Service Center Operations Manual

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Purpose

Service centers generate significant direct charging to externally sponsored grants and contracts. Service centers must also be appropriately treated in the University's Facilities and Administrative cost rate calculation. As such, service centers involve significant compliance risk to the institution. As a result, there is a significant amount of oversight and accounting that is unique to these types of operations. The purpose of this document is to provide guidance to administrators of service centers and specialized service facilities by detailing how to properly establish, maintain, and account for these operations in accordance with federal regulations and University policies.

Guidance for this document comes from many sources. Primarily, service centers are regulated by OMB Circular A-21, specifically section J.47. Circular A-21 was interpreted by a 1994 report issued by the Department of Health and Human Services' Office of Inspector General entitled "Summary Report of Audits of Recharge Centers at 12 Universities". Additionally, service centers may generate activity that is regulated by the IRS rules pertaining to Unrelated Business Income Tax and state sales tax. Also, all things must be accounted for according to Generally Accepted Accounting Principles and, as a state institution, we must abide by state budget regulations and controls.

Overview and Definitions

Service centers and specialized service facilities are organizational units or activities that provide goods and services primarily to internal university operations and secondarily to external users, and charge the users for these services.

Academic and administrative offices may engage in the direct sale of goods and services to external users only when those goods or services are directly and substantially related to the mission of the University.

The University of Maryland, Baltimore differentiates between its service centers and specialized service facilities as follows:

- **Specialized Service Facility:** centers whose annual amount of internal billings exceeds $1,000,000
- **Service Center:** centers whose annual amount of internal billings is between $100,000 and $1,000,000

The guidelines included in this manual only apply to service centers and specialized service facilities. This manual does not apply to other revenue generating or cost transfer activities. Operations that are established purely to provide clinical services are not service centers and are therefore not covered by this manual.

Organizational units or activities whose internal billings are less than $100,000 are not covered by this manual and will not be set up as service center chartstrings. However, these units should:

- bill according to actual usage of their services
- bill at rates calculated to recover no more than the cost of the goods or services provided
- bill all users of their services equally
- bill all users of their service after the service is performed
- maintain logs to document these cost allocations (billings).

If these units project that their operations will grow to exceed the $100,000 annual billing threshold, they should submit a service center proposal.

In the following, the term "service center" refers to both specialized service facilities and service centers, unless otherwise noted.

Establishing a Service Center

Service centers are established for operations that intend to function for a period of time and to recover no more than their cost of operation over this period. Given the possible financial risk and significant compliance concerns associated with service centers, a significant proposal and approval process is warranted. This proposal will serve to justify the business need for the service, document the resources required to establish the service center, and describe the plan for a compliant operation of this service center. This section describes what should be included in the proposal and the approval and set-up process. The Department of Cost Analysis and Studies is available to assist the unit in preparing this proposal. Please contact Tracy Crump, 6-0536 for assistance.

Proposal Content

All proposals for the establishment of a service center project id should contain the following items. See Appendix A for an example of a service center proposal.

1. **Service Center Cover Sheet** (available on-line at: www.cost.umaryland.edu/ServiceCenter/coverletter.pdf)
   - Title of the service center
   - Department Name
   - eUMB Department Code
   - Name and contact information for the service center director
   - Name and contact information of an administrative contact person
   - A nonsponsored chartstring that can be used to fund deficits, should this be necessary

NOTE: A New Project ID Request Form is normally required for the establishment of all nonsponsored project ids. This Cover Sheet will replace the New Project ID Request Form for service center project ids.

2. **Narrative Description of the Goods/Services to Be Provided**
   Provide a description of the goods or service(s) that the service center will be providing. Indicate the basis for billing for this service (e.g. per test, per labor hour, time and materials, etc.). See the Establishment of Rates section of this manual for guidance on determining the basis for billing. This section should also describe the programmatic oversight of this operation. For example, describe any advisory committee.

3. **Market Analysis**
   This section should identify whether this service or similar service is available elsewhere either within the University or outside the University. This should include the pricing of the service from other providers. If the service center cannot provide the service at a comparable cost, please describe the benefit to the University for providing this service in this service center as opposed to procuring the service from the outside vendor.

4. **5-Year Service Volume Projections**

Provide a 5-year projection of expected service volumes.

5. **Narrative Support for Service Volume Projections**
   To support your 5-year projections of service volumes, provide a narrative description of your projection methodology. If possible, include a listing of potential customers and a description of their current and potential funding sources for this service. Please indicate if any external users are anticipated.

6. **5-Year Cost Projections**
   Provide a 5-year cost projection for this service center. These projections should be based on the accounting methodologies outlined in this manual.

7. **Narrative Support for the Cost Projections**
   To support your 5-year cost projection, provide a narrative description of your projection methodology. Indicate how you estimated staffing needs, salary levels, and salary increases. Indicate how you estimated the cost of supplies and other support items.

8. **Space Needs**
   Provide a description of the space the service center will require and whether this will exist in space already assigned to the unit or if new space is required. If the space has already been identified, please note the location.

9. **Initial Rate Calculation**
   Provide an initial rate calculation sheet. See Establishment of Rates section for guidance on developing a rate.

10. **Description of Billing Procedures**
    Describe the process that will take place for users to request service, how eUMB chartstrings will be collected to bill once services have been performed, and the activity logs that will be kept to support the service center billings. The BIORESCO core has a service available to all service centers on campus. This service will post your rate schedule on the web and allow users to order your service (collecting the appropriate charging information) from a web interface. This billing data will then be interfaced monthly with eUMB. To view the website go to: http://medschool.umaryland.edu/core/bioresco.asp. For information on using this service, please contact Carol McKissick at 410-706-0322.

11. **Equipment Listing**
    Provide a listing of all equipment >$5,000, if any, to be used by the service center. This schedule should indicate whether this equipment has already been purchased by the University or if the service center will be making the purchase. For items already purchased, indicate the tag number of the piece of equipment and how it was funded.

12. **Summary of Start-Up Cost Funding**
    The initial volume of the service center may not be sufficient to cover the start-up and operational expenses incurred in the early stages of the service center operation. Therefore, it may be necessary to secure start-up funds and to identify the sources of the funding.

This schedule should summarize all of the costs, including initial equipment purchases, and specify if and when these costs will be recovered through future rates.

13. Rate Schedule

Provide a rate schedule that can be used to post the approved rates to the internet. This can be an HTML document or a Word Document. This can include any marketing material you would like, but should not include details on how the rates were calculated.

Approval Process

All service center proposals must go through the following approvals:

1. Department chair, if applicable
2. Dean or his designee in the Dean's Office
3. Cost Analysis and Studies

Each Dean's office may establish an approval process. For example, in the School of Medicine, all service center proposals will be reviewed by the Research Affairs Advisory Committee (RAAC). Please speak with your Dean's office as to what approvals are necessary for your school.

Approvals will be collected on the Service Center Cover Sheet. Once all approvals have been collected, Cost Analysis will forward a copy of the service center cover sheet to Quality Assurance in Financial Services for chartstring set up. Cost Analysis will also send a copy of the service center proposal to Budget and Financial Analysis for their files.

eUMB Chartstring Setup

Service Center chartstrings will be set up in eUMB as follows:

PCBU:	00135 (Revolving Fund)
Project:	Sequentially assigned by eUMB
Fund:	135 (Revolving Funds)
Program:	353 (Recharge Service Centers)
Department:	eUMB Department indicated on the cover sheet
Title:	Title indicated on the cover sheet

NOTE: Only projects that are subject to this manual should be set up using the 353 (Recharge Service Centers) program.

Collection of Costs

All costs related to a service center must be charged directly to the service center chartstring. This includes:

- Salaries and benefits of employees of the service center in proportion to their effort expended on service center activities
- Supplies
- Purchased services (maintenance contracts, telephone service, etc)
- Personnel training costs
- Software
- Minor equipment (<$5,000)
- Equipment depreciation (see the following section)

It is important that all costs are identified to the service center operation, even if the revenue generated by the service center will not be enough to cover the total cost of providing the service. This may mean that the service center chartstring has a deficit balance. See the section on Review Procedures for procedures on how deficits are funded.

Costs that are not related to the operation of the service center cannot be charged to the service center chartstring. In other words, service center billings cannot be used to fund expenses not related to the service center.

Unallowable Costs

Since the cost associated with a service center are passed through to grants and contracts through the service center billings, all costs incurred by the service center must be allowable according to Section J of OMB Circular A-21. OMB Circular A-21 can be found at: http://www.whitehouse.gov/omb/circulars/a021/a21_2004.html

Administrative Costs

Administrative costs associated with the service center should be charged directly to the service center chartstring. This would include such things as: telephone costs, salary costs of administrative personnel, postage, copies, and office supplies. These costs must be related to the administration of the service center (billing, preparing rate schedules, etc.).

Specialized Service Facilities

Specialized service facilities (>$1,000,000 in internal billings) must recover the cost of the facilities they occupy through their rates. Therefore, specialized service facilities will be charged an amount per square foot depending upon the building they occupy. Cost Analysis and Studies will calculate this charge and charge the specialized service facility on a quarterly basis. Service centers (<$1,000,000 in internal billings) will not receive a facilities charge.

Equipment Purchases and Depreciation

According to UMB policy, equipment is defined as "any item not permanently affixed to buildings which has a useful life greater than one year, and a unit cost of $5,000 or more, except for items predominantly composed of glass, rubber, cloth and equipment held for resale."

In order to properly develop rates for a service center, the cost of equipment should be recovered throughout the life of the asset through depreciation as opposed to the year in which the equipment is purchased. This allocates the cost of the equipment to the users of the service center who benefit from the equipment. As this is a significant departure from the accounting for equipment on all other types of University chartstrings, this section describes the accounting for equipment.

Equipment Reserve Chartstrings

Each service center should establish a companion chartstring for equipment when the service center chartstring is established. This chartstring should be identical to the service center chartstring except the fund should be 139 – "Service Center Equipment". The purpose of this chartstring is to record equipment purchases, record the funding of equipment purchases, and to provide an offset to the depreciation charged to the service center chartstring.

Identifying Equipment to a Service Center

Service centers can acquire the use of equipment through several means; therefore, the treatment in the rate calculation for the service center will depend upon, the manner in which the asset was originally acquired. See Appendix G for a comprehensive example of journal entries related to equipment purchases, fundings, and depreciation entries.

Originally purchased by the service center

When a piece of equipment is originally purchased by a service center, the purchase should be made in the companion chartstring. These assets will be charged to the service center chartstring through depreciation over the life of the asset.

Originally purchased from another nonsponsored sources

When a piece of equipment is originally purchased on nonsponsored funds for the purpose and use of service center operation, it may be possible to recover a portion of the original cost of the equipment through future service center rates. If the service center began utilizing the equipment in the same fiscal year in which the asset was purchased, a cost transfer should be performed to transfer the purchase to the equipment reserve chartstring. If a fiscal year has closed since the purchase but the asset is still within its useful life and is still being depreciating, the portion still left to be depreciated can be recovered through depreciation charges on the service center.

Originally purchased on an instrumentation grant
When a piece of equipment is purchased on an instrumentation grant, there is often a match requirement. When negotiating instrumentation awards, every attempt should be made to negotiate out any terms that would restrict UMB's ability to recover the match portion of the award through service center rates. The portion of the equipment costs that is recoverable on the instrumentation grant should be charged to the instrumentation grant. This portion of the cost will **not** be included in future service center rates. The match portion of the instrumentation grant should be charged to the companion chartstring. This portion of the cost will be charged to the service center chartstring through depreciation over the life of the asset.

Originally purchased on a research grant
If a piece of equipment was originally purchased by a research grant and the grant is no longer using the equipment or there is surplus time available for the service center, the service center may use that piece of equipment in its operations. Since the cost of the equipment has already been recovered from an external sponsor, no depreciation will be charged to the service center for these assets.

Originally purchased on a capital project
A capital project is a project to build new campus facilities or renovate existing facilities. Movable equipment is often purchased on these projects. These projects are generally part of the capital budgeting process. Therefore, it is important that the equipment purchases consume capital project budgets. However, the University should still be able to recover the cost of this equipment through service center rates. If a piece of equipment was originally purchased on a capital project, the acquisition cost will remain on the capital project. Depreciation entries will be made for these items as if they had been purchased on the equipment reserve chartstring.

Originally purchased through the Revolving Equipment Loan Program
The Revolving Equipment Loan Program is a loan program run by the University of Maryland System to allow campuses to purchase equipment and finance them through the System's Commercial Paper program. Instead of paying for the equipment in the year of acquisition, the purchasing entity will make debt payments (principle and interest) semiannually over the life of the loan agreement. These payments should be charged to the service center chartstring (**not** the equipment reserve chartstring). No depreciation entries will be made for these items.

Equipment gifted to the service center
If equipment is gifted to the service center the entry to record the gift should be recorded to the equipment reserve chartstring. This entry will debit an equipment expense account, for example 4344, and credit a gift revenue account, for example 0321. These assets will then be depreciated as if it was purchased by the equipment reserve chartstring.

Depreciation Journal Entries

Depreciation expense is calculated as the portion of the cost of the asset funded by UMB divided by the estimated useful life of the asset. Useful lives are determined by Quality Assurance in Financial Services. On a quarterly basis, Cost Analysis and Studies will perform a journal entry to record depreciation for the appropriate assets. This entry will debit (charge) the service center

chartstring in account code 5506 – Service Center Depreciation and credit the service center companion chartstring in account code 5506 – Service Center Depreciation.

On an annual basis, Cost Analysis and Studies will provide a depreciation schedule to the unit in time for the development of the annual rate calculation. This schedule will list all assets still being depreciated into the service center and summarize depreciation expense per year for the remaining useful lives of the assets.

See Appendix F for a listing of equipment useful lives.

Disposition of Equipment

All equipment dispositions must follow UMB's Policy on Disposal of Surplus Property. This policy can be found at: https://cits-cfdev.umaryland.edu/hrpolicies/section8/t80120Asa.html

Once the asset has been disposed or transferred to another function in the fixed asset system, depreciation will no longer be charged to the service center for the item. If there was a loss on disposal, this should be charged to the service center chartstring at the time of disposition. A loss on disposal occurs when the asset is disposed of prior to the end of its useful life and the proceeds from the sale or insurance recovery (if any) are less than what remains to be depreciated. The loss is calculated as the amount left to be depreciated less any proceeds from the sale or insurance recovery.

Equipment Reserve Chartstring Balances

Equipment reserve chartstrings cannot run a deficit balance. This means funding must be transferred in to fund purchases if there is not enough of a surplus in the equipment reserve chartstring to fund the purchase. This funding must come from a non-state, nonsponsored chartstring (i.e. chartstrings with a fund of 116 may not be used). Designated Research Initiative Funds (DRIF) may also be used. Units without any appropriate funding sources should work with their Dean's Office to make funding arrangements. This funding is accomplished through a journal entry that credits the equipment reserve chartstring in revenue account 0999 – Internal Revenue Transfers and debits the funding chartstring in the same account.

If a surplus exists in the equipment reserve chartstring, this may be:

- Transferred back to the original funding source
- Used to fund future equipment purchases
- Used to fund operating deficits in the service center chartstring

See Appendix G for a comprehensive example of equipment purchases, funding entries, and depreciation entries.

Inventories

Inventories of Goods for Resale

Retail operations that keep goods on hand should maintain an inventory system that will allow them to know the purchase price of the item they are reselling in order to apply the markup to the appropriate base. The system should also allow them to value their inventory on hand.

In order to minimize the risks of loss, theft, and obsolescence, inventory balances should be kept at a minimum. If it is estimated that the value of the inventory on hand at May 31st is greater than $25,000, then the service center must report the value and a detailed listing of their inventory to the Associate Director of Financial Services by June 20th for possible inclusion in the University's financial statements. This value must also be reported to Cost Analysis and Studies as part of the annual rate package.

Supply Inventories

In the course of business, it may be necessary for the service center to maintain an inventory of supplies. In order to minimize the risks of loss, theft, and obsolescence, inventory balances should be kept at a minimum. If it is estimated that the value of the inventory on hand at May 31st is greater than $25,000, then the service center must value their supply inventory. This value and a detailed listing must be reported by June 20th to the Associate Director of Financial Services for possible inclusion in the University's financial statements. This value must also be reported to Cost Analysis and Studies as part of the annual rate package.

Establishment of Billing Rates

Service centers bill based on actual usage. The first step in establishing billing rates is to determine the basis for the billings (billing unit). For example, a service center could be billed per test, per hour use of a piece of equipment, per labor hour, etc. A service center should choose a billing unit that has a direct relationship with the cost of providing the service. It should also be practical to track this billing unit in order to create bills and support rate calculations.

Service center billing rates per billing unit should be set at a level designed to recover no more than the cost of providing the service. Therefore, the rate calculation is basically an estimate of the operating costs of the center, adjusted for any prior surpluses or deficits, divided by an estimate of the number of billing units. Basing rates on prevailing market rates, rates used at other institutions, or any other method not based on projected costs and volumes is not allowed.

As part of the initial proposal and once a year during the operation of the service center, the service center must submit a proposed rate structure to Cost Analysis and Studies. This rate structure will depend on the type of goods and/or services the service center is providing. There are three basic types of service center operations:

- Retail Operations
- Suppliers of Standardized Services
- Suppliers of Specialized Services

Although most services should be able to be costed according to one of the above models, if these models do not work for your service, contact Cost Analysis and Studies for assistance.

Types of Rate Structures

Retail Operations

Retail operations resell goods to internal users. Since the cost of each product identified for sale is known, the rate (i.e. sales price) is determined by adding a markup to the cost of the item. The markup covers the operating costs (i.e. stock room clerk, twine) associated with selling the item. The markup could be calculated based on the cost of goods sold or based on the number of items sold. This determination should be based on what is most equitable. The formula to calculate the markup is as follows:

Based on the cost of goods sold:

Markup % = Estimated Operating Costs / Estimated Cost of Goods Sold

Based on the number of units sold:

Markup per unit = Estimated Operating Costs / Estimated Number of Units Sold

See Appendix B for an example of a rate schedule for retail operations.

Retail operations may not sell to external parties. Doing so may violate the University's purchasing contracts with external vendors. Also, this type of activity will generate unrelated business income and possibly the need to apply sales tax.

Supplier of Standardized Services

Standardized services do not vary significantly from customer to customer. An example may be a month of telephone service or a simple laboratory test. These types of services are more equitably and practically charged out based on a unit of service basis. In the previous examples, a unit of service would be a month of telephone service or a laboratory test. The basic formula to calculate rates for standardized services is:

Rate per billing unit = Estimated Operating Costs / Estimated # of units to be provided

See Appendix C for an example of a rate schedule for standardized services.

Supplier of Services Billed Through Time and Materials

Some services require varying levels of time (personnel and/or machine) and varying levels of supplies to supply the service to different users. An example of this may be a machine shop that fabricates unique pieces of machinery for various users or provides repair services. Another example may be a highly complex laboratory test requiring varying configurations for each client. These types of services are more equitably and practically charged based on a time and materials basis. In this type of billing, materials and supplies that can be identified to each job are charged to that job. The cost of personnel and other costs that cannot be identified to a specific job are recovered through the use of an hourly rate for personnel or machine time.

See Appendix D for an example of a time and materials rate schedule.

Other

If the service your service center is providing does not fall into one of the previous categories, please work with Cost Analysis and Studies to develop an appropriate rate schedule.

Providing Multiple, Related Services

Service centers may provide a single service or several related services. Related services have similar customers, use similar techniques, and/or use similar equipment. When several services are performed, an allocation of the costs of the service center to the various services is required in order to calculate rates for each individual service. For each line of cost, there should be an allocation methodology employed to allocate that cost to the services to which it is associated. For example salaries and benefits may be allocated based on an estimate of the percentage of effort each person will spend providing each service. While the depreciation on a piece of equipment may be allocated based on an estimate of the number of hours each service will use a piece of equipment. Some costs may be specifically identified to one particular service and other costs may have more than one service. Once all of the estimated operating costs are allocated to each service, a separate rate calculation should be performed for each service.

It is not appropriate to subsidize one service with the billings from another service. All services should be priced according to their costs.

Unrelated services that do not share significant costs should be set up as separate service centers.

See Appendix E for an example of a rate schedule for a service center providing multiple, related services.

Estimating Operating Costs

For established service centers with a history of costs, operating cost estimates should be based on historical costs adjusted for inflation and expected growth or decline.

Service centers without a history should build an operating cost budget based on expected needs. Development of operating cost budgets should follow the policies outlined in the "Collection of Costs" and "Equipment" sections of this manual.

Estimating Usage (Volume)

For established service centers with a history of operations, usage estimates should be based on the service center's previous experience adjusted for expected growth or decline. Significant projected increases or decreases in volumes should be explained.

Service centers without a significant history on which to base usage projections should document their assumptions in determining the projected volume and include those assumptions in the rate proposal submitted to Cost Analysis. A common method would be to determine the maximum capacity of the service center and reduce that maximum volume for known non-productive time. For example:

A consulting cost center that was recently established charges users by the hour. They have one employee at 1.00 FTE working on the center. Available hours are used to calculate usage.

Maximum hours available	2080	*40 hours/week x 52 weeks*
Less: Holidays	(88)	*11 days paid x 8 hours/day*
Less: Vacation & Sick	(120)	*10 hours/month x 12 months*
Available Hours	1872	
Less: Non-productive hours (downtime for machine setup, etc)	(390)	*1.5 hrs/day x 5 days/wk x 52 wks*
Expected Usage	1482 hours	

Considering Prior Years' Cumulative Surpluses/Deficits

After estimating your operating costs for the next year, the previous years' cumulative surplus or deficit needs to be taken into consideration. Since service centers are designed to recover their costs over the long-term, future rates should be increased to cover deficits and future rates should be decreased to account for previous surpluses. After estimating operating costs, prior deficits should be added to operating costs and prior surpluses should be deducted from operating costs before calculating rates.

Service centers can retain a surplus balance up to the value of 90 days of expenses to allow for fluctuations in revenues and expenses that will happen in the normal course of business. Therefore, if the surplus balance in the service center chartstring is less then the value of 90 days of expenses, no offset needs to be made in the rate calculation.

Large deficits may not be able to be absorbed by future rate increases. For the appropriate treatment of this situation, please see the section "Review Procedures".

Final Rate Determination

The rate calculation may be rounded in order to allow for easier billing calculations.

If it is determined that the actual rate calculation is too high and cannot be supported by the current customer base, the service center may set a lower rate. This means that the service center is projecting to run a deficit. Annual rate proposals submitted with the expectation of running a deficit should be approved by the department chair and the Dean's Office. For more information regarding the treatment of this situation, please see the section "Treatment of Deficits".

It is not appropriate to set a rate higher than the calculated rate in order to build up a "reserve". Rates can only be set to cover the expected costs of providing the service.

Setting Animal Care Facilities Rates

Rates for animal care facilities should be calculated according to the NIH National Center for Research Resources' (NCRR) Cost Analysis and Rate Setting Manual for Animal Research Facilities (CARS).
This is available at: http://www.ncrr.nih.gov/publications/comparative_medicine/CARS.pdf

Annual Rate Approval Process

On an annual basis a rate calculation package should be sent to Cost Analysis and Studies for approval. This package should contain a rate calculation sheet as well as a final rate sheet that could be posted to advertise the new rates for the coming year. Rates are set for the period January 1 – December 31. Rate calculations should be based on the prior fiscal year's (July 1 – June 30) results. Cost Analysis will review the rate calculation to determine:

- Are all costs included in the operating costs allowable costs?

- Are prior period surpluses/deficits taken into consideration?
- Was the appropriate amount of depreciation expense included in the rate calculation?
- Are the estimates of operating costs reasonable?
- Are the estimates of billing volumes reasonable?

All rate packages should be submitted to your Dean's Office no later than October 1st. The Dean's Office will forward the rate packages to Cost Analysis and Studies no later than November 1st in order to allow for review and approval of the rates for the next calendar year. Rate packages should disclose any changes in the operation of the service center since the last submission to Cost Analysis (billing procedures, new services, new location, etc.).

Mid Year Rate Changes

If circumstances (sales volumes or costs) change significantly or if the estimates used to calculate the rates are significantly different than reality, the rates should be adjusted mid year. A new rate calculation and rate sheet should be sent to the Dean's Office and then to Cost Analysis for approval.

Billing Procedures

Service center billings should be based on actual usage of the service center at the approved rates. All users of a service center must be billed at the same approved rates. This includes, but is not limited to:

- unfunded researchers,
- graduate students working on their thesis,
- students working on coursework,
- users in the home department of the service center,
- users in other University departments/Schools,
- users external to the University,
- users associated with the service center (service center director, staff).

Billings for goods and services provided to UMB projects that are externally funded should be charged to those sponsored projects. All other billings to internal University users should be to a non-sponsored chartstring. External users may have surcharges and/or taxes added on to their billings. See section below on billing external users.

Internal billings must occur after the goods and services are provided. Pre-billing internal users is not allowed. All billings should be performed timely (at least once a month). Untimely billings may result in attempts to charge sponsored agreements that have ended, making recovery of the service center charge impossible. If this occurs because the billing was not performed the month after the service was performed, then the home department of the service center must absorb this charge.

Internal vs. External Customers

Service centers are established to provide goods and services to primarily internal customers. However, service centers may sell to external customers if resources are available and when those goods or services are directly and substantially related to the mission of the University. For purposes of this policy, internal and external customers are defined as follows:

Internal Customer – Any customer who pays with an eUMB chartstring.

External Customer – Any customer not using an eUMB chartstring for payment. This includes other University of Maryland campuses, on-campus affiliates (e.g., University of Maryland Medical System, University Physicians, Veterans Administration), students, and non-University residents of the BioPark.

Collecting Internal Billing Information

At the time the customer requests goods or services from the service center, the service center should have a mechanism in place to obtain billing information. For internal customers, this

should include the full eUMB chartstring (Fund, Project ID, Department, Program, and PCBU) and an authorizing signature.

The BIORESCO core has a service available to all service centers on campus. This service will post your rate schedule on the web and allow users to order your service (collecting the appropriate charging information) from a web interface. This billing data will then be interfaced monthly with eUMB. To view the website go to: http://medschool.umaryland.edu/core/bioresco.asp. For information on using this service, please contact Carol McKissick at 410-706-0322.

Maintaining Supporting Documentation

As the goods and services are provided, a log should be kept by the personnel supplying the goods or providing the service. These logs will be used to complete the billings, estimate volumes for future rate calculations, and provide documentation for the billings.

These logs should be retained by the service center for a period of at least three years. If the service center is under audit from an external source, this period will be extended until the audit is complete.

Retention of the data generated as a result of the services performed by the service center is the responsibility of the user of the service center.

Performing Billing Entries in eUMB – Internal Customers

Internal billings are performed using a journal entry. (A User Productivity Kit (UPK) is available on the campus portal to demonstrate how to perform a journal entry.) These billings should be performed according to the Internal Billing Policy. See the Internal Billing Policy at: http://www.fincsvc.umaryland.edu/policies.cfm. This journal entry should be performed at least monthly for all goods and services provided in the previous month. This journal entry should be based on the usage logs and previously collected billing information.

For service centers, this journal entry should credit the service center chartstring in account 0998 – "Internal Services" and should debit the customer chartstring in either account 3751 – "Services – Internal" if a service has been provided or account 3999 – "Supplies/other – Internal" if a good has been provided.

Specialized service facilities will have specific expense account codes established for their billings. Therefore, specialized service facilities billings should credit account 0998 – "Internal Services" in the specialized service facilities chartstring and debit the customer chartstring in the expense account code established for their operation. UMB procards should not be accepted as payment from internal customers.

Sales to External Parties

Sales to external parties have the inherent risk of nonpayment as well as the risk of tax liability. Therefore, service centers need approval from their Dean's Office in order to sell to external parties.

Sales to non-federal, external users can be charged at rates in excess of the approved rate schedule. It is never appropriate to charge an external user at a rate less than the approved rate. It is up to each service center to determine the surcharge, if any, it wishes to assess to its non-federal, external customers. Surcharges should be applied consistently to all external customers so that the amount of total surcharges recovered can be easily determined. The revenues generated from this surcharge may be used to:

- offset the costs of billing external customers (credit card fees, billing costs, bad debts),
- offset the costs charged to internal users,
- reserve for future equipment purchases, or
- build an operating reserve for the service center.

If the surcharge is to be used to fund equipment purchases, these surcharges should be transferred to the equipment chartstring. This transfer should be accomplished through a journal entry using account 0507 on both the debit and the credit side of the journal entry. Surcharges used for other purposes should remain in the service center chartstring.

In order to minimize the risk of bad debt, the service center should obtain one of the following before performing the service or delivering the goods:

- a purchase order issued by the purchasing company,
- a credit card number (UMB One Card), or
- advance payment in the form of cash or check

NOTE: Internal users should never be billed in advanced or charged a surcharge.

Recording Cash and Credit Card Payments

Cash or checks received for payment should be deposited as soon as possible through the University's Cashier's Office.

A service center that will have significant credit card receipts should work with the Bursar in the Student Accounts Office in Financial Services, extension 6-2929, to obtain their own credit card processing equipment. If the credit card volume will not be significant, Student Accounts may be able to direct you to a related operation in your school that has credit card processing equipment that could be used.

All deposits should be coded to the service center's chartstring in account 0507 –Services – Non-University Users.

Billing External Customers

External sales not collected in advance or paid by credit card should be billed using the University's Central Billing System. This includes billings to other state agencies. See the Central Billing System policy at: http://www.fincsvc.umaryland.edu/images/CentralBilling.pdf. This system automates the tracking of outstanding invoices, keeps an aging of the accounts receivable, and sends dunning letters as necessary. Customers will remit payment to a lock box and the payments will be applied automatically. Questions regarding this system should be directed to the Manager of Quality Assurance, 6-6554.

Unrelated Business Income Tax (UBIT) Issues

UMB is a tax exempt organization. If a tax exempt organization regularly carries on a trade or business that is not substantially related to its exempt purpose, the organization is subject to tax on its income from that unrelated trade or business. If there is no profit on the activity, the University is still subject to unrelated business income tax reporting even though there may be no tax expense.

Therefore, a service center must notify the Associate Director of Financial Services prior to engaging in external sales. Financial Services will determine if the services being provide are related to our tax exempt purposes of teaching, research, and/or patient care. Requests for approval should be sent to the Associate Director of Financial Services, 6-2509.

Sales Tax Issues

The sale of goods to external parties could also trigger the need to collect state sales tax. If a service center is providing goods as opposed to services, the service center should work with Financial Services prior to selling to external parties.

External Service Center Sales vs. Sponsored Agreement

Normal service center sales to external parties do not require a contract approved by the Office of Research and Development (ORD). Normal service center sales include performance of routine services or services that are customized based on customer requests. However, if the work being performed includes any of the following activities or issues, a formal sponsored agreement, approved by ORD, should be negotiated:

- UMB faculty and/or staff is involved in the design of the tests being performed
- UMB faculty and/or staff will provide an analysis of the results*
- If UMB wants to retain ownership of the data
- If the work involves classified information
- If UMB wants to retain publication rights
- If there are potential intellectual property issues

*The exception to this requirement is when elementary, basic analyses are conducted for quality control purposes to ensure accuracy and usability of the raw data produced by a service center and is part of the basic services provided. This type of analysis does not involve detailed analyses nor draw conclusions from the generated raw data. For example, in the case of DNA sequencing raw data are analyzed to ensure accuracy. The same is true when microarray data are analyzed for quality control measures.

Intellectual Property Use in a Service Center

Service centers do not have automatic rights to practice Intellectual Property (IP) owned by a third party. Intellectual Property includes a patentable invention, proprietary material, copyrightable subject matter, trademarks or trade secret. It also includes works of art, and inventions or creations that might normally be developed on a proprietary basis. Please contact, Libby Hart-Wells, Intellectual Property Officer at 410-706-2378 for additional information.

Definitions

Copyright - Copyright protection is afforded to art, music, plays, movies, literature, and scholarly works. Copyright is automatic and requires no registration or other formality. Copyrights prevent others from copying the work. Copyright protection extends for the artist's or author's life plus 70 years.

Patents - Patents give an inventor(s) the exclusive right to practice their invention. Others **cannot** freely practice a patented invention without permission from the patentee. Patents cover devices, formulas, tools, methods, compounds, all of which must have a defined utility. A patent term extends for 20 years.

Trademark - A trademark is a word, phrase, or logo that identifies a product, a service, or the person or company that offers a product or service to the public. To prevent others from using a trademark, registration with the U.S. PTO must be made. Trademark protection can be extended indefinitely provided that the trademark is used and the registration is renewed every five years.

Infringement - Infringement means the encroachment, breach, or violation of a right, law, regulation, or contract.

The term is most frequently used in reference to the invasion of rights secured by copyright, patent, or trademark. The unauthorized manufacture, sale, or distribution of an item protected by a copyright, patent, or trademark constitutes an infringement.

Use of Patents, Copyrights or Trademarks in a Service Center

If a service center uses intellectual property owned by a third party, the Service Center Director should contact the Office of Research and Development, Division of Commercial Ventures and Intellectual Property (CVIP). The CVIP will evaluate, on a case by case basis, and work in collaboration with the Director to determine the appropriate steps to ensure all IP protections are addressed.

Why is it Necessary to Obtain Legal Approval

Failure to legally obtain permission to use a patented or copyrighted property is an infringement of the federal and certain state rights of the owner. The owner may legally enforce its rights against any unauthorized user, including in certain cases, members of academic institutions.

Review Procedures

Service center administrators and service center directors should review their chartstrings on at least a monthly basis to verify the activity on the chartstring. The Office of Cost Analysis and Studies will perform quarterly and annual reviews of service center chartstrings.

Quarterly Reviews

On a quarterly basis, cost analysis will review the activity in service center accounts to determine:

- Are billings being performed timely?
- Are there significant deviations from the costs that were submitted to determine the rate?
- Are there unallowable costs?
- Are there deficits and/or surpluses that need to be addressed?
- Have there been new equipment purchases that need to be added to the depreciation calculation?
- Are there new external sales?

Cost Analysis and Studies will contact the service center administrators if there are any problems that need to be resolved. Recurring, unresolved problems will be reported to the Dean's Office.

Annual Reviews

During the months of November and December Cost Analysis and Studies reviews and approves the rate packages submitted by the service centers to establish rates for the coming calendar year. The rate package should contain:

- A rate calculation based on projections for the coming calendar year
- A narrative describing the projection methodology for each cost line item and sales volume
- A disclosure of any proposal items that have changed since the previous rate package submission
- A rate sheet that could be posted to the web to advertise the rate(s)
- A listing of any equipment used by the service center that was not purchased on the equipment reserve chartstring
- A Routed Service Center Annual Rate Review Sheet

Cost Analysis will review the rate calculation to determine:

- Are all costs included in the operating costs allowable costs?
- Are prior period surpluses/deficits taken into consideration?
- Was the appropriate amount of depreciation expense included in the rate calculation?
- Are the projections of operating costs reasonable?
- Are the projections of billing volumes reasonable?

This rate package should be sent to your Dean's Office no later than October 1st and submitted to Cost Analysis and Studies no later than November 1st. .

Subsidies

A planned subsidy exists when the service center decides to use a billing rate that will not be sufficient to fund the expected costs of the service center operations. Rate schedules that contain planned subsidies should quantify the expected subsidy (Expected Volume X (Calculated Rate – Billing Rate). Annual rate packages with planned subsidies need to identify a nonsponsored funding source to fund the deficit created by the subsidy and include a letter of approval from the funding sources owner.

Treatment of Deficits

A deficit can occur if any one or all of the following occur:

- Actual costs are greater than expected costs
- Actual billing volumes are less than expected
- There was a planned subsidy.

Large on-going deficits (other than planned subsidies) should be avoided and may indicate that the service center is not operating optimally. The Dean's Offices should investigate the causes of the deficits and discuss terms and conditions for the on-going operation of the service center.

When a service center incurs a deficit, the rate schedule should be adjusted to increase future billings in order to recover the deficit. If the deficit is too large to be funded from the next year's rate increase, the deficit must be funded from a non-sponsored, non-state source (i.e. chartstrings with a fund of 116 may not be used). Deficits may be funded from surplus balances in the equipment reserve fund. Designated Research Initiative Funds (DRIF) may also be used. Units without any appropriate funding sources should work with their Dean's Office to make funding arrangements. The funding journal entry should credit the service center chartstring and debit the funding source chartstring. Both sides of the journal entry should use revenue account 0999 – Internal Revenue Transfers.

If a service center needs more than one year of billings to recover a deficit, the annual rate package should project costs, volumes, and rates for the entire period needed to recover the deficit. Cost Analysis and Studies and Budget and Financial Analysis will approve the deficit recovery plans on a case by case basis. In some cases when the deficit is large and will not be recovered for several years, a temporary funding entry may be needed. This funding entry will be made to the equipment reserve chartstring and may be repaid to the funding source.

Treatment of Surpluses

A service center may run a surplus balance up to 90 days worth of expenses without making any adjustments to their rate schedule. When a service center incurs a surplus greater than 90 days worth of expenses, the rate schedule should be adjusted to decrease future billing rates in order to reduce the surplus. Surpluses may never be used or transferred to fund costs unrelated to the service center. Large surpluses should be avoided by adjusting rates appropriately. If a large surplus develops that cannot be reduced through rate decreases, Cost Analysis will work with the service center to refund previous customers and/or funding agencies.

Closing Service Centers

When a service center's operation ends, steps must be taken to close the chartstrings in eUMB, address chartstring balances (fund deficits, refund surpluses), and dispose of equipment. Service center administrators should work with Cost Analysis and Studies to close a service center.

Appendix A: Example of a Service Center Proposal

Proposal for the Establishment of ABC Testing Service Center

Description of Services to Be Provided
This service center will perform ABC tests on samples. As ABC tests are fairly standard across sample types, this service will be billed out per ABC test. Programmatically, this service center will be managed by the Service Center Director, Dr. Smith. There will also be oversight from the Department Chair, Dr. Jones.

Market Analysis
This service is currently available locally from two outside labs. Currently, their rates for this service are as follows:

Quality Testing Services	$360 per test
Superior Testing Services	$340 per test

We believe that our current project price of $350 per test is comparable with these external vendors and believe having these testing services available on campus will be of great benefit to the researchers on campus. Also, if volumes increase as projected our prices will be less than what is available externally.

5-Year Service Volume Projections
We estimate that we will perform tests on 700 samples in the first year of operation. We expect, based on the growth in this type of research that the demand for ABC tests will grow at a rate of 10% per year. A listing of some or our significant potential customers are as follows:

Principal Investigator	Award	Awarded/Pending	Est. # of Tests
Dr. Barry	NIH Program Project	Awarded	200
Dr. Colin	NHLBI R01	Pending	50
Dr. Johnson	Various Clinical Trials	Awarded and Pending	75
Dr. Smith	Various R01s	Pending	100
Dr. Miller	Intramural Award	Awarded	15

5-Year Cost Projections
Salaries and Benefits
To run 700+ ABC tests a year, we will need 1.5 FTEs of technicians. These technicians will run all 700+ tests as well as perform basic maintenance and quality control on the testing equipment. They will also maintain the activity logs for the service center.

Total annual hours (52 weeks X 40 hours)	2,080
Less: Vacation, Sick, Holidays, personal days (54 days X 8 hours)	(432)
Total Working Hours	1,648
X 1.5 FTEs	X 2
Total Working Hours	3,296
Less: Maintenance hours (8 hours per week)	(416)
Total billable hours	2,880

Since each test takes between 3-4 hours, it is estimated that 1.5 technicians could run 720-960 tests per year. These technicians earn approximately $50,000 per year.

These technicians will be supervised by Dr. Smith. Dr. Smith will spend approximately 10% of her UMB effort supervising the ABC test lab. Dr. Smith earns $150,000 per year.

Mr. Brown will perform all of the purchasing, billing and other administrative tasks related to this service center. It is estimated that he will spend 25% of his time performing these functions for the service center. Mr. Brown earns $75,000 per year

All fringes are estimated at 26% per year. All salaries and fringes are projected to grow at 3% per year.

Supplies
Each test requires approximately $20 of reagents. There are also other supplies (cleaning supplies, test tubes, swabs, etc.) that cannot be attributed directly to each test. These are estimated at $500 a month.

Telephone and Postage
Telephone and postage is estimated at $100 a month.

Travel
In order to keep up with the latest technologies and techniques, the technicians will be sent to training each year.

Depreciation
The ABC test is run using an XYZ meter. An XYZ meter costs approximately $250,000 and has an estimated useful life of 8 years. Therefore, annual depreciation expense will be $31,250.

Samples are prepared using an LMN prepping machine. It is estimated that this machine will cost $50,000 and have an estimated useful life of 5 years. Therefore, annual depreciation expense will be $10,000.

The ABC lab will require a freezer for the storage of samples. The department has agreed to let us use a surplus freezer. However, it is expected that this freezer will need to be replaced after a few years. This new freezer will cost $5,000 and will have a useful life of 10 years.

Maintenance contracts

The annual maintenance contract on the XYZ meter is $25,000 per year. This will cover any repairs as well as an annul maintenance service.

Other Initial Start-Up Costs

To initially set-up the ABC test lab, we will need to purchase several pieces of non-capitalizable equipment. This is detailed as follows:

Lab equipment (various pieces)	$15,000
Computers (2)	4,000
Printers (2)	1,000
Telephone	200
	$20,200

Also, it will take approximately 2 months to set-up the lab (install and calibrate equipment, for example). During this time no tests will be able to be performed.

Space Needs

This service center will exist in two labs in the Broadway Research Building that are currently assigned to our department, rooms 253 and 254.

Description of Billing Procedures

All potential customers will complete an order form describing the parameters of the tests than need to be performed and number of samples to be tested. This form will also indicate the chartstring that will pay for the test. See attached order form. Dr. Smith will review all orders for completeness and schedule the tests to be performed. The technicians will keep detailed logs as to the samples they worked on and the order to which the samples belonged. On a monthly basis, Mr. Brown will reconcile the order forms completed with the activity log and bill the chartstring provided on the order form using an on-line journal voucher.

Equipment Listing

Equipment Purchases:

Item	FY of Purchase	Estimated Cost
XYZ meter	2011	2,500,000
LMN Machine	2011	500,000
New Freezer	2013	5,000

Existing Equipment:

Description	Tag Number	Original Funding Source
Old Freezer	00009586	Departmental Funds

ABC Testing Service Center

5-Year Projections of Volumes and Costs with Rate Calculation

	2011	2012	2013	2014	2015	Total
ABC Test Volume	583	770	847	932	1,025	4,157
Salaries						-
1.5 Technicians	100,000	103,000	106,090	109,273	112,551	530,914
Dr. Smith	15,000	15,450	15,914	16,391	16,883	79,637
Mr. Brown	18,750	19,313	19,892	20,489	21,103	99,546
Total	133,750	137,763	141,895	146,152	150,537	710,097
Fringes	34,775	35,818	36,893	38,000	39,140	184,625
Supplies						
Reagents	11,667	15,400	16,940	18,634	20,497	83,138
Other Supplies	6,000	6,000	6,000	6,000	6,000	30,000
Telephone and Postage	1,200	1,200	1,200	1,200	1,200	6,000
Travel	3,000	3,000	3,000	3,000	3,000	15,000
Depreciation						
XYZ Meter	31,250	31,250	31,250	31,250	31,250	156,250
LMN Machine	10,000	10,000	10,000	10,000	10,000	50,000
Freezer			500	500	500	1,500
Maintenance Contract	25,000	25,000	25,000	25,000	25,000	125,000
Other Initial Start-up Costs	20,200					20,200
Total Operating Costs	276,842	265,431	272,678	279,736	287,124	1,381,810
Calculated Cost per test	475	345	322	300	280	
Charging Rates	350	350	350	350	325	
Projected Revenues	204,167	269,500	296,450	326,095	333,083	1,429,294
Surplus/(Deficit)	(72,675)	4,069	23,772	46,359	45,959	47,484
Cumulative Surplus/(Deficit)	(72,675)	(68,606)	(44,834)	1,525	47,484	

ABC Testing Service Center
Summary of Start-up Costs and Funding Needs

	2011	2012	2013	2014	2015	Total	
Operating Activity:							
Annual Operating Surplus/(Deficit)	(72,675)	4,069	23,772	46,359	45,959	47,484	*
Cumulative Surplus/(Deficit)	(72,675)	(68,606)	(44,834)	1,525	47,484		
Equipment Reserve Chartstring Activity:							
Equipment Purchases							
XYZ meter	(250,000)					(250,000)	
LMN machine	(50,000)					(50,000)	
Freezer			(5,000)			(5,000)	
Depreciation Recoveries							
XYZ meter	31,250	31,250	31,250	31,250	31,250	156,250	
LMN machine	10,000	10,000	10,000	10,000	10,000	50,000	
Freezer			500	500	500	1,500	
Funding Inflows/(Outflows)	331,425	(45,319)	(27,356)				
Annual Reserve Surplus/(Deficit)	72,675	(4,069)	14,394	41,750	41,750	207,750	
Cumulative Surplus/(Deficit)	72,675	68,606	83,000	124,750	166,500		
Combined Cumulative Surplus/(Deficit)	-	-	38,166	126,275	213,984	-	

* Projected operating surplus balance is less than 90 days worth of projected expenses

Appendix B: Retail Operation Markup Percentage Calculation Example

This is a small stockroom operation that keeps a small inventory of gases, chemicals, and other lab supplies on hand for resale to researchers on campus.

Annual Budget		
Salaries		
Joe Stockclerk	20,000	
Mary Sue Billing	35,000	
Benefits	7,500	
Packing Supplies	15,000	
Telephone	300	
Total Operating Budget	77,800	(A)
Cost of Goods to be Sold	750,000	(B)
Total Costs	827,800	
Markup % (A/B)	10.4%	
Prior Year Surplus	47,000	
Calculation of Acceptable Surplus Balance:		
Annual Expenses	827,800	
90 days Expense	206,950	

Since $206,950 is greater than $47,000, no adjustment for prior year surplus is necessary.

*NOTE: This is an example meant for illustrative purposes only. It is meant to give examples of possible costs and billing units. Each service center is unique and should include all appropriate costs related to its particular service and should choose a billing unit that is appropriate for the services being provided.

Appendix C: Standard Service Center Rate Calculation Example

This service center provides a standard analysis of blood samples for research purposes. Peg Faculty supervises the operation. John Technician runs the tests. Mary Sue Billing prepares the billings and rate calculations for the service center.

Annual Budget - 200B

Salaries	% Effort	Annual Salary		
Peg Faculty	20%	130,000	26,000	
John Technician	100%	40,000	40,000	
Mary Sue Billing	10%	45,000	4,500	
Benefits			12,500	
Staff Training Costs			2,500	
Equipment Depreciation			20,000	
Supplies			40,000	
Operating Costs			145,500	
Prior Year Deficit			35,000	
Total Costs to Recover			180,500	(A)
Estimated # of Tests *			1,100	(B)
Billing Rate per Test (A/B)			164	

* Number of tests was estimated based on a 10% growth over 200A

*NOTE: This is an example meant for illustrative purposes only. It is meant to give examples of possible costs and billing units. Each service center is unique and should include all appropriate costs related to its particular service and should choose a billing unit that is appropriate for the services being provided.

Appendix D: Time and Materials Rate Calculation Example

In this Service Center, Peg Faculty supervises 3 technicians who work with Principal Investigators to design very specialized tests for their research. Each design requires different amounts of technician time and supplies. Supplies that can be easily traced to each test are billed to the customer at cost. All other costs are billed according to the direct time spent by the technician on the design and performance of the test.

Annual Budget

Salaries				
Peg Faculty	15%	150,000	22,500	
Joe Technician	100%	50,000	50,000	
Sally Technician	100%	50,000	50,000	
Kim Technician	100%	50,000	50,000	
Mary Sue Billing	10%	40,000	4,000	
Benefits			20,000	
Supplies			25,000	
Software			30,000	
Depreciation Expense			50,000	
Equipment Maintenance Contract			15,000	
Costs to be allocated through hourly rate			316,500	
Materials billed to customers			100,000	
Total Cost of Operations			416,500	
Total Costs to be recovered through billable hours:				
Costs to be allocated through hourly rate			316,500	
Reduction of prior years' surplus ***			(23,083)	
Total Costs to be recovered through billable hours			293,417	(A)
Total Billable Technician Hours*			4,576	(B)
Rate per Billable Hour (A/B)			64	

*** Billable Technician Hours is computed as follows:**

Total Hours (52 wks * 40 hrs/wk * 3 techs)	6,240
Less: Holiday, Sick, Vacation (52 days each)	(1,248)
Less: Downtime (8 hrs per week)**	(416)
Total Billable Technician Hours	4,576

** Downtime consists of regular maintenance of the equipment, quality assurance, etc.

*****Calculation of Allowable Surplus Balance:**

Annual expenses	416,500
Acceptable Surplus (90 days Expense)	104,125
Actual Fiscal Year End Surplus	127,208
Excess Surplus	23,083

*NOTE: This is an example meant for illustrative purposes only. It is meant to give examples of possible costs and billing units. Each service center is unique and should include all appropriate costs related to its particular service and should choose a billing unit that is appropriate for the services being provided.

Appendix E: Multiple, Related Services Rate Calculation Example

This service center provides DNA Testing and Peptide Testing for departments within the University. Peg Faculty supervises the operation. Joe Technician and Kim Technician run both tests. DNA testing requires much more of Dr. Faculty's time to supervise. She estimates that she spends 80% of her time spent on service center activities on DNA testing and 20% on Peptide testing. It is estimated to take 3 hours of a technician's time to run a DNA test and 2 hours to run a peptide test. Each test requires a unique piece of equipment. However, both tests use the centrifuge for approximately an hour per test. Each test has supplies/reagents that are specific to that type of test, but there are also many supplies (cleaning, gloves, test tubes, etc.) that are used by the entire operation. Mary Sue Billing prepares the billings and rate calculations for the service center.

FTEs	Total Salary	% Effort	SC Salary
Peg Faculty	150,000	15%	22,500
Joe Technician	50,000	100%	50,000
Kim Technician	50,000	100%	50,000
Mary Sue Billing	40,000	10%	4,000
			178,250

	Total	**% DNA**	**DNA Costs**	**% Peptide**	**Peptide Costs**	
Non Administrative Salaries						
Peg Faculty	22,500	80%	18,000	20%	4,500	A
Joe Technician	50,000	34%	16,767	66%	33,233	B
Kim Technician	50,000	34%	16,767	66%	33,233	B
Total Non Administrative Salaries	122,500		51,535		70,965	
Non Administrative Benefits						
Peg Faculty	5,000	80%	4,000	20%	1,000	A
Joe Technician	5,000	34%	1,677	66%	3,323	B
Kim Technician	5,000	34%	1,677	66%	3,323	B
Total Non Administrative Benefits	15,000		7,353		7,647	
Supplies						
DNA Reagents	230,000		230,000		-	
Peptide Reagents	75,000		-		75,000	
General Supplies	88,000	25%	22,150	75%	65,850	C
Total Supplies	393,000		252,150		140,850	

Depreciation						
DNA Equipment	21,474		21,474		-	
Peptide Equipment	15,378		-		15,378	
Centrifuge	12,545		4,184		8,361	C
Total Depreciation	49,397		25,658		23,739	
Maintenance Contracts						
Peptide Equipment	30,000		-		30,000	
Centrifuge	25,000	25%	6,293	75%	18,707	C
Total Maintenance Contracts	55,000		6,293		48,707	
Direct Costs						
(basis for D allocation %s)	634,897	54%	342,989	46%	291,908	
Administrative Costs						
Mary Sue Billing Salary	4,000	54%	2,161	46%	1,839	D
Mary Sue Billing Benefits	5,000	54%	2,701	46%	2,299	D
Total Administrative Costs	9,000		4,862		4,138	
Prior Year Deficit Balance	43,000	54%	23,230	46%	19,770	D
Total Costs to be Recovered	686,897		371,080		315,817	
# Tests						
(basis for C allocation %s)	3,675	25%	925	75%	2,750	
Rate per Test			401		115	

A - Allocated based on Peg Faculty's estimation of her time spent on each test.
B - These costs were allocated based on the estimate of Technician Time per test.

Technician Time per Test:

# Tests	3,675	925	2,750
Hours per test		3	2
Technician Hours	8,275	2,775	5,500
% of Technician Hours		34%	66%

C - Allocated based on the % of the # of total tests to be performed
D - Allocated based on the % of Direct Costs allocated to each test.

*NOTE: This is an example meant for illustrative purposes only. It is meant to give examples of possible costs, billing units and allocation methodologies. Each service center is unique and should include all appropriate costs related to its particular service and allocate those costs according to methodologies and should choose a billing unit that is appropriate for the services being provided.

Appendix F: Equipment Useful Lives

Asset Description	Asset Class	Useful Life (Years)
Absorption Meters Impendence	551101	8
Air Conditioners	591101	4
Amplifiers/Preamplifiers	557215	8
Analyzer - Misc	552999	8
Analyzers - Acid	552101	8
Analyzers - Gas	552107	8
Analyzers - Glucose	552108	8
Analyzers - Multichannel	552110	8
Analyzers - Signal	552115	8
Audio/Visual Equipment - Misc	527999	6
Audio/Visual Equipment - Readers/Viewers	527105	6
Audio/Visual Equipment - Slicers/Editors	527107	6
Autoclaves/Sterilizers	557104	15
Balances and Scales	555102	12
Basins/Crucibles/Vessels/Tanks	557105	12
Baths- Misc/Laboratory	557106	8
Beds - Electric	554104	12
Benches - Metal/Wood	557107	12
Blood Gas Apparatus	557108	8
Cabinets - Safety	554142	12
Cage (Animal) - Automatic Watering	557112	15
Cage Racks	557110	15
Cage Washers	557111	8
Cages (Animal) - Miscellaneous	557115	15
Cages (Animal) - Transfer	557114	15
Calibrators	555107	8
Cameras	522101	8

Asset Description	Asset Class	Useful Life (Years)
Card Catalog Units	532103	15
Carts- Laboratory	557117	12
Casting Machines	554137	8
Centrifuges	556103	12
Chambers - Bioflow	557120	8
Chambers - Culture	557122	8
Chromatographs, HPLC Water Systems	556106	8
Clamps - Miscellaneous	555109	8
Classroom Equipment - Misc	531999	8
Clinical Equipment - Misc	554999	8
Coagulator	557222	8
Collators, Decollators, & Sorters	513104	8
Communication Equipment - Interactive Video	521116	4
Communications Equip Radio UHF	521108	8
Communications Equipment - Facsimile	521113	4
Communications Equipment - Misc other equipment	521999	4
Compactor	541103	8
Computers	513114	4
Computers - Disc Backup System	513119	3
Concentrators	557133	8
Converters	557135	8
Coulters	552201	8
Counters	552998	8
Culture Systems - Anaerobic	556173	8
Defibrillators	556111	6
Dental - Chairs	554108	12
Dental Equipment	554138	8
Dental Mobile Units	554110	8
Desks- Metal/Wood	511101	15

Asset Description	Asset Class	Useful Life (Years)
Dilutors	556117	8
Display Cases	531103	15
Distillation Apparatus/Stills	557142	15
Dryers/Glasswares	557143	8
Electrocardiograph System (EKG)	554112	6
Electrodes	557144	8
Electroencephalograph System (EEG)	554114	6
Electrophoresis Unit	556119	6
Embalming Machines	556121	12
Evaporators	556122	12
Fans/Ventilators	591104	12
File Cabinets - Lateral	511106	12
Filters/Filtering Apparatus	557146	8
Fraction Collectors	556123	8
Freeze Dryers	556127	8
Freezers	591105	8
Furniture - Misc	511999	15
Gamma Counters	552204	6
Generators - Misc Laboratory	557148	12
Heaters/Heating Apparatus - Laboratory	557151	8
Holders - Tube	557158	8
Homogenizers	556129	12
Hoods - Misc Laboratory	557160	12
Ice Cube Makers	591108	8
Incubators	556133	12
Isolation Units	556135	8
Knifemakers	555115	8
Laboratory Equipment - Misc	557999	8
Lamps/Lights - Misc Laboratory	557162	12
Laser Accessories (Misc)	555118	8

Asset Description	Asset Class	Useful Life (Years)
Laser Beam Pointers	555117	8
Laser Magnifiers	555119	8
Laser Power Amplifier	555120	8
Lathe	541108	15
Liquid Scintillation	557214	8
Machines - Misc	544999	15
Major Appliance - Misc	591998	8
Manipulators	557164	8
Meters - Cytometer	551118	8
Meters - Densitometers	551116	6
Meters - Electrode Impedance	551120	8
Meters - Ergometers	551122	8
Meters - Flowmeters	551127	8
Meters - Fluorometer	551128	8
Meters - Luminometer	551117	8
Meters - Measurometers	551140	8
Meters - Osmometers	551145	8
Meters - Oximeters	551146	8
Meters - Photometers	551151	6
Meters - Polarimeter	551153	8
Meters - Spectroflurometer	551165	8
Meters - Spirometers	551170	8
Meters - Thermometer	551175	8
Microcomputer Other - Chassis, Engines, etc	513146	4
Microplate Reader	551997	8
Microscope Accessories	553105	8
Microscopes - Binocular	553102	8
Microscopes - Electron	553104	12
Microscopes - Misc	553106	8
Microscopes - Stereo	553103	8

Asset Description	Asset Class	Useful Life (Years)
Microtomes	556143	10
Miscellaneous Movable	594999	8
Models/Skeletons/Specimens	531105	8
Monitors - Bedside	554121	8
Monitors - Misc. Lab	556148	12
Monochromators	556149	8
Office Equipment - Misc	512999	8
Optical Character Scanning Equip	513111	4
Oscillographs/Oscilloscopes	556153	10
Ovens/Furnaces - Laboratory	557167	12
Paper Shredders and bailers	512122	8
Photocopiers	512111	4
Photography Equipment & Processors	522105	8
Pipette/Micropipette	557221	8
Polygraphs	556159	8
Postage/Mailing Machines & Equipment	512113	8
Presses - Laboratory	557170	12
Printers	513106	4
Printing Equip - Offset & Other, Accessories	512130	8
Probes - Miscellaneous	555124	8
Projectors - Slide, Misc.	523999	8
Pumps - Infusion, Syringe, Vacuum/Pressure, Misc	557173	8
Purifiers	557182	12
Recorders - Laboratory, Misc	557218	8
Recorders -Strip/Chart, Misc	557213	8
Recreational Equipment	593999	12
Refrigerators - Compact	591112	8
Refrigerators - Standard	591111	8
Rotors/Rotators - Laboratory	557187	8
Safes & Vaults	511118	40

Asset Description	Asset Class	Useful Life (Years)
Servers - LAN	513116	4
Shakers and Mixers	556109	8
Slicers, Tissue	555133	8
Software	525999	10
Spectrometers	551166	8
Spectrophotometers	551168	8
Spectroscopes	555140	8
Stereotaxic Instrument, Apparatus	556164	8
Stimulator	557220	8
Tables (Conference)	511117	22
Tables(Laboratory) Dissecting, Instrument, Isolat	557193	15
Tape Backup System	513118	3
Thermocyclers, PCR System, Detectors	551998	12
Thermostats/Temperature	557200	12
Tissue Culture Apparatus	557201	8
Treadmills	557204	12
Ultrasonic Units	556170	8
UV Detector	541114	8
Vehicles - Forklifts	601104	8
Vehicles - Lawn Mowers	601105	5
Vehicles - Other	601999	8
Vehicles - Passenger Automobiles	601101	5
Vehicles - Tractors	601106	8
Vehicles - Trucks/Van	601102	5
Video Cameras	525103	6
Video Cassette Recorders	525101	4
Video Equipment - Misc	525999	6
Video Equipment - TV Monitors	525104	6
Washers - Glassware	557208	8
Washers - Instrument	557210	8

Asset Description	Asset Class	Useful Life (Years)
Watering Systems - Automatic	557209	15
Wave Length Scanners	556171	8
Welding Unit	541115	8
Wheelchairs	554129	12
X-ray Units	554131	6

Appendix G: Example of Equipment Journal Entries

In this example this service center is purchasing a Cytometer for $40,000. This purchase will be initially funded from the department's DRIF funds (00125-10000001-125-10408100-157). The service center chartstring is 00135-19999999-135-10408100-353. Therefore, the companion equipment reserve chartstring is 00135-19999999-139-10408100-353. Cytometers have an 8 year useful life. Therefore annual depreciation will be $5,000 ($40,000/8years).

CASE 1 - Assume that the purchase is made by the service center.

1. Purchase the equipment

00135-19999999-139-10408100-353-4344 (Reserve)	50,000	
Cash		50,000

2. Fund the purchase of the equipment

00125-10000001-125-10408100-157-0999 (Funding)	50,000	
00135-19999999-139-10408100-353-0999 (Reserve)		50,000

3. Annual Depreciation Entry (Note: Actual depreciation will be recorded quarterly by Cost Analysis)

00135-19999999-135-10408100-353-5506 (Service Center)	5,000	
00135-19999999-139-10408100-353-5506 (Reserve)		5,000

Notice that this entry will cause a $5,000 surplus in the equipment reserve chartstring. This may be left in the equipment reserve fund to fund future purchases or future operating deficits or it may be returned to the original funding source. If the department wishes to pay back the funding source the department must make the following journal entry:

4. Return funding (optional)

00135-19999999-139-10408100-353-0999 (Reserve)	5,000	
00125-10000001-125-10408100-157-0999 (Funding)		5,000

Reserve						**Service Center**				**Funding**					
		-	+					-	+			-	+		
(1)	4344	50,000	50,000	0999	(2)	(3)	5506	5,000		(2)	0999	50,000			
			5,000	5506	(3)										
(4)	0999	5,000											5,000	0999	(4)

CASE 2 – Assume that the purchase was made by a nonsponsored source (00115-10000100-115-10408100-101) and identified for use in the service center with in the first fiscal year.

1. Purchase the equipment

00115-10000100-115-10408100-101-4344 (Nonsponored)	50,000	
Cash		50,000

2. Transfer the purchase to the reserve account.

00135-19999999-139-10408100-353-4344 (Reserve)	50,000	
00115-10000100-115-10408100-101-4344 (Nonsponored)		50,000

3-5. Same entries as entries 2-4 from Case 1.

CASE 3 – Assume an instrumentation grant (00184-10000299-182-10408100-151)-was received to fund 50% of the equipment. The remainder is paid from the service center.

1. Purchase the equipment

00184-10000299-182-10408100-151-4344 (Instrumentation)	25,000	
00135-19999999-139-10408100-353-4344 (Reserve)	25,000	
Cash		50,000

2. Fund the purchase of the equipment from DRIF chartstring

00125-10000001-125-10408100-157-0999 (Funding)	25,000	
00135-19999999-139-10408100-353-0999 (Reserve)		25,000

3. Annual Depreciation Entry (Based only on non-instrumentation grant portion of purchase) (Note: Actual depreciation will be recorded quarterly by Cost Analysis)

00135-19999999-135-10408100-353-5506 (Service Center)	2,500	
00135-19999999-139-10408100-353-5506 (Reserve)		2,500

4. Return funding (optional)

00135-19999999-139-10408100-353-0999 (Reserve)	2,500	
00125-10000001-125-10408100-157-0999 (Funding)		2,500

CASE 4 – Assume the purchase was made on a research grant (00184-10000599-182-10408100-151) and this research grant no longer needs this piece of equipment.

1. Purchase the equipment

00184-10000599-182-10408100-151-4344 (Research Grant)	50,000	
Cash		50,000

No further entries are needed.

CASE 5 – Assume the purchase was made on a capital project (00410-00770103-410-06203000-601).

1. Purchase the equipment

00410-00770103-410-06203000-601-4344 (Capital Project)	50,000	
Cash		50,000

2-3. Same as entries 3-4 from Case 1. No funding entry is needed.

CASE 6 – Assume the purchase was made through the Revolving Equipment Loan Program. The loan is for 5 years with an interest rate of 3%. An amortization schedule would calculate semiannual payments of approximately $5,422.

1. Record Loan Payment (every six months for 5 years)

00135-19999999-135-10408100-353-4935 (Service Center)	5,422	
Cash		5,422

No other entries are necessary.

CASE 7 – Assume the purchase was originally made 2 years ago on a nonsponsored chartstring (00115-10000100-115-10408100-101). This equipment will now be used 100% for the service center.

1. Purchase the equipment (2 years ago)

00115-10000100-115-10408100-101-4344 (Nonsponored)	50,000	
Cash		50,000

2-3. Same as entries 3-4 from Case 1. No funding entry is needed.

Appendix H: Contact Information

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Glossary

Allocation Methodology - The basis used to allocate shared costs among services when a service center provides multiple, related services.

Billable Units - The basis for billing a service center. Projected annual billable units are the denominator for the rate calculation. Examples of billing units are machine hours used, per test or labor hours used.

Chartstring - A grouping of individual eUMB chartfields that in combination with each other represent a unique funding identifier where accounting/financial activity is recorded.

Capital Project - A construction project that helps to maintain or improve campus facilities. It is a new construction, expansion, renovation, or replacement project for an existing facility or facilities. The costs are maintained in a separate eUMB chartstring and capitalized at the completion of the project.

Copyright - Copyright protection is afforded to art, music, plays, movies, literature, and scholarly works. Copyright is automatic and requires no registration or other formality. Copyrights prevent others from copying the work. Copyright protection extends for the artist's or author's life plus 70 years.

Deficit - The fund balance in a chartstring that occurs when expenditures are greater than revenue and beginning fund balance. Ordinarily, deficits should be incorporated into the next year's rate proposal.

Depreciation - The systematic allocation of an assets cost over its useful life.

DRIF - Designated Research Initiative Fund – A fund consisting of indirect cost recovery revenue which is dedicated to the development and enhancement of research activities.

Equipment - Any item not permanently affixed to buildings which has a useful life greater than one year, and a unit cost of $5,000 or more, except for items predominantly composed of glass, rubber, cloth and equipment held for resale.

Equipment Reserve Chartstring - A companion eUMB chartstring to the service center chartstring. Original equipment purchases are made and funded in the equipment reserve chartstring. Depreciation journal entries credit the equipment reserve chartstring and debit the service center chartstring.

External Customer - Any customer not using an eUMB chartstring for payment. This includes other University of Maryland campuses, on-campus affiliates (e.g., University of Maryland Medical System, University Physicians, and Veterans Administration), students, and non-University residents of the BioPark.

Infringement - Infringement means the encroachment, breach, or violation of a right, law, regulation, or contract. The term is most frequently used in reference to the invasion of rights secured by copyright, patent, or trademark. The unauthorized manufacture, sale, or distribution of an item protected by a copyright, patent, or trademark constitutes an infringement.

Internal Customer - Any customer who pays with an eUMB chartstring.

Instrumentation Grant - Externally funded grant that provides investigators the means to purchase or upgrade commercially available instruments.

Journal Entry - An eUMB transaction that allows for the transfer of revenues and/or costs between chartstrings.

Patents - Patents give an inventor(s) the exclusive right to practice their invention. Others **cannot** freely practice a patented invention without permission from the patentee. Patents cover devices, formulas, tools, methods, compounds, all of which must have a defined utility. A patent term extends for 20 years.

Retail Inventory - Merchandise on hand that is held for resale.

Revolving Equipment Loan Program - A program run by the University of Maryland System that loans money to purchase equipment. Semiannual payments of principal and interest are paid over the life of the equipment of loan.

Sales Tax - State tax on sales to external users for sales of "tangible personal property."

Surcharge - An additional amount charged to external users in excess of the internal rate.

Supply Inventory - Supplies on hand awaiting use in the service center's operations

Subsidy - The funding from a nonsponsored source to cover the deficit created when a service center chooses to use a billing rate that will not cover normal operating cots.

Surplus - The fund balance of a chartstring that occurs when revenues are greater than expenditures and the beginning fund balances. Ordinarily, surpluses should be factored into the next year's rate agreement.

Service Center - An organizational unit or activity that provides goods and services primarily to internal university operations and secondarily to external users, and charge the users for these services whose annual billings are between $100,000 and $1,000,000.

Service Center Director - The person responsible for the overall operation of the service center, both programmatically and administratively.

Specialized Service Facility - An organizational unit or activity that provides goods and services primarily to internal university operations and secondarily to external users, and charge the users for these services whose annual billings are > $1,000,000.

Start-up Costs – Costs incurred during the establishment of a service center that will be recovered through future billings.

Trademark – A trademark is a word, phrase, or logo that identifies a product, a service, or the person or company that offers a product or service to the public. To prevent others from using a trademark, registration with the U.S. PTO must be made. Trademark protection can be extended indefinitely provided that the trademark is used and the registration is renewed every five years.

Unallowable Costs - Costs defined in section J. of OMB Circular A-21 as unallowable. Expenses such as internally charged interest, alcoholic beverages, entertainment, unallowable travel, and other unallowable expenses listed in OMB Circular A-21, Section J that can not be included in user rates or charged to federal awards or federal pass-through awards.

Unrelated Business Income Tax (UBIT) - A tax to which the University may be subject to if a service center regularly carries on a trade or business with external customers that are not substantially related to the university's exempt purposes of education, patient care and/or research.