Follett
SOFTWARE

Comprehensive K12 Technology Planning

Anytown USA
Central School District

- Technology Conditions Survey Report
- Anytown CSD Serving Zone Drawings
- 10–Year Comprehensive Technology Roadmap

January 26, 2026

Contents

Note: A *Telecom Room (TR) Master Plan* with design and installation best practices has been provided as a separate printed and electronic deliverable as part of this technology planning project.

RCDD Approval

As described in *Codes and Standards* (pg. 8), Follett Software Managed Services follows all standards published by BICSI, the telecom industry trade association that certifies Registered Communication Distribution Designers (RCDDs).

Follett Software Managed Services has two full-time staff RCDDs, one of which has reviewed this report for BICSI standards compliance and certifies that the content contained herein is accurate and compliant.

R.C. Deedee

R.C. Deedee, RCDD No. 987653

Technology. The fifth building system.

Traditional AMEP building systems
Depending on the age of your school district buildings, many of them were probably planned, designed, and built around four traditional building systems:

1. **Architectural** including the building envelope's interior (walls, ceilings, flooring, doors, etc.), exterior (structural floors, fire escapes, windows) and other (e.g., site).
2. **Mechanical** including most HVAC systems and equipment such as air handlers.
3. **Electrical** for power distribution including switch gears, panels, and generators.
4. **Plumbing** dedicated to storing, treating and distributing water (including steam).

All facility-related planning, design, construction, and maintenance processes, materials, and tasks were categorized by these four traditional building systems since electricity became a common utility in the early 1900s.

Enter the Telephone
About 100 years ago, Electrical systems were expanded to include a revolutionary, new low-voltage communications system—the wired telephone.

Electrical signals from a local Telephone Exchange (i.e., the service provider) were connected to switchboards where human operators routed calls to and from designated interior handsets and outside lines.

While the systems that controlled telephone communications quickly increased in sophistication, capabilities, and complexity, building categories and standards did not.

Building-based technology systems have evolved exponentially since wired telephone systems became common in the 1920s. Today's technology systems are crucial to K12 daily operations. Critical components include (above left to right) Telecom Rooms, wired and wireless network equipment, Public Address, Access Control, Video Surveillance, classroom displays, and student devices.

Accurate capital planning for today's Technology Systems
Today's school buildings rely on a host of diverse Technology systems' core infrastructure, equipment, and end-point devices for almost every facet of daily operations including instruction, security, communications, and life safety.

In fact, traditional AMEP systems now rely on a building's technology systems to control things like room temperature and lights, and to detect unexpected breaches in the building envelope.

For Districts that conduct them, Building Condition Surveys focus on traditional AMEP systems and **do not include** the following mission-critical technology systems, all of which need to be addressed in your District's five-year capital planning cycles:

TECHNOLOGY SYSTEM	CORE COMPONENTS
Technology Infrastructure	Cables, pathways, and spaces such as Telecom Rooms (TRs).
Network Connectivity	Service-provider entrances, and wired and wireless network equipment (servers, switches, etc.).
Communications	Public Address, Master Clock, Lockdown Notifications, Performance-Sound Reinforcement
Security	Video Surveillance, Access Control, Emergency Lockdown
Instructional	Interactive Displays, Classroom Audio Enhancement, Document Cameras
Student Computing Devices	Tablets, laptops, desktops.
Staff Technology	Teacher and staff tablets, laptops, desktops, and centralized and local printers.

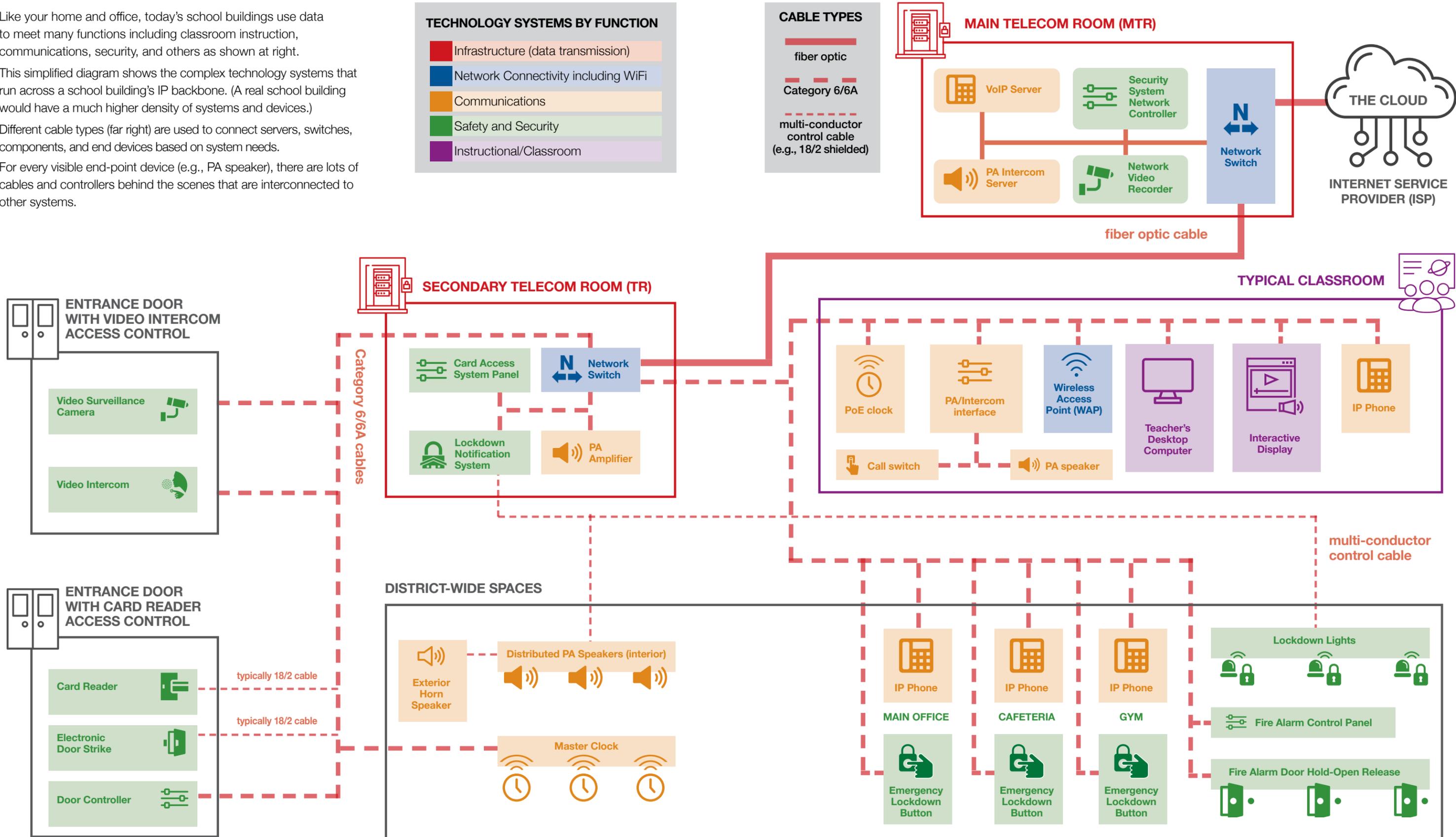# The Internet of Things (IoT) in a School Building

- Like your home and office, today's school buildings use data to meet many functions including classroom instruction, communications, security, and others as shown at right.

- This simplified diagram shows the complex technology systems that run across a school building's IP backbone. (A real school building would have a much higher density of systems and devices.)

- Different cable types (far right) are used to connect servers, switches, components, and end devices based on system needs.

- For every visible end-point device (e.g., PA speaker), there are lots of cables and controllers behind the scenes that are interconnected to other systems.

TECHNOLOGY SYSTEMS BY FUNCTION

- Infrastructure (data transmission)
- Network Connectivity including WiFi
- Communications
- Safety and Security
- Instructional/Classroom

CABLE TYPES

- fiber optic
- Category 6/6A
- multi-conductor control cable (e.g., 18/2 shielded)

MAIN TELECOM ROOM (MTR)

- VoIP Server
- Security System Network Controller
- PA Intercom Server
- Network Video Recorder
- Network Switch

THE CLOUD

INTERNET SERVICE PROVIDER (ISP)

fiber optic cable

SECONDARY TELECOM ROOM (TR)

- Card Access System Panel
- Network Switch
- Lockdown Notification System
- PA Amplifier

Category 6/6A cables

ENTRANCE DOOR WITH VIDEO INTERCOM ACCESS CONTROL

- Video Surveillance Camera
- Video Intercom

TYPICAL CLASSROOM

- PoE clock
- PA/Intercom interface
- Wireless Access Point (WAP)
- Teacher's Desktop Computer
- Interactive Display
- IP Phone
- Call switch
- PA speaker

multi-conductor control cable

ENTRANCE DOOR WITH CARD READER ACCESS CONTROL

- Card Reader
- Electronic Door Strike
- Door Controller

typically 18/2 cable

typically 18/2 cable

DISTRICT-WIDE SPACES

- Exterior Horn Speaker
- Distributed PA Speakers (interior)
- Master Clock

- IP Phone — MAIN OFFICE
- Emergency Lockdown Button
- IP Phone — CAFETERIA
- Emergency Lockdown Button
- IP Phone — GYM
- Emergency Lockdown Button

- Lockdown Lights
- Fire Alarm Control Panel
- Fire Alarm Door Hold-Open Release

13 factors that influence Telecom Room performance

You may know them as MDFs, IDFs, or some other acronym. Whatever you call them, the spaces dedicated to housing IT equipment are among the most important in your district to maintain digital connectivity among and between IP-based systems including security, life safety, instructional, and wireless access.

If your district's Telecommunications Rooms (TRs) are in disarray, there's a good chance that critical infrastructure behind the ceilings and walls—cables and pathways—is in equally poor shape.

These conditions can also cause operational issues (e.g., intermittent errors) with existing and newly installed technology systems.

13-Point Checklist for IT Equipment Spaces

1. Size with 3' clear space front and back
2. No risks of water damage.
3. Environment/location/hallway access
4. Secure/dedicated space or locked cabinet
5. Environmental controls
6. Dedicated, redundant power
7. Uninterruptible Power Source (UPS)/ Emergency Management (EM) power
8. Grounding infrastructure
9. Overhead cable management and fire-retardant plywood
10. Cable termination and management at the rack
11. Room construction with walls extended to deck, and compliant, sealed cable penetrations
12. Vinyl-Coated Tile (VCT) flooring
13. Ceiling open to deck with minimum height of 10'

What makes a poor TR bad…

1 **Room size and inadequate rack clearances** inhibit serviceability.

2 **Overhead utility pipes** leave racks susceptible to damage from leaks/bursts.

3 **Location** lacks direct hallway access and the Serving Zone distance is greater than 300'.

4 **Unsecured, shared space** creates a life safety and security risk as well as causing possible accidental damage.

5 **No environmental controls** increases risk of equipment overheating. **Dirty, dusty environment** increases risk of operating issues with rack components and reduces equipment lifespan.

6 **No dedicated and redundant power.** Both a dedicated circuit and a power outlet from a building generator are needed.

7 **Lack of Uninterruptible Power Supply (UPS)** or emergency power source creates life safety risks during power outages, and reduces equipment lifespan due to a lack of conditioned power.

8 **Lack of grounding infrastructure** increases risk of electrical shortage and equipment damage.

9 **Overhead cable management** is lacking putting cables at risk of damage.

10 **No cable management or correct termination at the rack** can cause operational issues and makes troubleshooting difficult.

11 **Poor room construction** with no deck access and poor cable penetrations.

12 **Floor tile** is not anti-static increasing risk of Electro-Static Discharge.

13 **Hard ceiling** inhibits inspection and serviceability, and limits airflow while trapping heat.

…and a good TR great.

1 **Room size** allows rack front and back clearances.

2 **No water risks.** No nearby utility pipes, drains, or custodial slop sinks.

3 **Location** provides direct hallway access.

4 **Security.** Secure or dedicated space, or locked cabinet, with IP camera coverage and access control.

5 **Environmental controls.** AC and exhaust fan with independent controls in same room. A door sweep is installed and regular Preventative Maintenance procedures are in place to keep the space clean and dust free.

6 **Power.** Dedicated circuit with circuit ID labels from two different panels.

7 **UPS/EM Power.** Uninterruptible Power Supply and/or Emergency Power source.

8 **Grounding infrastructure** including a Telecommunications Grounding Busbar (TGB) is installed.

9 **Overhead cable management** and fire-resistant plywood wall are installed. Overhead ladder racks reduce strain on cabling and improve performance.

10 **Cable Termination and Management.** Adequate racks/cabinets and cable management. Horizontal and vertical management systems are in the rack to reduce strain on cabling and improve performance.

11 **Room construction.** Walls extend to deck. Cable penetrations are compliant and sealed (fire stopped).

12 **VCT flooring.** Anti-static tile bonded with copper strips

13 **Ceiling.** Open to deck with 10' minimum height Above Finished Floor.
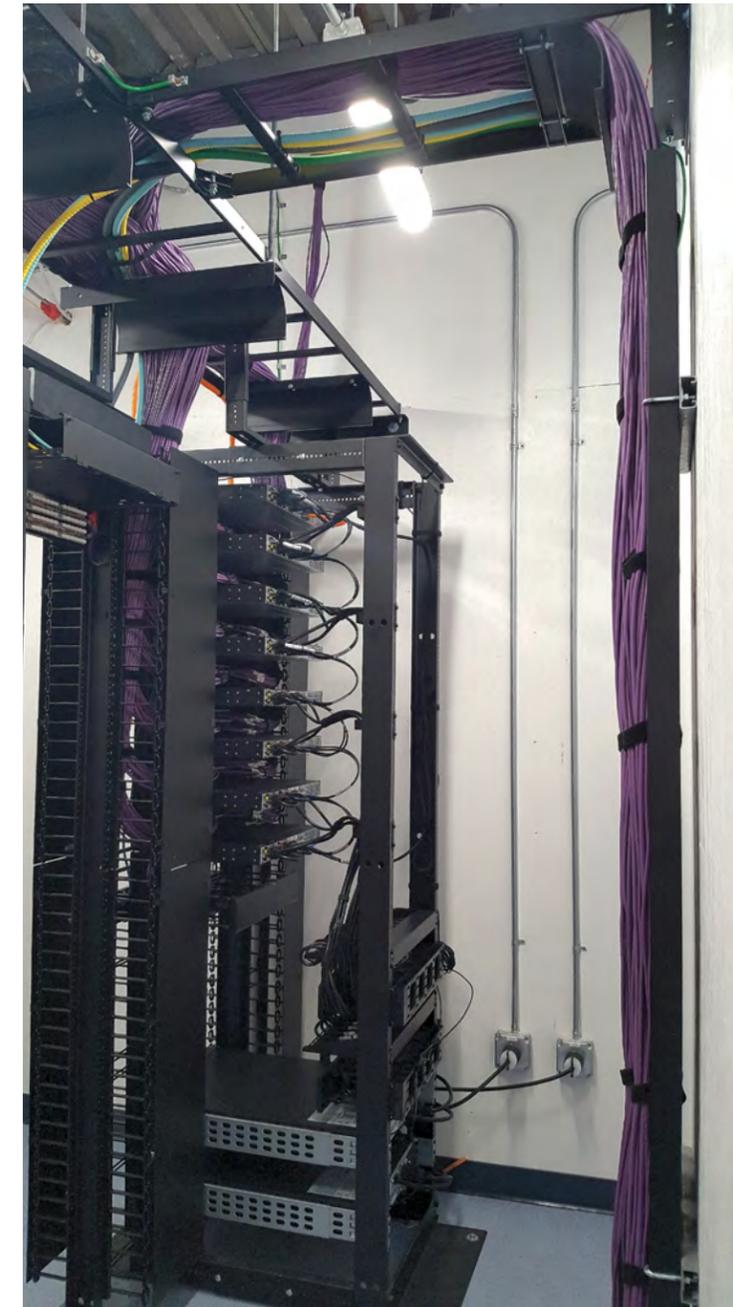
Items of Note

Services vs. Systems

While most of the items surveyed in this report are physical components or devices, there are occasional references to the **services** that use technology systems such as telephone signal and internet service.

Cables, Pathways and Supports

Poke your head above just about any ceiling panel in a school building corridor and chances are you'll see some of the cabling infrastructure through which data is transmitted.

In addition to the type and condition of the cable itself, how the cables are supported within a space is an important component of the survey. Proper supporting structures includes:

• Cable tray for long runs such as down corridors.
• Ladder racking for overhead cable support.
• J hooks to support cable as it exits the the tray and runs to its designated space.
• Conduit used to support cable as it passes through a wall. (See below for more on conduit, penetrations, and firestopping.)

Note that approval from the NYS Education Department's Facilities Planning commission is required just about any time an architectural wall is modified.

Cable management systems in a TR should accommodate both overhead (right) and vertical (far right) cables.

Conduits, Penetrations and Firestop

While conduit is used to properly support cables as they pass through walls, this report also references:

• **Penetrations** which are breaks in an architectural wall that have not been properly finished. Penetrations can range from a few inches square to several feet in area.
• **Firestop** is a sealant that is applied around the circumference of a conduit and around cables in the conduit. As its name implies, this special sealant keeps smoke and flames from spreading between rooms via conduits. Firestop should be installed correctly for every conduit in a building.
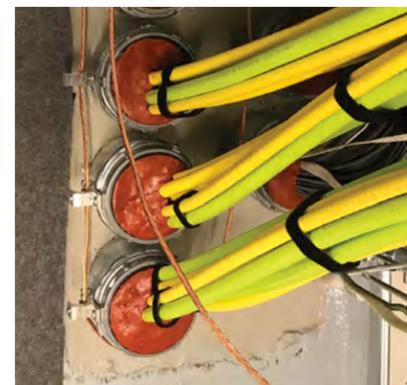
Conduit with proper fill ratio and properly installed firestop. Photo©BICSI. All rights acknowledged.

Telecom Room Power

Telecom Rooms (TRs) include grades for two kinds of electrical power available in the space:

1. Dedicated redundant power
2. Uninterruptible Power Supply (UPS) power

The chart below shows the criteria used to grade each of the two TR power sources.

A dedicated electrical circuit with (2) 20A outlets (left) and an emergency generator outlet with proper labeling.

Dedicated Redundant Power	1. Normal building power is available. 2. Building power outlets are correctly labeled with panel and circuit numbers on machine-printed labels. 3. Emergency building generator outlets are also available. 4. Generator outlets are correctly labeled. 5. Power outlets are located at/directly adjacent to the racks and do not block access to the rear of the racks. 6. A Power Distribution Unit (PDU) is installed and in use. 7. Equipment power is supplied from separate circuits and panels.
UPS Power	1. The UPS is mounted in the rack. 2. No alarms/error messages are displayed on the UPS. 3. The UPS is connected to the network for monitoring. 4. A Power Distribution Unit (PDU) is installed and in use.

For more information including design and installation guidelines, refer to the *Telecom Room Master Plan* supplied with this report.
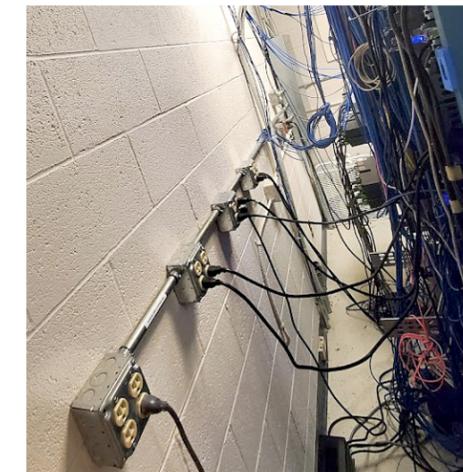
These power cords risk being unplugged when technicians work behind the racks.

Electrical outlets should be mounted to all racks.

UPS units are rack mounted with no error or alarm messages displayed.

Best Practices vs. Cost Effectiveness

While all the recommended improvements in this report are based on strict adherence to industry standards, not all recommendations may be economically feasible at a particular time for the District.

Definitions

Term	Acronym	Description
Americans With Disabilities Act	ADA	1990 U.S. civil rights law prohibiting discrimination based on disabilities.
Architectural/Electrical/Mechanical/Plumbing	AMEP or AMEPT	The four traditional systems that are required for functional buildings. The ubiquity of building IP-based Technology system has led to the newer acronym AMEPT.
Building Distribution Frame	BDF	A legacy Bell Telephone term for the point where all cabling terminates.
Division 27		The section of the MasterFormat CSI specifications that applies to telecomm equipment.
Entrance Facility	ER	The room where the service provider enters a building and the point of demarcation is established.
Electronic Industries Alliance/Telecommunications Industry Association	EIA/TIA	A Telecommunications Standards Organization
Full-Time Employee	FTE	Employment with 36 hours or more per week reporting directly to the District (vs. a contractor).
Gigabit Interface Converter	GBIC	Converts and extends various types of data signals for data centers, enterprises, and ISP.
Global Positioning System	GPS	
Intermediate Distribution Frame	IDF	A legacy Bell Telephone term for a room that supports communications cabling and equipment located between the MDF and end device.
Intermediate Telecommunications Room	ITR	The secondary IT spaces with their own Serving Zones fed from the Main TR.
Inter-building		Between two or more separate buildings.
Intra-building		Within a building.
Internet Service Provider	ISP	An organization that provides the District with access to the Internet.
Main Distribution Frame	MDF	A legacy Bell Telephone term for the main room that supports communications cabling and equipment.
Main Telecommunications Room	MTR	The primary IT space that feeds the Intermediate TRs as well as its own Serving Zone .
Multi-Mode	MM	A transmission performance category for fiber optic cabling.
National Electrical Code	NEC	Electrical wiring standard.
Network Interface Card	NIC	The interface between a network-connected device and communications cabling.
Network Time Protocol	NTP	Used to synchronize computer clock times in a network.
Network Video Recorder	NVR	A digital video recording device primarily used to capture video surveillance camera feeds.
Public Address System	PA	An electronic system for amplifying sound.
Personal Computer	PC	A computer intended for use by an individual which could be a desktop, laptop, tablet or smartphone.
Power Over Ethernet	PoE	A standard to provide data and power to network connected devices over a 4 twisted-pair Ethernet cable.
Plain Old Telephone Service	POTs	Analog voice-grade telephone service.
Prime Rate Interface	PRI	A digital telecommunications interface.
Redundant Array of Independent Disks	RAID	A data storage virtualization technology used for data redundancy.
Rough Order of Magnitude	ROM	A ballpark cost estimate based on data from site surveys and as provided by the District.
Session Initiated Protocol	SIP	A communications protocol for signaling and controlling multimedia communications sessions.
Security Management System	SMS	Network based system that integrates video surveillance, access control under a single user platform
Service Set Identifier	SSID	A sequence of characters that names a wireless local area network.
Serving Zone	SZ	The area of a building for which a CER supports the cabling and equipment.
Technology Conditions Survey	TCS	The onsite survey of a District's buildings' current conditions of technology infrastructure, network connectivity, Communications, Security, and Audio/Visual (including Instructional) systems, as well as computing devices. This report is the final TCS deliverable to the client.
Telecommunications Ground Bar	TGB	A component of the Telecommunications Bonding and Grounding system that connects the telecommunications bonding backbone conductor to the TMGB to improve the performance of network cabling and equipment.
Telecommunications Main Ground Bar	TMGB	A component of the Telecommunications Bonding and Grounding system that connects the telecommunications bonding conductor to the electrical entrance facility to improve the performance of network cabling and equipment.
Telecommunications Room	TR	A room that supports communications systems cabling and equipment.
Uninterruptible Power Supply	UPS	Equipment that maintains power to network equipment in the event of a power outage.
Vinyl Composition Tile	VCT	The anti-static version of these tiles are used in CERs to reduce the risk of static discharge and potential damage to network equipment.
Video Graphics Array Connector	VGA	An analog connector that transmits a video signal from a source to a display.
Virtual Local Area Network	VLAN	A method of partitioning network traffic on a common network.
Voice Over Internet Protocol	VoIP	Methods for delivering voice communications and multimedia over IP networks.
Wireless Access Point	WAP	A device that allows wireless devices to connect to a wired network. Note that each WAP is connected to a building's network via cables (i.e., hard wired).

Codes and Standards

" Unlike the construction industry's state-mandated codes, the telecommunications industry is primarily governed by trade association-developed standards. "

Unlike the construction industry's state-mandated codes, the telecommunications industry is primarily governed by trade association-developed standards. These standards are voluntary on the part of the building owner to develop facilities that move and consume data to improve operations and systems' usable lives.

Follett Software (FS) Managed Services follows all standards published by BICSI, the telecom industry trade association that certifies Registered Communication Distribution Designers (RCDDs). Our Managed Services team has two full-time RCDDs on staff.

The following is a list of codes and standards that apply to the scope of this document.

1. ANSI/TIA/EIA-568-C, Commercial Building Telecommunications Wiring Standard
   a. ANSI/TIA-568-C.0, Generic Telecommunications Cabling for Customer Premises, published 2009
   b. ANSI/TIA-568-C.1,Commercial Building Telecommunications Cabling Standard, published 2009
   c. ANSI/TIA-568-C.2, Balanced Twisted-Pair Telecommunication Cabling and Components Standard, published 2009
   d. ANSI/TIA-568-C.3, Optical Fiber Cabling Components Standard , published 2008, errata issued in October, 2008
2. ANSI/TIA-569-B Commercial Building Standard for Telecommunications Pathways and Spaces.
3. ANSI/TIA-606-A Administration Standard for Commercial Telecommunications Infrastructure
4. ANSI-J-STD-607-A Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.
5. ANSI/TIA-758-A, Customer-Owned Outside Plant Telecommunications Infrastructure Standard.
6. BICSI: Comply with the most current editions of the following BICSI manuals:
   a. BICSI - Telecommunications Distribution Methods Manual
   b. BICSI – Installation Transport Systems Information Manual
   c. BICSI – Network Design Reference Design Manual
   d. BICSI – Outside Plant Design Reference Manual
   e. BICSI – Wireless Design Reference Manual
   f. BICSI -Electronic Safety and Security Design Reference Manual
   g. Infocomm/BICSI – AV Design Reference Manual
7. New York State Uniform Fire Prevention and Building Code
8. New York State Department of Labor Rules and Regulations
9. New York State Department of Health
10. Federal Occupational Safety and Health Administration (OSHA)
11. National Life Safety Code, NFPA 101
12. National Electrical Code, NFPA 70
13. Underwriters Laboratory (UL)
14. IEEE Standards
15. Federal Communications Commission
16. National Electrical Manufacturers' Association (NEMA)
17. Americans with Disabilities Act (ADA)

1. Executive Summary

On November 12 – 13, 2025, Follett Software Managed Services completed a comprehensive Technology Conditions Survey (TCS) for Anytown Central School District (ACSD) in Anytown, USA.

The TCS is intended to provide the District with an objective evaluation of the current state of the technology systems and infrastructure that support the daily educational and business operations within the district.

The survey included a review of these district-wide technology systems and devices as well as its overall technology plan:

TECHNOLOGY INFRASTRUCTURE	1. Horizontal Cabling 2. Backbone Cabling 3. Communications Pathways 4. Spaces including Telecommunications Rooms (TRs)
NETWORK HARDWARE	1. Network Hardware 2. Wireless Network 3. Emergency Power/UPS 4. Network Security and Monitoring 5. Telecommunications Services (phone and internet)
COMMUNICATIONS SYSTEMS	1. Public Address (PA) 2. Telephone 3. Master Clock 4. Lockdown Notification 5. Performance Sound Reinforcement
SECURITY SYSTEMS	1. Access Control 2. Video Surveillance 3. Lockdown Initiation 4. Intrusion Alarm 5. Visitor Entry
INSTRUCTIONAL TECHNOLOGY	1. Displays 2. Classroom Audio Reinforcement 3. Document Cameras
STUDENT DEVICES	1. PCs/Laptops/Tablets
TEACHER AND ADMIN TECHNOLOGY	1. Teacher Computing Devices 2. Admin Computing Devices 3. Copiers and Printers

The colors shown for each of the above Technology systems are used consistently throughout this Report including the *10-Year Roadmap.*
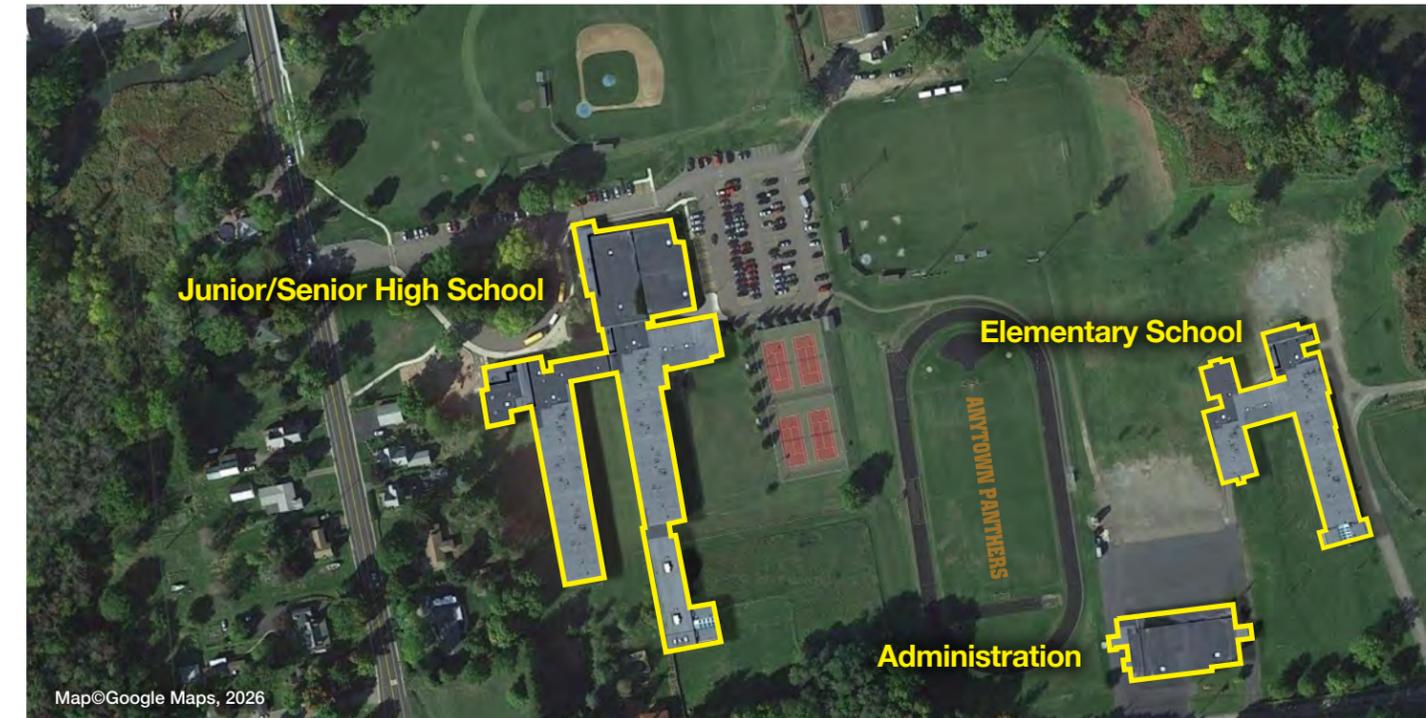
About the District

Anytown Central School District (ACSD) is located in the Town of Anytown in Washington County, USA.

There is (1) elementary school, (1) junior/senior high school, and an administrative building with a total interior space of approximately 269,000 sq. ft.

Instructional Buildings	1. Elementary School (62,000 sq. ft.) 2. Junior/Senior High School (186,000 sq. ft.)
Non-Instructional Buildings	3. Administration Building (21,000 sq. ft.)

Anytown Central District buildings surveyed for Technology Conditions

Map©Google Maps, 2026

1. Executive Summary (cont.)

Technology Infrastructure

GRADING ▶

Grades are based on the current conditions of the district's Technology Infrastructure—cable, pathways, and spaces—observed during Follett Software Managed Services' on-site surveys as detailed in this Report.

4 = Excellent. Meets/exceeds district's current and expected needs.

3 = Good. Meets district's current needs but upgrades are needed.

2 = Fair. Minimally meets current needs. Major upgrades are needed.

1 = Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 = Fail. System is not installed/implemented at the district.

SYSTEMS AND DISTRICT GOALS ▼

- Each major technology system is color coded to align with the district goal it supports as listed below.
- Technology projects are aligned with these goals in the *10-Year Comprehensive Technology Roadmap*.

MAJOR DISTRICT TECHNOLOGY GOALS

1. Scalable Infrastructure
2. Reliable Network
3. Enhanced Communications
4. Safe School Environment
5. Tech-Enriched Environment
6. Personalized Learning
7. Teachers & Staff Computing

Technology systems are color-coded based on the district goal they support as shown in the 10-Year Comprehensive Technology Roadmap at the end of this report.

ED LAW 2D indicates a potential NYS Ed Law 2D compliance issue.

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1. SCALABLE TECHNOLOGY INFRASTRUCTURE

SUBSYSTEM	SUMMARY OF CURRENT CONDITIONS	SUBSYSTEM GRADE	SYSTEM GRADE	RECOMMENDED IMPROVEMENT SUMMARY
1. CABLES AND PATHWAYS				
Horizontal Cable	A mix of Category 5, 5e and 6 cables are installed which does not meet district needs. There are multiple cable performance and termination hardware mismatches, and poor terminations. Cable counts are adequate and labeling is adequate. No serving zone as built drawings available. WAPs lack (2) Cat6A cables and have mismatched terminations.	2.0	2.0	1. Upgrade all existing Cat5 and 5e cable to Cat6A. 2. Terminate cables in patch panels. 3. Standardize all TR designations. 4. Implement a district-wide cable labeling program. 5. Install (2) Cat6A cables to all WAPs.
Backbone Cable	Redundant cores at service provider feeds. Patch cables are not protected or supported. Intra-building backbone is armored Single Mode which meets needs. Inter-building backbone has damaged and unsupported patch cables. Equipment cabinets are typically unprotected and lack overhead cable support.	3.2		1. Add cable supports. 2. Protect patch cables from wall panels to equipment racks.
Communications Pathways	All buildings lack adequate cable tray, cable supports, and firestopped conduits.	0.8		Install cable tray, cable supports and firestopped conduits throughout all buildings.
2. SPACES (TELECOM ROOMS)				
Elementary School	(1) TR is in fair condition and (1) is poor.	3.6	2.4	Upgrade (1) TR. Identify a new location and build out (1) new TR.
Junior/Senior High School	(2) TRs are in fair condition and (1) is poor.	1.7		Dedicate/upgrade (2) TRs. Identify a new location and build out (1) new TR.
Administrative Building	The (1) TR is in fair condition.	3.2		Upgrade (1) TR.

Examples of Technology Infrastructure in Anytown CSD Central School District

Horizontal Cable

Installed Cat 6 and 6A cable (pictured) are mixed with non-compliant Cat5 and Cat 5e cabling throughout the District..

Backbone Cable

The district's Single-Mode fiber (yellow cable) meets needs although it lacks adequate supports.

Communications Pathways

Cable resting on non-compliant building steel due to lack of cable pathways down hallways and corridors.

Telecom Room (TR)

A district TR with unsecured network equipment in a shared space accessible to non-IT staff.

1. Executive Summary (cont.)
Other District-wide Systems

SYSTEM/SUBSYSTEM	SUMMARY OF CURRENT CONDITIONS	SUBSYSTEM GRADE	SYSTEM GRADE	RECOMMENDED IMPROVEMENT SUMMARY
2. NETWORK CONNECTIVITY				
Network Hardware	The District lacks core switch redundancy and an adequate network switch refresh cycle.	3.0	2.7	Install a second core data switch and update switches every 6 years per the *10-Year Roadmap*.
Wireless Network	The system and its components—excluding cabling—meet needs.	3.7		Install a second Cat6A cable to all WAPs per Horizontal Cable recommendation.
Emergency Power/UPS	Adequate IT equipment emergency power is lacking throughout the district.	0.0		Install building generators with emergency power outlets in all TRs. Use UPS units for the Admin building.
Network Security and Monitoring	District-provided services meet needs.	4.0		No recommendations at this time.
Telephone Service	Current analog services meet district needs.	4.0	4.0	No recommendations at this time.
Internet Service	Current internet services meet district needs.	4.0		
3. COMMUNICATIONS SYSTEMS				
Public Address (PA)	The district's analog PA systems are at End-Of-Life.	2.0	1.9	Replace the PA system with a full IP or IP/analog system per the *10-Year Roadmap*.
Phone	The current Acme system and its components meet district needs.	4.0		No recommendations at this time.
Master Clock	District needs are nominally met by the current mix of wireless PrimeTic and wired SimTic clocks. However important Security Systems integrations are not possible.	2.0		Upgrade the Master Clock system per the *10-Year Roadmap* and leverage Phone and Security Systems integrations.
Lockdown Notification	The district lacks this capability.	0.0		Upgrade the phone system to include emergency notification software and integrate with the new PA system.
Performance Sound Reinforcement	ADA compliant devices and auto-muting are not available district wide.	1.5		Procure appropriate equipment and install with PA auto-mute capabilities.
4. SECURITY SYSTEMS				
Access Control	Main entrance doors are controlled but perimeter doors are not monitored. Card readers are lacking or non-operational in some locations.	2.3	2.1	Install door monitoring with notifications and install/replace card readers as needed.
Video Surveillance	The current coax-based system does not meet district needs.	1.0		Upgrade video surveillance system to an IP-based controller and cameras per the *10-Year Roadmap*.
Lockdown Initiation	The current system and components meet district needs.	3.0		Consider a mobile application for designated district staff.
Intrusion Alarm	Door perimeter intrusion system and security motion detectors are not installed.	0.0		Install door perimeter intrusion system and security motion detectors as needed.
Visitor Entry	The system and its components meet district needs.	4.0		No recommendations at this time.
5. INSTRUCTIONAL TECHNOLOGY				
Displays	The districts has upgraded ≈70% of its displays to Acme 70 Interactive Flat Panels (IFPs).	3.0	2.3	Continue with the current initiative to refresh some IFPs each year
Classroom Audio Reinforcement	No classroom audio reinforcement systems are installed.	0.0		Further the use of audio reinforcement in the classroom and establish, maintain refresh cycles.
Document Cameras	The current system and components meet district needs.	4.0		No recommendations at this time.
6. STUDENT DEVICES				
PCs/Laptops/Tablets	Student laptops and tablets meet district needs but desktops do not.	2.8	2.8	Upgrade student desktops and maintain all refresh cycles per the *10-Year Roadmap*.
7. TEACHER & ADMIN TECHNOLOGY				
Teacher Computing Devices	Current iMac desktops and outdated laptops are in use.	2.0	2.7	Laptops are scheduled to be upgraded in the summer of 2027. Maintain all refresh cycles per the *10-Year Roadmap*.
Admin Computing Devices	≈50% of admin desktops are obsolete.	2.0		
Copiers and Printers	The current Acme-leased equipment meets district needs.	4.0		

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.

3 Good. Meets district's current needs but upgrades are needed

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

2. Existing Conditions and Recommended Improvements

Telecom Infrastructure

The *10-Year Roadmap* on page 54 includes Rough Order of Magnitude cost estimates to implement these recommendations.

GRADING ▶ 4 = Excellent　3 = Good　2 = Fair　1 = Poor　0 = Fail.

TELECOMMUNICATIONS INFRASTRUCTURE (1 of 2)					
CURRENT GRADE **2.1** out of 4.0 **RECOMMENDATIONS** 1. Upgrade all existing Cat5 and 5e cable to Cat6A. 2. Terminate cables in patch panels. 3. Standardize all TR designations. 4. Implement a consistent district-wide cable labeling program. 5. Install (2) Cat6A cables to all WAPs. 6. Add cable supports. 7. Protect patch cables from wall panels to equipment racks. 8. Upgrade and expand pathways. 9. Install additional conduit sleeves and apply firestopping. 10. Construct a bonding and grounding infrastructure, and bond cable pathways.	Unlike other technology systems that are consistent district wide, Telecommunications Infrastructure tends to vary by building or sections upgraded during capital projects.			Unless otherwise designated, the Current Conditions and Recommended Improvements noted below apply to all Anytown CSD buildings.	
	SYSTEM	**SYSTEM GRADE**	**SUBSYSTEM**	**SUBSYSTEM GRADE**	**CURRENT CONDITION** ‖ **RECOMMENDED IMPROVEMENTS**

SYSTEM	SYSTEM GRADE	SUBSYSTEM	SUBSYSTEM GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS

Horizontal Cabling	2.0	Horizontal UTP Cabling	1.8	• There is currently a mix of Category 5, 5e and 6 cables with adequate labeling throughout the District.
				  – Category 5 is no longer a recognized performance class for network cabling.
				• Cable installations after the initial construction are not supported to the patch panel point of termination.
				• Cable performance and termination hardware mismatches observed.
				• Poor cable termination methods.
				  – Performance mismatched cable and termination hardware.
				  – Terminations with excess wire at the IDC.
				  – Keystone jacks not mounted in patch panel frames.
				  – UTP cable terminated with crimp on connectors and plugged directly into switches.
					• Upgrade all existing Cat5 and 5e cable to Cat6 minimally.
					• Terminate category 6 and 6A cable with hardware that matches the cables performance category.
					• Terminate cables in patch panels.

		Cable Counts	2.7	Generally, cable counts are adequate for current District needs. • Classrooms-typically 4-6 • Office-typically 2-4	No recommendations at this time.
		Cable Labeling	3.0	Typically meets industry standards.	No recommendations at this time.
		Serving Zones	1.0	• Work area outlet labels identify TR of origin, providing some guidance to serving zone boundaries. • No serving zone as built drawings available.	• Standardize all TR designations as per the Serving Zone drawings in this Report. • Implement a consistent district-wide cable labeling program from TRs through cable drops in classrooms and all other spaces that conforms with industry standards. • Install all cables within designated serving zone boundaries to appropriate TR.
		Wireless Access Point (WAP) Cabling	1.5	• Typically Category 5e with minimal Category 6 and 6A. • Performance mismatched termination where Category 6 and 6A cables are terminated on Category 5e patch panels.	Install (2) Cat6A cables to all WAPs.

Examples of cable and cable support installations throughout the district:

1. Multiple occurrences of performance mismatch. Cat6 patch cable to Cat5 outlet. Labeling conforms to standards with space, panel and port ID.

2. Outdated and non-compliant Cat5 patch panel with poor terminations..

3. Poor cable installation methods.

4. Cables lack adequate support and are poorly installed.

Additional district infrastructure photos appear on pp. 10 – 11 and 18 – 19.
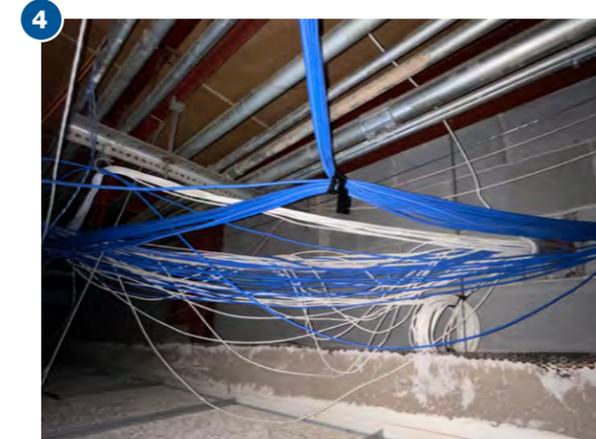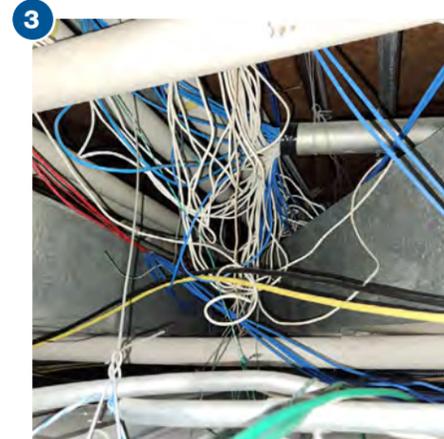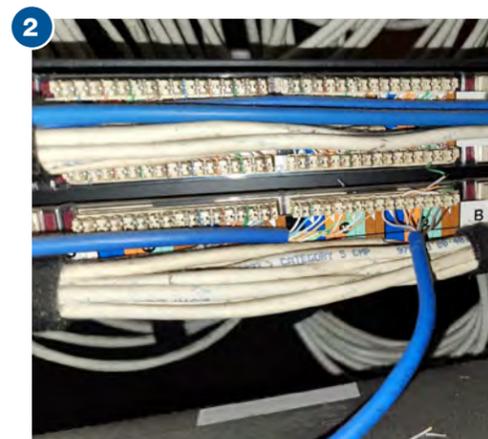
2. Existing Conditions and Recommended Improvements (cont.)

The *10-Year Roadmap* in section 4 includes Rough Order of Magnitude cost estimates to implement these recommendations.

GRADING ▶ 4 = Excellent   3 = Good   2 = Fair   1 = Poor   0 = Fail.

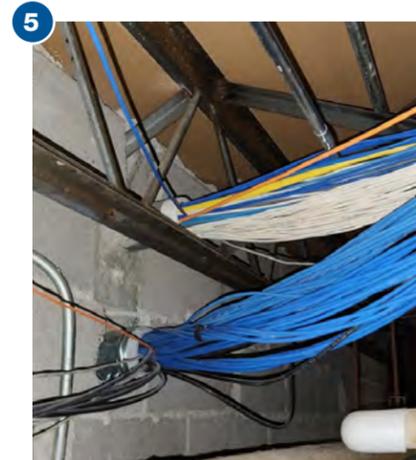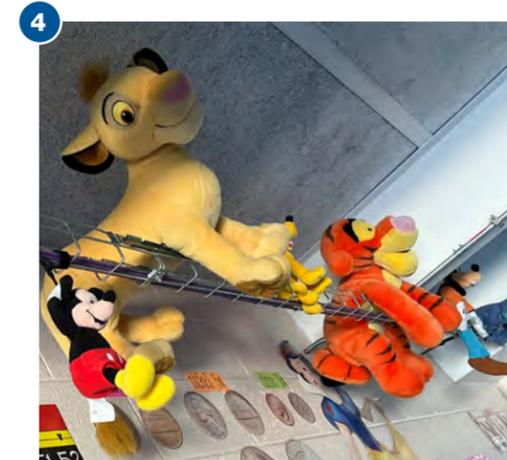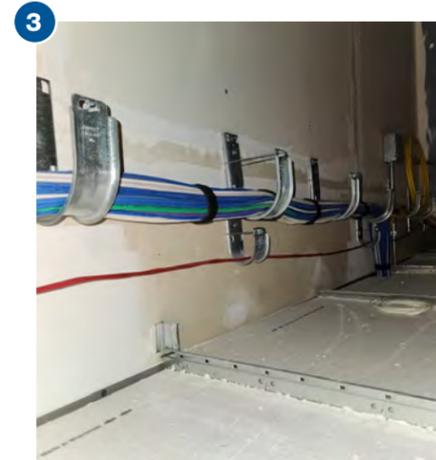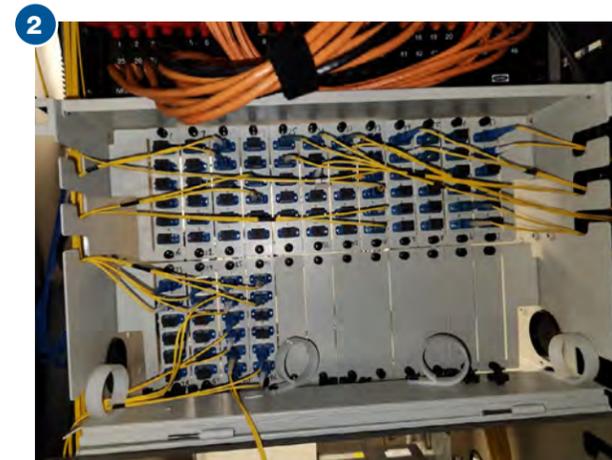### TELECOMMUNICATIONS INFRASTRUCTURE (2 of 2)

CURRENT GRADE
See previous page.

RECOMMENDATIONS
See previous page.

Examples of cable and cable support installations throughout the district:

1. *Jr./Sr. High School carrier and intra-building fiber are not supported by approved cable supports or protected by innerduct.*
2. *Operations Center redundant inter-building backbone fiber. The patch cables are not properly routed in a cable management system.*
3. *J hooks are properly sized and spaced in the Elementary School.*
4. *Unfortunately displaying colorful stuffed animals on cable pathways is not standards compliant.*
5. *Conduit sleeves are full.*

Additional district infrastructure photos appear on pp. 10 – 11 and 16 – 17.

SYSTEM	SYSTEM GRADE	SUBSYSTEM	SUBSYSTEM GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Backbone Cabling	3.2	Carrier/ISP Fiber	3.0	• Redundant cores at service provider feeds. • **Jr./Sr. HS MTR-A.** Patch cables are not protected or supported.	**Jr./Sr. HS MTR-A.** Provide split innerduct to protect fiber patch cables. Support innerduct and patch cables with overhead cable management.
		Intra-building Fiber Optic Backbone (within a building)	4.0	Armored single mode.	No recommendations at this time.
		Inter-building Fiber Optic Backbone (between buildings)	2.5	• District-owned fiber. • **Jr./Sr. HS MTR-A.** Patch cable is damaged at the core switch. • **ES.** Fiber from the transition splice to the TR is not supported. Cable is laying on ceiling grid and not in innerduct or armored. • Patch cable from wall mount panels to equipment cabinets are typically unprotected and not adequately supported overhead.	• Replace damaged patch cable in the Jr./Sr. HS MTR-A . • Replace short patch cable in Jr./Sr. HS MTR-A and route through cable management. • Add cable supports. • Protect patch cables from wall panels to equipment racks with split innerduct. Secure to overhead cable management.
Communications Pathways	0.8	Cable Tray	0.0	No cable tray is installed in any main corridors or TRs. Cables were observed laying on the grid and/or supported by building steel, neither of which complies to industry standards.	Upgrade and expand pathways with cable tray or J-Hooks spaced every 4'.
		Cable Supports	2.0	• Cabling is typically supported by J-hooks or bridal rings. Bridal rings are only acceptable when equipped with cable saddles. • Spacing of cable support typically exceeds 5'.	Upgrade and expand pathways with cable tray or J-Hooks spaced every 4'.
		Conduit	1.2	• Most conduits lack firestop. • Conduits need to be added to select TRs to properly support incoming cables. • Conduit sleeves are at or near capacity	• Apply firestopping in and around conduit sleeves as needed. • Install additional conduit sleeves as needed.
		Bonding & Grounding	0.0	There is no grounding infrastructure in TRs.	• Construct a bonding and grounding infrastructure per EIA/TIA 607 standards. • Bond continuous cable pathways over 10' in length and 1.25" in diameter.

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

1. Anytown Elementary School

The *10-Year Roadmap* on page 57 includes Rough Order of Magnitude cost estimates to implement these recommendations.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: MTR-A, Telecom Room (A7)

Anytown Elementary School - MTR-A, Telecom Room (A7)

CURRENT GRADE
2.2 out of 4.0

CURRENT CONDITION
The space is in **fair** condition but requires significant investment to meet industry standards

RECOMMENDATION
Upgrade the current space.

ROM COST ESTIMATE
$52,500

Summary of Recommendations — Upgrade the space to meet industry standards as detailed below.

Photos, clockwise from top left:

1. *The secured space contains (2) open floor-mount racks with poor cable management.*
2. *The intra-building fiber feeds into this space. Single-Mode fiber connects the 2 TRs in the ES.*
3. *The video surveillance server is mounted in one of the racks.*
4. *Overhead cables are not managed by standards-compliant supports.*

CATEGORY	CATEGORY GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
1. Room Size & Rack Access	3.0	The room size does not meet industry standards but is functional at its current size.	Reposition equipment racks to achieve minimum recommended front and back clearances.
2. Water Risk	4.0	No potential direct water threats were observed.	No recommendations at this time.
3. Location	4.0	The space has direct hallway access and is centrally located in the Serving Zone.	No recommendations at this time.
4. Security	1.0	• The space lacks card reader access control. • The space lacks video surveillance coverage. • The door does not close automatically.	• Install Access Control card reader keyed for IT staff only. • Install a dedicated video surveillance camera focused on the door to the space. • Install and automatic door closing device.
5. Environmental Control	2.0	• The space has a dedicated AC system but no exhaust fan. • A dedicated AC system was observed but it was not operational at the time of the survey.	• Consider installing an exhaust fan to improve air circulation. • Confirm that the existing AC system is operational and keep the unit energized. Replace the system if it is not functional.
6. Dedicated and Redundant Power	3.0	• Adequate duplex electrical outlets are available. • Some power connections are hand-written labeled	• Relocate outlets based on repositioned equipment rack locations. • Affix machine-printed labels to all power connections with panel and circuit IDs.
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.	Install a building emergency power generator and have properly labeled direct connections installed in all building TRs.
8. Grounding Infrastructure	0.0	No bonding or grounding infrastructure was observed.	Install a grounding and bonding infrastructure with a TGB. Bond all racks, pathways, and equipment.
9. Overhead Cable Management	2.0	• No standard compliant overhead cable management system is installed. • Cable radius control is lacking as where cables exit the cable management.	• Install an overhead cable management system (ladder racks, J hooks) with space for additional capacity. • Install a cable radius control system.
10. Cable Termination and Management	2.0	• Cables are not correctly installed and/or supported within the rack. • Patch panels are correctly labeled. • Some patch panels and cable jackets behind the panels lack machine-printed labeling. • Plywood is not installed on any wall..	• Install new racks with vertical and horizontal cable management. Properly reinstall the cables into the managers • Affix machine-printed labels to all patch panels, cords and cable jackets behind the panel. • Install plywood that is either fire retardant painted on at least one wall.
11. Room Construction	2.0	• The walls extend to the deck. • Cable pathways are at or over capacity. • Pathways are not properly firestopped. • The space has a swing-in door that will be in conflict with the new rack locations.	• Install properly sized conduit with proper firestop where it is lacking. • Install new out-swinging door
12. VCT Flooring	1.0	The floor is bare concrete.	Install anti-static VCT floor bonded to the grounding system with copper strips.
13. Ceiling	4.0	The ceiling is open to the deck more than 10' Above Finished Floor	No recommendations at this time.

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.
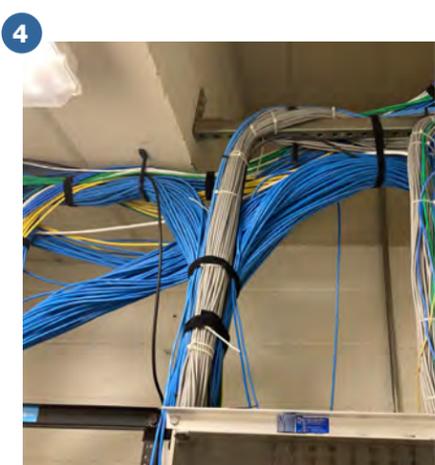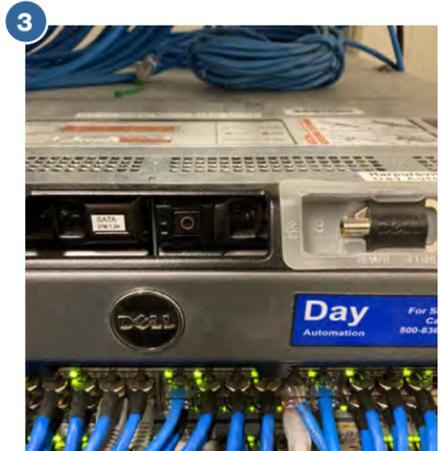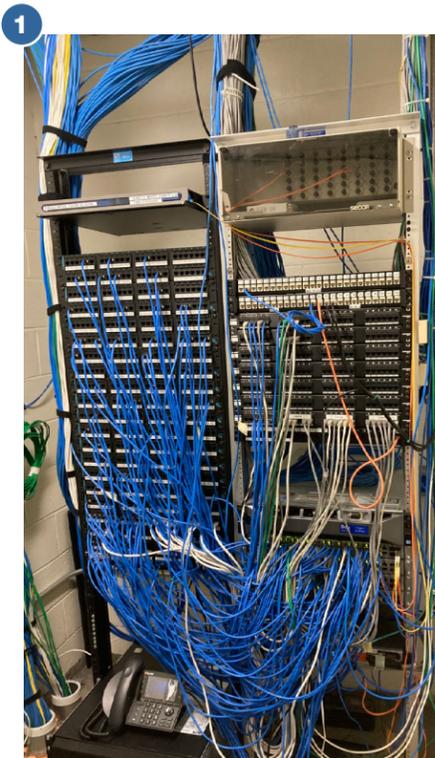
3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

1. Anytown Elementary School (cont.)

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: TR-B, Telecom Room (B3)

Anytown Elementary School - TR-B, Telecom Room (B3)

CURRENT GRADE
1.0 out of 4.0

CURRENT CONDITION
The space is in **poor** condition and is not worth the investment to upgrade the space to industry standards.

RECOMMENDATION
Abandon the current space.

ROM COST ESTIMATE
$5,400

Summary of Recommendations

Abandon the space. Identify a new space that meets industry standards, construct a new compliant TR, and move all IT equipment to it.

CATEGORY	CATEGORY GRADE	CURRENT CONDITION
1. Room Size & Rack Access	1.0	The space lacks adequate front and/or rear rack clearances due to poor configuration and stored non-IT items.
2. Water Risk	4.0	No potential direct water threats were observed.
3. Location	2.0	• There is no direct hallway access to the space. It is entered via admin office. • The space is centrally located in the Serving Zone.
4. Security	0.0	• The network equipment and infrastructure are in an open unlocked equipment rack/cabinet. • The space is shared and accessible to non-IT staff. • The space lacks video surveillance coverage.
5. Environmental Control	1.0	• The space has an exhaust fan but no dedicated AC system. • The TR and installed hardware lack temperature monitoring with notifications.
6. Dedicated and Redundant Power	1.0	• The circuit is not dedicated. • Power connections lack proper labeling.
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.
8. Grounding Infrastructure	0.0	No bonding or grounding infrastructure was observed.
9. Overhead Cable Management	0.0	No overhead cable management system is installed.
10. Cable Termination and Management	1.0	• Cables are not correctly installed and/or supported within the rack. • Patch panels and cable jackets behind the panels lack machine-printed labeling. • Cables are not properly terminated.
11. Room Construction	1.0	• The walls extend to the deck. • Cables enter the space in non-compliant pathways. • Plywood is not installed on any wall.
12. VCT Flooring	0.0	The floor is carpeting.
13. Ceiling	2.0	The ceiling is less than 10' Above Finished Floor and is not open to the deck.

RECOMMENDED IMPROVEMENTS

1. Abandon the space.
2. Identify a new space that meets industry standards.
3. Construct a new compliant TR in the space.
4. Move all IT equipment to the new TR.
5. Remove all abandoned equipment and cables from the space.

ES TR-B (Room B3) to be abandoned
AFFECTED INFRASTRUCTURE

ITEM	QUANTITY
Switches	3
Cat 6 cable	80
Fiber	1
Other equipment	Phone

All cable counts are approximate.

FIRST FLOOR

Photos, clockwise from top left:
1. The open free-standing rack is in an unsecured space shared with the storage of non-IT items.
2. Poorly managed, primarily Cat5 cables in the rack.
3. A coil of Cat6 cable above the ceiling tile appears destined for installation in this space.
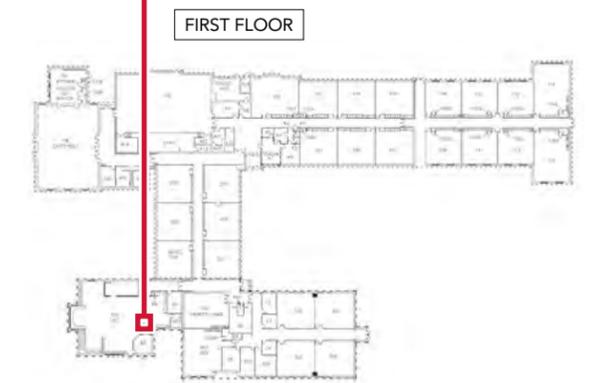4. Cables are improperly terminated.

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.

3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

Follett Software Managed Services presented to Anytown USA Central School District

Comprehensive Technology Report and Plan

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

2. Anytown Junior/Senior High School

The *10-Year Roadmap* on page 57 includes Rough Order of Magnitude cost estimates to implement these recommendations.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: MTR-A, Telecom Room (1120)

Anytown Junior/Senior High School - MTR-A, Telecom Room (1120)

CURRENT GRADE
3.3 out of 4.0

CURRENT CONDITION
The space is in **good** condition and requires moderate upgrades to meet industry standards.

RECOMMENDATION
Upgrade the current space.

ROM COST ESTIMATE
$37,000

Summary of Recommendations Upgrade the space to meet industry standards as detailed below.

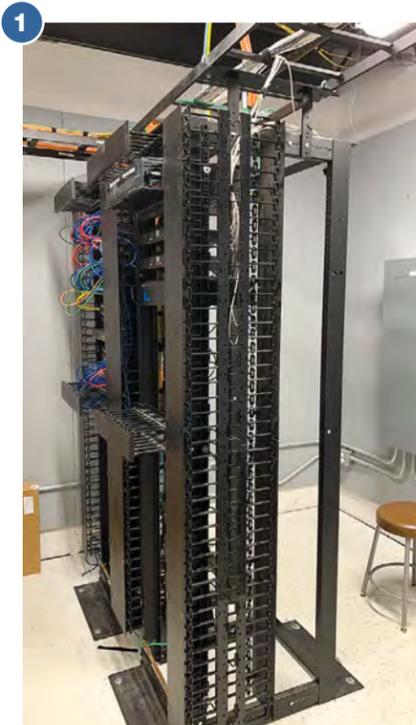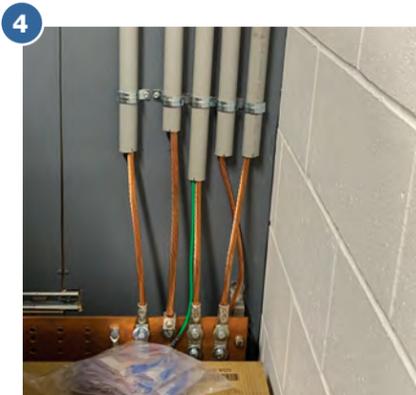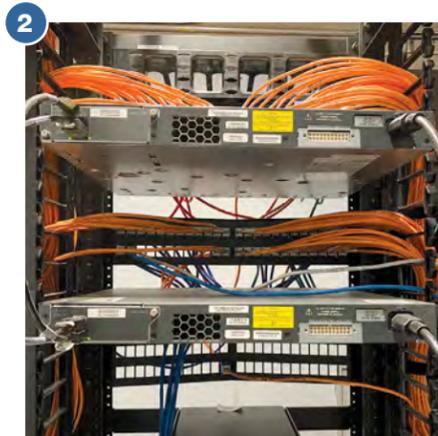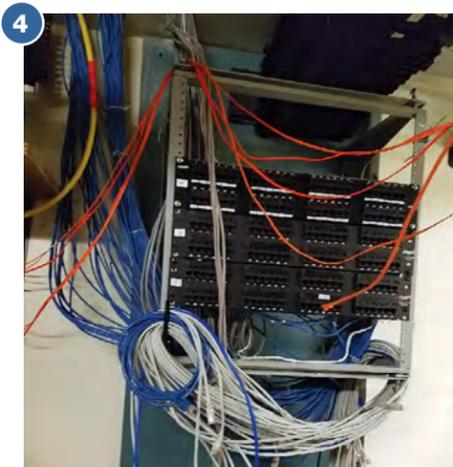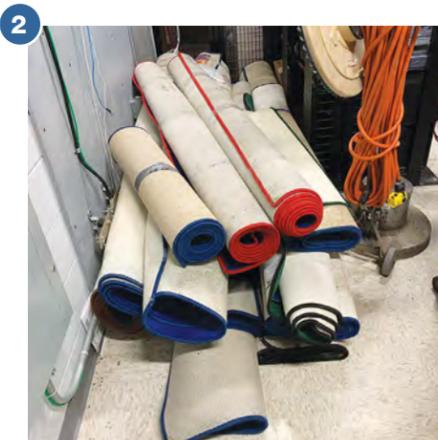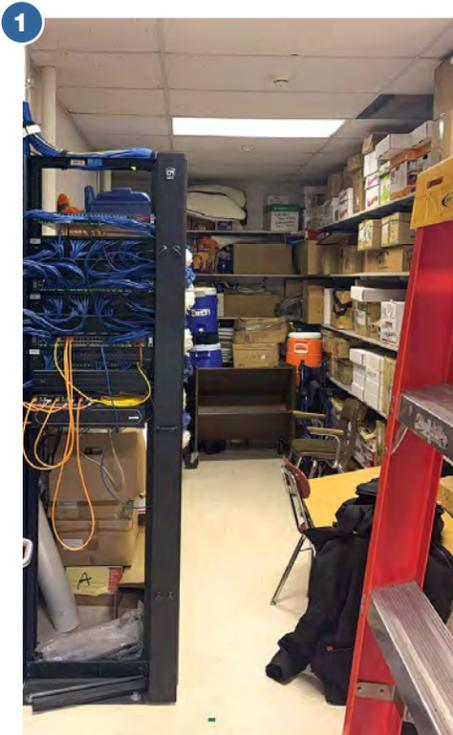| CATEGORY	CATEGORY GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
1. Room Size & Rack Access	4.0	• The room size meets industry standards. • The space has a swing-in door that does not impede rack access.	No recommendations at this time.
2. Water Risk	4.0	No potential direct water threats were observed.	No recommendations at this time.
3. Location	4.0	The space has direct hallway access and is centrally located in its serving zone.	No recommendations at this time.
4. Security	3.0	• The door to the space has a card reader installed with access limited to IT staff. • The space lacks video surveillance coverage.	Install a dedicated video surveillance camera focused on the door to the space.
5. Environmental Control	4.0	The space has a dedicated AC system and a temperature monitoring system connected to the network.	No recommendations at this time.
6. Dedicated and Redundant Power	3.0	• The circuit is dedicated. • (1) unlabeled duplex outlet is installed and an outlet is available.	Properly label all electrical outlets.
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.	Install a building emergency power generator and have properly labeled direct connections installed in all building TRs.
8. Grounding Infrastructure	4.0	A proper bonding/grounding infrastructure is installed and IT equipment is connected.	No recommendations at this time.
9. Overhead Cable Management	4.0	Proper overhead cable management with correctly installed cable and room for additional capacity is installed.	No recommendations at this time.
10. Cable Termination and Management	3.0	• Patch panels are properly labeled but cable jackets are not. • The rack has sufficient cable management.	Properly label cable jackets.
11. Room Construction	3.0	• Walls do not extend to the deck but plywood is installed on at least one wall. • Cables enter the space in compliant firestopped pathways.	Extend the walls to the deck.
12. VCT Flooring	3.0	VCT flooring is installed but is not bonded.	No recommendations at this time.
13. Ceiling	4.0	The ceiling is open to the deck more than 10' Above Finished Floor.	No recommendations at this time.

Photos, clockwise from top left:
1. *The dedicated secure space includes (3) newer equipment racks.*
2. *The racks include properly installed cable lengths and management.*
3. *A properly labeled electrical outlet from the building's emergency generator.*
4. *A properly installed grounding bar with all components correctly connected.*

GRADING KEY
4 Excellent. Meets/exceeds district's current and expected needs.
3 Good. Meets district's current needs but upgrades are needed.
2 Fair. Minimally meets current needs. Major upgrades are needed.
1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.
0 Fail. System is not installed/implemented at the district.

Follett Software Managed Services presented to Anytown USA Central School District

Comprehensive Technology Report and Plan

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

2. Anytown Junior/Senior High School (cont.)

The *10-Year Roadmap* on page 57 includes Rough Order of Magnitude cost estimates to implement these recommendations.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: TR-B, Telecom Room (1143)

Anytown Junior/Senior High School - TR-B, Telecom Room (1143)

CURRENT GRADE

1.7 out of 4.0

CURRENT CONDITION

The space is in **poor** condition and requires **significant** upgrades to meet industry standards.

RECOMMENDATION

Dedicate and upgrade the current space.

ROM COST ESTIMATE

$97,000

Summary of Recommendations

Upgrade the space to meet industry standards as detailed below.

Photos, clockwise from top left:

1. *Unsecured space shared with office supply storage.*
2. *Rugs are stored in close proximity to IT equipment racks.*
3. *A grounding bar is installed in the rack but no equipment is connected to it.*
4. *Abandoned legacy cable installed in the space.*

CATEGORY	CATEGORY GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
1. Room Size & Rack Access	2.0	• The room size meets industry standards. • The space lacks adequate front and/or rear rack clearances due to its poor configuration and stored non-IT items.	• Remove the stored non-IT items. • Dedicate the space to IT equipment and limit access to IT staff. • Reposition the rack for adequate clearances.
2. Water Risk	4.0	No potential direct water threats were observed.	No recommendations at this time.
3. Location	2.0	The space lacks direct hallway access and must be entered through a classroom. The space is centrally located in its serving zone.	No recommendations at this time.
4. Security	1.0	• The space is shared and accessible to non-IT staff. • The network equipment and infrastructure are in an open unlocked equipment rack/cabinet. • The space lacks card access and video surveillance coverage.	• Install Access Control card reader keyed for IT staff only. • Install a dedicated video surveillance camera focused on the door to the space.
5. Environmental Control	0.0	The space lacks a dedicated AC system and a temperature monitoring system connected to the network.	Install a dedicated AC system and a temperature monitoring system.
6. Dedicated and Redundant Power	3.0	• The circuit is dedicated. • (2) unlabeled duplex outlets are installed and an outlet is available.	Properly label all electrical outlets.
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.	Install a building emergency power generator and have properly labeled direct connections installed in all building TRs.
8. Grounding Infrastructure	1.0	A proper bonding/grounding infrastructure is installed but no IT equipment is connected to it.	Attach existing IT equipment to the Grounding Bar.
9. Overhead Cable Management	1.0	• No overhead cable management system is installed. • Cable radius control is lacking.	• Install an overhead cable management system (ladder racks, J hooks) with space for additional capacity. • Install a cable radius control system.
10. Cable Termination and Management	2.0	• Patch panels are properly labeled but cable jackets are not. • The rack has sufficient cable management.	Properly label cable jackets.
11. Room Construction	2.0	• Walls extend to the deck but plywood is not installed on any wall. • Cables enter the space in compliant pathways that lack firestop.	• Install properly treated plywood on one wall. • Install firestop around and inside all horizontal (walls) and vertical I(ceilings, floors) ≥4" conduits.
12. VCT Flooring	3.0	VCT flooring is installed but is not bonded.	No recommendations at this time.
13. Ceiling	1.0	A drop ceiling is installed less than 10' Above Finished Floor.	Remove the drop ceiling.

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.

3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

Follett Software Managed Services presented to Anytown USA Central School District

Comprehensive Technology Report and Plan

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

2. Anytown Junior/Senior High School (cont.)

The *10-Year Roadmap* on page 57 includes Rough Order of Magnitude cost estimates to implement these recommendations.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: TR-C, Telecom Room (1215)

Anytown Junior/Senior High School - TR-C, Telecom Room (1215)

CURRENT GRADE

0.9 out of 4.0

CURRENT CONDITION

The space is in **poor** condition and is not worth the investment to upgrade it to industry standards.

RECOMMENDATION

Abandon the current space. Move IT equipment to MTR, Server Room.

ROM COST ESTIMATE

$38,000

Photos, clockwise from top left:
1. *The open rack is in an unsecured area that is shared with custodial items.*
2. *While functional, the oversized clothespin does not meet industry standards for cable management.*
3. *Conduits are filled beyond capacities.*
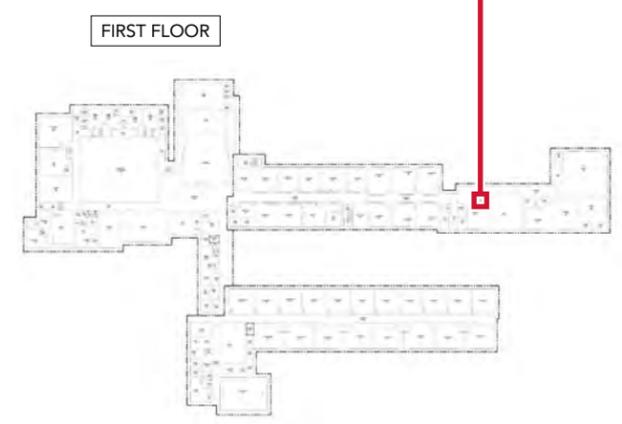4. *There is a janitorial slop sink in the same space as the equipment.*

Summary of Recommendations		Abandon the space. Move IT equipment and usable cables to MTR-A, Server Room.	
CATEGORY	**CATEGORY GRADE**	**CURRENT CONDITION**	**RECOMMENDED IMPROVEMENTS**
1. Room Size	4.0	The room size meets industry standards and provides for adequate front and rear rack clearances.	1. Abandon the space. 2. Move all IT equipment and usable cables to the upgraded MTR-A, Server Room. 3. Remove all abandoned equipment and cables from the space.
2. Water Risk	0.0	• The walls and floor shows evidence of past water penetration. • A pressurized water line is installed directly above the rack. • A custodial slop sink is installed in the space within 6' of the rack.	
3. Location	1.0	There is no direct access to the space which is in the basement. it must be entered using a set of stairs and through a service corridor.	
4. Security	0.0	• The network equipment and infrastructure are in an open unlocked equipment cabinet. • The space is shared and accessible to non-IT staff. • The doors to the basement lack locks. • The space lacks card reader access and video surveillance coverage.	
5. Environmental Control	0.0	The space lacks a dedicated AC system, an exhaust fan, and a temperature monitoring system.	
6. Dedicated and Redundant Power	2.0	• The circuit is not dedicated. • Power connections lack proper labeling.	
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.	
8. Grounding Infrastructure	0.0	No bonding or grounding infrastructure was observed.	
9. Overhead Cable Management	1.0	Overhead cable management does not meet industry standards.	
10. Cable Termination and Management	0.0	• Cables are not correctly installed and/or supported within the rack. • Patch panels and cable jackets behind the panels lack machine-printed labeling	
11. Room Construction	1.0	• The room has below-grade exterior walls that create a potential water threat. • Cable pathways are at or over capacity. • Plywood is not installed on any wall. • There is poor visibility in the rack due to a lack of lighting.	
12. VCT Flooring	1.0	The floor is bare concrete.	
13. Ceiling	2.0	The ceiling is open to the deck but there is less than 10' Above Finished Floor.	

Anytown Jr./Sr. HS
TR-C (1215) to be abandoned

AFFECTED INFRASTRUCTURE

ITEM	QUANTITY
Switches	3
Cat 6 cable	80
Fiber	1
Other equipment	UPS, Phone

All cable counts are approximate.

FIRST FLOOR

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.

3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

2. Existing Conditions and Recommended Improvements - Telecommunications Infrastructure, Spaces (cont.)

3. Anytown CSD Administration Building

The *10-Year Roadmap* on page 57 includes Rough Order of Magnitude cost estimates to implement these recommendations.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES: MTR-A, Telecom Room (Room 103)

Administration Building - MTR-A, Telecom Room (Room 103)

CURRENT GRADE
1.6 out of 4.0

CURRENT CONDITION
The space is in **poor-to-fair** condition and requires significant upgrades to meet industry standards.

RECOMMENDATION
Upgrade the current space.

ROM COST ESTIMATE
$87,000

Summary of Recommendations — Upgrade the space to meet industry standards as detailed below.

Photos, clockwise from top left:
1. *The open floor-mount rack is installed in a space shared with non-IT items and accessible to non-IT staff.*
2. *The rack's poor position inhibits rack clearances and access to the inter-building fiber housing.*
3. *Insufficient vertical cable management for incoming horizontal cabling.*
4. *The space is extremely dusty.*

CATEGORY	CATEGORY GRADE	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
1. Room Size & Rack Access	3.0	• The room size meets industry standards. • The space lacks adequate front and/or rear rack clearances due to its poor configuration.	Reconfigure the space and/or reposition the rack to provide adequate rack clearances.
2. Water Risk	1.0	Water lines and/or drain pipes are installed above or in close proximity to the rack.	Reroute the water lines/drain pipes above the racks or install a drip pan to mitigate overhead water threat.
3. Location	3.0	• The space has direct hallway access. • The space is centrally located in the Serving Zone.	No recommendations at this time.
4. Security	1.0	• The network equipment and infrastructure are in an open unlocked equipment rack/cabinet. • The space is shared and accessible to non-IT staff. • The space is used to store non-IT items. • The space lacks video surveillance coverage.	• Install Access Control card reader keyed for IT staff only. • Install a dedicated video surveillance camera • Remove stored items and dedicate the space.
5. Environmental Control	0.0	• The space lacks both a dedicated AC system and an exhaust fan. • The TR and installed hardware lack temperature monitoring with notifications.	• Install a dedicated AC system with independent controls and/or an exhaust fan. • Install a temperature monitoring sensor with automatic notifications enabled.
6. Dedicated and Redundant Power	2.0	• It could not be determined if the circuit is dedicated. • Power connections lack proper labeling.	• Determine if the circuit is dedicated. Remediate accordingly. • Affix machine-printed labels to all power connections with panel and circuit IDs.
7. UPS & Emergency Power	0.0	The space lacks emergency power. The building lacks a generator and no UPS units are installed.	Install a building emergency power generator and have properly labeled direct connections installed in all building TRs.
8. Grounding Infrastructure	0.0	No bonding or grounding infrastructure was observed.	Install a grounding and bonding infrastructure with a TGB. Bond all racks, pathways, and equipment.
9. Overhead Cable Management	1.0	No overhead cable management system is installed.	Install an overhead cable management system (ladder racks, J hooks) with space for additional capacity.
10. Cable Termination and Management	2.0	• Patch panels are correctly labeled. • There is insufficient cable management in the rack, and existing cables are not installed neatly. • Cable terminations lack industry standard best practices.	• Install additional wire management and reinstall cables. • Re-terminate and test cables using best practice methods.
11. Room Construction	3.0	• The walls extend to the deck. • Cable pathways are standards compliant but are not firestopped. • There is a sizable gap under the door that allows dirt and dust to enter the space. • There is poor visibility in the rack due to a lack of lighting.	• Install firestop around and inside all horizontal (walls) and vertical (ceilings, floors) ≥4" conduits. • Install door sweeps and seals. • Install additional lighting to improve visibility in the rack.
12. VCT Flooring	2.0	The floor is bare, sealed, or painted concrete.	Install anti-static VCT floor bonded to the grounding system with copper strips.
13. Ceiling	3.0	There is more than 10' Above Finished Floor but the ceiling is not open to the deck.	Remove the drop ceiling to improve air circulation in the space.

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.

3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.

1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.

0 Fail. System is not installed/implemented at the district.

2. Existing Conditions and Recommended Improvements (cont.)

Summary of TR Recommended Improvements

Note: A Rough Order of Magnitude (ROM) Cost Estimate to implement these recommended Telecom Room improvements appears in the *10-Year Comprehensive Technology Plan Roadmap* on page 57.

As described in the *Current Conditions and Recommended Improvements* section of this report, three of the spaces dedicated to IT equipment in Anytown CSD should be subdivided or upgraded in their existing locations to meet the 13 Telecommunication Room performance category standards (pp. 4 – 5). One of the spaces should be abandoned and relocated to a newly constructed space.

TELECOMMUNICATIONS INFRASTRUCTURE - SPACES

ANYTOWN CSD SUMMARY OF TR RECOMMENDED IMPROVEMENTS	ELEMENTARY SCHOOL		JUNIOR/SENIOR HIGH SCHOOL			ADMIN
TR ROOM NO.	**MTR-A (A7)**	**TR-B (B3)**	**MTR-A (1120)**	**TR-B (1143)**	**TR-C (1215)**	**MTR-A (103)**
PERFORMANCE CATEGORY ▼ TR SURVEY GRADE (0 = poor, 4 = excellent) ▶	**2.2**	**1.0**	**3.3**	**1.7**	**0.9**	**1.6**
1. Room Size. The space is adequately sized with 3.0' front and rear rack clearances.	3.0	1.0	4.0	2.0	4.0	3.0
2. Water Risk. No water threats are present.	4.0	4.0	4.0	4.0	0.0	1.0
3. Location. There is direct hallway access to the space.	4.0	2.0	4.0	2.0	1.0	3.0
4. Security. The space is secured, dedicated to IT equipment, and accessible only by IT staff.	1.0	0.0	3.0	1.0	0.0	1.0
5. Environmental Control. The space has an AC system with independent controls, an exhaust fan, and a temperature monitoring system with automatic notifications.	2.0	1.0	4.0	0.0	0.0	0.0
6. Dedicated, Redundant Power. The space has a dedicated, redundant power source and all power connections are machine labeled with panel and circuit numbers. There is a connection to a back-up power source such as a building generator.	3.0	1.0	3.0	3.0	2.0	2.0
7. UPS Power. An Uninterruptible Power Source (UPS) is installed in the rack. and all IT equipment is connected to it.	0.0	0.0	0.0	0.0	0.0	0.0
8. Grounding Infrastructure. The space includes a grounding or bonding infrastructure connected to the racks, cable pathways, and VCT flooring.	0.0	0.0	4.0	1.0	0.0	0.0
9. Overhead Cable Management. Cables entering the space have proper horizontal and vertical support (e.g., ladder racking) and cables are correctly installed in the pathways. Radius control is present as cables exit overhead management system	2.0	0.0	4.0	1.0	1.0	1.0
10. Cable Termination & Management. Cable termination, management and labeling is correct at the rack.	2.0	1.0	3.0	2.0	0.0	2.0
11. Room Construction. Walls extend to the deck with compliant, sealed cable penetrations.	2.0	1.0	3.0	2.0	1.0	3.0
12. VCT Flooring. Vinyl-Coated Tile (VCT) flooring is installed and connected to the grounding system.	1.0	0.0	3.0	3.0	1.0	2.0
13. Ceiling. The ceiling is open to the deck with a minimum height of 10'.	4.0	2.0	4.0	1.0	2.0	3.0
	▲ upgrade current space **$78,000**	▲ abandon; build out new space **$96,500**	▲ upgrade current space **$52,000**	▲ dedicate, upgrade current space **$98,000**	▲ abandon; merge to MTR-A **$22,000**	▲ upgrade current space **$87,000**

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.
3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.
1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.
0 Fail. System is not installed/implemented at the district.

Anytown CSD Serving Zone Drawings

1. Anytown Elementary School

FIRST FLOOR

MTR-A (A7)

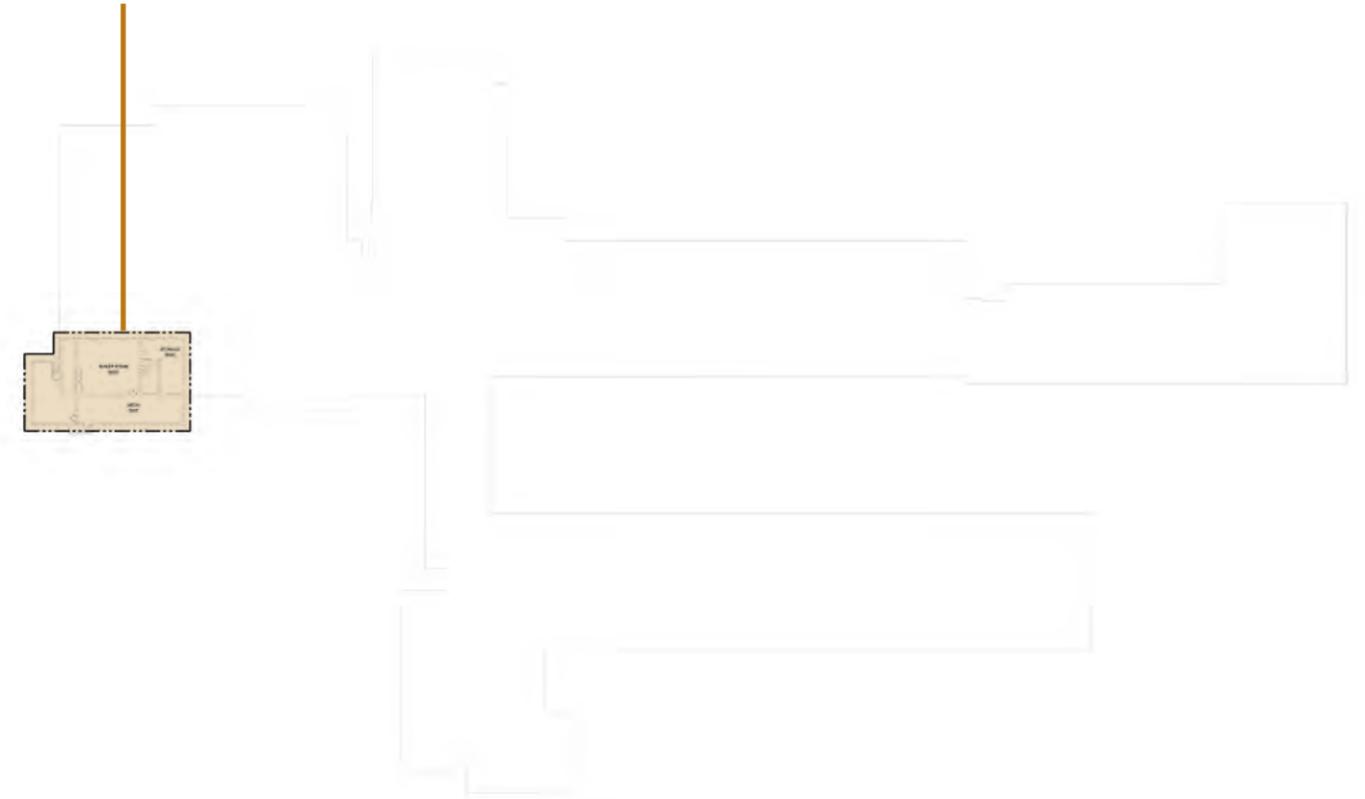SERVING ZONE A

TR-B (B3)
to be abandoned
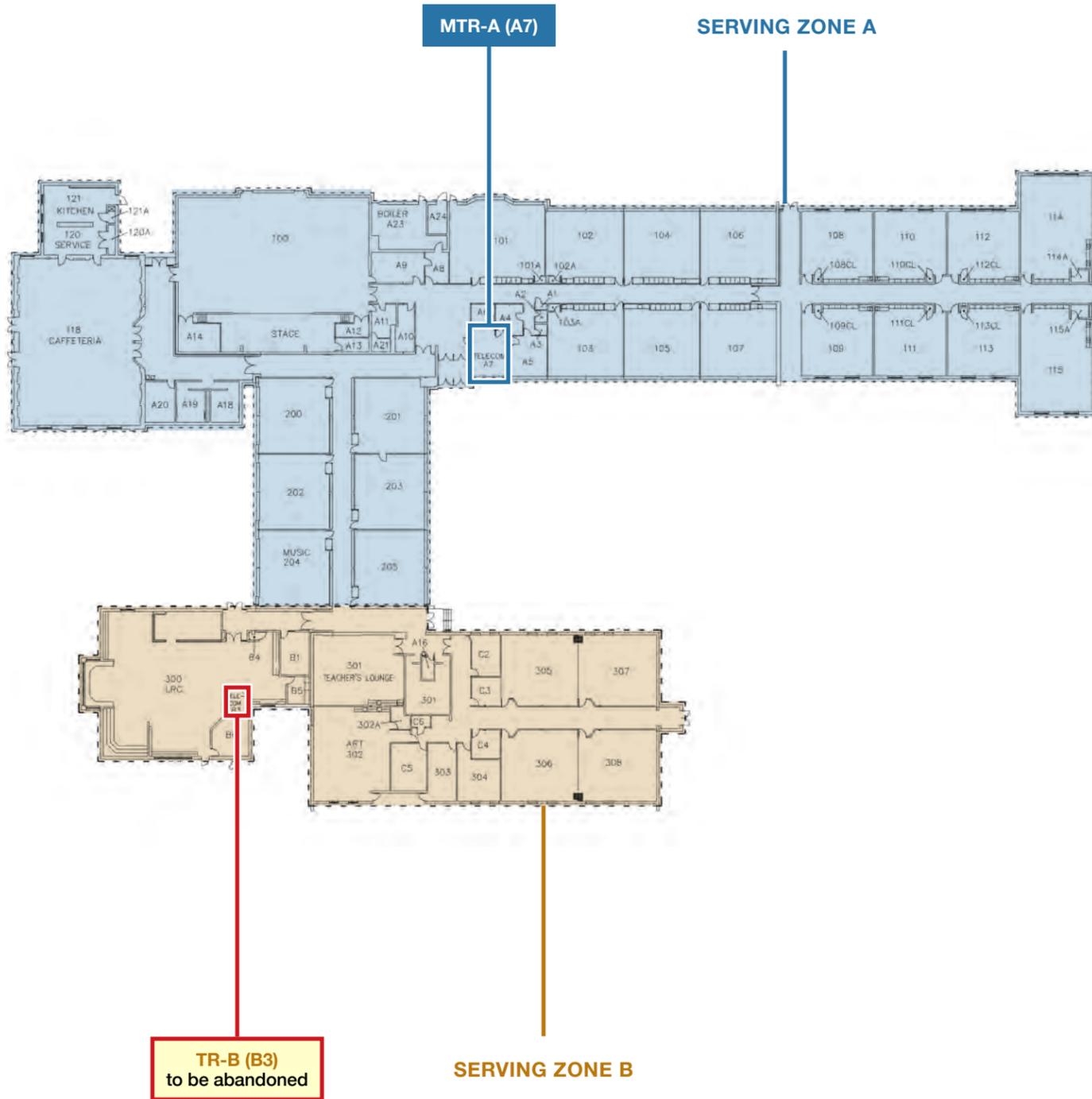
SERVING ZONE B

2. Anytown Junior/Senior High School


BASEMENT

SERVING ZONE B

IMPORTANT

The Serving Zone drawings contained in this document are based on the Current Conditions and Recommended Improvements from the accompanying *Comprehensive Technology Report and Plan*.

The exact locations of Telecom Rooms (TR) and resultant Serving Zones boundaries may change during the Design phases of the capital projects required to implement the Recommended Improvements.

Anytown CSD Serving Zone Drawings (cont.)

2. Anytown Junior/Senior High School (cont.)

FIRST FLOOR

SERVING ZONE B

TR-B (1143)

SERVING ZONE C

TR-C (1215)
to be abandoned

MTR-A (1120)
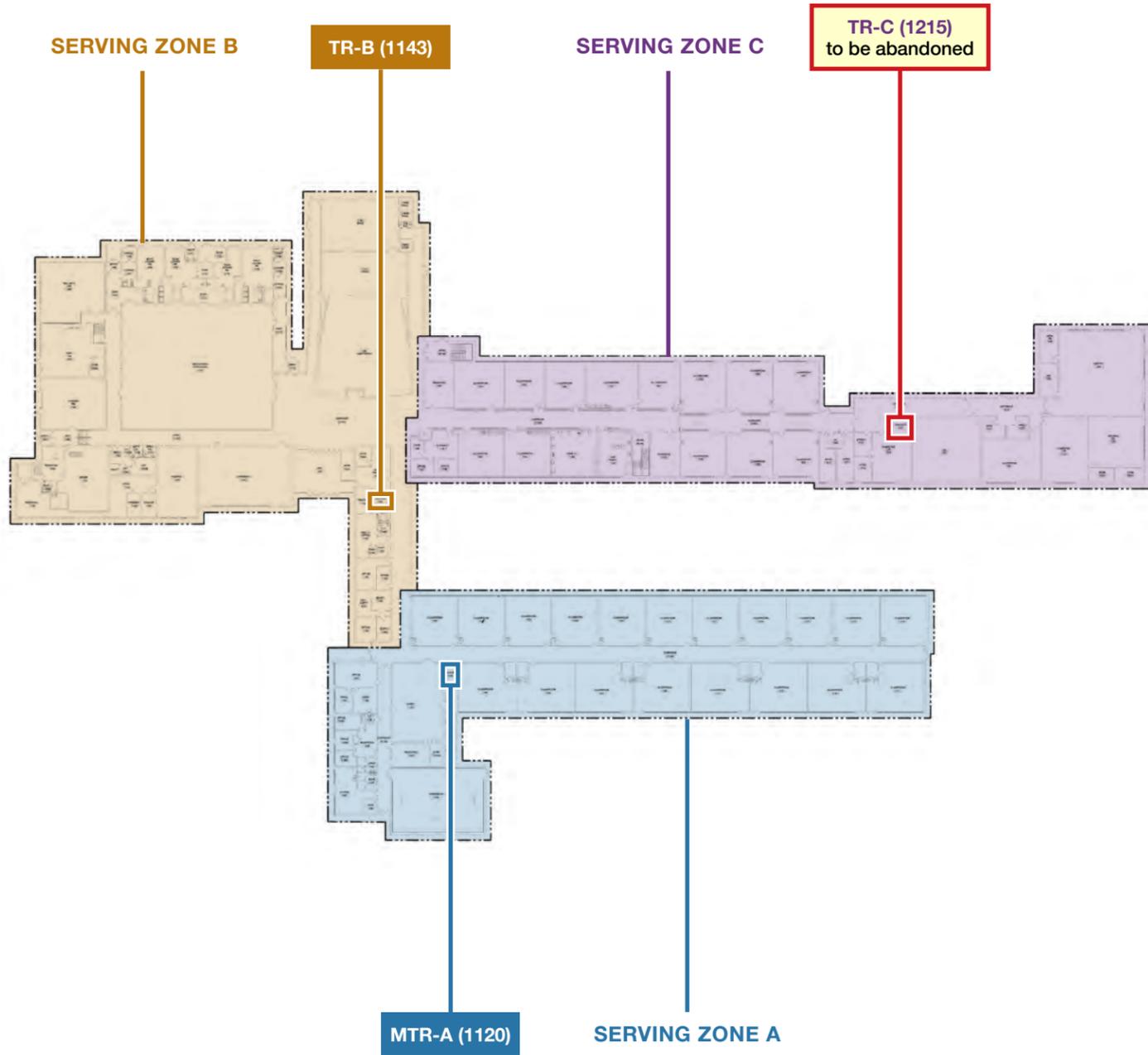
SERVING ZONE A

2. Anytown Junior/Senior High School (cont.)

SECOND FLOOR

SERVING ZONE C
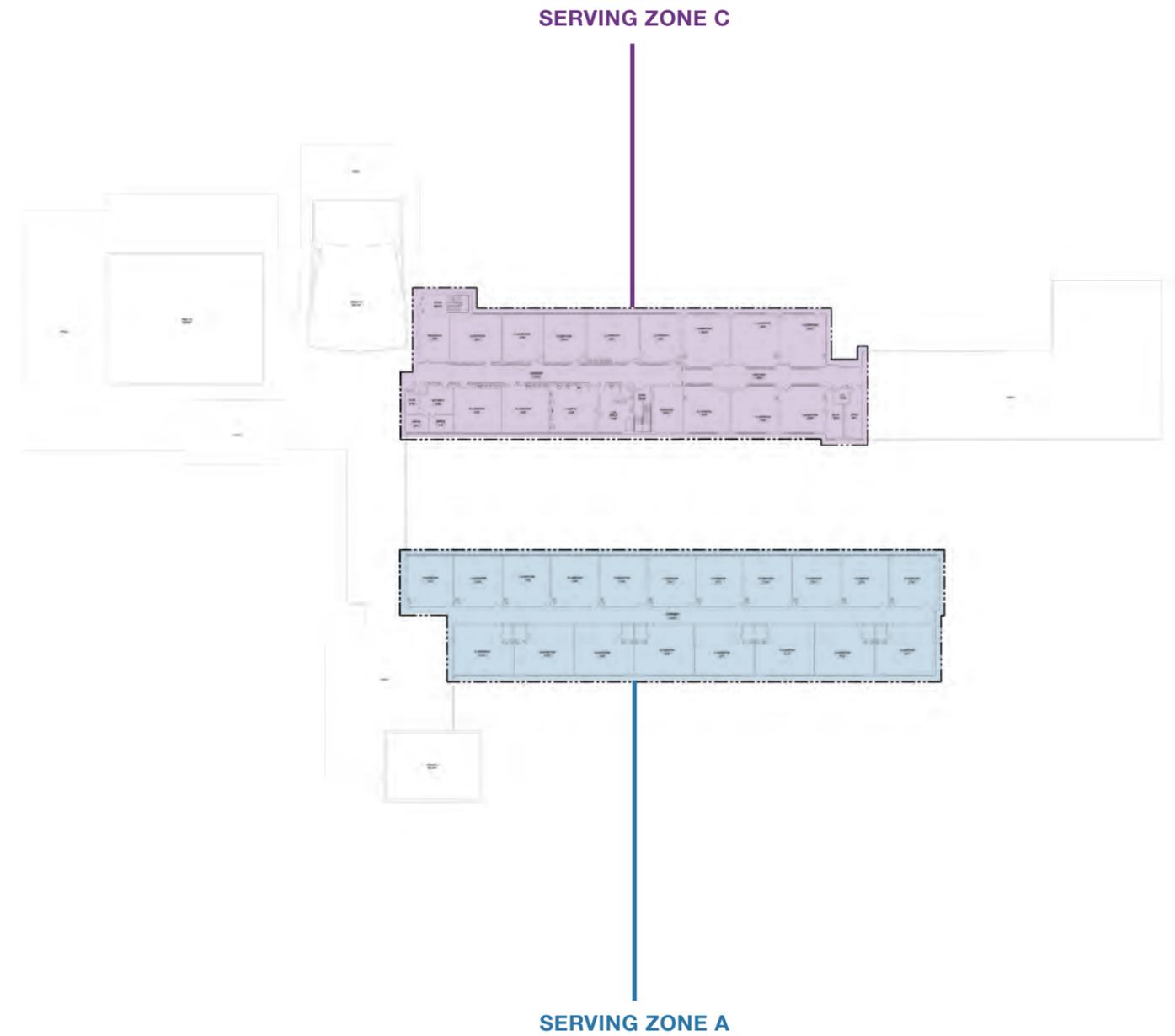
SERVING ZONE A

Anytown CSD Serving Zone Drawings (cont.)

2. Anytown CSD Administration Building

FIRST FLOOR

SERVING ZONE A

MTR-A (1120)

MEN'S 118 · WOMEN'S 116 · BOARD ROOM A 114 · BOARD ROOM B 112 · 1120L · 110 · 104 · LOBBY 120 · 110A · 104A · RECEPTION · MAIL 125 · 111 · 109A · 103A · TELECOM 103 · COPY RM. 121 · 119 · 117 · CONFERENCE ROOM 113 · 109 · SUPERINTENDENT 101 · 123
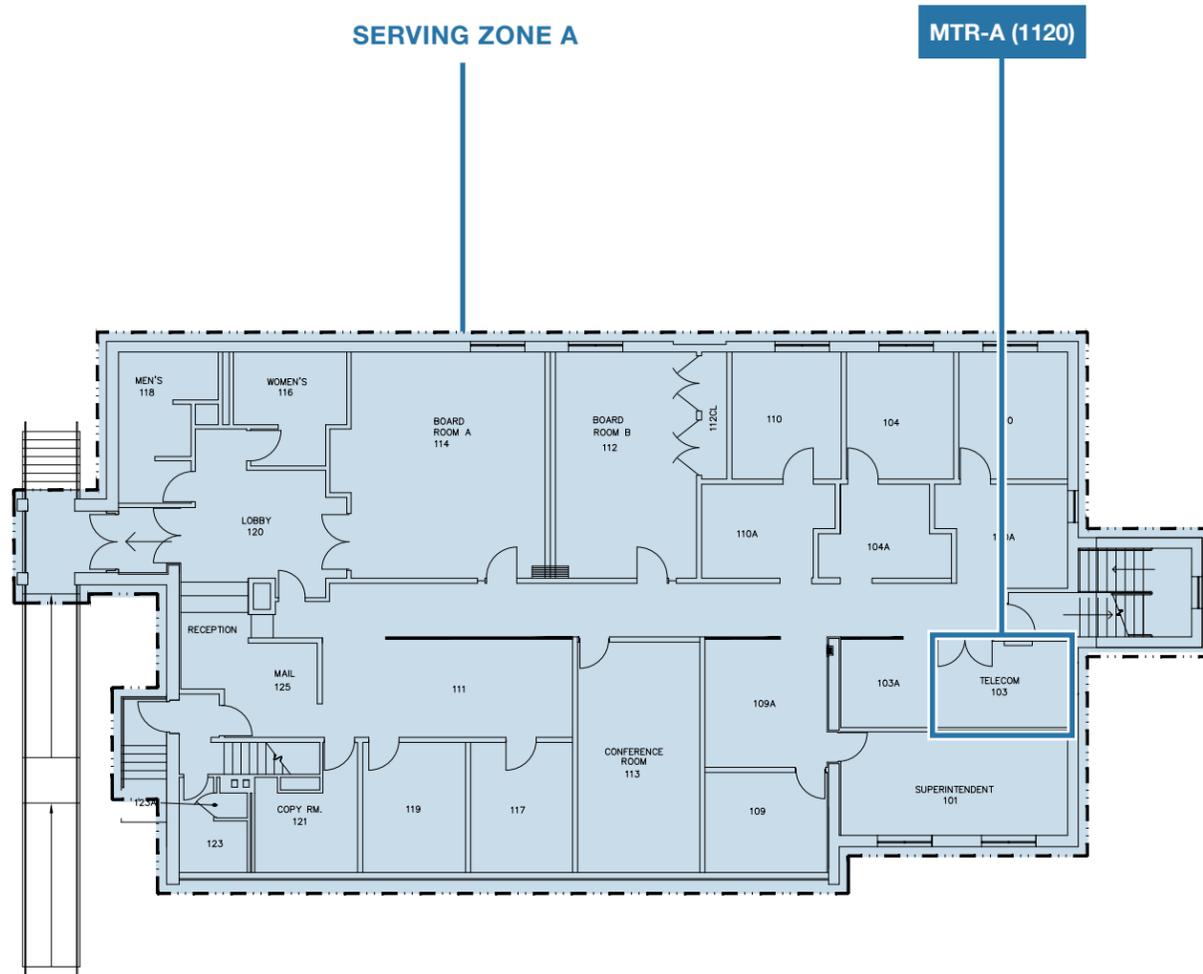
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2. Existing Conditions and Recommended Improvements (cont.)
Other District-Wide Systems

GRADING KEY

4 Excellent. Meets/exceeds district's current and expected needs.
3 Good. Meets district's current needs but upgrades are needed.

2 Fair. Minimally meets current needs. Major upgrades are needed.
1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.
0 Fail. System is not installed/implemented at the district.

NETWORK CONNECTIVITY

CURRENT GRADE

3.3 out of 4.0

RECOMMENDATIONS

1. Install a second core data switch for redundancy.
2. Provide emergency power to all district TRs via generators or UPS units.
3. Maintain equipment refresh cycles per the *10-Year Roadmap*.

Photos below:

1. *A ceiling-mounted WAP in an Elementary School classroom connected with only (1) Cat 6A cable.*
2. *The ISP connection in the High School MTR.*

SYSTEM	SYSTEM GRADE	SUBSYSTEM	SUB-SYSTEM GRADE	SUBSYSTEM CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Network Connectivity	2.7	Network Hardware (wired connectivity)	3.0	General Condition Notes	• TRs connect to the HS MTR-A using Single Mode fiber which meets District needs. • The MTR has a 10G Core Switch. • There is only (1) core data switch.	Install a second core data switch and interconnect with the current equipment to provide redundancy.
				Endpoint Connections - PCs	1Gb connections are available.	No recommendations at this time.
				Endpoint connections - Server	10Gb connections are available.	
				Network Architecture - VLANs	The District has separate VLANs.	
				Network Equipment - End of Life	• The District recently upgraded its network switches which meet current needs. • The District's current 10-year switch refresh policy does not meet industry standards.	Update the district's refresh policy to (7) years for network switches and (5) for security components as per the *10-Year Roadmap*.
		Wireless Network	3.7	General Notes	• The District uses a wireless network with a virtual controller which meets current needs. • WAPs installed in 2018 are approaching End-Of-Life. • WAPs are connected with (1) Cat6A cable which does not meet industry standards.	• Install a second Cat6A cable to all WAPs per Horizontal Cable recommendations. • Maintain the equipment refresh cycles per the *10-Year Roadmap*.
				Coverage	WiFi coverage is adequate.	No recommendations at this time.
				Bandwidth	Access points are current generation and provide adequate bandwidth.	
				Wireless Network Segmentation	Unique SSIDs exist for various user groups.	
		Emergency Power/UPS	0.0	Emergency Power/UPS	District IT equipment lacks adequate emergency power.	Install building generators with emergency power outlets in all TRs. Use UPS units for the Admin building.
		Network Security and Monitoring	4.0	1. Firewall	District-provided services meet current needs.	No recommendations at this time.
				2. CIPA Compliance		
				3. Staff/Student Credentials		
				4. Terms of Use (staff, students and guests)		
Telecom Services	4.0	Phone Service	4.0	Analog Telephone Service	Current analog phone service meets district needs.	Ensure compliance with all local, state and federal laws.
		Internet Service	4.0	Internet Service	Current internet services meet district needs.	No recommendations at this time.

2. Existing Conditions and Recommended Improvements (cont.)

Other District-Wide Systems (cont.)

GRADING KEY
4 Excellent. Meets/exceeds district's current and expected needs.
3 Good. Meets district's current needs but upgrades are needed.
2 Fair. Minimally meets current needs. Major upgrades are needed.
1 Poor. System is nearing/at end-of-life. Immediate upgrades needed.
0 Fail. System is not installed/implemented at the district.

COMMUNICATIONS SYSTEMS

CURRENT GRADE
1.9 out of 4.0

RECOMMENDATIONS
1. Replace building PA systems with an IP-based solution.
2. Evaluate 911 call routing.
3. Integrate lockdown messaging with Phone, PA and Security systems.
4. Ensure all large assembly areas comply with ADA Listening Assist requirements.

Photos below, left to right:
1. Outdated PA headend in the ES MTR.
2. A Large Group Instruction Audio-Enhancement system in the HS.
3. An analog clock in a High School corridor.
4. An Acme VoIP handset on a teacher's desk.

SYSTEM	SYSTEM GRADE	SYSTEM CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Public Address (PA)	2.0	General Notes	The District's analog PA systems are at End-Of-Life.	1. Replace the PA system with a full IP or IP/analog system as per the *10-Year Roadmap*. 2. Evaluate coverage when designing the new system. 3. Ensure the new system equipment is connected to emergency power.
		Coverage	Current coverage is adequate.	
		Standby Power	None on current system.	
		Bell Schedule	• Managed by each building's Master Clock systems. • Barclay Bells are activated manually.	
		Initiation Location	Push-to-talk microphones and phone interfaces are used.	Upgrade to IP equipment with the PA system upgrade.
		Call Button (notifies Main Office)	Call buttons are located in all classrooms and in other locations.	No recommendations at this time.
Phone	4.0	General Notes	A VoIP-based Acme system and handsets are in use with a break/fix refresh policy that meets needs.	No recommendations at this time.
		Telephone Location	Acme VoIP handsets are installed in all classrooms.	Maintain an inventory for break/fix cases.
		Admin Access to Outside Lines	All administrators have DID numbers.	No recommendations at this time.
		Voicemail	The current voicemail system is satisfactory.	
		911 Calls	Any 911 outbound calls alert campus security.	911 calls should also alert designated building administrators.
		Standby Power	Equipment in MTRs are connected to building generators.	No recommendations at this time.
Master Clock	2.0	General Notes	A mix of wireless PrimeTic and wired SimTic clocks are used throughout the district.	Upgrade the Master Clock system per the *10-Year Roadmap*.
		Coverage		Clock systems should be integrated with any upgrades to IP/PA system to maintain seamless integration with the Bell Schedule.
		Time Sources	Current capabilities meet district needs.	
		Bell Schedule Sync		
Lockdown	0.0	Automated Messaging	The district lacks this capability.	Upgrade the phone system to include emergency notification software and integrate with the new PA system.
Performance Sound Reinforcement*	1.5	ADA Assistive Listening Support	ADA compliant devices are not available district wide.	Review ADA requirements for large group assembly areas and procure appropriate equipment.
		Auto-mute	No auto muting or takeover of performance sound systems was observed.	Install automute/ducking relays as part of the PA update project per the *10-Year Roadmap*.

* Audio system devices were only surveyed for presence and systems interoperability. The effectiveness of these systems is beyond the scope of this survey. A more comprehensive survey of district audio systems could be part of an audio assessment conducted by a qualified firm.

2. Existing Conditions and Recommended Improvements (cont.)

Other District-Wide Systems (cont.)

SECURITY SYSTEMS*   SECURITY SYSTEMS

CURRENT GRADE

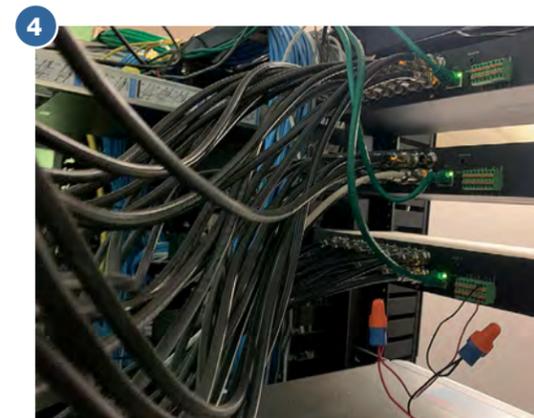**2.1** out of 4.0

RECOMMENDATIONS

1. Upgrade analog cameras to IP-based models.
2. Replace broken card readers in Admin building.
3. Expand lockdown system capabilities and integrate with district-wide Communications systems.
4. Ensure all systems have access to emergency power.
5. Monitor buildings for unauthorized entrances.

* Security system devices were only surveyed for presence and systems interoperability. The effectiveness of these systems is beyond the scope of this survey. A more comprehensive survey of district security systems could be part of a security assessment conducted by a qualified firm.

Photos below, left to right:
1. *A typical card reader and video intercom installed at an exterior door.*
2. *Video Surveillance monitors are located in the District Office in the Admin building.*
3. *A typical Lockdown Initiation button in the HS Main Office.*
4. *Analog video surveillance equipment in the HS MTR.*

SYSTEM	SYSTEM GRADE	SYSTEM CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Access Control	**2.3**	**General Notes**	**Per NYS Ed Law 2D, Section 5,F, 4:** "Maintain reasonable administrative, technical and physical safeguards to protect the security, confidentiality and integrity of personally identifiable student information in its custody." (1/1/2021) Access control alarms are sent to the Security Department.	1. Install door monitoring with notifications. 2. Replace the broken Admin building card reader.
		Locations	• The main entrance doors are controlled which meets current needs. • Perimeter doors are not monitored. • Card readers are installed at most main and some secondary locations although (1) Admin building reader is not operational.	
Video Surveillance	**1.0**	**General Notes**	The current coax-based cameras and system has limited interoperability with other systems.	1. Upgrade the video surveillance system to an IP-based controller and cameras per the *10-Year Roadmap*. 2. Replace the coax cables with Cat6A cable when the system is upgraded. 3. Invest in security panels to allow for integration with other security systems. 4. Replace the (2) broken cameras in the Elementary School with IP-based models per the *10-Year Roadmap*. 5. Install cameras at all TR entrances as per recommendations. 6. Maintain other refresh cycles as per the *10-Year Roadmap*.
		Equipment & Cabling	• Analog cameras are currently in use. • While Cat6 cable was installed throughout the building as part of the '22/'23 Capital Improvement Project, the analog video cameras are still wired with coax cable.	
		Coverage	• **School Building:** Generally adequate except at the Elementary School due to (2) broken cameras. • **Parking lots:** All buildings have adequate video coverage.	
Lockdown	**3.0**	**Lockdown Initiation**	All school greeters have a physical initiation button at their desks.	Consider a mobile application for designated district staff.
Intrusion Alarm	**0.0**	**Door Monitoring**	No door perimeter intrusion system is installed.	Install door contacts at all buildings' exterior perimeter doors to monitor for forced open/propped open status.
		Motion Detection	No security motion detectors were observed except Administration.	No recommendations at this time.
		Battery Backup	Not applicable as no system is installed.	If an Intrusion Detection system is installed, ensure that it has a battery backup or is connected to a UPS unit.
Visitor Entry	**4.0**	**Entrance Locations**	All locations have video intercoms installed.	No recommendations at this time.
		Battery Backup	The system has a battery backup.	

2. Existing Conditions and Recommended Improvements (cont.)

Other District-Wide Systems (cont.)

INSTRUCTIONAL TECHNOLOGIES

CURRENT GRADE

2.3 out of 4.0

RECOMMENDATIONS

1. Upgrade remaining SMARTBoards.
2. Deploy Classroom Audio Enhancement systems district wide.

SYSTEM	SYSTEM GRADE	SYSTEM CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Integrated AV Systems	3.0	Displays	• Acme Interactive Flat Panels (IFPs) are currently used throughout the District. • Approximately (20) older Smart Boards still need to be replaced.	1. Continue with the current initiative to refresh some IFPs each year. 2. Further the use of audio reinforcement in the classroom. 3. Establish a Classroom audio system and maintain refresh cycle. 4. Maintain the refresh cycles as per the *10-Year Roadmap*.
	0.0	Classroom Audio-Enhancement	• No classroom audio reinforcement systems are installed. • The district provides equipment to students based on their IEPs which meets needs.	
	4.0	Document Cameras	HD document cameras are in every classroom which meets needs.	

Photos, left to right:

1. Outdated SMARTboards (inset) have largely been upgraded to Interactive Flat Panels (IFPs) in the past few years.

2. A typical HD document camera in an ES classroom.

2. Existing Conditions and Recommended Improvements (cont.)

Other District-Wide Systems (cont.)

6. STUDENT DEVICES   STUDENT DEVICES

CURRENT GRADE
2.8 out of 4.0

RECOMMENDATIONS
Review tech programs and upgrade hardware to support district needs.

SYSTEM	SYSTEM GRADE	SYSTEM CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
PCs/Laptops/Tablets	2.8	Hardware	• Student desktops are older devices. • There are (2) labs that have about (25) devices each. • Student Devices: – Pre-K – 3rd: iPads – 4th –12th: ChromeBooks of which approx. (500) are new.	1. Update the Tech Lab desktops to support required programs. 2. Maintain refresh cycles per the *10-Year Roadmap*.
		Antivirus	District-provided services meet district needs.	No recommendations at this time.
		Technology Refresh	Current refresh policy meets district needs.	Maintain refresh cycles per the *10-Year Roadmap*.

7. TEACHER & ADMIN TECHNOLOGY   TEACHER & ADMIN TECHNOLOGY

CURRENT GRADE
2.7 out of 4.0

RECOMMENDATIONS
1. Upgrade outdated laptops and desktops.
2. Establish and maintain consistent refresh policies.

SYSTEM	SYSTEM GRADE	CATEGORIES	CURRENT CONDITION	RECOMMENDED IMPROVEMENTS
Teacher Computing Devices	2.0	Hardware	A mix of outdated Windows desktops and current iMac desktops are in use.	1. Desktops are schedule to be upgraded to laptops. 2. Maintain refresh cycles per the *10-Year Roadmap*.
		Antivirus	District-provided services meet needs.	No recommendations at this time.
		Technology Refresh	The district lacks a consistent refresh policy for these devices.	Maintain refresh cycles as shown in the *10-Year Roadmap*.
Admin Computing Devices	2.0	Hardware	About half of the admin desktop devices are obsolete and out of warranty/service.	Upgrade the obsolete desktops and maintain the refresh cycles per the *10-Year Roadmap*.
		Antivirus	District-provided services meet needs.	No recommendations at this time.
		Technology Refresh	The District lacks a consistent refresh policy for these devices.	Maintain refresh cycles per the *10-Year Roadmap*.
Copiers and Printers	4.0	Copiers	The current Acme-leased equipment meets District needs.	No recommendations at this time.
		Printers		
		Technology Refresh	Meets District needs.	Maintain refresh cycles per the *10-Year Roadmap*.

Photos left to right:

1. A teacher's classroom desktop in a classroom.

2. A typical classroom printer.

3. A newer iMac teacher desktop with a classroom laser printer.
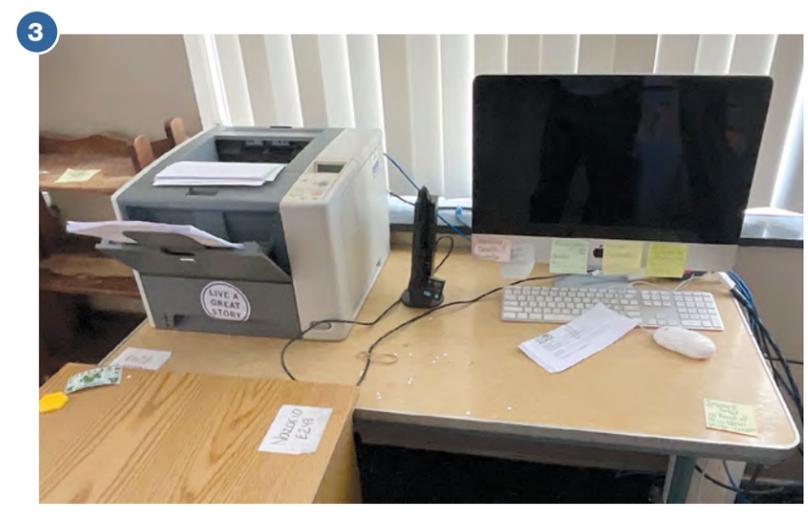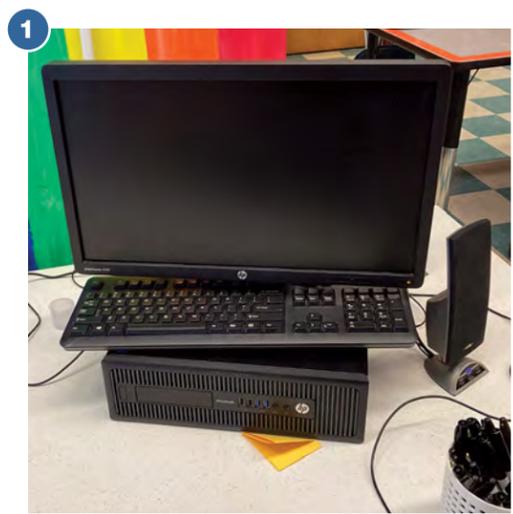
Building-Specific Systems Grading Summary

Current conditions of building-based technology systems generally varies from building to building within a district. For example, a Public Address system upgrade may have only been implemented in some—but not all—district buildings.

The charts on this and the following page provide an understanding of how building-based technology systems vary between buildings in Anytown CSD.

The chart below summarizes building-specific grades for each major Technology Infrastructure system and subsystem.

Comparing the building-specific grades against the district-wide averages indicates the relative current conditions of systems and subsystems in each building compared to the district as a whole.

▼ indicates the system or subsystem is **below** the district average. Upgrades to below-average systems and subsystems are included in this report's District-Wide Systems Recommended Improvements and the *10-Year Roadmap.*

Other technology systems including Instructional, Security, and Communications are summarized on the next page.

SYSTEM	DISTRICT-WIDE SYSTEM AVERAGE	SUBSYSTEM	DISTRICT-WIDE SUBSYSTEM AVERAGE		ELEMENTARY SCHOOL	JUNIOR/SENIOR HIGH SCHOOL	ADMINISTRATION BLDG.
1. TECHNOLOGY INFRASTRUCTURE: District Average 2.0							
Horizontal Cable	2.0	Horizontal UTP Cabling	1.8		2.0	1.6	1.8
		Cable Counts	2.7		3.0	2.0	3.2
		Cable Labeling	3.0		3.0	3.0	3.0
		Serving Zones	1.0		1.5	1.4	1.0
		WAP Cabling	1.5		1.0	1.0	1.5
		BUILDING AVERAGE SUBSYSTEM GRADE			2.1	1.8 ▼	2.1
Backbone Cable	3.2	Carrier/ISP	3.0		NA	3.0	NA
		Intra-building Fiber	4.0		4.0	4.0	4.0
		Inter-building Fiber	2.5		3.0	1.5	3.0
		BUILDING AVERAGE SUBSYSTEM GRADES			3.5	2.8 ▼	3.5
Communications Pathways	0.8	Cable Tray	0.0		0.0	0.0	0.0
		Cable Supports	2.2		2.0	1.8	2.2
		Conduit	1.2		1.4	1.0	1.2
		Bonding and Grounding	0.0		0.0	0.0	0.0
		BUILDING AVERAGE SUBSYSTEM GRADE			0.9	0.7 ▼	0.9
		TECHNOLOGY INFRASTRUCTURE BUILDING AVERAGE GRADES			2.2	1.8 ▼	2.4

See the next page for other technology systems including Instructional, Security, and Communications.

Building-Specific Systems Summary (cont.)

▼ indicates the system or subsystem is **below** the district average. Upgrades to below-average systems and subsystems are included in this report's District-Wide Systems Recommended Improvements and the *10-Year Roadmap*.

SYSTEM	DISTRICT-WIDE SYSTEM AVERAGE	SUBSYSTEM	DISTRICT-WIDE SUBSYSTEM AVERAGE	ELEMENTARY SCHOOL	JUNIOR/SENIOR HIGH SCHOOL	ADMINISTRATION BLDG.
2. NETWORK CONNECTIVITY: District Average 3.3						
Network	2.7	Hardware (Wired)	3.0	3.0	3.0	3.0
		Emergency Power/UPS	0.0	0.0	0.0	0.0
		Wireless	3.7	3.0	4.0	4.0
		Network Security & Monitoring	4.0	4.0	4.0	4.0
		BUILDING AVERAGE SUBSYSTEM GRADE		2.5 ▼	2.8	2.8
Telecomm Services	4.0	Analog Phone Service	4.0	4.0	4.0	4.0
		Internet Service	4.0	4.0	4.0	4.0
		BUILDING AVERAGE SUBSYSTEM GRADE		4.0	4.0	4.0
		NETWORK CONNECTIVITY BUILDING AVERAGE GRADES		3.3	3.4	3.4
3. COMMUNICATIONS: District Average 1.9						
Communications Systems	1.9	Public Address (PA)	2.0	2.0	2.0	2.0
		Phone	4.0	4.0	4.0	4.0
		Master Clock	2.0	2.0	2.0	2.0
		Lockdown Notification	0.0	0.0	0.0	0.0
		Performance Sound Reinforcement	3.0	0.0	3.0	NA
		COMMUNICATIONS SYSTEMS BUILDING AVERAGE GRADES		1.6 ▼	2.2	2.0
4. SECURITY: District Average 2.1						
Security Systems	2.1	Access Control	2.3	2.0	3.0	2.0
		Video Surveillance	1.0	1.0	1.0	1.0
		Lockdown	3.0	3.0	3.0	3.0
		Intrusion Alarm	0.0	0.0	0.0	0.0
		Visitor Entry	4.0	4.0	4.0	4.0
		SECURITY SYSTEMS BUILDING AVERAGE GRADES		2.0 ▼	2.2	2.0 ▼
5. INSTRUCTIONAL: District Average 2.3						
Instructional Systems	2.3	Displays	3.0	3.0	3.0	NA
		Classroom Audio-Enhancement	0.0	0.0	0.0	NA
		Document Camera	4.0	4.0	4.0	NA
		INSTRUCTIONAL SYSTEMS BUILDING AVERAGE GRADES		2.3	2.3	NA

3. 10-Year Comprehensive Technology Roadmap

About the District's 10-Year Technology Roadmap

1.1 Upgrade/build out/relocate TRs
$350,000 `ALL` `CIP`
2026/27　2027/28　2028/29
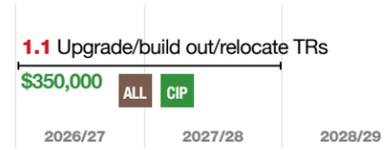
EXAMPLE ROADMAP PROJECT

This Telecom Room upgrade project:
- *Has an ROM cost estimate of $350,000.*
- *Will occur over two full academic years (25/26 & 26/27).*
- *Will apply to all district buildings.*
- *Will be funded by a Capital Improvement Project.*
- *Supports the District's Scalable Technology Infrastructure goal.*

The *10-Year Comprehensive Technology Roadmap* on the following pages provides a one-page snapshot of the District's total ten-year spending on technology including:
- Identified technology projects needed to meet strategic needs
- Rough Order of Magnitude (ROM) estimated cost
- Duration and year(s)
- Applicable district building(s)
- Alignment with a District long-term goal.

The *10-Year Roadmap* (example project entry shown at left) was developed specifically for the District based on a number of sources:
- The *Technology Conditions Survey* of district buildings, as per section 2 of this report, *Existing Conditions and Recommended Improvements.*
- Interviews with and data from district department staff including Superintendent, Instructional, Technology, Facilities, and Business.
- Past and current projects, budgets, and expenses.
- *Telecom Room Master Plan* (provided as separate deliverable).

Projects are shown in priority order with the first goal, Technology Infrastructure, having the highest priority as all other goals are reliant on it.

Equipment Lifespans and Refresh Cycles

Unlike many Architectural, Mechanical, Electrical, and Plumbing systems, Technology systems, components and devices have much shorter usable lives. For example, while a well-maintained boiler could be expected to run efficiently for 20 years or more, even a well-cared for network server or switch is only good for 5 – 7 years.

The shorter lifespans of technology devices—also driven by improvements in computing—require seemingly endless "refresh cycles" to constantly keep equipment up to date.

This is especially true for student computing devices such as ChromeBooks and iPads which have about a 3-year replacement cycle due to breakage.

Funding Sources and Purchasing Paths

Available from local, state, and federal sources, district funding and purchasing paths are an alphabet soup of acronyms…E-RATE, CIP, COP, SAFE, IDEA.

As shown below in a partial list, each source/path has restrictions on what it can be used to fund. Some sources will only fund infrastructure or learning devices while others only apply to services like internet access or network components.

The *10-Year Roadmap* on the next page accounts for these qualifications and restrictions to optimize all available sources and paths available to the district.

Each technology project on the 10-Year Roadmap aligns with one or more long-term district goals to take a strategic approach to project funding.

MAJOR DISTRICT TECHNOLOGY GOALS
1. Scalable Infrastructure
2. Reliable Network
3. Enhanced Communications
4. Safe School Environment
5. Tech-Enriched Environment
6. Personalized Learning
7. Teachers & Staff Computing

Summary of Funding Sources/Purchasing Paths for K12 Technology Projects

SOURCE/PATH	DESCRIPTION	QUALIFYING SYSTEMS	NOTES	DISTRICT GOAL(S) SUPPORTED
Capital Improvement Project (CIP)	District funding source.	Infrastructure and other systems.	Requires community referendum as part of a construction project.	1 2 3 4 5 6 7
Elementary and Secondary Education Act (ESEA)	Funds allocated by the federal government for various educational programs.	Programs can include technology initiatives that support goals.	US federal legislation provides financial assistance to states and school districts to support K-12 education, with a focus on students from low-income families.	1 2 4 5 6 7
E-Rate	Two categories of federal funding source for internet connectivity.	**Category 1.** Telecom services including internet and telephone dial-tone access.	Cannot be used for any devices or equipment.	2
		Category 2. Network equipment including racks, switches and servers.	• Cannot be used for any other systems. • Funds are dispersed in five-year cycles.	2
Grants (State and Federal)	Funds allocated by state and federal government entities usually allocated for specific types of programs.	Varies depending specific grant parameters.	Each state has its own grants allocated for local public school districts.	1 2 3 4 5 6 7
Individuals with Disabilities Education Act (IDEA)	Provides funding for special education services.	Can include technology for students with disabilities such as visual and hearing assist.	IDEA accounts for the bulk of the federal government's ongoing contribution to special education.	3 5 6 7
Operations	District funding source from annual budget.	Infrastructure and most other systems.	Fully funded by district with no discounted rates.	1 2 3 4 5 6 7
SAFE Act	Federal funding source.	Security systems and devices such as video surveillance cameras, access control, etc.	Cannot be used for any other systems including infrastructure.	4

3. Anytown CSD Comprehensive Technology Planning: 10-Year Roadmap

DISTRICT GOALS

1 Reliable Sustainable Technology Infrastructure
2 Highly Reliable Network Connectivity
3 Enhanced Communications
4 Safe School Environment
5 Technology-Enriched Environment
6 Personalized Learning
7 Teachers and Staff Computing Devices
8 Annual Software, Services, and Support

BUILDING CODES

| E | Elementary School | J/S | Junior/Senior High School | A | Administration Bldg. | ALL | All District Buildings |

FUNDING SOURCES

| CIP | Capital Improvement Project | E-RATE | E-Rate | ESEA | Elementary & Secondary Education Act | SAFE | SAFE Schools Act | G | State Hardware/Software Grants |
| IDEA | Individuals with Disabilities Education Act | OPS | Operations | TR | Technology Reserve | | | | |

All ROM cost estimates are based on current market pricing on the date this report was issued. These cost estimates are subject to change based on evolving market conditions including supply chains, inflation, labor availability, etc.

LIST OF PLANNED PROJECTS

Date columns (JULY 1 – JUNE 30): 2026/27, 2027/28, 2028/29, 2029/30, 2030/31, 2031/32, 2032/33, 2033/34, 2034/35, 2035/36

ESTIMATED GRAND TOTAL $8,097,950

Goal 1 — Reliable Sustainable Technology Infrastructure

- **1.1** Build/relocate/upgrade standards-compliant Telecom Rooms — $325,900 — CIP ALL
- **1.2** Upgrade equipment racks and overhead/vertical/horizontal Cable Management — $22,375 — CIP ALL
- **1.3** Upgrade intra-building Fiber backbone — $14,500 — CIP ALL
- **1.4** Upgrade Horizontal UTP cabling (including adding second Cat6A cable to all WAPs) — $226,375 — CIP ALL
- **1.5** Add/Upgrade Communications Pathways — $15,600 — CIP E J/S
- **1.6** Provide Reliable, Clean Power for Network Equipment — $166,250 — CIP ALL

SUBTOTAL $771,000

Goal 2 — Highly Reliable Network Connectivity

- **2.1** Install redundant Core Switch — $20,250 — E-RATE ALL
- **2.1** Refresh all Core & Edge Switches — $121,500 — E-RATE ALL
- **2.2** Refresh WiFi WAPs — $94,500 — E-RATE ALL
- **2.2** Refresh WiFi WAPs — $109,350 — E-RATE ALL
- **2.3** Refresh UPSs & accessories — $17,550 — E-RATE ALL

SUBTOTAL $363,150

Goal 3 — Enhanced Communications

- **3.1** Upgrade all PA systems to IP-based or hybrid Clock/PA system — $607,500 — CIP ALL

SUBTOTAL $607,500

Goal 4 — Safe School Environment

- **4.1** Upgrade Security Cameras & Servers to IP-based system — $513,000 — CIP ALL
- **4.2** Implement Lockdown System (door contacts) — $13,500 — SAFE ALL
- **4.1** Refresh Security Cameras & Servers — $567,000 — CIP ALL

SUBTOTAL $1,093,500

Goal 5 — Technology-Enriched Environment

- **5.1** Refresh classroom display systems — $33,750/year (x) 10 years = $337,500 — E J/S
- **5.2** Deferred payments for (5) printers & copiers — $16,875/year (x) 10 years = $168,750 — OPS ALL
- **5.3** Replace physical servers with VMware servers & SAN — $67,500 — TR J/S
- **5.3** Replace physical servers with VMware & SAN — $85,050 — TR J/S

SUBTOTAL $658,800

Goal 6 — Personalized Learning

- **6.2** Refresh student ChromeBooks — $66,850/year (x) 10 years = $668,500 — ESEA E J/S
- **6.1** Upgrade obsolete student desktops — $51,300 — ESEA E J/S
- **6.1** Upgrade obsolete student desktops — $58,050 — ESEA E J/S
- **6.1** Upgrade obsolete student desktops — $64,800 — ESEA E J/S

SUBTOTAL $842,650

Goal 7 — Teachers and Staff Computing Devices

- **7.1** Replace staff laptops — $51,300 — TR ALL
- **7.1** Replace staff desktops — $14,850 — TR ALL
- **7.1** Replace staff laptops — $58,050 — TR ALL
- **7.1** Replace staff desktops — $16,200 — TR ALL

SUBTOTAL $140,000

Goal 8 — Annual Software, Services, and Support

- **8.1** Admin Software/Services/Support — $26,325/year (x) 10 years = $263,250 — BOCES ALL
- **8.2** District Software/Services/Support — $54,000/year (x) 10 years = $540,000 — BOCES ALL
- **8.3** Education Software/Services/Support — $110,700/year (x) 10 years = $1,107,000 — BOCES ALL
- **8.4** Internet Service Provider — $11,135/year (x) 10 years = $111,350 — BOCES ALL
- **8.5** District Leased Fiber — $45,900/year (x) 10 years = $459,000 — BOCES ALL
- **8.6** Telephone/Voice Services — $22,275/year (x) 10 years = $222,750 — BOCES ALL
- **8.7** BOCES IT Support and Services — $91,800/year (x) 10 years = $918,000 — BOCES ALL

SUBTOTAL $3,621,350

VISION

School of the Future

2026/26

4. About Follett Software's **Facilities Suite** Software and Services

The smarter way to manage Anytown CSD's facilities.
Follett Software provides proven K12 facilities management software to hundreds of school districts across the U.S. Our most popular solutions include event scheduling, work orders, and asset survey applications.

Our Managed Services team acts as an extension of your staff with onsite facility asset surveys and Preventive Maintenance procedures set up in our Work Orders software.

We hope Anytown CSD joins more than 700 school districts nationwide of all sizes—including 400+ in NYS—that trust Follett Software to extend building usable lives, reduce expenses and liabilities, and increase occupant satisfaction.

Facility Schedules

NEW Gallery View

Facilities Schedules event scheduling software
Our event scheduling software and online calendar creates a shareable database of public space reservation information. Facilities Schedules software allows both internal staff members and outside community groups to enter facilities use requests, directly from your website.

Integrated invoicing and real-time reporting improves staff and community satisfaction with secure system access anywhere.

Major features include:
- Eliminates paper forms and double bookings.
- Integrates with Google and Outlook calendars as well as athletic scheduling systems.
- Automatically notifies staff members needed to support the events.
- Ability to invoice and receive online payments.
- Bulk updates for mass cancel events (e.g., due to a weather event).
- Block and limit dates (e.g., reservations must be made at least 14 days in advance).
- Visual reporting on facilities usage, invoicing, and payments.

Our Facilities Schedules software makes it easy to manage internal (district) and external (community) facility use requests. New Gallery View shown.

Work Orders

Work Orders software brings your facilities maintenance into the digital age.

NEW Issues Module and Satisfaction Surveys

Work Orders facility maintenance software
Work Orders is a user-friendly work order management system that offers everything you need to easily and efficiently manage your maintenance and technology requests, asset management, inventory management, and preventive maintenance schedules.

Manage both facility and IT-related work orders to reduce expenses while decreasing service-call response times and durations.

Major features include:
- One centralized system for both maintenance and technology requests.
- Labor and expense tracking.
- Asset management to track maintenance including warranties, replacement costs, manuals, and work order history.
- IT device management to check in and out assets with barcode scanning capabilities and integrations with various MDM software programs.
- Inventory management tracks supplies and available parts, and monitors supply levels in real time.
- Preventive maintenance with step-by-step procedures for each PM, giving the assigned staff clear instructions on how to complete the task.

Facility Drawings

Our Facilities Drawings software turns any computing device into a powerful asset survey and mapping tool to easily create interactive floor plans.

NEW Emergency Response Plans

Facilities Drawings interactive floor plans tool
Facilities Drawings asset mapping software is the quick and easy way to access, edit and customize your floor plan drawings. Our DIY digital tool enables you to build a dynamic graphical view of your assets by location and type.

Major features include:
- Communicate asset location through interactive floor plans providing a digital map for your team.
- Eliminate the time spent searching for assets inside of your building or system drawings stored away in a closet.
- Flexible filter/search provides views by a specific system, subsystem, or asset type.
- Customized roles and permissions to set-up user roles with specific view and manage permissions.
- Work Orders integration allows the creation of work orders and PMs directly from asset records in Facilities Drawings.
- Mobile friendly makes it perfect for asset site surveys on the go.

Managed Services

Extend facility systems usable lives with accurate, actionable data
Follett Software's Managed Services act as an extension of your staff by performing onsite surveys of 50+ vital facility asset categories including:
- **Architectural** including elevators, exterior and overhead doors, and roof access.
- **Mechanical** including air handling and rooftop units, chillers, and split units.
- **Electrical** including breaker panels, meters, emergency lighting, and transformers.
- **Plumbing** including drinking fountains, Fire Dept. connections, and sump pumps.
- **Technology** including door-access card readers, video surveillance camera, and network racks.
- **Furniture, Fixtures & Equipment** including AEDs, fire extinguishers, and First Aid Stations.

Asset data is captured on stamped floor plans using Facilities Drawings for instant availability in Work Orders. Standard captured data for each asset includes location, make, and model, as well as equipment and manufacturer tag photos.

We also setup detailed industry-standard Preventive Maintenance (PM) procedures with schedules and assigned staff. Select benefits include:
- Reduce the need to replace expensive system components where industry-standard PM procedures can add years to their usable lives.
- Ensure the operability of vital Life Safety assets that have extremely low usage can literally mean the difference between life and death.
- Automate all Preventative Maintenance and inspection work orders so you never miss a required schedule, part, or procedure.

Notes

Notes

Follett
SOFTWARE

2016 – 2025
Technology Planning Services: By the Numbers

Our Technology Planning services staff includes Registered Communications Distribution Designers (RCDDs) who examine all District buildings to objectively assess current technology conditions, recommend improvements, and estimate the rough cost of those improvements.
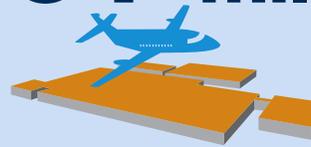
Total Technology Surveys Conducted

73

Conducted for **68** public school districts including multi–project clients.

Total Interior Space Sq. Ft. Surveyed

40+ million

That's about **10x** the size of Boeing's Everett Factory, the world's largest building.

Total Full–Time Students Effected

163,413

That's about the full-time student enrollment at **Houston Independent School District,** Texas.

Total Recommended Improvement Costs

$697 million

That would buy about **143,703** ounces of gold at today's price.*

*$4,850.^{25}/oz. on January 23, 2026.

See how we can help solve some of your district's most vexing technology issues that effect classrooms, business offices, IT departments, and facilities management. For more information, visit
https://facilities.follettsoftware.com/services/technology-planning/