Rockport Master Technology Plan

FY 2022-2026

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Director of Information Systems and Technologies
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**Town of Rockport**

The general government of the Town of Rockport’s core mission is to provide the most benefit for the community of Rockport within the budget. The Information Systems & Technologies Department’s (IS&T) core mission is to provide maximum value to the general government employees by allowing the opportunity to increase efficiencies and collaboration by deploying technology in an appropriate manner.

**Rockport Public Schools Core Values and Beliefs Statement**

Rockport Public Schools, in partnership with families and the community, provides a safe environment that fosters integrity, respect, and success. We promote intellectual curiosity and pride in achievement. We challenge all students to pursue academic excellence, develop interpersonal skills, and value civic responsibility. Students learn 21st Century skills in order to fully participate in a diverse and ever-changing world.

**Statement of Planning Goals**

**Goal One:** Continuous. Four year planning in technology is the act of balancing the known need for steady resources with the inevitable unknown future needs and requirements. Yearly adjustments to the budgetary plans are required to react to the changing nature of technology and the opportunities presented by convergence, innovation, and the needs of students and staff. These yearly adjustments will be reflected each fall during the budget request and development process.
Goal Two: Purposeful and Thoughtful. Our technology plan goals are designed to support and encourage active engagement of students, teachers and government employees with proven communication, productivity, remote access and curricular tools. Planning begins at the building level with curriculum needs and integration goals. Assessments of student and staff technology literacy skills will inform staff development goals. Pilot programs will be employed to test and gauge the effectiveness of technology implementations based on quantitative and/or qualitative measures.

Goal Three: Quality Improvement. To be successful, our technology department needs to be proactive, responsive, and resilient. From the staffing to the equipment, successful innovation with technology will only happen in an environment where manpower and equipment are able to meet the needs of all users. Innovative thinking with a view towards the future in our new world of working from home must be the expectation.

Goal Four: Efficiency. As technologies grow and develop, the technology department will continue to collaborate and integrate services within the government, the schools and the community. This includes hardware, software, and personnel skill sets.

Curriculum Integration

The process of integrating educational technologies into the Rockport Public Schools’ curriculum shall be achieved through the thoughtful linking of curriculum goals to appropriate technologies and delivery. Integration efforts will be focused on systemic projects with multi-year goals tied to the Massachusetts Curriculum Frameworks and the Massachusetts Instructional Technology Standards.
The Superintendent, Principals, Director of Student Services, and, when applicable, Director of Information Systems and Technologies, will review all curriculum integration initiatives for continuity, impact, and efficiency of time and money. Successful integration pilot projects will become the focus of future staff development and appropriate budget planning for its dissemination.

**FY 2021-2026 IS&T Action Plan Items for Curriculum Integration:**

- Work with the Principals to develop an implementation model to connect curriculum, computer literacy skills, and appropriate assessments into the core curriculum experience for all students.

- Work with the Principals to set short and long-term integration goals and priorities within buildings, grade levels, and/or subject areas including fostering the district wide STEAM program.

- Work with the Superintendent and Principals to ensure that the evaluation of technology tools and use is done within the framework of the program review process.

- Work with the Rockport Public Schools’ leadership team to provide online and remote learning opportunities to augment curriculum offerings.

- Review the effectiveness of our technology integration support structure both in district and remote, and make changes based on that evaluation report.

**RPS Staff Development**

The changing nature of technology requires us to acknowledge the need for ongoing staff development for both management and instructional integration.
District staff development goals and activities are managed and administered by the Administrative Team including the Superintendent, the Principals, and the Director of Student Services. The IS&T Director will assist with staff development activities within the context of district and technology implementation plans with the Administrative Team. Staff development needs, based on specific curriculum implementations, will be identified and addressed by the relevant leaders in coordination with the Administrative Team.

It is important for the district to ensure that the IS&T department personnel also remain current through staff development to enable them to support managerial and classroom innovation including remote learning. When possible, the technology budget will reflect an effort to encourage professional development growth at all levels of the school system.

**FY 2021-2026 IS&T Action Plan Items for RPS Staff Development**

- Collect data annually regarding staff technology skills and needs that can be used to inform planning.

- Plan and execute staff development programs concurrent to the installation of technologies that affect instructional practice.

- Develop integration expertise in curriculum leaders, grade level leaders, and curriculum coordinators through targeted activities.

- Support the growth and expand the technical expertise of technology staff through training opportunities.
RPS Administrative Efficiency

Technology will be used to increase communication, provide access to instructional materials, manage assessment data, create workflow processes, and increase efficiency with, and among the staff, students, parents, and the community. Information systems for record keeping, and reporting will be explored for implementation throughout the system. These goals will be accomplished by a variety of hardware, software and training from the technology support personnel.

1) Application Management: The Department of Elementary and Secondary Education (DESE) has mandated increasingly detailed reporting requirements that include careful coordination of data from multiple systems, including but not limited to Aspen, Healthmaster, Blackboard Connect, Galileo, Teachpoint and eSPED. Additionally, administrative and appropriate support personnel will need ongoing staff development opportunities to make efficient use of such systems.

2) Planned Review of Software: Administrative software, such as student information systems, special education database systems, personnel records systems, and financial systems will be evaluated annually and upgraded as needed to meet the needs of the school system.

3) Website: Deploy a new Website in conjunction with the new SIS. The Rockport Public Schools’ website will be used to increase the communication with faculty, students, parents, and community. New services will be considered to engage the public in productive conversations and enable “community” through Web 2.0 technology services with a mobile first focus, as well as other social media when called for.
4) **Hybrid One-to-One:** Create a plan to deploy a hybrid one-to-one program and manage the program in the coming years. The Hybrid one-to-one program for student deployed devices would comprise of both student owned devices as well as devices owned by RPS. In the lower grades we will have an appropriate number of devices in each classroom. From grade 5 and above each student will have a device assigned to them as needed, with the expectation that they bring the device back and forth from school to home.

5) **Electronic Documents:** Implement new software to increase the utilization of the electronic documents, implement automated workflows, to improve current business practices and document retrieval.

**FY 2021-2026 Action Plan (of major projects)**

- Deploy Frevvo and Laserfiche to automate workflows.
- Centralize management of all database systems.
- Continue website development and deployment to all stakeholders.
- Continue to deploy devices and management software to ensure every student has access to the appropriate level of technology.

**Government Staff Development**

For all Rockport Government Employees, technology will be used to increase communication, create workflow processes, increase collaboration, work remotely and increase efficiency with, and among the staff, and the community. These goals will be accomplished by a variety of hardware, software and training from the technology support personnel.
1) Planned Review of Software: Administrative software, such as personnel records systems, and financial systems will be evaluated annually and upgraded as needed to meet the needs of the government departments.

2) Website: Form a committee to reevaluate the Government website. The website will be used to increase communication with the community. New services will be considered to engage the public in productive conversations and enable “community” through Web 2.0 technology services with a mobile first focus, as well as other social media when called for.

3) Electronic Document Storage: Implement new software to increase the utilization of the electronic documents, implement automated workflows, to improve current business practices and document retrieval.

**Technology Support Personnel**

The Rockport Information Systems and Technologies Department is a combined Department responsible for supporting both the general Government Departments and Rockport Public Schools. The IS&T Dept. shall employ a variety of staff to ensure the thoughtful integration of technology. This shall include the necessary technical support personnel to maintain the productive use of technology, technical stability of hardware and software, network services, communications systems, as well as expertise in the integration of technology into the curriculum.

**FY 2018-2022 Action Plan (of major projects)**

- Review and propose changes if necessary to the technology department staffing structure to better meet the needs of the school system.
• Consolidate school/town services when and where appropriate for efficiency and cost savings.

• Continually update all technical support personnel skill sets.

• Continually seek out opportunities to learn from and collaborate with other communities.

**Disaster Recovery, Security, and Continuity of Operations**

Technology is mission critical to all government employees, students, staff, faculty, and administration. We rely on communications and data systems for attendance, grading, accounting, work from home, remote learning, record keeping, reporting, and most importantly emergency communications. Our teachers also rely on technology for instruction in the classroom, while utilizing one of our 4 computer labs, hundreds of computers, tablets, projectors, mobile laptop cart, mobile iPad cart, and 60 classroom mounted interactive whiteboards and now the new norm of remote learning. Network failure and data loss result in inefficiency, lost instructional time, and a delay in essential services. We must prepare and plan for resiliency, redundancy (where appropriate), and quick recovery from the inevitable unknown.

Steps have been taken to enable the Rockport Public Schools and the Town of Rockport data networks to join forces for redundancy in storage, core networking services, and planning for disaster recovery, security, and continuity of operations planning.

Malware and Ransomware Protection: Ransomware attacks are a very serious threat to all computer systems world wide. These targeted attacks will prevent the use of any computer system if not properly protected. We have taken several
proactive steps on top of our already existing reactive systems, to ensure our systems, and our data is safe.

**FY 2021-2026 Action Plan (of major projects)**

• Maintain and test our disaster recovery plans to leverage the school/general government consolidated network.
• Create a continuity plan for future disruptions in our work environment.
• Implement hardware systems that are both resilient and redundant for core services and data.
• Ensure all software and hardware monitoring systems are fully functional.
• Ensure all anti-virus/anti-ransomware software is up to date.
• Continue to train all employees on phishing scams.
Hardware Replacement Plan

Lifecycle Guidelines: Please note that our hardware lifecycles are not absolute, rather our expectation used for long term budget planning. Some hardware lasts longer, some shorter. Going forward there will be a shift away from desktops towards laptops, when possible.

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Lifecycle Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop computers</td>
<td>5 to 6 years</td>
</tr>
<tr>
<td>Laptops</td>
<td>4 to 5 years</td>
</tr>
<tr>
<td>Chromebooks</td>
<td>4 to 5 years</td>
</tr>
<tr>
<td>iPads</td>
<td>3 to 4 years, the rest of useful life at ES</td>
</tr>
<tr>
<td>Projectors</td>
<td>7 to 10 years</td>
</tr>
<tr>
<td>Interactive Whiteboards</td>
<td>6 to 8 years</td>
</tr>
<tr>
<td>Document Cameras</td>
<td>7 to 10 years</td>
</tr>
<tr>
<td>Printers</td>
<td>Until repair cost is not effective</td>
</tr>
<tr>
<td>Copiers (MFP)</td>
<td>Leased on a 3 to 5 year basis</td>
</tr>
<tr>
<td>Network Equipment</td>
<td>7 to 10 years</td>
</tr>
<tr>
<td>Phone systems</td>
<td>15 years reevaluate</td>
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</tbody>
</table>

The Rockport Public Schools has well over 1000 computing devices, with 650 Chromebooks, 180 iPads, 40 printers, 60 interactive whiteboards, 3 mobile interactive displays and dozens of various other devices like cameras, scanners, clickers, copiers/MFPs, and tablets. The general Government offices has over 120 computing devices, iPads, tablets, projectors, cameras, and many other systems and devices. Maintaining a viable inventory of equipment is important in order to address lifecycle planning based on recommended standards.
First, however, a few important industry trends should be noted. COVID-19 has accelerated the move to mobile devices, cloud computing, BYOD (bring your own device), and highlighted the need for broadband access to every home. The shift to consumer mobile devices of every size and shape continues as BYOD moves into every organization. This provides the staff and students with more choices and greatly increases the use of technology in the classroom. BYOD has the potential to lower the amount of hardware that needs to be purchased by the schools, while also creating a more complex environment to support. However, not everyone has the ability to acquire an appropriate computing device. The Technology Department will work to ensure that every student has the appropriate device to meet their needs.

Cloud based Software as a Service (SaaS) solutions are being utilized, increasing the availability of traditional on premise school services across any device, while decreasing the cost of purchasing and maintaining on premise hardware and software. In addition, this creates a predictable fixed cost structure, because all upgrades are included in the fees.

These BYOD and Cloud trends demonstrate a shift from static wired network in an environment that is secure behind the firewall, to one that is dynamic, wireless, mobile and the same no matter where you are. They also underscore the need for a more robust and stable core infrastructure, WiFi, and Internet connections.

In general, to achieve a stable and robust overall computer network result, it is prudent to budget for the replacement of 20% of all computer equipment and software on a yearly basis. To accomplish this, an inventory database of technology equipment will be kept and used for long-range budget planning.

The IS&T Department will coordinate purchases and services with the general government departments and/or state contracts as a means to leverage the best prices and services for the Town of Rockport.
FY 2021-2026 Action Plan (of major projects)

• Propose yearly replacement plans to ensure the long-term stability of our computing and communications tools and infrastructure with an emphasis on mobile technology.

• Implement new technologies to leverage convergence of web based services, such as cloud computing, to meet the diverse needs of education and the government.

Core Communication Infrastructure

Rockport’s core infrastructure can be divided into four components; 1) the physical copper and fiber network, 2) network switches and wireless network, 3) server based application services and storage, and 4) voice and emergency communications. All email communications, applications, file storage, Voice over IP (VoIP) and Internet access rely on this network. In the future, with the continued convergence of technologies, we will continue to add services such as SCADA communications, security access control, security video monitoring. Our core infrastructure is our most important mission critical resource. Maintaining and upgrading these resources is priority one, and during this five-year plan, all four core infrastructure components will require significant replacement.

Core resources in need of immediate attention:

• Access control system will be expanded to include all points of entry deemed appropriate.
• RPS and general government camera system will be expanded and streamlined to meet our evolving security needs.
Network switching electronics and a centralized secure wireless network are the key to enabling government employees, students and staff secure and stable access to work related software, instructional resources anywhere within the town buildings. A significant amount of the network equipment and cabling needs to be lifecycled or added to allow for additional wireless access points, cameras and access control systems to be add to the municipal fiber network.

Server resources need to adhere to the hardware replacement plan. Our file storage capacity meets our needs as does our backup system. However, we need to expand the redundancy of our data center to include the educational services.

We will take advantage of opportunities to design and implement school and general government shared resources to avoid unwarranted duplication and add important redundancies to increase efficiency and stability of services. Disaster recovery and continuity planning will be maintained and updated with both the school system and general government needs in mind.

**FY 2021-2026 Action Plan (of major projects)**

- Upgrade network cabling, as necessary, for cameras, access control, WiFi, increased speeds or other applications.

- Expand the Municipal Fiber Network to allow for more services in more Town owned structures where needed.

- Upgrade the Police Department, network, servers, phone system as soon as possible.

- Add Redundancy where the budget or grants allow.
• Finish the Gloucester Interconnect project. Look for opportunities to leverage this investment.

Facilities Safety and Security Improvements

Rockport’s IS&T Facility improvements will rely on the Core Communications Infrastructure.

• Access Control System: An identity aware access control system has been installed at the primary access points. This system will be expanded to cover all high traffic doors in RPS and eventually in Town buildings.

• Video Monitoring: IP based security cameras have been added to assist the access control system and to monitor any areas of the School district and Government facilities. This system will be expanded as more safety and security needs are identified.

• Upgrade RPS Intrusion Security System: Burglar System upgrade. This proposed system will interact with the new identity aware access system. The current system is over 30 years old and needs to be replaced.

• Upgrade RPS Fire System: The Core Fire system electronics are no longer manufactured and parts are becoming harder to find. The current system is over 30 years old and needs to be replaced.

FY 2021-2026 Action Plan (of major projects)

• Install network cabling, as necessary, for doors identified as primary access points and for video monitoring system.
• Identify the locations to add video surveillance, and then add the necessary infrastructure to allow this system to be installed.

• Identify the upgrade path for the intrusion and fire alarm system to allow integration with the access control system, in conjunction with the Director of Building and Grounds.

**IT Roadmap**

**Recent Projects**

- Assisted Teacher transition from in school teaching, to at home, to at school to at home, to at home to at school and every combination there of
- Upgraded all desktops for staff & government employees to laptops
- Issued hundreds of computing devices to any student who needed it
- Added new software for RPS staff and students as needed
- Continue network, interactive projector and device lifecycle
- Upgraded Internet connectivity from 750mbps to 1.5gbps.
- Support Police Dept., IT needs, plus network and WiFi upgrades
- Added Animal Control building to municipal network

**In Progress**

- Police Department phone project
- Network expansion and cameras at the Transfer Station
- Continue to support district wide student issued devices
- Expand the security camera system as needed in RPS and Town Buildings.
- Planning for upgrading security system in ES and HS/MS buildings
- Support any changes in RPS regarding recovery and acceleration projects.
- Upgrade ISP to 2gbps
Future Projects

- Expand Wireless to include one Access Point per room
- Transition to digitized record keeping with workflows
- Expand the Access Control System
- Replacement of RPS Auditorium screen and wiring
- Printer consolidation to reduce overall printing costs
- Improve network redundancy
- Lifecycle all network equipment
- Integrate all existing government cameras into central digital surveillance system
- Adjust Emergency Communication System Project as needed
- Expand the MFN to improve SCADA system
- Find Synergies with Gloucester to utilize the Gloucester Interconnect

Attachments

Attachment A - pg 19 - FY 2018 - 2021 expenditures, highlights only

Attachment B - pg 20 & 21 - Rockport Inventory

Attachment B - pg 22 - I.S. & Technologies Dept Function and Role

Attachment A - FY 2017 - 2020 expenditures, highlights only
FY 21

- 100 Chromebooks and carts
- 51 iPads - lifecycle and additions
- 47 Laptops - lifecycle
- 2 Servers - lifecycle
- 5 Interactive Whiteboards - lifecycle
- 3 Interactive Display on carts
- New Software for remote use

FY 20

- 145 Chromebooks and carts
- 60 iPads - lifecycle and additions
- 35 Laptops - lifecycle
- 20 Desktops - lifecycle
- 10 Interactive Whiteboards - lifecycle
- VR Headsets

FY 19

- 40 Chromebooks
- 43 laptops
- 12 iPads
- Town Hall and Annex Camera Project
- Robots for the ES
- DesignJet large format printer for Art
- 6 desktops & monitors
- 9 Interactive Whiteboards

FY 18

- 25 Desktops & 10 monitors
- 30 laptops
- 20 Dell desktops
- 90 Chromebooks and carts Bretford Cubi Mini carts
- 10 iPads
- Ricoh 2004ex for Town Assessor's office
- Badge printing system
- Vex EDR robots for HS
- 6 Interactive Whiteboard
- Display system

Attachment B - Rockport Inventory - this section is still evolving
<table>
<thead>
<tr>
<th>Quantity</th>
<th>Device</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>iPad</td>
<td>Selectmen - as needed</td>
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<tr>
<td>33</td>
<td>PC Desktops</td>
<td>Replacement target 5 years</td>
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<tr>
<td>65</td>
<td>PC Laptops</td>
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<tr>
<td>8</td>
<td>ToughBooks</td>
<td>Replacement target 5 years</td>
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<tr>
<td>4</td>
<td>Non-interactive projectors</td>
<td>Replacement 8 years</td>
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<tr>
<td>34</td>
<td>Wireless AP's</td>
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<tr>
<td>1</td>
<td>Wireless Controller</td>
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<td>Printers</td>
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<td>MFP printers</td>
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<td>large format printer</td>
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<td>15</td>
<td>Network switches</td>
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<tr>
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<td>Servers</td>
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<td>Backup Appliance</td>
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<td>Quantity</td>
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<td>----------</td>
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<tr>
<td>180</td>
<td>iPads</td>
<td>Student and teacher</td>
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<td>PC Desktops</td>
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<td>40</td>
<td>iMacs</td>
<td>Labs, ES classrooms</td>
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<td>65</td>
<td>PC Laptops</td>
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<td>Macbook Airs</td>
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<td>Interactive projectors</td>
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<tr>
<td>100</td>
<td>Wireless AP's</td>
<td>inside and outside RPS</td>
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<tr>
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<td>Printers</td>
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<tr>
<td>9</td>
<td>MFP printers</td>
<td>Offices</td>
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<td>100</td>
<td>Wall phones</td>
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<td>18</td>
<td>Vex robotics sets</td>
<td>as. needed</td>
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