



Revere Local School District

# Technology Plan 2021-2026

## Introduction & Objectives

The last several years have seen a transformational shift in society as we have moved from an era of information scarcity to one of information abundance. A generation ago, information was difficult to find, and disseminating knowledge to students was a major focus of schools. Now that information is readily available, schools must focus on more than just imparting knowledge to students.<sup>1</sup> Schools must prepare students to find, filter, evaluate, and synthesize information from many sources, and use that information to inform decisions and collaboratively create new ideas and new solutions to authentic problems.<sup>2</sup> Additionally, schools are increasingly focused on developing life-long learners, fostering the development of confidence, empathy, and perseverance, and connecting students' academic experiences with authentic applications in their communities.<sup>3</sup>

Technology plays a critical role in this process. In addition to providing access to the resources and tools for this work, ubiquitous access to technology can have many other benefits. It helps teachers individualize instruction to meet the specific needs of each learner. It helps students collaborate, create, and communicate innovative products that demonstrate their learning. And it helps schools engage students by tying their learning to real-world applications and the greater community.

To accomplish this vision, the school district must provide a robust, reliable, and predictable technology environment, and help teachers leverage the use of that technology in transformative ways.

## Current State of Technology

Over the last six years, the Revere Local School District has focused on its use of technology, investing significant financial, professional development, and human resources. The 2015 strategic plan included a *Technology Integration and Infrastructure* goal to “implement and utilize STEAM that will support and innovate instruction for communication, collaboration, critical

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<sup>1</sup> Cormier, Dave. “Designing School When Students Have the Teacher’s Copy.” *Dave Cormier*, 30 Nov. 2020, [bit.ly/3eJTPwe](https://bit.ly/3eJTPwe); Jacobs, Heidi Hayes, and Marie Hubley Alcock. *Bold Moves for Schools: How We Create Remarkable Learning Environments*. 1st ed., ASCD, 2017; Lehmann, Chris, and Zac Chase. *Building School 2.0: How to Create the Schools We Need*. 1st ed., Jossey-Bass, 2015.

<sup>2</sup> Dintersmith, Ted. *What School Could Be: Insights and Inspiration from Teachers across America*. Princeton University Press, 2018.

<sup>3</sup> Revere Local Schools. “Vision of a Minuteman.” *Revere Local Schools*, 2021, [bit.ly/336nZEx](https://bit.ly/336nZEx).

thinking, and creativity.”<sup>4</sup> This goal laid the groundwork for a multi-year focus on instructional technology and 21st century learning across the district.

A technology committee was formed in 2016 that included teachers, administrators, support personnel, and board members. The Future Ready Schools Framework<sup>5</sup> was used as a guideline to assess the current state of technology, establish goals for moving forward, and craft a technology plan.<sup>6</sup> This plan included 22 goals and associated action steps covering the eight areas outlined in the framework. Implementing all of these goals proved to be impractical, especially in the context of other massive district initiatives undertaken simultaneously. Rather than implementing the entire plan, the district focused on curriculum and instruction, infrastructure, and data privacy as key areas for technology growth.

Between 2016 and 2020, the schools implemented a 1:1 technology program, ultimately assigning an Apple iPad to each student. Extensive professional development opportunities were provided for teachers, including Apple teacher certification, the utilization of Apple learning and professional development resources centered around the Apple Elements of Learning rubric,<sup>7</sup> and local staff support provided by two instructional coaches helping teachers with technology integration and application. The district established an Innovation Team, a group of teachers tasked with exploring innovative teaching practices that leverage technology. Team members, who represent all buildings and grade levels, commit to two years of professional growth through participation in the program and become instructional and technology leaders in their schools.

Meanwhile, the district constructed two new school buildings. Bath Elementary School serves grades 3-5 and Revere High School serves grades 9-12. These schools enjoy a robust technology infrastructure, with new network equipment and classroom technology throughout to support a technology-rich learning environment. Wireless networks were designed for the device density inherent in a school 1:1 program, and bandwidth capabilities were specified with video, multimedia, and other intensive applications in mind.

The two older school buildings, Richfield Elementary and Revere Middle School, received substantial upgrades as part of the facilities plan, but technology infrastructure improvements were minimal. They have working, but aging, network infrastructure and classroom technology. Additional investment will be needed in these buildings to bring them up to the same standards as the new schools.

In addition to using their 1:1 devices to complete learning tasks in their classes, students take advantage of a number of instructional programs and initiatives that specifically leverage technology in innovative ways. The high school currently offers three engineering courses

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<sup>4</sup> Revere Local Schools. “Strategic Plan 2015–2019.” *Revere Local Schools*, 2015, [bit.ly/3dXH41Z](https://bit.ly/3dXH41Z).

<sup>5</sup> Future Ready Schools. “Future Ready Frameworks.” *Future Ready*, 2014, [bit.ly/3u6bfd6](https://bit.ly/3u6bfd6).

<sup>6</sup> Revere Local Schools. “Strategic Plan 2015–2019.” *Revere Local Schools*, 2015, [bit.ly/3dXH41Z](https://bit.ly/3dXH41Z).

<sup>7</sup> Apple Education. *Elements of Learning: Design deeper student learning experiences with Apple*, Apple, Inc, 2018. <https://apple.co/3xyXQfC>

through the Project Lead The Way program, and intends to expand that offering to four courses in the next two years. Students also participate in robotics, coding, app development, graphic design, digital photography, and video production. Publication-related courses, including the school newspaper and yearbook, are offered as well. An AP computer science class is planned for the near future, and the high school is developing a maker space to be used by students. At the middle school level, students take coding and engineering classes. Both elementary schools also have STEM classes. All of these opportunities facilitate the development of technology skills while engaging students in creative work, critical thinking, and project based learning.

In the spring of 2020, the district took advantage of its robust technology resources and substantial professional development efforts to provide online instruction to all students in the midst of the COVID pandemic. During the 2020-21 school year, Revere teachers continued to provide remote instruction to 15% of the student population in grades K-5 while a similar proportion of students in the upper grade levels participated in remote online coursework through outside providers. At all grade levels, teachers taught quarantined students remotely for short periods of time, and even provided remote instruction with quarantined teachers working from home teaching students who were physically attending school. While many teachers were previously hesitant to adopt blended learning strategies, the necessity of the pandemic forced all teachers to employ these techniques.<sup>8</sup> Many have continued to leverage many of these strategies to their teaching, even after returning to in-school instruction.

Technology support is provided by two technology support specialists at the district level. Their efforts are supplemented by staff members in each school who receive supplemental contracts to assist with technology. In 2020, an online help desk system was implemented, allowing technology issues to be managed centrally. While use of the system is far from universal, it does give district employees, parents, and students a single point of contact for assistance. Overall, technology support is responsive, and the support specialists foster positive, professional relationships with district stakeholders. The district does struggle with its response to urgent technology needs, and has difficulty providing “in the moment” support in all of the schools simultaneously.

## 2021 Technology & Learning Survey

In February, 2021, the district surveyed parents, students, and staff about their attitudes and opinions toward the use of technology to support learning in the Revere Local Schools.<sup>9</sup> In each stakeholder group, there is a wide variety of opinions and viewpoints, making it difficult to draw conclusions about the perspectives of the school community as a whole. The following statements characterize the prevailing sentiments expressed in the survey responses:

- Technology is important for student success.
- Technology helps with tech skills, creativity, critical thinking, and navigating ambiguity.
- Teachers use technology to improve student engagement.

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<sup>8</sup> Tucker, Caitlin R. *Balance With Blended Learning: Partner With Your Students to Reimagine Learning and Reclaim Your Life*. Corwin, 2020.

<sup>9</sup> Revere Local Schools. “Technology & Learning Survey Results and Analysis.” *Revere Local Schools*, 2021, [bit.ly/3e1HPHi](https://bit.ly/3e1HPHi).

- Technology affects student communication skills.
- Balance is needed in technology use.
- The role of the teacher is changing.
- Parents are concerned about screen time.
- Students prefer MacBooks to iPads.
- COVID has affected attitudes toward technology.

## Technology for Teaching & Learning

In order for teachers and students to leverage technology to provide a more robust learning experience, access to technology must be ubiquitous and frictionless. The resources must be well-suited to the learning tasks and they must work reliably.

### Goal 1: Continue to provide a suitable computing device for each student.

In the 2021 Technology & Learning Survey, stakeholders were generally enthusiastic about students' access to technology, but many questioned whether the iPad is the most suitable device for all grade levels. High school students, in particular, expressed frustration for the limitations of the iPad, and many shared a desire to return to a 1:1 program based on MacBooks. While the district is committed to the iPad 1:1 program through the 2022-23 school year, the district should conduct a needs analysis to identify devices for students that best meet their instructional needs at various grade levels moving forward.

### Goal 2: Maintain spaces and resources for technology needs that are not met by student devices.

In some instances, students need access to resources that exceed the capabilities of the 1:1 device. For example, students participating in robotics, engineering, graphic design, and STEM classes often need resources with larger screens, more memory, faster processors, and specialized peripherals. The district must anticipate these needs, provide access to these resources, and proactively work to sustain them.

## Technology Infrastructure

In order for technology to play an integral role in teaching and learning, the technology infrastructure supporting student and teacher devices must be robust, reliable, and flexible. The district must anticipate needs and potential challenges before they become critical problems, and work proactively to maintain a technology environment that meets the needs of its stakeholders.

## Goal 1: Update classroom technology at Revere Middle School and Richfield Elementary School.

Classrooms at the middle school and Richfield are equipped with Smart Boards and projectors that have far exceeded their designed life. A systemic program to replace these devices with flat panel displays and room audio systems is needed to bring these classrooms in line with the resources available at Bath and the high school.

## Goal 2: Improve network infrastructure at Revere Middle School and Richfield Elementary School.

The network equipment in place at the middle school and Richfield is currently meeting each building's needs, but that equipment is aging. The internal building fiber was installed 25 years ago and is in need of replacement. The network switches are nearing end of life, and have limited bandwidth trunking capabilities. These needs are not yet urgent, but they must be addressed within the next few years to ensure that network resources are sufficient and reliable for classroom needs.

## Goal 3: Monitor Internet bandwidth

Over the past 25 years, school Internet bandwidth use has grown an average of 54% per year<sup>10</sup>. While the district's Internet connection is currently meeting its needs, careful monitoring of actual bandwidth use must be combined with bandwidth need forecasts to ensure that needed capacity is maintained without incurring unnecessary expense.

## Professional Learning

Technology plays a vital role in teaching and learning, but it is not the focus of a school's work. As the needs of students evolve, the role of the teacher is increasingly shifting from a provider of knowledge to a curator of instructional experiences, strategies, and activities tailored to the needs of each student. Technology can support this process, and can often provide the catalyst for instructional change. Professional development efforts must focus on how technology supports instruction and makes it possible to engage students in ways that were previously impractical.

## Goal 1: Recalibrate the focus of the Innovation Team

The Innovation Team is a rotating group of teachers who have embraced the use of technology-rich learning practices. They participate in a number of professional development and planning activities, and are encouraged to find new ways to integrate technology into their classes. The adoption of technology initiatives without a focus on instruction consistently leads to disappointing results.<sup>11</sup> The focus of this group must begin with instructional goals. Their work must center on improving student engagement, fostering learner's mindset, increasing

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<sup>10</sup> Hopkins, J. Marc. "#FutureReadyNetworks: 10G and Beyond." *J. Marc Hopkins*, 2020, [bit.ly/3t59NpT](https://bit.ly/3t59NpT).

<sup>11</sup> Weller, Martin. *25 Years of Ed Tech*, Athabasca University Press, 2020.

academic rigor, and embracing the core competencies of the Vision of a Minuteman. While technology plays a supporting role in that work, making it the center of attention leads to technology substitution, in which technology solutions replace traditional methods and processes without a substantial improvement in instruction.

## Goal 2: Align professional development efforts to the Strategic Plan.

Professional development efforts must align with the strategic plan goals of increasing student agency and providing innovative curriculum and instruction. Realizing the goals of the strategic plan, and fostering the core competencies in the Vision of a Minuteman, require new approaches to teaching and learning. While it's occasionally necessary to provide tool-based technology training, teaching people how to use technology should never be the end goal. Professional development goals must align with the strategic plan, and technology-related professional development must support those goals.

## Goal 3: Model intentional use of technology.

In the 2021 Technology & Learning survey, many stakeholders expressed concern that technology is over-used and that it is employed in situations where low-tech solutions are simple and practical. Additionally, the schools must be aware of the amount of time students are spending on their devices, and ensure that technology use enhances instruction in ways that are impossible without it. The schools must model responsible use of technology and balance it with other forms of instruction.

## Budget & Resources

Technology is expensive to acquire, manage, and sustain. In addition to the cost of devices in students' and teachers' hands, significant investments are needed in the areas of infrastructure, support, and professional development. Technology initiatives must anticipate costs before they are needed and be responsible stewards of the district's resources.

## Goal 1: Maintain a technology replacement plan that forecasts major technology needs over a five-year period.

Unlike many capital expenses, technology requires regular upgrades and replacement. When decisions are made to purchase devices and implement new programs, the district must acknowledge the ongoing costs of those initiatives and plan for the replacement or upgrade of those resources. A five-year replacement plan will help anticipate needs, budget responsibly, and avoid unnecessary financial surprises.

## Goal 2: Revise technology support practices to improve response time and customer service.

As technology becomes an increasingly critical component of teaching and learning, the need for support becomes increasingly urgent. While adding additional staff would help provide

immediate tech support, improving the efficiency of existing resources is a more fiscally responsible approach. This includes better training and documentation for people with technology supplemental contracts, better self-help resources to help students and teachers solve more of their own problems, and remote assistance and ticket tracking tools to minimize the time spent by technicians traveling between buildings.

**Goal 3: Assess the district's relationships with contracted service providers for technology services to ensure they are meeting the district's needs in a fiscally responsible manner.**

Revere relies on outside contractors for a number of technology-related services, including network management, server hosting, database systems for food service and transportation, and EMIS services. The district should evaluate these solutions as their contracts come up for renewal to ensure that the services are meeting the needs of the schools in the most cost-effective manner.

## Conclusion

The Revere Local School District has made tremendous progress in the last few years in its adoption and use of technology. Our students and teachers have the resources they need to meet the challenges of next generation learning demands. The goals outlined in this plan will help the district maintain that current momentum while striving to achieve the vision of next generation learning articulated in the Vision of a Minuteman and the District Strategic Plan.