

APPENDIX B

COST ESTIMATE TECHNOLOGY EQUIPMENT

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, & C3 New: 1,250 Students / 314,923 Sq.**

Sec.	Description	Estimated System Price
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	
	TEL/DATA CABLING SYSTEM	\$1,421,300.00
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Data	
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Voice	
	WAP Wall Enclosures	
	MDF Closet (IDF & Site Fiber Cables, Racks, Patch Panels, etc.)	
	IDF Closet Fiber Cable, Racks, Patch Panels, etc.)	
	AUDIOVISUAL CABLING	\$96,000.00
	INTERACTIVE FLAT PANELS	
	Face Plates	
	AV in-Wall Cabling	
	HDMI	
	VGA	
	3.5mm	
	Patch Cables/Line Cords	
	HDMI	
	VGA	
	3.5mm	
		\$1,517,300.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$349,000.00
	TV DISTRIBUTION	
	MEDIA CONTROL	
	Decoders	
	DIGITAL SIGNAGE	
	Flat Panel TV Monitors	
	VIDEO ON DEMAND	
	ORIGINATION BROADCASTING	
		\$349,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	
	Gymnasium	\$128,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Auditorium/Stage	\$148,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installatio)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Cafeteria/Stage	\$148,000.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Mixing Board, Assisted Listening, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Fitness Center	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
	Weights	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
		\$455,000.00

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, & C3 New: 1,250 Students / 314,923 Sq.

Sec.	Description	Estimated Quantity	Estimated System Price
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS		\$222,200.00
	Wireless Ceiling Panel System with hard wired electrical service	101	
			\$222,200.00
Sec.	Description	Estimated Quantity	Estimated System Price
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS		
	Classroom & Conference Room Interactive Flat Panel DisplaySystems	120	\$600,000.00
	Mount		
	USB Extender		
	Installation		
			\$600,000.00
Sec.	Description	Estimated System Price	
27 51 15	PUBLIC ADDRESS SYSTEM		\$179,600.00
	Console		
	PA Speakers		
	Horn PA Speakers		
	Volume Controls		
	Interfaces: Master Clock, Voice System, and Local Sound Systems		
	Cabling		
			\$179,600.00
Sec.	Description	Estimated System Price	
27 53 13	CLOCK SYSTEM		\$104,000.00
	Master Clock		
	12" Secondary Clocks		
	16" Secondary Clocks		
	Wire Guards		
	Low Voltage Wiring		
			\$104,000.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, & C3 New: 1,250 Students / 314,923 Sq.**

Sec.	Description	Estimated System Price
28 16 00	INTEGRATED ELECTRONIC SECURITY SYSTEM	\$1,067,600.00
	Duress/Panic Alarm System	
	Notify 2.0 Network Application (3-years)	
	Controller	
	Wireless Repeaters	
	Office Panel	
	Wireless Panic / Duress Button	
	Interfaces	
	Video Notification	
	Public Address System	
	Emergency responder 2-way Radio	
	Email/Text Notification	
	Visitor Door Entry System	
	Master Stations	
	Video Intercom Door Stations	
	Audio Intercom Door Stations	
	Intrusion Detection Equipment and Cabling	
	Door Contacts	
	Motion Sensors	
	Control Panel	
	Strobes	
	Sirens	
	Keypads	
	Cabling	
	Integrated / Converged Access Control and CCTV Surveillance System	
	Proximity/Card Readers	
	Main Controller (32 portal License)	
	Network Nodes (Up to 8 Readers)	
	Intrusion Alarm Control Panel Integration S/W License	
	Data Base Workstation	
	Identity Management S/W System	
	Fobs/Cards	
	Security Card Reader Wiring	
	Site Pole Cameras - w/ Pole Mount - Drives & Parking Lots	
	Site Pole Cameras - 3 MP/IR w/ Pole Mount - Fields	
	NEMA Enclosure for Poles	
	Fiber Transceivers & Power Supplies/Transformers	
	Building Exterior Cameras	
	Building Interior Cameras	
	PoE Switches (Edge)	
	PoE Switches (Aggregate)	
	View Station with 42" monitor	
	Network Video Recorder (NVR) with Video Management System	
	IP CCTV Camera Licenses	
	Fiber Cabling	
	Cat 6E Cabling	
		\$1,067,600.00

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, & C3 New: 1,250 Students / 314,923 Sq.

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	\$1,517,300.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$349,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	\$455,000.00
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS	\$222,200.00
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS	\$600,000.00
27 51 15	PUBLIC ADDRESS SYSTEM	\$179,600.00
27 53 13	CLOCK SYSTEM	\$104,000.00
28 16 00	INTEGRATED SECURITY SYSTEMS	\$1,067,600.00
TOTAL ESTIMATED COST		\$4,494,700.00

PRELIMINARY COSTS FOR TECHNOLOGY FF&E
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, & C3 New: 1,250 Students / 314,923

Category	Description	Estimated Quantity	Estimated Price
1.	COMMUNICATIONS - VoIP VOICE SYSTEM		\$207,900.00
	Gateway/Router		
	Call Processor		
	Auto-attendant & Voice Mail		
	VoIP Handsets/Devices		
			\$207,900.00

Category	Description	Estimated Quantity	Estimated Price
2.	SWITCHES / WIRELESS SYSTEM		
	Infrastructure Switches (10GbE Backbone, Gigabit to Desktop) & Services		\$359,100.00
	Infrastructure Wireless Equipment & Services		\$342,400.00
			\$701,500.00

Category	Description	Estimated Quantity	Estimated Price
3.	COMPUTER EQUIPMENT AND PERIPHERALS		
	Servers, Central Equipment, Vmware & Services		\$207,900.00
	Admin / Teacher / Instructor Computers & Services	173	\$147,000.00
	Computer Lab Desktop Computers & Services	225	\$214,500.00
	MAC Desktop Computers & Services	90	\$261,000.00
	Student Chromebooks & Services	1,250	\$406,250.00
	Charging Carts & Services	45	\$94,500.00
	Peripherals (Printers) & Services		\$70,000.00
	Voc Shop Tech Equipment Allowance		\$50,000.00
			\$1,451,150.00

4.	AUDIOVISUAL EQUIPMENT		
	TV Studio Equipment		\$225,000.00
	Document Cameras	120	\$78,000.00
			\$303,000.00

Category	Description	Estimated Quantity	Estimated Price
5.	SPECIALIZED SYSTEMS		
	Language Lab System	31	\$90,000.00

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>COST</u>
1.	VoIP VOICE SYSTEM	\$207,900.00
2.	SWITCHES / WIRELESS SYSTEM	\$701,500.00
3.	COMPUTER EQUIPMENT & PERIPHERALS	\$1,451,150.00
4.	AUDIOVISUAL EQUIPMENT	\$303,000.00
5.	SPECIALIZED SYSTEMS	\$90,000.00
TOTAL ESTIMATED COST		\$2,753,550.00

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,400 Students / 334,3349 Sq. Ft.

Sec.	Description	Estimated System Price
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	
	TEL/DATA CABLING SYSTEM	\$1,555,075.00
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Data	
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Voice	
	WAP Wall Enclosures	
	MDF Closet (IDF & Site Fiber Cables, Racks, Patch Panels, etc.)	
	IDF Closet Fiber Cable, Racks, Patch Panels, etc.)	
	AUDIOVISUAL CABLING	\$99,200.00
	INTERACTIVE FLAT PANELS	
	Face Plates	
	AV in-Wall Cabling	
	HDMI	
	VGA	
	3.5mm	
	Patch Cables/Line Cords	
	HDMI	
	VGA	
	3.5mm	
		\$1,654,275.00

Sec.	Description	Estimated System Price
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$355,000.00
	TV DISTRIBUTION	
	MEDIA CONTROL	
	Decoders	
	DIGITAL SIGNAGE	
	Flat Panel TV Monitors	
	VIDEO ON DEMAND	
	ORIGINATION BROADCASTING	

Sec.	Description	Estimated System Price
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	
	Gymnasium	\$128,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Auditorium/Stage	
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installatio)	\$148,000.00
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Cafeteria/Stage	\$148,000.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Mixing Board, Assisted Listening, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Fitness Center	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
	Weights	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,400 Students / 334,3349 Sq. Ft.**

Sec.	Description	Estimated Quantity	Estimated System Price
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS		
	Wireless Ceiling Panel System with hard wired electrical service	105	\$231,000.00
			\$231,000.00
Sec.	Description	Estimated Quantity	Estimated System Price
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS		
	Classroom & Conference Room Interactive Flat Panel DisplaySystems	124	\$620,000.00
	Mount		
	USB Extender		
	Installation		
			\$620,000.00
Sec.	Description		Estimated System Price
27 51 15	PUBLIC ADDRESS SYSTEM		\$195,800.00
	Console		
	PA Speakers		
	Horn PA Speakers		
	Volume Controls		
	Interfaces: Master Clock, Voice System, and Local Sound Systems		
	Cabling		
			\$195,800.00
Sec.	Description		Estimated System Price
27 53 13	CLOCK SYSTEM		\$113,400.00
	Master Clock		
	12" Secondary Clocks		
	16" Secondary Clocks		
	Wire Guards		
	Low Voltage Wiring		
			\$113,400.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,400 Students / 334,3349 Sq. Ft.**

Sec.	Description	Estimated System Price
28 16 00	INTEGRATED ELECTRONIC SECURITY SYSTEM	\$1,164,000.00
	Duress/Panic Alarm System	
	Notify 2.0 Network Application (3-years)	
	Controller	
	Wireless Repeaters	
	Office Panel	
	Wireless Panic / Duress Button	
	Interfaces	
	Video Notification	
	Public Address System	
	Emergency responder 2-way Radio	
	Email/Text Notification	
	Visitor Door Entry System	
	Master Stations	
	Video Intercom Door Stations	
	Audio Intercom Door Stations	
	Intrusion Detection Equipment and Cabling	
	Door Contacts	
	Motion Sensors	
	Control Panel	
	Strobes	
	Sirens	
	Keypads	
	Cabling	
	Integrated / Converged Access Control and CCTV Surveillance System	
	Proximity/Card Readers	
	Main Controller (32 portal License)	
	Network Nodes (Up to 8 Readers)	
	Intrusion Alarm Control Panel Integration S/W License	
	Data Base Workstation	
	Identity Management S/W System	
	Fobs/Cards	
	Security Card Reader Wiring	
	Site Pole Cameras - w/ Pole Mount - Drives & Parking Lots	
	Site Pole Cameras - 3 MP/IR w/ Pole Mount - Fields	
	NEMA Enclosure for Poles	
	Fiber Transceivers & Power Supplies/Transformers	
	Building Exterior Cameras	
	Building Interior Cameras	
	PoE Switches (Edge)	
	PoE Switches (Aggregate)	
	View Station with 42" monitor	
	Network Video Recorder (NVR) with Video Management System	
	IP CCTV Camera Licenses	
	Fiber Cabling	
	Cat 6E Cabling	
		\$1,164,000.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,400 Students / 334,3349 Sq. Ft.**

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	\$1,654,275.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$355,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	\$455,000.00
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS	\$231,000.00
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS	\$620,000.00
27 51 15	PUBLIC ADDRESS SYSTEM	\$195,800.00
27 53 13	CLOCK SYSTEM	\$113,400.00
28 16 00	INTEGRATED SECURITY SYSTEMS	\$1,164,000.00
TOTAL ESTIMATED COST		\$4,788,475.00

PRELIMINARY COSTS FOR TECHNOLOGY FF&E
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,400 Students / 334,3349

Category	Description	Estimated Quantity	Estimated Price
1.	COMMUNICATIONS - VoIP VOICE SYSTEM		\$237,000.00
	Gateway/Router		
	Call Processor		
	Auto-attendant & Voice Mail		
	VoIP Handsets/Devices		
			\$237,000.00

Category	Description	Estimated Quantity	Estimated Price
2.	SWITCHES / WIRELESS SYSTEM		
	Infrastructure Switches (10GbE Backbone, Gigabit to Desktop) & Services		\$391,500.00
	Infrastructure Wireless Equipment & Services		\$373,400.00
			\$764,900.00

Category	Description	Estimated Quantity	Estimated Price
3.	COMPUTER EQUIPMENT AND PERIPHERALS		
	Servers, Central Equipment, Vmware & Services		\$226,700.00
	Admin / Teacher / Instructor Computers & Services	186	\$159,000.00
	Computer Lab Desktop Computers & Services	235	\$223,500.00
	MAC Desktop Computers & Services	90	\$261,000.00
	Student Chromebooks & Services	1,400	\$455,000.00
	Charging Carts & Services	45	\$94,500.00
	Peripherals (Printers) & Services		\$70,000.00
	Voc Shop Tech Equipment Allowance		\$100,000.00
			\$1,589,700.00

4.	AUDIOVISUAL EQUIPMENT		
	TV Studio Equipment		\$225,000.00
	Document Cameras	124	\$80,600.00
			\$305,600.00

Category	Description	Estimated Quantity	Estimated Price
5.	SPECIALIZED SYSTEMS		
	Language Lab System	31	\$90,000.00

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED</u>
1.	VoIP VOICE SYSTEM	\$237,000.00
2.	SWITCHES / WIRELESS SYSTEM	\$764,900.00
3.	COMPUTER EQUIPMENT & PERIPHERALS	\$1,589,700.00
4.	AUDIOVISUAL EQUIPMENT	\$305,600.00
5.	SPECIALIZED SYSTEMS	\$90,000.00
TOTAL ESTIMATED COST		\$2,987,200.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,600 Students / 382.653 Sq. Ft.**

Sec.	Description	Estimated System Price
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	
	TEL/DATA CABLING SYSTEM	\$1,739,625.00
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Data	
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Voice	
	WAP Wall Enclosures	
	MDF Closet (IDF & Site Fiber Cables, Racks, Patch Panels, etc.)	
	IDF Closet Fiber Cable, Racks, Patch Panels, etc.)	
	AUDIOVISUAL CABLING	\$104,000.00
	INTERACTIVE FLAT PANELS	
	Face Plates	
	AV in-Wall Cabling	
	HDMI	
	VGA	
	3.5mm	
	Patch Cables/Line Cords	
	HDMI	
	VGA	
	3.5mm	
		\$1,843,625.00

Sec.	Description	Estimated System Price
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$360,000.00
	TV DISTRIBUTION	
	MEDIA CONTROL	
	Decoders	
	DIGITAL SIGNAGE	
	Flat Panel TV Monitors	
	VIDEO ON DEMAND	
	ORIGINATION BROADCASTING	

Sec.	Description	Estimated System Price
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	
	Gymnasium	\$128,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Auditorium/Stage	\$148,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installatio)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Cafeteria/Stage	\$148,000.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Mixing Board, Assisted Listening, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Fitness Center	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
	Weights	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
		\$455,000.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,600 Students / 382.653 Sq. Ft.**

Sec.	Description	Estimated Quantity	Estimated System Price
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS		\$244,200.00
	Wireless Ceiling Panel System with hard wired electrical service	111	
			\$244,200.00
Sec.	Description	Estimated Quantity	Estimated System Price
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS		
	Classroom & Conference Room Interactive Flat Panel DisplaySystems	130	\$650,000.00
	Mount		
	USB Extender		
	Installation		
			\$650,000.00
Sec.	Description	Estimated System Price	
27 51 15	PUBLIC ADDRESS SYSTEM		\$218,200.00
	Console		
	PA Speakers		
	Horn PA Speakers		
	Volume Controls		
	Interfaces: Master Clock, Voice System, and Local Sound Systems		
	Cabling		
			\$218,200.00
Sec.	Description	Estimated System Price	
27 53 13	CLOCK SYSTEM		\$126,300.00
	Master Clock		
	12" Secondary Clocks		
	16" Secondary Clocks		
	Wire Guards		
	Low Voltage Wiring		
			\$126,300.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,600 Students / 382,653 Sq. Ft.**

Sec.	Description	Estimated System Price
28 16 00	INTEGRATED ELECTRONIC SECURITY SYSTEM	\$1,297,200.00
	Duress/Panic Alarm System	
	Notify 2.0 Network Application (3-years)	
	Controller	
	Wireless Repeaters	
	Office Panel	
	Wireless Panic / Duress Button	
	Interfaces	
	Video Notification	
	Public Address System	
	Emergency responder 2-way Radio	
	Email/Text Notification	
	Visitor Door Entry System	
	Master Stations	
	Video Intercom Door Stations	
	Audio Intercom Door Stations	
	Intrusion Detection Equipment and Cabling	
	Door Contacts	
	Motion Sensors	
	Control Panel	
	Strobes	
	Sirens	
	Keypads	
	Cabling	
	Integrated / Converged Access Control and CCTV Surveillance System	
	Proximity/Card Readers	
	Main Controller (32 portal License)	
	Network Nodes (Up to 8 Readers)	
	Intrusion Alarm Control Panel Integration S/W License	
	Data Base Workstation	
	Identity Management S/W System	
	Fobs/Cards	
	Security Card Reader Wiring	
	Site Pole Cameras - w/ Pole Mount - Drives & Parking Lots	
	Site Pole Cameras - 3 MP/IR w/ Pole Mount - Fields	
	NEMA Enclosure for Poles	
	Fiber Transceivers & Power Supplies/Transformers	
	Building Exterior Cameras	
	Building Interior Cameras	
	PoE Switches (Edge)	
	PoE Switches (Aggregate)	
	View Station with 42" monitor	
	Network Video Recorder (NVR) with Video Management System	
	IP CCTV Camera Licenses	
	Fiber Cabling	
	Cat 6E Cabling	
		\$1,297,200.00

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,600 Students / 382.653 Sq. Ft.

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	\$1,843,625.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$360,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	\$455,000.00
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS	\$244,200.00
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS	\$650,000.00
27 51 15	PUBLIC ADDRESS SYSTEM	\$218,200.00
27 53 13	CLOCK SYSTEM	\$126,300.00
28 16 00	INTEGRATED SECURITY SYSTEMS	\$1,297,200.00
TOTAL ESTIMATED COST		\$5,194,525.00

PRELIMINARY COSTS FOR TECHNOLOGY FF&E
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,600 Students / 382.653

Category	Description	Estimated Quantity	Estimated Price
1.	COMMUNICATIONS - VoIP VOICE SYSTEM		\$264,100.00
	Gateway/Router		
	Call Processor		
	Auto-attendant & Voice Mail		
	VoIP Handsets/Devices		
			\$264,100.00

Category	Description	Estimated Quantity	Estimated Price
2.	SWITCHES / WIRELESS SYSTEM		
	Infrastructure Switches (10GbE Backbone, Gigabit to Desktop) & Services		\$436,300.00
	Infrastructure Wireless Equipment & Services		\$416,100.00
			\$852,400.00

Category	Description	Estimated Quantity	Estimated Price
3.	COMPUTER EQUIPMENT AND PERIPHERALS		
	Servers, Central Equipment, Vmware & Services		\$252,600.00
	Admin / Teacher / Instructor Computers & Services	196	\$167,000.00
	Computer Lab Desktop Computers & Services	235	\$223,500.00
	MAC Desktop Computers & Services	90	\$261,000.00
	Student Chromebooks & Services	1,600	\$520,000.00
	Charging Carts & Services	45	\$94,500.00
	Peripherals (Printers) & Services		\$70,000.00
	Voc Shop Tech Equipment Allowance		\$150,000.00
			\$1,738,600.00

4.	AUDIOVISUAL EQUIPMENT		
	TV Studio Equipment		\$225,000.00
	Document Cameras	130	\$84,500.00
			\$309,500.00

Category	Description	Estimated Quantity	Estimated Price
5.	SPECIALIZED SYSTEMS		
	Language Lab System	31	\$90,000.00

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED</u>
1.	VoIP VOICE SYSTEM	\$264,100.00
2.	SWITCHES / WIRELESS SYSTEM	\$852,400.00
3.	COMPUTER EQUIPMENT & PERIPHERALS	\$1,738,600.00
4.	AUDIOVISUAL EQUIPMENT	\$309,500.00
5.	SPECIALIZED SYSTEMS	\$90,000.00
TOTAL ESTIMATED COST		\$3,254,600.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,660 Students / 393,327 Sq. Ft.**

Sec.	Description	Estimated System Price
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	
	TEL/DATA CABLING SYSTEM	\$1,789,450.00
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Data	
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Voice	
	WAP Wall Enclosures	
	MDF Closet (IDF & Site Fiber Cables, Racks, Patch Panels, etc.)	
	IDF Closet Fiber Cable, Racks, Patch Panels, etc.)	
	AUDIOVISUAL CABLING	\$105,600.00
	INTERACTIVE FLAT PANELS	
	Face Plates	
	AV in-Wall Cabling	
	HDMI	
	VGA	
	3.5mm	
	Patch Cables/Line Cords	
	HDMI	
	VGA	
	3.5mm	
		\$1,895,050.00

Sec.	Description	Estimated System Price
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$398,000.00
	TV DISTRIBUTION	
	MEDIA CONTROL	
	Decoders	
	DIGITAL SIGNAGE	
	Flat Panel TV Monitors	
	VIDEO ON DEMAND	
	ORIGINATION BROADCASTING	

Sec.	Description	Estimated System Price
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	
	Gymnasium	\$128,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Auditorium/Stage	\$148,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installatio)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Cafeteria/Stage	\$148,000.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Mixing Board, Assisted Listening, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Fitness Center	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
	Weights	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,660 Students / 393,327 Sq. Ft.

Sec.	Description	Estimated Quantity	Estimated System Price
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS		\$248,600.00
	Wireless Ceiling Panel System with hard wired electrical service	113	
			\$248,600.00
Sec.	Description	Estimated Quantity	Estimated System Price
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS		
	Classroom & Conference Room Interactive Flat Panel DisplaySystems	132	\$660,000.00
	Mount		
	USB Extender		
	Installation		
			\$660,000.00
Sec.	Description	Estimated System Price	
27 51 15	PUBLIC ADDRESS SYSTEM		\$224,200.00
	Console		
	PA Speakers		
	Horn PA Speakers		
	Volume Controls		
	Interfaces: Master Clock, Voice System, and Local Sound Systems		
	Cabling		
			\$224,200.00
Sec.	Description	Estimated System Price	
27 53 13	CLOCK SYSTEM		\$129,800.00
	Master Clock		
	12" Secondary Clocks		
	16" Secondary Clocks		
	Wire Guards		
	Low Voltage Wiring		
			\$129,800.00

PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,660 Students / 393,327 Sq. Ft.

Sec.	Description	Estimated System Price
28 16 00	INTEGRATED ELECTRONIC SECURITY SYSTEM	\$1,297,200.00
	Duress/Panic Alarm System	
	Notify 2.0 Network Application (3-years)	
	Controller	
	Wireless Repeaters	
	Office Panel	
	Wireless Panic / Duress Button	
	Interfaces	
	Video Notification	
	Public Address System	
	Emergency responder 2-way Radio	
	Email/Text Notification	
	Visitor Door Entry System	
	Master Stations	
	Video Intercom Door Stations	
	Audio Intercom Door Stations	
	Intrusion Detection Equipment and Cabling	
	Door Contacts	
	Motion Sensors	
	Control Panel	
	Strobes	
	Sirens	
	Keypads	
	Cabling	
	Integrated / Converged Access Control and CCTV Surveillance System	
	Proximity/Card Readers	
	Main Controller (32 portal License)	
	Network Nodes (Up to 8 Readers)	
	Intrusion Alarm Control Panel Integration S/W License	
	Data Base Workstation	
	Identity Management S/W System	
	Fobs/Cards	
	Security Card Reader Wiring	
	Site Pole Cameras - w/ Pole Mount - Drives & Parking Lots	
	Site Pole Cameras - 3 MP/IR w/ Pole Mount - Fields	
	NEMA Enclosure for Poles	
	Fiber Transceivers & Power Supplies/Transformers	
	Building Exterior Cameras	
	Building Interior Cameras	
	PoE Switches (Edge)	
	PoE Switches (Aggregate)	
	View Station with 42" monitor	
	Network Video Recorder (NVR) with Video Management System	
	IP CCTV Camera Licenses	
	Fiber Cabling	
	Cat 6E Cabling	
		\$1,297,200.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,660 Students / 393,327 Sq. Ft.**

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	\$1,895,050.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$398,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	\$455,000.00
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS	\$248,600.00
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS	\$660,000.00
27 51 15	PUBLIC ADDRESS SYSTEM	\$224,200.00
27 53 13	CLOCK SYSTEM	\$129,800.00
28 16 00	INTEGRATED SECURITY SYSTEMS	\$1,297,200.00
TOTAL ESTIMATED COST		\$5,307,850.00

PRELIMINARY COSTS FOR TECHNOLOGY FF&E
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,660 Students / 393,327

Category	Description	Estimated Quantity	Estimated Price
1.	COMMUNICATIONS - VoIP VOICE SYSTEM		\$264,100.00
	Gateway/Router		
	Call Processor		
	Auto-attendant & Voice Mail		
	VoIP Handsets/Devices		
			\$264,100.00

Category	Description	Estimated Quantity	Estimated Price
2.	SWITCHES / WIRELESS SYSTEM		
	Infrastructure Switches (10GbE Backbone, Gigabit to Desktop) & Services		\$436,300.00
	Infrastructure Wireless Equipment & Services		\$416,100.00
			\$852,400.00

Category	Description	Estimated Quantity	Estimated Price
3.	COMPUTER EQUIPMENT AND PERIPHERALS		
	Servers, Central Equipment, Vmware & Services		\$252,600.00
	Admin / Teacher / Instructor Computers & Services	198	\$169,000.00
	Computer Lab Desktop Computers & Services	235	\$223,500.00
	MAC Desktop Computers & Services	90	\$261,000.00
	Student Chromebooks & Services	1,660	\$539,500.00
	Charging Carts & Services	45	\$94,500.00
	Peripherals (Printers) & Services		\$70,000.00
	Voc Shop Tech Equipment Allowance		\$200,000.00
			\$1,810,100.00

4.	AUDIOVISUAL EQUIPMENT		
	TV Studio Equipment		\$225,000.00
	Document Cameras	132	\$85,800.00
			\$310,800.00

Category	Description	Estimated Quantity	Estimated Price
5.	SPECIALIZED SYSTEMS		
	Language Lab System	31	\$90,000.00

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED</u>
1.	VoIP VOICE SYSTEM	\$264,100.00
2.	SWITCHES / WIRELESS SYSTEM	\$852,400.00
3.	COMPUTER EQUIPMENT & PERIPHERALS	\$1,810,100.00
4.	AUDIOVISUAL EQUIPMENT	\$310,800.00
5.	SPECIALIZED SYSTEMS	\$90,000.00
TOTAL ESTIMATED COST		\$3,327,400.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,722 Students / 403,554 Sq. Ft.**

Sec.	Description	Estimated System Price
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	
	TEL/DATA CABLING SYSTEM	\$1,837,925.00
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Data	
	Cat. 6E UTP Horizontal Cabling and Patch Cables - Voice	
	WAP Wall Enclosures	
	MDF Closet (IDF & Site Fiber Cables, Racks, Patch Panels, etc.)	
	IDF Closet Fiber Cable, Racks, Patch Panels, etc.)	
	AUDIOVISUAL CABLING	\$106,400.00
	INTERACTIVE FLAT PANELS	
	Face Plates	
	AV in-Wall Cabling	
	HDMI	
	VGA	
	3.5mm	
	Patch Cables/Line Cords	
	HDMI	
	VGA	
	3.5mm	
		\$1,944,325.00

Sec.	Description	Estimated System Price
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$398,000.00
	TV DISTRIBUTION	
	MEDIA CONTROL	
	Decoders	
	DIGITAL SIGNAGE	
	Flat Panel TV Monitors	
	VIDEO ON DEMAND	
	ORIGINATION BROADCASTING	

Sec.	Description	Estimated System Price
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	
	Gymnasium	\$128,000.00
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Auditorium/Stage	
	Sound System (Sound System Sound Headend Equipment, Speakers, Microphones, Assisted Listening, Control System, Cabling, Installatio)	\$148,000.00
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
	Cafeteria/Stage	\$148,000.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Mixing Board, Assisted Listening, Cabling, Installation)	
	Video System (Projection Screen, Video Projector, AV Switch, Control System, Cabling, Installation)	
		\$15,500.00
	Fitness Center	
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	
	Weights	\$15,500.00
	Sound System (Sound Headend Equipment, Speakers, Microphones, Control System, Cabling, Installation)	

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,722 Students / 403,554 Sq. Ft.**

Sec.	Description	Estimated Quantity	Estimated System Price
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS		\$250,800.00
	Wireless Ceiling Panel System with hard wired electrical service	114	
			\$250,800.00
Sec.	Description	Estimated Quantity	Estimated System Price
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS		
	Classroom & Conference Room Interactive Flat Panel DisplaySystems	133	\$665,000.00
	Mount		
	USB Extender		
	Installation		
			\$665,000.00
Sec.	Description		Estimated System Price
27 51 15	PUBLIC ADDRESS SYSTEM		\$230,100.00
	Console		
	PA Speakers		
	Horn PA Speakers		
	Volume Controls		
	Interfaces: Master Clock, Voice System, and Local Sound Systems		
	Cabling		
			\$230,100.00
Sec.	Description		Estimated System Price
27 53 13	CLOCK SYSTEM		\$133,200.00
	Master Clock		
	12" Secondary Clocks		
	16" Secondary Clocks		
	Wire Guards		
	Low Voltage Wiring		
			\$133,200.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,722 Students / 403,554 Sq. Ft.**

Sec.	Description	Estimated System Price
28 16 00	INTEGRATED ELECTRONIC SECURITY SYSTEM	\$1,368,100.00
	Duress/Panic Alarm System	
	Notify 2.0 Network Application (3-years)	
	Controller	
	Wireless Repeaters	
	Office Panel	
	Wireless Panic / Duress Button	
	Interfaces	
	Video Notification	
	Public Address System	
	Emergency responder 2-way Radio	
	Email/Text Notification	
	Visitor Door Entry System	
	Master Stations	
	Video Intercom Door Stations	
	Audio Intercom Door Stations	
	Intrusion Detection Equipment and Cabling	
	Door Contacts	
	Motion Sensors	
	Control Panel	
	Strobes	
	Sirens	
	Keypads	
	Cabling	
	Integrated / Converged Access Control and CCTV Surveillance System	
	Proximity/Card Readers	
	Main Controller (32 portal License)	
	Network Nodes (Up to 8 Readers)	
	Intrusion Alarm Control Panel Integration S/W License	
	Data Base Workstation	
	Identity Management S/W System	
	Fobs/Cards	
	Security Card Reader Wiring	
	Site Pole Cameras - w/ Pole Mount - Drives & Parking Lots	
	Site Pole Cameras - 3 MP/IR w/ Pole Mount - Fields	
	NEMA Enclosure for Poles	
	Fiber Transceivers & Power Supplies/Transformers	
	Building Exterior Cameras	
	Building Interior Cameras	
	PoE Switches (Edge)	
	PoE Switches (Aggregate)	
	View Station with 42" monitor	
	Network Video Recorder (NVR) with Video Management System	
	IP CCTV Camera Licenses	
	Fiber Cabling	
	Cat 6E Cabling	
		\$1,368,100.00

**PRELIMINARY CONSTRUCTION COSTS FOR TECHNOLOGY & SECURITY
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,722 Students / 403,554 Sq. Ft.**

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>
27 00 00	COMMUNICATIONS - TEL/DATA & A-V CABLING	\$1,944,325.00
27 41 00	IPTV AND VIDEO ON DEMAND SYSTEM	\$398,000.00
27 41 01	LARGE VENUE AUDIOVISUAL SYSTEMS	\$455,000.00
27 41 20	CLASSROOM SPEECH REINFORCEMENT SYSTEMS	\$250,800.00
27 41 30	INSTRUCTIONAL AUDIOVISUAL SYSTEMS	\$665,000.00
27 51 15	PUBLIC ADDRESS SYSTEM	\$230,100.00
27 53 13	CLOCK SYSTEM	\$133,200.00
28 16 00	INTEGRATED SECURITY SYSTEMS	\$1,368,100.00
TOTAL ESTIMATED COST		\$5,444,525.00

PRELIMINARY COSTS FOR TECHNOLOGY FF&E
NORTHEAST METRO REGIONAL VOCATIONAL HIGH SCHOOL, WAKEFIELD, MA
11/11/20 B2. Addition / Renovation & C1, C2, C3 New: 1,722 Students / 403,554

Category	Description	Estimated Quantity	Estimated Price
1.	COMMUNICATIONS - VoIP VOICE SYSTEM		\$278,500.00
	Gateway/Router		
	Call Processor		
	Auto-attendant & Voice Mail		
	VoIP Handsets/Devices		
			\$278,500.00

Category	Description	Estimated Quantity	Estimated Price
2.	SWITCHES / WIRELESS SYSTEM		
	Infrastructure Switches (10GbE Backbone, Gigabit to Desktop) & Services		\$460,100.00
	Infrastructure Wireless Equipment & Services		\$438,800.00
			\$898,900.00

Category	Description	Estimated Quantity	Estimated Price
3.	COMPUTER EQUIPMENT AND PERIPHERALS		
	Servers, Central Equipment, Vmware & Services		\$266,400.00
	Admin / Teacher / Instructor Computers & Services	199	\$170,000.00
	Computer Lab Desktop Computers & Services	235	\$223,500.00
	MAC Desktop Computers & Services	90	\$261,000.00
	Student Chromebooks & Services	1,722	\$559,650.00
	Charging Carts & Services	45	\$94,500.00
	Peripherals (Printers) & Services		\$70,000.00
	Voc Shop Tech Equipment Allowance		\$250,000.00
			\$1,895,050.00

4.	AUDIOVISUAL EQUIPMENT		
	TV Studio Equipment		\$225,000.00
	Document Cameras	133	\$86,450.00
			\$311,450.00

Category	Description	Estimated Quantity	Estimated Price
5.	SPECIALIZED SYSTEMS		
	Language Lab System	31	\$90,000.00

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>ESTIMATED</u>
1.	VoIP VOICE SYSTEM	\$278,500.00
2.	SWITCHES / WIRELESS SYSTEM	\$898,900.00
3.	COMPUTER EQUIPMENT & PERIPHERALS	\$1,895,050.00
4.	AUDIOVISUAL EQUIPMENT	\$311,450.00
5.	SPECIALIZED SYSTEMS	\$90,000.00
TOTAL ESTIMATED COST		\$3,473,900.00