



# TECHNOLOGY



## Technology Services Technicians

**2014 Bond Update**  
**TECHNOLOGY INFRASTRUCTURE**

October 11, 2017



# Technology Infrastructure Update

## Projects



- Install High Speed Wireless Access Infrastructure



- Install Network Electronics Infrastructure



- Upgrade Connectivity, Power, and Air Conditioning



- Upgrade the Data Center and Infrastructure



- Upgrade Staff Technology and Telephone Systems



- Install Technology Infrastructure in New Schools

# Technology Infrastructure Update

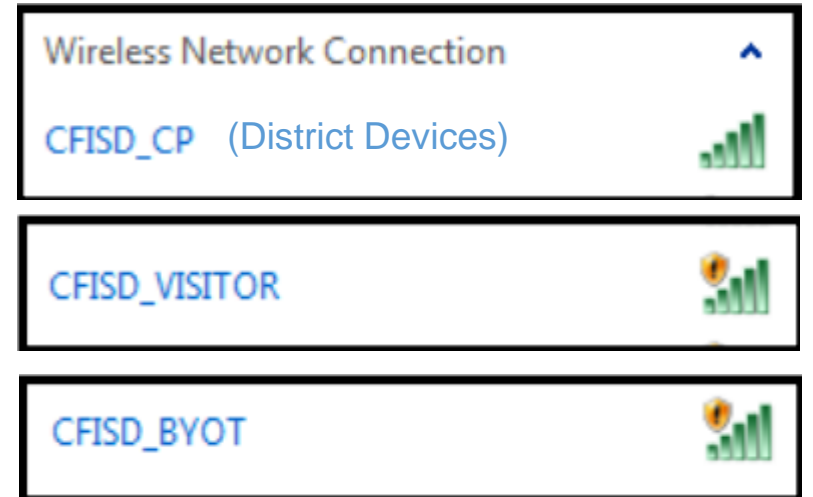


## Install High Speed Wireless Access Infrastructure

Completed the installation of enterprise state-of-the-art, high-speed wireless access infrastructure that includes:

- Up to three wireless device connections,
- Secured Bring Your Own Technology (BYOT) program,
- Secured visitor access, and
- Outdoor wireless coverage.

Grade Level	Installed 9,822 Wireless Access Points
High	100% Complete (installed 2,963)
Middle	99% Complete (installed 2,037)
Elementary	94% Complete (installed 4,567)
Alternative	99% Complete (installed 93)
Support Centers	100% Complete (installed 162)



# Technology Infrastructure Update



## Install High Speed Wireless Access Infrastructure

Completed the installation of enterprise state-of-the-art, high-speed wireless access infrastructure that includes:

- Up to three wireless device connections,
- Secured Bring Your Own Technology (BYOT) program,
- Secured visitor access, and
- Outdoor wireless coverage.

Grade Level	Installed 9,822 Wireless Access Points
High	100% Complete (installed 2,963)
Middle	99% Complete (installed 2,037)
Elementary	94% Complete (installed 4,567)
Alternative	99% Complete (installed 93)
Support Centers	100% Complete (installed 162)

Remaining Work Left to Complete

Outdoor Building Wireless

School	Percent Complete
Adam ES	33%
ALC East	Need Cabling
Bang ES	80%
Birkes ES	75%
Duryea ES	80%
Hamilton ES	33%
Lamkin ES	50%
Lieder ES	75%
Millsap ES	75%
Watkins MS	Under Construction
Woodard	80%
Yeager ES	75%

# Technology Infrastructure Update



## Install Network Electronics Infrastructure

Completed the installation of high-speed network electronic switching infrastructure that provides:

- Secured, high-performance communications,
- Connectivity of all devices in schools, service centers, hubs, and data centers,
- Connectivity to the district's high-speed wide area network fiber, and
- Connectivity to external resources and the Internet.

Area	Installed <b>2,031</b> Network Electronics
High School	100% Complete (installed 583)
Middle School	100% Complete (installed 457)
Elementary	100% Complete (installed 808)
Alternative	100% Complete (installed 22)
Support Centers	100% Complete (installed 161)



# Technology Infrastructure Update



## Upgrade Connectivity, Power, and Air Conditioning

Working to complete the upgrade of network cabling, fiber optic connectivity, air conditioning and network closets in the schools, service centers, hub connections and data centers that provides:

- Network reliability with multiple paths to the Internet reducing single points of failure,
- High-speed connectivity and Internet bandwidth,
- Installation of adequate air conditioning and emergency power in primary network connections.

Area	High-Speed Cabling 8000+ drops	Dual Fiber Internet Connections	Dual Fiber Campus Feed Coverage	A/C Upgrades Network Closets
High School	100%	100%	42%	100%
Middle School	100%	100%	20%	100%
Elementary	100%	100%	10%	Included in construction renovation
Alternative	100%	100%	58%	Included in construction renovation
Support Centers	100%	100%	84%	Included in construction renovation

# Technology Infrastructure Update



## Upgrade Connectivity, Power, and Air Conditioning

Working to complete the upgrade of network cabling, fiber optic connectivity, air conditioning and network closets in the schools, service centers, hub connections and data centers that provides:

- Network reliability with multiple paths to the Internet reducing single points of failure,
- High-speed connectivity and Internet bandwidth,
- Installation of adequate air conditioning and emergency power in primary network connections.

Remaining Work Left to Complete

Area	High-Speed Cabling 8000+ drops	Dual Fiber Internet Connections	Dual Fiber Campus Feed Coverage
High School	100%	100%	42%
Middle School	100%	100%	20%
Elementary	100%	100%	10%
Alternative	100%	100%	58%
Support Centers	100%	100%	84%

1. Address exposure on the network for single points of failure on the fiber. Includes campus connection to the campuses and back to their assigned hubs. Build a more resilient network to minimize downtime due to fiber cuts.
2. Consolidate contract term dates (and extensions) into long term contracts with same contract end dates.
3. Extend the district financial investment in recently built campuses into longer term contracts.
4. Leverage E-Rate funding to the fullest

# Technology Infrastructure Update



## Upgrade the Data Center and Infrastructure

Working to complete the upgrade of infrastructure in three data centers, including a Tier 4 colocation facility (CyrusOne) to improve server availability, business continuity and disaster recovery, and system sustainability.

### ➤ **Items Completed at 100%**

- ✓ Internet Point of Presence (2<sup>nd</sup> Connection)
- ✓ Optical wavelength connection for Business Continuity
- ✓ between Data Centers
- ✓ Expanded server infrastructure with virtualization
- ✓ Automated Storage Area Network (SAN)
- ✓ Telephone Upgrade (Voice over IP)
- ✓ Data backup system with monitoring
- ✓ Firewalls for security and content filtering
- ✓ Data migration



# Technology Infrastructure Update



## Upgrade the Data Center and Infrastructure

Working to complete the upgrade of infrastructure in three data centers, including a Tier 4 colocation facility (CyrusOne) to improve server availability, business continuity and disaster recovery, and system sustainability.

### ➤ **Items Completed at 100%**

- ✓ Internet Point of Presence (2<sup>nd</sup> Connection)
- ✓ Optical wavelength connection for Business Continuity
- ✓ between Data Centers
- ✓ Expanded server infrastructure with virtualization
- ✓ Automated Storage Area Network (SAN)
- ✓ Telephone Upgrade (Voice over IP)
- ✓ Data backup system with monitoring
- ✓ Firewalls for security and content filtering
- ✓ Data migration

Remaining  
Work Left  
to  
Complete



### ➤ **Items Left to Complete**

- Disaster recovery system (95% complete)
- Data auditing (50% complete)
- Move Mission critical applications (60% complete)
- Implement a Private cloud (Plan to start in mid 2018)
- Prepare for automation in future applications

# Technology Infrastructure Update



## Upgrade the Data Center and Infrastructure

Working to complete the upgrade of infrastructure in three data centers, including a Tier 4 colocation facility (CyrusOne) to improve server availability, business continuity and disaster recovery, and system sustainability.

### ➤ Items Completed at 100%

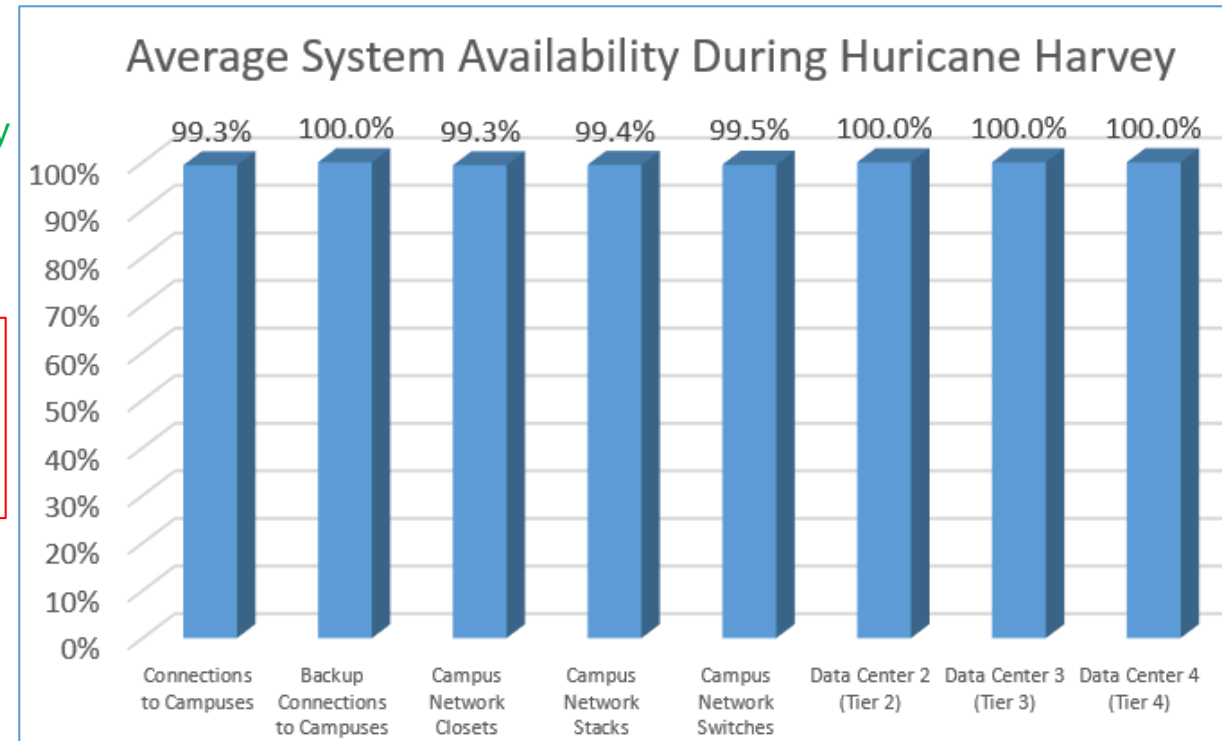
- ✓ Internet Point of Presence (2<sup>nd</sup> Connection)
- ✓ Optical wavelength connection for Business Continuity between Data Centers
- ✓ Expanded server infrastructure with virtualization
- ✓ Automated Storage Area Network (SAN)
- ✓ Telephone Upgrade (Voice over IP)
- ✓ Data backup system with monitoring
- ✓ Firewalls for security and content filtering
- ✓ Data migration

Remaining Work Left to Complete



### ➤ Items Left to Complete

- Disaster recovery system (95% complete)
- Data auditing (50% complete)
- Move Mission critical applications (60% complete)
- Implement a Private cloud (Plan to start in mid 2018)
- Prepare for automation in future applications



August 25, 2017 – September 11, 2017

# Technology Infrastructure Update



## Upgrade Staff's Technology and Telephone Systems

- Completed the telephone upgrade, replacing the old phone system with Voice over Internet Protocol (VoIP).
- Working to replace state-of-the-art devices and network printers for staff and teachers on a 5 year rotation cycle.

Area	Telephone System to Voice Over IP (VoIP)	Enterprise Desktop Mgmt LANDesk	Administrative Devices					Administrative Network Printers				
			2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2014 - 2015	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019
High	100%	100%	100%	100%	100%	68%	0%	100%	100%	100%	100%	0%
Middle	100%	100%	100%	100%	100%	76%	0%	100%	100%	100%	100%	0%
Elementary	100%	100%	100%	100%	100%	51%	0%	100%	100%	100%	100%	0%
Alternative	100%	100%	100%	100%	100%	28%	0%	100%	100%	100%	100%	0%
Support Centers	100%	100%	100%	100%	100%	17%	0%	100%	100%	100%	30%	0%

# Technology Infrastructure Update



## Install Technology Infrastructure in New Schools

Working to install technology infrastructure (phone system and administrative staff technology, wireless access points, network infrastructure) in **new** and renovated schools.

Grade Level	Technology Infrastructure Complete in New Schools	Technology Infrastructure Awaiting in New Schools
High	CyPark High School Bridgeland High School	
Middle	Anthony Middle School	Middle School #19 and #20
Elementary	Matzke Replacement Hoover Elementary Wells Elementary Woodard Elementary	Elementary #57 and #58
Support Centers	Natatorium, WestGreen Transportation, Pidgeon Stadium, Cold Storage	
Renovation Campuses	Francone Elementary, Lieder Elementary, Dean Middle, Adam Elementary, Bane Elementary, Jowell Elementary, Watkins Middle, Holmsley Elementary, New Moore Elementary on Jones	



# Technology Infrastructure Update

## Projects

## Cost Summary

2014 Bond Technology Infrastructure Allocation	\$90,391,213.29
Expenditures To Date:	\$68,546,522.00
Balance as of September 28, 2017	\$21,844,691.00
Projected E-Rate Technology Infrastructure Reimbursements from 2015-2016 Purchases	\$9,894,105.00



# Great 8 Expectations for Technicians

Voice of the Customer

## Engagement and Support




- Technicians will ensure all interactions with customers and Technology staff are appropriate and professional.
- Customer follow-ups are common. At least 95% of the returned customer surveys are positive.
- The technician knows the key personnel at assigned campuses and key personnel are acquainted with the technician as well.
  - Principal, Principal's Secretary, Technology Liaison, Librarian, Receptionist, and Testing Coordinator.



# Technology Services Team

Voice of the Customer

**V  
I  
S  
I  
O  
N**



Be the District that **Transforms Education**

**MISSION**

**LEAD** in Providing World-Class Quality

LEARN • EMPOWER  
ACHIEVE • DREAM

**Core Values**



Efficient  
Accessible  
Systematic  
Highly-Skilled  
Student-Focused  
Service-Oriented  
Leadership

**PURPOSE**



**We Transform Education**