KETS Analog Line Replacement Recommendations

13 October 2026

Understanding Analog Lines in School Districts

Analog line(s) refers to traditional analog telephone services that use analog signaling, commonly delivered over copper wiring and referred to as POTS (Plain Old Telephone Service) or 1FB (Single Line with Flat Business Rate Voice Service). School Districts may also continue to utilize legacy copper-based Digital services such as T1 and PRI circuits. Many School Districts have historically relied on POTS/1FB/T1/PRI services for critical communication and safety infrastructure. Often used for Phone Systems, Fax Machines, Alarms, Elevator Lines, or Basic Voice Services, these are commonly found in legacy Telecommunications environments where simple, reliable connectivity is required.

Key Uses of Analog & Legacy Services in Schools:

- **Legacy Phone Systems** – Also referred to as a "PBX," supporting Classroom Phones, Administrative Offices, and shared Calling Resources across School Facilities.
- **911 Emergency Services** – Supports emergency calling and related E911 requirements.
- **Elevator Emergency Phones** – Provides emergency communications from elevators.
- **Intercom & Paging Systems** – Enables school-wide announcements and coordination.
- **Security & Fire Alarms** – Many legacy systems continue to depend on analog or copper-based communications for monitoring and emergency alerts.
- **Panic Buttons & Silent Alarms** – May utilize legacy communications services for emergency notification.
- **Blue Light Emergency Call Stations** – Provides direct emergency communications from designated locations.
- **Door Access & Gate Systems** – May use analog lines, modems, or other legacy connectivity.
- **HVAC / Building Automation Systems** – Some legacy systems utilize analog modems for remote access, monitoring, or control.
- **Modems / SCADA Systems** – May rely upon analog connectivity for telemetry, monitoring, or remote communications.
- **Fax Machines** – Still utilized by some School Districts for document exchange.
- **Other Voice Applications** – Includes specialty phones, conference room devices, and other systems utilizing analog connectivity.

Why School Districts Need to Transition from Analog & Legacy Services

Telecommunications providers continue to phase out and modernize traditional copper-based telecommunications infrastructure in favor of modern Digital technologies such as Fiber Optics, IP-based services, VoIP, and Wireless/Cellular solutions. Under FCC Order 26-19, the FCC further streamlined requirements associated with the retirement and modernization of legacy telecommunications networks and services. As providers transition from legacy copper-based infrastructure to modern IP, Fiber, and Wireless technologies, **School Districts should proactively plan for the migration of affected services**.

As telecommunications providers modernize their networks, School Districts may experience:

- Retirement or discontinuance of legacy copper-based services.
- Increased monthly costs for remaining POTS/1FB and other legacy services.
- Reduced availability of legacy services and replacement equipment.
- Carrier-required migration to newer technologies.
- Compatibility concerns involving legacy devices.
- Potential service interruptions if replacement planning is not completed in advance.

School Districts should proactively identify legacy services and develop migration plans rather than waiting for a carrier retirement or service-discontinuance notification.

Modern Alternatives for Schools:

1. On-Premises or Cloud-Based Voice Technologies (Leveraging IP/Internet Connectivity) – Replace traditional carrier-provided analog services by utilizing existing or new IP-based Voice, SIP, VoIP, and Cloud/UCaaS platforms to support Voice and compatible analog devices:

    1. Suitable for general voice communications.
    2. Leverage IP-based technologies such as SIP and VoIP.
    3. May involve an on-premises PBX or a Cloud-Based Voice/UCaaS solution with minimal on-premises equipment.
    4. May be offered by traditional telecommunications providers, cable companies, Cloud Voice providers, or other communications vendors.
    5. In Kentucky K-12, new implementations are expected to utilize the Next Generation Kentucky Information Highway (NGKI) Internet connection where appropriate.
    6. Existing Phone Systems or additional connected components may provide analog connections for legacy devices.
    7. Analog Terminal Adapters (ATAs) or gateways may be used where appropriate to connect certain legacy analog devices to modern IP-based Voice Platforms.

2. Cellular-Based Communication Systems (Leveraging Cellular Networks) – Replace traditional carrier-provided analog services using Cellular networks (LTE/4G/5G) to support compatible Voice, Life Safety, Security, and other analog-dependent applications:

    1. Provide connectivity for devices in locations where copper services are unavailable or are being decommissioned.
    2. May serve as a primary or backup communication method for appropriate critical systems.
    3. May provide an independent communications path from the School District's primary wired network.
    4. Require appropriate Cellular coverage, local power, backup power, and compatibility validation.

Impact on School District Safety & Compliance

With the replacement of POTS and other legacy telecommunications services, School Districts must ensure Emergency Communication and Life Safety systems continue to comply with applicable requirements:

- **Kari's Law** – Requires direct dialing of 911 without requiring a prefix, such as "9," from applicable Multi-Line Telephone Systems. Applicable systems must also provide notification when a 911 call is made.
- **RAY BAUM'S Act** – Requires applicable 911 calls to provide Dispatchable Location information sufficient to identify the location of the caller.
- **Alyssa's Law** – Addresses silent panic alarm systems capable of notifying law enforcement during emergencies.
    - Not currently a requirement in the Commonwealth of Kentucky.
- **Applicable Life Safety Codes and Requirements** – Fire Alarm, Elevator, Emergency Communication, and other regulated systems may be subject to additional Federal, State, Local, NFPA, Manufacturer, and Authority Having Jurisdiction (AHJ) requirements.

Steps for a Smooth Transition

1. Assess Existing Systems

Before replacing analog lines, conduct a thorough audit to identify where they are still in use and assess their impact on daily operations, Emergency Communications, Life Safety, Security, and Facility Operations.

Key Areas to Evaluate:

- **Emergency Systems:** Fire Alarms, Elevator Emergency Phones, Panic/Silent Alarms, Blue Light Emergency Stations, and other Emergency Communication Systems.
- **Security Systems:** Burglar Alarms, Door Access Systems, Security Gates, and other Security Applications.
- **Facility Operations:** HVAC Controls, Building Automation, SCADA, Utility Monitoring, and Modems.
- **Business Operations:** Fax Machines, Voice Applications, Conference Room Devices, and other Analog Devices.

Key Questions to Ask:

- What systems are still dependent on analog or legacy telecommunications services?
    - Legacy Phone Systems
    - Burglar Alarms
    - Elevator Emergency Phones
    - Fax Machines
    - Fire Alarm Panels
    - Gates
    - Modems / SCADA
    - Blue Light Call Stations
    - Emergency / 911 Calling Services
    - HVAC / Building Automation Systems
    - Voice Applications
    - Intercom / Overhead Paging Systems
    - Door Access Systems
    - Panic Buttons / Silent Alarms
    - Conference Room Phones / Connectivity
- Are any analog devices currently connected through Analog Terminal Adapters (ATAs), Analog Gateways, or PBX analog ports?
- How will the transition impact emergency response and compliance with regulations?
    - NFPA 72 is a code published by the National Fire Protection Association (NFPA) that establishes requirements for fire alarm systems, emergency communication systems, and mass notification systems. It addresses the design, installation, maintenance, testing, and performance of these systems to support fire and life safety.
    - Other codes and standards may apply depending upon the specific application.
    - Local Life Safety, Building, Fire, Elevator, and other Authorities Having Jurisdiction may have additional requirements. KDE recommends that School Districts coordinate with the appropriate Authorities Having Jurisdiction, equipment manufacturers, monitoring providers, and vendors as part of the assessment and planning process.
    - The Commonwealth of Kentucky adopted the NFPA 72 - National Fire Alarm and Signaling Code as part of its state regulations; the 2018 Kentucky Building Code references the 2013 NFPA 72. Additionally, Title 815, Chapter 10, Regulation 060 of the

Kentucky Administrative Regulations mandates that required inspections or tests be recorded on applicable forms contained in NFPA 25 or NFPA 72, as determined by the State Fire Marshal.

2. Explore Available Alternatives & Collaborate with Service Providers
Work with KDE and technology, telecommunications, Life Safety, and equipment vendors to identify suitable replacements for analog and legacy services.

Some vendors may have KETS or Commonwealth contracts; however, there is no requirement to use those specifically unless otherwise directed by applicable procurement requirements.

Common Replacement Options:

- **Current Phone System**
  Your existing Phone System (Avaya IP Office, Mitel, Cisco, etc.) may be capable of supporting certain analog devices, allowing migration from traditional carrier-provided analog lines.

  If needed, an Analog Terminal Adapter (ATA) or Analog Gateway may provide an analog interface to a VoIP/SIP-based communications platform, allowing certain legacy analog devices to continue operating.

  An ATA or gateway should not automatically be assumed to be compatible with every analog device or application. Compatibility should be verified with the equipment manufacturer and appropriate service provider.

- **IP/SIP-Based Solutions:**
  Where supported, districts should evaluate moving applications directly to modern IP or SIP-based technologies rather than recreating an analog line.

  This may include:
  - VoIP
  - SIP
  - Cloud Voice / UCaaS
  - IP Paging
  - IP-based Emergency Phones
  - IP-based Monitoring
  - IP-based Building Systems

- **Cellular-Based Solutions:**
  Cellular-based solutions utilize Cellular networks (LTE/4G/5G) to provide connectivity for certain legacy Analog, Life Safety, Security, Elevator, and other applications where traditional copper-based services are unavailable or being retired.

  These solutions may:
  - Provide primary or backup connectivity.
  - Provide an independent communications path from the School District's wired network.
  - Support certain Fire Alarm, Security Alarm, Elevator, Emergency Phone, Fax, or other specialized applications.
  - Require Cellular signal validation, local power, backup power, and compatibility testing.

  Compatibility with the specific device and application should be verified with the equipment

manufacturer and monitoring provider, while also ensuring compliance with applicable Life Safety requirements.

Key Questions to Ask Providers:

- What technology is being used to replace the existing analog service?
- Is the solution compatible with the specific device and application?
- Has compatibility been verified by the equipment manufacturer?
- What backup and failover options are available?
- What happens during a commercial power outage?
- What happens during an NGKI, Internet, or other network outages?
- Does the solution provide Cellular path redundancy?
- How does the solution integrate with existing Security and Emergency Systems?
- What backup-power capabilities are provided?
- What are the installation and ongoing maintenance costs?
- Does the provider offer 24/7 monitoring and support?
- What Service Level Agreement (SLA), response time, and restoration commitment does the provider offer for critical or Life Safety applications?
- Has the solution been implemented within Kentucky K-12? If so, where?

Some older devices and legacy Security, Alarm, Elevator, Fax, and Modem systems rely upon signaling characteristics or protocols originally designed for traditional analog lines. Not all Digital, VoIP, ATA, or Cellular replacements can fully replicate these characteristics.

Compatibility should therefore be validated end-to-end with the actual application, not solely by confirming that dial tone is present.

3. Implement & Test New Systems

Once a replacement solution is selected, plan a phased implementation to minimize disruption.

Implementation Considerations:

- **Compatibility:** Ensure the replacement solution integrates with the existing device or application.
- **Scalability:** Select solutions that support future expansion and modernization.
- **Redundancy & Backup:** Establish appropriate failover mechanisms, secondary communications paths, and backup power.
- **Power Continuity:** Modern VoIP, Fiber, IP, and Cellular-based solutions generally require local electrical power. School Districts should evaluate backup power requirements for the entire communications path, based upon the application, applicable codes, Manufacturer requirements, AHJ requirements, Business Continuity requirements, and expected outage duration. This evaluation should include any Optical Network Terminal (ONT), modem, gateway, ATA, network switch, router, firewall, or other equipment required to maintain the communications path.
- **Network Dependency:** Determine whether the application depends upon NGKI, Internet, LAN, WAN, Cellular, or other communications infrastructure.
- **Regulatory Compliance:** Verify applicable E911, Fire, Elevator, Life Safety, Building, and other requirements before placing the system into production.

Key Questions for Testing & Validation:

- Does the new system maintain or improve reliability?
- Can 911 calls be completed successfully?
- Is accurate Dispatchable Location information provided where required?

- Have Emergency Alerts and notifications been tested?
- Are Fire Alarm, Security, Elevator, and other critical systems properly communicating with their monitoring destinations?
- Has the application been tested during a commercial power failure?
- Has network or communications-path failure been tested?
- Has backup/failover connectivity been tested?
- Has the equipment vendor or monitoring provider confirmed successful operation?

A replacement should not be considered successfully tested simply because a dial tone is present. The complete application and communications path should be validated before the legacy service is disconnected.

4. Train Staff & Administrators
Effective training ensures smooth adoption and proper use of new communication technologies.

Transitioning from Analog to Digital systems requires not only technical updates but also operational awareness. Digital solutions may introduce different dependencies, such as local power, NGKI/Internet connectivity, Cellular coverage, Network Equipment, Portals, Automated Alerts, and Call Logging.

Staff should understand how these systems differ from traditional analog services, what to expect during outages, and how to activate Emergency Procedures.

Training Focus Areas:
- **Emergency Protocols:** How to make Emergency Calls and activate applicable Emergency Systems.
- **New Features:** Training on new features, portals, notifications, monitoring, and other functionality.
- **Outage Procedures:** What to do during Power, Network, Internet, or Cellular outages.
- **Troubleshooting Basics:** How to identify and report issues.

Key Training Questions:
- Who needs training, and what level of detail is required?
- How will training be reinforced through refresher sessions or documentation?
- Who is responsible for ongoing support and troubleshooting?
- Who should be contacted when a Life Safety or Emergency Communication system fails?

5. Monitor & Optimize
After deployment, continuously monitor the performance of the new communication infrastructure and make necessary adjustments.

Ongoing Maintenance Considerations:
- **Regular System Checks:** Periodically test Emergency Lines, Alarm Communications, Elevator Phones, Security Integrations, and other critical applications.
- **Backup Power:** Periodically verify UPS, Battery, and other backup-power capabilities.
- **Failover Testing:** Validate secondary communications paths where applicable.
- **Policy Updates:** Revise Emergency Communication and outage procedures as technologies change.
- **Inventory Management:** Maintain the carrier/service provider, circuit or account information, device/application, replacement technology, responsible support organization, and emergency/vendor contact information.

- **Feedback Mechanisms:** Gather input from Staff, Administrators, Technology Personnel, and Facility Personnel.

Key Questions for Long-Term Success:

- How will system performance be monitored and reported?
- What contingency plans are in place for outages or disruptions?
- How frequently will critical systems be tested?
- Who is responsible for maintaining each replacement solution?
- How will future technology changes and carrier retirements be incorporated into District planning?

Conclusion

The transition from Analog and legacy copper-based telecommunications services to modern communication technologies is necessary for School Districts to maintain reliable operations, Emergency Communications, Life Safety, Security, and Business Continuity.

Proper planning, collaboration with Service Providers, Equipment Manufacturers, Monitoring Providers, KETS Field Staff, and applicable Authorities Having Jurisdiction will help ensure School Districts successfully transition to modern technologies while maintaining required functionality.

The objective is not simply to replace an analog line or recreate dial tone, but to ensure that the application supported by that line continues to operate safely, reliably, and effectively after the underlying telecommunications technology changes.

KDE can support School Districts in evaluating and migrating to an appropriate Analog Line Replacement solution.

References & Resources

Kentucky Codes & Regulations:
https://dhbc.ky.gov/Documents/DHBC_CodesCurrentlyAdopedbyKentucky.pdf

Federal Communications Commission (FCC) Rulings:
https://www.fcc.gov/document/fcc-grants-relief-outdated-burdensome-phone-industry-regulations
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