



Mountain View
Whisman
School District

HVAC Renovation and Replacement Project

February 4, 2020



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Scope of Work

Scope of Work

- Replacement of existing HVAC units throughout the campus which are at or near the end of their useful life.
- Replacement includes the following:
 - Bubb, Huff, Landels, Mistral and Graham - replace existing units with new split system HVAC units.
 - Crittenden, Monta Loma and Theuerkauf - replace existing units with new Variable Refrigerant Flow (VRF) units.
 - Portables at Graham and Theuerkauf to received new Bard HVAC units.

Scope of Work (continued)

- Building Management System (BMS/Controls) to be replaced at Crittenden and Graham to bring online with District standard controls installed under Measure G at elementary school sites.
- All exterior equipment to be roof mounted.
- Filters to be MERV-13 to meet ASHRAE standards.



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Filtration Considerations

Additional Filtration Considerations

100% Outside Air through BMS

- MVWSD sites in this project have or will have Johnson Control EMS systems at the completion of the project. The EMS system has the ability to program the system to provide 100% outside air (flush the classroom) before the classroom is occupied and every time when the space is unoccupied.
- Pro:
 - Allows full exchange of air in classroom to help eliminate potential contaminants.
- Cons:
 - Increase in energy usage.
 - Increases frequency in which filter replacement is needed.

Additional Filtration Considerations

GPS Bi-polar Ionization

- Filtration system which can be added on to new or existing HVAC units to increase level of contaminant filtration. Data provided by GPS bi-polar indicates system can effectively remove Covid-19 contaminants which pass through filtration over time.
- Pros:
 - Increases efficiency of filter.
 - Low operating cost.
 - Self-cleaning
- Cons:
 - Can generate minimal, but acceptable amount of Ozone.
- System costs:
 - \$4,750 to \$6,000 per unit. The project includes 188 HVAC units resulting in an added project cost of \$893,000 to \$1,128,000.
 - An additional +/-150 HVAC units were replaced or installed under Measure G which are not part of this HVAC project. Estimated cost to retrofit those units would be approximately \$900,000.

Additional Filtration Considerations

Stand Alone Air Purifiers

- Stand alone filtration unit that can be placed in classrooms, offices, etc. for added filtration/ventilation to supplement existing HVAC or in spaces which HVAC units cannot accept MERV-13 filter.
- Pros:
 - Increase filtration capacity in room.
 - No modification to existing systems required.
 - Compact, plug in unit.
- Cons:
 - More costly to install and maintain across an entire campus or District.
 - Slight increase in noise in classroom space.
- System costs:
 - \$3,000 to \$3,300 per unit. The project includes 188 HVAC units. Assuming a close to 1:1 ratio of purifiers to HVAC units results in an added project cost of \$564,000 to \$620,000.
 - An additional +/-150 HVAC units were replaced or installed under Measure G which are not part of this HVAC project. Estimated cost to retrofit those units would be approximately \$495,000.



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Proposed Budget

Schematic Design Budget

#	Description	Quantity	Unit	Unit \$	Total
1	Bubb Replace Split System / No Controls	20	ea	\$ 48,000	\$ 960,000
2	Huff Replace Split System / No Controls	18	ea	\$ 48,000	\$ 864,000
3	Landels Replace Split System / No Controls	18	ea	\$ 48,000	\$ 864,000
4	Mistral Replace Split System / No Controls	16	ea	\$ 48,000	\$ 768,000
5	Theuerkauf New VRF / No Controls	23	ea	\$ 48,000	\$ 1,104,000
6	Theuerkauf Portables Replace Bard Units	4	ea	\$ 10,000	\$ 40,000
7	Monta Loma VRF to Replace Airedale / No Controls	24	ea	\$ 85,500	\$ 2,052,000
8	Crittenden VRF to Replace Airedale / Controls Below	28	ea	\$ 82,500	\$ 2,310,000
9	Crittenden Package Units Admin / No Controls	5	ea	\$ 30,000	\$ 150,000
10	Crittenden Controls Throughout	58	ea	\$ 7,500	\$ 435,000
11	Graham Replace Split Systems / Controls Below	29	ea	\$ 48,000	\$ 1,392,000
12	Graham Portables Replace Bard Units	5	ea	\$ 10,000	\$ 50,000
13	Graham Controls Throughout	68	ea	\$ 7,500	\$ 510,000
14	Anticipated bid amount	1	ls	\$	11,499,000

Schematic Design Budget (continued)

Project Cost

Description	Quantity		Unit Cost	Subtotal
Construction Budget	1	ls	\$	11,499,000
Design Contingency	10	%	\$	1,149,900
Construction Contingency	10	%	\$	1,149,900
SD Level Contingency	1	ls	\$	1,437,486
Architect Fees	1	ls	\$ 222,965	\$ 222,965
Architect Contingency	1	ls	\$	91,992
Architect Reimbursable Expenses	1	ls	\$	15,608
Blueprinting	1	ls	\$	5,000
Topographic Survey	1	ls	\$ 30,000	\$ 30,000
Soils Report & Testing	0.5	%	\$	57,495
CM Fees	4.5	%	\$	517,455
DSA Inspector	5	mos.	\$ 18,500	\$ 92,500
Testing Laboratory	1	%	\$	114,990
Bid Advertisements	1	ls	\$	2,500
DSA Fees	1.2	%	\$ 13,798,800	\$ 165,586
CGS Fees	8	ea	\$ 3,600	\$ 28,800
CEQA	1	ls	\$ 10,000	\$ 10,000
Legal	1	ls	\$ 10,000	\$ 10,000
Moving Expenses	1	ls	\$ 10,000	\$ 10,000
Misc. Expenses	1	ls	\$ 100,000	\$ 100,000
Grand Total			\$	16,711,176



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Schedule

Schedule - Bubb, Huff, Landels, Mistral and Graham - DSA Exempt

HVAC Replacement - Sites Exempt from DSA Review (Bubb, Huff, Landels, Mistral, and Graham)	455 days	Mon 11/16/20	Fri 8/12/22
Schematic Design	45 days	Mon 11/16/20	Fri 1/15/21
BOT Action SD Approval	1 day	Thu 2/4/21	Thu 2/4/21
Construction Documents	25 days	Fri 2/5/21	Thu 3/11/21
Bid and Award	30 days	Fri 3/12/21	Thu 4/22/21
Notice to Proceed (Procurement)	1 day	Fri 5/7/21	Fri 5/7/21
Equipment Submittals	15 days	Mon 5/10/21	Fri 5/28/21
Order Equipment	1 day	Mon 5/31/21	Mon 5/31/21
Construction	50 days	Mon 6/7/21	Fri 8/13/21

Schedule - Crittenden, Monta Loma and Theuerkauf - DSA Review Req'd

HVAC Replacement - DSA Review Required (Crittenden, Monta Loma and Theuerkauf)	455 days	Mon 11/16/20	Fri 8/12/22
Schematic Design	45 days	Mon 11/16/20	Fri 1/15/21
BOT Action SD Approval	1 day	Thu 2/4/21	Thu 2/4/21
Design Development/Construction Documents	30 days	Fri 2/5/21	Thu 3/18/21
Petition DSA	30 days	Fri 3/19/21	Thu 4/29/21
DSA Review (Full Review)	60 days	Fri 4/30/21	Thu 7/22/21
Bid and Award	30 days	Mon 1/17/22	Fri 2/25/22
Notice to Proceed (Procurement)	1 day	Mon 3/14/22	Mon 3/14/22
Equipment Submittals	15 days	Tue 3/15/22	Mon 4/4/22
Order Equipment	1 day	Tue 4/5/22	Tue 4/5/22
Construction	50 days	Mon 6/6/22	Fri 8/12/22



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Direction and Questions