Thad Maugle **Civista Hospital**
Dr. Horman **LaPlata, MD**
Construction Management **10/6/06**

Existing Construction Conditions
Tech. Assignment #1: Construction Project Management

Executive Summary

The Civista Medical Center project is a three-phase addition, renovations, and site development project in LaPlata, MD. Its intent is to accommodate the increasing service volumes at the medical center. The recent population growth in the primary service area of the hospital is forecast to continue into the foreseeable future. As a result of this, the hospital has faced challenges accommodating service needs in the past few years for the emergency department, surgery, same-day-surgery, and nursing units. The new addition comprises of four new floors of patient care and an elevator core on the south side of the existing hospital. Renovations involve selected areas of the existing hospital, as well as infrastructure improvements to mechanical and electrical systems. Finally, the site development at Civista includes and is not limited to new transportation patterns, relocation of permanent water retention, and a new helipad.

The proposed project described herein includes the construction of a new four-story addition located on the south side of the existing hospital building, renovations & expansions to selected departments in the existing hospital, improvements to the mechanical and electrical infrastructure, and site development to support new site circulation patterns.

Gilbane Building Company is contracted as the Construction Manager at-risk and holds a Guaranteed Maximum Price contract with the owner, Civista Health, Inc. CM at-risk is a delivery method that allows the client to select a CM based on qualifications. Furthermore, it allows the CM to become involved in preconstruction services. Gilbane became involved at an early stage of the project, allowing them to provide input on construction methods and techniques, as well as related delivery methods. This type of contract is common to Gilbane and gives them confidence to deliver the project to the owner on time, on budget, and to specification.

Construction of hospitals present several unique challenges specific to its project type. Infection control and interim life safety measures are most important and are applicable when the life safety provided to patients is diminished due to significant Life Safety Code deficiencies or hazards resulting from construction operations. Careful coordination and sequencing is essential to properly address and respond to these issues. The project schedule and budget will notice the affect of these challenges.

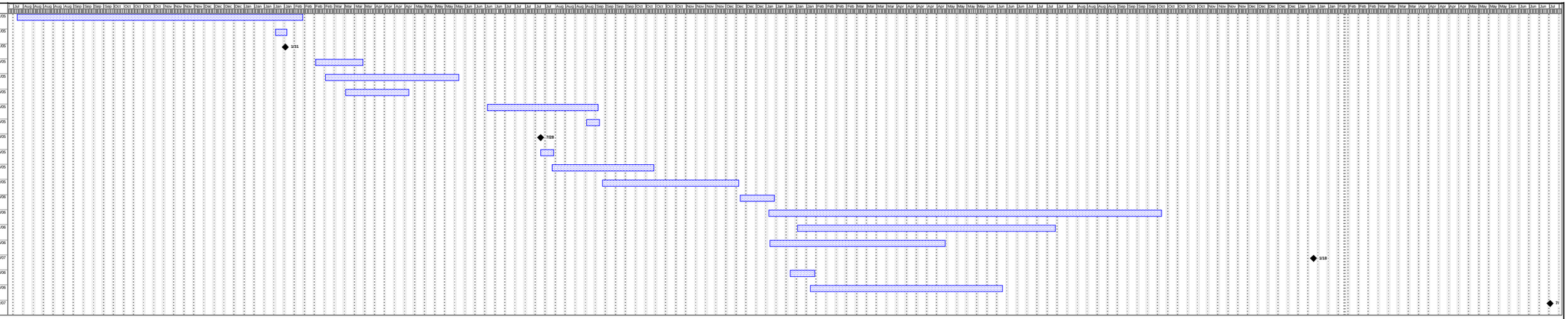
The following report is intended to provide a summary of the project and its respective systems. Included in the contents are summarizes of a schedule highlighting

the most important items, a cost analysis comparing the actual costs with projected costs, a site plan showing the location of the project relative to its surroundings as well as its existing conditions, and a building systems summary. Furthermore, there are summaries of the local building conditions, client information, project delivery systems, and finally, a staffing plan.

Project Summary Schedule

The Civista Hospital project is organized into three different phases. Phase one focuses of site preparation. During this phase, three main activities occur. This first activity is the relocation of the ambulance route to the emergency room. Once that task is completed, preparation can begin for the building pad of the new addition. Also during the first phase, the helipad will be relocated and parking lots will be demoed. The second phase focuses on the new addition. During this phase, four new levels will be constructed as well a new elevator core. Finally, the third phase will focus on the renovations. Renovations will occur in selected areas and departments of the existing hospital.

ID		Task Name	Duration	Start	Finish
1		Design Phase 1 & 2	143 days	Wed 7/28/04	Fri 2/11/05
2		Mobilization	6 days	Mon 1/24/05	Mon 1/31/05
3		Phase 1 - Site Preparation	1 day	Mon 1/31/05	Mon 1/31/05
4		Demo	25 days	Mon 2/21/05	Fri 3/25/05
5		Site Utilities	67 days	Mon 2/28/05	Tue 5/31/05
6		Construction of Emergency Entry	32 days	Mon 3/14/05	Tue 4/26/05
7		Relocate Retention Basin	55 days	Tue 6/21/05	Mon 9/5/05
8		Helipad	7 days	Mon 8/29/05	Tue 9/6/05
9		Phase 2 - Addition	1 day	Thu 7/28/05	Thu 7/28/05
10		Demo	7 days	Thu 7/28/05	Fri 8/5/05
11		Foundation	51 days	Fri 8/5/05	Fri 10/14/05
12		Structural Decking, CIP Concrete	67 days	Fri 9/9/05	Mon 12/12/05
13		Roof	18 days	Wed 12/14/05	Fri 1/6/06
14		Interiors (framing - finisher)	196 days	Tue 1/3/06	Tue 10/3/06
15		Exteriors	130 days	Mon 1/23/06	Fri 7/21/06
16		Plan Phase 3: Renovation Phase	88 days	Wed 1/4/06	Fri 5/5/06
17		Phase 3 - Renovations	1 day	Thu 1/18/07	Thu 1/18/07
18		Removals	13 days	Wed 1/18/06	Fri 2/3/06
19		Interiors	96 days	Wed 2/1/06	Wed 6/14/06
20		Substantial Completion	1 day	Mon 7/2/07	Mon 7/2/07



Project: Project1.mpp
Date: Thu 2/8/07

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

Building Systems Summary

Demolition

The demolition required on the Civista project is quite extensive and occurs in three phases. During phase one, the main areas of demolition include existing asphalt paving along the southwestern entrance, the existing helipad (upon completion of proposed helipad), and an existing police office/shed. It total, phase one requires approximately 3500SF of demolition. During phase 2 of the site work, all existing asphalt paving, curbing, and islands along the southeastern part of the building will be removed in preparation for the construction of the hospital addition. Phase 2 requires the removal 7600SF of asphalt, 440LF of curbing, and 2400SF of islands. Finally, phase 3 of the project requires the demolition of the existing LaPlata Town Hall and remaining asphalt in lieu of a new parking lot. The Town Hall is approximately 6200SF and the remaining asphalt is another 2460SF. During this demo work, contractors will have to protect trees, plant growth, and features designated to remain as final landscaping and as required by local regulatory agencies.

Structural Steel

Steel is the main structural element at the loading dock and access bridge areas only. The loading dock and access bridge requires approximately 45 tons of structural steel. Here, it is incorporated as composite floor systems consisting of steel floor decking and nominal column size of 12". The steel is classified as ASTM A992, Grade 50. Moment frames are designed to deliver the lateral loads from diaphragms to the existing foundation system. As for the foundation, approximately 32 tons of rebar and 208 SF of weld wire mesh were utilized as reinforcement. The elevated cast-in-place slabs and columns require another 50 tons of reinforcement.

Cast-in-Place Concrete

The foundation consists of augered cast-in-place pile foundation system using 16" diameter by 61' long piles. Cast-in-place pile caps along with grade beams tie the foundation system together. The slab on grade will be placed at a typical 5" depth, and at a 6" depth at the loading dock area. Two-way concrete slabs account for the majority of the elevated structural system. A typical slab is 10" in depth with 6.25" drop panels. The slabs are supported by 24" square columns. All concrete slabs require a strength of 4000 psi and all columns require a strength of 5000 psi. In total, the foundation requires approximately 2000 Cubic Yards of concrete. Four floors of elevated slab, along with columns, requires 1300 Cubice Yards of concrete.

Precast Concrete

Precast concrete is to be used on the exterior monumental stairway and the main entry walkway. Thye are custom, plant-cast units manufactured by the wet-cast method using a carefully controlled mixture of white Portland cement, coloring pigments, and

select graded aggregates to produce units with an architectural quality finish. The concrete strength is at least 8,000 psi.

Mechanical

There are five air handling units designated to serve the building. AHU-1 is located in the first floor mechanical room and is estimated at 28,100 cfm. It supports two supply fans at 50 HP and two return fans at 15 HP each. This system will be a variable volume unit and service the ground floor, new addition, and adjacent renovation areas. AHU-2 is located in the second floor mechanical room and is estimate at 26,200 cfm. It supports two supply fans at 50 HP and two return fans at 15 HP each. This system will be a variable volume unit with hot water reheat, and it will service the second floor emergency room and operating rooms. AHU-3 is located in the third floor mechanical room and is estimated at 51,000 cfm. It supports a single 100 HP supply fan and a single 25 HP return fan. This system will be a variable volume unit with hot water reheat, and it will service the second and third floor patient rooms. AHU-8 is located in the first floor mechanical room and is estimated at 18,000 cfm. It supports a single 30 HP supply fan and a single 15 HP return fan. This system will be a variable volume unit with hot water reheat, and it will service the newly renovated lobby area. Finally, the existing AHU-7, located in the existing fourth floor mechanical room, is sized at 10,555 cfm, large enough to accommodate the CICU addition. This system is will support hot water reheat coils to match the other AHUs.

Two heat exchangers and two pumps will be provided for the heating system. They are estimated at 2230 MBH and 225 gpm. This size will accommodate the fitout of the two future patient room floors at the new addition.

AHU-1 and AHU-2 will be serviced by the new air-cooled chiller under emergency power conditions that will divert water only to the previously state AHUs. The air-cooled emergency chiller will by approximately 230 tons of refrigerant. The other AHUs will be served by connections to two new chilled water pumps. Each pump is estimated at 550 gpm, 25 HP, and will be provided with emergency power.

Fire Protection

The existing 6” fire service will be removed and rerouted. A new 6” fire loop will be provided around the site and will supply the new addition with a 6” Fire Water (FW) service and 6” Domestic Water service. Both will connect to the existing / rerouted service. The FW will include a double check valve backflow preventer on a new 250 gallons per minute electric pump at 15 HP. The pump will service inside sprinklers and hoses. A combined sprinkler / standpipe system will be provided. The standpipe risers will be located in stairwells. All fire department valves will be located on floor landings. Pre-Action systems will be provided for the elevator machine rooms. Sprinklers in all rooms will be Quick Response. In existing areas undergoing renovations, the existing piping will be modified as required to accommodate the new layouts.

Electrical

The electrical service to the new addition will be provided by expanding and reconfiguring the existing 13.8 kV primary switchgear line to a new 15 kV 480/277-Volt switch. This switch will service a new pad-mounted transformer, which connects itself to a new main switchboard located in the First Floor Main Electrical Room. The 480/277-Volt system will feed lighting and major mechanical equipment loads (including elevators). Dry-type transformers will provide 208/120-Volt power for small mechanical equipment loads and receptacles. The existing outdoor standby diesel generator, located adjacent to the existing building, will provide emergency power to the new addition.

General office lighting consists of 4 foot, 2-lamp, low brightness, parabolic louvered recessed fluorescent (T-8) fixtures generally controlled with occupancy sensors. They are supplied with 277-Volts. Special lighting and controls are applied where appropriate. Energy efficient lighting controls are implemented in public spaces and the parking lots. For example, timelock and photoelectric cell type functions are added to the exterior lighting, and low wattage HID (metal halide) light fixtures will be used at entrances. Emergency egress lighting is powered through UPS systems.

Masonry

The new addition uses modular face, non load-bearing brick to match the existing building. It is to be placed on the exterior of the ground floor between the courtyard and service area. The modular face brick veneer with block backup is to be placed on the exterior of the ground floor between the courtyard and service area. The brick veneer with steel stud backup is located on indicated elevated levels. Recessed courses and/or soldier courses are provided also as indicated. The brick is supported by 14 gauge galvanized ties.

Calcium silicate masonry units (SMU) are prefabricated units measuring at 11-5/8" wide x 23-5/8" long x 3-5/8" wide, located in various locations. They are lay-up masonry in all running stretching bond. The SMU's are cream colored and display a sandblasted finish.

Curtain Wall

The typical exterior curtain wall system consists of a prefabricated field glazed pressure plate type curtain wall system. It consists of 2 ½" wide by 8" deep exposed mullion aluminum framing members and caps at multistory locations. The curtain wall includes a combination of insulated vision glass and insulated spandrel glass panels. The curtain wall system is designed to accommodate both vertical and horizontal movement with either shear block or split mullion design. This system is located at all exterior windows except for the CICU area. The CICU will accommodate fixed aluminum window systems.

Project Cost Evaluation

- Actual GMP (less sitework, landscaping, etc.):
  - $29,651,976
  - Unit Price @ 159,167 SF: $186 / SF

- Total Project Costs:
  - $43,941,344
  - Unit Price @ 159,167 SF: $276 / SF

- Major Building Systems Costs:
  - Mechanical: $6,480,995 – $41 / SF
  - Electrical: $3,782,322 – $24 / SF
  - Structural: $5,743,840 – $36 / SF
  - Sitework: $2,700,000

- Square Foot Estimate from CostWorks 2005
  - Unit Price of total project costs: median - $181 / SF, ¾ percentile - $275 / SF
  - Mechanical & Electrical: median - $60 / SF

- D4 Cost Estimate
  - Smart averaging of 3 medical facilities ranging from 117,000 SF to 164,000 SF
  - Estimate Cost $32,927,840
  - Estimate shown on following page

Parametric Estimate for Civista Medical Center

Addition & Renovations

Prepared By:	**Thad Maugle**	Prepared For:	**Dr. Horman**
Building SF Size:	**159,167**	Site SF Size:	**434585**
Bid Date:		Building Use:	**Medical**
No. of Floors:	**4**	Foundation:	
No. of Buildings:		Exterior Walls:	
Project Height:		Interior Walls:	**GYP**
1st Floor Height:		Roof Type:	**CON**
1st Floor Size:		Floor Type:	**CON**
		Project Type:	**ADD/REN**

Division		Percent	SF Cost	Amount
00	**Bidding Requirements**	**0.00**	**0.00**	**0**
	Bidding Requirements	0.00	0.00	0
01	**General Requirements**	**8.05**	**17.74**	**2,569,911**
	General Requirements	8.05	17.74	2,569,911
02	**Site Work**	**4.71**	**10.38**	**1,503,212**
	Site Work	4.71	10.38	1,503,212
03	**Concrete**	**9.55**	**21.05**	**3,049,775**
	Concrete	9.55	21.05	3,049,775
04	**Masonry**	**4.11**	**9.05**	**1,311,796**
	Masonry	4.11	9.05	1,311,796
05	**Metals**	**6.67**	**14.69**	**2,128,080**
	Metals	6.67	14.69	2,128,080
06	**Wood & Plastics**	**3.86**	**8.50**	**1,231,713**
	Wood & Plastics	3.86	8.50	1,231,713
07	**Thermal & Moisture Protection**	**6.33**	**13.94**	**2,019,926**
	Thermal & Moisture Protection	6.33	13.94	2,019,926
08	**Doors & Windows**	**4.88**	**10.74**	**1,556,532**
	Doors & Windows	4.88	10.74	1,556,532
09	**Finishes**	**9.64**	**21.26**	**3,079,380**
	Finishes	9.64	21.26	3,079,380
10	**Specialties**	**0.82**	**1.81**	**262,331**
	Specialties	0.82	1.81	262,331
11	**Equipment**	**0.52**	**1.15**	**166,778**
	Equipment	0.52	1.15	166,778
12	**Furnishings**	**0.59**	**1.29**	**187,470**
	Furnishings	0.59	1.29	187,470
13	**Special Construction**	**0.39**	**0.86**	**124,532**
	Special Construction	0.39	0.86	124,532
14	**Conveying Systems**	**1.88**	**4.14**	**600,302**
	Conveying Systems	1.88	4.14	600,302
15	**Mechanical**	**25.21**	**55.55**	**8,047,882**
	Mechanical	25.21	55.55	8,047,882
16	**Electrical**	**12.80**	**28.22**	**4,088,219**
	Electrical	12.80	28.22	4,088,219
Total Building Costs		**100.00**	**220.30**	**31,927,840**