May 11, 2016

MEMORANDUM

TO: State Board of Regents
FROM: David L. Buhler
SUBJECT: Utah Valley University – Non-State Funded Athletic Dome Project Approval

Issue

Utah Valley University (UVU) is requesting Regents’ approval to proceed with a $1.5 million non-state funded project to enclose an athletic field located on the Vineyard Campus.

Background

UVU proposes to enclose one of the intercollegiate athletic fields at the Vineyard Campus with a 60,000 square foot fabric air structure dome. The structure will be designed and constructed by a specialized designer/manufacturer/installer and cost approximately $1.5 million, which will be financed with Western Athletic Conference (WAC) affiliation funds. The operation and maintenance (O&M) costs, estimated to be between $70,000 and $104,000, will be paid by athletic teams that use the facility. No state appropriated funds will be used in the design, construction, or operation of the proposed project.

Regent policy R710, Capital Facilities requires the Regents review and approve non-state funds construction or remodeling projects which cost more than $1,000,000. Building Board approval will also be required since state statute (63A-5-104) classifies this as a “capital development” project due to the fact it will enclose previously open space.

Additional information about the project is provided in the attached documents and UVU representatives will be present at the Board meeting to respond to Regent questions.

Commissioner’s Recommendation

The Commissioner recommends the Board approve the proposed project and authorize UVU to move forward with the Utah State Building Board for final approval.

_____________________________
David L. Buhler
Commissioner of Higher Education

DLB/KLH/RPA
Attachments
Purpose:

We seek Board approval to install an air supported structure to provide year-round training and game space for our students and student-athletes.

Background:

During 2013 four soccer fields were constructed at the UVU Vineyard property to support our growing need for sports fields. The turf fields on campus were being used by so many groups that the sod was beginning to die. Student-athletes do not have a space large enough on campus to stay conditioned during the winter months. Year round use of the fields has been requested by all user groups. The cover will allow us to maximize our $5,000,000 investment in the fields.

Remedy:

A study of suitable structures to over the field was undertaken by the UVU Facilities Department. Due limitations in funding and improvements in material technology and control systems, an air supported structure became the solution to providing the cover over the field.

Traditional construction first costs for a building of the size needed to cover 60,000 SF would be $15,000,000. Other types of buildings including tensile structures and metal framed structures had first costs in the $6M to $12M range. These construction costs far exceeded our budget.
Operating and maintenance costs were also explored to justify the air supported structure. Industry and local engineering reviews have informed us that the operating costs of the structure will be in the range of $70,000 to $104,000 per year. The structure is expected to have a usable life of 25 years. This equals a life cycle cost of $3.4M. The initial cost of the structure is $1.5M; making our total investment only $4.9M, well below the initial cost of the next available structure type.

**Recommendation:**

We recommend that the Board approve our request and permit us to install an air supported structure to cover one of the fields of our turf complex at Vineyard.
UVU Sports Field Cover

UVU Vineyard Turf Fields

Four Soccer Fields with Multiple Game Lines
In Use for Past Three Years, Cost $5M
Year-round Use Needed by All User Groups
One Field to be Covered
Air Supported Structure

Insulated to R-10
Operating Costs  $104,000 annually

Colvin Engineers Analysis
- Use LED Lighting
- Minimal Cooling
- $68,840 annual cost

Cost of Ownership  25 years  $5 Million

Improvements
-2026  $75,000
-2036  $115,000
Warranty and Life Span

- Five year fabrication warranty
- Fabric warranties of up to 20 years

Life Span from 18 to 25 years

- Shorter construction schedules than conventional buildings

Other Users

- College of Staten Island, NY
- Thiel College, PA
- Royal Military College, ONT
- Oakland University, MI
- Roosevelt Island Tennis, NY
- Chicago Fire Soccer Club, IL
- Bidder has over 900 in use
Other Types of Structures

Costs of other Buildings: Initial Costs & O+M

Fabric Tensile Structures: $6,000,000 + 3,400,000 = $9,400,000

Metal Buildings: $12,000,000 + 3,900,000 = $15,500,000* 

Brick and Mortar: $15,000,000 + 3,900,000 = $18,500,000* 

* Reroof Cost
The Farley Group - Energy Consumption Estimate 3-06

Tuesday April 12, 2016

Customer: Kurt Baxter
Utah Valley University
Orem, Utah, U.S.A.

Air Supported Structure

| Length: 375 ft | Floor Area: 60,000 SF | Outside Winter Temp: 11 F |
| Width: 160 ft | CFM Required: 16,406 CFM | Outside Summer Temp: 92 F |
| Height: 50 ft | Surface Area: 76,775 SF | Structure Includes Insulation: Yes |
| H/W Ratio: 0.3125 | End Type: Rectangular Ends |

Monthly Breakdown of Costs

| Inside Winter Temp (Occupied): 65 F | Inside Winter Temp (Unoccupied): 11 F |
| Inside Summer Temp (Occupied): 75 F | Inside Summer Temp (Unoccupied): 92 F |

Daily Operating Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Monday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Thursday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Friday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
<tr>
<td>Saturday</td>
<td>Open 07:00 AM to Close 10:00 PM</td>
</tr>
</tbody>
</table>

Design Winter Heat Loss: 1.73 MBtu
Design Summer Heat Gain: 1.22 MBtu
Sensible Tonnes A/C: 101 Tons

Heating Fuel Cost: $0.450 / m3
Electricity Cost: $0.140 / KWH

Cost Values

<table>
<thead>
<tr>
<th>J</th>
<th>F</th>
<th>M</th>
<th>A</th>
<th>M</th>
<th>J</th>
<th>J</th>
<th>A</th>
<th>S</th>
<th>O</th>
<th>N</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Fuel</td>
<td>$7,083</td>
<td>$5,624</td>
<td>$4,417</td>
<td>$3,069</td>
<td>$1,518</td>
<td>$226</td>
<td>-</td>
<td>-</td>
<td>$537</td>
<td>$2,841</td>
<td>$5,122</td>
</tr>
<tr>
<td>Mech. Electrical</td>
<td>$1,538</td>
<td>$1,389</td>
<td>$1,538</td>
<td>$1,489</td>
<td>$1,538</td>
<td>$1,469</td>
<td>$1,538</td>
<td>$1,538</td>
<td>$1,469</td>
<td>$1,538</td>
<td>$1,538</td>
</tr>
<tr>
<td>A/C Electrical</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lighting</td>
<td>$3,906</td>
<td>$3,528</td>
<td>$3,906</td>
<td>$3,780</td>
<td>$3,906</td>
<td>$3,780</td>
<td>$3,906</td>
<td>$3,780</td>
<td>$3,906</td>
<td>$3,780</td>
<td>$3,906</td>
</tr>
<tr>
<td>Misc Electrical</td>
<td>$150</td>
<td>$135</td>
<td>$150</td>
<td>$145</td>
<td>$150</td>
<td>$145</td>
<td>$150</td>
<td>$145</td>
<td>$150</td>
<td>$145</td>
<td>$150</td>
</tr>
<tr>
<td>Monthly Totals</td>
<td>$12,677</td>
<td>$10,879</td>
<td>$10,011</td>
<td>$8,483</td>
<td>$7,112</td>
<td>$5,640</td>
<td>$5,594</td>
<td>$5,594</td>
<td>$5,951</td>
<td>$8,435</td>
<td>$10,538</td>
</tr>
</tbody>
</table>

Heating Fuel (m3):
- 15,739.30
- 12,497.70
- 9,815.49
- 6,820.76
- 3,372.72
- 502.14
- -
- 1,192.58
- 6,313.04
- 11,381.20
- 15,479.03

Electricity (KWH):
- 39,958.8
- 36,001.3
- 39,958.6
- 38,869.5
- 39,958.6
- 38,869.5
- 39,958.6
- 38,869.5
- 39,958.6
- 38,869.5
- 39,958.6

Annual Totals

- Annual Heating Fuel Used: 83,115.68 m3
- Annual Heating Fuel Cost: $37,403
- Annual Mechanical Electricity Used: 129,367.3 KWH
- Annual Mechanical Electricity Cost: $18,111
- Annual Cooling Electricity Used: -
- Annual Cooling Electricity Cost: -
- Annual Lighting Electricity Used: 328,500.0 KWH
- Annual Lighting Electricity Cost: $45,990
- Annual Misc. Electricity Used: 12,612.2 KWH
- Annual Misc. Electricity Cost: $1,765
- Annual TOTAL Electricity Used: 470,479.5 KWH
- Annual TOTAL Electricity Cost: $65,866

Total Annual Cost Estimate: $103,269