

**Hiram W. Davis Medical Center
Overall Building Renovation Study**

**DBHDS Project Code No. 720-10880-48-06
BCOM Permit Code No. TBD**

April 13, 2017

Prepared for:

Virginia Department of Behavioral Health
and Developmental Services

Prepared by:



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VAE Project No. 16058

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EXECUTIVE SUMMARY

Virginia A&E has discussed anticipated future needs of Hiram W. Davis Medical Center (HWDMC) with representatives of DBHDS and HWDMC. Current code and hospital standards require that improvements to resident areas, systems, and components be performed. A separate study was recently completed describing required upgrades and improvements to the HVAC and plumbing systems.

Significant floor plan revisions should be performed, which would include renovating all resident bedrooms to include their own restrooms. Other renovations to resident, staff, and storage areas are required and are described below. VAE recommends the building be evacuated and turned over to the Contractor for the duration of the construction to rework and renovate floor plans and all systems.

Our opinion of probable construction cost is in the range of \$26 to \$29 million. This estimate does not include furnishings or equipment other than hospital bedwalls, recertifying the facility, or returning residents to the facility.

PROJECT BACKGROUND

The Hiram W. Davis Medical Center (HWDMC) in Petersburg was constructed in 1972. Since that time numerous renovations (HVAC, fire alarm, emergency power, resident rooms, dental suite, x-ray suite, etc.) have taken place; however, many systems and spaces remain original to the construction of the building. One upcoming project will make upgrades to the building envelope, including new roofing system and window replacement. Another potential project will make significant upgrades and replacements to the HVAC and plumbing systems. Because the work area of the anticipated renovations will exceed 50 percent of the aggregate area of the building, the work will be considered Alteration – Level 3 per Virginia Rehabilitation Code (VRC). Therefore, additional upgrades will be required in accordance with VRC, NFPA-101 Life Safety Code (LSC), 2010 ADA Standards for Accessible Design (ASAD), and CMS (Centers for Medicare and Medicaid Services) requirements. In addition, some of the existing spaces and systems have reached the end of their useful life and need to be upgraded or replaced.

Based on the extent of upcoming and potential construction projects in the building, staff members of Virginia A&E were requested to meet with representatives from DBHDS and HWDMC to discuss current and anticipated future needs. Building spaces, systems, or services that require upgrades (either because of code requirements or by healthcare standards) are listed below.

A significant number of interior walls will be removed on the second and third floors to accommodate current requirements for resident rooms, resident activity areas, stairs, and elevators. Areas on the first

HIRAM W. DAVIS MEDICAL CENTER
OVERALL BUILDING RENOVATION STUDY

floor requiring expansion either for code or operational functionality include the OR Suite, Dental Suite, Examining / Treatment Suite, Central Medical Equipment Supply, and the Central Sterile Supply. Facility staff reports that specific and general storage space is extremely limited.

Current CMS standards require a maximum of two residents per bedroom. The minimum size of bedrooms is 80 square feet per resident and each bedroom must include a bathroom. Existing bedrooms house four residents; therefore, a number of beds will be eliminated due to these current space requirements. A cost to perform all required improvements within the existing building footprint is included below, with an alternate cost to construct a building addition to maintain the current bed count.

All areas that serve visitors, residents, or contain a primary function will be made accessible. Those areas include all resident bedrooms and bathrooms, assembly areas, a public restroom on each floor, and the path of travel to each of those areas. Accessibility improvements will include replacement or relocation of all non-compliant components such as doors, door hardware, and operating parts (switches and controls).

As recommended in VAE's HVAC & Plumbing Systems Renovation Study dated March 27, 2017, it will be necessary for the building to be evacuated and turned over to the Contractor for the duration of the renovation. It will not be possible for either staff or residents to remain in the building due to the amount of interior demolition.

Cost of renovations are anticipated to exceed 50% of the building value, therefore the work will be subject to the High Performance Building Act requirements of the CPSM.

UPGRADES NEEDED OR REQUIRED

1. Rework bedrooms per code so that each accommodates two residents, including a dedicated bathroom with a sink and a commode. Size of renovated bedrooms will be minimum 80 square feet per resident.
2. Renovate bathing facilities near resident rooms to provide adequate space for residents and attendees.
3. De-bottleneck pharmacy floor plan. Reroute access to unused or underutilized basement areas to maintain secure pharmacy area.
4. Renovate Operating Suite, including post-operating room, two (2) operating rooms, recovery room, and post-operation room.
5. Expand and upgrade Dental Clinic, including treatment rooms adequately sized to accommodate a resident bed.
6. Move autoclave out of sterile supply area. Reroute path of soiled equipment out of sterile supply room.
7. Renovate Nurses' Stations.

**HIRAM W. DAVIS MEDICAL CENTER
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8. Expand and renovate Resident Multi-Purpose Room / Dining Area.
9. Replace stairwells so that they are large enough to accommodate a hospital bed.
10. Replace elevators, including controls and equipment, so that they are large enough to accommodate a hospital bed.
11. Create the number of accessible restrooms required for public, staff, and residents.
12. Change bedroom doors to be wide enough for hospital bed.
13. Replace all door hardware so that it is accessible.
14. Remove ligature hazards throughout the building.
15. Replace fire alarm system and relocate devices per ASAD.
16. Provide wander-guard system and interlock with fire alarm system.
17. Upgrade lighting and lighting controls and relocate controls per ASAD.
18. Replace roof and windows as part of the building envelope improvement project.
19. Replace sanitary piping system.
20. Refurbish air handling units.
21. Replace heating water piping.
22. Replace medical gas systems.
23. Replace air-side HVAC systems.
24. Potentially replace medical gas and domestic water piping.
25. Replace medium pressure steam piping.
26. Replace electrical service equipment and electrical distribution system.
27. Sprinkler system upgrade.
28. Hospital re-certification.
29. Demolish and properly dispose of construction debris.

CONSTRUCTION COST AND SCHEDULE

The proposed renovations, if performed within the existing footprint of the building, will decrease the available resident beds within the facility from approximately 84 to 78. The cost for this work is approximately \$25,750,000.

If the footprint of the building is expanded to keep the number of beds constant, the cost will be approximately \$28,900,000.

APPENDIX A

OPINION OF PROBABLE CONSTRUCTION COST



**OPINION OF PROBABLE CONSTRUCTION COST
RS MEANS 2017
SUMMARY PAGE**

1115 Vista Park Drive
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**HWDMC Overall Building Renovation Study - Maintain Footprint
VAE Project No. 16058**

**Date Prepared: 13-Apr-17
Prepared by: S. Burger**

Discipline	Source	Quantity	Cost		Extended Total
HVAC and Plumbing	3/27/2017 Study	1	\$ 4,641,540		\$ 4,641,540
Roof and Windows	DBHDS 2017 Project	1	\$ 2,277,135		\$ 2,277,135
Interior Demolition	02 41 19.21 1020	62,362	\$ 11		\$ 714,045
Interior Walls and Doors	Means M.330	62,362	\$ 46		\$ 2,841,836
Elevators	Means M.330	62,362	\$ 5		\$ 303,079
Fire Protection	Means M.330	62,362	\$ 4		\$ 259,426
Electrical	Means M.330	62,362	\$ 33		\$ 2,067,924
Equipment and Furnishings	Means M.330	62,362	\$ 43		\$ 2,677,201
Nurse Call System	Means M.330	1	\$ 30,000		\$ 30,000
CCTV System	Vendor Quote	1	\$ 27,000		\$ 27,000
Wander Guard	Estimator Judgement	1	\$ 15,000		\$ 15,000
RAW SUBTOTAL					\$ 15,854,186
Design Estimating Contingency	20.0%				\$ 3,170,837
Location Adjustment Factor (Petersburg, VA)	87.4%				\$ (2,397,153)
ADJUSTED SUBTOTAL					\$ 16,627,870
Renovation and Limited Access Factor	5.0%				\$ 831,394
Occupied Building and Phasing Factor	0.0%				\$ -
Inflation	4.0%				\$ 665,115
General Contractor Overhead and Profit	15.0%				\$ 2,718,657
TOTAL CONSTRUCTION					\$ 20,843,035
ADDITIONAL DBHDS COSTS					
				Commissioning	\$ 625,291
				Offsite Care of Clients During Construction	\$ 2,000,000
				BCOM Review	\$ 200,000
				A/E Professional Fees	\$ 2,084,304
GRAND TOTAL					\$ 25,752,630



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RS MEANS 2017
SUMMARY PAGE**

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**HWDMC Overall Building Renovation Study - Maintain Bed Count
VAE Project No. 16058**

**Date Prepared: 13-Apr-17
Prepared by: S. Burger**

Discipline	Source	Quantity	Cost		Extended Total
HVAC and Plumbing	3/27/2017 Study	1	\$ 4,641,540		\$ 4,641,540
Roof and Windows	DBHDS 2017 Project	1	\$ 2,277,135		\$ 2,277,135
Interior Demolition	02 41 19.21 1020	62,362	\$ 11		\$ 714,045
Interior Walls and Doors	Means M.330	62,362	\$ 46		\$ 2,841,836
Elevators	Means M.330	62,362	\$ 5		\$ 303,079
Fire Protection	Means M.330	62,362	\$ 4		\$ 259,426
Electrical	Means M.330	62,362	\$ 33		\$ 2,067,924
Equipment and Furnishings	Means M.330	62,362	\$ 43		\$ 2,677,201
Nurse Call System	Means M.330	1	\$ 30,000		\$ 30,000
CCTV System	Vendor Quote	1	\$ 27,000		\$ 27,000
Wander Guard	Estimator Judgement	1	\$ 15,000		\$ 15,000
5000 SF Addition	Means M.330	5,000	\$ 374		\$ 1,867,500
Site Work	Estimator Judgement	1	\$ 250,000		\$ 250,000
RAW SUBTOTAL					\$ 17,971,686
Design Estimating Contingency	20.0%				\$ 3,594,337
Location Adjustment Factor (Petersburg, VA)	87.4%				\$ (2,717,319)
ADJUSTED SUBTOTAL					\$ 18,848,704
Renovation and Limited Access Factor	5.0%				\$ 942,435
Occupied Building and Phasing Factor	0.0%				\$ -
Inflation	4.0%				\$ 753,948
General Contractor Overhead and Profit	15.0%				\$ 3,081,763
TOTAL CONSTRUCTION					\$ 23,626,851
ADDITIONAL DBHDS COSTS					
	Commissioning				\$ 708,806
	Offsite Care of Clients During Construction				\$ 2,000,000
	BCOM Review				\$ 200,000
	A/E Professional Fees				\$ 2,362,685
GRAND TOTAL					\$ 28,898,342