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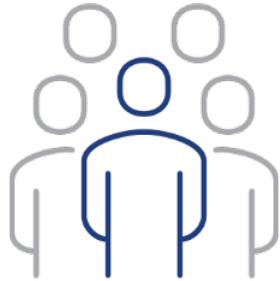
IT Organizational Assessment

Town of Needham, MA – Assessment Report, Nov 2023



Overview: Scope

Note: This report does NOT include observations or recommendations specific to risk management or cybersecurity.

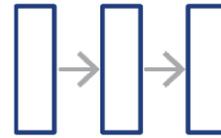


People

Organizational structure

Human capital & Strategic sourcing

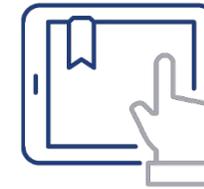
Stakeholders



Process

Strategy & governance

Operations and project portfolio management



Technology

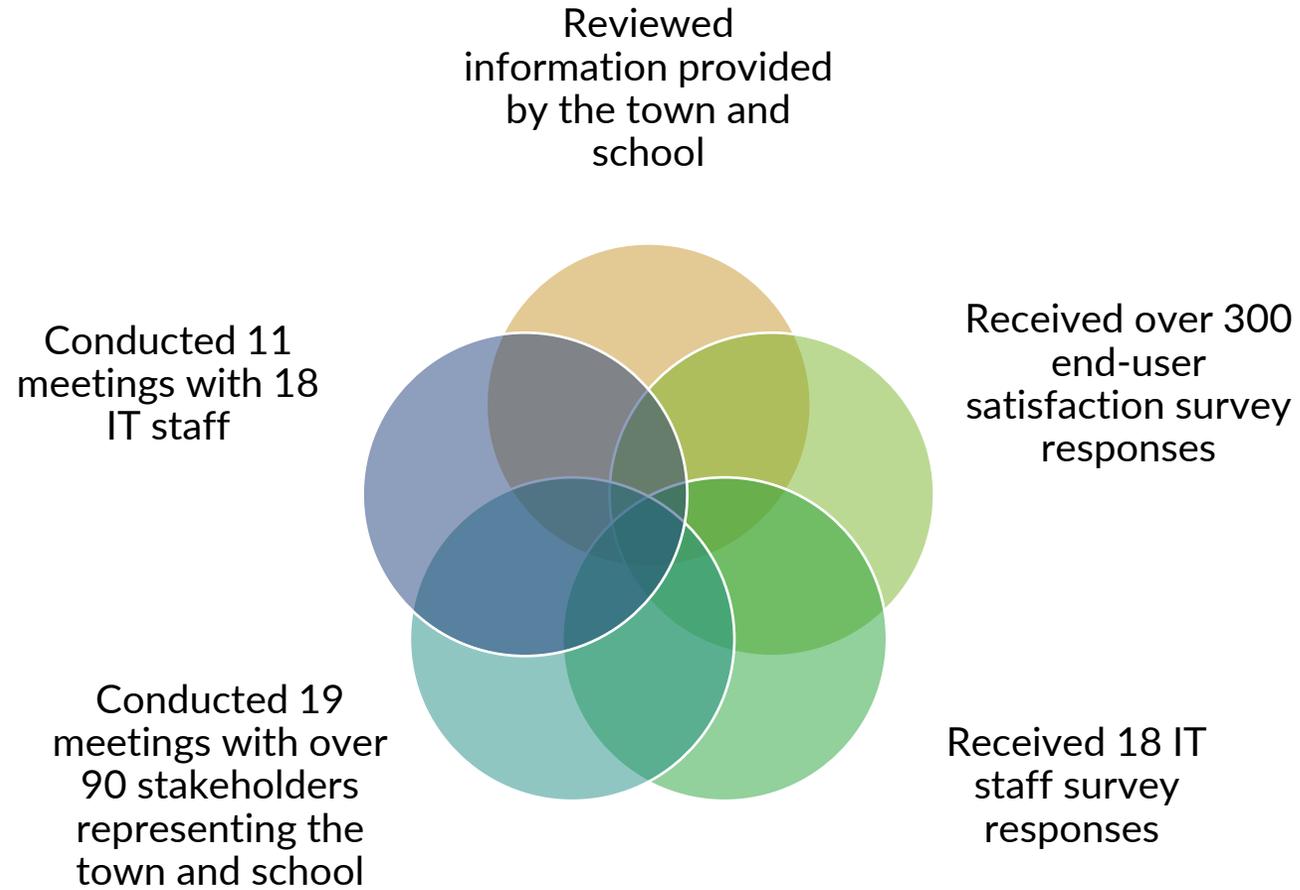
Infrastructure technology

End user environment

Applications & data



Overview: Town staff input





Recommendations rating approach

Rating	Priority		Effort	
	Urgency	Impact	Resources	Complexity
●	Requires immediate attention.	Significant impact on value creation and/or risk mitigation.	Resource intensive in terms of financial and/or human capital required.	Significant adoption and/or integration complexities.
◆	Should be timely addressed.	Meaningful impact on value creation and/or risk mitigation.	Requires moderate financial and/or human capital resources.	Some adoption and/or integration complexities.
■	Address as time/resources permit.	Low impact on value creation and/or risk mitigation.	Requires minimal financial and/or human capital resources.	Negligible adoption and/or integration complexities.

Rating	Timing
Now	Immediate: 0-3 months
ST	Short term: 3-6 months
MT	Medium term: 6-12 months
LT	Long term: More than 1 year

Rating	Budget
\$	\$0 – 50,000 USD
\$\$	\$50,000 – \$150,000 USD
\$\$\$	\$150,000 – \$500,000 USD
\$\$\$\$	Greater than \$500,000 USD

Note: Budget does not include internal staff time/costs or other indirect costs, except for salary/benefits of new positions.



People



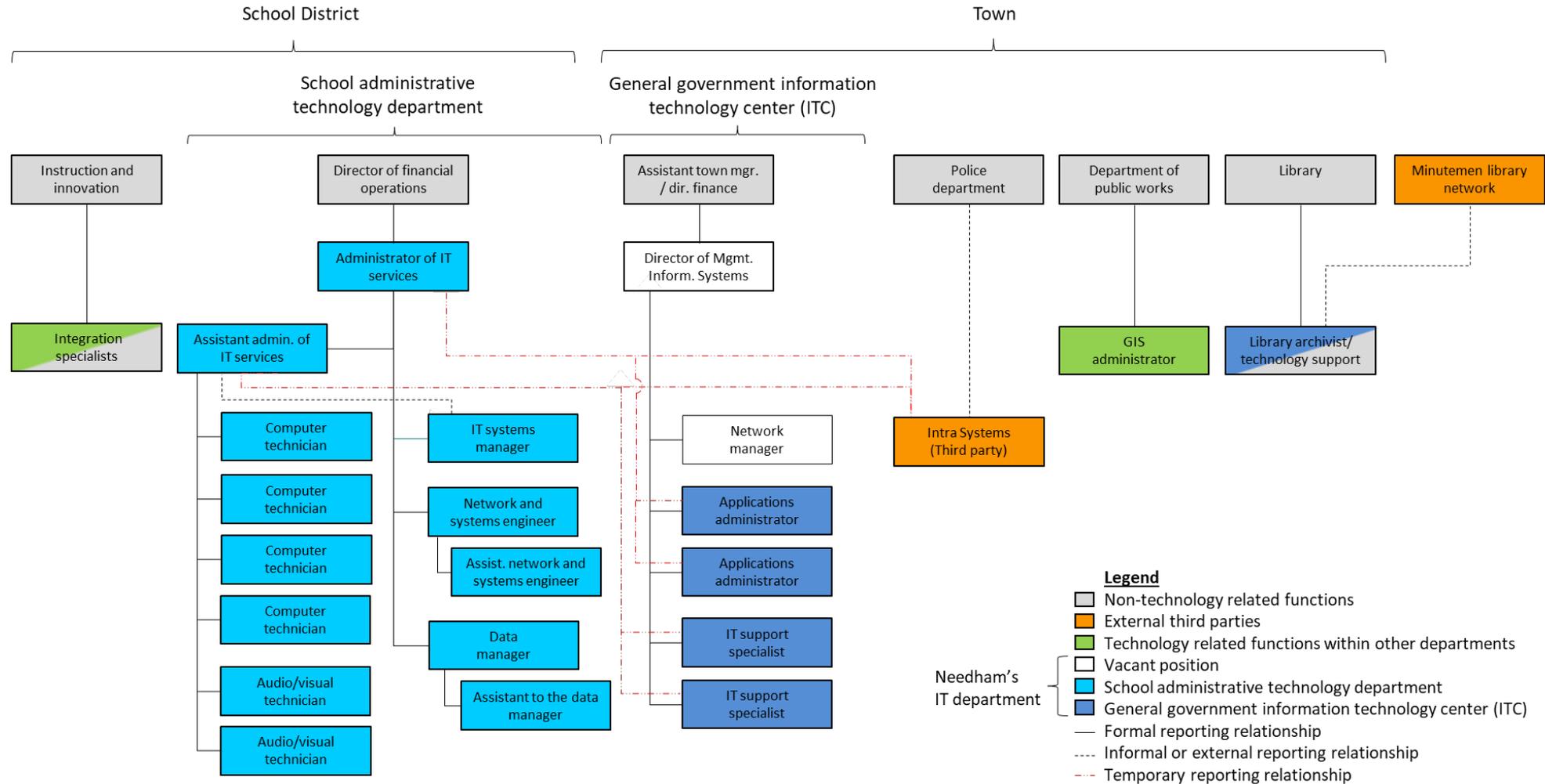
People observations

Organizational structure

- Needham has IT staff is divided between the town and school.
- The school has 13 IT FTEs servicing 1,200 employees, which is below industry benchmarks.
- The town has six full IT FTEs and one fractional IT FTE (two positions currently vacant) to serve 350 users, which is below industry benchmarks.
- The majority of job titles are self-explanatory and consistent with industry and job descriptions.
- Educational technology integration specialists report to the instruction and innovations department.
- The school's IT systems manager has varied project, support, and operational tasks for the school and town.
- A/V technicians serve the school and town.
- GIS administrator works under public works but serves other departments of the town and school.
- The library operates independently under the technology direction of the Minutemen Library Network.
- There is no position dedicated to cybersecurity.
- There is no defined role to oversee the entire town and/or school applications and data landscape.

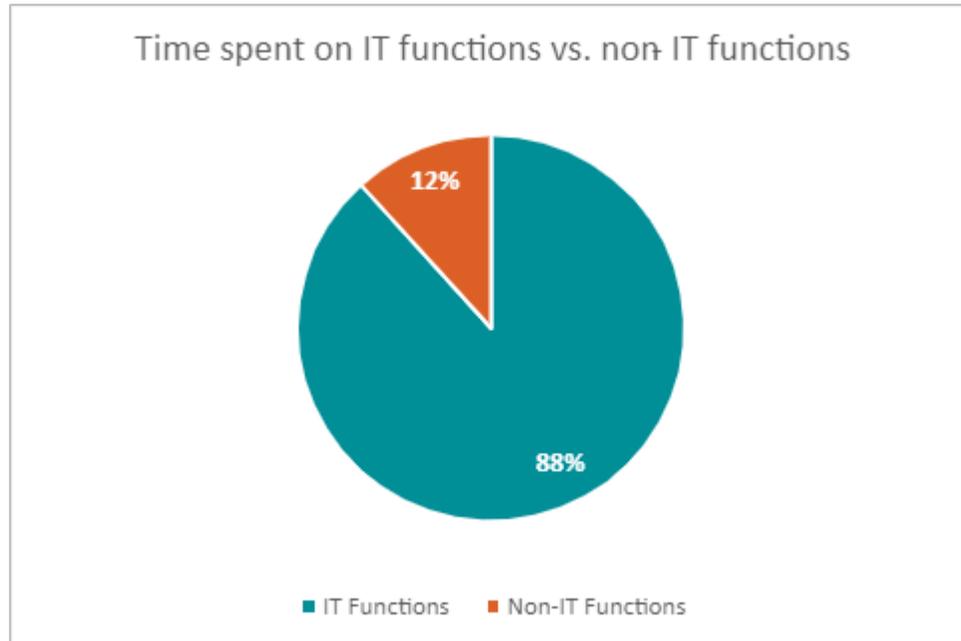


Current IT organizational structure





Time/effort allocation analysis



Notes:

- IT staff self-reported time/effort allocation was normalized by Plante Moran.
- Time spent in managerial, administrative, and transportation associated with IT operations is considered an IT function.
- Library archivist/technology support person was considered as a fractional IT FTE.

Non-IT functions that IT staff are performing

- Printing payroll and accounts payable checks for the accounting department, mailing checks for the retirement department
- Generating daily reports for multiple town departments, among many others
- Registrar functions
- School data reporting functions (e.g., grades, attendance, HR, state, federal, etc.)
- Manual data imports/exports (for attendance and performance to SIS, from SIS to FileMaker for District-wide reports)
- Operational functions related to door access (e.g., reprint damaged badges)



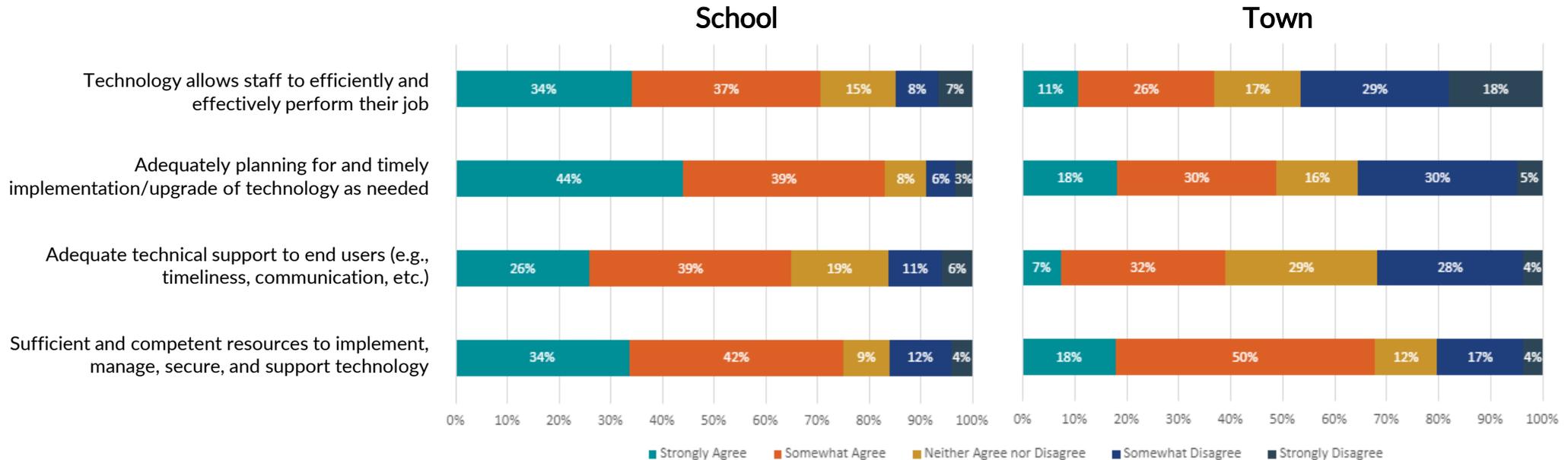
People observations

Human capital management and strategic sourcing

- Multiple IT staff are expected to retire in the near term.
- Collaboration and cooperation between the school and town IT staff exists but is limited.
- No training plans are currently in place for IT staff.
- The town relies heavily on an external third party, IntraSystems, especially as it relates to supporting public safety technology operations and 24/7 support.
- The school relies on internal resources for tasks related to cabling, physical security, phones (though support from Harbor Networks is contracted), printers, etc.
- Lack of responsiveness and effectiveness from vendors was cited as a factor prompting the need to insource some activities.



End-user satisfaction analysis



Key findings

- Overall, the satisfaction with the technology function is higher at the school than at the town.
- The school satisfaction levels are the highest with technology planning and implementation (though the existence of outdated hardware and software was identified as a common theme).
- The town dissatisfaction levels are the highest with technology adequacy, high with technology planning and implementation, as well as communication, and moderately high with regards to IT department staffing and competencies.



Common themes for end-user survey

School

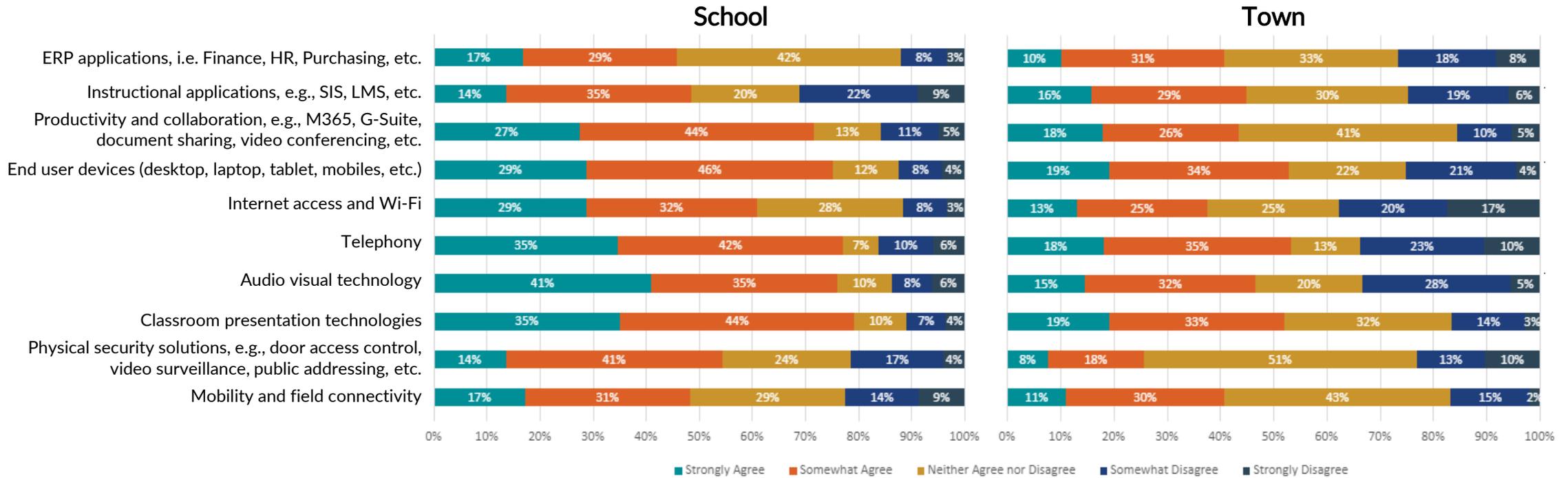
- Unavailability of tech support
- Lack of technology training
- Cybersecurity concerns
- Dissatisfaction with door security
- Challenges with interactive smartboards
- Want consistent hardware across departments
- Applications not integrated
- Excessive number of “add-on” software products
- Limited data analytics capabilities

Town

- IT department is understaffed
- Lack of technology training
- Unclear responsibilities within IT
- Support from IT takes too long
- Wi-Fi coverage in some areas, e.g., Town Hall, PSAB
- Dissatisfaction with outdated phones
- Connectivity issues for field staff



Adequacy of designated technologies



Key findings

- Technology dissatisfaction with ERP is higher at the town than at the school.
- The school's staff reported a high level of dissatisfaction with instructional applications.
- The town's staff reported a high level of dissatisfaction with end-user and workplace technologies, connectivity, and telephony.
- The levels of dissatisfaction with physical security, mobility, and field connectivity, are moderately high at both the town and school.



People

Stakeholders (voice of the school)

- Most stakeholders were complimentary of the staff in the IT department and their responsiveness; however, some mentioned the need to leverage personal relationships to escalate support, not knowing who to contact for support, and a desire for IT to be more strategic (feeling that IT is done to them rather than with them).
- Most stakeholders mentioned a need for additional training in a variety of areas, such as PowerSchool applications, Google Suite, and new applications that are rolled out. Many felt they were left on their own to figure out the software or get assistance from colleagues. There is no IT training component for onboarding of new staff.
- Many of the integration specialists are spending too much of their time on support issues and training of non-instructional staff. Some cited that one third of their time should be spent on support but it is approaching fifty percent.
- Stakeholders mentioned that individuals in IT who are solely responsible for certain areas can become bottlenecks when they are out or working on multiple support issues at the same time.



People observations

Stakeholders (voice of the town)

- Public safety function is currently not leveraging some advanced technology (body cam, cruise cam, drones, or connected EMS tech).
- The police department requires addressing issues with video surveillance configuration, video footage retention, and recording audio.
- Remote locations have challenges related to connectivity and timely user support.
- Some departments, such as public works, feel their technology demands are so unique and constant that they need a dedicated resource.
- Most departments reported that they struggle to get technology support/assistance in a timely fashion.
- Not all departments have access to after-hours technology support/assistance.
- A streamlined, consistent, and known process or policy does not exist for technology decision-making.
- End-user training on software and technology is minimal.
- Communication from IT to departments to town staff is minimal.

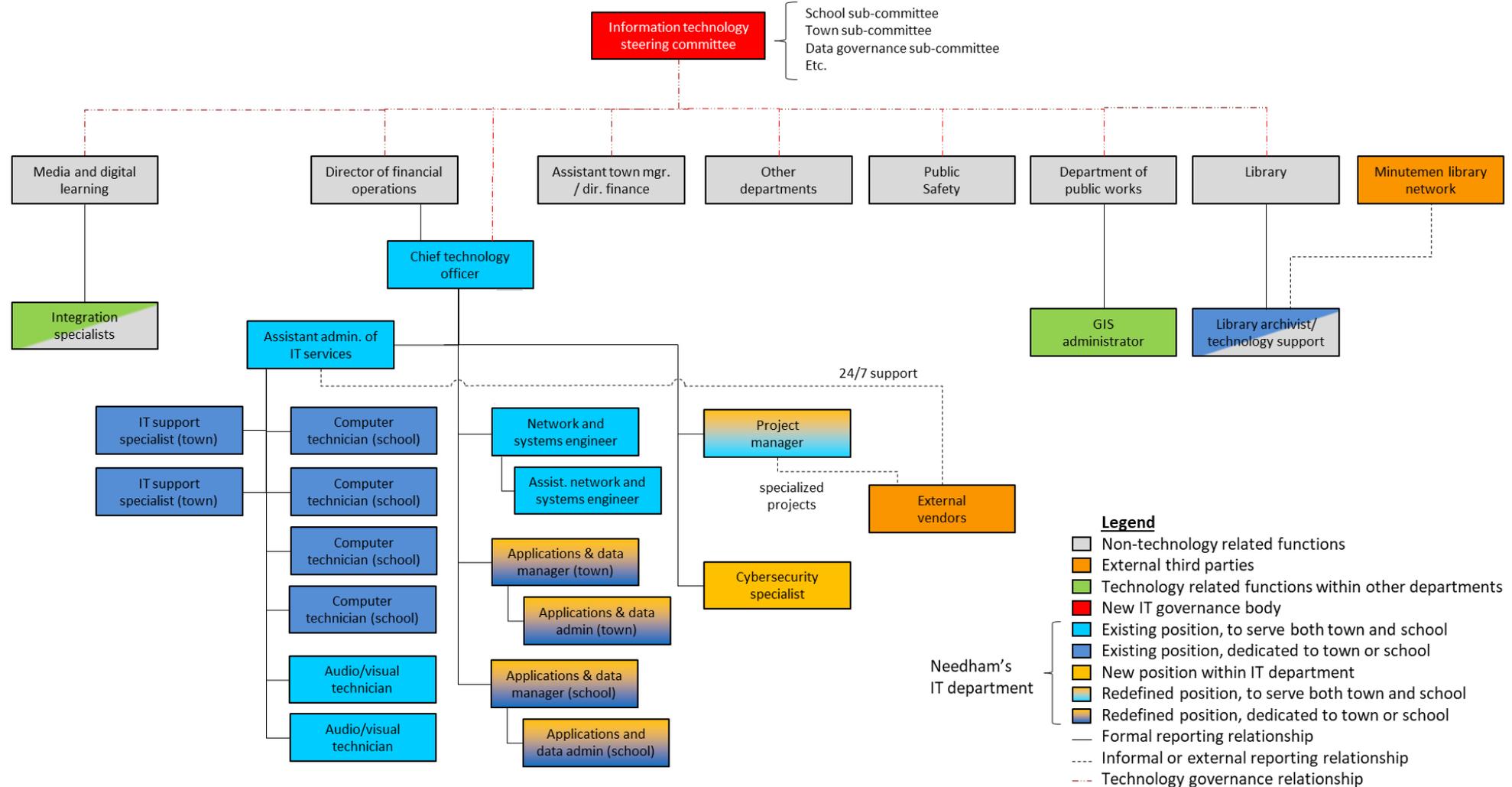


People recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
1	People					
1.1	Organizational structure					
1.1.1	<p>Align the IT organizational structure</p> <p>Combine the functions of the school and town technology departments into a single IT department, following the organizational structure presented in the following slides. Key aspects of the proposed organizational structure include:</p> <ul style="list-style-type: none"> • Retitled the administrator of IT services position as chief technology officer (CTO) • Unified IT leadership and technology operation functions for the school and town • Dedicated technology support and applications/data administration staff for the school and town, in accordance with pertinent collective agreements. (These positions could be combined to serve both the town and school in the future.) • Creation and staffing of a cybersecurity specialist position • Redefinition of the role of the IT systems manager as project manager, of the creation of an applications and data management function • Creation of the IT steering committee as a governance body with broad stakeholder representation as described in the process section of this report • Definition of IT liaison roles within departments (e.g., integration specialists, GIS administrator, library archivist) based on the governance framework proposed in the process sections of this report • Strategic use of external vendors for technology projects and support functions <p>Note: The long-term viability of the proposed organization structure is predicated upon the transfer of non-IT responsibilities to operational departments, as well as on the optimization of processes and resources, and the addressing of gaps and risks identified in accordance with the other recommendations included in this report.</p>	●	●	Now	-	\$\$



Proposed IT organizational structure





Proposed job descriptions roles

New or redefined roles

- **Cybersecurity specialist:** Cybersecurity operations, including prevention, detection, and response. Work with IT leadership as it relates to risk management. Dotted line reporting to internal audit, enterprise risk management, or equivalent function. Work with vendors for projects, specialized services, and escalation for complex support requirements. Responsible for enterprise architecture for security, the cybersecurity user awareness training program, and maintaining the incident response plan.
- **Applications and data manager:** Responsible for enterprise architecture for applications and data, as it relates to application portfolio rationalization, data governance, integration, supportability, and adherence to security standards, in particular access management. Development for automation workflows, application integration, and complex ad hoc report templates. Project management for organization-wide applications and data initiatives, and main point of contact for support on departmental-specific application and data initiatives. Development of the applications and data services catalog. Management of minor application updates and patches.
- **Applications and data administrator:** Support to the applications and data manager on day-to-day operational activities and specific tasks.
- **Project manager:** Manage organization-wide technology initiatives as it relates to scope, budget, timeline, and risk. Support departmental-wide technology initiatives by means of resource coordination within the IT department. Manage vendors for organization-wide technology initiatives, as it relates to onboarding, performance management, and compliance with contractual obligations. Main point of contact with facilities for projects involving aspects of physical security or construction. Note: Projects that are specific to a technology domain (e.g., network, security, support, applications, and data) will be managed by the leads of such areas within the IT department.



People recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
1	People					
1.2	Human capital and strategic sourcing					
1.2.1	Develop a succession and transition plan Prioritize knowledge transfer to other IT staff or departmental staff, and the documentation of standard processes. This should be aligned with and facilitate the transition process into the new organization structure and governance framework (described in the process section of this report).	■	■	ST	-	-
1.2.2	Develop individualized training plans for IT staff Training plans for IT staff should include IT governance based on COBIT for IT leadership, IT service management based on ITIL for the support function, project management based on PMBOK, and cybersecurity certification track such as CISSP. Utilize vendors for knowledge transfer on specific projects or technologies.	◆	■	MT	-	\$
1.2.3	Reassess staffing needs after executing the recommendations of this report Prioritize the use of contracted staff and vendors to execute the recommendations of this report, before adding permanent positions, to adequately assess the long-term staffing needs of the IT department.	■	◆	LT	\$	-
1.2.4	Strategical leverage of external vendors Use vendors to assist with peaks of workload or knowledge gaps, or to provide commodity services (e.g., cabling, phone and printers management, etc.) and allow IT staff resources to focus on value-enabling activities and technology initiatives. To increase vendor responsiveness and accountability, seek to develop long-term vendor partnerships and involve vendors in the technology planning process.	●	●	Now	TBD	TBD



People recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
1	People					
1.3	Stakeholders: School					
1.3.1	<p>Create a formal technology professional development program Create a professional development (PD) program focused on administrative software. Develop training that is segmented and differentiated (beginner, intermediate, and advanced) across various areas, such as administrative software – Infinite Visions and PowerSchool suite, office productivity, and reporting. The focus of the program should be on technology adoption for all the various software resources that are available.</p>	◆	●	MT	\$	\$
1.3.2	<p>Create and publish an application software support staff directory Create a directory for staff to contact on Infinite Visions, PowerSchool, and related applications. Include non-IT staff resources that are power users of the administrative products. It could also be expanded to include office productivity solutions.</p>	◆	■	ST	-	-
1.3.3	<p>Develop a formal communications plan Develop and implement a communication plan that focuses more on proactive activities, including new projects and status updates.</p>	◆	■	ST	-	-
1.3.4	<p>Focus on continual service improvement In addition to collecting feedback for each help desk interaction, periodically solicit general feedback on technology support from end users. This can include user surveys like the survey conducted for this assessment. The survey results should be compared to previous results to understand satisfaction changes over time. This will allow the school to be more proactive in identifying any issues with IT service delivery.</p>	■	■	LT	-	-



People recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
1	People					
1.3	Stakeholders: Town					
1.3.5	<p>Create formal technology training programs for town staff</p> <p>Create formal and personalized technology training for new hires and current staff. The IT department will provide training for department leaders on basic technology usage, which should complement specific training from vendors on specialized software applications.</p>	●	●	ST	\$	\$
1.3.6	<p>Develop a formal communications plan</p> <p>Develop scheduled, consistent, proactive communications updating town staff on current technology activities and future technology projects as well as policies and procedures regarding technology decision-making, procurement, and budgeting.</p>	◆	■	MT	-	-
1.3.7	<p>Address connectivity and support issues at remote locations</p> <p>Consider working with vendors to find optimal solutions for network and 24/7 and on-site end-user support.</p>	●	●	MT	TBD	TBD
1.3.8	<p>Address police video footage retention and audio recording issues</p> <p>Finalize configuration of video cameras, increase video retention in line with the town's data retention policies, and allow for audio to be recorded during bookings.</p>	■	◆	ST	\$	\$
1.3.9	<p>Develop a plan for police to implement innovative technologies</p> <p>Develop a plan to proactively budget for the implementation and use of body cams, cruise cams, etc. Develop a plan to train police team on and launch the drone program.</p>	■	◆	LT	-	-



Process



Process

Strategy and governance

- A technology advisory board is in place, comprised of town residents and IT leadership. 👍
- No technology governance body representing Needham's departments exists, for planning and decision-making related to technology, prioritization, and tracking of projects and initiatives, etc.
- No IT strategic plan or technology roadmap is in place.
- Roles and responsibilities with regards to technology procurement, maintenance, and support are not clearly defined between IT and operating departments, including the educational technology area within the school and departments using specialized technologies in the town (such as the police, fire, and utilities).
- No comprehensive IT and cybersecurity policy framework is in place (beyond responsible use policy).
- The technology budgeting and allocation process is not well understood.
- The technology procurement process on the town side is also not well understood.
- The schools have a process for vetting and purchasing educational software; however, there is no process (or stakeholders did not know what it was) for administrative software.
- No enterprise architecture approach is followed to manage the applications portfolio and data assets.



Process

IT operations and project portfolio management

- SolarWinds IT service desk was recently rolled out for the school and town. 👍
- No documented or mature help desk processes are in place (e.g., prioritization, SLAs, routing, reporting).
- No formal or mature processes exist for change management, capacity management, or performance management.
- Asset lifecycle and configuration management practices are immature in the school and inexistent in the town.
- The processes followed for user onboarding and offboarding and account management are disjointed, dependent on specific people (including an external party in the case of public safety), and largely manual.
- Reportedly, the town support personnel are not allowed to use the remote access toolset available.
- No comprehensive portfolio of project management is in place (a simple list of projects was provided for the town, and no list of projects was provided for the school).



Process recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
2	Process					
2.1	Strategy and governance					
2.1.1	<p>Implement a formal technology governance process Establish an IT steering committee (ITSC) with representation from key departments of the town and school, to define the strategic direction and evaluate the performance of technology services and initiatives. Follow the governance model proposed in the next slide. Set as an initial task the development of an IT strategic plan.</p>	●	◆	Now	\$	-
2.1.2	<p>Position the IT department as an enabler of departmental operations Establish a shared responsibility model for technology between IT and operating departments, that leverages departmental business acumen and expertise with specialized technologies, and IT staff's technical competencies for integration, security, supportability, and enablement of data-driven decision-making. Use the proposed governance model for this purpose.</p>	◆	●	Now	-	-
2.1.3	<p>Develop a strategic technology plan for the school Utilize a technology planning committee (consisting of school administration, building administration, support staff, teachers, other stakeholders, and technology department representatives) to create a three-year technology roadmap for the school. This plan should include a vision, mission, and outcomes for teachers and students. Curriculum integration plans by grade level should be addressed. "The Portrait of a Needham Graduate" should be referenced and utilized as a guiding document. It may be necessary for the district to seek the assistance of an external party to help in the creation of the plan.</p>	◆	◆	ST	\$	-



Proposed governance framework

IT steering committee (ITSC)	IT leadership	IT staff	Departmental IT liaison role	Vendors and external third parties
<ul style="list-style-type: none"> • Approve or recommend approval to town board and/or school committee for: <ul style="list-style-type: none"> ▪ Technology strategic plan ▪ Technology budget ▪ Technology policies • Evaluate the performance of IT functions based on: <ul style="list-style-type: none"> ▪ Key performance indicators ▪ Progress and results of high-profile initiatives • Create and manage sub-committees: <ul style="list-style-type: none"> ▪ School sub-committee ▪ Town sub-committee ▪ Data governance sub-committee ▪ Etc. 	<ul style="list-style-type: none"> • Develop technology strategy • Manage technology budget • Manage and develop IT staff • Manage “partnership” with departments • Manage the technology projects portfolio • Manage risk and compliance • Approve technology procedures and standards • Develop and socialize draft policies • Attend technology advisory board (TAB) meetings 	<ul style="list-style-type: none"> • Manage IT operations for infrastructure, end user, and workplace technologies • Manage enterprise architecture for applications, data, infrastructure, security, and access management • Manage cybersecurity operations • Provide technology support for organization-wide technologies • Lead (project manage) organization-wide technology initiatives • Support departmental-specific technology initiatives • Develop procedures and recommend standards • Train the trainers on organization-wide technologies • Maintain application integration and workflow automation 	<ul style="list-style-type: none"> • Support operational tasks, processes, and standard reporting • Provide the first level of support for departmental-specific or specialized technologies (hardware and software) • Provide the first level of support for organization-wide technology-related issues, including initial problem diagnosis • Lead (project manage) departmental-specific or specialized technology initiatives • Conduct end-user training • Oversee data ownership and user access management 	<ul style="list-style-type: none"> • Provide application development and upgrades • Support complex problem resolution • Provide support for specialized technologies • Deliver training (knowledge transfer) • Conduct commoditized technology services • Provide 24/7 end-user support



Process recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
2	Process					
2.1	Strategy and governance					
2.1.4	<p>Develop a strategic technology plan for the town Utilize a technology planning committee (consisting of representatives from different departments) to create a three-year technology roadmap for the town. This plan should include a vision, mission, and outcomes for staff and constituents. It may be necessary for the district to seek the assistance of an external party to help in the creation of the plan.</p>	◆	◆	ST	\$	-
2.1.5	<p>Develop a policies and procedures for technology governance Start by documenting the process for approval and prioritization of technology initiatives. Facilitate the long-term budgeting and tracking of technology costs, including capital investments and operational costs (including subscriptions and licenses). Develop an enterprise architecture approach (e.g., following the TOGAF framework) to address the infrastructure, security, and applications and data initiatives included in this report. Strive to build a comprehensive policy framework.</p>	■	◆	MT	\$\$	-



Process recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
2	Process					
2.2	Operations and project portfolio management					
2.2.1	<p>Optimize the technology support process Follow the best practices called out by ITIL to optimize the support function (e.g., service level agreements, analysis of reports, knowledge base, workflow automations, etc.). Do not centralize functions on specific individuals (e.g., ticket routing, user access management) so as to avoid creating bottlenecks, and provide support staff with the tools (e.g., remote access tool) and permissions needed to be effective at their jobs.</p>	■	◆	MT	\$	-
2.2.2	<p>Develop standards and procedures of technology operations Start with the management of asset lifecycles, including a refresh plan for technologies. Manage asset configurations. Formalize change management, with emphasis on maintaining up-to-date documentation. Manage the portfolio of projects. Begin proactive capacity and performance management.</p>	◆	◆	ST	\$	\$



Technology



Technology

Infrastructure

- Data backup solutions are in place (ARQ for school, Veeam for town, Barracuda for email). 👍
- Reportedly, the network has the necessary capacity and resiliency, though some Wi-Fi coverage issues exist. 👍
- Reportedly, the network is duly segmented, including the SCADA network. 👍
- No network diagrams were provided.
- No comprehensive inventory of IT assets exists.
- The school and public safety use a newer Mitel phone system, while the rest of the town uses aged Samsung PBX.
- Significant technical debt exists in particular as it relates to the town's aged technology.
- The town and school utilize different door access control systems.
- The overall on-premises applications footprint is limited, and the cloud is leveraged for the majority of applications and data (except for the AS/400 environment).
- Issues were reported as it relates to equipment rooms, including backup power, cooling redundancy, use as storage closets, and fire suppression.



Technology

End user environment

- Inventory of end-user devices has been traditionally maintained by the school. 👍
- No inventory of end-user devices exists in the town.
- Diverse end-user technologies are used: Mac for school staff, Google for students and teaching assistants, Windows for town staff.
- Multiple technologies for remote access (VPN for school VPN; VPN, RDP, and Citrix for town).
- Multiple device management tools are in place, including Google Admin, JAMF for Macs, and Filewave MDM for the school, and Connectwise/Automate for the town.
- Email and collaboration standards vary, with Google Email and Google Meets used at the school, and Microsoft 365 and Microsoft Teams used at the town.



Technology

School's applications and data

- A variety of ERP (core business application) and SIS (core instructional application) related products are used:
 - Tyler Infinite Visions for core accounting functions (school and town)
 - Quickbooks for student activity accounting and revenue related functions
 - PowerSchool suite for applicant tracking, talent management, teacher evaluations, etc.
 - Three different online payment processors: Eleyo, mySchoolBucks, and eFunds
 - PowerSchool suite for student management, special education (soon)
 - Clever for password management and program usage for students
- Google Suite is used for productivity and collaboration software.
- The ERP environment is very cumbersome, with many manual processes, duplicate entries, and shadow systems in place. There is no integration between the products, and some is accomplished via a Filemaker database. Many of the stakeholders described the Infinite Visions product as “clunky.”
- Stakeholders indicated that they rely on IT or data managers to get the reports/information they need out of the systems that are in place since they do not have that capability or have not been trained. This also creates many shadow systems such as Google Docs or Google Sheets.



Technology

Town's applications and data

- Most departments claim their applications are meeting their current requirements/needs “for now.” 👍
- Some departments feel their applications are out of date and not able to keep up with day-to-day tasks and demands.
- Applications are not integrated, leading to operational inefficiencies and in some cases.
- Data is analyzed manually at each department using personal spreadsheets.
- Obtaining necessary data is time-consuming and cumbersome due to the lack of reporting abilities with current software.
- Some town staff/departments are not utilizing Microsoft Teams due to a lack of standardization of collaboration platforms, causing frustration among some staff.
- Departments seek out and, at times, purchase their own software, without involvement from the IT department, leading to the existence of shadow systems that the IT department is not aware about.
- Some departments shared that with no single sign-on (SSO), they are having to manually manage multiple passwords, which takes a lot of time out of their workday and yields frustration.
- Users shared that they have struggled working remotely due to the limitations and slowness of the Citrix platform.



Technology recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
3	Technology					
3.1	Infrastructure technology					
3.1.1	Develop and maintain complete and up-to-date documentation of the IT environment Include complete network diagrams, systems diagrams (servers, backup, and disaster recovery elements), and application diagrams (integrations, data flows).	●	◆	Now	\$	-
3.1.2	Replace or upgrade aged or legacy technologies This includes network and server infrastructure components and the town's phone system. Consider migrating applications to cloud-based offerings when appropriate to minimize the need for server refresh and updates and upgrading or replacing applications as deemed necessary to meet the requirements of the school and town. Also, ensure equipment rooms meet necessary physical security and environmental operating conditions for on-prem systems.	■	●	LT	TBD	TBD
3.2	End-user environment					
3.2.1	Develop and maintain a comprehensive inventory of technology assets Include all infrastructure, end-user, and workplace hardware components that connect to the network, as well as all application software instances, data repositories, and licenses.	●	■	Now	\$	-
3.2.2	Seek to standardize technologies across the organization when possible This will yield operational efficiencies and decrease the potential attack surface for malicious actors. In particular, standardize the remote access approach with a technology that meets the availability, performance, and functional requirements of stakeholders.	■	●	LT	TBD	TBD



Technology recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
3	Technology					
3.3	Applications and data: School and town					
3.3.1	<p>Develop a cohesive data management strategy Review administrative software tools to strive for a more integrated solution(s). The end result of this effort is to have a single data repository for different staff to reference. Included in this effort is the creation of a dashboard for the school and for the town to access the key metrics necessary to make decisions. Create data governance sub-committee(s) as part of the overall governance framework in recommendation 2.1.1. This committee(s) should oversee the definition and execution of the school and town’s data and analytics strategy.</p>	◆	◆	LT	-	-
3.3.2	<p>Implement a data management policy As part of building a formal data governance program (recommendation 2.1.1), the school and town should prepare and adopt a master data management policy that requires the standardization of master data across the organization and mitigates the risk of changes. Master data (e.g., names, demographics, addresses, etc.) should be consistent across all systems, to prevent data quality issues. As part of the master data management policy, processes should be implemented to regularly review applications, network data, and mailbox data. Establish retention policies to enable the removal of data that is no longer accessed, relevant, or required. This will improve the efficiency of data storage, backup, and retrieval operations across systems.</p>	◆	◆	LT	-	-



Technology recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
3	Technology					
3.3.3	<p>Evaluate the effectiveness of the finance and HR solutions Perform an assessment of the current finance and HR solutions, identifying gaps and shadow systems. Should the assessment indicate replacement is necessary, the funding is available, and town support is received, then undertake a process to identify requirements, develop a request for proposal, and select a new finance and human resources system. Engage a selection committee consisting of a broad cross-section of stakeholders from key impacted functional areas. Note: The budget estimate does not include purchase and implementation costs.</p>	◆	●	MT	\$\$	-
3.3	Applications and data: School					
3.3.4	<p>Conduct process redesign for finance and HR solutions As part of the above recommendation, a process redesign should be conducted to improve upon the current software solution environment by eliminating shadow systems, dual entry, and overall inefficiencies. Should new software be selected, then a future state process mapping could occur to K-12. This would allow a shift from “how we have always done business” to “how can we modify our processes to better leverage new technology.”</p>	◆	◆	MT	\$	-
3.3.5	<p>Inventory and assess software Perform a software inventory and utilization study to assess opportunities for software rationalization and consolidation throughout the School, particularly with administrative applications. This effort should also review whether the School is on the latest version of the software, review the features and functionality of the upgraded product, and determine if it would be beneficial to upgrade.</p>	◆	◆	MT	-	-



Technology recommendations

#	Recommendations	Priority	Effort	Timing	Budget NRC	Budget ARC
3	Technology					
3.4	Applications and data: Town					
3.4.6	Conduct a software inventory and assess effectiveness Take an inventory of all software used by the town so there is a current directory of software used throughout the town. Assess software to gain insight into usage and effectiveness. Develop a plan to update or replace software as needed.	●	◆	ST	-	-
3.4.7	Address Citrix in-session performance issues Troubleshoot slowness experienced by town staff when using Citrix Workspace to increase user productivity and collaboration.	●	◆	ST	\$	\$
3.4.8	Develop a policy standardizing the town's collaboration application Develop and enforce a policy so all town staff are required to log-in to and use Microsoft Teams during their scheduled work hours. Town staff should log-in to Microsoft Teams at the start of their shift so other departments and staff can communicate with ease, and in a timely fashion.	◆	◆	MT	-	-
3.4.9	Consult with Tyler Infinite Visions about product improvement opportunities Schedule a meeting with the town's Tyler customer success manager or account executive to discuss software integration options, configuration of role-based security, report generation, and desired product enhancements.	◆	■	MT	-	-



Roadmap and budget



Roadmap

Foundational initiatives: Begin addressing between now and three months from now

		Priority	Effort
1.2.4	Strategically leverage external vendors	●	●
2.1.1	Implement formal technology governance process	●	◆
3.1.1	Develop and maintain complete and up to date documentation of the IT environment	●	◆
3.2.1	Develop and maintain a comprehensive inventory of technology assets	●	■

Short-term initiatives: Begin addressing within three to six months

		Priority	Effort
1.1.1	Align the IT organizational structure	●	●
1.2.1	Develop a succession and transition plan	■	■
1.3.2	Create and publish an application software support staff directory	◆	■
1.3.3	Develop a formal communications plan	◆	■
1.3.5	Create formal technology training programs for town staff	●	●
1.3.8	Address police video footage retention and audio recording issues	■	◆
2.1.2	Position the IT department as enabler of departmental operations	◆	●
2.1.3	Develop a strategic technology plan for the school	◆	◆
2.1.4	Develop a strategic technology plan for the town	◆	◆
2.2.2	Develop standards and procedures of technology operations	◆	◆
3.4.6	Conduct a software inventory and assess effectiveness	●	◆
3.4.7	Address Citrix in-session performance issues	●	◆



Roadmap

Medium-term initiatives: Begin addressing within six to 12 months

		Priority	Effort
1.2.2	Develop individualized training plans for IT staff	◆	■
1.3.1	Create a formal technology professional development program	◆	●
1.3.6	Develop a formal communications plan	◆	■
1.3.7	Address connectivity and support issues at remote locations	●	●
2.1.5	Develop a policies and procedures for technology governance	■	◆
2.2.1	Optimize the technology support process	■	◆
3.3.3	Evaluate the effectiveness of the finance and HR solutions	◆	●
3.3.4	Conduct process redesign for finance and HR solutions	◆	◆
3.3.5	Inventory and assess software	◆	◆
3.4.8	Develop a policy standardizing the town's collaboration application	◆	◆
3.4.9	Consult with Tyler Infinite Visions about product improvement opportunities	◆	■



Roadmap

Long-term initiatives: Begin addressing after 12 months

		Priority	Effort
1.2.3	Reassess staffing needs after executing the recommendations of this report	■	◆
1.3.4	Focus on continuous service improvement	■	■
1.3.9	Develop a plan for police to implement innovative technologies	■	◆
3.1.2	Replace or upgrade aged or legacy technologies	■	●
3.2.2	Seek to standardize technologies across the organization when possible	■	●
3.3.1	Develop a cohesive data management strategy	◆	◆
3.3.2	Implement a data management policy	◆	◆



Year 1 budget

#	Recommendations	Combined NRC	Combined ARC	School NRC	School ARC	Town NRC	Town ARC
1.1.1	Align the IT organizational structure	-	\$\$				
1.2.2	Develop individualized training plans for IT staff	-	\$				
1.2.4	Strategically leverage external vendors	TBD	TBD				
1.3.1	Create a formal technology professional development program			\$	\$		
1.3.5	Create formal technology training programs for town staff					\$	\$
1.3.7	Address connectivity and support issues at remote locations					TBD	TBD
1.3.8	Address police video footage retention and audio recording issues					\$	\$
2.1.1	Implement formal technology governance process	\$	-				
2.1.3	Develop a strategic technology plan for the school			\$	-		
2.1.4	Develop a strategic technology plan for the town					\$	-
2.1.5	Develop a policies and procedures for technology governance	\$\$	-				
2.2.1	Optimize the technology support process	\$	-				
2.2.2	Develop standards and procedures of technology operations	\$	\$				
3.1.1	Develop and maintain complete and up to date documentation of the IT environment	\$	-				
3.2.1	Develop and maintain a comprehensive inventory of technology assets	\$	-				
3.3.3	Evaluate the effectiveness of the finance and HR solutions	\$\$	\$				
3.3.4	Conduct process redesign for finance and HR solutions			\$	-		
3.4.7	Address Citrix in-session performance issues					\$	\$
	Total*	\$100K~\$550K	\$50~\$300K	\$0~\$150K	\$0~\$50K	\$0~\$200K	\$0~\$150K

Notes:

Due to project scope and limited information provided, some budgetary figures were not able to be estimated.

Budgetary costs are exclusive of risk management/cybersecurity recommendations.



Year 2 budget

#	Recommendations	Combined NRC	Combined ARC
1.2.3	Reassess staffing needs after executing the recommendations of this report	\$	-
3.1.2	Replace or upgrade aged or legacy technologies	TBD	TBD
3.2.2	Seek to standardize technologies across the organization when possible	TBD	TBD

Note: Additional diligence is required in Year 1 to provide an accurate budgetary estimation for the Year 2 budget. This includes inventorying and evaluating the adequacy of current hardware and software technologies to determine the need to replace or upgrade technologies that are legacy, not meeting the needs of the school and town as identified in the IT strategic plan, or that will be standardized.



Appendix



Glossary of terms

- **IT service desk (remote):** Remote end-user support with incidents and service requests (e.g., questions, password reset), problem management, knowledge management, and similar activities.
- **IT service desk (on-site):** On-site end-user support with workstation, peripherals, telephony, audio/visual, presentation/collaboration, printer/scanner/copier, or other specialized technologies (e.g., video surveillance, access control, public addressing, etc.).
- **Digital workspace services (User):** User onboarding/offboarding, including end-user or workspace device procurement, operating system imaging, applications deployment, account set up and termination, end-user technology training, and similar activities.
- **Digital workspace services (Device):** End-user or workspace device management, including set up, configuration, updates, patching, applications deployment, hardware replacement, disposal of legacy technology, and similar activities.
- **Network operations:** WAN/LAN/WLAN administration, internet access, remote access/mobility, telecommunications management, and similar activities.
- **Data center operations:** Server and storage administration (including patching), cloud environment operations, data center facility management, and similar activities.
- **Application support (applications):** Core/enterprise application administration (including upgrades), support, end-user training, documentation, and similar activities.
- **Application support (data):** Database administration/support, data analytics, report development, and similar activities.
- **Application development:** Application/web development, integrations and workflow development, testing and quality assurance, business analysis, application project management, and similar activities.
- **Governance and business management:** IT planning, budgeting, staff/team management, IT project management, vendor management, and similar activities.
- **IT operations management:** Performance and capacity management, licensing/subscriptions and cost management, service level agreements management, and similar activities.
- **IT security (management):** Cybersecurity program management, identity and access architecture management, data privacy regulatory compliance and audit program management, and similar activities.
- **IT security (operations):** Cybersecurity operations, log collection and analysis, incident investigation, response and remediation, vulnerability assessments and testing, and similar activities.
- **IT service continuity/disaster recovery:** Business continuity planning, data backups and disaster recovery testing and restoration, and similar activities.



Thanks!

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