

VI. A. 1



**D'HUY Engineering, Inc.**  
One East Broad Street, Suite 310 Bethlehem, PA 18018  
Phone: 610.865.3000 Fax: 610.861.0181

**INVOICE**

No. 51852  
08/28/2020

**East Stroudsburg Area School District**

50 Vine Street  
East Stroudsburg, PA 18301  
Mr. Tom McIntyre

<p><b>High School North Roof Replacement</b>  <b>287010</b>          For Services Rendered From August 01, 2020 To August 28, 2020</p>
<p>DEI Fee = 7% of Construction Cost \$7,008,635 = \$490,604</p>

**01 - High School North / Lehman I.S. Roof Investigation**

Contract Amount	Previously Billed	% Complete	Invoice Amount
\$12,900.00	\$12,900.00	100.00	\$0.00

**02 - Design, Bidding & Construction Phase Services**

Contract Amount	Previously Billed	% Complete	Invoice Amount
\$490,604.00	\$333,763.79	75.00	\$34,189.21

**INVOICE TOTAL \$34,189.21**

**Prior Billing Information**

Invoice		0 - 30	31 - 60	61-90	Over 90	Balance
51482	7/31/2020	\$24,500.27	\$0.00	\$0.00	\$0.00	\$24,500.27
<b>Total Prior Billing</b>		<b>\$24,500.27</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$24,500.27</b>

VI. A. 2



**D'HUY Engineering, Inc.**  
One East Broad Street, Suite 310 Bethlehem, PA 18018  
Phone: 610.866.3000 Fax: 610.861.0181

**INVOICE**

No. 51853  
08/28/2020

**East Stroudsburg Area School District**

50 Vine Street  
East Stroudsburg, PA 18301  
Mr. Tom McIntyre

<p><b>High School North Sanitary Liner Replacement</b></p> <p><b>287017</b></p> <p>For Services Rendered From August 01, 2020 To August 28, 2020</p> <p>DEI Fee = \$52,500 (7% of Estimated Construction Cost \$750,000)</p>
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**00 - Basic Services**

<u>Contract Amount</u>	<u>Previously Billed</u>	<u>% Complete</u>	<u>Invoice Amount</u>
\$52,500.00	\$27,930.53	60.70	\$3,934.82

**Reimb. - Reimbursable Submission Fees**

**INVOICE TOTAL \$3,934.82**

**Prior Billing Information**

<u>Invoice</u>	<u></u>	<u>0 - 30</u>	<u>31 - 60</u>	<u>61-90</u>	<u>Over 90</u>	<u>Balance</u>
51484	7/31/2020	\$4,657.28	\$0.00	\$0.00	\$0.00	\$4,657.28
<b>Total Prior Billing</b>		<b>\$4,657.28</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$4,657.28</b>

V.A.3



**D'HUY Engineering, Inc.**  
One East Broad Street, Suite 310 Bethlehem, PA 18018  
Phone: 610.865.3000 Fax: 610.861.0181

**INVOICE**

No. 51654  
08/28/2020

**East Stroudsburg Area School District**

50 Vine Street  
East Stroudsburg, PA 18301  
Mr. Tom McIntyre

**J.T. Lambert Intermediate School & Resica Elementary School Flooring Replacement**  
**287020**  
For Services Rendered From August 01, 2020 To August 28, 2020

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DEI Fee = \$58,770 (7% of Construction Cost \$839,580)

**00 - Basic Services**

<u>Contract Amount</u>	<u>Previously Billed</u>	<u>% Complete</u>	<u>Invoice Amount</u>
\$58,770.00	\$49,954.50	90.00	\$2,938.50

**INVOICE TOTAL \$2,938.50**

**Prior Billing Information**

<u>Invoice</u>		<u>0 - 30</u>	<u>31 - 60</u>	<u>61-90</u>	<u>Over 90</u>	<u>Balance</u>
51487	7/31/2020	\$5,877.00	\$0.00	\$0.00	\$0.00	\$5,877.00
<b>Total Prior Billing</b>		<b>\$5,877.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$5,877.00</b>

VI.A.4



**D'HUY Engineering, Inc.**  
One East Broad Street, Suite 310 Bethlehem, PA 18018  
Phone: 610.865.3000 Fax: 610.861.0181

**INVOICE**  
No. 51655  
08/28/2020

**East Stroudsburg Area School District**  
50 Vine Street  
East Stroudsburg, PA 18301  
Mr. Tom McIntyre

**Transportation Building Underground Storage Tank Removal**  
**287023**  
For Services Rendered From August 01, 2020 To August 28, 2020  
DEI Fee = \$13,750 (7.5% of Estimated Construction Cost \$150,000 + \$2,500)

**00 - Basic Services**

<u>Contract Amount</u>	<u>Previously Billed</u>	<u>% Complete</u>	<u>Invoice Amount</u>
\$13,750.00	\$0.00	16.26	\$2,235.45

**INVOICE TOTAL      \$2,235.45**







# AIA Document G702™ - 1992

## Application and Certificate for Payment

**TO OWNER:** East Stroudsburg Area SD  
50 Vine Street  
East Stroudsburg, PA 18301

**PROJECT:** 119010  
INVOICE 119010-010  
North HS and Leitan Intermediate  
Dringmans Ferry, PA 18328

**APPLICATION NO. 16**

**PERIOD TO:** 9/30/2020

**DISTRIBUTION TO:** OWNER  ARCHITECT  CONTRACTOR  FIELD  OTHER

**FROM CONTRACTOR:** Joffan, Inc.  
PO Box 166  
Florence, NJ 08518

**VIA ARCHITECT:** D'Hay Engineering  
One East-Broad St.  
Bethlehem, PA 18018

**CONTRACT FOR:**

**CONTRACT DATE:** 3/19/2019

**PROJECT NOS:**

**Date:** SEP 18 2020

### CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM ..... \$ 7,008,635.00
2. NET CHANGE BY CHANGE ORDERS ..... \$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) ..... \$ 7,008,635.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) ..... \$ 6,719,817.00
5. RETAINAGE:
  - a. 5.0% of Completed Work (Columns D + E on G703) ..... \$ 335,990.86
  - b. 0.0% of Stored Material (Column F on G703) ..... \$ 0.00
- Total Retainage (Lines 5a + 5b, or Total in Column I of G703) ..... \$ 335,990.86
6. TOTAL EARNED LESS RETAINAGE ..... \$ 6,383,826.14 (Line 4 minus Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... \$ 6,164,410.82 (Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE ..... \$ 219,415.32
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 minus Line 6) ..... \$ 624,803.86

This undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

**CONTRACTOR:** Joffan, Inc.  
By: Michael Joffan  
State of: New Jersey  
County of: Burlington  
Subscribed and sworn to before me this 18th day of September 2020  
Notary Public: Michael E. Larkin  
My commission expires: My Commission Expires 12/31/2020

### ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

**AMOUNT CERTIFIED** ..... \$  
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

**ARCHITECT:** \_\_\_\_\_  
By: \_\_\_\_\_  
Date: \_\_\_\_\_

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ 0.00	\$ 0.00
Total approved this month	\$ 0.00	\$ 0.00
<b>TOTAL</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>
<b>NET CHANGES by Change Order</b>		<b>\$ 0.00</b>

**CAUTION:** You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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# AIA Document G703™ - 1992

## Continuation Sheet

To: East Stroudsburg Area SD  
50 Vine Street  
East Stroudsburg, PA 18301

From Contractor:  
Jotian, Inc.  
PO Box 185  
Florence, NJ 08515.

AIA Document G703™-1992, Application and Certificate for Payment, or G732™-2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, Project 119010 containing Contractor's signed certification is attached.

In calculations below, amounts are in US dollars.  
Use Column I on Contracts where variable retainage for line items may apply.

INVOICE 119010-010  
North HS and Lehman Intermediate  
Dingmans Ferry, PA 18328

APPLICATION NO: 10  
APPLICATION DATE: 9/18/2020  
PERIOD TO: 9/30/2020  
ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		E THIS PERIOD	F MATERIALS PRESENTLY STORED (Not In D or E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	H BALANCE TO FINISH (C-G)	I RETAINAGE (If variable rate)
			PROMPREVIOUS APPLICATION (D + E)						
1	BONDS	82,000.00	82,000.00		0.00	0.00	82,000.00	0.00	8,200.00
2	PHASE I	0.00	0.00		0.00	0.00	0.00	0.00	0.00
3	MOBILIZATION	50,000.00	50,000.00		0.00	0.00	50,000.00	0.00	5,000.00
4	EQUIPMENT	110,000.00	110,000.00		0.00	0.00	110,000.00	0.00	11,000.00
5	ROOF VACUUM	36,000.00	36,000.00		0.00	0.00	36,000.00	0.00	3,600.00
6	ROOF DEMO	160,000.00	160,000.00		0.00	0.00	160,000.00	0.00	16,000.00
7	ROOFING - MATERIALS	2,219,105.00	2,219,105.00		0.00	0.00	2,219,105.00	0.00	110,944.30
8	ROOFING - LABOR	517,000.00	517,000.00		0.00	0.00	517,000.00	0.00	8,240.95
9	SHEET METAL - MATERIALS	551,640.00	551,640.00		0.00	0.00	551,640.00	0.00	0.00
10	SHEET METAL - LABOR	129,000.00	129,000.00		0.00	0.00	129,000.00	0.00	12,900.00
11	MASONRY - THRU WALL	225,540.00	225,540.00		0.00	0.00	225,540.00	0.00	22,554.00
12	PLUMBING - DRAINS	106,500.00	106,500.00		0.00	0.00	106,500.00	0.00	10,650.00
13	PUNCHLIST	5,000.00	5,000.00		0.00	0.00	5,000.00	0.00	500.00
14	PHASE II	0.00	0.00		0.00	0.00	0.00	0.00	0.00
15	MOBILIZATION	45,000.00	45,000.00		0.00	0.00	45,000.00	0.00	2,250.00
16	EQUIPMENT	75,000.00	75,000.00		0.00	0.00	75,000.00	0.00	3,750.00
17	ROOF VACUUM	25,000.00	25,000.00		0.00	0.00	25,000.00	0.00	1,250.00
18	ROOF DEMO	105,000.00	105,000.00		0.00	0.00	105,000.00	0.00	5,250.00
19	ROOFING - MATERIALS	1,225,555.00	1,102,959.50		122,555.50	0.00	1,225,555.00	0.00	61,277.76
20	ROOFING - LABOR	321,800.00	321,800.00		0.00	0.00	321,800.00	0.00	16,090.00
21	SHEET METAL - MATERIAL	364,080.00	291,284.00		36,408.00	0.00	327,672.00	36,408.00	16,363.60
22	SHEET METAL - LABOR	80,000.00	0.00		72,000.00	0.00	72,000.00	8,000.00	3,600.00
23	MASON-THRU WALL	196,000.00	156,800.00		0.00	0.00	156,800.00	39,200.00	7,840.00
24	PLUMBING - DRAINS	56,000.00	56,000.00		0.00	0.00	56,000.00	0.00	2,800.00
25	PUNCHLIST	5,000.00	0.00		0.00	0.00	0.00	5,000.00	0.00
GRAND TOTAL		6,690,220.00	6,370,648.50		230,963.50	0.00	6,601,612.00	88,608.00	330,080.61

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# AIA Document G703™ - 1992

## Continuation Sheet

To: East Stroudsburg Area SD  
50 Vine Street  
East Stroudsburg, PA 18301

AIA Document G702™-1992, Application and Certificate for Payment, or G732™-2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.  
In tabulations below, amounts are in US dollars.  
Use Column I on Contracts where variable retainage for line items may apply.

From Contractor:  
Jotian, Inc.  
PO Box 166  
Florence, NJ 08518

Page 3 of 3

APPLICATION NO: 10  
APPLICATION DATE: 9/18/2020  
PERIOD TO: 9/30/2020  
ARCHITECT'S PROJECT NO:

Project: 119010  
INVOICE 119010-010  
North HS and Lehigh Intermediate  
Districts, East, PA 18328

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		E THIS PERIOD	F MATERIALS PRESENTLY STORED (Not in D or E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	H BALANCE TO FINISH (C-G)	I RETAINAGE (If variable rate)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
26	CLOSEOUTS	10,000.00	0.00	0.00	0.00	0.00	0.00	10,000.00	0.00
27	ALLOWANCES	308,415.00	118,205.00	0.00	0.00	0.00	118,205.00	190,210.00	5,910.25
<b>GRAND TOTAL</b>		<b>7,009,635.00</b>	<b>5,488,853.50</b>	<b>230,963.50</b>	<b>0.00</b>	<b>6,719,817.00</b>	<b>96</b>	<b>288,818.00</b>	<b>335,990.86</b>

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# Progress Estimate

# Contractor's Application

For Contract: ESASD JT Lambert Intermediate School Flooring Replacement		Application Number: 5				
Application Period: 9/01/2020 - 9/30/2020		Application Date: 10/1/2020				
Item Specification Section No.	A Description	Work Completed		E Materials Presently Stored (not in C or D)	F Total Completed and Stored to Date (C + D + E)	G Balance to Finish (B - F)
		B Scheduled Value	C From Previous Application (C+D)			
	Performance and Payment Bonds	\$8,100.00			\$8,100.00	100.0%
	Contract Allowance #1	\$17,500.00	\$5,745.00		\$17,500.00	100.0%
	Contract Allowance #2	\$7,500.00	\$7,500.00		\$7,500.00	100.0%
	Contract Allowance #3	\$8,880.00	\$8,880.00		\$8,880.00	100.0%
	Contracts / Submittals / Samples / Closures	\$2,000.00	\$1,000.00		\$2,000.00	100.0%
	Armstrong LVT Flooring (M)	\$135,600.00	\$135,600.00		\$135,600.00	100.0%
	Armstrong LVT Flooring (L)	\$83,120.00	\$83,120.00		\$83,120.00	100.0%
	Mannington Carpet Tile (M)	\$32,800.00	\$32,800.00		\$32,800.00	100.0%
	Mannington Carpet Tile (L)	\$14,000.00	\$14,000.00		\$14,000.00	100.0%
	Roppa Wall Base (M)	\$9,400.00	\$9,400.00		\$9,400.00	100.0%
	Roppa Wall Base (L)	\$14,100.00	\$14,100.00		\$14,100.00	100.0%
	Floor Preparation / Self Leveling	\$133,700.00	\$133,700.00		\$133,700.00	100.0%
	Demo and Disposal	\$67,600.00	\$67,600.00		\$67,600.00	100.0%
	Building Expansion Joint Gasket	\$1,500.00	\$1,500.00		\$1,500.00	100.0%
	<b>Totals</b>	<b>\$535,800.00</b>	<b>\$512,075.00</b>	<b>\$23,125.00</b>	<b>\$535,800.00</b>	

V.I.C. 1



# INVOICE

TERMS: NET 30 DAYS or Contract Terms  
 Finance Charge on Past Due Amount  
 1.5%/month (18% APR) may apply

Remit To: Kleinfelder  
 P. O. Box 51958  
 Los Angeles, CA 90051-6258

Thomas McIntyre  
 East Stroudsburg School District  
 50 Vine Street  
 East Stroudsburg, PA 18301

Invoice Date: 7/10/2020  
 Invoice No: 001289939  
 Client No: 130510  
 Project No: 20210259.001A  
 Bill Thru Date: 6/30/2020  
 Project Manager: Trevor Dombach

<b>Total Due This Invoice: \$3,950.00</b>
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Project Name: ESASD High School North Parking Lot

Billing Period: 6/1/2020 To 6/30/2020

Total Fee	3,950.00		
Percent Complete	100.00	Total Earned	3,950.00
		Previous Fee Billing	0.00
		Current Fee Billing	3,950.00

<b>Please Pay This Invoice Amount : \$3,950.00</b>
--

V.I. D. 1



Since 1947

ESTIMATE & AGREEMENT

20468

90 Narrows Road, Plymouth, PA 18651  
570-779-5355 | F: 570-779-3887 | GUYETTEC.COM

Date: September 21, 2020

To

East Stroudsburg School District  
50 Vine St  
East Stroudsburg, PA 18301

We hereby submit specifications and bid for:

**RE: North Campus Treatment Plant**

Furnish the necessary labor to install eight Cameras per print.

Customer to provide cable, jacks, patch panel and rack.

Guyette's to install listed equipment, install cameras, aim cameras and test.

**Quoted Price: \$ 3,980.00 + Tax (if applicable)**

<p align="center"><b>CONTRACTOR'S GUARANTEE</b></p> <p>We guarantee all material used in this contract to be as specified above and the entire job to be done in a neat, workmanlike manner. Any variations from plan or alterations requiring extra labor or material will be performed only upon written order and billed in addition to the sum covered by this contract. Agreements with our workmen are not recognized.</p>		<p align="center"><b>ACCEPTANCE OF BID</b></p> <p>The above specifications, terms and contracts are satisfactory, and (I) hereby authorize the performance of this work.</p>	
		DATE	
DATE 09/21/2020	Signed: <i>George W. Monaghan</i>	SIGNED	



## STANDARD TERMS AND CONDITIONS

In these Standard Terms and Conditions, Guyette Communications Industries Corporation shall be referred to as "GCI" and the Customer named on the front page of this document shall be referred to as the Customer. The front page of this document together with these Standard Terms and Conditions is the "Purchase Order" and constitutes customer's offer to GCI and shall be come a binding contract upon the terms and conditions stated in this Purchase Order upon acceptance by GCI or commencement of performance by GCI whichever occurs first. Any proposal for additional or different terms or any attempt by Customer to vary in any degree the Standard Terms and Conditions below shall not be binding upon GCI and shall be void and shall have no effect except to the extent expressly accepted in writing by GCI's authorized representative.

1. **PAYMENT.** Unless contrary terms are expressly stated on the front page of this Purchase Order payment for the products described in this Purchase Order ("Products") shall be due ten(10) days after their delivery to Customer's place of business. A payment received by GCI more than twenty(20) days after the date when such payment is due will be subject to an interest charge at the rate of one and on-half percent(1 1/2%) per month or the highest lawful rate – whichever is less.
2. **WARRANTIES.** GCI guarantees that the installation work be performed by GCI will conform to the specifications stated on the front page of this document and that such work will be performed in a neat and workmanlike manner. The foregoing guarantee shall extend for a period of one year after substantial completion of such work. Customer acknowledges that the products have not been manufactured by GCI and Customer shall look solely to the manufacturer of the products with respect to claims regarding the conformity of the products with applicable manufacturer specifications and defects in the products material and workmanship. To the extent assignable GCI shall assign to customer all applicable manufacturer warranties.

**THE WARRANTIES DESCRIBED OR ASSIGNED HEREUNDER ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING (BUT NOT LIMITED TO) ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

3. **LIMITATION OF LIABILITY.** In the event that a product malfunction leads to damages or injuries to the product, to the customer's business, to other equipment, to a factory or place of business, or to employees or other persons, GCI's liability shall be limited to repair or replacement of the product or its parts if the warranty period has not expired. If such warranty period has expired, GCI shall not be liable for such damages or injuries. It is also agreed that GCI's liability shall be limited to the amount equal to the customer's purchase price for the malfunctioning product. THE REMEDIES PROVIDED FOR HEREIN SHALL BE EXCLUSIVE AND SHALL BE CUSTOMER'S SOLE REMEDIES.
4. **ACCESS.** GCI and persons authorized by GCI may enter the customer's place of business and perform such work therein as may be reasonably necessary to deliver and install the products to their intended location. GCI shall use reasonable efforts to not interfere with customer's use of its premises in connection with any entry. GCI shall not be liable for inconvenience to or disturbance of customer by reason of any such entry; provided, however, that work shall be done, so far as practicable, so as to not unreasonably interfere with customer's use of the premises.
5. **RISK OF LOSS; TITLE.** Risk of loss and title to any product sold hereunder shall pass to customer upon delivery of the product to the customer's place of business.
6. **NOTICE OF OBJECTIONS.** Customer shall give GCI notice in writing of any objections with respect to the performance of GCI's work within thirty (30) days after substantial completion. GCI will promptly undertake to remedy same in such manner as may be appropriate.
7. **SECURITY AGREEMENT.** Customer hereby grants to GCI as security interest in all of the products purchased by customer as debtor and GCI as secured party (without customer's signature in states where such filing are permitted) indicating therein, as types of collateral, the products described herein and customer agrees to sign, as debtor and return to GCI any such financing statements that GCI in its discretion submits to customer for signature.
8. **TAXES.** Unless a contrary notation in writing appears on the face hereof, the prices quoted in this purchase order do not include any sales, use, excise, *ad valorem*, receipts or like taxes or any duties, imposts or customs taxes or import surcharges which may now or hereafter be imposed by national, federal, state or local governments by reason of GCI's selling the products as described herein. Any and all of the foregoing taxes and duties shall be borne by customer.
9. **LIMITATION OF LIABILITY.** In no event shall GCI be liable for consequential, special, incidental or similar damages.
10. **APPLICABLE LAW.** This purchase order shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. The forum for all disputes between the customer and GCI including any disputes under this purchase order shall be in Pennsylvania.
11. **FORCE MAJEURE.** GCI shall not be responsible for any losses resulting if the fulfillment by GCI of any of the terms and conditions of this purchase order is delayed or prevented by wars, acts of enemies, strikes, fires, floods, transportation delays or shortages, labor dispute, riots, insurrections, accidents, storms, inability to obtain materials or supplies, any interruption in the manufacture of the products by GCI suppliers, any act of God, the action of any government or any other cause not within GCI's reasonable control.
12. **LIMITATIONS OF ACTIONS.** No action for breach of contract for the sale of the products under this purchase order shall be commenced more than (10) year after the accrual of the cause of action thereof.
13. **JURY TRIAL WAIVER.** CUSTOMER HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION ARISING OUT OF UNDER OR IN CONNECTION WITH THIS PURCHASE ORDER.
14. **HEADINGS.** The headings hereunder are for convenience of reference only and shall in no way define or limit the provisions hereof.
15. **AMENDMENT.** Any change or modification of these terms and conditions must be made in writing signed by authorized representatives of each party.
16. **WAIVER.** The waiver by GCI of any breach by Customer of any terms or conditions or covenant herein shall not be deemed a waiver of any breach of any other term, condition or covenant.

Vl. E. 1



# **Wide Area Network Analysis and Recommendations**



**Prepared for the East Stroudsburg Area School District**

**By K12 Tech Solutions, LLC**

**July 2020**

## **Executive Summary**

This analysis was commissioned by the East Stroudsburg Area School District to analyze the Wide Area Network's current condition and make recommendations for improvement in anticipation of a new project that will create a private fiber optic network for the school district, connecting all buildings to a central site.

What follows is a report based on one day of site visits, interviews with staff and copies of the current network diagrams and technical data.

An overall picture of the situation can be summarized as follows:

1. The District has made good investments in network equipment and most sites will require very little in terms of updated equipment to take advantage of the new network's increased speed and capacity.
2. The overall design using two data centers is in line with best practices for disaster recovery.
3. In order to prepare for the new fiber network, ESASD Tech and Facilities staff need to verify the existence, ownership and condition of underground conduits that terminate at the building Demarcation Points (Demarcs).
4. A unified network monitoring system needs to be purchased by the district to adequately monitor network performance and alert Tech Staff when there is equipment, power or cooling system failure.

## **Overall Study Methodology**

The methodology used to form recommendations for change was to visit the two district data centers as well as a school building representative of remote sites on the current network. Additionally, technical staff were interviewed to provide additional information. The following key questions were asked:

1. What are the current general conditions of the district's two data centers?
2. Is there adequate protection for the equipment that is contained within?
3. Does the main data center have the equipment necessary to serve as the new hub site?
4. Are there adequate monitoring systems in place for critical network equipment?
5. Are the district's other buildings physically ready to accept the new fiber optic network when constructed?
6. Do the district's other buildings have the network equipment necessary to take advantage of the new fiber network?

## Summary of Recommendations

The following list are the recommendations for change. They are explored in detail in the pages below.

*Recommendation 1: Verify the complete condition of the conduit entering the HS South building to ensure that the full path is unobstructed. The current conduits show signs of breakage and need to be repaired.*

*Recommendation 2: Verify the complete condition of the conduit entering the HS North building to ensure that the full path is unobstructed.*

*Recommendation 3: Complete a district-wide site survey to determine readiness for installation.*

*Recommendation 4: The District should upgrade its current non-data-center main switches to accept 10 GBPS speeds to take advantage of the increased bandwidth of the new Dark Fiber network.*

*Recommendation 5: Purchase a duplicate 10 G SFP Module for the HS North main switch.*

*Recommendation 6: Purchase an off-network monitoring system for the HS North Data Center.*

*Recommendation 7: Re-rack the new disk system equipment located in the HS North Data Center to a higher location within the enclosure.*

*Recommendation 8: The district should purchase a new core switch with capacity to connect all district sites when the new cabling installation is complete.*

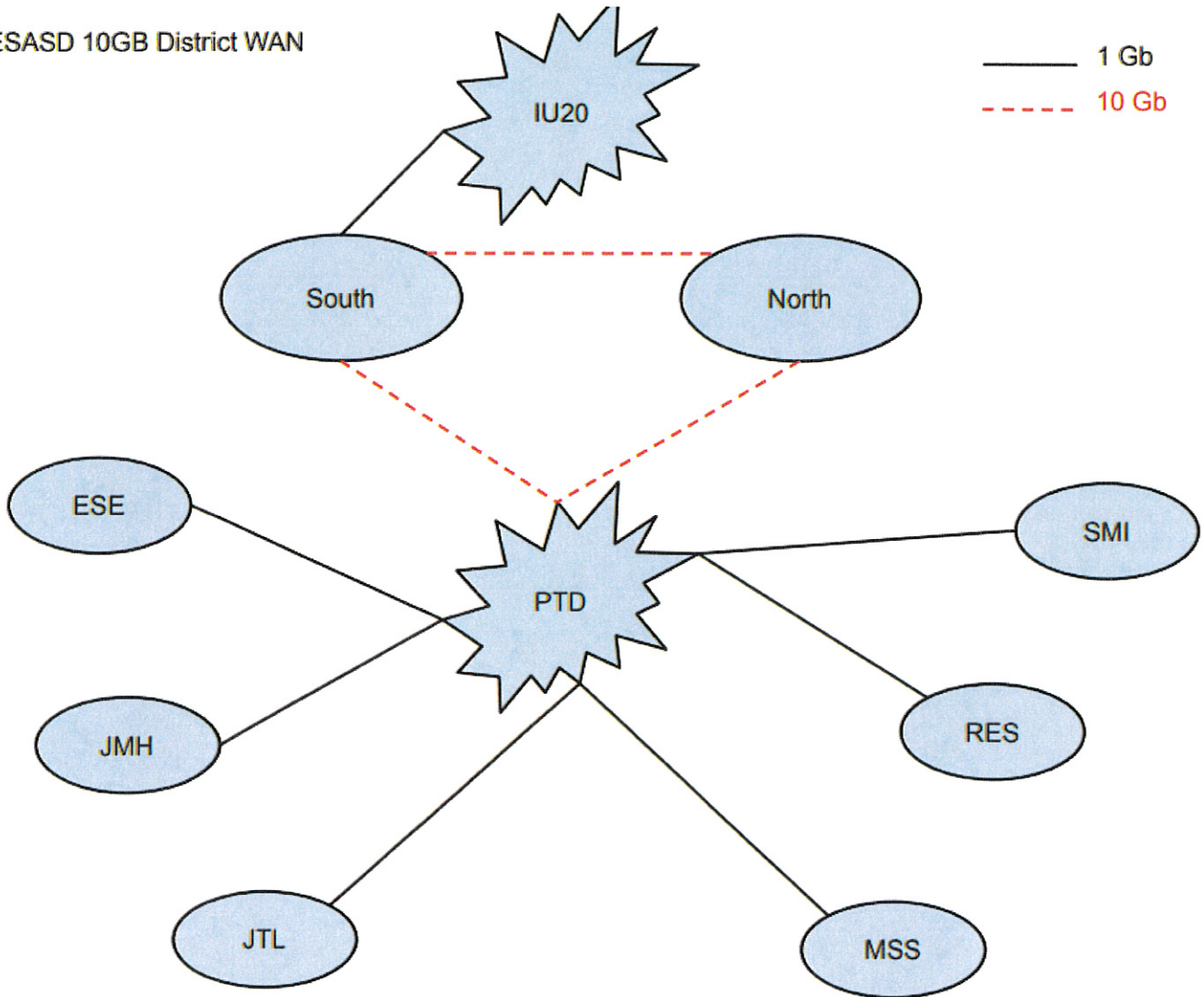
*Recommendation 9: The district should purchase a unified network monitoring software package to ensure timely notification of network events.*

*Recommendation 10: The district should immediately schedule a security review and mitigation engagement to address the security of the current firewall setup and access control rules.*



Current Lit Fiber Network Design

ESASD 10GB District WAN



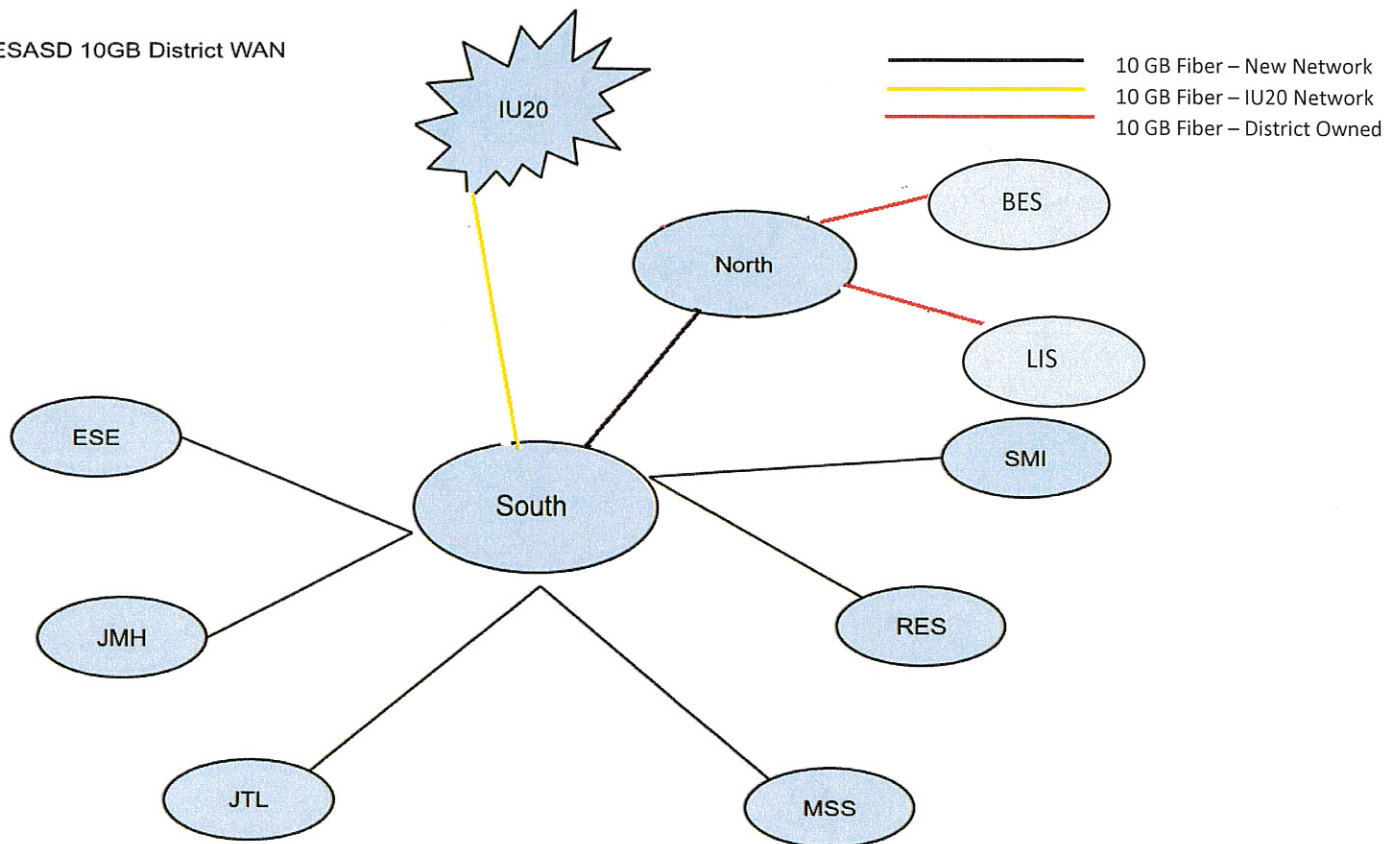
In the diagram above, most of the network connections terminate in the center icon labeled “PTD”. This is the Penn Tele Data Network Operations Center. This means that all district network traffic flows through the PTD network.

While adequate for current operations, the new design of the district network will keep all internal traffic within the ESASD sites. Only traffic to and from the Internet will leave and enter the new private network. Currently, Internet services come from the IU20 network.

The current PTD solution limits bandwidth to most sites to 1 GBPS. This is due to the contract with PTD to provide connectivity to those sites and the provider’s cost of equipment to provision bandwidth (speed and capacity) at a fixed cost.

## New Dark Fiber Network

ESASD 10GB District WAN



In the new network design, all internal traffic flows through ESASD sites with Internet traffic continuing to be provided from the IU20 network. This layout is inherently more secure by design. Previously, the transfer of files and traffic from internal web sites passed through the PTD network leaving them more vulnerable to attack. Now, the district will have a true private network, securing internal information and reducing the risk of attack.

The new network design uses a concept called "Dark Fiber". This means that the provider installs fiber optic cable to each site using the design specified and the district connects their own network equipment at each end. The previous design uses a "Lit Fiber" method of provision. This gives the network provider the ability to charge for the bandwidth provided to each site given that they must purchase and maintain their own network equipment at their data center in order to give the district the ability to connect all buildings.

The diagram above shows a bandwidth of 10 GBPS (an increase of 10X speed and capacity). This speed and capacity can be increased at any time by the district by upgrading some of the endpoint equipment with no additional monthly cost.

**Observations and Recommendations (detail)**

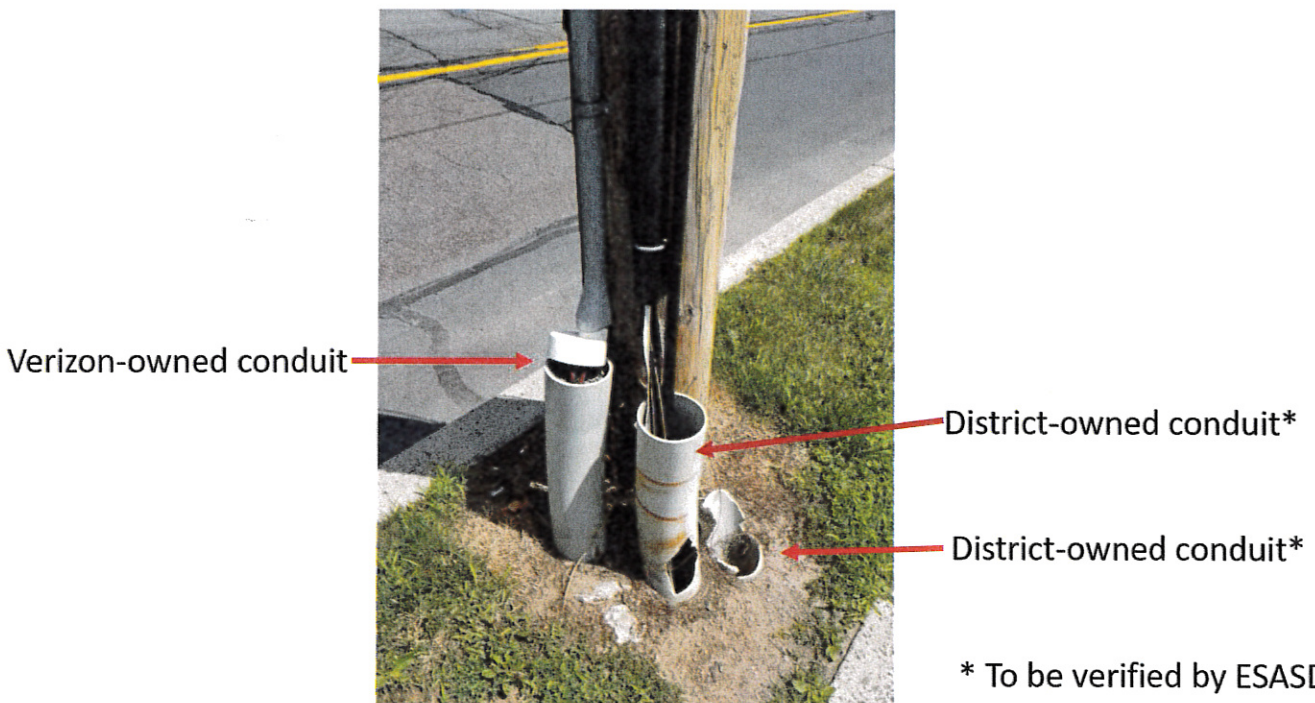
The following is a list of observations and recommendations for change in order to prepare for the installation of a new fiber network.

Main Data Center (HS South)

- Observation: The site appears to have adequate conduit to receive new fiber, but the condition of some of the current conduit needs to be verified and repaired.

***Recommendation 1: Verify the complete condition of the conduit entering the HS South building to ensure that the full path is unobstructed. The current conduits show signs of breakage and need to be repaired.***

1a. The conduits are 6 inch PVC pipes that bring network connections (either fiber optic or copper cabling) from an elevated pole to the building via trenches and building penetrations. These pipes eventually terminate in the data center. The current condition of the conduits that enter the main data center, need to be verified and repaired. The picture below documents current conditions.



***HS South Main Data Center Conduits***

1b. The District should hire a cabling contractor to inspect and repair the full length of the conduits that extend into the data center. The RFP for the new fiber network should include language to seal the conduits once the new cable is installed. Additionally, Grounds staff need to be made aware of the location of the conduits and the conduits should be marked to avoid damage in the future.



## Secondary Data Center (HS North)

- Observation: The site appears to have adequate conduit to receive new fiber, but the condition of some of the current conduit needs to be verified and repaired.

***Recommendation 2: Verify the complete condition of the conduit entering the HS North building to ensure that the full path is unobstructed.***

2a. The conduits are 6 inch PVC pipes that bring network connections (either fiber optic or copper cabling) from an elevated pole to the building via trenches and building penetrations. These pipes eventually terminate in the data center. The current condition of the conduits that enter the secondary data center need to be verified and repaired. The picture below documents current conditions. Note that current environmental conditions does not allow inspection.



***HS North Main Data Center Conduits***

2b. The District should clean and remove all vegetation surrounding the pole across the street from the property to allow for inspection of all conduits. The District should hire a cabling contractor to inspect and repair the full length of the conduits that extend into the data center. The RFP for the new fiber network should include language to seal the conduits once the new cable is installed. Additionally, Grounds staff need to be made aware of the location of the conduits, vegetation should be removed on a regular basis and the conduits should be marked to avoid damage in the future.



- Observation: All District buildings that are to receive a connection to the new fiber network need to be inspected by District staff to verify readiness.

***Recommendation 3: Complete a district-wide site survey to determine readiness for installation.***

3a. District staff and/or contractors must verify the following items at each network site to ensure that installation of fiber network cable can be completed in the following project. Each site must be inspected using the following checklist:

1. Verification of conduit ownership. (Verizon vs. District-owned)
2. Verification of conduit type and size.
3. Verification of conduit path and demarcation point (to allow for internal extension of demarc if necessary).
4. Verification of condition of the conduit to demarc (look for inside vegetation or collapses).
5. Verification of a location within the demarc to construct and mount a service loop.
6. Verification of a location within the demarc to construct and mount a Fiber Demarcation Box.
7. Verification of a protected cable path from the Demarc Box to the building main network switch.

The results of the site survey should be compiled into a report that can be used for district documentation and information for vendors participating in a bid for services.

- Observation: Most district network sites are running at 1 GBPS. The current main network switch can be upgraded to 10 GBPS at a low cost.

***Recommendation 4: The District should upgrade its current non-data-center main switches to accept 10 GBPS speeds to take advantage of the increased bandwidth of the new Dark Fiber network.***

The current main network switches at all non-data-center sites (Cisco 3850 series) will accept 10 GBPS connections. In order to use that increased bandwidth, a single component (called an SFP Module) needs to be replaced. Current prices per site for this upgrade range from \$100 to \$1700 (dependent on the distance from the site to the HS South Core). These devices are eligible to be purchased through the Federal E-Rate program, so final pricing will be much less.

This low-cost upgrade will increase the speed and capacity of the internal network by a factor of 10.

- Observation: The HS North site network switch is 10 GBPS compliant but needs a spare SFP module to be installed to prevent a Single Point of Failure (SPOF).

**Recommendation 5: Purchase a duplicate 10 G SFP Module for the HS North main switch.**

- Observation: There is no off-network monitoring system for the HS North data center.

**Recommendation 6: Purchase an off-network monitoring system for the HS North Data Center.**

6a. Because of the location of the HS North site relative to other district buildings, a power or water event in the data center could remain undetected for some time. Use of an off-network monitoring system can aid in resolving trouble quickly.

6b. An example of such a system is below. The price is less than \$1000.

Sensaphone IMS-1000



### IMS-1000

Product Number: IMS-1000, IMS-1002

The IMS-1000 is a web-based monitoring solution that can monitor up to eight sensors. The system also connects to a phone line connection in addition to the Ethernet computer network connection. So, even if your computer network is not working, the IMS-1000 can still use a standard phone line to notify of a problem. In addition to monitoring for physical problems, the IMS-1000 adds the ability to monitor server availability and alarm on a lack of response from any network device.

- Web-based monitor for environmental conditions and other applications
- Built-in web server lets you to view status, make programming changes and review history
- Send alarm notifications through a standard Ethernet connection or optional phone line
- Receive alarm notifications via e-mail, text messaging, and SNMP
- Up to eight plug-and-play CAT5 sensors monitor temperature, humidity, smoke, fire, break-in, and more
- Included relay output can switch local devices on/off based on alarm activity

- Observation: The equipment placement of the new disk array in the HS North data center needs to be adjusted.
- **Recommendation 7: Re-rack the new disk system equipment located in the HS North Data Center to a higher location within the enclosure.**
- 7a. Because of the conditions noted in Recommendation 6, the new disk system is installed too close to the floor, thereby leaving it vulnerable to water intrusion should there be flooding in the data center. The current equipment installation position is documented in red:

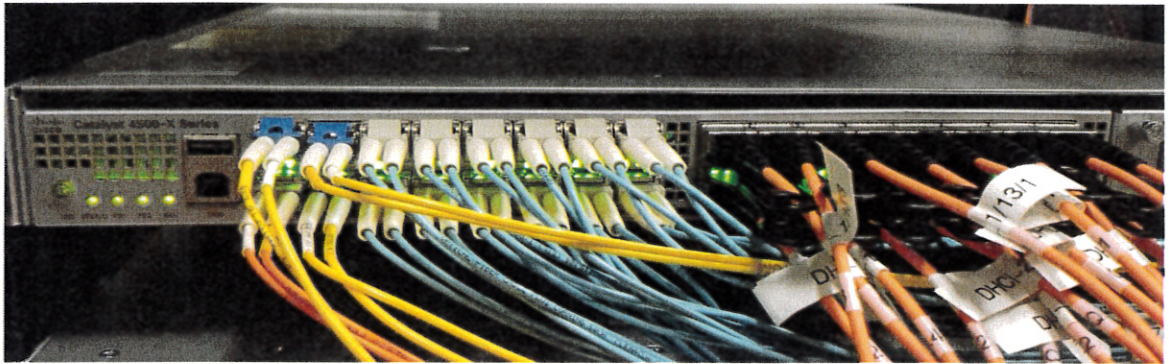




- Observation: There is no core switch currently in the HS South Data Center capable of accepting connections from all other sites when the new network is complete.

**Recommendation 8: The district should purchase a new core switch with capacity to connect all district sites when the new cabling installation is complete.**

8a. The current core switch (a Cisco 4500 series) does not have available ports to accept 10+ GBPS connections from the new Dark Fiber network. The current switch is pictured below:



8b. It is recommended that the District contact its current switch vendor to create a configuration and pricing for a new core switch with the capacity to handle connections coming from all buildings. This equipment is eligible for Federal E-Rate Category 2 funding based on the district's available balance in that program.

- Observation: There is no unified network monitoring system currently in use. There are multiple monitoring systems with no unified reporting and alerting available.

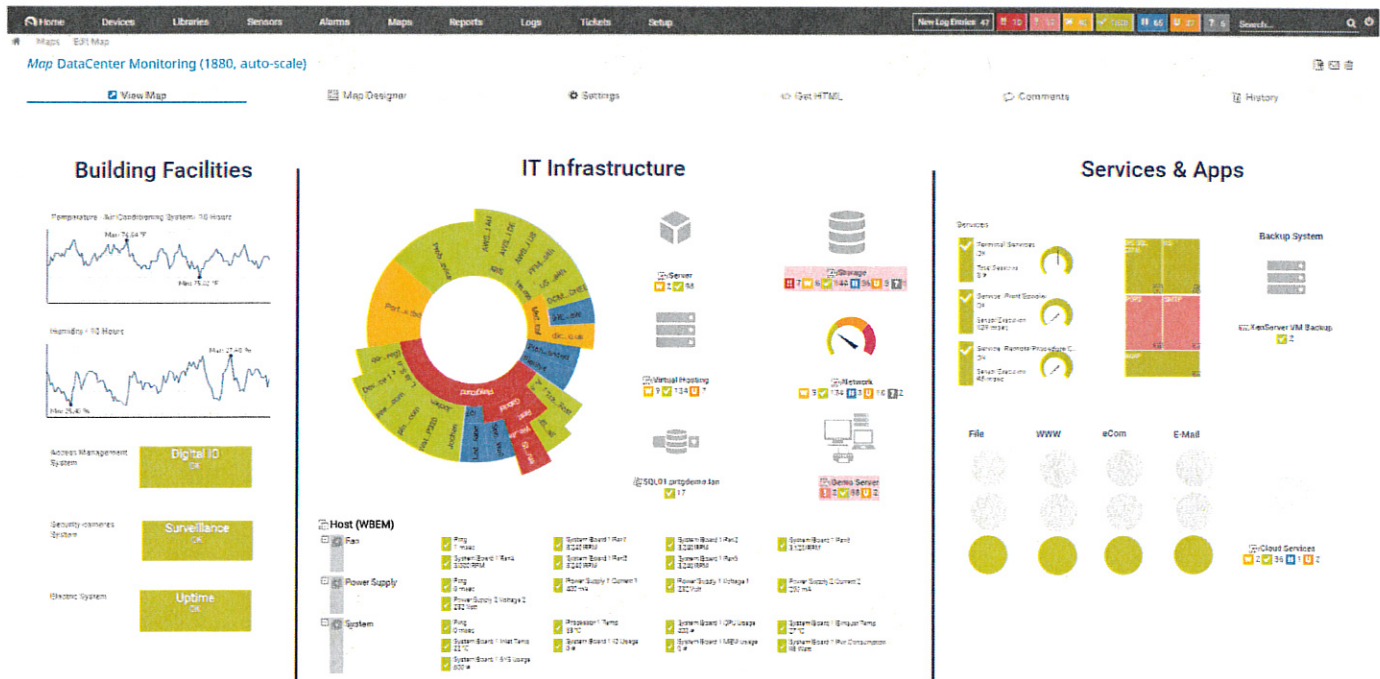
**Recommendation 9: The district should purchase a unified network monitoring software package to ensure timely notification of network events.**

9a. There are many systems available to produce a “Single Pane of Glass” view of all network devices. The advantages to such a system are:

1. One database of all network devices.
2. Unified alerts of many types of events – security, availability, etc.
3. Unified reporting of network events.
4. Decreased response time by IT Staff to degraded and out-of-service conditions

An example of such a system is called “PRTG”. It allows monitoring and alerting for every device in the network from a single system. Pricing is based on the number of objects monitored. The screenshot below shows an example of some of the services that can be monitored.

Additional information is available at <https://paessler.com>



- Observation: The district has recently purchased and installed a new perimeter security system.

***Recommendation 10: The district should immediately schedule a security review and mitigation engagement to address the security of the current firewall setup and access control rules.***

The district has recently purchased and installed a Fortigate 2201e High Availability Firewall and the Fortigate SIEM (Security Event and Information Management) system. This purchase puts the district in the best possible position in terms of network security by using high quality components to address the perimeter (Internet-facing) network.

The installation was accomplished by using the existing access rules from the previous firewall setup. While this is the most expedient way to cutover to the new system, best practice dictates that a third party review the configuration and setup of the new system to insure that access to the district network is restricted to necessary and secure services coming from and going to the Internet.

The final step in installation is to review the current access control lists, remove unnecessary or deprecated rules and add new rules as appropriate. Therefore, the district should engage a third-party service to accomplish this task as soon as possible.





VII. L. 1

ESASD BUDGETED CAPITAL PLAN UPDATED 10/01/2020  
Capital Fund Beginning Balance, July 1, 2019

\$29,175,162.00

BOARD APPROVED CAPITAL PROJECTS IN PROGRESS	2019-2020	2020-2021	2021-2022	2022-2023	2024-2025	TOTAL
HSN/LIS Roofing	\$3,504,318	\$3,504,318				\$7,008,635
ATC Replacement HSN/LIS	\$1,437,500	\$1,437,500				\$2,875,000
HSN Water Heater	\$267,000					\$267,000
Lehman Gym Floor, Power Vent Air Flow		\$153,490.00				\$153,490
HSN Gym Floor, Power Vent Air Flow & Deductible		\$15,880.00				\$15,880
North/Lehman Lighting Upgrades	\$120,900					\$120,900
<b>Subtotal:</b>	<b>\$5,329,718</b>	<b>\$5,111,188</b>	<b>\$0</b>	<b>\$0</b>		<b>\$10,440,905</b>

COMMITTEE REVIEWED CAPITAL PROJECTS	2019-2020	2020-2021	2021-2022	2022-2023	2024-2025	TOTAL
JM HILL INTERIOR GYM DOOR REPLACEMENTS		\$23,000				\$23,000
HSS Re-Grout Ceramic Tile Pool Shell	\$69,000					\$69,000
JTL Auditorium Refurbishment	\$225,000					\$225,000
North Campus Paving	\$839,701	\$839,701	\$839,701	\$839,701		\$3,358,804
HSS Field House Repairs/Upgrades		\$1,853,495				\$1,853,495
JTL Replace Exterior Dust Collector		\$42,000				\$42,000
JTL New Cinder Track & Curb		\$80,000				\$80,000
Bushkill HVAC Upgrades-Pneumatics/Boilers/Chiller			\$1,000,000			\$1,000,000
Resica Paving Mill/Overlay Repairs			\$192,500	\$192,500		\$385,000
HSS Gymnasium Lighting Upgrades				\$68,250		\$68,250
HSS Stadium Turf Replacement				\$400,000		\$400,000
Smithfield Lighting Upgrades						
Cafeteria/Gym/Auditorium/Lobby/Library				\$93,200		\$93,200
MSE Lighting Upgrades Lobby/Gym				\$50,000		\$50,000
HSS Interior Lighting Upgrades, Classrooms, Hallways, Library, Cafe				\$500,665		\$500,665
JM HILL LL HALLWAY FLOOR VCT		\$10,000				\$10,000
MIDDLE SMITHFIELD SNOW GUARDS		\$12,000				\$12,000
LEHMAN EXT. DOORS/CAFE WINDOWS		\$30,000				\$30,000
HSN EXT. DOORS/CAFE WINDOWS		\$35,000				\$35,000
ESE PA SYSTEM					\$25,000	\$25,000
HSS PA SYSTEM					\$65,000	\$65,000
JM Hill Replace Gym Fiberboard Ceiling				\$25,000		\$25,000
<b>Subtotal:</b>	<b>\$1,133,701</b>	<b>\$2,925,196</b>	<b>\$2,032,201</b>	<b>\$2,169,316</b>	<b>\$90,000</b>	<b>\$8,350,414</b>



<b>Grand Totals:</b>	\$6,463,419	\$8,036,384	\$2,032,201	\$2,169,316	\$90,000.00	\$18,791,319.00
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COMPLETED CAPITAL PROJECTS	2019-2020	2020-2021	2021-2022	2022-2023	2024-2025	TOTAL
HSS Stage Floor Replacement	\$58,680					\$58,680
JTL Stage Floor Replacement	\$36,400					\$36,400
HSS Batting Cages		\$23,650				\$23,650
Camera System Upgrades (ESE)		\$133,945.00				\$133,945
Camera System Upgrades(North Campus)	\$767,537					\$767,537
SMI PA System Replacement		\$23,590				\$23,590
RESICA EXTERIOR DOOR		\$6,245				\$6,245
HSS EXTERIOR STADIUM DOORS		\$13,940				\$13,940
HSS Javelin Runway Resurfacing		\$18,000				\$18,000
HSN Wrestling Room (Wall Pads, Mats & Install)		\$23,599.00				\$23,599
Camera System Upgrades(South Campus)	\$675,406					\$675,406
Resica Gutters & Downspouts	\$30,000					\$30,000
Resica Shingle Roof Replacement&Flat Rubber Roof	\$667,715					\$667,715
Resica Carpet Replacement		\$303,780.00				\$303,780
JTL Carpet Replacement		\$535,800.00				\$535,800
JM HILL HANDWASH SINKS CAFETERIA		\$7,785				\$7,785
Smithfield Playground	\$30,000					\$30,000
<b>Subtotal:</b>	<b>\$2,265,738</b>	<b>\$1,090,334.00</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,356,072</b>

Capital Fund Balance as of July 1, 2019 \$29,175,162.00  
 Expended, Budgeted and Reviewed Capital Projects \$22,147,390.86  
 Balance \$7,027,771.14