Incentive-based Budget Model Subcommittee Report
Preface

To fully understand this report, you are encouraged to learn more about IBB by reviewing all of the informational and educational materials on the IBB website.

We are committed to meeting with anyone, anytime, anywhere to discuss IBB. If you would like to schedule a meeting, please contact Alberto Citarella, University Budget Director.

The following report is one of eight separate reports that will be used to develop a comprehensive Incentive-based Budget Model for the University of Vermont. Each of the eight subcommittees was asked to address a particular component of the overall IBB budget model.

The proposed algorithms contained within the reports are not intended to be a perfect accounting of revenue generation and resource usage across the University. They do, however, provide a solid foundation upon which the initial IBB model will be based, and they support the project’s Guiding Principles and the University’s Academic Excellence Goals.

Each report has only been vetted by the subcommittee that wrote it. It is possible that the proposed algorithms presented by the eight IBB subcommittees may, at times, contradict each other.

The IBB Steering Committee will use these reports as the basis for its further discussions and final recommendation on an integrated IBB budget model. It is possible that the Steering Committee may need to adjust the proposed algorithms to create a coherent, comprehensive and workable budget model.

It is strongly recommended that you read all eight subcommittee reports; they are all interrelated. If, after reading a report, you have feedback to share, please complete the survey that accompanies the report.

January 29, 2014
IBB Facilities and Space Costs Subcommittee Report to the IBB Steering Committee
January 24, 2014

Subcommittee Charge
By January 24, 2014, submit for the IBB Steering Committee’s consideration a report that includes a minimum of two algorithms to allocate all costs associated with the University’s physical space among the revenue-generating Responsibility Centers.

Subcommittee Membership
Don Ross, Research Professor, Department of Plant and Soil Science (Chair)
Alison Armstrong, Library Professor, Bailey Howe Library Information and Instruction Services
Elisabeth Baker, Senior Administrative Analyst, Financial Analysis and Budgeting
Johanna Brabham, Manager, Residential Life and Davis Center Custodial Services Department
Linda Burnham, Assistant Dean for Business Operations, College of Arts and Sciences
Brian Cote, Senior Associate Dean for Finance and Administration, College of Medicine
Gary Hawley, Research Associate, Rubenstein School of Environment and Natural Resources
Josie Mercure, Associate Director, Financial Analysis and Budgeting
Kim Parker, Associate Director, Residential Life
Sanjay Sharma, Dean, School of Business Administration
Robert Vaughan, Director, Capital Planning and Management

Description of the Process by Which the Algorithms Were Developed
The subcommittee met nine times from late October, 2013 through January, 2014. The process began with identifying and understanding the “costs associated with the University’s physical space.” The subcommittee used recent University financial reports and inventories to gain a clear picture of the nature of these costs and how they are currently allocated. In order to fully understand our work and the ramifications of the calculations, the subcommittee needed to work with actual numbers when possible but no Responsibility Centers were identified by name. The subcommittee’s work was greatly aided by additional University personnel, including Michael Meunier of Cost Accounting Services, Joanna Birbeck and Michael Richards of Campus Planning, and Nick Hartshorn of the Administrative Business Service Center. We also thank Anne Marie Resnik for administrative support.

All expenses considered are listed in the outline to the right. The subcommittee worked sequentially through this list and then finalized options for each expense to be brought forward to the Steering Committee. In Table 1 on the next page,

1. Utilities
   a. Electricity
   b. Water/Sewer
   c. Heating/cooling
      i. Natural gas
      ii. Fuel oil
2. Custodial Services
3. Operations and Maintenance
   a. Physical Plant (includes facilities operations, maintenance and improvements; trash/recycling removal; grounds; etc.)
   b. Campus Planning
   c. Facilities Design & Construction
   d. Capital Planning & Management
4. Existing capital debt
5. New construction expenses, new capital debt
6. Leases
we present two columns of options that can be mixed, i.e. Option 1 could be chosen for Custodial and Option 2 for Existing Debt. A number of other options were discussed and these are briefly detailed in the Related Issues section of this report.

Proposed Algorithms
We propose that all facilities and space costs be assessed to Responsibility Centers based on assignable square footage (ASF). Assignable square footage excludes such things as hallways, lavatories and utility rooms. Annually, UVM performs a Space and Equipment Inventory that identifies the users of all ASF. Thus, the data already exist as does the mechanism for updating—although the data are usually two years old. More frequent updating may be required in cases where large changes in ASF occur. Because not all space utilizes the same level of services, we propose an option below that uses a weighted ASF. It is well documented that laboratory space requires more energy inputs than typical college and university space, i.e., classrooms and offices, and space such as barns, sheds and garages require less energy inputs. Therefore, we propose an ‘inflator’ for certain categories of lab space and a ‘deflator’ for barns, sheds and garages. The federal Office of Management and Budget calculates an index for laboratory energy usage relative to average college and university space. This calculation is region-specific and uses actual benchmark data from Lawrence Berkeley Laboratory “Labs for the 21st Century” and US Department of Energy “Buildings Energy Databook”. It is updated every five years and the recently updated factor, which we propose to use as a starting point, is 2.0. The calculation for a deflation index is based on UVM data for total building expenses and is 0.2. Both these factors will require more refinement and documentation before IBB is implemented.

It is likely that some current large income/expense activities, including Residential Life, will continue with the same budgetary model when IBB is implemented. Because of this, our options (Table 1) are focused primarily on the academic Responsibility Centers. Cost Centers are briefly addressed in the section on Related Issues. Again, Table 1 presents two options but choices for each category can be made from either column and, overall, a large number of combinations are possible.

1 http://labs2.lblbenchmarking.lbl.gov/CompareData.php
2 http://buildingsdatabook.eren.doe.gov/CBECS.aspx
Table 1. Outline of options recommended by the subcommittee.

<table>
<thead>
<tr>
<th></th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Utilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Electricity</td>
<td>metered</td>
<td>metered</td>
</tr>
<tr>
<td>b. Water/Sewer</td>
<td>metered</td>
<td>metered</td>
</tr>
<tr>
<td>c. Heating/Cooling</td>
<td>ASF where on central; metered where not on central</td>
<td>weighted ASF\textsuperscript{a} where on central; metered where not on central</td>
</tr>
<tr>
<td>2. Custodial</td>
<td>avg ASF</td>
<td>ASF with deflator</td>
</tr>
<tr>
<td>3. O&amp;M</td>
<td>avg ASF</td>
<td>weighted ASF</td>
</tr>
<tr>
<td>4. Existing Debt</td>
<td>avg ASF</td>
<td>ASF with deflator</td>
</tr>
<tr>
<td>5. New Debt</td>
<td>avg ASF</td>
<td>by Responsibility Center</td>
</tr>
<tr>
<td>6. Leases</td>
<td>paid by unit</td>
<td>paid by unit</td>
</tr>
</tbody>
</table>

\textsuperscript{a}weighted ASF includes an inflator for laboratory space and a deflator for barns, sheds and garages.

1a.\textit{Utilities, electricity and water/ sewer}. All of the 299 buildings that UVM owns are metered for electricity and water usage (with sewer charges based on metered water). We propose that these metered charges be directly allocated to each Responsibility Center based on their proportion of ASF in each building. These same charges can be used by cost centers and centrally-controlled classrooms to calculate usage rates. Because these utilities are metered, the actual costs can be assessed with no need for weighting different types of space. Using actual costs incentivizes the Responsibility Centers to become more efficient and enables them to control some of these costs. For electricity and water use, we provide only one option. Another option discussed would be to average electricity charges across Responsibility Centers based on their proportion of either actual or weighted ASF. The rationale for this approach would be that some buildings are inherently less efficient in electrical usage and metering could unfairly penalize a Responsibility Center for the buildings they occupy. The majority of the committee felt that the ability to incentivize efficiency savings outweighed the issue of fairness.

1b.\textit{Utilities, heating/cooling}. Heating and cooling charges are somewhat less straightforward than electricity because many buildings and a large proportion of the total UVM square footage are not metered for these utilities. About 85% of the square footage (not number of buildings) utilizes the central heating plant. A number of smaller buildings, in addition to a few large buildings such as Waterman, have their own heating systems. Another confounding factor is that not all of the buildings served by central heating (steam) also receive central chilled water but both steam and chilled water are generated by the same boiler plant. Currently, average heating/cooling costs are calculated for each building served based simply on the building’s proportion of net square footage on central service. We propose two options for heating/cooling costs that will cover natural gas and fuel oil utility charges:
Option 1. Simple ASF. Average heating/cooling costs, with no adjustment for space type, will be charged to all ASF that is served by the central plant. The gas/fuel costs from the central heating/cooling plant will need to be calculated on assignable rather than gross square footage. For all other buildings not on the central plant, actual fuel charges will be assessed to Responsibility Centers based on the proportion of ASF that they occupy in each building. The advantage of this option is that it is relatively simple and, in buildings not served by the central plant, it may incentivize savings. A disadvantage for those buildings served by the central plant is that it may not reflect true heating/cooling costs and does not easily incentivize savings.

Option 2. Weighted ASF. The average gas/fuel costs calculated in option 1 for buildings served by the central plant will be adjusted for laboratory space which is more expensive to heat because of necessary higher air exchange. The factor of 2.0 developed by the OMB is for total energy usage and includes electricity. If we assume that electrical use of labs is twice that of other space, then the factor of 2.0 remains valid for heating/cooling. This assumption is currently being explored. We also need to finalize what exactly is included in “lab” space—some space, such as computer labs, may not have the higher air exchange. Thirteen types of laboratory space are clearly identified in the annual Space and Equipment Inventory and a weighted calculation, although more complicated than option 1, should be relatively easy to perform. A deflator for barns, sheds and garages is not needed in this category because there is no such space served by the central plant. The advantage of this option is that it will better reflect actual heating/cooling costs but, because we still cannot assess actual costs, it will only incentivize savings if a Responsibility Center decreases its ASF.

A few buildings on the central plant currently do have steam metering but the proportion of ASF covered is insufficient to justify using this metering as the basis of charges. It would be ideal, to meter steam and cooling to all buildings but there would be initial costs and ongoing maintenance expenses. This would allow better allocation of actual costs and incentivize efficiency. It could be a stated goal that UVM will move towards metering the larger buildings on campus so that a more equitable, incentive-based system can be developed. To be consistent with our environmental ethic and our climate action plan, we should incentivize a reduction in energy usage.

2. Custodial Services. Recent internal and external reviews of custodial services have provided the ability to calculate an average cost per ASF. This is for the current (basic) level of service, which will need to be clearly defined, and will be charged to all Responsibility Centers on this basis. A Center may choose to increase their level of service and pay more. A Center may not choose to decrease their service level to reduce their charges. One option is to use unweighted ASF and the other is to use weighted. The latest review of custodial costs did not identify a clear differential rate for cleaning laboratories vs. other academic space and, therefore, the weighted option only uses a deflator. To better calculate rates, the total ASF that is covered by Custodial Services needs to be clearly described. Currently, some Responsibility Centers with off-campus ASF pay a fee for custodial work at these buildings and this ASF should not be double charged.

3. Operations and Maintenance. Operations and maintenance (O&M) covers a broad range of activities including planning, design, facilities operations (e.g. the central heating/cooling plant), facilities maintenance, renovations, new construction and a number of other services. The change in our budget model is not intended to have any direct, immediate impact on how these services are planned and delivered. The subcommittee unanimously supports having Physical Plant and the planning offices retain the primary authority for O&M on all buildings. A Responsibility Center
will not be able to decrease the O&M required to keep our facilities viable. Because of this, the subcommittee is not proposing an option that would assign O&M costs directly to the buildings and ASF that incur the costs. Rather, we propose two options similar to custodial services. Option 1 simply uses an unweighted ASF to apportion the total O&M assessed to Responsibility Centers. Option 2 employs a weighted ASF, again using an inflator for laboratory space because it requires more O&M and a deflator for space that clearly utilizes less O&M (barns, sheds and garages). O&M for Cost Centers and Common Space will be assessed in a similar manner and added to their operational costs. The intention of these options is that each Responsibility Center will pay their fair share of overhead costs.

The above options do not directly incentivize Responsibility Centers to better maintain their facilities but they also do not penalize Centers for the current condition of the buildings they occupy. A Responsibility Center will have the ability to invest in facilities improvements and in both minor and major renovations. These may improve efficiency and decrease future O&M costs. The University currently has a large backlog of deferred maintenance and more discussion is needed to define what constitutes the building maintenance and what constitutes improvements.

4. Existing capital debt. The Board of Trustees has established a debt ratio limit and must approve any new debt. While some of the existing capital debt could be assigned directly to a Responsibility Center, the debt portfolio is a mixture of large and small projects, many of which are not easily assignable. The debt was not created under a budget model in which Responsibility Centers were expected to cover it. For these reasons, the subcommittee recommends that existing debt is distributed to the Responsibility Centers based on either simple or weighted ASF. For the weighted ASF, there is no apparent reason to use the laboratory inflator and, therefore, we propose using only the deflator. The advantages are that these are fairly simple algorithms that do not penalize Centers that have recently had the good fortune of having a building project.

5. New capital debt. The issue of new capital debt for new building projects was probably the most challenging item for the subcommittee. The overall debt capacity of the University is an important consideration. Asking Responsibility Centers to take on any new debt would seem unfair to those Centers with large amounts of deferred maintenance and clear needs for improved facilities. However, if a Responsibility Center would like to expand its facilities to better attract students and increase revenue, it would seem unfair that other Centers would share this debt service. The first is an issue of fairness and the second an issue of incentivizing growth. The subcommittee proposes two options that are somewhat opposite and reflect this challenge. Option 1 would be to treat new debt exactly the same as existing debt and simply assess it by weighted ASF. Option 2 would have a Responsibility Center assume the debt for any project, beyond normal maintenance, that improves or adds new facilities for that Center. It might be advisable to implement a combination of these two options that would differentiate “needed” capital improvements from expansion. This differentiation would likely not be clear cut and more discussion on this topic is needed.

6. Leases. At the present time, there is relatively little leased spaced being directly used by Responsibility Centers. The simplest approach, and the one that would provide the most incentive, is that each Center cover the full cost of their leased space.

How the algorithms support the IBB guiding principles
The subcommittee developed its options with the IBB guiding principles at the forefront. We strove to balance the ability to create incentives with simplicity and ease of implementation. Our basic principle is that each Responsibility Center should pay their fair share of facilities costs and, at the same time be able to expand (or contract) to better promote their academic excellence.

Related Issues for Subcommittee Consideration

Other options considered. The subcommittee discussed a number of other approaches and options. For the algorithms, the simplest overall approach would be to average all facilities and space costs and assess each Responsibility Center one annual fee based either on simple ASF or weighted ASF. This option may be viable but was rejected by the subcommittee because it is not incentive based. We briefly discussed an alternative to ASF for some types of services such as planning. Some metric of faculty/staff full-time-equivalency (FTE) could be used. This idea was rejected because it would unnecessarily complicate the algorithms. Another option for fuel costs was also discussed in which the average heating/cooling cost would be calculated for all ASF (both on and off the central plant) and this average assessed either on a simple or weighted ASF. This might be a simpler option than what we propose but minimizes the opportunities for incentivizing savings. Finally, the subcommittee also considered simply removing the ASF of barns, sheds and garages rather than calculating and using a deflator. This option is simpler but does not reflect the fact that all University facilities incur some shared costs.

Other considerations. Cost Centers and shared space (e.g. classrooms) should have facilities costs assigned to them using the same algorithms presented above. These costs will then become part of their operating expenses. There are some services related to facilities that were not addressed in this report. These include such things as hazardous waste pickup/disposal, radiation safety inspection/certification and telecommunications. These types of services will be managed under Cost Centers and assessed to Responsibility Centers under a different mechanism. Income/Expense operations account for over one third of University ASF. In cases where these I/E operations charge sponsored grants & contracts, they will be required to follow federal costing standards, rather than the recommendations suggested in this report.

Classrooms and relinquished space. Operating expenses for centrally-controlled classrooms and space relinquished by a Responsibility Center will need to be assessed back to the Responsibility Centers with the charges determined by whichever option is chosen for the different categories.

Moving forward. There are a number of current situations on campus that will need to be addressed as IBB is implemented. For example, the College of Medicine now directly supports some O&M costs. Some administrative units use space that is currently overseen by a Responsibility Center. As we move forward, each unique situation will need to be resolved with the issue of fairness, accuracy and incentives as the primary consideration. If the weighted ASF option is chosen for any category, we will need to convincingly document the weighting factors and critically review the space inventory categorization. This will, again, ensure IBB guiding principles.