

# Fairfield Board of Education Proposed Capital Non-Recurring Projects 2018 – 2019



**Systemwide Security and Safety  
Infrastructure Project**



**Secondary Schools  
I.T. CAT 6 Quad Electrical Project**



**Fairfield Ludlowe High School  
Student Parking Lot Replacement Project**



**Systemwide I.T. Switch  
Replacement Project**



December 8, 2017

Dear Board of Education Members:

This booklet provides an overview of the following 2018-2019 Proposed Capital Non-Recurring Project Requests:

1. System-wide Security Infrastructure Upgrades
2. Secondary Schools I.T. CAT 6 Electrical project
3. Fairfield Ludlowe High School Student Parking Lot
4. System-wide I.T. Switch Replacement project

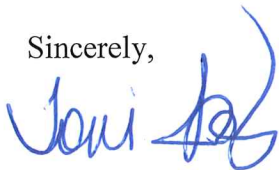
All of the above have been included in long-term facilities planning over the last five years and are listed in the Fairfield Public Schools' Facilities Plan.

Information for each project is provided using the 14-point format devised by the Town of Fairfield and includes:

- Justification and background information.
- A cost estimate that includes previous project information, verbal quotations, and/or written proposals.
- Photographs of projects in existing conditions.

We hope you find this information helpful and we are confident it will answer many of your questions as we begin the budget discussions. Thank you for your continued support.

Sincerely,



Toni Jones, Ed.D.  
Superintendent of Schools



Fairfield Public Schools  
2018-2019  
Capital Non-Recurring Projects

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<b>Total</b>		<b>\$ 1,793,245</b>	

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## **Security Infrastructure Upgrades**

### **Systemwide**

**\$ 345,250**

**Background:** Following the Sandy Hook Elementary School tragedy, the Fairfield Police Department along with the Central Office Administration conducted a security assessment of all the Fairfield Public School buildings. Based on this assessment the Fairfield Police Department recommended several improvements to the Fairfield Public Schools' security infrastructure. Many of the security projects have been performed and completed over the past three years from the 2015-2016, 2016-2017, and 2017-2018 funding requests. This proposed funding request will be for the completion work on phases one and two specific to the intrusion panels.

**Purpose & Justification:** The purpose of this funding request is to make security infrastructure improvements as recommended by the Fairfield Police Department. These recommended improvements will enhance the security and safety at our facilities for our students and staff. The scope of this work is too great to be handled within the BOE operating budget.

**Detailed Description:** This expenditure would cover the total costs for completion of the intrusion panels to our school facilities. Details about these specific improvements cannot be shared in public upon the advice of the Fairfield Police Department.

**Estimated Cost:** The cost of this funding request is \$ 345,250. Estimates were provided by bids received from multiple professional licensed contractors/vendors for the intrusion panels as part of the projects in this funding request.

**Long Range Costs:** Most of the projects listed do not have added long-term costs associated with their implementation. There will be normal operating costs associated with everyday maintenance and upkeep as well as to make sure all security systems, devices, and equipment are running properly. If the school system's security account and budget continue to be maintained at current levels, no increase will be needed to maintain this equipment on an annual basis.

**Demand on Existing Facilities:** These projects will not add any additional demand to the existing facilities.

**Security, Safety and Loss Control:** This project would greatly enhance security, safety and loss control by improving monitoring capabilities, hardening of our facilities against unauthorized entry, and enhancing communications during emergencies.

**Environmental Considerations:** None

**Funding, Financing & SDE Reimbursement:** These projects would not proceed without funding approval. There are no State or Federal regulations that require this project to be undertaken. This project is not eligible for reimbursement through the State Department of Education, Bureau of School Facilities. Grant funding through the CT Department of Emergency Management and Homeland Security "School Security Competitive Grant Program" (SSCGP) will be applied for if they are available to offset some of these costs for the 2018-2019 fiscal year.



Schedule, Phasing & Timing: Approval of this funding will allow the implementation of these projects over the next two years as identified in the Fairfield Public Schools Facilities Plan “Waterfall Schedule”.

Other Considerations: The Town of Fairfield Purchasing Department will award the work per the purchasing guidelines and all work will be performed by outside professional licensed contractors/vendors.

Alternates to the Request: The alternate to this request is to do nothing. This alternative will leave some of our school buildings without intrusion panel safety and leave a breach in the school security program.



## Systemwide

**Security Infrastructure Projects – Completion**

**\$ 345,250**

## Details

Completion of Intrusion Panels

\$ 345,250

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**Total**

**\$ 345,250**

# New England Glass Armor Security Panels Protects schools from Intrusion Vandalism Theft



## New England Glass Armor

35 Corporate Ridge Hamden, CT 06514  
203 640 0668 [www.neglassarmor.com](http://www.neglassarmor.com)

- Custom designed and installed panels for any shape or size windows and doors; whether interior or exterior
- Protects windows and doors from impact, vandalism, theft and intruders
- Does not change the appearance of the existing building, windows and doors
- Panels are UV-rated and available in clear, tinted, anti-graffiti and in several thicknesses, including bullet-proof
- New England Glass Armor is an affordable alternative for school safety
- Be safe, sound and secure at school





New England Glass Armor security panels

## **Systemwide**

### **Information Technology and Electrical Upgrades**

**\$ 200,000**

**Background:** The existing multimedia projectors at the schools, installed before 2012, require data cabling to connect with a centralized management server located at the central office. This system allows the district personnel to monitor projector performance; identify bulbs and other consumables that are in need of replacement and allow remote control of the projectors to enable technicians to adjust projectors without the need to visit the classroom. In addition, the district has been migrating to wireless projection using various computing devices by both teachers and students to share and discuss work. In the schools with older projection installations, only two outlets were installed. In order to support the wireless projection devices, which also require a power source, additional outlets are required to put those rooms on par with other classrooms with more recent installation.

**Purpose & Justification:** All teachers and students need access to technology in their classrooms to facilitate instruction and delivery of curriculum. Remote management of the projectors maximizes the efficiency of the support staff and the uptime of the equipment for teachers.

**Detailed Description:** This expenditure would cover the cost for the installation of the low voltage cabling and installation of the additional dual outlet and/or quad outlet for the secondary schools. The estimate details the data cabling and electrical outlets at an estimate of \$275 per room before bidding. The grand total is projected at \$200,000.

**Estimated Cost:** The cost of this funding request is \$200,000, which includes the engineering professional for documents for bidding purposes as well as a small contingency for unforeseen conditions in the school buildings.

**Long Range Costs:** This project has no long range cost other than preventative maintenance to monitor systems and to prepare for any damaged cable or electrical outlet issues. This new work is expected to last 15 years.

**Demand on Existing Facilities:** This project would facilitate remote control of the projectors, maximizing technician efficiency and limiting downtime of the projection systems in the classrooms.

**Security, Safety and Loss Control:** This project would enable proactive action regarding replacing projection bulbs.

**Environmental Considerations:** Not applicable.

**Funding, Financing & SDE Reimbursement:** This project would not proceed without funding approval. There are no State or Federal regulations that require this project to be undertaken. This project is not eligible for reimbursement through the State Department of Education, Bureau of School Facilities.

Schedule, Phasing & Timing: This work would be planned as a summer project and will be completed in preparation for the new school year.

Other Considerations: This work will be bid out by the Town Purchasing Department and will be performed by outside contractors.

Alternates to the Request: The alternate to this request is to do nothing, which creates inequity between classrooms for access to projection technology systems.

# Systemwide

**Information Technology and Electrical Upgrades**

**\$ 200,000.00**

## Details

Licensed contractor to provide labor and materials

Prepared by: Yankee Electric and Auto Home Commercial Companies

### **Scope:**

To upgrade existing Information Technology conditions related to the multimedia projectors by providing CAT 6 low voltage wiring and electrical power quad outlets next to all multimedia projectors in the secondary schools.

### **Contractor Breakdown:**

#### Electrical

Investigate school building electrical panel locations for spare breakers and feeders for new power requirements.

Remove acoustical ceiling pads to run new power wiring.

Provide material and labor for new quad outlets in all classrooms with multimedia projectors.

Run electrical power lines to main electrical panel.

Label and mark breaker locations clearly with marker.

Start-up and testing of units.

One year warranty.

Permits as required.

#### Low Voltage

Investigate school building MDF closet location for CAT 6 wiring integration.

Remove acoustical ceiling pads to run new low voltage wiring.

Provide material and labor for new CAT 6 wiring integration in all classrooms with multimedia Projector systems.

Run low voltage wiring lines to MDF closet.

Label and mark breaker locations clearly with marker.

Start-up and testing of units.

One-year warranty.

Permits as required.

**\$ 180,000.00**

Licensed professional engineer to provide labor and materials  
Prepared by: van Zelm Engineers, Inc.

**Professional Consultant Breakdown:**

Provide professional engineering drawings and specifications for information technology low voltage CAT 6 wiring and electrical power quad outlets for school classrooms with multimedia projector systems.

\$ 10,000.00

**Contingency:**

For unforeseen conditions in the school buildings.

\$ 10,000.00

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**Total**

**\$ 200,000.00**





CAT 6 low voltage rack cabinet



Electrical power quad outlet

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## **Fairfield Ludlowe High School**

### **Student Parking Lot Replacement**

**\$ 275,000**

**Background:** The existing student parking lot is deteriorating and in poor condition. This parking lot is specifically designated for the student drivers. The existing condition parking lot is at least 13 years old and has received several patches over the years in an effort to maintain usable conditions. This request is for funding the repair and replacement of the parking lot, new subsurface grading for proper drainage, new striping line markings and numbers, as well as new speed tables with required signage.

**Purpose & Justification:** The condition of the parking lot is deteriorating to the point that repairs are not repairable. The parking lot receives a lot of student traffic throughout the school year and is a main thoroughfare for all through traffic along the Webster Wing portion of the high school. This parking lot is also used by parents and visitors for FLHS after-hour events and activities.

**Detailed Description:** This expenditure would cover the total cost of the project for the entire student parking lot. This would include all labor and material, soil testing, reclaiming bituminous material, regrading for proper drainage, new bituminous paving, new striping markings, new number markings and new speed tables with required signage.

**Estimated Cost:** The cost of this funding request is \$275,000. This number is based on similar repair and repaving projects undertaken in the Town of Fairfield and at our schools as well as estimates provided by professional licensed contractors for this specific site.

**Long Range Costs:** This repaving project is expected to last at least 10 years. Long-range costs would only relate to general preventative maintenance and repairs as they come up year to year.

**Demand on Existing Facilities:** This project would reduce the probability of staff and students falling and getting hurt in the parking lot as well as cause less damage to vehicles using the parking lot.

**Security, Safety and Loss Control:** This project would enhance safety and loss control by drastically reducing the risk of injury to students and staff using the parking lot and walking through it.

**Environmental Considerations:** Drainage will be included with this project to make sure water run-off is accounted for and properly discharged off the site, which in turn will improve the environment.

Funding, Financing & SDE Reimbursement: This project would not proceed without funding approval. There are no State or Federal regulations that require this project to be undertaken. This project is not eligible for reimbursement through the State Department of Education, Bureau of School Facilities.

Schedule, Phasing & Timing: The schedule is to have all this work done in the summer of 2018 and to be completed and ready for the new school year.

Other Considerations: The work will be assigned to a State Approved contracted paving contractor, a State Approved contracted reclaiming contractor, with help from the Town of Fairfield Department of Public Works.

Alternates to the Request: The alternate to this request is to do nothing. This alternative will delay this needed replacement and further delay other similar projects scheduled in the BOE future planning. This could increase the risk of injury to students and staff, as well as visitors to the site for after hour-events.

# Fairfield Ludlowe High School

**Student Parking Lot Replacement**

**\$ 275,000**

## Details

Licensed contractor to provide labor and materials

Prepared by: Garrity Asphalt Reclaiming  
Tilcon Connecticut Inc.  
Safety Marking Inc.

### Breakdown:

#### **Garrity Asphalt Reclaiming**

Reclaiming existing bituminous material.

Load excess material.

Fine grading, adding fill if needed.

Rolling existing sub base material to accept new bituminous.

\$ 24,832.50

#### **Tilcon Connecticut Inc.**

Install new bituminous paving material binder course.

Roll and compact.

Install new bituminous paving material surface course.

Roll, compact finish surface.

Install speed tables.

Install bituminous curbing.

\$ 232,188.60

#### **Safety Marking Inc.**

Paint paving markings – Regular Stalls with numbers.

Paint paving markings – Hatching for Emergency.

Paint paving markings – Handicap stalls, crosswalks and stop bars.

\$ 5,478.90

#### **Contingency**

For unforeseen conditions on the school site.

\$ 12,500.00

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**Total**

**\$ 275,000**





FLHS student parking lot deteriorating bituminous paving showing cracks and several patches







FLHS student parking lot deterioration after  
more than 13 years of use

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## **Systemwide**

### **Informational Technology Switch Replacement Project – Phase 1**

**\$972,995**

**Background:** Local Area Network switches are the backbone of any network. All receptacles for Ethernet access found in classrooms are wired back to a distribution closet, which contains racks containing switches. There is a patch panel in the rack to which the wire from the classroom receptacle is terminated. Then a cable is connected from the patch panel to the switch.

These receptacles and their ports (aka plugs) service all computers, printers, wireless access points, electronic door locks, surveillance cameras, and all things that require Ethernet access. The switches also provide low voltage power.

The district last replaced LAN switches over a three-year period in 2009-2011. Since that time, we have more than doubled the number of ports (outlets) through acquisition of refurbished equipment to maintain and expand the network. The district's original port count was approximately 8,100 in 2010. It is currently 16,608 and continues to grow annually as new equipment and features are added to the system.

The typical life span of a switch is 5-7 years.

**Purpose and Justification:** The current switches are approaching ten years in age. Replacement parts are becoming hard to find, and are only refurbished, not new. They cannot meet our needs for Power over Ethernet capacity nor power newer wireless access points and potentially Internet Protocol (IP) phones. They cannot support newer, faster transmission speeds.

Adding capacity or additional switches to our network requires us to connect them to each other in a way that slows down the communication between the user's computer and the source of information. The district is moving to 24/7/365 learning, where the majority of our educational resources is found through the Internet. Speed is of the essence for both access to those resources, online testing, and operations (e.g. security). Educational time lost due to slow response times is time that cannot be recovered.

The current switches are managed and configured through software that is no longer supported by the manufacturer, as it is already end of life.

#### **Detailed Description of Proposal:**

See attached spreadsheet for details. Proposal is to migrate the Ethernet switches in two phases:

1. High Schools, WFC – AHS, and Central Office Administration
2. Middle Schools and Elementary schools

The order will be dependent upon requirements to support additional security devices, Wi-Fi or VOIP (phones). These new devices have new power requirements which are dependent on new switch capacity.

School's "main distribution frame" switch closets which supports access to transmission connections, referred to commonly as the MDF would be the priority for each site. Intermediate distribution closets (IDF) would be secondary.

Current projects that require the new switch capacity are:

- Expansion and upgrade of Wi-Fi access in the K-8 schools
- Expansion of security cameras
- Implementation of VOIP phone system

Costs will include the hardware, software, warranty, installation, configuration and project management.

Phase 1 Cost Estimate for the High Schools, WFC – AHS, and Central Office Administration  
\$972,995

Phase 2 Cost Estimate for all K-8 schools  
\$1,040,885

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Total Project Cost	\$2,013,880
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Grant Filing:

Estimated E-Rate grant \$461,314

Net Total Cost if Grant Approved \$1,552,566

Note: This cost estimate is based on currently available Cisco switch product, pre bid, and subject to availability at the time funding is available. It does not consider adding port capacity, but will provide throughput and support newer protocols required for projects on the horizon, listed above.

E-Rate grant funding is subject to availability and approval at time of project commencement. Current priority 2 E-Rate funds are available through FY 2019.

Reliability of Estimated Cost: We began our estimations through online sites of vendors that cater to educational pricing, and then asked our current Cisco vendor for a close to accurate estimate based on our equipment criteria.

The largest unknown would be the availability of the represented model and brand at the time of a phased implementation. We would want to secure funding for the entire project, and get commitment from the vendor for availability throughout the project. This is a key justification for bonding the project so all the funds are committed up front, and then spent as the project can be feasibly implemented.

Payback: In addition to the benefits outlined above, the new switch hardware runs more efficiently than the current equipment, which in theory reduces power consumption.

If we are able to secure funding in 2019 for the project, we may have access to E-Rate funds. This grant is also known as the Universal Service Fund. Projects of this nature are referred to as Priority 2 funding, for which there is a qualification formula. Under the 2017 calculation, the district would qualify for \$1.1 million under the program, with our 40% rate, which translates to a grant of \$440,000. Please note, however, that the funding for Priority 2 projects is only authorized through the 2019 year of the grant program and is enrollment dependent.

Additional Costs: A site survey will be performed to insure fiber and other connectivity between closets is sufficient for the newer product. Cost estimated at \$20,000.

Annual Smart Net operating system and technical support costs for critical switches will be an additional charge (see chart for cost per switch). We do not expect, nor need to put Smart Net on all devices, only those critical or cost prohibitive to spare.

Additional Use or Demand on Existing Facilities: Because newer switches have a smaller footprint, impact on existing closets will be positive- allowing growth without the cost of additional racks.

Alternates to this request: If we do nothing, we will reach capacity limitations in the switch rack locations and be unable to expand nor use newer technologies to support IoT (The Internet of Things) such as wireless connectivity

Safety and Loss Control: All equipment will be locked in secure spaces until deployed.

Environmental Conditions: Newer equipment is more energy efficient, so it will save energy costs. The hardware takes up less physical plant than older equipment.

Insurance: FPS insurance will cover damage/replacement costs. The equipment comes with a limited lifetime warranty.

# Systemwide

## Informational Technology Switch Replacement Project – Phase 1

**\$972,995**

### **Detailed Description of Proposal:**

Proposal is to migrate the Ethernet switches in the High Schools, WFC – AHS, and Central Office Administration.

The order will be dependent upon requirements to support additional security devices, Wi-Fi or VOIP (phones). These new devices have new power requirements which are dependent on new switch capacity.

School's "main distribution frame" switch closets, referred to commonly as the MDF, would be the priority for each site as the switch closet that supports access to transmission connections (demarcation points). (Intermediate distribution closets (IDF) would be secondary).

Current projects that require the new switch capacity are:

- Expansion and upgrade of Wi-Fi access in the K-8 schools
- Expansion of security cameras
- Implementation of VOIP phone system

### **Costs:**

Costs will include the hardware, software, warranty, installation, configuration and project management and is estimated at a total of \$972,995.

This cost estimate is based on currently available Cisco switch product, pre bid, and subject to availability at the time, funding is available. It does not consider adding port capacity, but will provide throughout and support newer protocols required for projects on the horizon, listed above.

ERate grant funding is subject to availability and approval at time of project commencement. Current priority 2 ERate funds are available through FY 2019.

### **Reliability of Estimated Cost:**

We began our estimations through online sites of vendors that cater to educational pricing, and then asked our current Cisco vendor for a close to accurate estimate based on our equipment criteria.

The largest unknown would be the availability of the represented model and brand at the time of a phased implementation. We would want to secure funding for the entire project, including phase 2 and get commitment from the vendor for availability throughout the project. This is a key justification for bonding the project so all the funds are committed up front, and then spent as the project can be feasibly implemented.

**Payback:**

In addition to the benefits outlined above, the new switch hardware runs more efficiently than the current equipment, which in theory reduces power consumption.

If we are able to secure funding in 2019 for the project, we may have access to ERate funds.

This grant is also known as the Universal Service Fund. Projects of this nature are referred to as Priority 2 funding, for which there is a qualification formula. Under the 2017 calculation, the district would qualify for \$1.1 million for the whole project (both phases) under the program, with our 40% rate, which translates to a grant of \$440,000 for the whole project.

Please note, however, that the funding for Priority 2 projects is only authorized through the 2019 year of the grant program and is enrollment dependent.

**Additional Costs:**

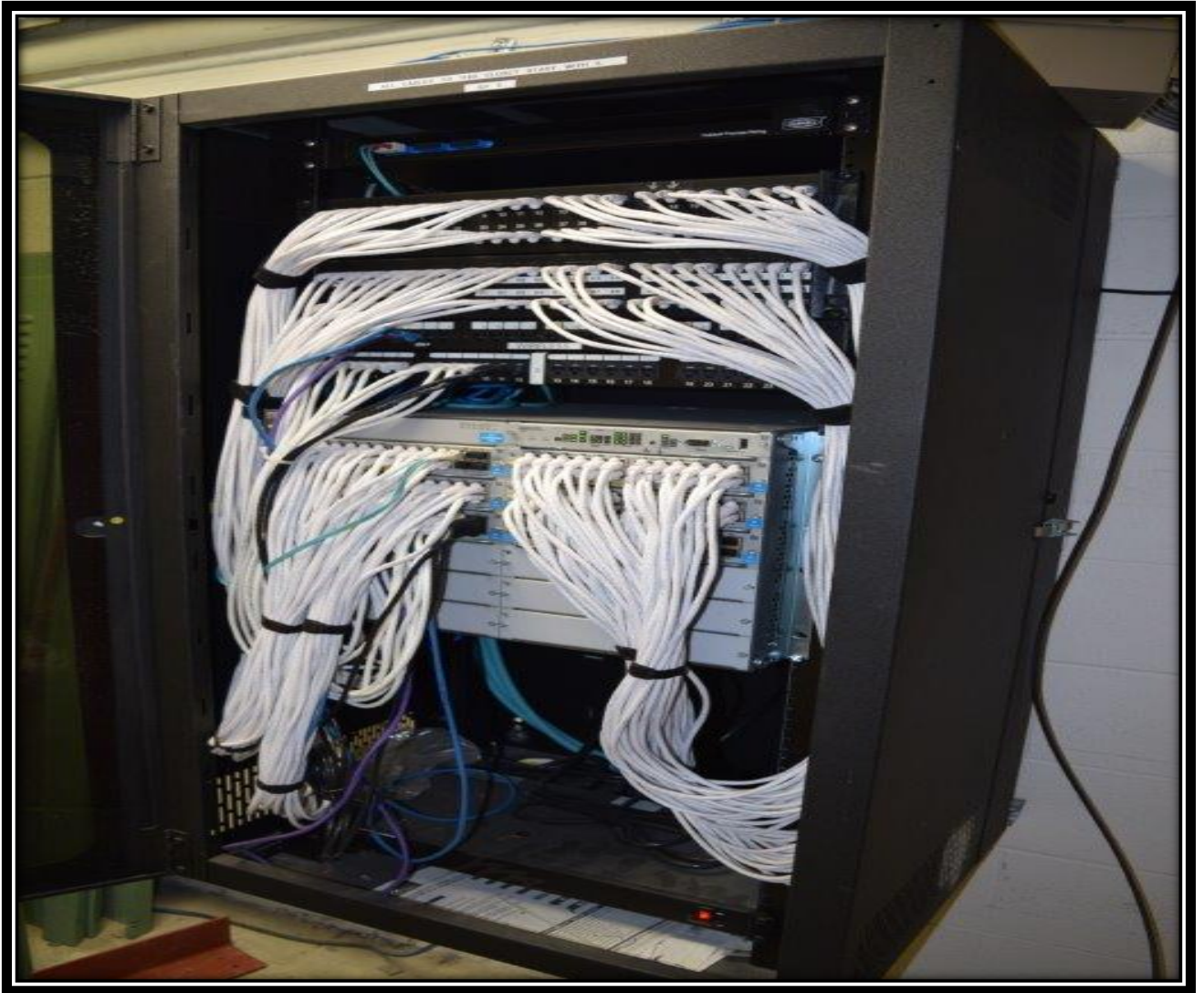
A site survey will be performed to insure fiber and other connectivity between closets is sufficient for the newer product. Cost estimated at \$ 20,000.

Annual Smart Net operating system and technical support costs for critical switches will be an additional charge (see chart for cost per switch). We do not expect, nor need to put Smart Net on all devices, only those critical or cost prohibitive to spare.

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<b>Total project costs for this phase one work</b>	<b>\$ 972,995</b>
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End of Life switch conditions photo



ws-c4500x-40x-ews-c3850-12xs-e\*

State of the Art switch photo

# Switches

Our switches are constantly learning. Constantly adapting. Constantly protecting. In your data center, core, or edge. This is the new era in networking. The Network. Intuitive.

Compare us with others

View Digital Network Architecture

New Innovations

Products

Services

For Partners

Let Us Help

## Switching for a changing world

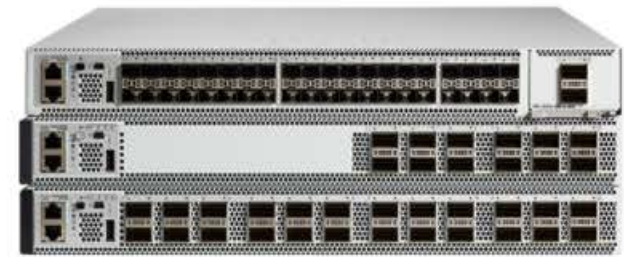
Our Catalyst 9000 switches constantly adapt to help you solve new challenges. Their integrated security helps you address ever-changing threats. They simplify management of your evolving mobility, Internet-of-Things (IoT), and cloud requirements. Introducing an entirely new era of networking. The Network. Intuitive.



Catalyst 9300 Series



Catalyst 9400 Series



Catalyst 9500 Series