

How Allocated Cost and Space Charges Are Calculated at the University of Pennsylvania

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Introduction

The financial administration of the University is governed by a Responsibility Center Management (RCM) model, in which a Responsibility Center is an organizational unit that is expected to develop and to adhere to a balanced budget. The four types of Responsibility Centers in the University are: Schools, Resource Centers, Business Services, and Administrative Service Centers.

RCM allows Schools, Resource Centers, and Business Services to retain most of the revenues they generate and also requires them to fund out of these self-generated revenues both the direct cost of their own operations and their share of central overhead and space utilization costs, while maintaining an internal, balanced budget. The assessed charges to fund central overhead costs, Allocated Cost and Space Charges, are shared, formula-based charges, which are assessed on Schools and some Centers.

The Allocated Cost and Space Charges fund the net operating costs of the University's central Administrative Service Centers (ASCs), in addition to the University's Library system, the University's Division of Facilities and Real Estate Services (FRES), the central Development and Alumni Relations Office, and Penn's research services organizations. In cases where some ASCs fund a portion of their operations through direct charges or other resources, Allocated Costs fund the remainder.

Types of Allocated Cost and Space Charges

1. **Library Allocated Cost Charge:** This charge, levied on each School and on a few Resource Centers, covers their share of the net cost of operating the University Libraries and is based on a formula intended to approximate the relative benefit received from the University's library system.
2. **University Services Allocated Cost Charge:** This charge covers the net cost of operating the University's ASCs, assessed on each School and Resource Center, as well as on the Business Services Division.
3. **Development and Alumni Relations Allocated Cost Charge:** This charge shares the net cost of operating the central University development and alumni relations function and is assessed on each School and Resource Center.
4. **Research Allocated Cost Charge:** This charge funds Penn's research services organizations including: the Office of Research Services (ORS), the Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), University Laboratory Animal Resources (ULAR), Environmental Health and Radiation Safety (EHRS), the Penn Center for Innovation, and the Office of the Vice Provost for Research.
5. **Facilities Maintenance Space Charges:** These charges cover the anticipated cost of providing routine maintenance and utilities and also provide funding for Facilities Renewal (deferred maintenance) projects. The Facilities Maintenance charge, levied on each School and on most Responsibility Centers, has two components: Operations and Maintenance (O&M) and Facilities Renewal.

Allocation Methodology

Library Allocated Cost Charges

Library allocated cost charges are allocated using a three-factor formula, with each factor equally weighted. One-third of the library allocated cost pool is distributed based on each Center's proportionate share of the following three factors: (1) undergraduate course units, (2) faculty and academic staff weighted headcount (excluding graduate student appointments), and (3) graduate and professional student weighted headcount.

Undergraduate course units are counted for each teaching school using data for the previously completed fiscal year in the Tuition Distribution database. The faculty headcount is obtained from the most recent fall census report in the Salary Management database. Weighting is applied based on the employee's "Full_Part_Time (EMP)" flag. Full time (F) and Post Docs (S) are counted as one head, Part time (P), Temporary (T), and Emeritus (R) are counted as ½ head, and Unsalariated (U) employees are counted as ¼ head. Graduate and professional student headcount is obtained from the most recent fall census data in the Student Term database. A weighting formula is applied counting all full-time and dissertation students as one head, part-time students as ½ head and executive students as ¼ head.

Example: (1) There were 100,000 undergraduate course units taught during the last fiscal year. School A taught 15,000 undergraduate course units and therefore represents 15% of the University-wide total. (2) The latest fall census report shows that there was a weighted headcount of 6,000 faculty and academic staff members across the University. School A has a weighted headcount of 600 faculty and academic staff, or 10% of the University total. (3) The University had a weighted headcount of 11,000 graduate and professional students. School A has a weighted headcount of 550 students, or 5% of the University total.

The total Library allocated cost pool for the current budget cycle has been set at \$60 million: (1) \$20 million is distributed based on last year's distribution of undergraduate course units, (2) \$20 million is distributed based on the weighted faculty and academic staff headcount, and (3) \$20 million is distributed based on the weighted graduate and professional student headcount.

School A would be charged \$6 million in Library allocated cost charges, as follows: (1) based on undergraduate course units taught, School A pays 15% of the apportioned \$20 million pool, or \$3 million; (2) based on faculty and academic staff weighted headcount, School A pays 10% of the apportioned \$20 million pool, or \$2 million; and (3) based on graduate and professional student weighted headcount, School A pays 5% of the apportioned \$20 million pool, or \$1 million.

University Services Allocated Cost Charges

University Services allocated cost charges are levied on each School, Resource Center, and Business Services in order to fund the net expense of operating the University's ASCs. The net expense of operating the ASCs includes occupancy and maintenance costs for ASC space in campus and non-campus buildings. The University Services allocated cost charge includes two components, Total Direct Costs (TDC) and Public Safety, and is subject to a cap and a floor. Beginning in FY20, the University Services allocated cost charge includes a third component, Common Good Services, which is levied on each School, Resource Center, Business Services, and ASC. The three components of the University Services allocated cost charge will be subject to a cap and a floor beginning in FY21.

Total Direct Costs (TDC) Based Charges: The majority of University Services charges are allocated based on each Responsibility Center's total direct costs (TDC) of operations using a four-year average. TDC is calculated net of expense credits. As the name implies, TDC does not include indirect expenses such as allocated cost charges, grant and contract overhead charges, or other expense amounts such as capital expenditures (both in the Capital Fund and in other funds), sponsored program subcontract amounts exceeding \$25,000, and facilities-related lease and rental costs.

Example: The four-year average TDC was \$1.7 billion for Responsibility Centers subject to TDC-based charges. School A's four-year average TDC was \$170 million, or 10% of the total. Since the TDC-based cost pool is \$150 million for the current budget cycle, School A is assigned 10% of the pool, or \$15 million.

Public Safety: Half of Public Safety's funding from allocated costs is distributed based on occupied square footage in campus buildings. The other half is allocated based on TDC.

Example: Occupied space on campus totals 7 million square feet. School A in the Zeta Building occupies 210,000 square feet. School A's space comprises 3% of the total. School A is charged for the portion of the Public Safety budget that is allocated based on occupied square footage. The Public Safety funding from allocated costs is anticipated to be \$14 million for this budget cycle. Half of the \$14 million is funded from the TDC-based University Services pool, and half is based on square footage. Therefore, School A pays 3% of the \$7 million that is being allocated based on square footage, or \$210,000.

Common Good Services Charges: Beginning in FY20, the University Services charge includes “common good” services previously direct-billed by ISC to Responsibility Centers. The FY20 charge reflects ISC’s distribution methodology. The Common Good Services charge will transition to TDC-based distribution methodology from FY21 through FY24 and will be subject to the University Services cap and floor growth rates beginning in FY21.

Application of a Cap or Floor: The University Services allocation is subject to a cap and a floor that limit how much a School or Center’s annual percentage growth can depart from the pool growth rate.

Examples:

Cap Applied: School A’s total University Services allocation is initially set at \$15.21 million, based on the sum of the TDC allocation and the Public Safety allocation. To see whether School A will be subject to the cap or floor, School A’s \$15.21 million preliminary charge is compared to what School A paid in the previous fiscal year, which was \$14.2 million. This is a 7.1% increase, which exceeds the current growth rate cap of 6%. (The growth rate cap in this case has been set at 150% of the total pool’s year-over-year growth rate, which is 4% for the current example.) Therefore, School A receives the cap increase of 6%. School A’s charge is now set at \$15.052 million, which is \$158,000 less than the uncapped amount.

Floor Applied: School B’s total University Services allocation is initially set at \$4.1 million, based on the sum of the TDC allocation and the Public Safety allocation. To see whether School B will be subject to the cap or floor, School B’s \$4.1 million preliminary charge is compared to what School B paid in the previous fiscal year, which was \$4.1 million. This is a 0% increase, which is below the current growth rate floor of 2%. (The growth rate floor in this case has been set at 50% of the total pool’s year-over-year growth rate, which is 4% in the current example.) Therefore, School B receives a 2% increase. School B’s charge is now set at \$4.182 million, which is \$82,000 more than if the floor had not been applied.

Neither Cap nor Floor Applied: School C’s total University Services allocation is initially set at \$4.6 million, based on the sum of the TDC allocation and the Public Safety allocation. To see whether School C will be subject to the cap or floor, School C’s \$4.6 million preliminary charge is compared to what School C paid in the previous fiscal year, which was \$4.45 million. This is a 3.4% increase, which is between the growth rate cap of 6% and growth rate floor of 2%. Therefore, School C is subject to neither the cap nor the floor and is charged \$4.6 million.

Development and Alumni Relations Allocated Cost Charges

The budgeted net cost of operating the central Development and Alumni Relations Office is allocated among the Schools and Resource Centers based on a two-factor formula incorporating fundraising receipts and number of living alumni.

The Development and Alumni Relations allocation is subject to a scale that limits how much a School or Center’s annual percentage increase can deviate from the pool growth rate. The scale keeps each center’s growth rate within a specified range of the parameter. Placement within the scale is determined by the center’s raw percentage change from the prior year’s final Development and Alumni Relations allocation.

Fundraising-Based Allocated Cost Charges: Approximately 85% of the total Development and Alumni Relations charges are distributed based on each Center’s three-year average of fundraising receipts as a proportion of total fundraising receipts for all Responsibility Centers over the same period. These receipts are adjusted to exclude research grants or gifts, including those obtained from corporations, foundations, and associations, that are processed through the Office of Research Services (ORS) because the role of central Development varies significantly from school to school in securing nongovernmental research grants and school practices also vary considerably in terms of deciding how to record such grants in the University’s data systems.

Example: Data from the University’s central Development Office show that School A’s annual gift receipts, exclusive of research grants from corporations, foundations, and associations, have averaged \$35 million per year over the past three completed fiscal years. This represents 10% of the total for the University over the same period. The fundraising-based pool has been set at \$30 million for the budget cycle, so School A is assigned 10% of that amount, or \$3 million prior to the application of the scale.

Living Alumni-Based Allocated Cost Charges: The net cost of running central Alumni Relations is distributed to the Schools and Centers based on each School's share of total living alumni at the end of the most recently completed fiscal year. In the case of a person holding two degrees of the same or different academic rank, the alumnus is counted once by each school issuing the degree(s).

Note: Some Resource Centers that benefit from access to alumni are assessed a small portion of the Alumni Relations allocation based on their share of the fundraising allocation.

Example: Data from the University's central Alumni Relations office show that School A had 80,000 total living alumni at the end of the most recently completed fiscal year. There are a total of 320,000 living alumni associated with the University. School A has 25% of the total living alumni and is allocated 25% of Alumni Relations-based charges. The living alumni-based pool has been set at \$6 million for the current budget cycle, so School A is assigned 25% of that amount, or \$1.5 million prior to the application of the scale.

Application of Scale: An example distribution scale, based on a Development parameter of 4.0%, is shown below.

Distribution Scale		
Raw % Change		Final % Change
Lower Limit	Upper Limit	
	0.00%	3.70%
1.00%	30.00%	4.20%
31.00%		4.70%

Example: School C's preliminary Development and Alumni Relations allocation is calculated as \$750,000, based on the sum of the fundraising allocation and the living alumni allocation. To see where this School will fall within the distribution scale, this value is compared to what School C paid in the previous year, which was \$690,000. This is a Raw % Change of 8.7%, which results in a Final % Change of 4.20% per the scale. With the scale applied, School C is charged \$719,000 in Development and Alumni Relations allocated costs.

Research Allocated Cost Charges

This charge funds Penn's research services organizations including: the Office of Research Services (ORS), the Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC), University Laboratory Animal Resources (ULAR), Environmental Health and Radiation Safety (EHRS), Penn Center for Innovation, and the Office of the Vice Provost for Research (VPR). The costs for these services are distributed across the paying Schools and Centers using a four-part algorithm based either on specific utilization statistics (i.e., IACUC protocols) or on Modified Total Direct Costs (MTDC).

ORS provides an MTDC base for each School and Center, representing grant expense that would qualify for indirect cost recovery (ICR). Each School or Center's percent of the total MTDC base is used to determine their share of the total MTDC pool. Excluded from the MTDC base is grant expense that does not qualify for ICR, which includes equipment purchases, capital, student aid expense, and subcontract expense over \$25,000.

The four parts of the Research allocated cost algorithm are detailed in the example on the following page.

Example:

Animal Services: The most recent three-year average of IACUC protocols across the University is 2,500. The most recent three-year average of IACUC amendments across the University is 7,000. For the same three-year period, School A's average number of IACUC protocols is 100, and its average number of IACUC amendments is 700. School A represents 4% of the University's protocols, and 10% of the total amendments. Combined, School A represents 7% of IACUC protocols and amendments. The Animal Services portion of the Research pool is \$3.7 million. School A is charged 7% of the Animal Services pool, or \$259,000.

Compliance Services: The most recent three-year average of IRB expedited protocols across the University is 37,000. The most recent three-year average of IRB convened protocols across the University is 5,500. For the same three-year period, School A's average number of IRB expedited protocols is 7,400, and its average number of IRB convened protocols is 550. School A represents 20% of the University's expedited protocols and 10% of the convened protocols. School A is assigned 15% of the pool based on an average of these two percentages. The Compliance Services portion of the Research pool is \$3 million. School A is charged 15% of the Compliance Services portion of the pool, or \$450,000.

ORS/Environmental Health/PCI: The most recent three-year average of MTDC across the University was \$470 million. For the same three-year period, School A's average MTDC was \$47 million. School A represents 10% of the University's MTDC. The ORS/Environmental Health/PCI portion of the Research pool is \$10.5 million. School A is charged 10% of the ORS/Environmental Health portion of the pool, or \$1.05 million.

VPR: The other three pools total \$17.2 million. School A is charged \$1.759 million for the other three factors, or 10.23% of the total. The VPR portion of the Research pool is \$2.5 million. School A is charged 10.23% of the VPR portion of the pool, or \$255,750.

Total Research Allocated Cost Charge: School A's total Research allocated cost charge equals the sum of all four factors shown in the examples above, for a total charge of \$2.015 million.

Facilities Maintenance Space Charges

Operations and Maintenance (O&M) Charges: Through the payment of its O&M charges, each School and Center gives FRES the funds required to provide utilities services, basic housekeeping services, and day-to-day maintenance services to each University building occupied by that School or Center. Each School and Center also contributes its proportionate share to maintain the University's common grounds and public spaces, support central campus planning, and pay for the central administration of FRES.

Actual year-end O&M cost data provides the basis for the O&M allocation. The O&M cost data is provided by FRES. This data is reported by building and averaged over the most recently completed two fiscal years. For example, the FY2019 allocations used building cost data from FY2016 and FY2017. The average cost of these two years determines the relative distribution of the O&M pool by building. This cost is distributed to the occupants of each building according to their proportionate share of the building's allocable space.

For new buildings, the Budget Office relies on O&M cost estimates provided by FRES. Once sufficient cost data is available, the estimate is dropped and the standard methodology is applied.

The size of the O&M pool is calculated using two growth rates, one for housekeeping and maintenance and the other for utilities. Separate growth rates are necessary because utility costs are subject to considerable fluctuations and may grow at a different pace.

Note: For a variety of technical and historical reasons, a small number of Responsibility Centers pay for some or all of their O&M expenses through direct charges rather than through O&M space charges. The bills submitted by FRES to these "direct charge" customers also include a pro-rated share of the cost of campus groundskeeping, campus planning, and central Facilities administration.

Below is an example of how the O&M charge is calculated for each campus building. *Please note that the figures used in the example below, and in the examples in following sections, are not actual figures, nor are any of the numbers in the examples based on any particular School or Center's actual costs.*

Example: School A occupies only one campus building, the Zeta Building. Data from FRES shows that average annual O&M costs attributable to the Zeta Building over the two-year average period were \$11 million. This figure includes \$9.25 million in direct building costs and \$1.75 million to cover the Zeta Building's proportionate share of FRES' expenses for O&M management, campus groundskeeping, campus planning, and central FRES administration.

Total University O&M pooled costs for the two-year average period were \$110 million. Since the Zeta Building's average annual O&M costs account for 10% of this total, the Zeta Building is assigned 10% of the O&M allocated cost pool for the current year in the budget cycle. The O&M allocated cost pool has been set at \$120 million for the year in cycle, so the Zeta Building is assigned \$12 million, or 10% of the pool, in O&M allocated cost charges. If the Zeta Building is equally occupied by School A and School B, then the O&M charge would be \$6 million each.

Facilities Renewal Charges: Facilities Renewal charges fund the University's Facilities Renewal program, which makes strategic investments in the preservation and enhancement of building systems and building exteriors to extend the useful life of the University's buildings and infrastructure. Facilities Renewal charges pay for long-term maintenance projects in University-owned buildings, such as roof repairs and building systems replacements. Facilities Renewal projects vary from one year to the next intending to benefit different buildings occupied by different Responsibility Centers. As a result, Facilities Renewal charges, unlike O&M charges, are not allocated based on an historical average of actual costs. Instead, each year's Facilities Renewal cost pool is allocated based on the insured value of each campus building.

Example: According to data supplied by the University's Office of Risk Management, the value of all University buildings subject to the Facilities Renewal charge is \$3 billion. The Zeta Building has an insured value of \$150 million. Therefore, the Zeta Building is assigned 5% of the Facilities Renewal cost pool for the current year in the budget cycle. The Facilities Renewal cost pool for the year in cycle has been set at \$30 million, so the Zeta Building is assigned \$1.5 million in Facilities Renewal charges. If the Zeta Building is equally occupied by School A and School B, then the Facilities Renewal charge would be \$750,000 each.

Appendix: The Impact of New Buildings

The process for determining the proper charges for a new building is iterative and interactive. The building's primary owner and FRES work jointly with the Budget Office to establish and renew the appropriate building costs for each budget cycle during the building add phase. Once sufficient actual cost data is available, the Budget Office will move the building into the O&M pool, and the O&M allocation will be determined via the O&M allocation formula.

Building Add Phase: Working together, FRES and the customer create an initial estimate of the new building's costs based on appropriate parameters. These parameters include the amount and type of space, occupancy assumptions, housekeeping requirements, building warranty assumptions, and utility requirements. FRES and the customer will develop a multi-year estimate of expected direct costs for the early years of the building, with applicable costs matching changes in expected occupancy, warranties, and needed services. Each year, the current year ratio of allocated overhead costs to direct costs will be used to estimate the new building's share of the FRES campus, grounds, and overhead charge. The overhead charged to the new building less FRES' estimate of new overhead required by the new building will reduce the amount of overhead spread across the existing buildings in the O&M pool.

O&M Pool Phase: Four complete years of actual cost data are needed to move a new building into the O&M pool. Assuming that a building is completed and occupied during Year 1, the first complete year of actual cost data will not be available until the close of Year 2, and therefore, four complete years of actual cost data will not be available until the close of Year 5. The building, with its four-year average cost history, will then be added to the pool and will assume its share of the allocation.

Facilities Renewal: For new buildings, Facilities Renewal charges are phased in over five years. If the insured value of the building is not yet known, an estimate can be made from the projected capital project cost.