

**A RESOLUTION TO REQUEST REQUESTING ADDITIONAL INFORMATION  
ON THE BUDGETARY AND FINANCIAL IMPLICATIONS OF  
THE PROPOSED SCIENCE AND ENGINEERING COMPLEX (10/3)**

**WHEREAS**, the Administration has announced plans to build a Science and Engineering Complex (“SEC”) building, which is expected to include offices, classrooms and laboratory space for the School of Engineering and Applied Sciences and the science departments of the Columbian College of Arts and Sciences, with a gross capacity of 480,000 square feet and a projected initial construction cost of \$275 million; and

**WHEREAS**, the description initially provided by the Administration with respect to the projected initial construction cost of the SEC building does not include: (1) the complete costs of construction, including costs associated with replacing the parking that is currently located on the site of the proposed SEC; (2) the future costs of “building out” unfinished floors, and (3) annual costs of operating and staffing the SEC; and

**WHEREAS**, the sources of funding for the SEC building have recently been described to the Faculty Senate in a letter from Provost Lerman and Executive Vice President and Treasurer Katz to the Faculty Senate as:

- (1) The annual endowment payout from the Square 54 ground lease of \$9 million per year to support debt service payments of approximately \$150 million;
- (2) Additional support from a combination of:
  - (a) Fundraising for philanthropic contributions of up to \$100 million; and
  - (b) Additional research activity that will produce new Federal funded project indirect cost recoveries of \$9 million per year that will support debt-service payments for debt of nearly \$150 million; and

**WHEREAS**, the projected \$100 million of philanthropic contributions represents a larger sum than the University has ever raised in contributions dedicated to a specific building in the past; and

**WHEREAS**, the sources of additional debt-service related indirect cost recoveries of \$9 million per year would require an increase in Federally funded research of over \$30 million per year and would require 60 or more new senior faculty researchers, more than the University has ever recruited for a single academic area; and

**WHEREAS**, the Administration and the University's faculty have articulated specific ambitious goals, as described in the University Strategic Plan and the report to the Middle States Accrediting Commission, to increase the scope and quality of education and faculty in many Schools and departments of the University in addition to engineering and science, and the initiatives to achieve those goals will require new support of millions of dollars a year; and

**WHEREAS**, Article IX.A of the *Faculty Code* provides that:

“The regular, active-status faculty shares with the officers of administration the responsibility for effective operation of the departments and schools and the University as a whole.

“In the exercise of this responsibility, the regular, active-status faculty . . . participates in the formulation of policy and planning decisions affecting the quality of education and life at the University. . . .”; and

**WHEREAS**, Article IX.B of the *Faculty Code* further provides that:

“The faculty cannot perform an effective and responsible role in University decision making without the cooperation of the administrative officers of the University. This cooperation includes the provision of such information as is necessary to the development of sound, well-informed recommendations.

“Faculty bodies charged with responsibilities for particular policy and planning areas are entitled, to the extent feasible, to be informed sufficiently in advance of important decisions within their areas of competence to be able to provide their advice or recommendations to the appropriate University officials.”; and

**WHEREAS**, Article III, Section 1 of the *Faculty Organization Plan* provides that:

“The Faculty Senate, on behalf of the Faculty, shall, with respect to matters that are of concern to more than one college, school, or division, or to the Faculty:

- (1) Formulate principles and objectives and find facts, so as to recommend policies to the President; . . .
- (2) [O]n its own initiative – consider any matters of concern or interest to more than one college, school, or division, or to the Faculty, and make its recommendations or otherwise express its opinion with respect thereto, to the Assembly, the President, or through the President to the Board of Trustees. . . .”; and

**WHEREAS**, the Administration has informed the Faculty Senate that it intends to request final approval for the construction of the SEC building from the Board of Trustees in October 2010;

**NOW, THEREFORE**

**BE IT RESOLVED BY THE FACULTY SENATE OF THE GEORGE WASHINGTON UNIVERSITY**

That, if there is a University commitment to construct the SEC building, the Administration provide for continued, frequent, regularly scheduled reports to the Faculty Senate and meetings with a Special Committee of the Senate on the financial and budgetary impact of the SEC building including:

- (1) The direct costs of construction, as well as related costs associated with furnishing, operating and staffing the SEC building, together with the replacement costs of parking facilities;
- (2) The status of fundraising for philanthropic contributions to meet the goal of \$100 million; and
- (3) The status of additional Federally funded research activity that will produce new debt-service related cost recoveries of \$9 million per year; and
- (4) Any other options or plans under consideration to finance the direct and related costs of the SEC building.
- (5) A risk and contingency analysis for funding the construction and operating costs of the SEC building, including an explanation in detail of how potential future shortfalls in sponsored research revenue or philanthropic contributions or potential increases in costs will be funded.

Faculty Senate Committee on Fiscal Planning and Budgeting  
September 28, 2010

Adopted as amended, October 8, 2010

**October 7, 2010**

To: Michael Castleberry  
Chair, Executive Committee  
The George Washington University Faculty Senate

Fr: Joseph J. Cordes  
Chair, Faculty Senate Committee on Fiscal Planning and Budgeting

Re: Possible Budgetary and Financing Effects of the Proposed Science and Engineering Complex

I have attached a copy of the report on possible budgetary and financing effects of the proposed Science and Engineering Complex. The report was prepared by the Fiscal Planning and Budgeting Committee at the request of the Faculty Senate Executive Committee. Drafts of the report were circulated to members of the committee, which include representatives of the University administration, with opportunity for comment and feedback which have been incorporated into the final version.

A summary of the report will be presented at the October 8, 2010 meeting of the faculty senate.

**Some Budgetary and Financing Implications  
of the Proposed Science and Engineering Complex  
Fiscal Planning and Budgeting Committee  
The George Washington University Faculty Senate  
October 8, 2010**

**1. Introduction**

There has been a general recognition for some time that GWU needs to make significant and costly investments in its science and engineering research and teaching infrastructure. Indeed, in 2004, the Faculty Senate passed a resolution with the following resolving clauses:

- (1) That the Faculty Senate endorses the investment in new science facilities that accommodate the physical, life, and mathematical sciences, science programming, and science-related engineering programs as the **top** priority among future academic projects; and*
- (2) That the new science facilities will be defined with respect to size, site, use (school-wide, university-wide) and program goals through a careful collaborative planning process that includes science and non-science faculty, academic deans, campus planners and architects, advancement staff, and budget officers.*

At the time the original Senate resolution was passed, the much-needed investments in up-to-date science facilities could have taken two broad forms:

- significant investments to enable the University to provide a strong undergraduate education in science and engineering, along with targeted investments in certain areas of science and engineering in which GWU has (or could have) a comparative advantage.
- the current more ambitious proposal to make a very sizable investment to create what the GWU website describes as world class facilities for science and engineering;

The current proposal, on which the George Washington University Board of Trustees is expected to act, will involve the single largest investment of resources by GWU in its history:

- Based on a letter sent on August 26, 2010 from Provost Lerman and Executive VP Katz, the projected costs of building the shell of the proposed Science and Engineering Complex (SEC), and of building out eight floors (six above ground and two below ground) is estimated by Clark/Ballinger to be \$275 million.
- When additional costs are taken into account the proposal under consideration could easily involve a decision to invest a significant additional amount. The additional amount is unknown at this time. However, a survey that was sent out by the University in spring 2010 identified \$500 million as a possible amount to be invested

in significantly “ramping up” the University’s capabilities and profile in science and engineering.

Thus, given the magnitude of the proposed investment, it is reasonable and prudent to consider the implications for the University finances and in particular the University operating budget.

## **2. The GWU Budgetary Context and a Framework for Analysis**

Two basic budgetary “facts” need to be taken into account in assessing the budgetary and financial impact of the proposed SEC

1. The University is a tuition-dependent institution with an endowment that, while significant in absolute dollars, is modest in relation to the size of the University.
2. To “a first approximation” there is no room in the existing University operating budget to accommodate a project of the magnitude of the proposed SEC without imposing significant strains on tuition and/or expense budgets.

Thus, one way of understanding how construction of the SEC may affect the University going forward is to pose the following question:

Can the SEC investment be financed in a manner that is budget neutral or better? That is, what circumstances are required in order for construction and maintenance of the currently-proposed SEC not to tax resources that are already fully committed?

The key variables in answering this question are: (1) the total cost of creating, operating, and maintaining the SEC as proposed, (2) sources of additional financing to support such costs.

### Structure of analysis: Budget Scenarios

In a project of the complexity and magnitude of the SEC, providing a precise answer to the above question is challenging. The most feasible approach given the information at hand is to construct different “budget scenarios” which reflect different assumed future outcomes, and to then use such scenarios to gauge possible orders of magnitude of impact on the University budget.

There are two important caveats to the analysis that is presented. First, the Fiscal Planning and Budgeting Committee were asked specifically to comment on the effect of the SEC on the University’s budget and finances. There is no doubt that improved science and engineering facilities would positively affect the general environment for education and research in engineering and the sciences at the University. These are the presumed benefits of making the investment in the SEC. The analysis below focuses almost entirely on some possible financing implications of making such an investment.

Second, the estimates/projections presented below are most usefully thought of as representing some “what if scenarios.” They are not intended to be, nor should they be interpreted as actual

budget projections or as alternatives to a formal business plan, which would require much more detailed data than are presently available. (For a description of what a full business plan might include, see Attachment 4 submitted by Prof. Ted Barnhill).

### Structure of the Analysis

The analysis presented below proceeds in the following steps.

- 1) Start with the basic costs of building and maintaining the SEC based on the Clark/Ballinger cost estimates: \$275 million;
- 2) Translate these amounts into annual amounts that need to be financed;
- 3) Identify sources of new finance to offset the \$275 million financing cost and discuss the budgetary implications of different assumptions that might be made about the feasibility of securing such new sources of financing;
- 4) Discuss the budgetary implications of costs not included in the “basic estimate” including those specifically identified in the Lerman Katz letter, but also not included in the basic cost estimate.

### **3. Basic Cost of Building and Financing the SEC**

The starting point for analyzing the budgetary implications of investing \$275 million in building the SEC is the letter sent by Provost Lerman and Executive VP Katz (attachment). The portion that is most directly relevant to estimating possible budgetary impact is excerpted immediately below.

*We plan to pay for the SEC through a mix of fundraising, internal and/or external loans (debt service to be funded by payout associated with the Square 54 ground lease), and incremental indirect cost recovery from research grants located within the building. Here is a preliminary break-down of the relative contributions expected from these sources:*

- *Fundraising -- We are targeting philanthropic contributions totaling \$100 million to support the SEC project.*
- *Square 54 -- The annual endowment payout from the Square 54 ground lease with Boston Properties will support debt service payments on a principal amount of approximately \$150 million.*
- *Indirect cost recovery -- Our planning target is \$30 million of additional research activity within the next 5 years, resulting in annual indirect cost recovery projected to be over \$9 million. This will support debt service payments on a principal amount of nearly \$150 million.*

*The ground rent from Square 54 is already a secured revenue source. Additional support from a combination of fundraising and/or indirect cost recoveries will fund the remaining project costs of approximately \$125 million (equates to approximately \$8 million/year in debt service).*

The above statement provides information about the assumptions made by the Administration about cost and sources of financing for the SEC. These numbers, however, need to be translated into a form that permits different budget scenarios to be developed.

### Fiscal Planning and Budget Committee Budget Analysis Framework

Fortunately, several key numbers in the above excerpt – in particular the projected amount of additional philanthropy plus the amount to be borrowed -- are similar to those included in the interim report of the Special Faculty Senate SEC Committee that was prepared in spring 2009 (see attachment 3). Thus, for purposes of this analysis, the budgetary framework that has been used by the Fiscal Planning and Budget Committee (with Administration input) is used below.

The elements of this framework are fairly straightforward.

- (1) To establish a baseline from which to develop projections, assume that the building is to be financed by 100% borrowing (either from internal or external sources), to be amortized over 30 years at an assumed borrowing rate of 5% (an interest rate that implicitly seems consistent with the numbers presented in the Lerman/Katz letter).<sup>1</sup> Assume further that operating and maintenance costs equal \$9 per square foot.
- (2) Estimate/project how the debt service costs calculated under (1) would change based on differing assumptions about (a) new philanthropy raised in connection with the SEC, (b) revenue from Square 54 earmarked for the SEC, and (c) additional funds from enhanced sponsored research cost recovery attributable to the SEC.

Scenarios A1-A3 in Table 1 present different budget outcomes resulting from applying this framework.

### Baseline Scenario

Absent new sources of philanthropy, or new revenue sources, investing \$275 million in the SEC would require the university to defray annual costs of debt service of approximately \$17.9 million per year if it is assumed that \$275 million of borrowing (whether from external sources, or from internal sources to be repaid) were to be amortized over 30 years at an interest rate of 5%. In addition, based on information presented to the Faculty Senate Executive committee by Executive VP Katz, the University assumes as a norm that the operating cost of an academic building is \$9 per square foot which, when applied to the projected footprint of the building of 480,000 square feet, translates into an annual operating cost of \$4.2 million. Adding together debt service and operating costs yields a baseline annual cost of \$22.2 million.

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<sup>1</sup> Assuming that the SEC would be 100 percent financed by debt from the start is itself a simplifying assumption. In practice, one might imagine financing to occur in stages over time.

## Administration Financing Scenario

Table 1 shows that using the cost, revenue, and philanthropy projections provided by the Administration:

- Applying the payout from Square 54 that has been earmarked for the SEC would reduce the baseline financing amount by \$7.2 million to approximately \$15 million.<sup>2</sup> (Scenario A1)
- If the University succeeds in raising \$100 million in philanthropy for the SEC, the net projected cost of debt service would fall from \$15 million to \$8.5 million per year (Scenario A2)
- Applying the \$9 million projected amount of increased cost recovery would more than offset the remaining debt service costs, (Scenario A3);

Scenario A3 thus shows the projected budgetary impact of the SEC under a financing scenario that is consistent with the estimates presented in the Lerman/Katz letter. Namely, given the assumptions made, the basic construction and operating cost of the SEC would be covered, leaving approximately \$.5 million per year “left over” (presumably for other costs associated with the SEC that are not reflected in the above analysis).

## Alternative Financing Scenarios

Despite its simplicity, the above framework highlights some of the factors that could affect the Administration financing scenario, both negatively and positively. These factors are: (a) actual construction and operating cost of the SEC, (b) success in garnering sufficient additional philanthropy, and (c) the actual amount additional indirect cost recovery.

## Construction Cost

There is no specific reason to dispute the Clark/Ballinger estimate of \$275 million for the current projected build-out of the proposed SEC. Cost estimates are, however, susceptible to uncertainty. Thus, Scenarios B1 and B2 show the impact of projected costs  $\pm$  \$25 million.

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<sup>2</sup> There is continuing confusion about precisely what annual amount of revenue from Square 54 is available for the SEC. The \$7.2 million annual figure is the amount that results from applying the endowment payout formula to the capitalized value of the Square 54 lease, based on annual lease payments of \$9 million.

**Table 1: Hypothetical Budgetary Impacts of Financing the Proposed Science and Engineering Complex**

	$\Delta$ Philanthropy	(Net) Building Cost	Debt Repayment	O&M	Total Annual Budget Impact	Square 54 Revenue	$\Delta$ Sponsored Recovery	Net Budget Impact
<b>“Baseline”</b>	N.A.	\$275,000	-\$17,889 <sup>1</sup>	-\$4,320 <sup>3</sup>	-\$22,209	N.A.	N.A.	-\$22,209
<b>Scenario A1</b>	N.A.	\$275,000	-\$17,889	-\$4,320	-\$22,209	+\$7,200 <sup>4</sup>	N.A.	-\$15,009
<b>Scenario A2</b>	\$100,000 <sup>2</sup>	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	N.A.	\$-8,504
<b>Scenario A3</b>	\$100,000	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	\$9,000 <sup>5</sup>	+\$496
<b>Scenario B1</b>	\$100,000	\$200,000 <sup>6</sup>	-\$13,010	-\$4,320	-\$17,330	\$7,200	\$9,000 <sup>5</sup>	-\$1,130
<b>Scenario B2</b>	\$100,000	\$150,000 <sup>6</sup>	-\$9,758	-\$4,320	-\$14,078	\$7,200	\$9,000 <sup>5</sup>	+\$2,122
<b>Scenario C1</b>	\$100,000	\$175,000	-\$11,384	-\$6,720 <sup>7</sup>	-\$18,104	\$7,200	\$9,000 <sup>5</sup>	\$-1,904
<b>Scenario D1</b>	\$50,000	\$225,000	-\$14,637	-\$4,320	-\$18,957	\$7,200	\$9,000	-\$2,757
<b>Scenario D2</b>	\$125,000	\$150,000	-\$9,758	-\$4,320	-\$14,078	\$7,200	\$9,000	+\$2,122
<b>Scenario D3</b>	\$100,000	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	\$4,500	-\$4,004
<b>Scenario D4</b>	\$50,000	\$225,000	-\$14,637	-\$6,720	-\$21,357	\$7,200	\$4,500	-\$9,657

<sup>1</sup> Assumes 30 year amortization period at an interest rate of 5%

<sup>2</sup> Target amount of philanthropic support for the SEC identified in Lerman/Katz letter

<sup>3</sup> Assumes operating and maintenance costs equal to \$9 per square foot, per Executive Vice President Katz’s comments to faculty senate executive committee. This figure is applied to gross square foot estimate of 480,000 sq feet.

<sup>4</sup> Assumes that payout formula is applied to the capitalized value of the Square 54 lease per earlier analysis presented to the faculty senate.

<sup>5</sup> Increased revenue from indirect cost recovery based on \$30 million of additional (federally) funded research attributable to construction of the SEC.

<sup>6</sup> Scenarios B1 and B2 assume SEC construction costs of \$300 million and \$250 million, respectively

<sup>7</sup> Scenario C1 assumes operating costs of the SEC of \$14 per square foot.

Budget Scenarios D1-D3 show the budgetary impact of financing scenarios that differ from the projections presented in the Lerman/Katz letter. These scenarios “hold constant” the Clark/Bollinger cost estimate of \$275 million, while varying possible outcomes for two of the three pillars of SEC financing: (a) increased philanthropy and (b) increased sponsored cost recovery.

Increased Philanthropy Related to the SEC

As can be seen from Table 1, support for the SEC from a significant increase in fundraising is a linchpin of proposed funding for the SEC. Members of the Administration believe that this ambitious target is achievable because: (a) the University is investing increased resources in development; (b) it has a capable development team that is formulating a plan for a capital campaign; and (c) the proposed SEC is seen to be an attractive prospect for prospective donors.

At the same time, raising \$100 million in philanthropy linked to a single academic area is likely to be challenging in the current economic climate in which there are many worthy causes that will compete for large gifts. Thus, in the spirit of sensitivity analysis, in Scenario D1, the projected amount of additional philanthropy is reduced from \$100 million to \$50 million (which

by the historical standards of the university would still represent a significant accomplishment). The projected budgetary impact of making this change would be to require that an additional \$2.8 million per year be identified in order for the SEC project to be budget neutral.

It is also possible that the proposed SEC will be a sufficiently attractive philanthropic opportunity to elicit more than the projected \$100 million in new gifts. This possibility is reflected in Scenario D2 which assumes additional philanthropy of \$125 million instead of \$100 million. Under this scenario, the projected budgetary impact of the current SEC proposal would be a net positive of approximately \$2.1 million.

### Increased Sponsored Research Recovery

The initial projection of \$9 million in additional sponsored cost recovery has sparked considerable discussion among the faculty. There is no doubt that investing in a facility such as the SEC would increase funded research in the sciences and engineering, and bring with it greater indirect cost recovery. There is, however, considerable uncertainty both about the amount of additional funded research, as well as the portion of indirect cost recovery generated by such funded research that would be available to defray some of the costs of the SEC. For example, a significant portion of the \$9 million in increased indirect cost recovery must surely be needed to cover the extra administrative cost of the \$30 million in sponsored research as well as research costs that are not covered by direct cost.

To allow for such uncertainty, in Scenario D3, the projected amount of additional costs recovery is reduced by ½ from \$9 million to \$4.5 million. (This amount would represent roughly a 50% increase in indirect cost recovery of \$10 million that is presently reported in the university operating budget). Assuming that the University was to be successful in raising an additional \$100 million in philanthropy, the consequences of raising \$4.5 million instead of \$9 million in additional indirect cost recovery would be to create a projected budget funding gap of just over \$4 million per year.

### Operating and Maintenance Costs

The operating cost figure of \$9 per square foot represents a university-wide average for all buildings. The proposed SEC building is likely to differ from a “typical” university building in several important dimensions. It seems reasonable to consider the possibility that the average operating costs for the SEC may be higher than the university average. Some evidence can be found in a detailed schedule of building and maintenance costs posted on the Duke University website which separately enumerates the operating and maintenance costs per square foot of a variety of different buildings. Using the operating cost per square foot on Duke’s West Campus, for example, one observes that buildings with attributes similar to GWU’s proposed SEC (two science research centers) have operating costs that are roughly 50% to 60% higher than the overall average for all buildings on the West Campus.<sup>3</sup> Applying this factor to the GWU average cost of \$9 would yield an estimated operating cost per square foot for the SEC of approximately \$14 per square foot. Using this alternative estimate yields Scenario C1, which maintains the

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<sup>3</sup> See [http://www.finsvc.duke.edu/budget/CostAlloc/Cost\\_psf.php](http://www.finsvc.duke.edu/budget/CostAlloc/Cost_psf.php)

administration assumptions about philanthropy and indirect cost recovery, but increases the projected operating and maintenance cost for the SEC from \$9 to \$14 million. The result would be to swing the estimated budgetary impact from a positive, to a gap of just under \$2 million.<sup>4</sup>

#### Combined Effect of Alternative Assumptions

Scenario D4 shows the combined effect of a less optimistic scenario based on: less optimistic assumptions about new philanthropy and indirect cost recovery, and assuming that annual operating costs of the SEC are above the university average. In this scenario, the costs of building and operating the SEC would entail a projected annual funding gap of just under \$10 million.

#### **4. Consequences of Funding Gaps**

The estimates presented above confirm that under the assumptions made by the University administration, the budgetary impact of financing and operating the SEC building could be budget neutral or even positive. Failure to attain the targeted/projected amounts of new philanthropy and indirect cost recovery, however, would lead to budget gaps that would need to be covered in some manner.

One option for filling all or part of such gaps would be to increase the endowment pay-out-rate that is applied to the Square 54 property. Alternatively, decisions could be made to repay internal borrowing to finance the SEC either at a lower internal interest rate, or at a slower amortization rate. In addition, funds identified by the Innovation Task Force could be earmarked to support the SEC.

It should, however, be noted that none of these options are costless. For example, a decision to repay internal borrowing more slowly or at a lower interest rate would reduce the amount of internal funds available to fund future capital needs. Earmarking Innovation Task Force funds for the SEC would not make those funds available to support other initiatives.

#### **5. Additional Costs and Budgetary Implications**

As noted above, the budget scenarios presented in Table 1 are based only on costs and sources of funding that were identified as such in the Lerman/Katz letter of August 26 as well as the operating cost figure shared by Executive VP Katz with the Senate Executive Committee. Additional budgetary impacts would likely occur from two items not expressly included in the above analysis.

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<sup>4</sup> Prof. Anthony Yezer of the Fiscal Planning and Budgeting Committee comments that in his judgment, the data from Duke are more consistent with SEC costs of operations and maintenance of \$27 per square foot. Applying this figure to the budget scenarios would increase the operating and maintenance component by \$8,700 from \$4,320 to just under \$13,000, with corresponding effects on the projections presented in Table 1.

## Net Costs of Staffing the SEC

While most of the attention has heretofore focused on the costs of the proposed SEC, there has also been some discussion of the budgetary implications of the changes in faculty personnel in both science and engineering that would accompany the construction of a new facility such as the SEC, and which, indeed, represent one of the rationales for constructing such a facility.

To date there has been little systematic information that has been made available, at least publicly, about the costs of staffing the SEC. Key variables that would affect such costs are (a) the extent to which SEC-associated staffing represented net new faculty lines at the University, replacement hires, or some mix of the two, and (b) the cost of filling new faculty lines associated with the SEC, including not only salary, but also “start-up costs.”

In doing the budgetary accounting for staffing, it will also be important not to double-count indirect cost recovery. To the extent that one counts additional indirect cost recovery as a source of financial support for the SEC, such funds cannot simultaneously be counted as an offset against the costs of staffing the SEC.

## Parking

In its April 2009 report the special senate committee on the SEC “stressed the urgent need for both an interim and a final parking plan that would address the concerns of the medical school and hospital for parking accommodation for doctors and patients in the vicinity of the hospital.” The report also stated that “the costs associated with the demolition of the parking garage and the provision of substitute parking facilities should be articulated.”

In the August 26 letter, Provost Lerman and Executive VP Katz provided the following response:

*Additionally, following up on your inquiry regarding the University's replacement of parking that will be lost as a result of the demolition of the University Parking Garage for construction of the SEC, please note the following:*

- *We will continue to meet the parking needs of the University population following the demolition of the University Parking Garage.*
- *The current garage has approximately 1,250 spaces, and the University has already begun replacement of these spaces.*
- *Replacement spaces will actually exceed the number of current spaces, totaling over 1,400 spaces, including:*
  - *178 spaces at South Hall*
  - *362 spaces at Square 54 (GW dedicated parking on levels P4 & P5 - to open early in 2011)*
  - *454 spaces at the Law Learning Center Garage (394 permanent spaces plus 60 temporary spaces to be used until above-grade improvements commence - all scheduled to be available in January 2012)*
  - *350 spaces in the new Science and Engineering Complex (estimated number, still in*

- design - scheduled to be available in January 2015)*
- *During the construction of the SEC, we will create additional parking supply by implementing valet operations in existing GW garages and leasing additional parking at Square 54 and the Kennedy Center.*
  - *Meetings with key stakeholder groups will begin in fall 2010 regarding the transition plan for parking. These meetings will include University and Medical Center constituents (including UHS & MFA).*

The letter notes that any costs associated with parking adjustments required in connection with the SEC are not included in the \$275 million cost figure, but that such costs have been incorporated in the capital budget.

Including an item in the university capital budget does not shield the university operating budget from any ultimate financing implications. Thus, it is likely that there will be some additional budgetary impact associated with replacing the parking places that would be lost from the current site on which the SEC is to be located. Translating the impact of SEC-related parking impacts into a budgetary impact (as distinct from the related, yet different task of estimating the cost of such adjustments) requires information about what the university's parking plans and investments would have been in the absence of building the SEC. It also requires determining what portion of the estimated \$275 million construction cost is attributable to replacement parking. One estimate, prepared by Prof. Yezer of the Senate Fiscal Planning and Budgeting Committee, is that the capital cost of replacing the parking that is currently on the site that is slated to be used for the SEC would be on the order of \$62 million.<sup>5</sup>

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<sup>5</sup> Professor Yezer observes that he “and Trustee Carbonell are in agreement that underground parking will cost approximately \$50,000 per stall leading to a total cost of \$62,500,000 to replace 1,250 spaces in the current parking garage. This \$62,500,000 cost will be incurred with no increase in parking revenue.”

**A RESOLUTION ON CONSTRUCTION OF NEW SCIENCE FACILITIES AS THE TOP PRIORITY AMONG NEW ACADEMIC STRUCTURES (04/1)**

**WHEREAS**, science and technology have a critical impact on all life, and;

**WHEREAS**, investment in science facilities and science programming is an investment in the future of students, of the Institution, and of society, because it creates the opportunity for:

- strengthening teaching and learning at the undergraduate and graduate levels;
- increasing the enrollment and retention of talented science majors, in general, and diversity among science majors, in particular;
- attracting and retaining accomplished undergraduate students, whatever their major;
- increasing the number of non-science majors who enroll in science courses;
- bringing to students a command of the tools of focused inquiry, mentored discovery-based learning, collaborative problem-solving, writing, quantitative and informational literacy, and information exchange essential for work and lifelong learning;
- improving post-graduate outcomes in graduate/professional school acceptances and job placements;
- recruiting and retaining outstanding faculty;
- attracting exceptional graduate students and postdoctoral researchers in the sciences;
- improving professional placement of doctoral graduates;
- enabling collaborations and emerging interdisciplinary interactions in teaching and research;
- increasing research involvement and productivity for students and faculty;
- increasing competitiveness for external grants for such purposes as research, curriculum and faculty development, and instrumentation;
- enhancing connections to area external partners, e.g., the NIH, the Smithsonian; The Institute for Genome Research, the Goddard Space Flight Center, the Children's National Medical Center, the Naval Research Lab, and National Institute for Standards and Technology;
- expanding technology infrastructure through state-of-the-art laboratories and general purpose classrooms;
- affecting the University community in a positive manner with respect to morale, inspiration, involvement, collegiality, cooperation, and social interaction;
- attracting benefactors, engaging alumni, and expanding the endowment; and;

**WHEREAS**, an investment in science facilities and science programming advances the Institution's Strategic Plan for Academic Excellence by creating the opportunity for:

- delivering engaged and consequential undergraduate education;
- becoming a tier-one research institution;
- promoting quality, highly visible, revenue-generating graduate education;
- recruiting and retaining a diverse, nationally and internationally known, faculty producing increased research;
- leveraging the D.C. environment to deliver a world-class education;
- integrating research and teaching to solve problems in the urban environment;
- fostering a sense of community through a unified approach to science, and;

**WHEREAS**, understanding the draw of science and the revolution that is occurring within it, local universities, competing universities, aspirant universities, and schools of lesser status have constructed or committed to construct new science facilities, and;

**WHEREAS**, new science facilities will benefit other Schools, other CCAS disciplines and disciplines within the Schools that depend on excellence in the basic sciences both in academics and research, by providing the opportunity for:

- access to additional technology-enabled general use classrooms;
- flexible arrangements to accommodate the changing landscape of science;
- greater integration of mathematics, statistics, and computational sciences with other disciplines across the University, and;
- enhanced opportunities for cross-disciplinary collaborations, and;

**WHEREAS**, the construction of new science facilities and the accompanying benefits would have such a major immediate and future impact on the Institution, that funding by revenues generated by individual gifts, capital campaigns, indirect cost recovery, reallocation of funds, and new revenues (e.g., financial value derived from the old hospital site, tuition-generating programs and certificates) is justified, and;

**WHEREAS**, the quality and quantity of existing science facilities and science programming deprive the students, the Institution, and society of the full-benefits cited above and thus, undermine the effort of the Institution to achieve the goals stated in the Strategic Plan for Academic Excellence, **NOW, THEREFORE**,

**BE IT RESOLVED BY THE FACULTY SENATE OF THE GEORGE WASHINGTON UNIVERSITY:**

- (1) That the Faculty Senate endorses the investment in new science facilities that accommodate the physical, life, and mathematical sciences, ~~and~~ science programming, ~~and science-related engineering programs~~ ~~being~~ as the **top** priority among future academic projects; and
- (2) That the new science facilities will be defined with respect to size, site, use (school-wide, university-wide) and program goals through a careful collaborative planning process that includes science and non-science faculty, academic deans, campus planners and architects, advancement staff, and budget officers.

Adopted, as amended, May 7, 2004

## **INTRODUCTION**

The Executive Committee of the Faculty Senate requested (September 17, 2003) that the Physical Facilities Committee identify the most pressing academic need with respect to the construction of new facilities in light of the approaching availability of the old hospital site. It became apparent quickly that Annual Reports filed by previous Physical Facilities Committees from 1996 forward spoke to the need for new science facilities. (Perhaps even earlier committee reports, not reviewed by the present committee, speak to this need. Dean Caress spoke of the promise of a new science building when he was recruited to GW which indicates long-term recognition by some of the need). In this eight year period of time, we have seen the actual or planned construction of several academic buildings—Media and Public Affairs, ESIA, Law School addition, SBPM under construction, and a School of Engineering addition in the planning stages. Moreover, in 1985, members of the Commission on the Year 2000 made 18 recommendations in their report to President Elliott on strategic planning. In June 2001, President Trachtenberg in an address to the Board of Trustees noted that only one of these recommendations was not met, to provide “At the earliest possible time, ... modern laboratories for teaching in the natural sciences and engineering, and additional facilities to support research and teaching in these areas.” Thus, the Physical Facilities Committee, convinced of the need for new science facilities, took on as its charge, with the approval of the Executive Committee, the development of a rationale in support of new science facilities.

The Committee met eight times during the fall and spring semesters and communicated electronically between meetings. The Committee met with Columbian College Dean Frawley, Executive Vice President Lehman, Vice President for Advancement Bond, and Executive Vice President and Treasurer Katz. Based on information gained from these meetings, review of PKAL (Project Kaleidoscope) reports, review of the University’s Strategic Plan for Academic Excellence, and research conducted by members of the Committee, the Physical Facilities Committee submits to the Faculty Senate a Resolution on the Construction of New Science Facilities as the Top Priority Among New Academic Structures.

The committee’s charge did not include recommending a size or site for new science facilities. While the old hospital site could, indeed, be the location for new science facilities and/or be a source of new revenue to finance new facilities either on that or other property, the committee agreed that the future use of the old hospital site should be leveraged to best benefit the Institution. Implicit in the Committee’s position is the view that revenue/space derived from the old hospital site should contribute toward construction of new science facilities.

## **THE RESOLUTION**

**WHEREAS, investment in science facilities and science programming is an investment.....** (supported by PKAL Report; “ What Differences Do New Facilities Make?”--excerpts in attachment 1 and full copies available in the Senate office)

PKAL is self-described as an informal alliance of individuals and institutions engaged in the work of transforming undergraduate programs in science, mathematics, engineering, and technology (SME&T). Since its beginning in 1989 with continued support from NSF, the work of PKAL has given attention to all aspects of undergraduate SME&T environment—faculty, curriculum, facilities, as well as larger institutional and national

issues. In 1997 the PKAL Committee of Visitors (COV) made site visits to eight colleges and universities, representing the wide diversity of higher education that had made major investments in facilities and programs. Their intent was to answer the question—What differences do improved facilities make? The COV sought to determine if and how the investment paid dividends with respect to student learning, as well as the extent of institutional transformation gained by new and renovated spaces. Until this study, the impact of improved facilities may well have been self-evident, but “knowing that this is so is one thing; demonstrating it is another”. No previous effort had been made to gather data and information on the impact of facilities improvements on: student learning; faculty productivity; departmental and institutional enrollments; and institutional vigor. The PKAL report supports each of the bulleted items that relate to impact on faculty and undergraduate education (the study did not address graduate education) in this clause. However, it is reasonable to extrapolate PKAL’s conclusions on undergraduate education to graduate education.

**WHEREAS, an investment in science facilities and science programming advances ...** ( See strategic goals 1,3,4, 5 and 6 in the document, “Sustaining Momentum, Maximizing Strength.” Excerpts are given in attachment 2).

**WHEREAS, understanding the draw of science and the revolution that is ...**  
(Information collected from websites and telephone contact.)

**Schools constructing/ planning construction of new science facilities**

<u>Aspirant</u>	<u>Competitors</u>	<u>Local</u>
<u>Yale</u> -blueprint for future calls for new science facility	<u>USC</u> -construction set to begin on 100,000 sq. ft. facility	<u>U.Maryland-College Park</u> -new chemistry wing, 67,000 sq. ft.
<u>Harvard Medical School</u> - new research bldg, 525,000 sq. ft., began 9/03	<u>Penn</u> -Vagelos Labs, 102,000 sq. ft. new facility for bioeng., chem., chem.eng., medicine  Commitment to construct new life sciences bldg.	new engineering bldg., 160,000 sq. ft., open 2005  new bioscience bldg., 138,000 sq. ft., construction begins 6/04
184,000 sq. ft., completion	<u>BU</u> -life sciences, eng. bldg., 7/05.	
<u>NYU</u> - new instrument ctr.	just opened.	
	<u>Vanderbilt</u> -new medical research bldg.	
	<u>Notre Dame</u> - new science hall for chem., biochem., biol., physics, 202,000 sq. ft., construction underway	

**WHEREAS, new science facilities will benefit other Schools, other CCAS....**

GW has many likely internal partners that will benefit from new science facilities:

- The School of Engineering has major efforts in computational biology, materials development, and transportation analysis that could be natural partners in new science facilities. Biomedical engineering, an area of Selective Excellence, could benefit from new facilities through existing relations with the biomedical sciences;
- The Law School with strength in intellectual property law and patented work therefrom has a common interest with CCAS;
- The SMHS has a significant shared interest in new science facilities. Doctoral degrees in the six biomedical science programs are awarded by CCAS. Existing cooperative research arrangements between faculty in the SMHS and CCAS could be enhanced;
- The SPHHS has programs in health services, health policy and exercise science that dovetail with basic and applied scientific inquiry;
- The Elliott School is connected to science through its Center for International Science and Technology Policy and its Space Policy Institute;
- The SBPM has efforts in technology and involvement in business issues in science and technology in an international context and,
- The GSEDH has worked with CCAS on science and mathematics education and is considering BA/MEd programs to train K-12 science and mathematics teachers.
- The CCAS has disciplines within the college with distinct but not readily apparent interests in the sciences e.g., geography with programs in mapping and physical geography; psychology with programs in cognitive psychology, and anthropology with a focus on human origins.

**WHEREAS, the construction of new science facilities and the accompanying benefits....**

The benefits to the Institution of new science facilities have been identified in previous WHEREAS clauses. Funding for new science facilities is major. Do the benefits derived justify the cost? The Executive Vice President and Treasurer, Louis Katz, in a meeting made several key points with the committee:

- The need for new science facilities is “pretty well documented”;
- New science facilities would really need to move the Institution forward, and if they do, “new facilities can be made to happen”.
- Dollars for construction come generally from reallocation of funds, fund-raising, and indirect cost recovery. However, at this time there is the unique opportunity to use financial value from the sale of the old hospital site to pay for new science facilities.
- A facility for school-wide use would occupy 100,000-200,000-sq. ft., and one for university-wide use would occupy 300,000-400,000 sq. ft. The estimated cost/sq. ft. is \$300-400. Thus, new facilities would cost between \$30,000,000-\$160,000,000. The VP could not imagine that the scale of the final facility decided would cost less than \$50,000,000.

The committee reviewed the construction costs (reported in the 2003 PKAL Assembly Report) for numerous new science facilities that were built between 1995-2003. The new science facilities ranged in size from 9000 to 264,000 sq. ft. at a cost of \$125-\$258/sq.ft. for a total cost ranging between \$3,250,000- \$66,400,000. The higher projected cost (VP Katz) for science facilities at GW may be attributed to the region and time to future construction.

**WHEREAS, the quality and quantity of existing....** (Information gathered from Dean Frawley.) Sciences in CCAS occupy about 90,000-sq. ft. of space distributed across campus. This is less than half that needed, and the present space configuration is counterproductive to unity and

resource sharing. Demand on instructional laboratory facilities and related teaching space for courses exceed capacity. Physics is distributed across six buildings and three campuses. Teaching laboratory infrastructure is outdated. Students report better high school facilities (Hatchet 10/03). Chemistry is located in Corcoran Hall, built in the 1920's and brought to Code in 1987. The building has no loading dock, no elevator adequate to move large equipment, no roof space for additional exhaust ducts, inadequate equipment storage space, lab classes are saturated and students denied access (labs operate from 8:00 a.m. to 10:00 p.m. M-Th). There is inadequate laboratory space for undergraduates, in general, and majors, in particular, to conduct undergraduate research. Biology and Geology are located in Bell Hall. About 30% of the space have been renovated in stages over the past 30 years. There is no room for additional funded research or instrumentation advancement. There are a lack of adequate office space for new faculty and a lack of laboratory space to train students, in general, and majors, in particular. Forensic Science has about 1700 sq. ft. of laboratory and teaching space and only 300 sq. ft. of this is dedicated to research. This is a program with great potential, due to heightened interest in the field, to grow its MA programs. Anthropology occupies about 1800 sq. ft. distributed across Lisner Hall, Phillips Hall, and building BB. Mathematics located in Funger Hall is scheduled to move into temporary space in Old Main in August 2004 for an indefinite period.

Approved and respectfully submitted by the Physical Facilities Committee,

Jerome Danoff  
Robert Donaldson  
Linda Gallo (Chair)  
Michael King  
Donald Paup  
Bradley Sabelli  
George Stephens  
Jean Pec (ex officio)  
Anyah Dembling, student member (ex officio)

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THE GEORGE  
WASHINGTON  
UNIVERSITY  
WASHINGTON DC

PROVOST AND EXECUTIVE VICE PRESIDENT FOR ACADEMIC AFFAIRS

August 25, 2010

Michael S. Castleberry  
Chair, Faculty Senate Executive Committee  
Old Main, Suite 400  
1922 F Street NW  
Washington, DC 20052

Dear Michael,

We are writing to you to respond to the questions raised by the Faculty Senate regarding the plans to move forward with a new Science and Engineering Complex (SEC). We believe that this new building will play a central role in the university's achievement of its full stature. By responding to the reasonable questions voiced by some Senate members, we hope to enlist the entire Faculty Senate in enthusiastic support for this project.

The need for such a facility to raise the reputation of the George Washington University in science and engineering and the quality of the institution overall was recognized in the 2002 Strategic Plan for Academic Excellence, and that recognition has been echoed many times since then by the Faculty Senate, the Board of Trustees, and our students. The building will provide state-of-the-art research and teaching space and will enable GW to attract top-tier faculty and students. Once the SEC is finished, we will have the additional opportunity to use the spaces in existing buildings from which the SEC's occupants moved. This backfill opportunity will help us meet our academic and research needs in the future and will benefit many departments outside the natural sciences and engineering per se.

As you know, since November 2009, the Ballinger Company has been leading an in-depth planning exercise for the SEC taking into account the input of members of the Faculty Senate (both in large forums and by the representation of Hermann Helgert on the Operating Committee) – as well as departmental faculty, staff, and students throughout science and engineering. The planning efforts have yielded an updated project design (see attached document for summary of current design progress). Thanks to these intense efforts, the design now offers a level of detail that has allowed the University to obtain pricing feedback from Clark Construction (in the role of a pre-construction consultant) on the expected project cost. The project team will complete the next phase of design in early-to-mid September, and we will be happy to provide additional information to the Senate at that time.

To get to the heart of many questions regarding cost, we can now provide the following preliminary information regarding cost and funding mechanisms for the SEC. With respect to cost, it is expected that the initial build-out of the Science and Engineering Complex will be approximately \$275 million, outlined as follows:

- Includes construction of the full building envelope and build-out of interior space on floors LL2-6, with the exception of a portion of the vivarium, which is contemplated to be only partially built out and to be expanded as necessary.
- Includes an allowance for furniture, fixtures, and equipment for teaching labs, research labs, and common areas (but not individual office furniture) of approximately \$9 million.
- Includes an allowance for customization of lab set-ups of approximately \$4 million (but not specialty equipment as may be required in faculty start-up packages, which would be funded separately).
- Includes a level of design/finish similar to that of recent GW academic buildings such as 1957 E Street and Duques Hall.
- Includes costs associated with achieving LEED certification – targeted at either a silver or gold level.
- Does not include: parking or costs associated with the central utility plant attributable to Ross Hall (work that will be conducted concurrently as there will be tie-ins between the SEC and Ross Hall utility systems and the parking associated with the project). Both of these costs will be funded by the University separately through the capital budgeting process.

As is always the case, the above estimates are based on many assumptions, particularly that there will be no huge, unanticipated changes in the costs of construction or a major shift in the scope of what we put into the building. The estimates do, however, incorporate reasonable assumptions regarding escalations in the cost of construction and an allowance for as yet unidentified contingencies that typically arise in projects of this type and scale.

We plan to pay for the SEC through a mix of fundraising, internal and/or external loans (debt service to be funded by payout associated with the Square 54 ground lease), and incremental indirect cost recovery from research grants located within the building. Here is a preliminary break-down of the relative contributions expected from these sources:

- Fundraising – We are targeting philanthropic contributions totaling \$100 million to support the SEC project.
- Square 54 – The annual endowment payout from the Square 54 ground lease with Boston Properties will support debt service payments on a principal amount of approximately \$150 million.
- Indirect cost recovery – Our planning target is \$30 million of additional research activity within the next 5 years, resulting in annual indirect cost recovery projected to be over \$9 million. This will support debt service payments on a principal amount of nearly \$150 million.

The ground rent from Square 54 is already a secured revenue source. Additional support from a combination of fundraising and/or indirect cost recoveries will fund the remaining project costs of approximately \$125 million (equates to approximately \$8 million/year in debt service).

We want to emphasize that we have estimated the total funding available conservatively so that the sum of funding from the three sources will most likely exceed what we need to complete the building. We of course would like to maximize the portion of the SEC's cost paid from


fundraising and indirect cost recovery, leaving part of the income stream from Square 54 available for other purposes.

Additionally, following up on your inquiry regarding the University's replacement of parking that will be lost as a result of the demolition of the University Parking Garage for construction of the SEC, please note the following:

- We will continue to meet the parking needs of the University population following the demolition of the University Parking Garage.
- The current garage has approximately 1,250 spaces, and the University has already begun replacement of these spaces.
- Replacement spaces will actually *exceed* the number of current spaces, totaling over 1,400 spaces, including:
  - 178 spaces at South Hall
  - 362 spaces at Square 54 (GW dedicated parking on levels P4 & P5 – to open early in 2011)
  - 454 spaces at the Law Learning Center Garage (394 permanent spaces plus 60 temporary spaces to be used until above-grade improvements commence – all scheduled to be available in January 2012)
  - 350 spaces in the new Science and Engineering Complex (estimated number, still in design – scheduled to be available in January 2015)
- During the construction of the SEC, we will create additional parking supply by implementing valet operations in existing GW garages and leasing additional parking at Square 54 and the Kennedy Center.
- Meetings with key stakeholder groups will begin in fall 2010 regarding the transition plan for parking. These meetings will include University and Medical Center constituents (including UHS & MFA).

We hope you and the members of the Senate Executive Committee find this information helpful. We are happy to answer any additional questions you may have. We also would be happy to coordinate with the project team to provide a briefing at an upcoming meeting of the Executive Committee and/or the Senate's fall meetings, at your convenience. We will follow up around mid-September with a progress report on the design/development phase which is set to complete in early September.

Regards,



Steven R. Lerman  
Provost and EVPAA



Louis H. Katz  
EVP and Treasurer

## **Section 6. Financial Considerations**

Constructing an academic facility of the scale of the proposed SEC will have multiple impacts on the University operating budget.

### **Financial Planning for the SEC**

To date, the most immediate budgetary impact of the SEC has been in the form of current and planned outlays for planning of the facility.

Planning funds committed to the project to-date include the sums of \$700,000 for fiscal year 2008 and \$800,000 for fiscal year 2009. These funds were derived from the University Capital Budget. An additional \$800,000 is included in the FY 2010 Capital Budget. Ultimately any amounts included in the Capital Budget are reflected as expense items in the University Operating Budget.

At its February 2009 meeting the BoT authorized the expenditure of up to \$10,000,000 for planning, benchmarking, programming and initial architectural design of the complex. The funds for this planning effort are likely to initially come from University reserve funds, and would thus not have an immediate impact on the University budget. Executive VP for Finance Katz has indicated that funds withdrawn from reserves would eventually be repaid, most likely by including the planning funds in the overall cost of the project that is to be financed.

### **Financing the Construction of the SEC**

At present there is considerable uncertainty about the overall cost of the proposed SEC, as well as uncertainty about how these costs are to be financed.

Absent any details on the design and interior layout of the building, at present the only available data on the cost of construction of the Science and Engineering Complex is a first estimate of between \$400 and \$600 per square foot of gross space, which equates to a total of between \$180 million and \$270 million. Similarly, only a first estimate of the eventual building operating cost of \$6.3 million annually has been advanced by Professor Cordes, Chair of the Fiscal Planning and Budgeting Committee. The costs of equipment and furnishings have as yet not been addressed. It is the administration's stated intent to develop reasonably precise cost data in parallel with the benchmarking, programming and design phase authorized by the BoT in February 2009, and to have such data available for the BoT meeting in May 2010.

Additional cost attributable to the SEC derives from the demolition of the parking garage, with a loss of revenue of approximately \$2.1 million per year during the construction period. To the extent that excess parking currently exists on the Foggy Bottom Campus that could absorb some of the displacement, the impact would, of course, be reduced.

In addition to uncertainty concerning the cost of the SEC, there is also some uncertainty about how the proposed facility is to be financed.

At an initial meeting of the SEC in summer 2008 that was attended by senior members of the University administration, President Knapp stated that funding of the facility would come from three sources of “new” revenue: (a) proceeds from Square 54, (b) increased philanthropy, and (c) increased net income from indirect cost recovery resulting from sponsored research activities to be located in the SEC. These principles were affirmed by Executive VP Katz in the December 12, 2008 meeting of the Faculty Senate when he pointed out that President Knapp’s statement was consistent with the University’s plan for financing the facility. Based on this “three pillar” financing model, Prof. Cordes prepared an analysis of a hypothetical financing scenario for the proposed SEC, with input from members of the Faculty Senate Fiscal Planning and Budgeting Committee, as well as the University administration. That scenario rested on the following assumptions.

- (1) The cost of constructing the SEC (not including the costs of staffing) would equal \$250 million.
- (2) The University would be able to generate new philanthropy in the amount of \$100 million, leaving \$150 million to be financed by other means.
- (3) The \$150 million not defrayed from new philanthropy would be financed by borrowing \$150 million to be amortized over 30 years at an assumed interest rate of 6%, resulting in additional debt service costs.
- (4) The additional debt service costs of financing \$150 million would equal \$10.9 million. When added to the \$6.3 million annual costs of operations, the costs of constructing and operating the SEC thus would equal an annual amount of \$17.2 million.
- (5) Under the three pillar model for financing the SEC initially proposed by President Knapp, \$7.1 million of the \$17.2 million would be offset by

earmarked Square 54 endowment payout, leaving the remainder to be financed by net income from increased indirect cost recovery which would need to equal \$10.1 million.

- (6) A lower amount of increased net income from increased indirect cost recovery would be required if a larger share of the costs of the SEC were to be financed from philanthropy. For example, if the University were able to generate \$170 million in new philanthropy for the SEC, the amount of the SEC that would be financed by debt would decline to \$80 million. In that case, debt service costs would equal \$5.8 million per year, which when added to the estimate \$6.3 million cost of operations would equal an annual amount of \$12.1 million. This amount in turn could be offset by the \$7.1 million endowment payout from Square 54 plus approximately \$5 million in net income from increased cost recovery.

Under financing scenarios of these types, the costs of: construction plus (partially) furnishing the SEC plus operating the proposed SEC could be offset from additional financial resources rather than from reallocations within the existing Operating Budget.<sup>1</sup>

At the same time, other documents submitted to the special Senate Committee on the SEC indicate that there have been discussions at the level of the Board of Trustees of a different “six pillar” financing model resting on a mix of (a) use of University reserves, (b) endowment payout from Square 54, (c) increased philanthropy, (d) increased indirect cost recovery from funded research, (e) additional indirect cost recovery specifically to cover the cost of scientific equipment and infrastructure over and above basic laboratory furnishings in the SEC, and (f) additional debt finance.

What is unclear about the latter six pillar model is whether the various sources of funding are seen primarily as financing mechanisms that provide the needed liquidity to allow financing to go forward, under the assumption that ultimately the SEC is to be financed from new financial resources, or whether the six pillar model would ultimately involve a mix of new revenue and budget reallocations.

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<sup>1</sup> Note: These estimates differ from those presented by Prof. Cordes at the Nov. 14 Faculty Senate meeting. Subsequent to that meeting, it was called to Prof. Cordes' attention by Prof. Helgert that \$170 million (rather than \$100 million) in new fundraising would be needed to produce a debt service stream that could be financed by a \$7.1 million Square 54 endowment payout plus \$5 million in net income from increased cost recovery.

A recent GW Hatchet interview with President Knapp further suggests that the Administration may be reassessing the feasibility of the initial commitment to finance the SEC entirely (or at least principally) from new revenue. In the Hatchet interview President Knapp offers the following comments:

- (GWU) “will use debt to fund a significant portion of initial construction on the \$300 million Science and Engineering Complex.
- (though the President and other administrators) “had said previously that the complex would be funded through donations, research grants and revenue from the multi-purpose complex at Square 54....he does not think these sources alone will be sufficient for the initial construction.”
- (he remained committed) “to keeping his promise of not using funds from the operating budgets – which includes money from tuition – to construct the complex...(the University) instead (will) use revenue from debt, in addition to the three other previously cited sources.”

What is not clear from the interview is whether debt finance of the SEC is seen (as noted above) as a means of liquidity to expedite finance of a project that ultimately is to be financed from new resources, or whether debt finance is seen as a substitute for new sources of revenue. If it is the latter interpretation, it is not clear how one can simultaneously add to the University’s existing debt burden and at the same time avoid using funds from the operating budget. The current University Operating budget is already strained to meet existing financing needs of the University. Hence, any significant increase in debt burden, with the attendant increase in debt service costs, seems likely to generate increased charges against the University Budget – tuition revenue – that would need to be covered in some form – e.g. by reallocation of existing resources, a mix of resource reallocation plus new resources, or new resources.

It should be noted that if current fund-raising realities constrain the ability of the University to ultimately finance the SEC from new revenue sources, there would be ways of financing the SEC that would not have a direct effect on the operating budget. One option would be to draw on Reserves, with the understanding that the funds withdrawn would be replaced from new sources of revenue, instead of from operating revenue. Another option would be to increase payout from the endowment to defray the costs of debt finance. Neither option, however, appears to have been raised as a financing option for the SEC at this time.

### The Important Role of Fund-Raising

During several recent meetings of the planning and BoT committees the subject of fund raising and its potential for a substantial contribution to the SEC's construction and operating costs was the subject of discussion. Currently the Deans of the affected Schools are considering various strategies for promoting the building, its laboratories and other facilities to individual donors, philanthropic organizations and governmental entities. The development of a specific approach and the assessment of its potential will have to proceed in parallel with the programming and design activities.

All recognize that the current fundraising environment poses significant challenges to substantial new fundraising by the university. The realities of the current situation were highlighted in a presentation to the special committee on April 1, 2009 by VP for Development Price Jones.

In her presentation Vice President Price Jones provided her assessment of the importance of fund raising as a make-or-break issue for the SEC. She stated that the SEC effort would be embedded into a major capital campaign for the University. She indicated that the start of that campaign would depend to some extent on economic conditions, but that in view of current conditions, the preliminary work needed to launch a major capital campaign for the University would be delayed by six months to a year until 2010. Then, based on input gained from that preliminary research, the campaign would commence, and continue over a period of seven years. Vice President Price Jones considers a strategy of raising funds over an extended period of time in phase with the staged construction of the SEC a viable option, but also pointed out that experience shows the level of success to diminish once the facility is fully operational

Vice President Price Jones elaborated on the design of a strategy for the SEC capital campaign that would include the following elements:

Perform a feasibility study that would include consideration of the need for the building, its purpose, cost, size and appearance.

Conduct a series of one-on-one interviews with potential individual and corporate donors to assess their interest in the project, obtain feedback on the quality of the case for support, and determine whether the building is compatible with their philanthropic priorities.

Expand those conversations to larger groups of potential donors through group meetings and dinners.

Further expand the study through on-line contacts with large groups of prospects.

As a result of the information gathered through these contacts, build a gift table identifying the number of prospects at various levels of support and set a dollar target for the campaign.

Share this information with the key stakeholders of the University and obtain approval for the start of the campaign.

The process of designing the strategy and implementing the above steps is expected to take approximately 6 months.

In summary, Vice President Price Jones considers fund raising for the SEC to require a continuous effort over several years. Its success will depend critically on the University's ability to make the case for a major investment in research and teaching in science and engineering in the nation's capital.

Memo

9/14/2010

From: Ted Barnhill

To: Faculty Senate Colleagues

Subject: Science and Engineering Complex

The Science and Engineering Complex has been put forward as a facility to expand sponsored research in science, engineering, and possibly medicine. Such projects, requiring large investments and having high potential returns, can be very attractive. However many of these projects fail and thus the risks need to be understood and managed.

Every time the Science and Engineering Complex has been discussed in the Faculty Senate requests have been made for capital, operating, and staffing plans. I was asked to provide more specific suggestions on how such an analysis might be undertaken. While there are many uncertainties and all plans get changed, it's very valuable to think through and clearly articulate assumptions, operating and staffing plans, pro forma operating budgets, financial stress test risk assessments, and contingency plans to deal with potential risks. Such analysis is often said to substitute uncertainty for ignorance.

Numerous entrepreneurs and venture capitalists speak in my classes on new venture finance and financial management. Attached is a brief outline of the manner in which private ventures are often evaluated<sup>1</sup>. A broad analysis of the competitive environment and a specific analysis of the financial structure and pro forma performance of the proposed SEC are needed.

Specific issues and questions regarding the SEC that need to be addressed include:

1. What types of sponsored research do we anticipate seeking?
2. Who are the major competitors?
3. What are G.W.'s strengths and weaknesses relative to the competitors?
4. What human capital will G.W. have to hire in order to successfully compete for the anticipated sponsored research?
  - a. How many new tenured and tenure track faculty will be needed?
  - b. How many contract researchers will be needed?
5. How much will this human capital cost?
6. What other costs will be required to support the expanded research effort?
7. What are the operating costs for the Science and Engineering Complex building?
8. What portion of all of these costs will be fixed versus variable?

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<sup>1</sup> See Kester, Ruback, and Tufano, *Case Problems in Finance 12<sup>th</sup> Edition*, McGraw-Hill Irwin, 2005

9. What is the estimate of the additional capital costs above \$275 million for the parking facilities, building out the top two floors of the complex, etc.?
10. What types of operating surpluses (losses) are likely for various levels of sponsored research?
11. G.W. has science and engineering research facilities in Northern Virginia. What lessons can be learned from the operation of those facilities?
12. There are many potentially high value projects that could be built on the proposed site of the SEC. Why are we building a new research facility in downtown D.C. rather than Northern Virginia?
13. I have undertaken risk assessments on portfolios, businesses, infrastructure projects, banks, banking systems, and Sovereigns in numerous countries. The SEC needs a risk assessment. For example the U.S. Government is running about a \$1.5 trillion dollar deficit. There is widespread political opposition to continuing deficits of this size. It is possible that a change of power may occur in Congress. Such a power and policy shift could affect G.W.'s ability to obtain the anticipated amount of sponsored research funding.
  - a. How likely is it that a serious effort will be made to reduce the budget deficit?
  - b. How would an effort to reduce U.S. budget deficits affect the amount of sponsored research in various areas (DOD, science, health, etc.)?
  - c. Should such potential budget cuts be considered when selecting target research areas?
  - d. How would the major research Universities respond to a cut in overall sponsored research funding?
    - i. Cut overhead rates?
    - ii. Aggressive marketing?
    - iii. Political pressure?
  - e. What are the implications of potential budget cuts on the amount of sponsored research funding that G.W. would likely be successful in attracting?
14. G.W. is a tuition driven University.
  - a. What are the impacts on other G.W. Schools and programs of funding a significant portion of the SEC capital cost out of general University funds?
  - b. Will SEC operations require an ongoing subsidy from general University funds?
  - c. How would possible future shortfalls in sponsored research revenue be funded?
    - i. Cuts in research faculty and staff?
    - ii. Cuts in the science, engineering, and medical school operating budgets?
    - iii. Cuts in general university operating budgets affecting all schools?

15. Should we have contingency plans for handling potential financial shortfalls and communicate these plans to the University community before the project is undertaken?

It would not surprise me if an analysis of the type discussed above showed that:

1. There are high potential returns to the University and particularly so in the science, engineering, and medical research areas.
2. It would be desirable to fund a larger portion of the capital and faculty costs through donations for the building, endowed chairs, etc. This is common in research intensive Universities.
3. There will be a significant level of fixed (e.g. highly skilled tenured faculty) and variable operating costs that will have to be covered by the University in some way. If the level of sponsored research funding falls short of expectations the financial demands on the general University budget could be very substantial.
4. These substantial risks to the University's operating budget, that could affect all Schools in the University, need to be understood clearly.
5. It is important to develop contingency plans to deal with such risks including deciding which schools will cover potential losses and how they will do so.

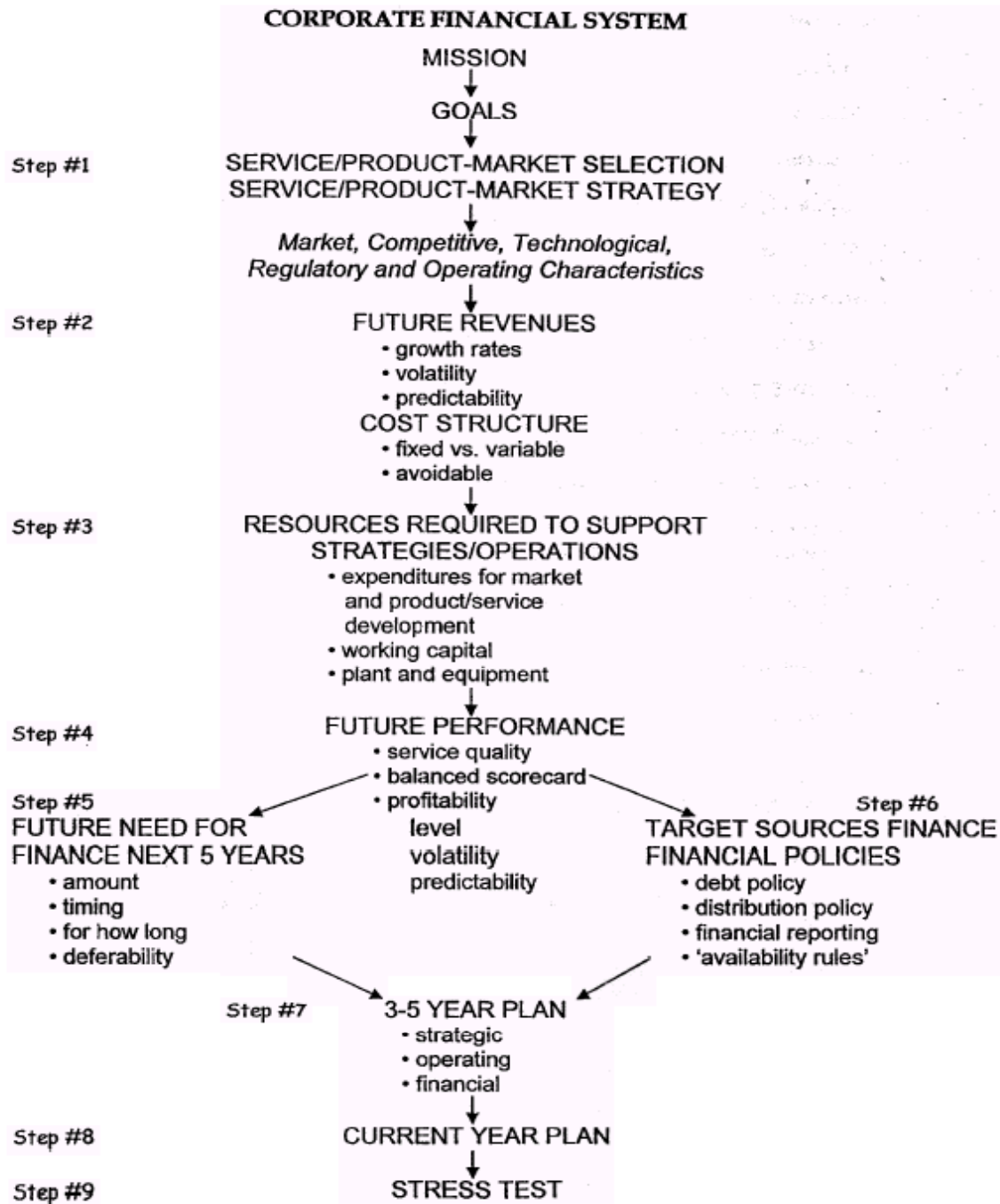
I am open minded about the SEC project however so far an inadequate amount of information and analysis has been provided to allow an informed discussion and decision.

Regards,

Ted

Ted Barnhill  
Professor of Finance, and Director  
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Exhibit TN-1



# Some Budgetary Implications of the Science and Engineering Complex

Joseph Cordes

Chair, Fiscal Planning and Budgeting Committee

George Washington University Faculty Senate

October 8, 2010

# Outline of Report

- Brief history
- Administration financing plan
- Budget Scenarios
- Costs yet to be accounted for
- Implications

# Brief History

- Faculty senate resolution
- Committees
  - Faculty senate special committee
  - Joint Board of Trustees/University committee
- Actions
  - Interim report of the Senate special committee
  - Resolution of BOT/University committee

# Faculty Senate Resolution (May 2004)

- (1) That the Faculty Senate endorses the investment in new science facilities that accommodate the physical, life, and mathematical sciences, science programming, and science-related engineering programs as the **top** priority among future academic projects; and*
- (2) That the new science facilities will be defined with respect to size, site, use (school-wide, university-wide) and program goals through a careful collaborative planning process that includes science and non-science faculty, academic deans, campus planners and architects, advancement staff, and budget officers.*

# Financing the SEC

- Investing in the SEC is expected by its supporters to provide a wide range of benefits to GWU
  - Greater outside funding
  - Greater academic prestige
  - Raise presence of GWU science and engineering
- SEC is the largest and most costly capital investment undertaken in past 30+ years (probably ever);
- SEC is part of broader design to restructure science and engineering at GWU with added cost;\

# Charge to Fiscal Planning and Budgeting Committee

- Assess the implications of the SEC on the University *budget and finances*;
- Implication
  - Analysis focuses on annual cash flow scenarios
  - Analysis is not a benefit-cost analysis
  - Analysis is not a business plan

# Administration Financing Scenario

## Lerman/Katz Letter 8/26-2010

*We plan to pay for the SEC through a mix of fundraising, internal and/or external loans (debt service to be funded by payout associated with the Square 54 ground lease), and incremental indirect cost recovery from research grants located within the building. Here is a preliminary break-down of the relative contributions expected from these sources:*

- Fundraising -- We are targeting philanthropic contributions totaling \$100 million to support the SEC project.*
- Square 54 -- The annual endowment payout from the Square 54 ground lease with Boston Properties will support debt service payments on a principal amount of approximately \$150 million.*
- Indirect cost recovery -- Our planning target is \$30 million of additional research activity within the next 5 years, resulting in annual indirect cost recovery projected to be over \$9 million. This will support debt service payments on a principal amount of nearly \$150 million.*

*The ground rent from Square 54 is already a secured revenue source. Additional support from a combination of fundraising and/or indirect cost recoveries will fund the remaining project costs of approximately \$125 million (equates to approximately \$8 million/year in debt service).*

# Translating Administration Financing Plan into a Simple Budget “Model”

- Hard to do “what if” scenarios with Administration figures as presented;
- Administration figures are broadly compatible with financing scenarios developed earlier by FPB committee to discuss possible budgetary impacts
- Use FPB framework with Administration financing numbers as baseline.

# The \$275 Million Question

Can the SEC investment be financed in a manner that is budget neutral or better? That is, what circumstances are required in order for construction and maintenance of the currently-proposed SEC not to tax resources that are already fully committed?

# Developing Some Budget Heuristics

- Start with the basic costs of building/maintaining the SEC based on the Clark/Ballinger cost estimates:
  - \$275 million construction
  - \$9 per square foot operation and maintenance
- Translate amounts into annual amounts that need to be financed;
- Identify sources of new finance to offset the \$275 million financing cost and discuss the budgetary implications of different assumptions that might be made about the feasibility of securing such new sources of financing;
- Discuss the budgetary implications of costs not included in the “basic estimate” including those specifically identified in the Lerman Katz letter, but also not included in the basic cost estimate.

# The Baseline with Administration Financing Assumptions

- SEC cost: **\$275 million**
- SEC financing:
  - Square 54 Revenue: **\$7.2 million**
  - $\Delta$  in Philanthropy: **\$100 million**
  - Additional indirect cost recovery
    - $\Delta$  in external funding of \$30 million  $\rightarrow$   $\Delta$  in annual cost recovery of **\$9 million**

# Caveats

- A highly simplified analysis
  - Assumes simplest possible financing stream:
    - borrow all funds (internally or externally) from the start;
  - Assumes added philanthropy comes all at once.
- Estimates are best viewed as rough orders of magnitude of the consequences of different financing scenarios.
- Estimates are not formal budgetary projections or cost estimates.

# Results

**Table 1: Hypothetical Budgetary Impacts of Financing the Proposed Science and Engineering Complex**

	$\Delta$ Philanthropy	(Net) Building Cost	Debt Repayment	O&M	Total Annual Budget Impact	Square 54 Revenue	$\Delta$ Sponsored Recovery	Net Budget Impact
<b>“Baseline”</b>	N.A.	\$275,000	-\$17,889 <sup>1</sup>	-\$4,320 <sup>3</sup>	-\$22,209	N.A.	N.A.	-\$22,209
<b>Scenario A1</b>	N.A.	\$275,000	-\$17,889	-\$4,320	-\$22,209	+\$7,200 <sup>4</sup>	N.A.	-\$15,009
<b>Scenario A2</b>	\$100,000 <sup>2</sup>	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	N.A.	\$-8,504
<b>Scenario A3</b>	\$100,000	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	\$9,000 <sup>5</sup>	+\$496
<b>Scenario B1</b>	\$100,000	\$200,000 <sup>6</sup>	-\$13,010	-\$4,320	-\$17,330	\$7,200	\$9,000 <sup>5</sup>	-\$1,130
<b>Scenario B2</b>	\$100,000	\$150,000 <sup>6</sup>	-\$9,758	-\$4,320	-\$14,078	\$7,200	\$9,000 <sup>5</sup>	+\$2,122
<b>Scenario C1</b>	\$100,000	\$175,000	-\$11,384	-\$6,720 <sup>7</sup>	-\$18,104	\$7,200	\$9,000 <sup>5</sup>	\$-1,904
<b>Scenario D1</b>	\$50,000	\$225,000	-\$14,637	-\$4,320	-\$18,957	\$7,200	\$9,000	-\$2,757
<b>Scenario D2</b>	\$125,000	\$150,000	-\$9,758	-\$4,320	-\$14,078	\$7,200	\$9,000	+\$2,122
<b>Scenario D3</b>	\$100,000	\$175,000	-\$11,384	-\$4,320	-\$15,704	\$7,200	\$4,500	-\$4,004
<b>Scenario D4</b>	\$50,000	\$225,000	-\$14,637	-\$6,720	-\$21,357	\$7,200	\$4,500	-\$9,657

<sup>1</sup> Assumes 30 year amortization period at an interest rate of 5%

<sup>2</sup> Target amount of philanthropic support for the SEC identified in Lerman/Katz letter

<sup>3</sup> Assumes operating and maintenance costs equal to \$9 per square foot, per Executive Vice President Katz’s comments to faculty senate executive committee. This figure is applied to gross square foot estimate of 480,000 sq feet.

<sup>4</sup> Assumes that payout formula is applied to the capitalized value of the Square 54 lease per earlier analysis presented to the faculty senate.

<sup>5</sup> Increased revenue from indirect cost recovery based on \$30 million of additional (federally) funded research attributable to construction of the SEC.

<sup>6</sup> Scenarios B1 and B2 assume SEC construction costs of \$300 million and \$250 million, respectively

<sup>7</sup> Scenario C1 assumes operating costs of the SEC of \$14 per square foot.

# Implications

- Administration financing scenario is “budget neutral” or better (Scenarios A3, B2, D2).
- Less optimistic financing outcomes produce “budget gaps”
- Options for addressing budget gaps
  - Increased payout from Square 54 property
  - Slow down/reduce repayment of internal debt
  - Innovation Task Force Funds
- Options for reducing gaps not costless
  - Scale back or delay other initiatives

# Additional Costs

- Net staffing costs of science and engineering initiative.
- Parking:
  - 1250 spaces on site slated for the SEC to be demolished
  - Budget implication of replacing lost parking depends in part on what the university would have done with parking in the absence of the SEC as currently proposed.

# Statement on Parking in Lerman Katz 8/26

## Letter

Additionally, following up on your inquiry regarding the University's replacement of parking that will be lost as a result of the demolition of the University Parking Garage for construction of the SEC, please note the following:

- We will continue to meet the parking needs of the University population following the demolition of the University Parking Garage.
- The current garage has approximately 1,250 spaces, and the University has already begun replacement of these spaces.
- Replacement spaces will actually *exceed the number of current spaces, totaling over 1,400 spaces*, including:
  - 178 spaces at South Hall
  - 362 spaces at Square 54 (GW dedicated parking on levels P4 & P5 - to open early in 2011)
  - 454 spaces at the Law Learning Center Garage (394 permanent spaces plus 60 temporary spaces to be used until above-grade improvements commence – all scheduled to be available in January 2012)
  - 350 spaces in the new Science and Engineering Complex (estimated number, still in design - scheduled to be available in January 2015)
- During the construction of the SEC, we will create additional parking supply by implementing valet operations in existing GW garages and leasing additional parking at Square 54 and the Kennedy Center.
- Meetings with key stakeholder groups will begin in fall 2010 regarding the transition plan for parking. These meetings will include University and Medical Center constituents (including UHS & MFA).

# Summary

- By design the SEC is an ambitious investment.
- There are scenarios under which building and financing the SEC is budget neutral or better.
- Given plausible uncertainties there are also scenarios in which building and paying for the SEC generates budget gaps that will need to be closed.
- Closing those gaps would entail using financial resources that could be used for other initiatives.
- Recognizing the possibility of future budget tradeoffs:
  - In and of itself does not mean that the SEC should not be built as proposed.
  - Does mean that stakeholders should be aware of possible tradeoffs and implications, and be informed in a timely manner should they arise.