

Minutes\*

**Senate Committee on Finance and Planning**  
**Tuesday, February 17, 2009**  
**2:00 – 3:45**  
**238A Morrill Hall**

Present: Judith Martin (chair), Jon Binks, Joao Boavida, David Chapman, V. V. Chari, Steen Erikson, Steve Fitzgerald, Zachary Gunderson, Kara Kersteter, Lyndel King, Thomas Klein, Joseph Konstan, Mikael Moseley, Kathleen O'Brien, Paul Olin, Michael Rollefson, Warren Warwick, Aks Zaheer

Absent: Lincoln Kallsen, Russell Luepker, Richard Pfutzenreuter, Terry Roe, Gwen Rudney, Karen Seashore, Thomas Stinson, Michael Volna

Guests: Associate Vice President Michael Berthelsen (Facilities Management), Associate Vice President Bernadette Fiske (University Services)

[In these minutes: (1) utilities master plan (Twin Cities); (2) Facilities Management cost pools; (3) Facilities Condition Assessment and HEAPR funds; (4) the Graduate School]

**1. Utilities Master Plan (Twin Cities Campus)**

Professor Martin convened the meeting at 2:00 and welcomed Associate Vice President Berthelsen to discuss three matters with the Committee: the Utilities Master Plan, Facilities Condition Assessment and Deferred Renewal, and Facilities Management and the budget model. The first item was the utilities master plan. Mr. Berthelsen distributed handouts.

The University has been updating the campus master plan and reviewing the location of buildings; it is important that the University can also heat, power, and cool them. They started on a parallel track with a utilities master plan in order to establish principles; the plan is intended to be a living document. The utility master plan encompasses steam, electricity, chilled water, storm sewers, sanitary sewers, and domestic water. The presentation will focus on steam, electricity and chilled water.

The core principles of energy management are sustainability, reliability, and cost control. All of these play into every decision about energy management. For the topic of the Utility Master Plan, Mr. Berthelsen said reliability is the highest priority while still supporting sustainability and cost control while other initiatives like building recommissioning focus primarily on sustainability and cost control. He reviewed, for example, how utility infrastructure design is traditionally approached and opportunities in the electrical system for sustainable solutions. In developing the master plan, they evaluated the three existing systems (steam, electricity, chilled water) in light of the three core principles, identified deficiencies and options to deal with them, including an economic evaluation of those options.

Mr. Berthelsen noted that the Twin Cities Campus Master Plan projections identify the possibility for adding about 5.7 million square feet of space to the Twin Cities campus over the next several decades, so they expect increases in load on all three utility systems. He reviewed the energy statistics for the campus and noted that the peak demand for electricity comes in the summer (and it has not been exceeded

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for several years—a sign of efforts to reduce and manage consumption). Purchased electricity cost about \$28.5 million. Vice President O'Brien noted that the University is one of the largest customers of electricity in the 12-state Midwest. The cost of purchased fuel for the boilers was about \$16.3 million.

Mr. Berthelsen next reviewed a number of possible major utility initiatives in the long-term strategic vision and the benefits and barriers to each. The projects include a combined heat and power plant, chilled water thermal storage, wind- or hydro-powered generator, district cooling for all buildings, and increased voltage distribution. One goal is to heat and cool as few degrees as possible and reuse BTUs to the extent possible. He noted that studies suggest there is not enough wind on the Twin Cities campus to make wind-powered energy generation feasible. Vice President O'Brien added that current state regulations do not permit the University to build a wind farm at the Morris campus and transport the electricity to the Twin Cities.

Mr. Berthelsen turned to the 20-year planning framework and the projects it contains. They include the addition of alternative energy solutions, expansion of the steam-distribution system (with new buildings on the east side of the Minneapolis campus), a new energy facility for the Minneapolis campus when the SE plant is retired—debt not paid off until 2023), Knoll area chilled water cluster (as buildings are remodeled), a stand-by power cluster (to back up research), and renovation of the St. Paul boiler. There are also a number of infrastructure upgrades already in progress, including improvements in the electrical distribution system and new and repaired deep steam tunnels. (The new deep steam tunnel to the stadium/biomedical sciences complex will be the first new such tunnel in many years.) The six-year infrastructure-upgrade plan includes a number of items related to steam, boiler, chiller, and electrical systems. Mr. Berthelsen reviewed the demand for steam and the capacity of the boilers to accommodate it. Because the peak demand will exceed system capacity if two of the four boilers go down, and because of load growth, they are recommending the construction of a new natural-gas-fired boiler within the next five years (permitting and construction) at a cost of about \$30 million.

Additional near-term projects include new steam pipes to accommodate growth on the Minneapolis campus as well as repairs to existing steam tunnels, new electrical switching stations (because the system is being stretched to its limits and is at the point of not being research-reliable), new chilled-water clusters on both Minneapolis and St. Paul (to reduce reliance on stand-alone units, which also reduces energy costs and the carbon footprint, and to accommodate growth in the eastern part of the Minneapolis campus). The projected six-year cost of the steam and chiller upgrades is about \$93 million, in addition to the \$30 million for the new natural-gas boiler for Minneapolis.

One point that has come up at the Committee is that people would do a lot more if there were incentives, Professor Martin said—they would turn off lights and heat, but there is no incentive to do so because the savings do not accrue to the department. Mr. Berthelsen said that they are seeing a significant drive among faculty and students to conserve energy because it is the right thing to do. The budget model does allow the money to be retained by the units, he said, so there are incentives. There may be other costs that the units face, or changes in the allocation from the University which erode the savings, but the amount billed to the unit changes with their utility consumption. He emphasized that they do not bill the colleges, and even if the expenses are in a central cost pool, to the extent costs are reduced, the cost-pool charges decline and the colleges retain more money.

Mr. Berthelsen said they are approaching energy conservation four ways. One, through buildings standards (i.e., make them energy-efficient). Two, through "tuning up" buildings. Three, evaluating how buildings are being used (operated and run as they should be?). Four, behavioral issues (personal responsibility plus Facilities Management making it easier for people to remember and take action). In the case of the last, for example, providing devices that put computers in sleep mode, which

could save \$25-\$75 per year; that may not sound like a lot, but the University has 40,000 devices on the network. Would people find that acceptable? Another possibility is changing building hours: some say that can't be done and they need access 24/7, but that means there must be air exchanges 24 hours per day, which is expensive. To the last point, Professor Martin said that 24/7 operation may have made sense in the past, but not when many people have computers and can work at home. Mr. Klein suggested that perhaps there are sub-areas of buildings that can be closed. There are labs in use on site all the time, Professor Konstan pointed out, and for those, limiting hours will be a challenge.

Professor Konstan asked if the University has explored possible use of the Ford Plant dam as a source of power. They did evaluate it and did not pursue it, Mr. Berthelsen said; Professor Martin reported that neither the neighborhood nor the City of St. Paul is likely interested in possible University use and Vice President O'Brien pointed out that the plant and dam were built in the 1920s and the site has considerable pollution that would have to be dealt with.

Professor Konstan asked if it is a budget-model principle that expansion of utility costs is attributed. There is no hard rule, Mr. Berthelsen said. Utilities expansion (not charges) operates like an enterprise system and is not tied to a specific building or project. They do charge if specific costs can be attributed to a particular building. As they decide how to attribute costs, Ms. O'Brien said, they try to decide who benefits and who pays. For example, adding redundancy to the system benefits everyone. She also told the Committee, in response to Professor Konstan, that University Services provides services to the academic enterprise and tries to understand it in order to determine what is needed. The Twin Cities campus has 22 million gross square feet of space, most of which was built because people said "yes," not because they were informed about the costs. If the University wants to free up dollars, it must collectively figure out how to use space more efficiently.

Ms. King said she knew that Facilities Management understands that some buildings need different levels of power (e.g., the Weisman). She added that there is a lot of conflicting information about turning off computers and related issues. Mr. Berthelsen agreed that education is needed. Michigan, for example, has "Planet Blue," which is their 'branded' plan for reducing energy consumption; they provide tools and information. FM is exchanging information with their counterparts at Michigan, which has seen a 20% reduction in energy use in some buildings. They "blitz" a building and do everything necessary to make it as energy efficient as possible. If a building costs \$1 million per year in utilities, 20% is real money. Vice President O'Brien reported that the Office of Information Technology is working on computer issues.

## **2. Facilities Management Cost Pools**

Vice President O'Brien began by reviewing the budget model, predicated on earned income and full costs, and recalled for the Committee that there are three different types of cost allocation: those based on consumption, those based on cost-driver-based allocation (relative share, such as assignable space), and common-good based allocation. Of the nine central services that have rates set (utilities, Facilities Management operations and maintenance, debt and leases, libraries, etc.), utilities and facilities operations are charged on the basis of actual consumption and assignable square feet, respectively. There is also a small part of Facilities Management costs in the central-administrative units cost pool. So parts of University Services are wholly self-supported, parts are substantially self-supported, and some (e.g., public safety, emergency preparedness) are in the administrative cost pool.

There are incentives in the cost allocations. Follow the money, Mr. Berthelsen said; with 22 million gross square feet on the Twin Cities campus, and utilities costs of \$80 million annually, space is the biggest cost driver. Without space, Facilities Management would not be needed. There is

consumption-based allocation of utilities; they are metered by building, averaged by square footage assigned to units within it. There is large variation in cost by building; the incentives are hours of operation, building standards, and energy-efficiency projects. Debt is the actual cost of the building, also averaged by square footage attributed to units. The incentive is maximizing the effective use of space to minimize debt. There are also cost-driver allocations, such as facility operations, which are averaged over the campus and do not vary much by building.

Mr. Berthelsen noted next there are services provided as part of the cost-pool charges, based on campus-wide service-level agreements. There are also premium services, above the minimum, which units can purchase. They bill internally about \$48 million annually on a time and material basis for all services to auxiliaries (e.g., Parking, Housing, Student Unions, Athletics, etc.) and for premium services to academic units that are not funded in the cost pool.

For fiscal year 2008-09, Facilities Management receives about \$81.5 million from the O&M cost pool (from the colleges), about \$55.5 million from the utilities cost pool, about \$48.1 million in non-support revenue, about \$11 million from balances, over-recovery, and the administrative services cost pool. Nearly half their revenues goes to pay for utilities with maintenance and custodial costs taking much of the remained, with small amounts going to repairs and renovation, land care, support services, and administration. Professor Martin asked how Facilities Management is approaching a proposed 5-8% budget cut. Mr. Berthelsen pointed out that because fuel costs and most consumption is outside of FM's control, the University does not apply the cut to utilities, but FM is still targeting efforts to reduce consumption by 5% for the University. The 5% and 8% cut scenarios must be achieved in the administrative and operations parts of the budget. They are developing plans and adjustments in maintenance and reduced custodial services, parts and inventory and administration. He noted that bills to the colleges for steam and electricity for 2007, 2008, and 2009 had remained stable or actually declined slightly. But for 2009-10, Facilities Management needs to solve a long-standing structural deficit of \$5.2 million and must produce an additional \$4.8 million if it faces a 5% reduction and \$7.5 million if it faces an 8% reduction, for a total "budget challenge" of \$10 million to \$13 million.

Mr. Berthelsen said that Facilities Management for two decades has budgeted to spend more than its budgeted revenues; it has had a structural deficit that now becomes a problem with the budget model. Vice President O'Brien explained that Facilities Management was set up with a budget deficit in 1990; because it was not at that time efficient at filling vacancies and any surplus allocations after paying for utilities reverted to FM, there were balances to cover these deficits. Now they are more efficient at filling positions and utilities costs and savings exist with the units, so the flexibility in the budget no longer exists and the structural deficit is real. There is much that can be done to save money to eliminate the deficit and deal with the cut, she said, such as restructured custodial and maintenance services. Mr. Berthelsen said they are piloting a once-per-week custodial service; Minnesota is likely the only remaining school in the Big Ten that provides daily custodial service to office and lab areas. They also have to reduce response times to repair less-critical equipment. They are using the Retirement Incentives Option to build staffing around what they can afford and where the need is most critical. Professor Martin commented that on the West Bank, with few labs, they do not need service every day, but there is a concern that someone be around to help when needed (e.g., when people lock themselves out of their offices).

Mr. Berthelsen reviewed the challenges and initiatives that Facilities Management is dealing with. The challenges include dealing with the deficit and the budget cut, reducing the University's carbon footprint, and responding to campus growth (especially in the East Gateway district around the new stadium). The initiatives include changes to services and reduction in energy consumption, sustainability, and balancing resources. Vice President O'Brien commended Mr. Berthelsen and his team for doing a

great job of understanding the services needed by the academic enterprise and dealing with the financial issues—and still providing a sound campus. Core to dealing with the problems will be less space, using less energy, and better use of existing space. It may be necessary to mothball some space, and some buildings are obsolete (not the iconic buildings on the campuses). They also need to reconsider hours of building operation. It helps to receive advice from this Committee, she said.

Is there a user-advisory group at this level or is this Committee expected to serve that function, Professor Konstan asked. Mr. Berthelsen said they are trying to use a property-services model so that it is clear who speaks for the tenants and clear that he is the point person for facilities. As was done for finances, they have identified one person in each college who speaks for facilities. They have had a customer advisory group, they have service-level agreements that vary with units, and with one person identified per building for facilities purposes, they have been able to provide better service. Professor Konstan said that a small group to offer insights is different from an official channel to get satisfaction of problems.

Professor Konstan also observed that the message about space costs is clear, but what is not measured is the amount of time people waste searching for space (e.g., for classrooms or conference rooms); the latter could be \$3-4 million per year because of an inefficient use of time. Vice President O'Brien agreed that there are times when people cannot find the space they need, but at the same time one can go around the campus and see vacant space.

### **3. Facilities Condition Assessment and HEAPR Funds**

Vice President O'Brien turned the discussion next to the Facilities Condition Assessment and the HEAPR (state-provided Higher Education Asset Preservation and Renewal) funds. She noted that Mr. Berthelsen has been at the University since 1993 and spent 12 years in the budget office dealing with HEAPR funds; now, as Associate Vice President, he is responsible for the unit that is the consumer of HEAPR funding. Bernadette Fiske is Associate Vice President for Finance for University Services and is now responsible for the HEAPR allocation formula.

Mr. Berthelsen reviewed briefly information about the physical space of the University: it is 157 years old, with some of the oldest buildings in the state; it has over 800 buildings around the state that include 28 million square feet; there are over 250 buildings on the Twin Cities campus, of which 25% are over 70 years old; and the University has some of the most complex buildings in the state, including sophisticated research facilities with complex air and water systems as well as barns, auditoria, arenas, clinics, classrooms, and libraries. The complexity of the buildings has even increased measurably in the last five years.

The strategies to address facilities conditions include building new ones, renovating existing spaces, demolishing targeted buildings, better use existing space, and targeting improvements in individual building systems

The Facilities Condition Assessment in 2008 suggested that the projected 10-year need to maintain buildings on the Twin Cities campus is about \$2.2 billion (and \$168 million at UMD, \$79 million at UMM, \$29 million at UMC). Mr. Berthelsen said he could guarantee that the number is too low but is an order-of-magnitude assessment that is used across the country. Professor Konstan asked what the number would be if the University spent \$2.2 billion over the next 10 years. It is not a straight line, Mr. Berthelsen said; the projected cost grows by about \$200 million per year; there is 150 years of catch-up to do. Professor Konstan pointed out that the costs divide out to about \$10 per square foot per

year, which the University cannot afford, so maybe it should assess each unit \$10 per square foot per year to keep up. That would double what they now charge, Mr. Berthelsen responded.

The Facilities Condition Assessment data, when segregated by building purpose, reveals that conditions vary considerably depending on use. High-tech research buildings and venue/specialty space are in relatively good shape while clinics and office/administrative space are not. Residential housing space also rates relatively low. Overall, however, the FCNI ratio (the technical measure of the quality of space) has remained stable in recent years, which Facilities Management has maintained, despite a recurring funding gap, only as a result of adding new buildings (improving the average condition for the campus), extending the useful life of buildings through good maintenance, and tearing down targeted buildings.

HEAPR funds come from the state, \$35 million this year. They are used for health and safety, building systems, and utility infrastructure. Spending on the Twin Cities campus focuses on supporting energy and utility principles, advancing sustainability goals, improving reliability and efficiency, and reducing building and utility costs. Beginning in 2002 the University made HEAPR funding a higher priority in its biennial requests (the request in 2000 was for about \$15 million; in 2002 it jumped to \$80 million; in 2008 it was \$100 million). The amounts appropriated have increased, but not as much as the requests; as noted, the University had \$35 million in 2008-09. The University is now spending HEAPR funds extremely quickly; most all of the funds appropriated are now under contract or already spent.

Mr. Boavida suggested that much of this information be placed online so students could see it. They are not here long so the information is lost across student generations.

Mr. Erikson asked if they are considering a "blitz" strategy like the one used at Michigan for energy. They intend to, Mr. Berthelsen said; the question is how fast they can get to it. Michigan did four buildings the first year and is now doing more.

Professor Martin asked if there is any reason to believe the University will not receive the HEAPR funds. Mr. Berthelsen said that is hard to tell. The economy is hurting and people are out of jobs, so this is the time to build. The University has a list of projects for the state and federal governments and is ready for all categories of building that might be supported.

Professor Martin thanked Mr. Berthelsen for his extensive presentation to the Committee.

#### **4. Graduate School**

Professor Warwick asked if the question about the future of the Graduate School will come to this Committee. It will not, Professor Martin said; the Faculty Consultative Committee is actively addressing the issues raised. Professor Warwick expressed disappointment over the decision and said the Graduate School is one of the strongest elements of the University; eliminating it would weaken the stature of the University. Professor Martin said many people feel that way but it is not an appropriate issue for this Committee.

Professor Konstan noted that the Provost has said any savings will go back into graduate education. But it is not clear there will be any savings and said he did not like the model that the University uses: dedicating funds from a unit that has been shut down to the activities that were shut down. It seems disingenuous to say that any saved money will not be used to deal with the \$75 million reduction in state funding. Professor Martin said the Committee could inquire of the Provost about any potential savings from the decision and how that money would be used.

Mr. Klein noted that the Provost's letter indicates some services will go to the colleges; some money should follow in order to handle the increased workload. The Committee should ask for accountability for the funds and not just accept the emphasis on savings. Professor Martin agreed there should be no unfunded mandates.

Professor Martin adjourned the meeting at 3:55.

-- Gary Engstrand

University of Minnesota