

Choosing by Advantages Study: George Washington University Hospital Rad Onc Space

	Alternative 1 1255 23rd Street		Alternative 2 1250 23rd Street Basement using courtyard for Lin Ac		Alternative 3 1250 23rd Street Basement using lease space above for shielding		Alternative 3 2101 L Street	
Factor: Location relative to GWUH	3.5 Blocks		3.5 Blocks		3.5 Blocks		4 blocks	
Criteria: Distance from GWUH to Lease Space Advantage:	Attribute: Advantage: less	70	Attribute: Advantage: less	70	Attribute: Advantage: less	70		70
Factor: Contiguous Space	Space is split 4500sf and 1000 sf. space upstairs does not stack		Is contiguous		Is contiguous		Must be split if 2 LIN AC's are required	
Criteria: Leasable Square Footage is attached will be less advantageous for staff and patients to be split.	Attribute: Advantage: Split and short	20	Attribute: Advantage: Contiguous	80	Attribute: Advantage: Contiguous	80	Lin Ac must be split	60
Factor: Requires special zoning provisions	No special zoning/ cannot block fire pump below		Must verify if building is allowed in courtyard		No special Provisions		Must verify retail rules if using Level 1 space	
Criteria: Most variance/ special allowances required.	Attribute: Advantage: No zoning issues	60	Attribute: Advantage: Special Consideration		Attribute: Advantage: No zoning issues	60	Minor zoning issues	40
Factor: Square footage meets original program square footage.	4000 square feet short of program		240 sf extra		At program		At program with unusable square footage	
Criteria: Square footage of original program is: 10,000sf	Attribute: Advantage: 0	0	Attribute: Advantage: More than program	100	Attribute: Advantage: Meets Program	90	Meets program	90
Factor: Ceiling Height of space	Ceiling height is 15'-7" floor to bottom of structure.		Ceiling height only adequate in courtyard		Ceiling height adequate if space is leased above for shielding		14'-0" in garage Lease has 9'-6"	
Criteria: Minimum 12'-0" ceiling height to accommodate Linear Accelerator	Attribute: Advantage: Most generous ceiling	50	Attribute: Advantage: Will accommodate LIN AC's in Courtyard		Attribute: Advantage: Complies	40	Partially complies	30
Factor: Can accommodate 2 Linear Accelerators	Will accommodate 2 Lin Ac's		Will accommodate LIN AC's in Courtyard		Will accommodate LIN AC's if space is purchased above		1 can be in basement location, or and 1 on Level 1	
Criteria: Requires 9000 square footage with 12'-0" ceiling heights	Attribute: Advantage: Yes	90	Attribute: Advantage: Not sure if allowed Maybe		Attribute: Advantage: yes with conditions	80	yes but split	45
Factor: Requires structural upgrade to foundation.	Floor strengthening and for Lin Ac will be required		2-3 levels of parking below courtyard upgrades required.		2-3 levels of parking below courtyard upgrades required.		No foundation upgrades for basement only.	
Criteria:	Attribute: Advantage: more significant	20	Attribute: Advantage: 0	0	Attribute: Advantage: 0	0	minor	40
Factor: Requires structural upgrades to space	Add'l beams required		Will have to upgrade structure for this location		Will have to upgrade structure for this location		bad concrete floor structural upgrades required.	
Criteria: Estimated extent of renovation Scale 1-10most	Attribute: Advantage: least amount	40	Attribute: Advantage: 30	30	Attribute: Advantage: 30	30		0
Factor: Access to power	Easy access and space for new breakers 480V service 2 400A switchboards		Limited space for new breakers/Long distance for switchgear/ E closet is not adequate for space		Limited space for new breakers/Long distance for switchgear/ E closet is not adequate for space		Available space for new breakers 480 V, 4000A switch board	
Criteria: Ease of connecting to normal power	Attribute: Advantage: 30	30	Attribute: Advantage: 30	30	Attribute: Advantage: 30	30		30
Factor: Access to emergency power	Only 100KW generator cannot accommodate equipment.		Only 350 KW generator cannot accommodate equipment		Only 350 KW generator cannot accommodate equipment		Will need generator upgrades	
Criteria: Existence and capacity of emergency power	Attribute: Advantage: least requirements	10	Attribute: Advantage: 0	0	Attribute: Advantage: 0	0	least requirements	10
Factor: Mechanical cooling	Capable of accessible space for mechanical cooling		Capable of accessible space for mechanical cooling		Capable of accessible space for mechanical cooling		Need to evaluate Vent air requirements	
Criteria:	Attribute: Advantage: 30	30	Attribute: Advantage: 30	30	Attribute: Advantage: 30	30		30
Factor: Additional requirements	If 2nd floor space is required, may need to add stair/ elev.		Not sure if building in courtyard is allowed		Must transfer patient from Level 2 to Level 1.		Restrictions on Lease space on 1/ only 1000sf may be available	
Criteria: scale of 1-10 (major requirements)	Attribute: Advantage: 6	6	Attribute: Advantage: 6	6	Attribute: Advantage: 5	5	least add'l req	20
COST RANKING		420		310		490		395

Choosing by Advantages Study: George Washington University Hospital Helipad Elevator Analysis

	Alternative 1 D1 Adj. to Existing Elevators	Alternative 2 D2 Elevator located west of Stair #3	Alternative 3 D4 Elevator located west of stair #3 closer to screen wl	Alternative 4 D3-A Modernize Elev. Equip Above Elev Raise the Roof	Alternative 5 D3-B Modernize Elev. Equip Relocated West	Alternative 6 D3-C Modernize Elev. Equip relocated to exterior	Alternate 7 D5 Replace Existing Elevator	Value	Alternate 8 D6 Add New Elevator on Side Of Hospital	Value
Factor: Amount of Structural Modifications Required	Hole in Roof, New Shear Wall, New Beams to the Floor into new shear wall	Cut Roof create sump pit	Cut roof- cuts column strips	Extend penthouse roof Remove portion of Existing penthouse roof	Construct area for equipment, Remove portion of roof, raise roof	Construct area for equipment.	New sump pit,			70
Criteria: Amount of Days Elevators will be down	1 elev KONE-12-14 weeks Total 14 weeks 22 weeks less	0	0	1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-18 weeks HITT 18 weeks Total 36 weeks		0	100
Criteria: Days for prepping/ days for elevator Installation		36 weeks less	36 week less						36 weeks less	100
Factor: Length of access path required to elevator	190' of Path to Elevator 20' Less	190' of Path to Elevator 20' Less	165' of Path to Elevator 45' Less	210' of Path to Elevator	210' of Path to Elevator	210' of Path to Elevator	210' of Path to Elevator			30
Criteria: Length of travel from Helipad Stop to Elev.										
Factor: Amount of spaces affected on 5th floor	Depending on elevator chosen and detail, may fit above ceiling	Depending on elevator chosen and detail, may fit above ceiling	Depending on elevator chosen and detail, may fit above ceiling	0	0	0	0			90
Criteria: Square footage of space altered										
Factor: Amount of Space affected on the 6th floor	Some above ceiling 100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf	Some above ceiling 100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf	Some above ceiling 100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf	No space affected 0	No space affected 0	No space affected 0	No space affected 0			80
Criteria: Amount of Space affected on the 6th floor										
Factor: Amount of Revisions to existing roof	Relocate elevator exhaust	Relocate MAU-1 and Kitchen exhaust fans and ductwork	Relocate some mechanical equip and fans	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust			20
Criteria: Amount of MEP revisions Scale:1-10(most)	1	7	5	3	3	3	2			
Factor: Meets Zoning Criteria	Does not require variance	Does not require variance	Does not require variance	Requires Variance	Requires Variance	Does not require variance	Does not require variance			50
Criteria: Cannot be over 18'-6" above roof										
Factor: Amount of Space in Leased Space affected	0	2 exam rooms in classroom area 170 sf	Conference room in Classroom area 300 sf	0	0	0	0			80
Criteria: Amount of Space in Leased Space affected										
Factor: Requires Life Safety Modifications to Level 6	Yes, blocks exit corridor Will have to reassess exiting from Psych Difficulty 5	Minor Life Safety Modifications if careful with placement Difficulty 3 Minor required	Minor Life Safety Modifications if careful with placement Difficulty 3	0	0	0	0			70
Criteria: Degree of difficulty of modifications required- Scale 1-10(most)										
Factor: Structural Analysis Required	40 hours	40 hours	40 hours	40 hours	40 hours	40 hours	80 hours			10
Criteria: Estimated amount of hours										
Factor: Maintain 8'-0" Path to Elevators	40' of Path at 6'-6" wide	Can maintain 8'-0" for length of Entire Path	Can maintain 8'-0" for length of Entire Path	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide			40
Criteria: Length of Path at 8'-0"										
Factor: Amount of Above Ceiling Modifications on Level 5/6	Large amount of piping Fuel lines, and conduit above ceiling 8 8 x as diff	Small amount of HVAC above ceiling to serve adjacent rooms 4 4 x as diff	Small amount of HVAC above ceiling to serve adjacent rooms 4 4 x as diff	None required	None required	None required.	None required.			60
Criteria: Amount of modifications- Scale 1-10 (most)										
COST RANKING	370	403	385	478	408	528	472			
	7	5	6	2	4	1	3		3	
Factor: Amount of Exterior Wall required	Approx 700sf of ext 220 sf of roof	Approx 1120sf of ext. 220sf roof	Approx 400 sf of exterior 220sf of roof	Approx 400 sf of exterior 220sf of roof	Approx 400 sf of exterior 100sf of roof	Approx 700sf of ext. 220sf roof	0			0
Criteria: Amount of Exterior Wall required										
Advantage:	400sf less ext	720sf less ext	720sf less ext	720sf less ext	720sf less ext/ 120sf less roof	400sf less ext	None			

Choosing by Advantages Study: Helipad Elevator Analysis

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Factor: Amount of Structural Modifications Required								
Criteria: Hole in Roof, New Shear Wall, New Beams to tie Floor into new shear wall		Cut Roof create sump pit	Cut roof- cuts column strips	Extend penthouse roof Remove portion of Existing penthouse roof	Construct area for equipment, Remove portion of roof, raise roof	Construct area for equipment.	New sump pit,	New structure required to support elevator
Attribute: Advantage:								
Factor: Amount of Days Elevators will be down								
Criteria: Days for prepping/ days for elevator Installation	1 elev KONE-12-14 weeks Total 14 weeks 22 weeks less			1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-12-14 weeks HITT 4 weeks Total 18 weeks 18 weeks less	1 elev KONE-18 weeks HITT 18 weeks Total 36 weeks	
Attribute: Advantage:	70	36 weeks less	36 week less	100	50	50	50	36 weeks less
Factor: Length of access path required to elevator								
Criteria: Length of travel from Helipad Stop to Elev.	190' of Path to Elevator 20' Less	190' of Path to Elevator 20' Less	165' of Path to Elevator 45' Less	210' of Path to Elevator	210' of Path to Elevator	210' of Path to Elevator	210' of Path to Elevator	25' of Path to Elevator 185' less
Attribute: Advantage:	10	10	15					30
Factor: Amount of spaces affected on 5th floor								
Criteria: Square footage of space altered	Depending on elevator chosen and detail, may fit above ceiling	Depending on elevator chosen and detail, may fit above ceiling	Depending on elevator chosen and detail, may fit above ceiling					Delete 1 Semi-Private Room, lose 2 licensed beds
Attribute: Advantage:	60	60	60	No space affected	No space affected	No space affected	No space affected	90
Factor: Amount of Space affected on the 6th floor								
Criteria: Square footage	100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf	100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf	100 sf for elevator 80sf for lobby 80sf for machine room Total= 360sf					
Attribute: Advantage:	80	80	80	No space affected	No space affected	No space affected	No space affected	80
Factor: Amount of Revisions to existing roof								
Criteria: Amount of MEP revisions Scale:1-10(most)	Relocate elevator exhaust	Relocate MAU-1 and Kitchen exhaust fans and ductwork	Relocate some mechanical equip and fans	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust Relocate elev equip	Relocate elevator exhaust	No MEP revisions required to roof
Attribute: Advantage:	1	7	3	5	3	3	3	2
Factor: Meets Zoning Criteria								
Criteria: Cannot be over 18'-6" above roof	Does not require variance	Does not require variance	Does not require variance	Requires Variance	Requires Variance	Does not require variance	Does not require variance	Does not require a variance
Attribute: Advantage:	50	50	50	50	50	50	50	50
Factor: Amount of Space in Leased Space affected								
Criteria:	0	Variance Not Req. 2 exam rooms in classroom area 170 sf	Variance Not Req. Conference room in Classroom area 300 sf					
Attribute: Advantage:	80	130sf less	40	None required	None required	None required	None required	None required
Factor: Requires Life Safety Modifications to Level 6								
Criteria: Degree of difficulty of modifications required and affect on operations- Scale 1-10(most)	Yes, blocks exit corridor Will have to reassess exiting from Psych Difficulty 5	Minor Life Safety Modifications if careful with placement Difficulty 3 Minor required	Minor Life Safety Modifications if careful with placement Difficulty 3 Minor required					
Attribute: Advantage:	30	60	60	None required	None required	None required	None required	None required
Factor: Structural Analysis Required								
Criteria: Estimated amount of hours	40 hours	40 hours	40 hours	40 hours	40 hours	40 hours	80 hours	40 hours
Attribute: Advantage:	40 hours less	40 hours less	40 hours less	40 hours less	40 hours less	40 hours less	40 hours less	40 hours less
Factor: Maintain 8'-0" Path to Elevators								
Criteria: Length of Path at 8'-0"	40' of Path at 6'-6" wide	Can maintain 8'-0" for length of Path Entire Path	Can maintain 8'-0" for length of Path Entire Path	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide	40' of Path at 6'-6" wide	Can maintain 8'-0" for length of Path Entire Path
Attribute: Advantage:	25	40	40	25	25	25	25	40
Factor: Amount of Above Ceiling Modifications on Level 5/6								
Criteria: Amount of modifications/ affect on operations affect on operations - Scale 1-10 (most)	Large amount of piping Fuel lines, and conduit above ceiling	Small amount of HVAC above ceiling to serve adjacent rooms	Small amount of HVAC above ceiling to serve adjacent rooms	None required	None required	None required.	None required.	Outside air intake at end of patient room will need to be modified.
Attribute: Advantage:	8	4	4	None	None	None	None	3
COST RANKING	3,167,701.00 8	2,675,389.00 6	2,680,592.00 7	2,359,853.00 3	2,360,335.00 5	2,374,787.00 1	2,374,787.00 4	2,374,787.00 2

THE OAKS - CBA

	Alternative 1 M & OP bld 100 % new	Alternative 2 M w/ Reno in 2 bldgs	Alternative 5 enlarge M	Alternative 6 Orig. M + 4 Reno	Alternative 7 1story and split foors	Alternative 8 stepped slab M	Alternative 14 100% new Her. Tree Free	
Factor:	Building Pad							
Criteria:	less tons is better							
Attribute:	40,771	35,545	43,645	33,963	30,499	33,967	16,302	95
Advantage:	(2,874)	(8,100)	0	(9,682)	(15,148)	(9,678)	0	
Factor:	Cuts & Fills							
Criteria:	less cost is better							
Attribute:	628,731	536,737	663,224	517,758	505,468	547,084	429,930	70
Advantage:	-34,493	-126,487	0	-145,466	-157,756	-116,140	0	
Factor:	Regular Caliper Trees							
Criteria:	less caliper inches is better							
Attribute:	1,497	1,275	1,354	1,189	1,497	1,497	707	35
Advantage:	0	-222	-143	-308	0	0	0	
Factor:	Exterior Walls							
Criteria:	less lf of perimeter is better							
Attribute:	2,503	2,023	2,322	1,961	2,503	2,718	2,219	20
Advantage:	-215	-695	20	0	-215	0	-499	
Factor:	Parking Relationship							
Criteria:	less distance in lf is better							
Attribute:	570	570	600	755	570	570	380	50
Advantage:	-185	-185	-155	0	-185	-185	0	
Factor:	Additional Abatement Requirement							
Criteria:	less cost is better							
Attribute:	71,136	156,939	71,136	177,840	71,136	71,136	71,136	20
Advantage:	0	-20,901	0	0	0	0	0	
Factor:	Wet Site Utilities							
Criteria:	less lineal ft is better							
Attribute:	2,970	2,930	2,590	2,930	2,970	2,970	2,540	5
Advantage:	0	-40	-380	-40	0	0	0	
Factor:	Structural Concrete							
Criteria:	min/mod/max - min is best							
Attribute:	max	max	max	max	mod	mod	min	95
Advantage:	mod	mod	mod	mod	45	45	45	
Factor:	Site Concrete							
Criteria:	min/mod/max - min is best							
Attribute:	max	max	max	max	mod	mod	min	70
Advantage:	mod	mod	mod	mod	35	35	35	
Factor:	Paving							
Criteria:	less sf is better							
Attribute:	19,500	19,500	19,500	19,500	19,500	19,500	14,000	10
Advantage:	0	0	0	0	0	0	0	
Factor:	Speed of Const.							
Criteria:	faster is better							
Attribute:	14	14	14	14	13	14	12	30
Advantage:	0	0	0	0	-1	0	0	
Factor:	MEP Systems							
Criteria:	no renovation is better							
Attribute:	none	28,601	none	35,568	none	none	none	60
Advantage:	none	-6,967	none	none	none	none	none	
Factor:	Exterior Material Options							
Criteria:	no restriction of material selection is better							
Attribute:	no	yes	no	yes	no	no	no	40
Advantage:	yes	yes	yes	yes	no	no	no	
Factor:	Kitchen Distance From Fullding Entrance							
Criteria:	less footage distance and inside is better							
Attribute:	0	0	0	300	0	0	0	50
Advantage:	50	50	50	0	50	50	50	
Factor:	Ferticite Transport							
Criteria:	no elevator is best							
Attribute:	no	no	no	no	yes	no	no	100
Advantage:	100	100	100	100	100	100	100	
Factor:	Construction Type							
Criteria:	2B (less than 55000 sf) is better							
Attribute:	IIB	IIB	IIA	IIB	IIB	IIB	IIB	50
Advantage:	IIB	IIB	IIA	IIB	IIB	IIB	IIB	
SCORE		375	346	304	271	440	490	800
RANKING						3	2	1