

**MOORPARK CITY COUNCIL  
AGENDA REPORT**

**TO:** Honorable City Council

**FROM:** Hugh R. Riley, Assistant City Manager

**BY:** Jessica Sandifer, Management Analyst 

**DATE:** January 5, 2011 (CC Meeting of 1/19/11)

**SUBJECT:** Consider Amending Agreement with Barnhart Balfour-Beatty for Building Information Modeling (BIM) Services for the Ruben Castro Human Services Center Capital Improvement Project (5020)

**BACKGROUND & DISCUSSION**

Barnhart-Balfour Beatty is the City's Construction Manager on the Ruben Castro Human Services Center (RCHSC) project. As a part of their original proposal the firm had proposed the use of Building Information Modeling (BIM) for the RCHSC. This item was approved as a part of their original agreement. BIM is a virtual 3-dimensional building modeling process that allows the user to see the fully constructed building, as drawn, prior to construction beginning. Taking the two dimensional drawings and showcasing them in a three dimensional format allows the Construction Manager and Architect to detect and fix any potential conflicts between the structure of the building and planned conduit and ducting runs. Discovering these conflicts prior to construction saves an average of 16-28% of total project costs, due to change orders and resolution of requests for information (RFI's). A project the size of the RCHSC is subject to hundreds of RFI's which can lead to potential conflicts, which if not resolved properly, can lead to numerous change orders. Use of the BIM process reduces conflicts and change orders associated with RFI's.

To attempt to keep costs down, staff feels it would be beneficial to move forward with the BIM services on the RCHSC. The practice of modeling and coordinating in BIM has an average return on investment of three times the initial investment, often times it is higher. So for our project, we could potentially realize \$200,000 or more in cost savings.

**FISCAL IMPACT**

The cost to conduct the BIM is \$78,000. The construction management budget for the RCHSC includes \$35,000 to furnish BIM modeling. The cost increase of \$43,000 will be funded by the MRA 2006 TAB Proceeds Fund (2905). A separate staff report was submitted to the Redevelopment Agency Board to appropriate funds for these services.

**STAFF RECOMMENDATION**

Approve agreement Amendment with Barnhart Balfour-Beatty to fully fund BIM Services, and authorize City Manager to sign the Agreement after final language approval by City Manager and City Attorney.

Attachment – Agreement

ATTACHMENT

**SECOND AMENDMENT TO AGREEMENT 2008-090  
FOR SERVICES**

**THIS SECOND AMENDMENT TO THE AGREEMENT FOR SERVICES (“Second Amendment”)**, is made and entered into this \_\_\_\_ day of \_\_\_\_\_, 2011, (“the Effective Date”) between the **City of Moorpark**, a municipal corporation, hereinafter referred to as “CITY”, and Barnhart Balfour-Beatty, a California Corporation, hereinafter referred to as “CONSULTANT”.

**WITNESSETH:**

**WHEREAS**, on June 2, 2008, the CITY and the CONSULTANT entered into an Agreement for construction management services for the Ruben Castro Human Services Center; and

**WHEREAS**, on July 21, 2010, the CITY and the CONSULTANT amended the Agreement, to incorporate a business name change and to increase the maximum by \$27,744 to \$1,300,620, for additional services not covered by the original Agreement; and

**WHEREAS**, Building Information Modeling (BIM) services are covered by the original Agreement, but BIM costs are not fully funded under the maximum; and

**WHEREAS**, the CITY wishes to amend the Agreement to fully fund BIM costs as described in Exhibit “A”. **NOW, THEREFORE**, in consideration of the mutual covenants, benefits, and premises herein stated, the parties hereto agree as follows:

CITY hereby increases the maximum payable under this Agreement by \$43,000, to \$1,343,620, in accordance with Exhibit “A”, attached.

All other terms and conditions of the original Agreement shall remain in full force and effect.

ATTACHMENT

CITY OF MOORPARK

BARNHART BALFOUR BEATTY

By: \_\_\_\_\_  
Steven Kueny  
City Manager

By: \_\_\_\_\_  
Eric G. Stenman  
President

Date: \_\_\_\_\_

Date: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Maureen Benson, City Clerk

Exhibit A – Consultant’s letter proposal

EXHIBIT A



September 10, 2010

Hugh Riley  
Assistant City Manager, City of Moorpark  
799 Moorpark Avenue  
Moorpark, CA 93021

**PROJECT: Ruben S. Castro Human Services Center**  
**RE: Building Information Modeling/Analysis Proposal**

Mr. Riley,

First, I would like to thank you for the opportunity for us to present this proposal to provide Building Information Modeling services for the City of Moorpark. We are excited about the City of Moorpark's forward thinking stance in using BIM for more efficient facilities' and we appreciate the opportunity to show you and your team, just how good of a resource partner we are.

I have included in this proposal three separate line items. The first is our discussed estimate to model the current designed portions of work as to verify that the analysis phase of the tests are accurate and productive. The second line item is for our Clash Detection testing and resolution phase, which covers the clash detection, cleaning, reporting, meeting times and potential resolution of related models. The third line item will provide Trade Contractor coordination and in field BIM support services to insure efforts of the design analysis and clash detection resolutions are properly coordinated in the field and conveyed into the model as as-builts for facility use and reference. Additional services not listed may be provided as requested and can be engaged on an ala-carte hourly basis.

Again thanks for this terrific opportunity and we look forward to working with you and the City of Moorpark on this exciting project.

Please find the estimate and description of proposed services below and feel free to contact me at any time with any questions or comments.

Best,

A handwritten signature in black ink, appearing to read "Brad Hardin".

Brad Hardin, AIA, LEED AP – Corporate BIM Manager



**Description of the work:**

This project will be a three-fold effort. The first portion will be to model the systems of the current design as described in Scope 1. Which includes, providing 3D modeling work for Architectural, Structural, Mechanical, Plumbing, Fire Protection and Electrical systems as currently designed by the architecture and engineering teams as CAD drawings and submitted from the Client that are missing or are not sufficient in detail.

**Scope of Service (1):**

**BIM Modeling of Current Design to contain:**

- Architectural items – (doors, windows, floors, walls, etc..)
- Structural items – (columns, beams, trusses, roofing, etc...)
- Topographical Site Information (not surveyed including paving, walks, etc..)
- Domestic and Industrial water piping 3/4" and larger
- Sanitary and Waste piping
- Sanitary and Vent piping
- Gas piping
- Condensate piping
- Storm piping
- All plumbing fixtures and equipment
- Electrical conduit lines
- Electrical panels
- Electrical switchgear equipment
- Electric racks and cable trays
- Network and telecom Gear 4" sq. and larger
- Supporting structures and brackets
- Other discovered utility tie-ins and access points (not to include GIS survey)

**NOTE:**

**All work will be based on provided CAD file drawings and PDFs provided by client and any additional survey or field monitoring is not included. Work will be done based on information provided by client and design team. Any extra work, including surveys, scanning or other research will postpone the work completion deadline and add working days and additional compensation to the contract based on both parties' approval.**

**Compensation:**

Our fees are approximately \$35,000 based on description and scope of work. For any extra work and changes by approval from the client, will be hourly based on category explained on Schedules of Fees.

Payment due at 100% Completion	\$ 35,000.00
<hr/> Total:	<hr/> \$ 35,000.00

**Scope of Service (2):**

**Analysis of BIM of Current Design to contain:**

The second portion of the work to perform will be to test and analyze the models via Navisworks as described in Scope 2. Once modeling work from Scope 1 is complete, Barnhart will run an in-house clash report and table the existing design of the project. Barnhart will then work to clear the project of clashes by adjusting systems to clear the clashes and when completed will distribute to the design team for

approval the coordinated CAD files for approval. If needed, Barnhart will host (2) model coordination GoTo Meetings with the Owner and AE team to further revise the models as designed until coordinated. Updates as a result of this collaborative resolution process and will then provide Revit and CAD files to the Client for the Client's use.

The deliverable to the Client in Scope 2 will be standard BIM derived CAD files as well as the composite Navisworks BIM file for use throughout the project.

**Compensation:**

Our fees are \$24,600 based on description and scope of work. For any extra work and changes approved by the client; these will be billed on an hourly basis as outlined in the Schedules of Fees.

Payment is due to consultant within 30 days of receipt of an invoice. The billing period and payment will be based on chart below.

Payment due at 100% Completion	\$ 24,600.00
<hr/> Total:	<hr/> \$ 24,600.00

**Scope of Service (3):**

**Subcontractor Coordination and In-Field BIM:**

The last portion of the work to perform will include issuing coordinated CAD files to the subcontracting team for use as shop drawing coordination or "build upon" files. This effort will involve coordination between the subcontracting team in regard to constructability and sequencing to eliminate all possible issues from the installation of the systems in the project.

The deliverable to the Client in Scope 3 will be standard BIM derived CAD files as well as the composite Navisworks BIM file for use and VDC (Virtual Design and Construction) support as needed throughout construction of the project.

**Compensation:**

Our fees are \$18,400 based on description and scope of work. For any extra work and changes approved by the client; these will be billed on an hourly basis as outlined in the Schedules of Fees.

Payment is due to consultant within 30 days of receipt of an invoice. The billing period and payment will be based on chart below.

Payment due at 100% Completion	\$ 18,400.00
<hr/> Total:	<hr/> \$ 18,400.00

**Total for all Scopes: \$78,000.00**

**SCHEDULE OF FEES**

Effective January 1, 2010

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**PROFESSIONAL SERVICES**

BIM Project Manager	\$ 125.00 per hour
BIM Specialist	\$ 105.00 per hour

**Optional Items (Information Only):**

**BIM Support throughout construction is available, on an as-needed basis as required by the Client. Barnhart can provide the following additional services if required on an hourly basis:**

- 4D Scheduling Simulation – Tied to Existing Project Primavera Schedule.
- Facility Information Model – FTP Database linked to photos, warranties, cutsheets, etc...at close of job

Client:  
**City of Moorpark**

Consultant:  
**Barnhart - Balfour Beatty**

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_