

Promote and support the use of formative and summative assessment data to inform teaching and learning practices.

- Provide learning opportunities for teachers and administrators to use assessment data to inform and differentiate instruction.

### *Goal 4 - Data Literate Education Professionals*

Provide professional learning opportunities so that all teachers and administrators become more data-literate, aware of the legal and ethical responsibilities about data and data use and able to use data to inform instructional and administrative decisions.

- Provide professional learning opportunities for staff regarding their legal and ethical responsibility for protecting student data.
- Ensure that all teachers are able to incorporate digital citizenship instruction so that students learn sound practices for safeguarding data and privacy.



## GEAR 6: COMMUNITY PARTNERSHIPS

### Gear Overview<sup>7</sup>:

Community partnerships include the formal and informal local and global community connections, collaborative projects, and relationships that advance the school's learning goals. Digital communications, online communities, social media, and digital learning environments often serve as connectors for these partnerships.

It includes these elements:

- Local Community Engagement and Outreach
- Global and Cultural Awareness
- Digital Learning Environments as Connectors to Local/Global Communities
- Parental Communication and Engagement

### Vision:

*Students and staff actively engage in local and global community partnerships to promote cultural awareness, collaborative projects, and relationships that foster positive two-way communication to advance our vision of developing future-ready students.*

### Current Status:

Partnerships with diverse community organizations can foster a range of opportunities to enhance and extend curricular, social, cultural, and organizational learning experiences while promoting deeper understanding for students. These partnerships, if thoughtfully structured, can create immersive and highly contextualized learning occasions that are rich with real-time learner feedback and opportunities for reflection, growth, and the development of 21<sup>st</sup> century learning skills.

Needham Public Schools benefits from strong partnerships with the families of our students and with a range of organizations and businesses within the greater local community. Relationships with libraries, colleges, museums, businesses, and between schools and with other districts are highly encouraged. Partner organizations in the community include the Parent Teacher Groups (PTGs), Needham Education Foundation (NEF), Needham Youth and Family Services, Olin College, PTC, Trip Advisor, The Needham Channel, Turbine Games by Warner Brothers, METCO, The Education Cooperative (TEC), Accept Collaborative, Ed Leader 21, Global Studies-21, and Boston Ivy, to name a few. In addition, many individuals from various groups lend their expertise through classroom visits, serving on committees, and hosting our students as part of various projects that regularly happen between schools and various constituencies within and beyond the immediate community.

### Partnerships for Teachers

Partnerships with outside agencies provide opportunities for teachers to connect with colleagues in other districts to advance their own professional learning and establish peer communities of learners. Massachusetts Personalized Learning EdTech Consortium (MAPLE) and The Educational Cooperative (TEC), Fuse Fellows are two examples of these such partnerships.

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<sup>7</sup> As defined in the Future Ready Framework

MAPLE is a public-private partnership between the LearnLaunch Institute and the Massachusetts Department of Elementary and Secondary Education to provide professional learning and networking for districts to improve their practice in using digital tools, and to provide more student-centered learning environments. Needham is a catalyst district in the consortium and our teachers and administrators participate in many of the learning opportunities it provides. Through TEC, Needham is participating in the Fuse program, which includes Fuse Fellows from Needham receiving training to become teacher coaches, sharing the best practices of blended and personalized learning. As our newly trained teacher coaches embark on a coaching experience in another participating district, we will welcome two coaches from neighboring districts to work with our classroom teachers.

### ***Parent communication and engagement***

Technology is changing how schools connect and engage with our parents. We found that parents are three times more likely to prefer a personal email (87%) over paper notices sent home (22%). Very few are looking to social media (e.g. Twitter or Facebook) to receive information from schools (3%).

About a year ago, we launched a new district and school website in order to increase user satisfaction with this means of sharing information. At the time of the survey, we were in the midst of this transition so that our findings most likely reflect user's experience with our previous web presence. We learned that parents used the website most for the school calendar (86%); contact information (61%); events (58%); online payment tools (50%); and lunch menus (28%). Even as we work to make the website more navigable and user-friendly, we will continue to explore multiple technological means in which to effectively communicate with families.

## **GOALS GEAR 6: COMMUNITY PARTNERSHIPS**

### ***Goal 1 - Local Community Engagement and Outreach***

Continue to strengthen and draw on relationships with the local community to build relevance, connections, and real-life experiences that enhance student learning.

- Increase opportunities to showcase artifacts of student learning in digital and physical locations, such as the district and town websites, television, social media, businesses, and the public library.

### ***Goal 2 - Global and Cultural Awareness***

Continue to use technology to expand and support opportunities for students to collaborate and communicate with those from other cultures and communities.

- Expand opportunities for students to participate in electronic global partnerships.

### ***Goal 3 - Parental Communication and Engagement***

Assess ways to use technology to more efficiently communicate with parents and to enhance home-school communications.

- Assess current electronic mechanisms used to communicate with parents and determine the most effective options for various purposes.
- Develop opportunities for parent learning focused on parenting in the digital age.





## GEAR 7: USE OF SPACE & TIME

### Gear Overview<sup>8</sup>:

Student-centric learning requires changes in the way instructional time is used. There are new opportunities for utilizing in-school and out-of-school time, and leveraging approaches such as competency-based learning to make learning more personalized and learning opportunities more accessible. These new opportunities leverage technology to meet the needs, pace, interests, and preferences of the learner. This transition is made possible through innovative uses of technology for assessing student learning, managing learning, engaging students in learning, disseminating content, and providing the infrastructure necessary to encourage flexible, anytime, anywhere learning opportunities.

It includes these elements:

- Flexible Learning; Anytime, Anywhere
- New Pedagogy, Schedules, and Learning Environment for Personalized Learning
- Competency-Based Learning

### Vision:

*Learning environments are flexible and welcoming and meet the needs of learners and educators. Learning environments are equipped with appropriate technology that allow for flexibility in teaching and learning.*

### Current Status:

In recent years, the Technology Department has been re-envisioning and reconfiguring our technology labs to reflect the innovative teaching and student projects that take place in these areas. These locations now incorporate the materials, space, and setup for projects such as video, green screen video, voice recording, stop motion video, robotics, and STEAM. Since classroom space is at a premium in the schools, it is projected that these technology innovation spaces may be converted to classrooms and that carts will be used to move the equipment previously housed in these labs from classroom to classroom as needed.

Adequate space to be able to continue to provide access to innovative technologies and creative learning opportunities is anticipated to be a challenge. At every level students currently come to the lab for instruction and to complete a variety of projects. If technology spaces are converted to classrooms, it will be very challenging to accommodate this type of instruction in standard classrooms. Moving, set up, and configuring the equipment may deter teachers from providing more innovative learning experiences for their students.

Finally, other spaces will need to be reconfigured in the schools to house the Instructional Technology Specialist and to securely store and charge the carts that contain the devices, peripherals, robotics, STEAM supplies, keyboards, headphones, etc. that were previously housed in the labs. It is important that we assess the programmatic impact of these decisions as well as anticipate the supplemental costs associated with them.

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<sup>8</sup> As defined in the Future Ready Framework

## GOALS GEAR 7: USE OF SPACE AND TIME

### *Goal 1 - Flexible Learning, Anytime, Anywhere*

Leverage technology to provide age-appropriate, anytime, any place digital learning options for students.

- Continue our 1:1 program, currently in place for grades 6 to 10, and by September 2020, expand it through grade 12.
- Annually assess the program, checking on user satisfaction with wireless system, devices, and digital tools.
- Assess the programmatic impact and cost associated with decisions to convert labs/innovation spaces into classrooms.

### *Goal 2 - New Pedagogy and Learning Environments for Personalized Learning*

Identify technology tools and methods that help to advance student-centered learning practices.

- Evaluate current and new technologies to determine whether they can be leveraged to further enable student-centered learning.
- Continue to work with collaborative partners, such as the MAPLE consortium, The Education Cooperative, and MassCUE, to share best practices, participate in and host learning tours, and take advantage of professional learning and coaching opportunities that increase our capacity to use technology to provide more student-centered learning experiences.



## ACROSS THE GEARS: COLLABORATIVE LEADERSHIP

### Overview<sup>9</sup>:

The Future Ready framework is a systemic planning framework around the effective use of technology and digital learning to achieve the goal of "career and college readiness" for all students. While the seven interdependent Gears provide a roadmap toward digital learning, success within a district is dependent on innovative leadership at all levels. First and foremost, leaders within a district must be empowered to think and act innovatively; they must believe in the district's shared, forward-thinking vision for deeper learning through effective uses of digital, 21st century technologies. Critical to their success will be a culture of innovation that builds the capacity of students, teachers, administrators, parents, and community to work collaboratively toward that preferred future. The policy foundation that results must be coherent with that vision. Unleashed in a culture of vision and empowerment, leaders will have the flexibility and adaptability they require to prepare their students to thrive in the 21st century. It includes these elements:

- A Shared, Forward-Thinking Vision for Digital Learning
- A Culture of Collaboration, Innovation, Capacity Building, and Empowerment
- High Expectations for Evidence-Based Transformations to Digital Learning
- Transformative, Coherent Thinking, Planning, Policies, and Implementation

### Vision:

*Needham Public Schools has a widely communicated and forward-thinking vision and plan for digital learning developed with students, teachers, administrators, parents, and the community. A culture of collaboration, innovation, and capacity building is fostered. All members of the school community are empowered with the digital tools that enable digital-age leadership, streamlined workflow, and effective practices.*

### Current state of this gear in Needham:

Needham Public Schools has a very strong culture of shared leadership. Among our leadership teams, technology, teaching in a digitally-enabled environment, and providing high-quality professional learning opportunities are important priorities.

The technology department itself has a collaborative leadership model. The Administrator of Information Technology Services and the Director of Media and Digital Learning collaborate in order to inform the work of each area of the department. This collaboration ensures ongoing communication between the technical and the instructional teams as well as alignment between instructional programs and hardware allocation.

The Information Technology Services Department supports the instructional, administrative, and management applications of media and technology. This includes instructional tools and applications, administrative tools and applications, communications networks and information resources, both print and electronic. ITS works closely with the Media and Digital Learning Department to implement and support technology required for teaching and learning.

<sup>9</sup> As defined in the Future Ready Framework

The responsibilities of the Information Technology Services Department include:

- Provide technical support for school based media and technology programs.
- Budget for equipment, materials, services, and technical personnel.
- Purchase hardware, software, materials, services, and consumables.
- Collaborate with network and information service providers.
- Provide services in partnership with the Needham Channel.
- Deploy and maintain hardware and software.
- Troubleshoot technical problems throughout the district.
- Participate in the planning for facilities, networks, and programs.
- Train administrators, teachers, support and volunteer staff.
- Communicate technology initiatives to the town's Technology Advisory Board.

The Director of Media and Digital Learning provides leadership and direction for digital and media learning technologies that support curriculum and instructional practices. The director collaborates with curriculum leaders, principals, special educators, and instructional support personnel to identify, develop, and implement digital experiences to enhance teaching and learning. The director also provides vision and direction for the PK-12 Instructional Technology and Library Media programs as well as supervision and evaluation for Instructional Technology, Library Media, and television studio staff.

### Digital Learning

Digital Learning occurs in age-appropriate ways from PK- 12 and is supported by Technology Integration Specialists, all of whom are licensed teachers. They guide and support teachers and students to effectively use the technology resources available to them. Through coaching, co-teaching, collaborative planning, and direct instruction, they lead and support the district's technology integration initiatives. They promote effective use of technology and strengthen the capacity of educators by providing professional development through courses, workshops, and individual consultations. They stay current with the ever-changing field of technology in education in order to continue to help others advance innovative uses of technology in teaching and learning. The Digital Learning team works with students, teachers, administrators, and staff to ensure they have appropriate access and opportunities to become proficient users of technology that supports 21st century teaching and learning.

### Library Media

The Library Media Program is staffed by professional Library Media Teachers at each school. They support all learners to develop literacy, literature, research, information, and technology skills. They promote and advance the use of print and digital resources to support, enhance, and extend classroom curriculum. In addition to teaching, Library Media Teachers manage the school libraries, including such tasks as scheduling space, maintaining the collection, selecting and purchasing materials, and managing volunteers. The result is library media centers that are hubs of activity and teaching and learning.

## GOALS: COLLABORATIVE LEADERSHIP

### *Goal 1 - A Shared, Forward-Thinking Vision for Digital Learning*

Ensure that the visions outlined in this technology plan are shared with and supported by students, teachers, administrators, parents, and the community. Develop consensus with the action steps that are associated with each of the goals.

- Share the plan with School Committee and existing groups (DLT, SLT, school based leadership teams, PTCs, school improvement committees, student groups, etc.) and gather feedback.
- Further disseminate the vision and the definition of student-centered learning and revise as necessary.

### *Goal 2 - A Culture of Collaboration*

Continue collaboration between the department, program leaders, and end users to ensure that decisions about technology are aligned with programmatic needs and positive outcomes for teaching, learning, operations and efficiency.

- Technology department will continue to ensure that district leadership principals and staff are involved in the planning and decision-making as technology evolves.
- Technology leadership team will communicate within the department and with various leadership groups to facilitate collaboration.
- Technology department will seek more ways to support interdisciplinary learning.
- Technology and Student Support Services will collaborate to develop a model that will ensure appropriate technology resources are available to support individual student learning need.

### *Goal 3 - Planning, Policies, and Implementation*

Technology leaders will collaborate with district and school leaders to ensure that the action steps associated with the goals of the technology plan are aligned with other district priorities.

- Regular updates to the plan will be provided, showing the progress made and the status of each of the gears.
- District leadership will propose the development and updating of policies and procedures as needed. For example, we will add a policy or procedure regarding social media.

## SUMMARY

Overall, the restructuring of the technology department has enabled it to re-envision itself and provide more effective support and services over the last several years. Replacement cycles and budget forecasts are more in sync, repairs are handled with greater efficiency, user support is readily available and technology is more accessible and mobile than ever before. A range of enterprise systems are in place that help automate many operational processes. Technology use is pervasive, overwhelmingly mobile, and students, teachers, and staff across the district rely heavily on ease of access. The district is well on its way to providing 1:1 access to every secondary student and 1:1 “on demand” is a reality at each elementary school. The department is well positioned to support administrators and teachers to leverage technology to adapt and reimagine the core school experiences with learning that is well-suited to the modern contexts of life and work.

With that said, there are still areas for further growth and development. Greater clarity and coherence regarding the digital citizenship curriculum, expectations for skills students should acquire at each grade level, common discipline specific applications, the implementation of a student learning management and a data management system, and strategic work as to how technology will be leveraged to support the recommendations from the Portrait of a Graduate Committee for 21<sup>st</sup> Century learning are just a few. Additionally, data from administrators and operations support staff confirms that those who use technology to manage enterprise services (i.e. finance, HR, student information system, transportation, nursing, food service) have specific needs that are unique to their respective departments. It is therefore recommended that the district establish a formal process for periodic assessment and review of these strategic systems.

This plan is intended to be a living document that becomes part of the fabric of our day-to-day work of providing access to technology tools and expertise to support digital literacy, to prepare students for a 21<sup>st</sup> century economy and to maintain organizational and operational efficiencies. With beliefs anchored in our vision statements, we have a compass to guide our goals, action steps, and decision making. Although action steps are outlined within our goals, we will collaborate with district and school leadership teams to ensure priorities and specific activities that reflect these steps, are aligned to district goals and school improvement plans, and help move us closer to the vision outlined here. Periodic check-ins and an end of year review will bring our work full cycle and lay the foundation for the work in each subsequent year.

## METHODOLOGY

This technology plan represents the culmination of a year-long process in which a broad based team reviewed the current research, audited the district's current status, and investigated best practices with respect to the use of technology to support teaching, learning, and operations in our educational organization.

Our work on this plan began early in the 2016-2017 school year, with a steering committee reviewing several different planning tools and frameworks, studying the Future Ready Framework and National Education Technology Plan, as well as attending professional learning provided by Future Ready and meeting to plan out a timeline and process. The Technology Planning Committee was first convened in May 2017.

Guiding documents in the development of this plan include the National Education Technology Plan (2017), and the Future Ready Framework (Alliance for Excellent Education) that provides a structure to ensure that local district technology and digital learning plans align with instructional best practices, are implemented by highly trained teachers, and lead to personalized learning experiences for all students.

This plan was informed by data collected from all stakeholder groups. Data includes surveys (administrators, teachers, students, staff, and parents), focus groups (parents, students), and the review of existing documents. In addition, discussions among team members about the district's needs and gaps, both perceived and experienced, also served to inform the development of this document.

## REFERENCES

### **CoSN** ([cosn.org](http://cosn.org))

CoSN is a non-profit member organization whose mission is to empower educational leaders to leverage technology to create effective digital learning environments. They provide many resources to school districts to help them plan and realize next-generation learning environments.

### **Future Ready** ([Futureready.org](http://Futureready.org))

Future Ready Schools is a non-profit organization that provides tools and other resources for digital learning in schools. The organization is dedicated to helping districts to develop comprehensive plans to achieve successful student learning outcomes by (1) transforming instructional pedagogy and practice while (2) simultaneously leveraging technology to personalize learning in the classroom.

### **ISTE** ([www.iste.org](http://www.iste.org))

The International Society for Technology in Education (ISTE) is a non-profit organization dedicated to furthering the use of technology to innovate teaching and learning. Of particular use are the standards they have developed for student learning, educator skills, education leader proficiencies, and coaching skills.

### **National Education Technology Plan** ([tech.ed.gov/netp](http://tech.ed.gov/netp))

The National Education Technology Plan was produced by the national Office of Educational Technology and is the primary educational technology policy document for the United States. The Plan articulates a vision of equity, active use, and collaborative leadership to make everywhere, all-the-time learning possible.

### **SETDA** ([www.setda.org](http://www.setda.org))

The State Educational Technology Directors Association (SETDA) is a 501(c)3 not-for-profit membership association launched by state education agency leaders in 2001 to serve, support and represent their emerging interests and needs with respect to the use of technology for teaching, learning, and school operations.

Of particular use is their document guiding the Internet connectivity speeds needed for school districts.



## Appendix A: GLOSSARY

### **1:1 Technology learning environment**

A technology environment in which every teacher and student has access to a personally assigned mobile computing device.

### **21st Century Skills**

21st Century Skills are the core skills defined by the adoption of essential learning strategies necessary to succeed in the 21st century. These skills include critical thinking, problem solving, communication and collaboration, creativity, innovation, global awareness, media and financial literacy and are 21st century skills when they are technology enabled - technology amplifies the competency or disposition.

### **Adaptive Learning**

This is an approach that uses technology to engage students in interactive learning activities, which are customized to meet each individual's learning needs, based on continuous feedback and data analytics.

### **Blended Course**

A blended course is one that has a face to face component in a classroom, as well as an online component that is a virtual instance of the actual physical classroom.

### **Curriculum Map**

A district curriculum map serves as a broad overview of the curriculum across a grade or course and includes Content and skill standards, teaching and learning strategies, assessments, and materials and supplementary resources, and timelines. The purpose of mapping is to ensure equity of access to a viable curriculum, establish learning benchmarks, to align curriculum with the Common Core-based 2011 Massachusetts Curriculum Frameworks and to identify strengths and gaps in our current K-12 curriculum. The process of mapping engages all teachers in collaborative dialog and planning as well as providing easily accessible data, which serves as a bridge between what was taught, what currently is taught and what should be taught as students transition through the grades.

### **Data Culture**

An educational environment characterized by the effective use of data and evidence- based reasoning.

### **Digital Citizenship Skills**

Digital citizenship can be defined as the norms of appropriate, responsible behavior with regard to technology use. These are the skills students must become proficient at in order to use technology responsibly and well.

### **Digital Literacy**

Digital literacy is the understanding and ability of individuals to access, evaluate, analyze, and synthesize information using digital technology.

### **Interactive Whiteboard (IWB)**

An interactive whiteboard (IWB) is a large interactive display that connects to a computing device. A projector projects the device's display onto the board's surface where users interact with it using a pen, finger, stylus, or other device. Examples in our schools are: Smart Board and interactive flat panel displays.

### ***Internet Bandwidth***

The words bandwidth, network bandwidth, data bandwidth or digital bandwidth are terms used to refer to various measures representing the amount of available or consumed data communication. Often this is referred to by bits per second or per as kilobits, megabits, or gigabits (Bytes).

### ***ISTE***

The International Society for Technology in Education is a leading nonprofit organization serving education by supporting and promoting professional development, innovation, and advancing the effective use of technology.

### ***Learning Management System***

A learning management system (LMS) is a software application that facilitates the creation and implementation of online or blended courses.

### ***PD***

Professional Development

### ***Privacy***

The balance between collection and dissemination of data, technology, and individuals' right to have their personal information kept private. (Source: Data Quality Campaign.)

### ***Security***

The policies and practices implemented at the state, district, and school levels to ensure that data are kept safe from corruption and that access is limited and appropriate. Data security helps ensure privacy and protects personally identifiable information. (Source: Data Quality Campaign.)

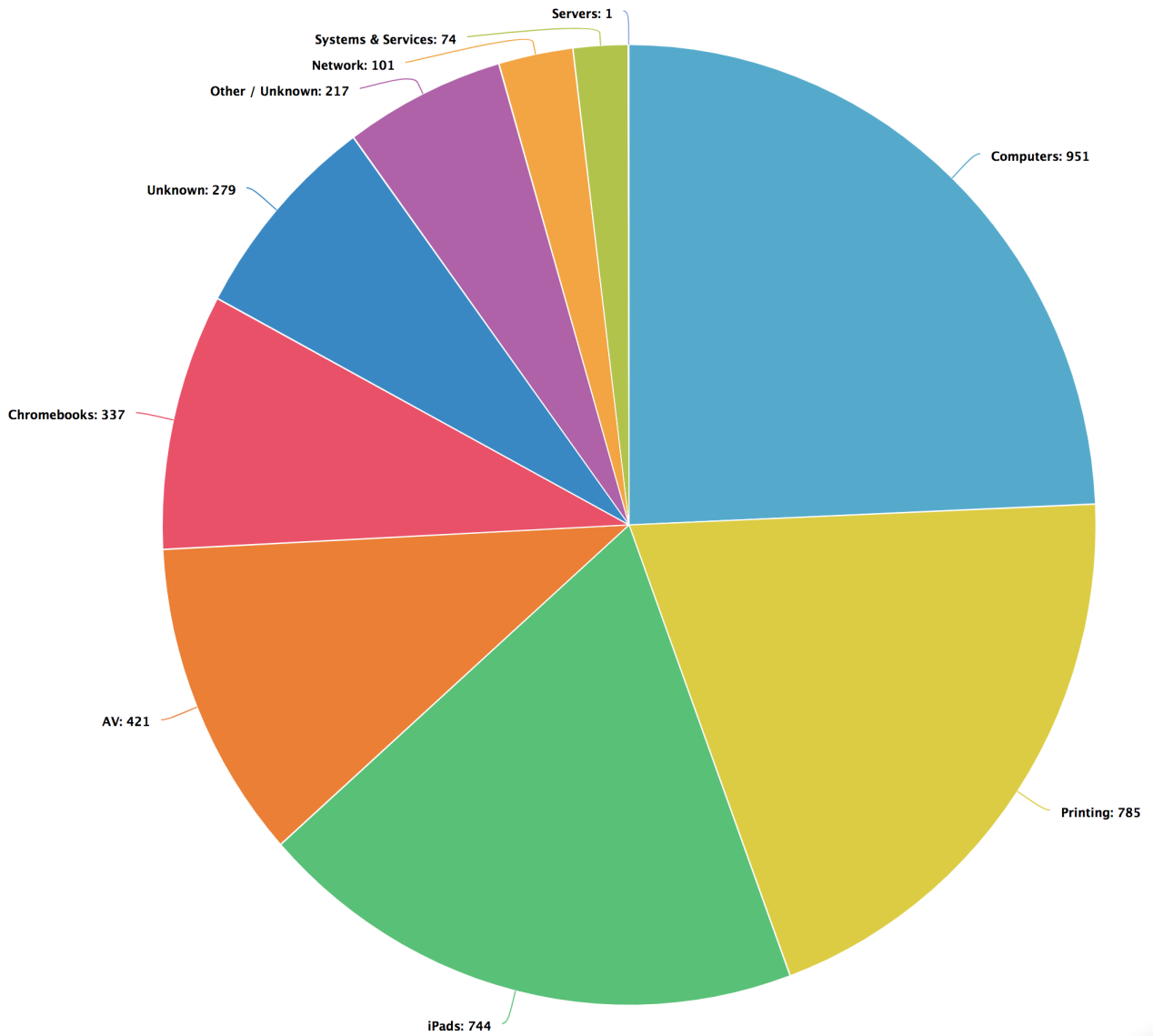
### ***SETDA***

SETDA is the State Educational Technology Directors Association, a not-for-profit membership association for state education agency leaders. SETDA serves, supports, and represents emerging interests and needs with respect to the use of technology for teaching, learning, and school operations.

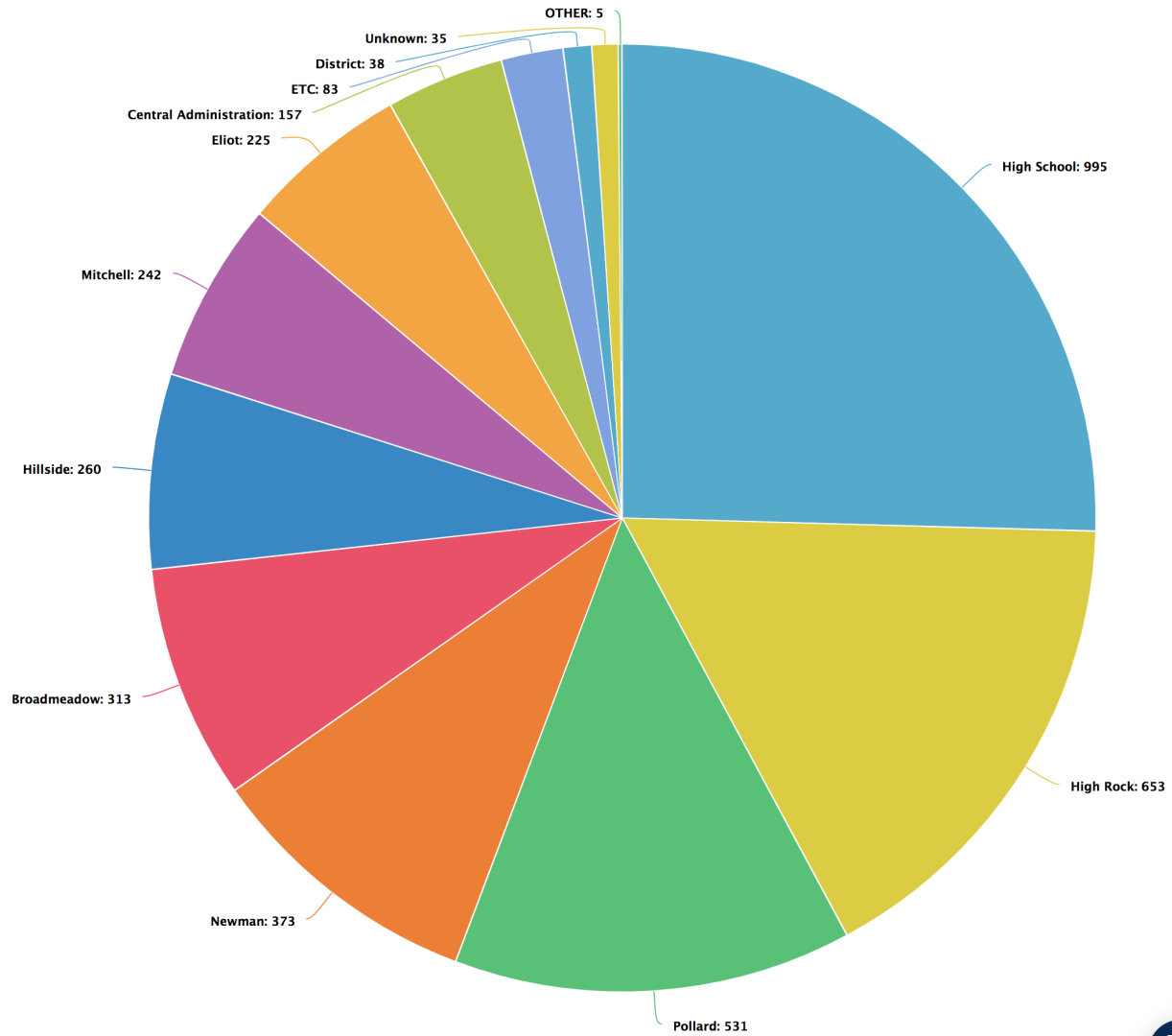
## Appendix B: PRIMARY ENTERPRISE SOFTWARE APPLICATIONS

| APPLICATION           | PURPOSE   | USER GROUPS   |
|-----------------------|---|---|
| G Suite               | Productivity, collaboration, communication                        | All staff; Students grades 2-12                             |
| PowerSchool           | Student data management system                                    | Teachers & administrators                                   |
| My Learning Plan      | Professional development application                              | Teachers & administrators                                   |
| SchoolMessenger       | Web content management system & communication/notification system | Teachers, administrators, administrative assistants         |
| Atlas                 | Curriculum mapping software                                       | Teachers & administrators                                   |
| eSped                 | Individualized Education Plans                                    | Certain teachers & administrators                           |
| Destiny               | Online library automation system                                  | All staff & students  |
| Snap                  | Health database management system                                 | Nurses  |
| Naviance              | College and career readiness software                             | HS teachers & students                                      |
| Infinite Visions      | Financial/Payroll System  | Teachers, administrators, administrative assistants         |
| Aesop                 | Attendance reporting and substitute placement service             | Teachers & administrators                                   |
| Applitrack            | Applicant screening & tracking system                             | All staff   |
| Teachpoint            | Teacher & administrator evaluation system                         | Teachers & administrators                                   |
| Sophos                | Anti Virus  | All   |
| Filemaker Pro         | Database system   | Certain teachers, administrators, administrative assistants |
| Filewave              | Device management system  | Information Technology Department                           |
| Casper/JAMF           | Mobile device management system                                   | Information Technology Department                           |
| Samanage              | Technology repair ticket system                                   | All staff   |
| DiLL                  | Software based language lab                                       | 9-12 teachers & students                                    |
| Level Data            | Secure data transfer tool   | Information Technology Department                           |
| Versatrans            | Bus Routing   | Transportation  |
| Meal Magic            | School lunch  | Nutrition Service   |
| Mitel Connect         | Centralized IP Based Phone System                                 | All staff   |
| Lenel                 | Door Access System  | All staff   |
| Synology              | Security Cameras  | Administrators  |
| Aerohive Hive Manager | Wireless Access Management  | Information Technology Department                           |

## Appendix C: TECHNOLOGY SUPPORT TICKETS—INCIDENTS SUMMARY (BY DEVICE)



## Appendix C: TECHNOLOGY SUPPORT TICKETS—INCIDENTS SUMMARY (BY LOCATION)



## Appendix D: FIVE-YEAR CAPITAL BUDGET FORECAST (Proposed 2020-2024)

| Broadmeadow New Capital Requests           | FY 20       | FY 21  | FY 22  | FY 23  | FY 24       | 5-Yr Total  |
|--|-------------|--------|--------|--------|-------------|-------------|
| Security Cameras                           | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Door Access Additional Doors               | \$14,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$14,000.00 |
| Gym/ Performance Center Projection /Screen | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| AV IWB K                                   | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$20,000.00 |
| Hard Drives for Pollard Lab Computers      | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| NHS TV Studio                              | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| New Capital Total                          | \$34,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$34,000.00 |
|  |             |        |        |        |             |             |
|  |             |        |        |        |             |             |
| Eliot New Capital Requests                 | FY 20       | FY 21  | FY 22  | FY 23  | FY 24       | 5-Yr Total  |
| Security Cameras                           | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Door Access Additional Doors               | \$7,000.00  | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$7,000.00  |
| Gym/ Performance Center Projection /Screen | \$28,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$28,000.00 |
| AV IWB K                                   | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$20,000.00 |
| Hard Drives for Pollard Lab Computers      | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| NHS TV Studio                              | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| New Capital Total                          | \$55,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$55,000.00 |
|  |             |        |        |        |             |             |
|  |             |        |        |        |             |             |
| Hillside New Capital Requests              | FY 20       | FY 21  | FY 22  | FY 23  | FY 24       | 5-Yr Total  |
| Security Cameras                           | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Door Access Additional Doors               | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Gym/ Performance Center Projection /Screen | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| AV IWB K                                   | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Hard Drives for Pollard Lab Computers      | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| NHS TV Studio                              | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| New Capital Total                          | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
|  |             |        |        |        |             |             |
|  |             |        |        |        |             |             |
| Mitchell New Capital Requests              | FY 20       | FY 21  | FY 22  | FY 23  | FY 24       | 5-Yr Total  |
| Security Cameras                           | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Door Access Additional Doors               | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Gym/ Performance Center Projection /Screen | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$18,000.00 |
| AV IWB K                                   | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$20,000.00 |
| Hard Drives for Pollard Lab Computers      | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| NHS TV Studio                              | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| New Capital Total                          | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 | \$18,000.00 | \$38,000.00 |
|  |             |        |        |        |             |             |
|  |             |        |        |        |             |             |
| Newman New Capital Requests                | FY 20       | FY 21  | FY 22  | FY 23  | FY 24       | 5-Yr Total  |
| Security Cameras                           | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Door Access Additional Doors               | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| Gym/ Performance Center Projection /Screen | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| AV IWB K                                   | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$30,000.00 |
| Hard Drives for Pollard Lab Computers      | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| NHS TV Studio                              | \$0.00      | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$0.00      |
| New Capital Total                          | \$30,000.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00      | \$30,000.00 |

## Appendix D: FIVE-YEAR CAPITAL BUDGET FORECAST (Proposed 2020-2024)

| High Rock New Capital Requests             | FY 20        | FY 21       | FY 22       | FY 23  | FY 24       | 5-Yr Total   |
|--|--------------|-------------|-------------|--------|-------------|--------------|
| Security Cameras                           | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$29,250.00 | \$29,250.00  |
| Door Access Additional Doors               | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Gym/ Performance Center Projection /Screen | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| AV IWB K                                   | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Hard Drives for Pollard Lab Computers      | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| NHS TV Studio                              | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| New Capital Total                          | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$29,250.00 | \$29,250.00  |
|  |              |             |             |        |             |              |
| Pollard New Capital Requests               | FY 20        | FY 21       | FY 22       | FY 23  | FY 24       | 5-Yr Total   |
| Security Cameras                           | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Door Access Additional Doors               | \$7,000.00   | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$7,000.00   |
| Gym/ Performance Center Projection /Screen | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| AV IWB K                                   | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Hard Drives for Pollard Lab Computers      | \$8,100.00   | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$8,100.00   |
| NHS TV Studio                              | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| New Capital Total                          | \$15,100.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$15,100.00  |
|  |              |             |             |        |             |              |
| NHS New Capital Requests                   | FY 20        | FY 21       | FY 22       | FY 23  | FY 24       | 5-Yr Total   |
| Security Cameras                           | \$0.00       | \$4,500.00  | \$16,500.00 | \$0.00 | \$20,000.00 | \$41,000.00  |
| Door Access Additional Doors               | \$14,000.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$14,000.00  |
| Gym/ Performance Center Projection /Screen | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| AV IWB K                                   | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Hard Drives for Pollard Lab Computers      | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| NHS TV Studio                              | \$30,000.00  | \$30,000.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$120,000.00 |
| New Capital Total                          | \$44,000.00  | \$34,500.00 | \$46,500.00 | \$0.00 | \$50,000.00 | \$175,000.00 |
|  |              |             |             |        |             |              |
| Admin New Capital Requests                 | FY 20        | FY 21       | FY 22       | FY 23  | FY 24       | 5-Yr Total   |
| Security Cameras                           | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Door Access Additional Doors               | \$14,000.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$14,000.00  |
| Gym/ Performance Center Projection /Screen | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| AV IWB K                                   | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| Hard Drives for Pollard Lab Computers      | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| NHS TV Studio                              | \$0.00       | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$0.00       |
| New Capital Total                          | \$14,000.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$14,000.00  |
|  |              |             |             |        |             |              |
|  |              |             |             |        |             |              |
|  |              |             |             |        |             |              |
| Summary New Capital Requests               | FY 20        | FY 21       | FY 22       | FY 23  | FY 24       | 5-Yr Total   |
| Security Cameras                           | \$0.00       | \$4,500.00  | \$16,500.00 | \$0.00 | \$49,250.00 | \$70,250.00  |
| Door Access Additional Doors               | \$56,000.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$56,000.00  |
| Gym/ Performance Center Projection /Screen | \$28,000.00  | \$0.00      | \$0.00      | \$0.00 | \$18,000.00 | \$46,000.00  |
| AV IWB K                                   | \$90,000.00  | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$90,000.00  |
| Hard Drives for Pollard Lab Computers      | \$8,100.00   | \$0.00      | \$0.00      | \$0.00 | \$0.00      | \$8,100.00   |
| NHS TV Studio                              | \$30,000.00  | \$30,000.00 | \$30,000.00 | \$0.00 | \$30,000.00 | \$120,000.00 |
| New Capital Total                          | \$212,100.00 | \$34,500.00 | \$46,500.00 | \$0.00 | \$97,250.00 | \$390,350.00 |