



# SMART SCHOOLS WIRING PROJECT

RUS CARBON

THOMAS LYNCH

# Smart Schools

The *Smart Schools Bond Act*, approved by New York State voters in 2014, authorized the issuance of \$2 billion of general obligation bonds to finance improved educational technology and infrastructure to improve learning and opportunity for students throughout the State.

Seaford UFSD has been awarded \$1,103,841 through the *Smart Schools Bond Act* to improve our computer network infrastructure.



New York State  
EDUCATION DEPARTMENT

Knowledge > Skill > Opportunity



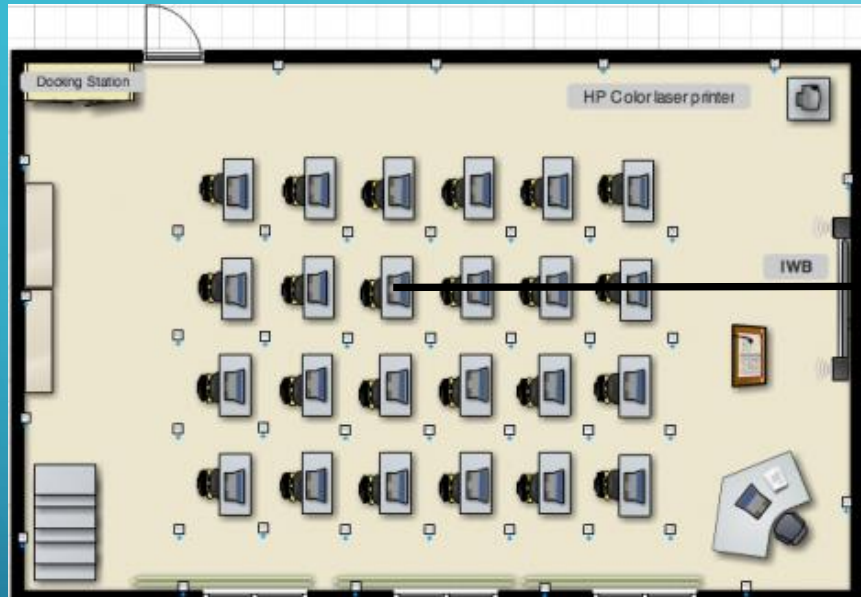
The *Smart Schools Bond Act* funding will be used to update the network cabling in all four schools.

# Current Network

An evaluation of our current network was set up by Mr. Kaden and on January 2<sup>nd</sup> and 3<sup>rd</sup>, Mr. Carbon and Mr. Lynch conducted a walk-through with a team from NCD Communications and BOCES Department of Curriculum, Instruction and Technology.

The purpose of this walk-through was to assess the current status of our network cabling and how best to utilize the funds from the *Smart Schools Bond Act* to update our infrastructure.

# Current Network



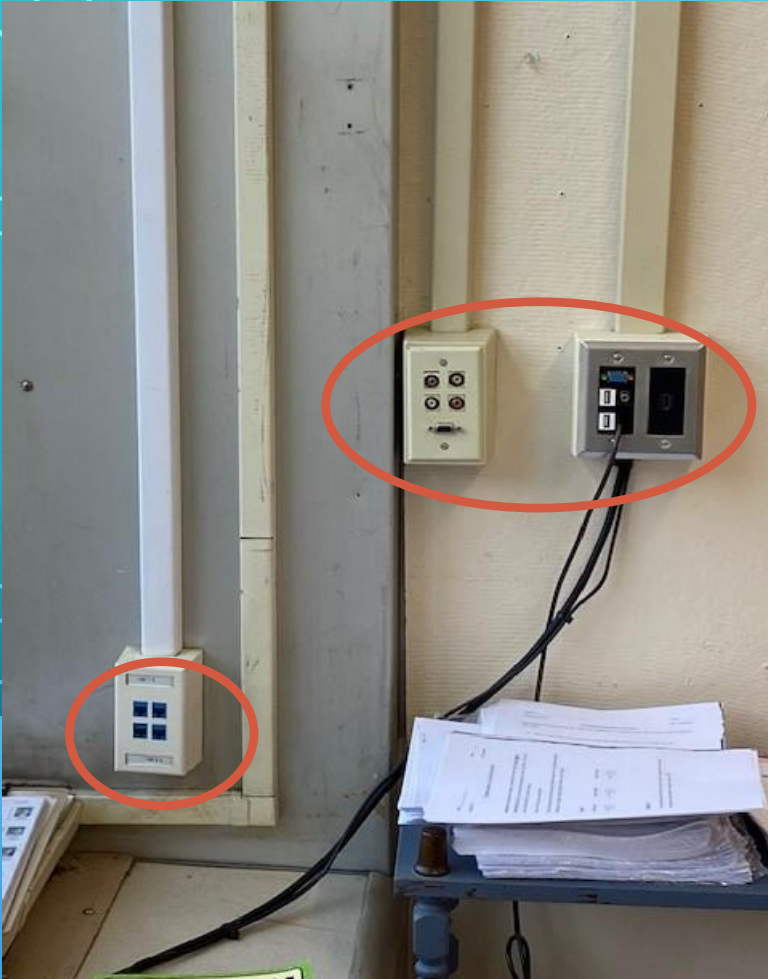
For wireless access point (AP)

For network port



Our current network was designed prior to our PDL Initiative

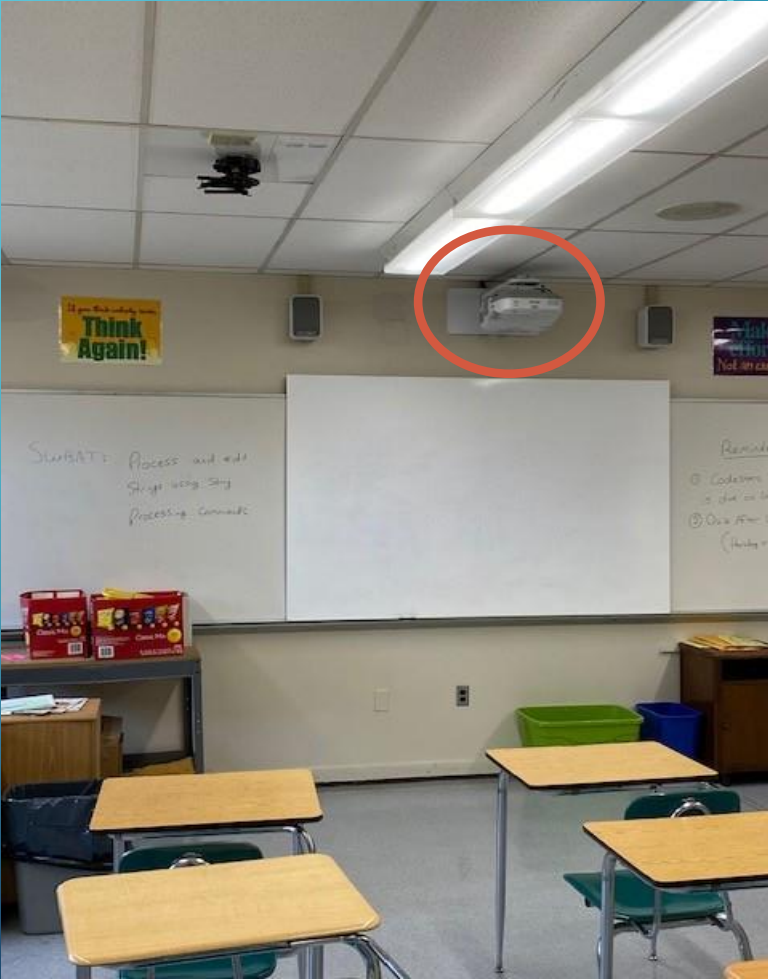
# Current Network



Network Drops



Access Point



Epson Projector

# Current Network

Our current network is mostly Cat5 cabling, which was designed for technology use 20 years ago.

There are also sections of the network that consists of even older Cat3 and other sections with newer Cat 6.

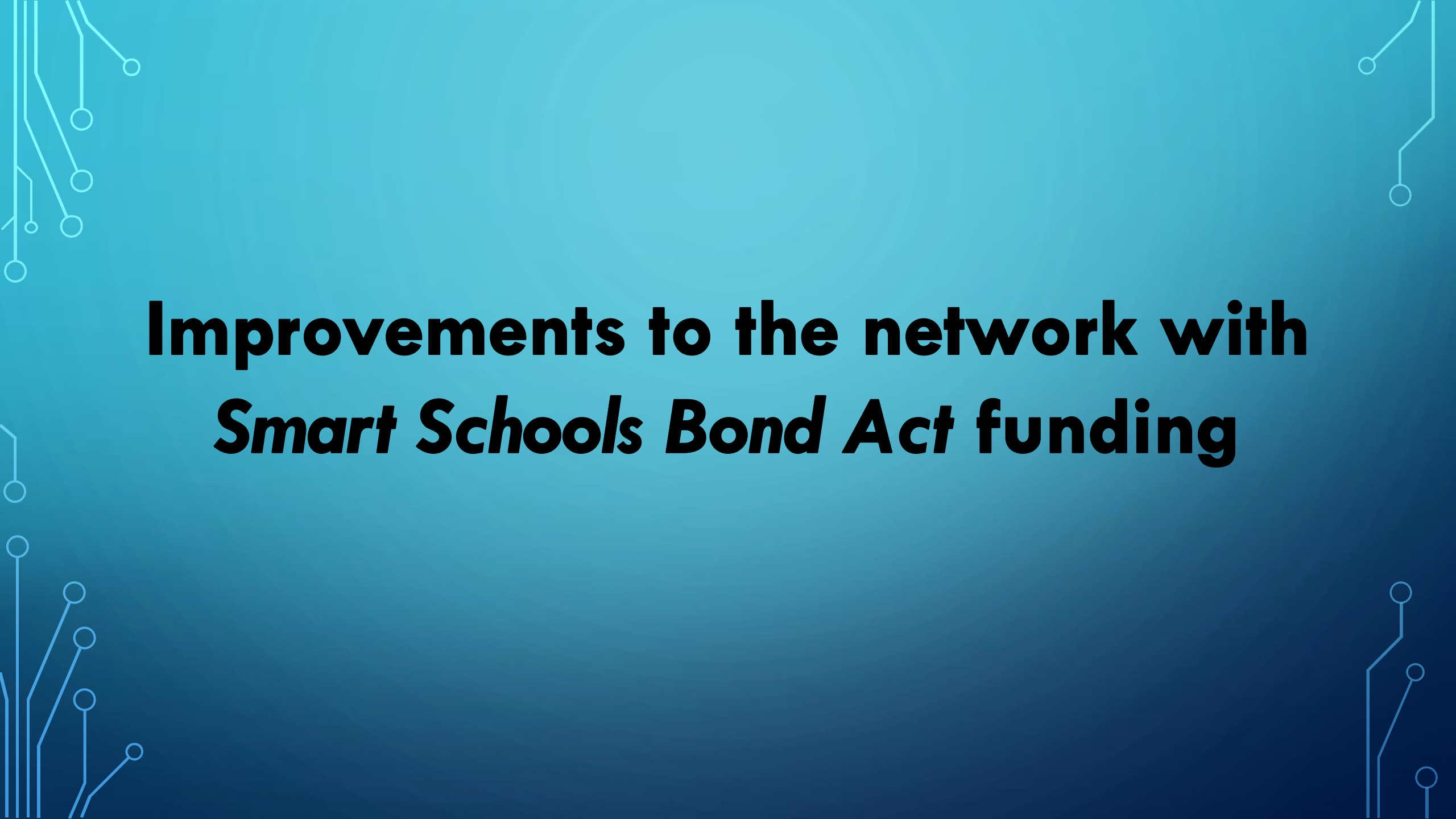
The current standard is Cat6a and this project would put our entire network on this current cabling standard.

# Current Network



Existing wiring racks and switches



The background is a gradient of blue, transitioning from a lighter shade at the top to a darker shade at the bottom. In the four corners, there are decorative white line-art elements resembling circuit boards or network diagrams, with lines and small circles connecting them.

# **Improvements to the network with *Smart Schools Bond Act* funding**

# Updating Current Network Cabling

	Category 3	Category 5	Category 5e	Category 6	Category 6a
Cable Type	UTP	UTP	UTP	UTP or STP	STP
Max. Data Transmission Speed	10 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10,000 Mbps
Max. Bandwidth	16 MHz	100 MHz	100 MHz	250 MHz	500 MHz



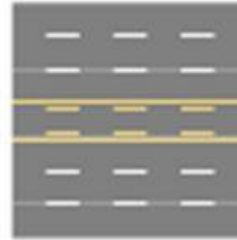
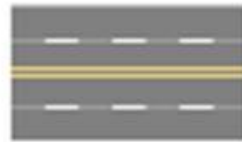
Most of existing network is on Cat5

Increase in bandwidth provides higher transmission speed and data sizes

# Updating Current Network Cabling

## Highway Analogy for Bandwidth

Bandwidth is like the number of lanes.



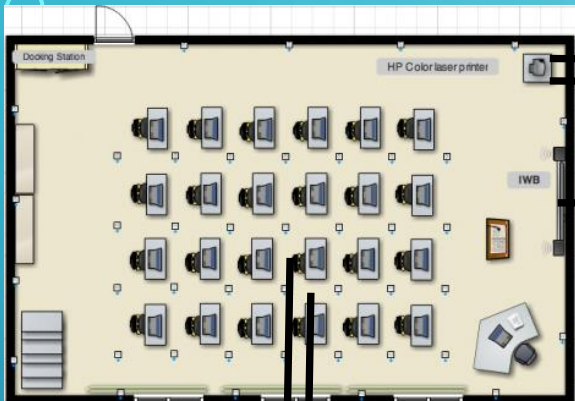
Network devices are like on-ramps, traffic signals, signs, and maps.



Packets are like vehicles.



# Updating Current Network Cabling



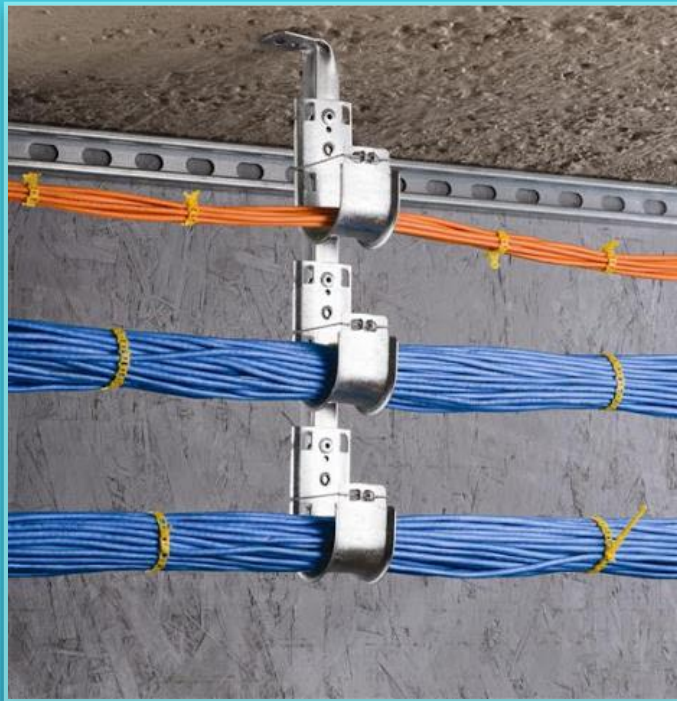
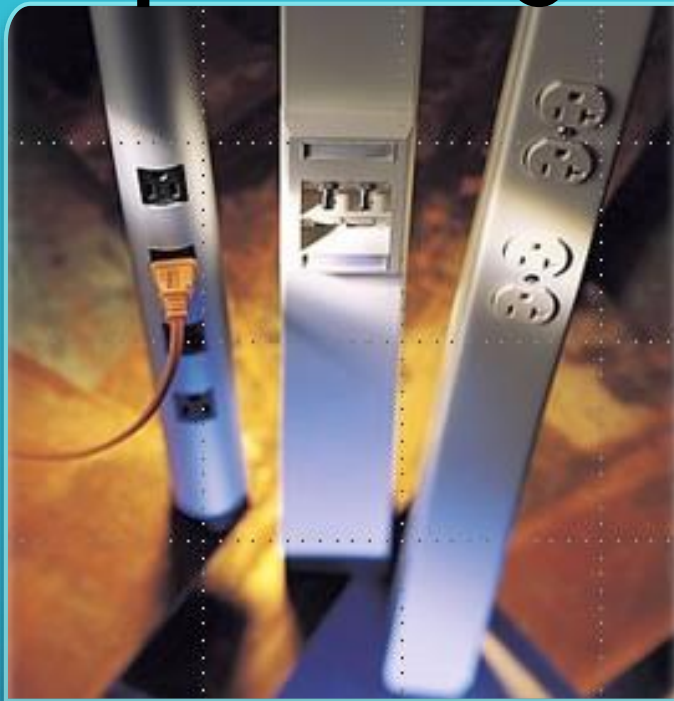
Two cables for direct connection to network and for future enhancements

One cable to manage Epson Projector

Two cables for wireless access point to maximize bandwidth

All cabling will be with the current industry standard of Cat6a

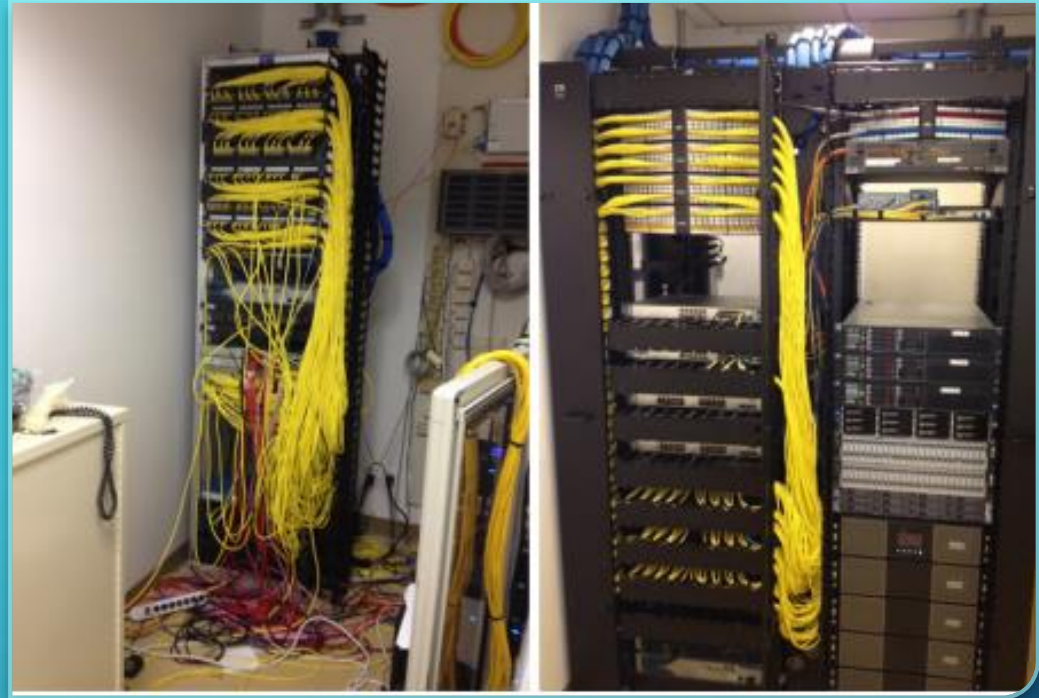
# Updating Current Network Cabling



Cabling will be bundled and hung following industry standards

Exposed cabling will be run through conduit

# Updating Current Network Cabling



All cabling will be color coded by function

Cabling at IDFs and MDFs will be bundled with labeled connections

# Project Plan

The network cabling project has been planned in cooperation with our district architect, John A. Grillo

The network cabling project plans were sent to NYSED and we have been approved to begin this work.

After completing the walk-through with NCD, and consulting with other districts, our plan is to use NCD for this project.

# Project Plan

Using BOCES with NCD has the following benefits:

- BOCES would coordinate work between NCD and Seaford Technology and Facilities Departments
- BOCES management fees are estimated to be aided at 65%
- NCD has expertise working in schools (most recently in Bellmore, Bellmore-Merrick, Hicksville, Merrick, Oyster Bay, Roslyn, Syosset)
- NCD incorporates best practices
- Materials such as cables and connectors will be industry standard
- Work will begin this summer



# Project Expected Costs

- We expect to receive 65% aid on the BOCES Management Fee of \$75,000 which yields a district cost of \$26,250
- We are currently exploring our ability to include architectural fees into the Smart Schools Bond
- ***Nearly the entire project, projected to cost approximately a million dollars, will be funded through the Smart Schools Bond Act***