

ATTACHMENT NO. X-G: Long Term HVAC Plan

Recommended Action: Discussion and Information

At the Facilities Committee on January 12, 2021, Long Term plans for our HVAC systems in our buildings were discussed. Several of our buildings have older univents and ones that will need repairs. The committee wanted to look at multiple options that could increase our efficiency, provide air conditioning, as well as look at solar power and geothermal energy. We are asking the Board for discussion in an effort to direct long term facility planning.

Description	Proposed Building						
	Condition				Potential Maintenance		
					Years 1 - 5	Years 6 - 10 6 - 10	Years 11 - 15
		Priorities					
		FY2018 One	FY2019 Two	TOTAL			
Part One - Site							
A. Parking Lot							
1 Repair Parking Lot / Drive (Crack Fill / Stripe)	Fair		\$17,000	\$ 17,000	---	---	\$ 17,000
2 Repair Parking Lot / Drive	Fair	---	---	---	\$40,000	\$40,000	\$ 80,000
3 Resurface Parking Lot / Drive (41,000 SF)	Fair	---	---	---	---	---	\$ 315,000
4 Additional Parking Spaces (15 - 20) (9,000 SF)	Upgrade		\$95,000	\$ 95,000	---	---	\$ 95,000
5 Sidewalks	Fair	---	---	---	---	\$10,000	\$ 30,000
6 Detention (Additional Parking)	NR	---	---	---	---	---	---
7 Dumpster Pad / Screening	Upgrade		\$20,000	\$ 20,000	---	---	\$ 20,000
8 Site / Building Lighting	NR	---	---	---	---	---	---
9 Monument Sign	Upgrade	\$ 5,000		\$ 5,000	---	---	\$ 5,000
Part Two - Building Envelope							
A. Exterior Walls							
1 Point Masonry Joints	Fair	\$10,000		\$ 10,000	---	---	\$ 10,000
2 Fascia	Good	---	---	---	---	---	---
B. Exterior Windows / Doors							
1 Replace Exterior Window Assemblies	Fair	---	---	---	\$156,000	---	\$ 156,000
2 Abatement (Exterior Window Sealant)	NR	---	---	---	---	---	---
3 Front Entrance / Entrance Vestibule	Upgrade		\$60,000	\$ 60,000	---	---	\$ 60,000
D. Roofing							
1 Roofing Replacement	Fair	---	---	---	---	\$360,000	\$ 360,000
Part Three - Interior Spaces and Finishes							
A. Miscellaneous							
1 Ceilings	Good	---	---	---	---	---	---
2 Restrooms	Good	\$ 50,000		\$ 50,000	---	---	\$ 50,000
3 Exterior Door / Frame Replacement	Poor	\$ 2,500		\$ 2,500	---	---	\$ 2,500
4 Concrete Floor Slab Repair	Poor	\$ 5,000		\$ 5,000	---	---	\$ 5,000
Part Four - Mechanical / Ventilation							
A. Ventilation							
1 Air Handling Unit (AHU) Rebuild	Fair	---	---	---	---	\$20,000	\$ 20,000
2 Distribution Ductwork	---	---	---	---	---	---	---
B. Heating System							
1 Boiler	Fair	---	---	---	---	\$90,000	\$ 180,000
2 Heating Distribution Piping (Original)	Fair	---	---	---	---	---	---
C. Cooling System							
1 Chiller	Poor	---	---	---	\$120,000	---	\$ 120,000
2 Cooling Distribution Piping	---	---	---	---	---	---	---
D. Building Controls System							
1 Controls System	Upgrade		\$75,000	\$ 75,000	---	---	\$ 75,000
E. Gas Service							
1 Gas Service	Good	---	---	---	---	---	---
Part Five - Plumbing / Fire Protection							
A. Domestic Water							
1 Water Service	Poor	\$ 10,000		\$ 10,000	---	\$30,000	\$ 40,000
2 Hot/Cold Water Distribution Piping	Poor	\$ 10,000		\$ 10,000	---	\$60,000	\$ 70,000
3 Hot Water Heaters	Fair	---	---	---	\$7,500	---	\$ 7,500
4 Sanitary	Good	---	---	---	---	---	---
5 Drinking Fountain	NA		\$5,000	\$ 5,000	---	---	\$ 5,000
B. Fire Protection							
1 Fire Service	Good	---	---	---	---	---	---
2 Main Service	Good	---	---	---	---	---	---
3 RPZ	Upgrade	\$ 10,000		\$ 10,000	---	---	\$ 10,000
Part Six - Electrical							
A. Electrical System							
1 Service Switchboards	Fair	---	---	---	---	---	\$30,000
2 Distribution System (Panels / Wiring)	Fair	---	---	---	---	---	---
3 Lighting	Good	---	---	---	---	---	TBD
B. Emergency Systems							
1 Emergency Lighting	NA	---	---	---	---	---	---
2 Exit Signs	Fair	---	---	---	---	---	---
3 Emergency Generator	TBD	---	---	---	---	---	\$100,000
C. Fire / Specialty Systems							
1 Fire Alarm System	Fair	---	---	---	---	---	---
2 Intrusion Detection System	Upgrade		\$15,000	\$ 15,000	---	---	\$ 15,000
3 Access Control System	Upgrade		\$25,000	\$ 25,000	---	---	TBD
4 Camera System	Upgrade		\$35,000	\$ 35,000	---	---	TBD
D. Technology							
1 Infrastructure / Network	Upgrade	\$ 100,000		\$ 100,000	---	---	\$ 100,000
2 Telephone System	Upgrade		\$75,000	\$ 75,000	---	---	\$ 75,000
Part Six - Building Renovation							
A. Renovations / FFE							
1 Flooring Replacement	Upgrade	\$ 100,000		\$ 100,000	X	---	\$ 100,000
2 Painting	Upgrade		\$12,000	\$ 12,000	X	---	\$ 12,000
3 Furniture (Removal / Reinstallation)	Upgrade	\$ 42,000		\$ 42,000	X	---	\$ 42,000
4 Furniture (New)	Upgrade		\$10,000	\$ 10,000	---	---	\$ 10,000
5 Interior Renovation	Upgrade		\$300,000	\$ 300,000	---	---	\$ 300,000
8 Asbestos Abatement	NA		\$10,000	\$ 10,000	---	---	\$ 10,000
Total	---	\$ 344,500	\$ 754,000	\$ 1,098,500	\$323,500	\$610,000	\$ 2,527,000
Escalation (10%)		(Included)	(Included)	(Included)	(Included)	(Included)	(Included)
Grand Total	---	---	---	---	---	---	\$ 2,527,000

Description	Condition	Code Issues A = Actual P = Potential	Capital Project Repair / Replacement Priority						Replacement Cost (Magnitude)	Project Remarks	
			Year One	Year Two	Year Three	Year Four	Year Five	6 To 10 Years		Associated Projects	Observed O & M Repairs
Part Two - General											
A. Ten-Year Safety Survey Report											
1 Ten-Year Safety Survey Report	---	X (A)	\$6,000	---	---	---	---	---	\$6,000	---	---
B. Code Compliance											
1 Code Compliance	---	X (A)	(Included)	---	---	---	---	---	(Included)	---	---
C. Safety Reference Plans											
1 Safety Reference Plans	---	X (A)	\$6,000	---	---	---	---	---	\$6,000	---	---
Part Three - Building Exterior											
A. Exterior Walls											
1 Exterior Walls (Original Building)	Good	---	---	---	---	---	---	---	---	---	X
2 Exterior Walls (Addition Building)	Good	---	---	---	---	---	---	---	---	---	X
B. Exterior Windows											
1 Exterior Windows (Original Building)	Poor	X (P)	---	---	\$120,000	\$120,000	\$120,000	X	\$360,050	---	---
2 Exterior Windows (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
C. Exterior Entrances											
1 Exterior Entrances (Original Building)	Fair	X (P)	---	HLS (TBD)	HLS (TBD)	HLS (TBD)	---	---	TBD	---	---
2 Exterior Entrances (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
D. Roofing											
1 West Roof (Original Building)	Fair	---	---	---	---	---	---	---	---	---	---
2 Gymnasium Roof (Original Building)	Fair	---	---	---	---	---	---	---	---	---	---
3 Entrance Roof (Original Building)	Fair	---	---	---	---	---	---	---	---	---	---
4 Roof (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
Part Four - Building Interior											
A. Interior Doors, Frames and Hardware											
1 Interior Doors (Original Building)	Varies	X (P)	---	HLS (TBD)	HLS (TBD)	HLS (TBD)	---	---	TBD	---	X
2 Interior Doors (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
B. Restrooms											
1 Restrooms (Original Building)	Fair / Poor	X (P)	---	---	---	---	\$180,000	---	\$180,000	A	X
2 Restrooms (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
Part Five - Mechanical											
A. Ventilation Systems											
1 Classroom Floor UV (Original Building)	Poor	X (P)	---	---	\$180,000	\$180,000	\$180,000	---	\$540,000	B	---
2 Classroom Ceiling UVs (Original Building)	Good	---	---	---	\$60,000	\$60,000	\$60,000	---	\$180,000	B	---
3 Classroom Floor UV (Addition Building)	Good	---	---	---	---	---	---	---	---	B	---
4 Gymnasium AHU (Original Building)	Fair	---	---	---	---	---	---	\$75,000	\$75,000	B	---
5 Office FCU (Original Building)	Fair	X (P)	---	HLS	\$50,000	HLS	---	---	\$50,000	B	---
6 Time Out Room FCU (Original Building)	Fair	X (P)	---	HLS	\$50,000	HLS	---	---	\$50,000	B	---
7 Nurse Office AHU (Original Building)	Good	---	---	---	---	---	---	\$50,000	\$50,000	B	---
8 Multi-Purpose Room AHU (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
9 Computer Lab FCU (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
10 Corridor (Original Building)	---	X (P)	---	---	\$75,000	HLS	HLS	---	\$75,000	B	---
11 Corridor FCU (Addition Building)	Good	X (P)	---	\$20,000	HLS	HLS	---	---	\$20,000	B	---
12 Ventilation Distribution (Original Building)	---	---	---	---	---	---	---	---	---	---	---
13 Ventilation Distribution (Addition Building)	---	---	---	---	---	---	---	---	---	---	---
14 Ventilation Controls (Original Building)	---	---	---	---	---	---	---	(Included)	(Included)	---	---
15 Ventilation Controls (Addition Building)	---	---	---	---	---	---	---	---	---	---	---
B. Heating System											
1 Boilers (Original)	Good	---	---	---	---	---	---	---	---	---	X
2 Boilers (Addition)	Good	---	---	---	---	---	---	---	---	---	---
3 Heating Distribution Piping (Original)	Fair	---	---	---	---	---	---	---	---	---	---
4 Heating Distribution Piping (Addition)	Good	---	---	---	---	---	---	---	---	---	---
5 Heating Controls (Original / Addition Building)	---	---	---	---	---	---	---	(Included)	(Included)	---	---
C. Cooling System											
1 Roof Chiller (Original Building)	Poor	---	\$300,000	---	---	---	---	---	\$300,000	---	---
2 Roof Mounted DX Unit (Original Building)	Good	X (P)	---	HLS	HLS	\$130,000	---	---	\$130,000	---	---
3 Roof Condenser (Addition Building)	Fair	---	(Included)	---	---	---	---	---	---	---	---
4 Classroom Ceiling UV (Original Building)	Poor	---	---	---	---	---	---	---	(Included)	---	---
5 Office / Timeout Room FCU (Original Building)	Good	X (P)	---	HLS (TBD)	HLS (TBD)	HLS (TBD)	---	\$30,000	\$30,000	---	X
6 Nurse AHU (Original Building)	Good	X (P)	---	HLS (TBD)	HLS (TBD)	HLS (TBD)	---	\$30,000	\$30,000	---	---
7 Art Classroom (Original Building)	---	X (P)	---	---	---	---	---	---	---	---	---
8 Computer Lab RTU (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
9 Cooling Distribution Piping (Original Building)	Fair	---	---	---	---	---	---	---	---	---	---
10 Cooling Distribution Piping (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
11 Controls (Original Building)	---	---	---	---	---	---	---	(Included)	(Included)	---	---
12 Controls (Addition Building)	---	---	---	---	---	---	---	---	---	---	---
D. Building Controls System											
1 Controls System (Original Building)	Poor	---	---	TBD	TBD	TBD	---	\$200,000	\$200,000	B	---
2 Controls System (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
E. Gas Service											
1 Gas Service	Good	---	---	---	---	---	---	---	---	---	X
Part Six - Plumbing											
A. Domestic Water											
1 Water Service (Original / Addition Building)	---	---	---	---	---	---	---	---	---	---	---
2 Hot/Cold Water Distribution Piping (Original)	Poor	---	---	\$50,000	\$50,000	\$50,000	\$50,000	---	\$200,000	A	---
3 Hot/Cold Water Distribution Piping (Addition)	Good	---	---	---	---	---	---	---	---	---	---
4 Hot Water Heaters (Original Building)	Good	---	---	---	---	---	---	---	---	---	---
5 Hot Water Heaters (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
B. Fire Protection (Addition)											
1 Fire Service	Good	---	---	---	---	---	---	---	---	---	---
2 Distribution System	Good	---	---	---	---	---	---	---	---	---	---
Part Seven - Electrical											
A. Electrical System											
1 Service Switchboards (Original Building)	Fair	---	X	\$50,000	---	---	---	---	\$50,000	---	---
2 Service Switchboards (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
3 Distribution System (Original Building)	Poor	---	---	\$20,000	\$20,000	\$20,000	---	---	\$60,000	---	(X) \$5000
4 Distribution System (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
5 Equipment Disconnects Roof (Original Building)	Poor	---	---	---	---	---	---	---	---	---	---
B. Emergency Lighting System											
1 Emergency Lighting Pack (Original Building)	Poor	X (A)	---	\$12,000	HLS	HLS	---	---	\$12,000	---	---
2 Emergency Lighting Pack (Addition Building)	Poor	X (A)	---	\$6,000	HLS	HLS	---	---	\$6,000	---	---
3 Exit Signs (Original Building)	Poor	X (A)	---	\$9,000	HLS	HLS	---	---	\$9,000	---	---
4 Exit Signs (Addition Building)	Fair	X (A)	---	\$6,000	HLS	HLS	---	---	\$6,000	---	---
C. Fire Alarm System											
1 Fire Alarm System (Original Building)	Poor	---	---	---	\$20,000	---	---	---	\$20,000	---	---
2 Fire Alarm System (Addition Building)	Good	---	---	---	---	---	---	---	---	---	---
D. Public Address System											
1 Public Address System (Original Building)	Poor	X (P)	---	---	---	\$80,000	X	---	\$80,000	---	---
Total (George S. Patton School)											
			\$312,000	\$248,000	\$550,000	\$640,000	\$590,000	\$385,000	\$2,725,050		