UNIVERSITY OF MISSOURI
BOARD OF CURATORS MEETING

December 7-8, 2017
University of Missouri-St. Louis Campus
St. Louis, Missouri

AGENDA

Unless otherwise noted, public session meetings will be conducted in Century Rooms A & B of the Millennium Student Center on the University of Missouri – St. Louis campus.

WEDNESDAY, DECEMBER 6, 2017

3:30 P.M.   New Curator UMSL Campus Orientation (time is approximate)
            Location: 101 Woods Hall, UMSL campus
            2 PM Campus tour to precede presentations at 3:30 PM

6:30 PM    Dinner with University of Missouri – St. Louis Chancellor,
            Anheuser-Busch Hall executive classroom

THURSDAY, DECEMBER 7, 2017

BOARD OF CURATORS MEETING – PUBLIC SESSION

7:30 A.M   Call to Order

7:30 A.M.  Breakfast Meeting for the Board of Curators, President and
           Intercampus Faculty Council
           Century Room C, Millennium Student Center

9:00 A.M.  GOVERNANCE COMMITTEE MEETING (time is approximate)
            Century Rooms A& B, Millennium Student Center
            (Curators Chatman, Brncic, Steelman)

            Information
            1.  Board Assessment

OPEN – AGENDA - 1
General Business

Action
1. Resolution, Executive Session of the Board of Curators Meeting, December 7-8, 2017

11:15 A.M.  BOARD OF CURATORS MEETING – EXECUTIVE SESSION
(time is approximate – upon conclusion of public session)
Location: Century Room A&B, Millennium Student Center

The Board of Curators will hold an executive session of the December 7-8, 2017 meeting, pursuant to Section 610.021(1), 610.021(2), 610.021(3), 610.021(12) and 610.021(13) RSMo, for consideration of certain confidential or privileged communications with university counsel, personnel, property, contract and litigation items, all as authorized by law and upon approval by resolution of the Board of Curators.

12:15 P.M.  Luncheon by Invitation for Board of Curators, President, University of Missouri-St. Louis Chancellor and University of Missouri-St. Louis Student Leaders
Century Room C, Millennium Student Center

1:30 P.M.   PUBLIC SESSION

General Business

Information
1. Student Representative to the Board of Curators’ Report
2. Review Consent Agenda

Consent Agenda

Action
1. Minutes, September 28-29, 2017 Board of Curators Meeting
2. Minutes, September 28-29, 2017 Board of Curators Committee Meetings
3. Minutes, October 31, 2017 Executive Committee Meeting
4. Minutes, November 10, 2017 Special Board of Curators Meeting and Committee Meetings
5. Amendment to Collected Rules and Regulations 70.050 Real Estate, Licenses and Rights-of Way, UM
6. Sole Source - Academic Analytics Subscription, UM
7. Sole Source – Recruitment Platform Software, UM
1:45 P.M.  RECONVENE GOVERNANCE COMMITTEE MEETING  
(Curators Chatman, Brncic, Steelman) 

Information 
2. Review of Collected Rules and Regulations 
3. Residence Hall Naming Working Group Report, MU 

Action 
1. Amendment, Collected Rules and Regulation 10.030, Board Bylaws 
2. Adjourn, Governance, Resources and Planning Committee Meeting 

2:15 P.M.  FINANCE COMMITTEE MEETING  
(Curators Steelman, Brncic, Chatman, Layman, Snowden, Sundvold) 

Information 
1. Project Design, Memorial Stadium South Expansion, MU 

Action 
1. Amendment, Collected Rules and Regulations 70.060 Consulting, Design and Construction, UM 
2. Project Approval, Advanced Construction Materials Laboratory, Missouri S&T 
3. Project Approval, School of Computing and Engineering-Education and Research Center, UMKC 
4. Approval, Retirement Plan Actuarial Assumptions, UM 
5. Adjourn Finance Committee Meeting 

3:00 P.M.  ACADEMIC, STUDENT AND EXTERNAL AFFAIRS COMMITTEE MEETING  
(Curators Snowden, Farmer, Layman, Phillips) 

Information 
1. Research and Economic Development Annual Report, UM 
2. Board Engagement with Intercampus Faculty Council Annual Report 

Action 
1. New Degree Program, Bachelor of Arts, International Relations, UMSL 
2. New Degree Program, Masters of Science, Biomedical Engineering, MU 
3. New Degree Program, Masters of Science, Care Management, MU 
4. Adjourn Academic, Student and External Affairs Committee Meeting 

OPEN – AGENDA - 3
3:45 P.M.  COMPENSATION AND HUMAN RESOURCES COMMITTEE MEETING (time is approximate)  
(Curators Layman, Chatman, Farmer, Steelman, Sundvold)

Action
1. Adoption of New Collected Rules and Regulation, Chapter 340.045, Winter Break Reduced Operations; New Collected Rules and Regulation, 340.055, Principles for the Establishment of a Shared Leave Program; and Amendment of Collected Rules and Regulations 230.070, Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants
2. Resolution for Executive Session of the Compensation and Human Resources Committee Meeting

4:05 P.M.  AUDIT COMMITTEE MEETING  
(Curators Farmer, Brncic, Phillips, Sundvold)

Information
1. Fiscal Year 2017 External Auditors Report, UM

Action
1. Adjourn Audit Committee Meeting

4:20 P.M.  HEALTH AFFAIRS COMMITTEE MEETING  
(Curator Phillips, Layman, Snowden, Sundvold, Mr. Ashworth, Ms. Maledy)

Action
1. Approval of Minutes, Health Affairs Committee Meeting September 28, 2017
2. Resolution for Executive Session of the Health Affairs Committee Meeting

4:30 P.M.  HEALTH AFFAIRS COMMITTEE MEETING – EXECUTIVE SESSION  
(time is approximate)  
Location:  Room 302, Millennium Student Center

The Health Affairs Committee will hold an executive session of the December 7-8, 2017 meeting, pursuant to Section 610.021(1), 610.021(2) and 610.021(12) RSMo, for consideration of certain confidential or privileged communications with university counsel, real estate and contract items, all as authorized by law and upon approval by resolution of the Health Affairs Committee.
5:45 P.M.  BOARD OF CURATORS MEETING – EXECUTIVE SESSION  
(time is approximate)  
Location: Room 302, Millennium Student Center

The Board of Curators will hold an executive session of the December 7-8, 2017 meeting, pursuant to Section 610.021(1), 610.021(2), 610.021(3), 610.021(12) and 610.021(13) RSMo, for consideration of certain confidential or privileged communications with university counsel, personnel, property, contract and litigation items, all as authorized by law and upon approval by resolution of the Board of Curators.

6:25 P.M.  Recess Board of Curators Meeting

6:30 P.M.  Tapas-Style Dinner by Invitation for Board of Curators, President and General Officers  
Hosted by: Chancellor Thomas F. George and Dr. Barbara Harbach  
Location: E. Desmond and Mary Ann Lee Theater, Blanche M. Touhill Performing Arts Center, University of Missouri – St. Louis, One University Boulevard, St. Louis, Missouri  63121

FRIDAY, DECEMBER 8, 2017

7:45 A.M.  Group Photo with Board of Curators, Student Representative to the Board of Curators and President  
(Room 316, Millennium Student Center)

8:00 A.M.  Breakfast hosted by UMSL Faculty Senate with the Board of Curators (by invitation)  
Topic: Scholar-Athletes  
Location: Century Room C, Millennium Student Center

BOARD OF CURATORS – PUBLIC SESSION

9:00 A.M.  Call to Order

GENERAL BUSINESS

Information
3. University of Missouri – St. Louis Highlights – Chancellor George  
4. University of Missouri System President’s Report  

OPEN – AGENDA - 5
2. Election of Board of Curators Chairperson, 2018
3. Election of Board of Curators Vice Chairperson, 2018

6. Good and Welfare of the Board

4. Adjourn Board of Curators Meeting – Public Session

11:15 A.M. BOARD OF CURATORS COMPENSATION AND HUMAN RESOURCES COMMITTEE MEETING - Executive Session (time is approximate)
Location: Room 302, Millennium Student Center

The Compensation and Human Resources Committee will hold an executive session of the December 7-8, 2017 meeting, pursuant to Section 610.021(1), 610.021(3), 610.021(12) and 610.021(13) RSMo, for consideration of certain confidential or privileged communications with University Counsel, contract and personnel items, as authorized by law and upon approval by resolution of the Compensation and Human Resources Committee.

12:15 P.M. BOARD OF CURATORS MEETING – Executive Session (time is approximate)
Location: Room 302, Millennium Student Center

The Board of Curators will hold an executive session of the December 7-8, 2017 meeting, pursuant to Section 610.021(1), 610.021(2), 610.021(3), 610.021(12) and 610.021(13) RSMo, for consideration of certain confidential or privileged communications with university counsel, personnel, property, contract and litigation items, all as authorized by law and upon approval by resolution of the Board of Curators.

Upcoming meetings of the Board of Curators:
- February 1-2, 2018 University of Missouri – Columbia
- April 12-13, 2018 Missouri University of Science and Technology
- June 21-22, 2018 University of Missouri System, Columbia
- July 27, 2018 TelePresence
- September 20-21, 2018 University of Missouri – Kansas City
- November 15-16, 2018 University of Missouri – St. Louis

OPEN – AGENDA - 6
GOVERNANCE,
RESOURCES AND PLANNING
COMMITTEE
BOARD ASSESSMENT

There are no materials for this information item.
GENERAL BUSINESS

DAY ONE
Recommended Action – Resolution for Executive Session of the Board of Curators Meeting, December 7-8, 2017

It was moved by Curator _________ and seconded by Curator ____________, that there shall be an executive session with a closed record and closed vote of the Board of Curators meeting December 7-8, 2017 for consideration of:

- **Section 610.021(1), RSMo**, relating to matters identified in that provision, which include legal actions, causes of action or litigation, and confidential or privileged communications with counsel; and
- **Section 610.021(2), RSMo**, relating to matters identified in that provision, which include leasing, purchase, or sale of real estate; and
- **Section 610.021(3), RSMo**, relating to matters identified in that provision, which include hiring, firing, disciplining, or promoting of particular employees; and
- **Section 610.021(12), RSMo**, relating to matters identified in that provision, which include sealed bids and related documents and sealed proposals and related documents or documents related to a negotiated contract; and
- **Section 610.021(13), RSMo**, relating to matters identified in that provision, which include individually identifiable personnel records, performance ratings, or records pertaining to employees or applicants for employment.

Roll call vote of the Board:  

<table>
<thead>
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<th>YES</th>
<th>NO</th>
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<td>Curator Brncic</td>
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<td>Curator Chatman</td>
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<td>Curator Sundvold</td>
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The motion ____________________.
STUDENT REPRESENTATIVE TO THE
BOARD OF CURATORS’ REPORT

There are no materials for this information item.
REVIEW CONSENT AGENDA

There are no materials for this information item.
CONSENT AGENDA
CONSENT

Recommended Action - Consent Agenda

It was endorsed by President Choi, moved by Curator ___________ and seconded by Curator ___________, that the following items be approved by consent agenda:

CONSENT AGENDA

Action
1. Minutes, September 28-29, 2017 Board of Curators Meeting
2. Minutes, September 28-29, 2017 Board of Curators Committee Meetings
3. Minutes, October 31, 2017 Executive Committee Meeting
4. Minutes, November 10, 2017 Special Board of Curators Meeting and Committee Meetings
5. Amendment to Collected Rules and Regulations 70.050 Real Estate, Licenses and Rights-of Way, UM
6. Sole Source - Academic Analytics Subscription, UM
7. Sole Source – Recruitment Platform Software, UM

Roll call vote of the Board: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion __________________.
Consent 1

Recommended Action - Minutes, December 7-8, 2017 Board of Curators
Meeting Minutes

It was moved by Curator __________ and seconded by Curator __________, that the minutes of the December 7-8, 2017 Board of Curators meeting be approved as presented.

Roll call vote: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
It was moved by Curator _______________ and seconded by Curator _______________, that the minutes of the September 28-29, 2017 Board of Curators committee meetings be approved as presented.

Roll call vote:    YES    NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
Recommended Action - Minutes, October 31, 2017 Board of Curators Executive Committee Meeting

It was moved by Curator ____________ and seconded by Curator ____________, that the minutes of the October 31, 2017 Board of Curators Executive Committee Meeting be approved as presented.

Roll call vote: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
Consent 4

Recommended Action - Minutes, November 10, 2017 Board of Curators Special Meeting and Committee Meetings

It was moved by Curator _______________ and seconded by Curator _______________, that the minutes of the November 10, 2017 Board of Curators Special Meeting and Committee Meetings be approved as presented.

Roll call vote: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
Amendment to Collected Rules and Regulations
Section 70.050 Real Estate, Licenses and Rights-of-Way
UM

The Vice President for Finance is recommending for Board approval additions and modifications to Collected Rules and Regulations 70.050 Real Estate, Licenses and Rights-of-Way. The changes listed here were developed with the Office of General Counsel.

The suggested revisions to CRR 70.050 are intended to streamline smaller transactions and limit the BOC’s involvement in real estate transactions to projects of a meaningful scale to the University of Missouri System. Further, the revisions will clarify prior drafting and bring the University’s delegations more closely in-line with other peer institutions while best positioning the institution to compete with the private sector on contract terms and timing. The subject CRR was last revised May 5, 2006. At that time, the Board delegated authority to acquire, sell and lease real property below a $500,000 threshold, among other things. Justifications for the current suggested revisions are as follows:

- **70.050A** – The additions clear up past ambiguity in the delegation and provide the necessary delegated authority required to manage the University’s mineral interest and real estate gift portfolios. The revisions further make clear that section 70.050 governs the approval process for real estate transactions, and that the separate section 70.010 governs the method of execution of real estate documents.

- **70.050C.1** – While still less than the delegated authority of $5,000,000 for construction projects, the $1,000,000 delegation reserves the Board’s involvement in transactions of greatest impact to the institution and gives senior leadership the delegated authority necessary to compete for real estate opportunities with the private sector. The authority threshold of $1,000,000 is within the range of delegations granted at other major universities.

- **70.050C.2** – The $1,000,000 delegation reserves the Board’s involvement in transactions of greatest impact to the institution and gives senior leadership the delegated authority to streamline smaller dispositions. The authority threshold of $1,000,000 is within the range of delegations granted at other major universities.

- **70.050C.3** – The $1,000,000 and ten year term delegation reserves the Board’s involvement in transactions of greatest impact to the institution and gives senior leadership the delegated authority to negotiate for the best achievable lease terms (leveraging term to improve upon base rental rate and other concessions). The authority threshold of $1,000,000 and ten year term is within the range of delegations granted at other major universities.

- **70.050C.4** – This addition to the CRR clarifies the issue of whether or not the $500,000 threshold detailed in CRR 70.050.C.3 applies to a single lease or to a single landlord.
The $2,000,000 threshold is more appropriate to the concept of an aggregate exposure to a single entity.

- **70.050C.5.** – The revisions clarify prior drafting. With the exception of the change to the temporary easement term (24 months vs. 6 months), the changes are not intended to change the substance of the delegation. The change of the temporary easement term is intended to better align with facilitation of project timelines and reduce the number of amendments/extensions that are required to facilitate projects.

- **70.050D** – This addition to the CRR recites the existing statutory requirements under 172.020 RSMo for legislative approval for certain real estate transactions.
No. 5

Recommended Action - Amendment to Collected Rules and Regulations Section
70.050 Real Estate, Licenses and Rights-of-Way, UM

It was recommended by Vice President Rapp, endorsed by President Choi,
recommended by the Finance Committee, moved by Curator ________ and seconded by
Curator ________, that the following action be approved:

that the Collected Rules and Regulations Section 70.050 Real Estate, Licenses
and Rights-of-Way be amended to increase the approval threshold on real estate
transactions, as reflected on the attached.

Roll call vote Finance Committee: YES NO

Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ______.

Roll call vote Full Board: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ______.

December 7-8, 2017
Collected Rules and Regulations  
Business Management  
Chapter 70: Execution of Instruments

70.050 **Authorization of Real Estate Sales, Leases, Licenses, Easements, and Rights-of-Way, and Mineral Rights**

172.020 R.S. Mo.; Bd. Min. 3-6-52, p. 5,906; Bd. Min. 4-19-69, p. 34,497, Bd. Min. 6-29-79, Amended Bd. Min. 5-3-91, Amended Bd. Min. 12-15-95, Amended Bd. Min. 5-5-96.

A. The President or his or her designee, or other persons designated by the Board, shall have the authority to acquire and sell real property, execute and authorize sale agreements, rental agreements, lease agreements, license agreements, and lease easement and right-of-way agreements — covering real property, accept or disclaim gifts of real property, execute mineral leases and sales, acquire and sell or lease of mineral rights, and grant licenses for use of copyright materials or patents of the University — in conformance with these Collected Rules and Regulations. Deeds and instruments conveying title to real estate shall be executed in the manner and signed by such persons as referenced in Section 70.010B of these Collected Rules and Regulations. Contracts, instruments and agreements, other than deeds and instruments conveying title to real estate, shall be executed in the manner and signed by such persons as described in Section 70.010C of these Collected Rules and Regulations.

B. The President shall have the authority to acquire property from the UMKC Trustees without obtaining appraisals.

C. Board of Curators approval shall be obtained required for:

1. Property purchases costing with a negotiated price of more than $1,500,000 or if more than appraised values or if not within campus master plans or research parks.
2. Property sales costing with a negotiated sale price of more than $51,000,000 or if less than appraised values or if within campus boundaries or research parks.
3. Property leases for more than $51,000,000 per year or for more than five years.
3.4. Property leases with persons/entities (including all affiliates of such persons/entities), which exceed $2,000,000 per year, in the aggregate.

5. Easements and rights-of-way agreements that: i) convey rights to entities other than utility companies or governmental entities for a term longer than twenty-four (24) months, or ii) significantly impair the use of the property or significantly decrease the value of the property, in which case the President shall be authorized to enter into these agreements with these entities provided the agreement will not significantly impair the use of the property or decrease the value of University property. The President shall also be authorized to enter into temporary easements and rights-of-way with any entity for a period up to six months.

4.D. Board of Curator approval, and if required by applicable statutes, legislative approval by concurrent resolution signed by the governor, shall be required for the subdivision, sale or conveyance of title to any land contained within a campus or to any parcel of land containing in excess of 2,500 contiguous acres.
Collected Rules and Regulations
Business Management
Chapter 70: Execution of Instruments

70.050 Authorization of Real Estate Sales, Leases, Licenses, Easements, Right-of-Way, and Mineral Rights

172.020 R.S. Mo.; Bd. Min. 3-6-52, p. 5,906; Bd. Min. 4-19-69, p. 34,497, Bd. Min. 6-29-79, Amended Bd. Min. 5-3-91, Amended Bd. Min. 12-15-95, Amended Bd. Min. 5-5-06.

A. The President or his or her designee, or other persons designated by the Board, shall have the authority to acquire and sell real property, authorize sale agreements, rental agreements, lease agreements, license agreements, and easement and right-of-way agreements covering real property, accept or disclaim gifts of real property, and acquire and sell or lease mineral rights, in conformance with these Collected Rules and Regulations. Deeds and instruments conveying title to real estate shall be executed in the manner and signed by such persons as referenced in Section 70.010B of these Collected Rules and Regulations. Contracts, instruments and agreements, other than deeds and instruments conveying title to real estate, shall be executed in the manner and signed by such persons as described in Section 70.010C of these Collected Rules and Regulations.

B. The President shall have the authority to acquire property from the UMKC Trustees without obtaining appraisals.

C. Board of Curators approval shall be required for:

1. Property purchases with a negotiated price of more than $1,000,000.
2. Property sales with a negotiated sale price of more than $1,000,000.
3. Property leases for more than $1,000,000 per year or for more than ten years.
4. Property leases with persons/entities (including all affiliates of such persons/entities), which exceed $2,000,000 per year, in the aggregate.
5. Easements and right-of-way agreements that: i) convey rights to entities other than utility companies or governmental entities for a term longer
than twenty-four (24) months, or ii) significantly impair the use of the property or significantly decrease the value of the property.

D. Board of Curator approval, and if required by applicable statutes, legislative approval by concurrent resolution signed by the governor, shall be required for the subdivision, sale or conveyance of title to any land contained within a campus or to any parcel of land containing in excess of 2,500 contiguous acres.
In accordance with Collected Rules and Regulations 80.010, UM System requests approval for the sole source purchase of an Academic Analytics Subscription with Academic Analytics, LLC, Charlotte, North Carolina, for a total of $954,000 for a three-year term.

The Academic Analytics Subscription/Database (AAD) includes information on over 220,000 faculty members associated with more than 9,700 Ph.D. programs and 11,000 departments at more than 404 universities in the United States and abroad. Data contained within the AAD consists of the following:

1. Publication of scholarly work as books and journal articles
2. Citations to published journal articles
3. Research funding by federal agencies
4. Honorific awards bestowed upon faculty members

The AAD is structured so data can be used to compare faculty on a discipline-by-discipline level, as well as overall university performance. All comparisons are on a “per faculty” basis, thus not necessarily advantaging large departments or disadvantaging small departments.

The University of Missouri-Columbia originally subscribed to the AAD in 2008 at a “basic level” which allowed users to conduct PhD program to PhD program comparison as well as a handful of aggregated analyses. In 2013, University of Missouri Kansas City, St. Louis, and Missouri University of Science and Technology were added to the UMC contract, and the University of Missouri System contract was elevated to the “detail” level. This level provides counts (e.g. how many journal articles did MU’s Biological Sciences faculty publish and how does it compare to other Biology PhD programs), as well as the detail behind each publication.

The AAD provides unique and necessary comparative data to enable department chairs, deans, associate deans, and senior administrators to identify strengths and weaknesses of their departments and take action using tools advanced through the portal such as modeling (e.g. if we add a top scholar in our department, how much is it likely to improve our program quality), career planning, analysis per faculty rank, and comparing your department to disciplinary peers based on individual metrics as well as composite metrics.

The $954,000 expenditure will be paid by each campus individually from their institutional research, association dues, or graduate school operating accounts.
No. 6

Recommended Action - Sole Source – Academic Analytics Subscription, UM

It was recommended by Vice President Rapp, endorsed by President Choi, recommended by the Finance Committee, moved by Curator _________________ and seconded by Curator ________________, that the following action be approved:

that the UM System be authorized to purchase Academic Analytics Subscription from Academic Analytics, LLC, Charlotte, North Carolina, at a total cost of $954,000.

Funding is as follows:
MU Institutional Research and Quality Improvement  C0013 750000
UMKC Association Dues  K0003 740150
S&T Association Dues  R0031 738000
UMSL Graduate School  S0421 738000

Roll call vote Finance Committee  YES  NO
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

Roll call vote Full Board:  YES  NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________

December 7-8, 2017

OPEN – CONSENT – 6-2
Sole Source Purchase
Recruitment Platform Software
UM

In accordance with the Collected Rules and Regulations 80.010, UM System requests approval for the sole source purchase of a Recruitment Platform Software with Ranku, Inc. Seattle, Washington, for a total of $850,000 for a three-year term.

The Recruitment Platform is an online predictive analytics software to assist universities with marketing and recruitment for online degree programs. The software allows prospective students to easily find schools and the degrees offered, as well as providing the ability for programs to showcase what they have to offer and what differentiates them from others. Ranku’s software is comprised of three parts: The Marketplace, Editing Suite, and Analytics Dashboard.

The Marketplace is an online tool which allows prospective students to search and find the right program to meet their needs. It includes program pages with information on universities’ degrees and programs, as well as the ability for prospective students to request information with automated, customizable messaging sent to the student. The Marketplace also includes a search results page, showing the degrees available that align to what the prospective student searches for on the Marketplace homepage. Geolocation is included, which if the same program is offered at two schools, allows the program that is closest in proximity to the prospective student’s IP address to always show first in their search results.

The proprietary editing suite allows universities the ability to update, add and delete program information in almost real-time, including program name, program description, degree level, tuition, number of credits, and mode of delivery. Multiple profiles and login credentials can be created to allow multiple administrators the ability to access and update the content.

The proprietary analytics dashboard allows administrators access to real-time analytic reports that provide information into current performance, as well as performance over a specific and customizable timeframe. The reporting helps universities forecast what curriculum to develop based on real-time consumer demand.

The Ranku Recruitment Platform is unique due to its comprehensive, integrated services, the ability to provide real-time analytical data to make data-driven decisions, as well as the capability to update program information in almost real-time through Ranku’s hosted website.

One of the significant goals of the consolidated eLearning platform from Ranku will be to increase awareness of UM online programs and increase the number of inquiries, requests for further program information and eventually to recruit new students to the UM online
programs. Other institutions who have used the platform have seen increases in the requests for information approximately 175-200% and an increase in monthly conversions from 4%-8%. One university system saw an increase from 40 requests for information per month to over 1800 requests per month.

Attracting the new students to the UM programs should provide an excellent ROI on the eLearning platform and allow the UM campuses to attract students from a broader geographical area.

The total $850,000 expenditure includes a one-time implementation fee, as well as an annual license fee. This will be paid out of the UM System IT budget for the first year and each campus will determine funding for the remaining years. This three year contract will allow us sufficient time to evaluate the ROI on the Ranku platform to determine if there is a positive investment before deciding on a renewal contract.
No. 7

Recommended Action - Sole Source – Recruitment Platform Software, UM System

It was recommended by Vice President Rapp, endorsed by President Choi, recommended by the Finance Committee, moved by Curator ________________ and seconded by Curator ________________, that the following action be approved:

that the UM System be authorized to purchase Recruitment Platform Software from Ranku, Inc., Seattle, Washington, at a total cost of $850,000.

Funding is as follows:
UM System IT Budget A0025-739850

Roll call vote Finance Committee YES NO
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion __________________.

Roll call vote Full Board: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ____________________.
GOVERNANCE,
RESOURCES AND PLANNING COMMITTEE
REVIEW OF COLLECTED RULES AND REGULATIONS

There are no materials for this information item.
RESIDENCE HALL NAMING
WORKING GROUP REPORT, MU

There are no materials for this information item.
Currently, Collected Rules and Regulations 10.030.C.7 states in its entirety:

7. **Recording Vote** -- The Secretary of the Board shall keep the minutes of the meetings of the Board of Curators and committees in which shall be recorded the vote on all motions or resolutions coming before said Board or committee. All votes taken during a meeting shall be taken by roll call.

While the Board’s bylaws require roll call votes on all matters, the Missouri Sunshine law requires roll call votes only on actions to go into closed session and on actions taken during closed session. (Sections 610.015, 610.022.1., RSMo.) At the Board’s meeting on September 28, 2017, the Board discussed ways to streamline its voting process by reducing the number of time consuming roll call votes, while at the same time remaining consistent with state law and providing transparent votes to the public. In order to accomplish these goals, it is proposed that CRR 10.030.C.7 be amended to read as follows:

7. **Recording Vote** -- The Secretary of the Board shall keep the minutes of the meetings of the Board of Curators and committees in which shall be recorded the vote on all motions or resolutions coming before said Board or committee. Roll call votes shall be taken when required by law and voice votes shall be taken on all other matters. When taking a voice vote, curators will be requested to cast their vote orally indicating whether they favor, oppose or abstain from the motion or resolution. When the results of a voice vote indicate that the vote is not unanimous of all curators voting and abstaining, a roll call vote on the matter shall immediately follow.

Under the procedure contemplated by the proposed rule, voting will be streamlined in that the number of roll call votes will be reduced. The new rule will comply with Missouri law in that roll call votes will continue to be taken to go into closed session and during closed session. The public will continue to know how an individual curator voted on a matter in that each curator's vote will be indicated as part of a unanimous voice vote or each curator’s vote will be indicated during a roll call vote.

Pursuant to CRR 10.030.H.1, written notice was provided to members of the Board of Curators at least thirty days in advance of the final vote on this change to the Board’s bylaws.
It was recommended by the Governance, Resources and Planning Committee, moved by Curator ___________ and seconded by Curator ___________, that the:

Collected Rules and Regulations 10.030 Board Bylaws, be amended as set forth in the attached.

Roll call vote of the Committee:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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Curator Brncic
Curator Chatman
Curator Steelman

The motion _________________.

Roll call vote of Board of Curators:

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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</table>

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion _________________.

December 7-8, 2017
10.030 Board Bylaws

As adopted the 7th day of November, 1969, in place of Bylaws adopted November 12, 1965, and amended January 19, 1968, and amended November 8, 1968; see also 172.100 R.S.Mo. (1969); Amended Bd. Min. 12-14-79; Amended Bd. Min. 12-7-90; Amended Bd. Min. 7-15-94; Amended Bd. Min. 5-23-96; Amended Bd. Min. 9-26-97; Amended Bd. Min. 5-17-02; Amended Bd. Min 5-31-02; Amended Bd. Min. 11/21/02, Amended Bd. Min. 4/8/05, Amended Bd. Min. 7/21/06, Amended Bd. Min. 10/6/06, Amended Bd. Min. 4/6/07, Amended Bd. Min. 11-29-07, Amended Bd. Min. 6-11-10, Amended Bd. Min. 12-10-10, Amended 2-1-13.

A. Article I Definitions

For purposes of these bylaws the following definitions shall apply:

1. **University** -- The term "University" or "University of Missouri" shall refer to the institution, in all of its parts, persons, property and relationships wherever situated, owned, operated, controlled, managed or otherwise regulated under the supervision or direction of The Curators of the University of Missouri or the Board of Curators of the University of Missouri.

2. **The Curators of the University of Missouri** -- The term "The Curators of the University of Missouri" shall refer to the corporate entity, of which the Board of Curators is the governing body.

3. **The Board of Curators of the University of Missouri** -- The term "Board of Curators of the University of Missouri," "Board of Curators," or "Board" shall refer to the governing board of The Curators of the University of Missouri, and shall be composed of the Curators duly appointed and qualified as provided by law.

4. **The Executive Committee of the Board of Curators of the University of Missouri** -- The term "Executive Committee of the Board of Curators of the University of Missouri" or "Executive Committee" shall refer to that committee of the Board of Curators appointed to act for and on behalf of the Board of Curators when such Board of Curators is not in session. Such Executive Committee shall be deemed to be the Executive Board and Executive Committee as heretofore known.

5. **The Site of the University of Missouri** -- The term "site" of the University of Missouri shall be deemed to include each and every campus of the University; any real estate owned by the University, and wherever located and any other land or building in the possession or under the control of the University, whether owned, leased, rented, held under purchase contract, or owned by others for the use and benefit of the University, during any and all times that
such land or buildings, or parts thereof may be under the actual control and in the actual possession of the University.

6. **Chair of the Board** -- The term "Chair of the Board," "Chair," "Chairman," "Chairwoman," or "Board Chair" shall refer to the Curator who is the duly elected or acting Chair of the Board of Curators. The individual so elected shall also be deemed to be serving as President of the Board of Curators within the meaning of statutory section 172.090 and all other sections of Chapter 172 of the Revised Statutes of Missouri, and shall be authorized to execute on behalf of the Board of Curators of the University of Missouri and The Curators of the University of Missouri, a public entity, all documents as President of the Board or Chair of the Board as deemed appropriate, and hereinafter as may be referred to as “Chair," "Chairman," “Chairwoman,” or “Board Chair.”

7. **President of the University** -- The term "President of the University" or "President" shall refer to the duly appointed or acting President of the University, and who shall be the chief executive and academic officer of the University.

8. **Campus** -- The term "campus" shall refer to an academic or administrative subdivision of the University as established by the Board of Curators.

9. **Appointments** -- The appointments of all officers and employees of the University, although made for administrative or fiscal purposes for a specific term, may be terminated by the Board of Curators at any time at the pleasure of the Board of Curators. Notwithstanding any rule, regulation or policy of the University to the contrary, all such appointments are subject to the right of the Board of Curators to adjust salaries and benefits, on a prospective basis only, at any time during the indefinite term or continuous appointment of all officers and employees of the University provided that: (a) such adjustments shall be for the shortest period of time and in the smallest increments consistent with those that the Board deems necessary; (b) adjustments shall be across the board on an equitable basis to all similarly situated University officers and employees and shall not be used to single out any given faculty, staff or administrator to be the subject of such adjustments; and (c) the foregoing shall not be deemed to abolish or abridge any right of academic personnel to academic freedom or any right under the tenure regulations of the University except as to any perceived right, express or implied, to salary level and/or benefits under said regulations or appointment papers.

B. **Article II The Board Authority and Responsibilities**

1. **Board Duties and Responsibilities** -- Pursuant to the Constitution and the Revised Statutes of the State of Missouri, the governance of The Curators of the University of Missouri, a body politic, the corporate entity sometimes referred to as the University of Missouri, is ultimately vested in the Board of Curators. As such, the Board may do the following:
a. Determine and periodically review the University’s mission and purposes, not inconsistent with state constitutional and/or statutory provisions.
b. Appoint the President, who shall be the University’s chief executive officer, and set appropriate terms of employment, including compensation.
c. Support the President and annually assess his or her performance based on mutually agreed-upon goals and other criteria.
d. Determine broad policy guiding the appointment of all faculty members and employees, on the recommendation of the President, and consistent with its other policies and regulations adopted by the Board.
e. Review and approve proposed changes in the University’s academic programs and other major enterprises consistent with the University’s mission, plans, and financial resources.
f. Approve the annual budget and tuition and fees, regularly monitor the University’s financial condition, and establish policy guidelines affecting all institutional assets, including investments and the physical plant.
g. Contribute financially to the University’s fund-raising goals, participate actively in strategies to secure sources of support, and authorize University officers to accept gifts or bequests subject to Board policy guidelines.
h. Adopt bylaws, rules, and regulations for the government of its members, and University officers, agents, and employees, and require adherence to such rules, including, but not limited to, those pertaining to governance and ethics and conflict of interest.
i. Determine the University’s structure and major academic programs and services needed for the successful conduct of its mission and purposes.
j. Grant diplomas and confer degrees based upon the recommendation of the President and faculty.
k. Serve actively as advocates for the University in appropriate matters of public policy in consultation with the President and other responsible parties, as the Board shall determine.
l. Periodically assess its own performance, in order to set an example for the University community and to seek ways to strengthen its effectiveness as a governing body.
m. Exercise such other authority as from time to time it deems appropriate not inconsistent with the applicable laws and regulations of the United States of America and applicable laws and regulations of the State of Missouri.
2. **Curator Duties and Responsibilities** -- Recognizing the significance of serving on the Board of Curators of the University of Missouri, each Board member shall adhere to the following principles:

a. To remember that no individual Board member has legal standing or authority to act on behalf of the Board or the University. Only the full Board as a governing body is vested with such authority, though the Board Chair ordinarily is entitled to “speak for” the Board, and the President is entitled to “speak for” the University consistent with Board policies and actions.

b. To devote time to learn how the University’s mission and multiple purposes are met – its uniqueness, strengths, and needs.

c. To become familiar with, committed to, and abide by the Board’s responsibilities and policies, as set forth in the bylaws and rules and regulations adopted by the Board and the applicable laws of the State of Missouri.

d. To accept and defend academic freedom and the practice of collaboration governance as fundamental characteristics of good University governance.

e. To assist the Board in its efforts to balance its responsibilities in serving its broad public trust with advocacy for the University’s needs to fulfill its mission and purposes.

f. To adhere to and comply with policies adopted from time to time pertaining to governance and ethics and conflict of interest, including timely filing of all required public disclosures.

C. **Article III The Board of Curators**

1. **Meetings**

   a. **Annual meeting** -- The regular meeting of the Board held during the month of May or June of each year as scheduled by the Board, shall be deemed to be the annual meeting of the Board, and shall be held on such date in May or June as is fixed by the Board.

   b. **Regular meetings** -- The Board may hold regular meetings at a time and place to be fixed by the Board. The time and place of a regular meeting may be changed by order of the Board.

   c. **Special meetings** -- A special meeting of the Board may be called at any time by the Chair of the Board, or in case of his/her absence, disability, or refusal to act, by the joint action of three Curators. At least 24 hours notice of the time and place of each such meeting shall be given by letter, facsimile transmission, email or telegram mailed or sent to each Curator at his/her address on file with the Secretary. Such notice to a particular Curator may be waived by the Curator in writing and shall be deemed waived by the
Curator by attendance at the special meeting. Only those subjects specified in the call for a special meeting will be considered at such special meeting except by unanimous consent of all Board members, whether present or not, and consistent with applicable law.

d. **Adjourned meetings** -- Adjourned meetings may be ordered and held by the Board at such time and place as may be agreed upon.

e. **Meeting Agenda** -- The agenda and order of items on the agenda for all meetings of the Board, including those identified in subparagraphs a, b, c and d above, shall be established by the President of the University with the concurrence of the Board Chair. The Board Chair, any committee of the Board, with the assistance and advice of the University officer staffing the respective committee, or any three members of the Board acting together, may place items on the agenda. Any Curator or General Officer may recommend items for the agenda. The agenda shall be developed and notice thereof made public in compliance with the applicable laws of the State of Missouri and current and future policy and regulations adopted by the Board.

f. **Consent Agenda** -- Items shown on the established agenda for a meeting of the Board may be placed upon a consent agenda whereby all items placed thereon are approved by summary action of the Board. Items may be placed on the consent agenda by the President of the University, the Chair of the Board, or the Chairperson of any committee of the Board electing to place such item on the consent agenda; provided the same is accomplished no less than one hour prior to the convening of the meeting of the Board, and the Secretary to the Board shall present such consent agenda to the members of the Board no later than immediately prior to the convening of the meeting; and further provided that any member of the Board of Curators may remove any item from the consent agenda by notifying the Chair of the Board of the election to remove the item at any time prior to a vote being taken on that item. The consent agenda requires approval by a vote of a majority of the Board for passage and adoption of each item on the consent agenda.

g. **Conduct of Meeting** – The Board may conduct any meeting by conference telephone call or other communication equipment by means with which all persons participating in the meeting can communicate with each other. Only members of the Board, the President and those individuals
recognized by the Chair or President may address the Board at any meeting of the Board.

h. **Executive Session (Closed Session)** – When the Board or any committee of the Board meets in executive session (sometimes referred to as closed session), all matters discussed in that session are to be considered as confidential, except that such information can be shared with absent Board members or University officers, agents or employees who need to know. Actions taken in executive session shall be released to the public if required by the provisions of the Sunshine Law contained in Chapter 610 of the Revised Statutes of Missouri or Board rules contained in Section 10.060 of the Collected Rules and Regulations of the University of Missouri entitled Board and Committee Meetings.

2. **Attendance Policy**
   a. If a member of the Board is found by unanimous vote of the other Curators to have failed to attend without good cause two consecutive regular meetings of the Board in any calendar year, then the office of such Curator shall be vacant.
   b. If a vacancy shall occur by death, resignation, or from any other cause, the Chair of the Board shall notify the Governor within thirty days of such vacancy.

3. **Officers of the Board**
   a. **Chair of the Board** -- The Board shall choose from its own membership at the last regular meeting of the Board in each calendar year to take office on January 1 of the next year, a Chair of the Board who shall hold office for a term of one year or until his/her successor takes office. The Chair shall serve as presiding officer of the Board and shall carry out such duties as may be delegated to him/her by the Board. The individual elected to serve as Chair of the Board shall be deemed as having been elected to serve as President of the Board within the meaning of the statutory provisions of the State of Missouri, all as referred to in the definitions contained in Article I of these bylaws.
   b. **Vice Chair of the Board** -- The Board shall choose from its own membership at the last regular meeting of the Board in each calendar year to take office on January 1 of the next year, a Vice Chair of the Board who shall hold office for a term of one year or until his/her successor takes office. The Vice Chair shall carry out the duties of the Chair in his/her absence or inability for any reason to serve, and hereinafter
may be referred to as “Vice Chair,” "Vice Chairman,” “Vice Chairwoman” or “Board Vice Chair.” The individual elected as Vice Chair shall be deemed as having been elected to serve as Vice-President of the Board of Curators within the meaning of the statutory provisions of the State of Missouri.

c. **Secretary** -- The Board shall appoint a Secretary of the Board of Curators to serve at the pleasure of the Board. The Secretary shall keep the minutes of the meetings of the Board and the Executive Committee, shall be the official custodian of the seal and all records of the Board, and shall have such other duties as may be from time to time fixed by the Board. The Board may appoint and define the duties of such assistant secretaries of the Board as it deems desirable.

d. **General Counsel** -- The General Counsel shall be the chief legal officer of the University, shall be appointed by the Board to serve at the pleasure of the Board, and shall have such duties and responsibilities as may be assigned by the Board. The General Counsel shall serve as parliamentarian for meetings of the Board, unless a different individual is appointed to serve as parliamentarian by the Chair of the Board.

e. Any vacancy in any office of the Board caused by any reason may be filled by the Board for the unexpired term.

4. **Committees**

a. **Executive Committee** -- The Chair of the Board, subject to approval of the Board, shall appoint from the Board an Executive Committee of three members, and may fill vacancies at any time. The Chair of the Board shall serve as one of the three Executive Committee members and as the Chair of the Executive Committee. Such Executive Committee members shall hold office until their successors have been duly appointed. The Executive Committee, when the Board is not in session, shall have the powers of the Board to take such action as the Executive Committee may deem to be in accord with the best interest of the University; provided, however, that such action shall be in accord with the provisions of these bylaws, and not in conflict with the standing rules and regulations of the Board. A complete record of all actions of the Executive Committee shall be kept by the Secretary of the Board, and a copy of such record shall be submitted to each member of the Board monthly and in advance of the next regular meeting of the Board. Actions of the Executive Committee may be ratified, approved, or modified at the next regular meeting of the Board, but any
modification thereof shall be prospective only. If, at its next regular meeting, the Board takes no action on an Executive Committee action, the record of which was submitted to the Board prior to that regular meeting, such action shall be deemed ratified by the Board. The vote of any members on any question coming before the Executive Committee may be taken in person, by telephone, telegraph, facsimile transmission, email or letter. Concurrence of three members shall constitute action of the Executive Committee. The Executive Committee shall be entitled to take such action as deemed necessary under the provisions of Section 172.230 and other provisions of the Revised Statutes of the State of Missouri, as amended.

b. **Other Committees** -- The Chair of the Board may appoint subject to approval of the Board other standing or special committees of the Board from time to time and delegate to such committees such authority as the Board may deem appropriate to carry out the objects of such committees. Membership on such committees need not be limited to members of the Board.

5. **Quorum** -- Five members of the Board of Curators shall constitute a quorum for the transaction of any and all business of the Board. Except as otherwise provided by these bylaws, a majority of the members of any committee of the Board shall constitute a quorum for the transaction of any and all business of the committee at any committee meeting held in conjunction with a meeting of the Board. All members of any committee of the Board shall constitute a quorum for the transaction of any and all business of any committee at any committee meeting which is not held in conjunction with a meeting of the Board.

6. **Action by Majority** -- Any action by the Board or any committee may be taken by the majority vote of the members present at any meeting of the Board or a committee when a quorum is present, unless otherwise specifically herein provided.

7. **Recording Vote** -- The Secretary of the Board shall keep the minutes of the meetings of the Board of Curators and committees in which shall be recorded the vote on all motions or resolutions coming before said Board or committee. All votes taken during a meeting shall be taken by roll call. Roll call votes shall be taken when required by law and voice votes shall be taken on all other matters. When taking a voice vote, curators will be requested to cast their vote orally indicating whether they favor, oppose or abstain from the motion or resolution. When the results of a voice vote indicate that the vote is not unanimous of all curators voting
and abstaining, a roll call vote on the matter shall immediately follow.

8. **Delegation of Authority** -- So much of the authority of the Board as it may deem necessary may be delegated to such officers and employees or to committees appointed by the Board provided such delegation of powers shall be given by recorded Board action.

**D. Article IV Organization of the University**

1. **President of the University**
   a. The President of the University shall be the chief executive and academic officer of the University. The President shall have direct charge of, and be directly responsible to the Board for the operation of the University.
   
b. The President shall, so far as his/her duties may permit, attend all meetings of the Board and of the Executive Committee, but he/she may be excused at any time.
   
c. He/she shall, at each regular meeting of the Board, report upon the progress, condition and needs of the University, and recommend such measures as in his/her judgment will promote the University's interests.
   
d. The President of the University, as the chief academic officer of the University, shall be responsible to the Board for the academic programs of the University; procurement of staff; the establishment and maintenance of separate schools, colleges and departments of instruction within the University; the relationships and coordination of educational activities between campuses, special divisions and units; and the planning, development and carrying out of all research projects.
   
e. The President, as the chief academic officer of the University, shall have the right to preside and vote at any faculty meeting. He/she shall appoint all non-Board committees of the University, unless otherwise provided by the Board.
   
f. Any University Rules and Regulations, Executive Orders and Executive Guidelines of the President or delegations of general authority shall be filed with the Secretary of the Board and unless otherwise specified, shall be effective from the time of such filing until changed, modified or repealed by the President or by the Board.
   
g. The President of the University will establish policies for intercollegiate athletics in compliance with the rules and regulations of applicable regional or national athletic conferences or associations, so long as these rules and regulations are not in conflict with policies, rules or
2. **Campuses of the University**
   a. **General**
      (1) Campuses of the University of Missouri shall be established by the Board. Each campus shall be a unit of the University.
      (2) Campus chancellors, provosts and other officers as may be specifically designated by the Board shall be appointed by the Board upon recommendation of the President.
   b. **Individual Campuses** -- Until otherwise provided by the Board, there are the following campuses of the University (to include their respective sites, academic programs, and administrative staff as now constituted):
      (1) University of Missouri-Columbia;
      (2) Missouri University of Science and Technology;
      (3) University of Missouri-Kansas City; and
      (4) University of Missouri-St. Louis.

3. **University System Units** -- University System units may be created to carry out such functions as may be assigned them by the President of the University. These units shall be under the direct supervision of the President, but shall perform their functions in consultation and cooperation with the chief administrative officer of each campus as to their activities and programs on the respective campuses.

E. **Article V Academic Staff**
   1. Until further order of the President or the Board, the colleges, schools and other departments with offices of deans or department directors as presently established and degrees as presently offered shall be continued.
   2. Faculties may organize to carry out the responsibilities and functions which may be delegated to them. The form of any such organization and any amendments or modifications thereto shall be presented through the President to the Board for its approval before becoming effective.

F. **Article VI Students**
   1. A student at the University shall be any person who is registered in or pursuing any educational program of the University.
      a. Temporary interruptions of registration between academic periods of the University shall not necessarily terminate student status.
b. Such students are subject to classifications, as may be established from time to time by the Board or the President, and shall be subject to such rules, regulations and restrictions as may now be established or hereafter from time to time established by the Board or the President.

2. **Delegation of Administration**
   a. The Board of Curators hereby delegates to the President of the University the responsibility for administering policies pertaining to the conduct of students and student organizations at the University as such conduct relates to the lawful mission, process or function of the University.
   (1) The President may issue University Rules and Regulations and may authorize campus rules and regulations to be adopted, issued and published implementing Board Rules and Regulations establishing standards of conduct and to provide for administration of University and campus regulations.
   (2) Failure to adopt such rules and regulations, however, shall not relieve any student or student organizations of the obligation to adhere to Board Rules and Regulations establishing general standards of student conduct.
   b. University or campus rules, regulations and procedures as herein authorized shall be in accordance with the Board Rules and Regulations and shall provide for prompt consideration and disposition of alleged violation of such University or campus rules and regulations; provided, however, that such procedures shall be in accordance with basic standards of fairness and shall be simple and appropriate to the nature of the case, and shall provide for notice and a hearing.

3. Until changed, modified or repealed, the provisions of the present Board Rules and Regulations relating to students which are not inconsistent with the provisions of these bylaws shall be considered to be in force.

G. **Article VII Board Rules and Regulations**
   1. Any action by the Board establishing policy or methods of procedure, administrative, business, academic, or otherwise, shall be known as "Board Rules and Regulations."
   2. Board Rules and Regulations may be adopted by the Board, or may be amended or repealed, in whole or in part, at any meeting of the Board.
   3. All policies and procedures falling within the definition of Board Rules and Regulations as herein defined, and in existence upon the date of the adoption of these bylaws, shall be a part of the Board Rules and Regulations.
4. Board Rules and Regulations shall be effective upon adoption by the Board unless a different effective date be fixed by the Board.

5. The Secretary of the Board shall keep all Board Rules and Regulations on file in his or her office, and may publish Board Rules and Regulations from time to time.

6. In the absence of an applicable bylaw, the Board shall be guided by Roberts Rules of Order, particularly those rules relating to Boards.

H. Article VIII Amendment of Bylaws
   1. New bylaws may be adopted, and bylaws may be amended or repealed, at any meeting of the Board, but no such action shall be taken unless notice of such proposed adoption, amendment, or repeal shall have been given at a previous meeting or notice in writing of the proposed change shall have been served upon each member of the Board at least thirty days in advance of the final vote upon such change; provided, however, that by consent of each member, regardless of whether present at the meeting of the Board, the requirements for such notice may be waived at any time. Any provisions of these bylaws, with the exclusion of this Section 10.030H.1 pertaining to the amendment of bylaws, may be suspended in connection with the consideration of a matter before the Board by an affirmative vote of not less than 2/3 of the members of the Board in attendance at the meeting where such suspension is being considered.

I. Article IX Adoption of Bylaws
   1. These bylaws shall be and become effective on the 1st day of July, 2010. All former bylaws of the Board are hereby repealed.
   2. These bylaws, as adopted and from time to time amended, shall be known and cited as Board Bylaws of 2010.
10.030 Board Bylaws

As adopted the 7th day of November, 1969, in place of Bylaws adopted November 12, 1965, and amended January 19, 1968, and amended November 8, 1968; see also 172.100 R.S.Mo. (1969); Amended Bd. Min. 12-14-79; Amended Bd. Min. 12-7-90; Amended Bd. Min. 7-15-94; Amended Bd. Min. 5-23-96; Amended Bd. Min. 9-26-97; Amended Bd. Min. 5-17-02; Amended Bd. Min 5-31-02; Amended Bd. Min. 11/21/02, Amended Bd. Min. 4/8/05, Amended Bd. Min. 7/21/06, Amended Bd. Min. 10/6/06, Amended Bd. Min. 4/6/07, Amended Bd. Min. 11-29-07, Amended Bd. Min. 6-11-10, Amended Bd. Min. 12-10-10, Amended 2-1-13, Amended 12-7-17.

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5. The Site of the University of Missouri -- The term "site" of the University of Missouri shall be deemed to include each and every campus of the University; any real estate owned by the University, and wherever located and any other land or building in the possession or under the control of the University, whether owned, leased, rented, held under purchase contract, or owned by others for the use and benefit of the University, during any and all times that

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such land or buildings, or parts thereof may be under the actual control and in the actual possession of the University.

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B. **Article II The Board Authority and Responsibilities**

1. **Board Duties and Responsibilities** -- Pursuant to the Constitution and the Revised Statutes of the State of Missouri, the governance of The Curators of the University of Missouri, a body politic, the corporate entity sometimes referred to as the University of Missouri, is ultimately vested in the Board of Curators. As such, the Board may do the following:
a. Determine and periodically review the University’s mission and purposes, not inconsistent with state constitutional and/or statutory provisions.

b. Appoint the President, who shall be the University’s chief executive officer, and set appropriate terms of employment, including compensation.

c. Support the President and annually assess his or her performance based on mutually agreed-upon goals and other criteria.

d. Determine broad policy guiding the appointment of all faculty members and employees, on the recommendation of the President, and consistent with its other policies and regulations adopted by the Board.

e. Review and approve proposed changes in the University’s academic programs and other major enterprises consistent with the University’s mission, plans, and financial resources.

f. Approve the annual budget and tuition and fees, regularly monitor the University’s financial condition, and establish policy guidelines affecting all institutional assets, including investments and the physical plant.

g. Contribute financially to the University’s fund-raising goals, participate actively in strategies to secure sources of support, and authorize University officers to accept gifts or bequests subject to Board policy guidelines.

h. Adopt bylaws, rules, and regulations for the government of its members, and University officers, agents, and employees, and require adherence to such rules, including, but not limited to, those pertaining to governance and ethics and conflict of interest.

i. Determine the University’s structure and major academic programs and services needed for the successful conduct of its mission and purposes.

j. Grant diplomas and confer degrees based upon the recommendation of the President and faculty.

k. Serve actively as advocates for the University in appropriate matters of public policy in consultation with the President and other responsible parties, as the Board shall determine.

l. Periodically assess its own performance, in order to set an example for the University community and to seek ways to strengthen its effectiveness as a governing body.

m. Exercise such other authority as from time to time it deems appropriate not inconsistent with the applicable laws and regulations of the United States of America and applicable laws and regulations of the State of Missouri.
2. **Curator Duties and Responsibilities** -- Recognizing the significance of serving on the Board of Curators of the University of Missouri, each Board member shall adhere to the following principles:
   a. To remember that no individual Board member has legal standing or authority to act on behalf of the Board or the University. Only the full Board as a governing body is vested with such authority, though the Board Chair ordinarily is entitled to “speak for” the Board, and the President is entitled to “speak for” the University consistent with Board policies and actions.
   b. To devote time to learn how the University’s mission and multiple purposes are met – its uniqueness, strengths, and needs.
   c. To become familiar with, committed to, and abide by the Board’s responsibilities and policies, as set forth in the bylaws and rules and regulations adopted by the Board and the applicable laws of the State of Missouri.
   d. To accept and defend academic freedom and the practice of collaboration governance as fundamental characteristics of good University governance.
   e. To assist the Board in its efforts to balance its responsibilities in serving its broad public trust with advocacy for the University’s needs to fulfill its mission and purposes.
   f. To adhere to and comply with policies adopted from time to time pertaining to governance and ethics and conflict of interest, including timely filing of all required public disclosures.

C. **Article III The Board of Curators**

1. **Meetings**
   a. **Annual meeting** -- The regular meeting of the Board held during the month of May or June of each year as scheduled by the Board, shall be deemed to be the annual meeting of the Board, and shall be held on such date in May or June as is fixed by the Board.
   b. **Regular meetings** -- The Board may hold regular meetings at a time and place to be fixed by the Board. The time and place of a regular meeting may be changed by order of the Board.
   c. **Special meetings** -- A special meeting of the Board may be called at any time by the Chair of the Board, or in case of his/her absence, disability, or refusal to act, by the joint action of three Curators. At least 24 hours notice of the time and place of each such meeting shall be given by letter, facsimile transmission, email or telegram mailed or sent to each Curator at his/her address on file with the Secretary. Such notice to a particular Curator may be waived by the Curator in writing and shall be deemed waived by the
Curator by attendance at the special meeting. Only those subjects specified in the call for a special meeting will be considered at such special meeting except by unanimous consent of all Board members, whether present or not, and consistent with applicable law.

d. **Adjourned meetings** -- Adjourned meetings may be ordered and held by the Board at such time and place as may be agreed upon.

e. **Meeting Agenda** -- The agenda and order of items on the agenda for all meetings of the Board, including those identified in subparagraphs a, b, c and d above, shall be established by the President of the University with the concurrence of the Board Chair. The Board Chair, any committee of the Board, with the assistance and advice of the University officer staffing the respective committee, or any three members of the Board acting together, may place items on the agenda. Any Curator or General Officer may recommend items for the agenda. The agenda shall be developed and notice thereof made public in compliance with the applicable laws of the State of Missouri and current and future policy and regulations adopted by the Board.

f. **Consent Agenda** -- Items shown on the established agenda for a meeting of the Board may be placed upon a consent agenda whereby all items placed thereon are approved by summary action of the Board. Items may be placed on the consent agenda by the President of the University, the Chair of the Board, or the Chairperson of any committee of the Board electing to place such item on the consent agenda; provided the same is accomplished no less than one hour prior to the convening of the meeting of the Board, and the Secretary to the Board shall present such consent agenda to the members of the Board no later than immediately prior to the convening of the meeting; and further provided that any member of the Board of Curators may remove any item from the consent agenda by notifying the Chair of the Board of the election to remove the item at any time prior to a vote being taken on that item. The consent agenda requires approval by a vote of a majority of the Board for passage and adoption of each item on the consent agenda.

g. **Conduct of Meeting** -- The Board may conduct any meeting by conference telephone call or other communication equipment by means with which all persons participating in the meeting can communicate with each other. Only members of the Board, the President and those individuals
recognized by the Chair or President may address the Board at any meeting of the Board.

h. **Executive Session (Closed Session)** – When the Board or any committee of the Board meets in executive session (sometimes referred to as closed session), all matters discussed in that session are to be considered as confidential, except that such information can be shared with absent Board members or University officers, agents or employees who need to know. Actions taken in executive session shall be released to the public if required by the provisions of the Sunshine Law contained in Chapter 610 of the Revised Statutes of Missouri or Board rules contained in Section 10.060 of the Collected Rules and Regulations of the University of Missouri entitled Board and Committee Meetings.

2. **Attendance Policy**
   a. If a member of the Board is found by unanimous vote of the other Curators to have failed to attend without good cause two consecutive regular meetings of the Board in any calendar year, then the office of such Curator shall be vacant.
   b. If a vacancy shall occur by death, resignation, or from any other cause, the Chair of the Board shall notify the Governor within thirty days of such vacancy.

3. **Officers of the Board**
   a. **Chair of the Board** -- The Board shall choose from its own membership at the last regular meeting of the Board in each calendar year to take office on January 1 of the next year, a Chair of the Board who shall hold office for a term of one year or until his/her successor takes office. The Chair shall serve as presiding officer of the Board and shall carry out such duties as may be delegated to him/her by the Board. The individual elected to serve as Chair of the Board shall be deemed as having been elected to serve as President of the Board within the meaning of the statutory provisions of the State of Missouri, all as referred to in the definitions contained in Article I of these bylaws.
   b. **Vice Chair of the Board** -- The Board shall choose from its own membership at the last regular meeting of the Board in each calendar year to take office on January 1 of the next year, a Vice Chair of the Board who shall hold office for a term of one year or until his/her successor takes office. The Vice Chair shall carry out the duties of the Chair in his/her absence or inability for any reason to serve, and hereinafter
may be referred to as “Vice Chair,” "Vice Chairman,” “Vice Chairwoman” or “Board Vice Chair.” The individual elected as Vice Chair shall be deemed as having been elected to serve as Vice-President of the Board of Curators within the meaning of the statutory provisions of the State of Missouri.

c. **Secretary** -- The Board shall appoint a Secretary of the Board of Curators to serve at the pleasure of the Board. The Secretary shall keep the minutes of the meetings of the Board and the Executive Committee, shall be the official custodian of the seal and all records of the Board, and shall have such other duties as may be from time to time fixed by the Board. The Board may appoint and define the duties of such assistant secretaries of the Board as it deems desirable.

d. **General Counsel** -- The General Counsel shall be the chief legal officer of the University, shall be appointed by the Board to serve at the pleasure of the Board, and shall have such duties and responsibilities as may be assigned by the Board. The General Counsel shall serve as parliamentarian for meetings of the Board, unless a different individual is appointed to serve as parliamentarian by the Chair of the Board.

e. Any vacancy in any office of the Board caused by any reason may be filled by the Board for the unexpired term.

4. **Committees**

a. **Executive Committee** -- The Chair of the Board, subject to approval of the Board, shall appoint from the Board an Executive Committee of three members, and may fill vacancies at any time. The Chair of the Board shall serve as one of the three Executive Committee members and as the Chair of the Executive Committee. Such Executive Committee members shall hold office until their successors have been duly appointed. The Executive Committee, when the Board is not in session, shall have the powers of the Board to take such action as the Executive Committee may deem to the best interest of the University; provided, however, that such action shall be in accord with the provisions of these bylaws, and not in conflict with the standing rules and regulations of the Board. A complete record of all actions of the Executive Committee shall be kept by the Secretary of the Board, and a copy of such record shall be submitted to each member of the Board monthly and in advance of the next regular meeting of the Board. Actions of the Executive Committee may be ratified, approved, or modified at the next regular meeting of the Board, but any
modification thereof shall be prospective only. If, at its next
regular meeting, the Board takes no action on an Executive
Committee action, the record of which was submitted to the
Board prior to that regular meeting, such action shall be
deemed ratified by the Board. The vote of any members on
any question coming before the Executive Committee may be
taken in person, by telephone, telegraph, facsimile
transmission, email or letter. Concurrence of three members
shall constitute action of the Executive Committee. The
Executive Committee shall be entitled to take such action as
deemed necessary under the provisions of Section 172.230
and other provisions of the Revised Statutes of the State of
Missouri, as amended.

b. Other Committees -- The Chair of the Board may appoint
subject to approval of the Board other standing or special
committees of the Board from time to time and delegate to
such committees such authority as the Board may deem
appropriate to carry out the objects of such committees.
Membership on such committees need not be limited to
members of the Board.

5. Quorum -- Five members of the Board of Curators shall constitute
a quorum for the transaction of any and all business of the Board.
Except as otherwise provided by these bylaws, a majority of the
members of any committee of the Board shall constitute a quorum
for the transaction of any and all business of the committee at any
committee meeting held in conjunction with a meeting of the
Board. All members of any committee of the Board shall
constitute a quorum for the transaction of any and all business of
any committee at any committee meeting which is not held in
conjunction with a meeting of the Board.

6. Action by Majority -- Any action by the Board or any committee
may be taken by the majority vote of the members present at any
meeting of the Board or a committee when a quorum is present,
unless otherwise specifically herein provided.

7. Recording Vote -- The Secretary of the Board shall keep the
minutes of the meetings of the Board of Curators and committees
in which shall be recorded the vote on all motions or resolutions
coming before said Board or committee. Roll call votes shall be
taken when required by law and voice votes shall be taken on all
other matters. When taking a voice vote, curators will be
requested to cast their vote orally indicating whether they favor,
oppose or abstain from the motion or resolution. When the results
of a voice vote indicate that the vote is not unanimous of all
curators voting and abstaining, a roll call vote on the matter shall immediately follow.

8. Delegation of Authority -- So much of the authority of the Board as it may deem necessary may be delegated to such officers and employees or to committees appointed by the Board provided such delegation of powers shall be given by recorded Board action.

D. Article IV Organization of the University
   1. President of the University
      a. The President of the University shall be the chief executive and academic officer of the University. The President shall have direct charge of, and be directly responsible to the Board for the operation of the University.
      b. The President shall, so far as his/her duties may permit, attend all meetings of the Board and of the Executive Committee, but he/she may be excused at any time.
      c. He/she shall, at each regular meeting of the Board, report upon the progress, condition and needs of the University, and recommend such measures as in his/her judgment will promote the University's interests.
      d. The President of the University, as the chief academic officer of the University, shall be responsible to the Board for the academic programs of the University; procurement of staff; the establishment and maintenance of separate schools, colleges and departments of instruction within the University; the relationships and coordination of educational activities between campuses, special divisions and units; and the planning, development and carrying out of all research projects.
      e. The President, as the chief academic officer of the University, shall have the right to preside and vote at any faculty meeting. He/she shall appoint all non-Board committees of the University, unless otherwise provided by the Board.
      f. Any University Rules and Regulations, Executive Orders and Executive Guidelines of the President or delegations of general authority shall be filed with the Secretary of the Board and unless otherwise specified, shall be effective from the time of such filing until changed, modified or repealed by the President or by the Board.
      g. The President of the University will establish policies for intercollegiate athletics in compliance with the rules and regulations of applicable regional or national athletic conferences or associations, so long as these rules and regulations are not in conflict with policies, rules or
regulations of the Board. The President will report periodically to the Board of Curators on the intercollegiate athletic programs.

2. **Campuses of the University**
   a. **General**
      (1) Campuses of the University of Missouri shall be established by the Board. Each campus shall be a unit of the University.
      (2) Campus chancellors, provosts and other officers as may be specifically designated by the Board shall be appointed by the Board upon recommendation of the President.
   b. **Individual Campuses** -- Until otherwise provided by the Board, there are the following campuses of the University (to include their respective sites, academic programs, and administrative staff as now constituted):
      (1) University of Missouri-Columbia;
      (2) Missouri University of Science and Technology;
      (3) University of Missouri-Kansas City; and
      (4) University of Missouri-St. Louis.

3. **University System Units** -- University System units may be created to carry out such functions as may be assigned them by the President of the University. These units shall be under the direct supervision of the President, but shall perform their functions in consultation and cooperation with the chief administrative officer of each campus as to their activities and programs on the respective campuses.

**E. Article V Academic Staff**
1. Until further order of the President or the Board, the colleges, schools and other departments with offices of deans or department directors as presently established and degrees as presently offered shall be continued.
2. Faculties may organize to carry out the responsibilities and functions which may be delegated to them. The form of any such organization and any amendments or modifications thereto shall be presented through the President to the Board for its approval before becoming effective.

**F. Article VI Students**
1. A student at the University shall be any person who is registered in or pursuing any educational program of the University.
   a. Temporary interruptions of registration between academic periods of the University shall not necessarily terminate student status.
b. Such students are subject to classifications, as may be established from time to time by the Board or the President, and shall be subject to such rules, regulations and restrictions as may now be established or hereafter from time to time established by the Board or the President.

2. Delegation of Administration
   a. The Board of Curators hereby delegates to the President of the University the responsibility for administering policies pertaining to the conduct of students and student organizations at the University as such conduct relates to the lawful mission, process or function of the University.
   (1) The President may issue University Rules and Regulations and may authorize campus rules and regulations to be adopted, issued and published implementing Board Rules and Regulations establishing standards of conduct and to provide for administration of University and campus regulations.
   (2) Failure to adopt such rules and regulations, however, shall not relieve any student or student organizations of the obligation to adhere to Board Rules and Regulations establishing general standards of student conduct.
   b. University or campus rules, regulations and procedures as herein authorized shall be in accordance with the Board Rules and Regulations and shall provide for prompt consideration and disposition of alleged violation of such University or campus rules and regulations; provided, however, that such procedures shall be in accordance with basic standards of fairness and shall be simple and appropriate to the nature of the case, and shall provide for notice and a hearing.

3. Until changed, modified or repealed, the provisions of the present Board Rules and Regulations relating to students which are not inconsistent with the provisions of these bylaws shall be considered to be in force.

G. Article VII: Board Rules and Regulations
   1. Any action by the Board establishing policy or methods of procedure, administrative, business, academic, or otherwise, shall be known as "Board Rules and Regulations."
   2. Board Rules and Regulations may be adopted by the Board, or may be amended or repealed, in whole or in part, at any meeting of the Board.
   3. All policies and procedures falling within the definition of Board Rules and Regulations as herein defined, and in existence upon the date of the adoption of these bylaws, shall be a part of the Board Rules and Regulations.
4. Board Rules and Regulations shall be effective upon adoption by the Board unless a different effective date be fixed by the Board.

5. The Secretary of the Board shall keep all Board Rules and Regulations on file in his or her office, and may publish Board Rules and Regulations from time to time.

6. In the absence of an applicable bylaw, the Board shall be guided by Roberts Rules of Order, particularly those rules relating to Boards.

H. Article VIII Amendment of Bylaws
   1. New bylaws may be adopted, and bylaws may be amended or repealed, at any meeting of the Board, but no such action shall be taken unless notice of such proposed adoption, amendment, or repeal shall have been given at a previous meeting or notice in writing of the proposed change shall have been served upon each member of the Board at least thirty days in advance of the final vote upon such change; provided, however, that by consent of each member, regardless of whether present at the meeting of the Board, the requirements for such notice may be waived at any time. Any provisions of these bylaws, with the exclusion of this Section 10.030H.1 pertaining to the amendment of bylaws, may be suspended in connection with the consideration of a matter before the Board by an affirmative vote of not less than 2/3 of the members of the Board in attendance at the meeting where such suspension is being considered.

I. Article IX Adoption of Bylaws
   1. These bylaws shall be and become effective on the 1st day of July, 2010. All former bylaws of the Board are hereby repealed.
   2. These bylaws, as adopted and from time to time amended, shall be known and cited as Board Bylaws of 2010.
Recommended Action - Adjourn Board of Curators Governance, Resources and Planning Committee Meeting.

It was moved by Curator __________ and seconded by Curator __________, that the Board of Curators Governance, Resources and Planning Committee meeting, December 7-8, 2017, be adjourned.

Roll call vote of the Committee: YES NO

Curator Brncic
Curator Chatman
Curator Steelman

The motion ________________.
FINANCE COMMITTEE
At the August 2017 meeting, the Board approved the Memorial Stadium South Expansion project. The total project budget of $98,000,000 is funded by a minimum of $40,000,000 in private gifts, a maximum of $57,200,000 in long term financing, and $800,000 in Campus Infrastructure Funds. Additionally at the February 2017 meeting, the Board approved employing Populous, Inc., Kansas City, Missouri as the project architect.

Nearly all Intercollegiate Athletic (ICA) programs utilize the same training, study, and dining facilities located in the Mizzou Athletic Training Complex (MATC). The heavy use of the MATC by all sports creates scheduling challenges and limited availability of resources to student athletes and team training programs. Many Division I teams have invested in football focused team facilities, including many Southeastern Conference (SEC) institutions. Top recruits factor access to this type of focused facility in their decision as to which university to attend. Construction of a football focused facility will enhance recruiting for football but also for student athletes across all sports and academic interests by alleviating congestion at the MATC.

Memorial Stadium is the heart of the football program for fans and the team. Facility improvements have been made over the last 20 years to many areas of the stadium and field. The south end bowl of 10,800 general admission seats was constructed in 1977, and has not been measurably updated to improve the fan experience, showing signs of deterioration and settlement.

The proposed project will build a new three-story building and grandstands at the south end of Memorial Stadium comprising approximately 191,059 gross square feet (GSF) of construction with enclosed space of approximately 141,065 GSF. The new seating bowl will remove 10,800 general admission seats and replace with sixteen suites and associated support spaces, approximately 1,500 premium seats and 1,300 outdoor general admission seats, resulting in increased net revenues associated with this seating and premium amenities. The design of the football program spaces include a new team locker room (both training and game day use), football training facility, weight room, coaching offices and team meeting rooms, public and recruiting reception areas, and equipment storage. New kitchen and dining space is planned to serve both premium seating venues and team dining functions.

The exterior will consist of red brick and stone detailing expressed in other buildings, such as Mizzou Arena and the Stadium East Expansion, for cohesion across facilities in the Mizzou sports park. In addition, expanses of glass and metal panel at the main entry, team spaces, recruiting areas and public spaces enhance the traditional detailing with a forward focused design, connecting the traditions of the past with inspiration for the future.

The Memorial Stadium South Expansion project will be evaluated for viability of pursuing USGBC LEED certification during the design process.

The project will be delivered as Construction Manager at Risk (CMR) project. The total construction cost is $403/GSF and construction is expected to be completed by August 2019. Site plan, floor plans, elevations, and renderings of the design concept are attached.

December 7-8, 2017

OPEN – FIN– INFO 1-1
MEMORIAL STADIUM SOUTH EXPANSION
MU
MIZZOU FOOTBALL PROGRAM OFFICE LEVEL PLAN
SOUTHWEST VIEW
Revisions to Collected Rules and Regulations
70.060 Consulting, Design and Construction
UM

At the September 2017 Board of Curators meeting, the Curators adopted a comprehensive review and approval process for major capital projects. This new process establishes the Board has an active role in capital planning, priorities and approval. To align this process with the Collected Rules and Regulations (CRR), the following revisions to the CRR 70.060 Consulting, Design and Construction are recommended:

- Require Board of Curators approval for master plan every five (5) years in lieu of three (3) years to align with capital and finance plans.

- Require Board of Curators approval of a five (5) year capital plan in lieu of review of capital plan. Capital plan shall include all planned new buildings and additions over $5 million in project cost; all planned renovation/infrastructure projects over $8 million in project cost; and planned total spend for each year on all capital improvements.

- Require Board of Curators approval for all new capital building/additions projects with a total project cost of $5 million or more.

- Require Board of Curators approval for all capital renovation/infrastructure projects with a total project cost of $8 million in lieu of $5 million.

- Replace requirement to “present” with “provide” to the Board of Curators the Project Design of new buildings and additions with a total project cost greater than $5 million. This will allow Project Design information to be provided to Board of Curators in lieu of presenting information at a meeting when appropriate.

- Require an annual status report of all projects approved by Board of Curators in lieu of an annual report for construction contracts, including Construction Manager contracts, more than $500,000.
Recommended Action - Revisions to Collected Rules and Regulations 70.060 Consulting, Design and Construction, UM

It was recommended by Vice President Rapp, endorsed by President Choi, recommended by the Finance Committee, moved by Curator ____________ and seconded by Curator ____________, that the:

that the Collected Rules and Regulations 70.060 Consulting, Design and Construction, be amended as set forth in the attached.

Roll call vote of the Committee: YES NO
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

Roll call vote of Board of Curators: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
Chapter 70: Execution of Instruments
70.060 Consulting, Design and Construction
Bd. Min. 12-12-64, p. 26,063; Amended Bd. Min. 11-19-76; 8.250 R.S.Mo 1929; Bd. Min. 5-5-89, Amended Bd. Min. 12-15-95; Bd. Min. 9-27-01; Bd. Min. 3-22-02; Bd. Min. 12-11-03, Bd. Min. 5-5-06, Bd. Min. 10-5-07, Bd. Min. 9-24-10, Bd. Min. 8-19-11, Bd. Min. 1-31-13; Amended 4-11-14.

A. The President shall have the authority to hire consultants and administer facilities design and construction operations in conformance with these Collected Rules and Regulations.

B. Board of Curators have an active role in establishing capital plans and priorities. Board of Curators’ approval shall be obtained for:

1. Campus master plans when significant changes are proposed, but not less than every three years.

2. A five-year Capital Project Plan for each campus annually. Capital Project Plan shall include:
   a. All planned new buildings or additions over $5,000,000 in project cost
   b. All planned renovation/infrastructure projects over $8,000,000 in project cost
   c. Planned total spend summary for all capital improvements each year

   All projects on the capital project plan shall support the campus strategic plan and master plan.

3. The architectural and engineering consultant fees and the project budget, funding, and scope of work for Capital Improvements-renovation/infrastructure projects with a total project cost of $58,000,000 or more, or new building or addition projects with a total project cost of $5,000,000 or more or debt-financed projects, before the design of the project is started. This does not include the pre-design programming and planning to develop the estimated project cost, scope of work, and justification.

4. The architectural and engineering consultant when the fees are more than $500,000 and the project cost is less than $5,000,000 for new buildings and additions; or the project cost is less than $8,000,000 for renovation/infrastructure projects.

5. If a previously approved Capital Improvement project changes substantially in size, scope, or cost, or the source of funds changes significantly, the Capital...
Improvement project shall be reapproved before construction begins, the Guaranteed Maximum Price is increased, or, in the case of a project that includes a series of construction contracts, the next construction contract is approved.

C. Debt Financed Capital Improvement Projects

1. Board of Curators approval shall be obtained for the use of debt financing on a project prior to bidding.

2. Facilities and Administrative Cost Recovery may be used as an identified funding source for the debt service on debt issued to build research and academic buildings at the University of Missouri, on a facility for which the Board has approved a business plan. The approval of a business plan must occur prior to hiring architectural and engineering consultants. See CRR 145.010 “Policy for Management and Oversight of Debt and Derivatives” for overall limitations on this funding source.

D. Project Design of new buildings and building additions with a total project cost greater than $5,000,000 will be presented to the Board of Curators for informational review before design is complete and construction contracts are awarded.

E. An annual report shall be provided to the Board for construction contracts, including Construction Manager contracts, more than $500,000, with the status of each project on the approved capital plan and all projects approved by the Board.

F. The Board of Curators will review the Capital Project Plan annually.

F. Competitive bids are not required for:

1. Projects estimated at less than $25,000, if there are no savings or advantages to bidding.

G. Master Construction Agreements

1. Master Construction Agreements shall be competitively bid including price, firms’ qualifications and quality of services provided in evaluating the best proposal.

2. Individual projects may be performed under Master Construction Agreements without seeking competitive bids for the individual projects.

3. The construction cost for individual projects performed by Master Construction Agreements shall not exceed $1,000,000.

December 7-8, 2017
4. Master Construction Agreements shall be annual agreements with annual renewals not to exceed a total contract period of (5) five years.

5. Individual projects performed under a Master Construction Agreement would not be advertised for bidding.

II. Codes and Standards

1. All facilities shall comply with International Code Council (ICC) Codes. Codes and standards required by accreditation agencies will also be used unless the ICC requirements are more stringent. In the event that special design features and/or construction systems are not covered in the ICC codes, the applicable edition of the National Fire Protection Association (NFPA) family of standards and/or the NFPA 101 Life Safety Code shall be used.

2. All facilities shall be in conformance with the Americans with Disabilities Act.

III. Construction projects, other than individual projects performed on master construction agreements, estimated to cost $100,000 or more shall be advertised for bid for five days in two newspapers with a circulation of at least 50,000, and at least two times over a 10 day period in a newspaper located in the county where the work is located, or advertised through an electronic medium if this method is more advantageous in soliciting competitive bids.

J. Notwithstanding any provision herein to the contrary, the Board of Curators may, at its discretion, dispense with the competitive bidding and advertising requirements in this Section 70.060 as they relate to the construction of a building on University property if a private donor providing all or substantially all of the money for such construction project specifies, as a condition precedent to the donation, the architect and/or the general contractor to be utilized. In exercising its discretion concerning such donations, the Board of Curators’ considerations will include, but not necessarily be limited to, the capabilities and prior experience of the architect and/or general contractor with similar construction projects, the ability of the University to assure that the building meets all applicable construction standards and codes, any conflicts of interest that may exist for the donor, the architect and/or general contractor and the ability of the University to assure compliance with all applicable contract terms and laws related to such construction projects. Any such approval by the Board of Curators to dispense with the competitive bidding and advertising requirements in this Section 70.060 shall be December 7-8, 2017
contingent upon the willingness of the specified architect and/or general contractor to agree in writing to comply with standard University contract terms and conditions and to perform such contractual obligations for a specified amount within the specified budget for the construction project.

K. Preference shall be given to Missouri products and firms when such are equally or better suited for the intended purpose and can be obtained without additional cost. Firms are considered "Missouri firms" if they maintain a regular place of business in the State of Missouri.

L. The prevailing wages in the community where construction takes place shall be required to be paid on all construction projects for construction work. Prevailing wages are not required to be paid for maintenance work.
Chapter 70: Execution of Instruments

70.060 Consulting, Design and Construction

Bd. Min. 12-12-64, p. 26,063; Amended Bd. Min. 11-19-76; 8.250 R.S.Mo 1929; Bd. Min. 5-5-89, Amended Bd. Min. 12-15-95; Bd. Min. 9-27-01; Bd. Min. 3-22-02; Bd. Min. 12-11-03, Bd. Min. 5-5-06, Bd. Min. 10-5-07, Bd. Min. 9-24-10, Bd. Min. 8-19-11, Bd. Min. 1-31-13; Amended 4-11-14.

A. The President shall have the authority to hire consultants and administer facilities design and construction operations in conformance with these Collected Rules and Regulations.

B. Board of Curators have an active role in establishing capital plans and priorities. Board of Curators approval shall be obtained for:

1. Campus master plans when significant changes are proposed, but not less than every five years.

2. A five-year Capital Project Plan for each campus annually. Capital Project Plan shall include:
   
   a. All planned new buildings or additions over $5,000,000 in project cost
   b. All planned renovation/infrastructure projects over $8,000,000 in project cost
   c. Planned total spend summary for all capital improvements each year

   All projects on the capital project plan shall support the campus strategic plan and master plan.

3. The architectural and engineering consultant fees and the project budget, funding, and scope of work for renovation/infrastructure projects with a total project cost of $8,000,000 or more; or new building or addition projects with a total project cost of $5,000,000 or more, before the design of the project is started. This does not include the pre-design programming and planning to develop the estimated project cost, scope of work, and justification.

4. The architectural and engineering consultant when the fees are more than $500,000 and the project cost is less than $5,000,000 for new buildings and additions; or the project cost is less than $8,000,000 for renovation/infrastructure projects.

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5. If a previously approved Capital project changes substantially in size, scope, or cost, or the source of funds changes significantly, the Capital project shall be reapproved before construction begins, the Guaranteed Maximum Price is increased, or, in the case of a project that includes a series of construction contracts, the next construction contract is approved.

C. Debt Financed Capital Improvement Projects

1. Board of Curators approval shall be obtained for the use of debt financing on a project prior to bidding.

2. Facilities and Administrative Cost Recovery may be used as an identified funding source for the debt service on debt issued to build research and academic buildings at the University of Missouri, on a facility for which the Board has approved a business plan. The approval of a business plan must occur prior to hiring architectural and engineering consultants. See CRR 145.010 "Policy for Management and Oversight of Debt and Derivatives" for overall limitations on this funding source.

D. Project Design of new buildings and building additions with a total project cost greater than $5,000,000 will be provided to the Board of Curators for informational review before design is complete and construction contracts are awarded.

E. An annual report shall be provided to the Board with the status of each project on the approved capital plan and all projects approved by the Board.

F. Competitive bids are not required for:
   1. Projects estimated at less than $25,000, if there are no savings or advantages to bidding.

G. Master Construction Agreements

1. Master Construction Agreements shall be competitively bid including price, firms’ qualifications and quality of services provided in evaluating the best proposal.

2. Individual projects may be performed under Master Construction Agreements without seeking competitive bids for the individual projects.

3. The construction cost for individual projects performed by Master Construction Agreements shall not exceed $1,000,000.

4. Master Construction Agreements shall be annual agreements with annual renewals not to exceed a total contract period of (5) five years.

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5. Individual projects performed under a Master Construction Agreement would not be advertised for bidding.

H. Codes and Standards

1. All facilities shall comply with International Code Council (ICC) Codes. Codes and standards required by accreditation agencies will also be used unless the ICC requirements are more stringent. In the event that special design features and/or construction systems are not covered in the ICC codes, the applicable edition of the National Fire Protection Association (NFPA) family of standards and/or the NFPA 101 Life Safety Code shall be used.

2. All facilities shall be in conformance with the Americans with Disabilities Act.

I. Construction projects, other than individual projects performed on master construction agreements, estimated to cost $100,000 or more shall be advertised for bid for five days in two newspapers with a circulation of at least 50,000, and at least two times over a 10 day period in a newspaper located in the county where the work is located, or advertised through an electronic medium if this method is more advantageous in soliciting competitive bids.

J. Notwithstanding any provision herein to the contrary, the Board of Curators may, at its discretion, dispense with the competitive bidding and advertising requirements in this Section 70.060 as they relate to the construction of a building on University property if a private donor providing all or substantially all of the money for such construction project specifies, as a condition precedent to the donation, the architect and/or the general contractor to be utilized. In exercising its discretion concerning such donations, the Board of Curators’ considerations will include, but not necessarily be limited to, the capabilities and prior experience of the architect and/or general contractor with similar construction projects, the ability of the University to assure that the building meets all applicable construction standards and codes, any conflicts of interest that may exist for the donor, the architect and/or general contractor and the ability of the University to assure compliance with all applicable contract terms and laws related to such construction projects. Any such approval by the Board of Curators to dispense with the competitive bidding and advertising requirements in this Section 70.060 shall be contingent upon the willingness of the specified architect and/or general contractor to agree in writing to comply with standard University contract terms and conditions and to perform such contractual obligations for a specified amount within the specified budget for the construction project.
K. Preference shall be given to Missouri products and firms when such are equally or better suited for the intended purpose and can be obtained without additional cost. Firms are considered "Missouri firms" if they maintain a regular place of business in the State of Missouri.

L. The prevailing wages in the community where construction takes place shall be required to be paid on all construction projects for construction work. Prevailing wages are not required to be paid for maintenance work.
The Missouri University of Science and Technology requests project approval for the Advanced Construction Materials Laboratory project. Total project budget of $6,502,638, is funded by $3,100,000 in private gifts, $1,700,000 from UM System, and $1,702,638 from campus reserves.

The 2017 Master Plan update shows an 82,944 assignable square feet (ASF) deficit in research space on Missouri S&T’s campus. The Advanced Construction Materials Laboratory (ACML) will provide needed research laboratory space and will consolidate teaching and research functions currently spread over multiple buildings on campus. The new space will allow activities of well-funded research programs (Center for Infrastructure Engineering Studies and Center for Transportation Infrastructure and Safety) to be housed in one central location. These programs are part of the Civil, Architectural, and Environmental Engineering department. A planning and programming study was completed in 2012.

The proposed expansion will construct an approximately 12,600 gross square feet (GSF) addition onto the existing high bay area of the Butler Carlton Civil Engineering Building and renovate approximately 3,630 GSF of existing building space. The expansion includes 10,000 GSF of high bay space and 2,600 GSF of mezzanine space for research support spaces such as a utility room, durability room, freeze thaw room, restroom, and scaling room.

Christner, Inc., St. Louis, Missouri is the recommended architect for this project. Christner presented a thorough overview of similar projects successfully completed by their firm. The team displayed excellent project management and quality assurance processes, and the project team had worked together on previous projects. The design team includes The McClure Corporation, Inc., St. Louis, Missouri for mechanical, plumbing, electrical, and fire protection engineering; Optimal Engineering Solutions OES, Inc., St. Louis, Missouri (MBE) for structural engineering; and David Mason and Associates, Inc., St. Louis, Missouri (MBE) for civil engineering.

The selection committee also interviewed Hastings + Chivetta Architects, Inc., St. Louis, Missouri; Trivers Associates, Inc., St. Louis, Missouri; and BSA Life Structures, Inc., St. Louis, Missouri.

The fee for basic architectural and engineering services has been determined by using the University of Missouri’s “Architectural and Engineering Basic Services Fee Estimating Guidelines” at 7.2% of the $4,550,800 construction cost or $327,657. Additional services for laboratory planning is anticipated at $29,952 for a total design fee of $357,609.

Total construction cost is $330/GSF and is expected to be complete by September 2019.
Recommended Action - Project Approval, Advanced Construction Material Laboratory, Missouri S&T

It was recommended by Interim Chancellor Maples, endorsed by President Choi, recommended by the Finance Committee, moved by Curator ______________ and seconded by Curator ______________, that the following action be approved:

the project approval for the Advanced Construction Material Laboratory project, Missouri University of Science and Technology.

Funding of the project budget is from:

- Gifts $3,100,000
- UM Central Bank $1,700,000
- Campus Reserves $1,702,638
- Total Funding $6,502,638

Roll call vote of the Committee:    YES  NO
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion _________________.

Roll call vote:                YES   NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion _________________.

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The University of Missouri – Kansas City requests project approval for the new School of Computing and Engineering Education and Research Center project. Total project budget is $32,082,325, and project funding will include $24,745,000 in private gifts; $1,937,325 in Federal equipment grants; and $5,400,000 in re-appropriated State Higher Education Capital Funds (HECF) which were originally appropriated for the UMKC Free Enterprise Center.

As originally approved by the Board of Curators in both June 2013 for HECF submittal and June 2015 for project approval, the UMKC Free Enterprise Center (FEC) was planned as a free standing structure on the corner of Volker and Brookside Boulevards (215 Volker). State funding withholds after the original funding approval prevented the start of construction. Those withholds, coupled with the ensuing construction inflation that occurred during the lost time, made the original planned construction impossible with the available funds. In order to preserve the original planned benefits of the FEC’s equipment and programming for the UMKC students and the greater Kansas City community, University leadership has taken steps to embed the FEC and its key components within the planned UMKC School of Computing and Engineering (SCE) Education and Research Center (SCEERC), one of UMKC’s highest capital priorities.

UMKC’s School of Computing and Engineering (SCE) enrolls more than 1,660 students. The undergraduate student population has grown by 113 percent over the last nine years. Interest in the school’s programs continues to grow at a rapid pace, and is anticipated to reach 2,700 students by 2022. The SCE is located on UMKC’s Volker Campus in the heart of Kansas City, which is home to top engineering firms and publicly traded technology companies that operate globally. As “Kansas City’s school for computing and engineering,” the SCE is a key player in providing area companies with highly trained engineers and computing professionals to address the strong workforce demand. Flarsheim Hall’s small labs and classrooms cannot accommodate anticipated growth of SCE, nor are they adequate for the enhanced and improved experience-based curriculum that requires collaborative space and equipment. Larger more interactive labs and classrooms will allow faculty to optimize teaching, mentoring and research and will allow students to optimize their hands-on laboratory experiences.

A Program Planning Study was completed in 2015 for the SCEERC project and updated in 2017 to include the FEC. The integrated SCEERC and FEC project will be constructed in the heart of the Volker campus adjacent and connected to the SCE’s existing home in Robert H. Flarsheim Science and Technology Hall. The project also includes renovation of 7,800 square feet in Flarsheim Hall to include a connection to the new building on levels two through five.

The new 44,400 gross square feet (GSF) facility, to be located just north of the Robert H. Flarsheim Science and Technology Hall, will provide new flexible classroom space and
much needed improved laboratory space that can accommodate more students and house small and large-scale equipment vital to civil, mechanical, and electrical engineering and computer science.

This location is highly visible from Rockhill Road as well as the Volker core campus along 51st Street, including the Academic Quad and Miller Nichols Library and Learning Center. The integrated project will bolster UMKC’s workforce/economic development objectives to help ensure the region’s future workers have access to the education and training needed to compete. In addition, companies will be able to access FEC resources through a series of interior walkways leading from the covered Rockhill Parking Structure as well as other UMKC surface parking lots.

Construction estimate for this project is $450/GSF. The project is scheduled to be completed in August 2020. The project will be delivered as a Design/Build project. Design/Build team will be selected through a competitive process with the project design being presented to the Board of Curators at the April 2018 meeting.
Recommended Action - Project Approval, School of Computing and Engineering – Education and Research Center, UMKC

It was recommended by Interim Chancellor Bichelmeyer, endorsed by President Choi, recommended by the Finance Committee, moved by Curator ________________ and seconded by Curator ________________, that the following action be approved:

the project approval for the School of Computing and Engineering – Education and Research Center, UMKC.

Funding of the project budget is from:

- Gifts $24,745,000
- Grant $1,937,325
- State (Higher Education Capital Fund) $5,400,000

Total Funding $32,082,325

Roll call vote of the Committee: NO YES
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

Roll call vote: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
It is the primary intent of the annual actuarial valuation to compare, as of a given date, the value of actuarial liabilities (net present value of future pension payments) with the value of the plan’s assets so as to measure the current funding status of the plan’s actuarial liabilities and from there, future annual cost requirements for plan liability funding.

The valuation of actuarial liabilities is based on the sex, age, service, job classification, and pay level characteristics of the plan’s participants as well as assumptions as to future actuarial experience. Such projection factors represent the actuary’s best estimate of the future experience of the plan’s participants and are based on both observed historical patterns and judgements (including those of University officials) as to current and predicted demographic and related economic trends which are likely to influence the future.

In the past, typically every five years, the University requests from its independent actuary a retrospective (‘experience’) study regarding all assumptions used in the annual valuation, such as future mortality, termination of employment, rate of retirement, future salaries and investment return. The last such study was presented to the Board in June 2013.

In September 2017, the Board approved changes to the asset allocation of the plan’s investment portfolio, which resulted in an expected 7.20% long-term investment return. Because this expected return is significantly below the plan’s current 7.75% investment return assumption, a decision was made to accelerate the current experience study by one year.

The recommendation for action to the Board of Curators is to change the actuarial assumptions as recommended in the enclosed presentation and report.
Recommended Action - Approval, Retirement Plan Actuarial Assumptions, UM

It was recommended by Vice President Rapp, endorsed by President Choi, recommended by the Finance Committee, moved by Curator ___________ and seconded by Curator ___________, that the:

Retirement Plan Actuarial Assumptions for the University of Missouri’s Defined Benefit Plan be changed as recommended in the Report on Actuarial Valuation Assumptions Study Based on 2012-2016 Actuarial Experience, prepared by Segal Consulting:

Roll call vote of the Committee:    YES  NO

Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

Roll call vote of Board of Curators:    YES  NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

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Approval of Retirement Plan Actuarial Assumptions

December 7-8, 2017
Background – Experience Study

- At the September meeting, the Board of Curators adopted asset allocation changes with an expected return of 7.20%.

- In past years, the University has typically engaged its actuary to perform a thorough review of all assumptions used in the actuarial valuation of the defined benefit plan every five years (‘experience study’). The last study was presented to the Board in June 2013.

- Given the significant change in the investment return assumption, and the impact such assumption has on the actuarial valuation, the current experience study was accelerated by one year.
Background – Experience Study

- Goals of experience study include:
  - Better understanding of how actual recent experience compares with expected levels
  - Determine if current assumptions are appropriate for future valuations
  - Minimize deviation of future costs from expectations
- Segal reviewed actual experience from 2012 through 2016
  - Review included both economic and demographic experience

*Changes in assumptions will not change actual (ultimate) plan cost but may impact the timing of funding and cost recognition*
Retirement and Severance Rates

Retirement Rates

- Continued differences in retirement rates between Academic and Administrative versus Clerical and Service
- Recommended rates extend employment to age 80 and provide for higher pre-65 retirement rates for those with over 25 years of service

Severance Rates

- Turnover during the recent experience period was somewhat higher than prior study
- Current assumptions are by gender, but the differences in severance rates between gender in the current study did not warrant separate assumptions
- Continued differences in severance rates between Academic and Administrative versus Clerical and Service
Mortality Rates

- Mortality rates estimate the age at which a member will pass away
  - Improved mortality (i.e., individuals living longer) will result in increased liabilities as pension payments are made for a longer period of time

- Prior mortality assumption was 95% of the RP-2000 healthy mortality table projected to 2023 using Scale BB

- Recommended mortality assumption is RP-2014 projected with scale MP-2017
  - Latest standard table from the Society of Actuaries
  - Includes generational projection scale which applies a different mortality improvement factor for a given age to each future valuation year
  - Provides for longer life expectancy than the current assumption
Salary Rates and Inflation

- Actual salary rates net of inflation (i.e., merit) were generally higher for younger ages, unchanged for mid-career and lower for those retirement eligible than current assumptions
  - Continued differences in salary rates between Academic and Administrative versus Clerical and Service
- Recommended inflation rate is 2.20%
  - Reduced from prior 2.75% assumption based on anticipated future market conditions
- Salary rates inclusive of inflation are generally lower than current assumptions
Investment Return

- Net long-term rate of investment return, or interest rate, is the rate assets are expected to return (net of expenses) for each future year in the valuation
  - Used to determine the Plan’s liabilities
- Based on the Plan’s current target allocation, the recommended investment return assumption is 7.20%
  - Reflects reduction in inflation assumption from 2.75% to 2.20%
Investment Return Assumption Comparison Among Major State Pension Plans

Mean 7.45%
Median 7.50%

UM System
Recommended Assumption
7.20%

Source: National Association of State Retirement Administrators, October 2017 (n=127)
## Financial Impact of Recommended Assumptions

<table>
<thead>
<tr>
<th>$000's</th>
<th>Normal Cost</th>
<th>Unfunded Liability</th>
<th>Net employer contribution amount</th>
<th>Level 1 % of Pay</th>
<th>Level 2 % of Pay</th>
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<tr>
<td>October 1, 2016 Valuation</td>
<td>$68,988</td>
<td>$459,286</td>
<td>$93,806</td>
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<td>Change due to:</td>
<td></td>
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<tr>
<td>--- Retirement Rates</td>
<td>($35)</td>
<td>($12,554)</td>
<td>($1,119)</td>
<td>(0.09%)</td>
<td>(0.11%)</td>
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<td>--- Severance Rates</td>
<td>($5,379)</td>
<td>$4,387</td>
<td>($5,000)</td>
<td>(0.53%)</td>
<td>(0.22%)</td>
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<td>--- Mortality Rates</td>
<td>$1,319</td>
<td>$55,068</td>
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<td>--- Salary Scale (merit)</td>
<td>($238)</td>
<td>($13,087)</td>
<td>($1,368)</td>
<td>(0.13%)</td>
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<td>--- Inflation</td>
<td>($3,887)</td>
<td>($44,343)</td>
<td>($7,718)</td>
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<td>--- Interest</td>
<td>$7,848</td>
<td>$254,878</td>
<td>$27,007</td>
<td>2.48%</td>
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<tr>
<td>--- Total Change</td>
<td>($371)</td>
<td>$244,349</td>
<td>$17,878</td>
<td>1.52%</td>
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<td>Recommended Assumptions</td>
<td>$68,617</td>
<td>$703,636</td>
<td>$111,685</td>
<td>10.91%</td>
<td>7.15%</td>
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</table>
Financial Impact of Recommended Assumptions

$244.3 million
Increase in Unfunded Liability

$459.3 million
88.2% Funded

$703.6 million
83.0% Funded

$17.9 million
Increase in Annual Contribution Requirement

$93.8 million
$111.7 million

Note - estimates based on 10/1/16 actuarial valuation, which differs from GASB financial statement presentation.
Next Steps

• If approved, changes in actuarial assumptions would take effect with the October 1, 2017 actuarial valuation, which will be used to determine the FY19 contribution requirement.

• While the University’s internal benefit stabilization reserves can help cushion the impact of these increased costs in the short-term, we need to closely examine longer-term structural costs and the ongoing ability of the University budget to absorb such costs.

• Further, these cost increases are based on existing funding levels. We are in the midst of one of the longest-running equity bull markets in U.S. history. Future investment losses resulting from a market correction of any significance could cause the unfunded plan liability to increase, with a corresponding increase in contribution requirements.
This report has been prepared at the request of the Board of Curators to assist in administering the Plan. This actuarial experience report may not otherwise be copied or reproduced in any form without the consent of the Board of Curators and may only be provided to other parties in its entirety. The measurements shown in this actuarial study may not be applicable for other purposes.
November 27, 2017

Ryan Rapp  
Vice President for Finance and Chief Financial Officer  
University of Missouri System  
118 University Hall  
Columbia, Missouri 65211-3020

Dear Mr. Rapp:

We are pleased to present this comprehensive actuarial valuation assumptions study of the University of Missouri Retirement, Disability and Death Benefit Plan.

The report provides a complete review of all actuarial valuation assumptions and our recommendations in light of prevailing economic trends and the University’s own actuarial experience patterns observed during the 2012 through 2016 quinquennium.

Sincerely,

SEGAL CONSULTING

[Signature]
Joshua Kaplan, FSA, MAAA, EA, FCA  
Vice President & Actuary
UNIVERSITY OF MISSOURI

RETIREMENT, DISABILITY AND DEATH BENEFIT PLAN

REPORT ON ACTUARIAL VALUATION ASSUMPTIONS STUDY

BASED ON 2012-2016 ACTUARIAL EXPERIENCE

December 7-8, 2017
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SECTION I
SUMMARY

A. The Actuarial Process

It is the primary intent of an actuarial valuation to compare, as of a given date, the value of actuarial liabilities (present worth of future pension payments) with the value of the plan’s assets so as to measure the current funding status of the program’s actuarial liabilities and there from, future annual cost requirements for plan liability funding.

The valuation of actuarial liabilities is based on the sex, age, service, job classification, and pay level characteristics of the plan’s participants as well as assumptions as to future actuarial experience.

In other words, when attempting to quantify the current value of pension payments that, for some active employees, will not be made until many years in the future, the actuary directly incorporates the current actuarial characteristics of the participants and then applies projection factors to reflect anticipated future trends.

Such projection factors represent the actuary’s best estimate of the future experience of the plan’s participants and are based on both observed historical patterns and judgments (including those of University officials) as to current and predicted demographic and related economic trends which are likely to be of influence in the future.

For example, in the valuation of plan assets, the actuary must assign a value to the current assets which will best reflect both their current and ultimate worth when such assets will be required to fund pension payments. The actuary must also make an assumption as to the average rate of growth that current assets and future contributions will achieve in future years. For the University’s pension plan, estimates of such future trends are developed, in part, by means of a retrospective five-year study of its own demographic and financial experience which this report describes in detail.
B. **Purpose of an Actuarial Experience Study**

The purpose of this study is to develop actuarial assumptions that will best reflect emerging experience. These assumptions will then be used for the future funding of the University of Missouri Retirement, Disability and Death Benefit Plan. Of course, the new results observed in this actuarial experience study cannot be directly factored into the actuarial valuation process. Rather, to the extent that past experience appears to predict intrinsic future demographic trends of the employee group, new actuarial assumptions based on such trends are developed for use in the actuarial valuation in order to produce a stable pattern of future annual cost requirements.

In order to fund for current and future retirement benefits, it is not only important to understand past experience but to also make informed judgments as to the relevance of such experience for the future. The significance of this long range planning is apparent when one considers that an employee now aged twenty-five will probably retire more than forty years from now and will be in receipt of benefits for another twenty years or so, for a total covered period of about sixty years under the plan. Thus, while the retirement for which we are funding will not occur, in this case, for more than forty years from now, the University is now making plan contributions on behalf of the participant in order to build up a sufficient reserve to meet the obligation of providing for this employee’s retirement pension.

Therefore, in order to predict future experience, the actuary must develop a set of actuarial assumptions as to future mortality, termination of employment, probabilities of retirement at specific ages, increases in salary and the investment performance of the fund. While the unique future employment pattern of each particular plan participant cannot be predicted, it is the intention of the experience study to develop a set of average future parameters that, subject to periodic adjustments will ultimately prove to be accurate in the aggregate. As explained below, the actuary is seeking “statistically credible” data on which to base his assumptions.

C. **Credibility**

Credibility is the trustworthiness or reliability of a statistical result being obtained from a statistical investigation. The larger the group, the smaller the probability that the
surveyed experience is a random fluctuation and hence, the more credible are the results. Therefore, only relatively large pension plans will justify experience studies, since, for smaller pension plans, the results do not have a sufficiently high statistical confidence limit. This is also the reason why the University’s experience study is performed quinquennially, *i.e.*, so that a sufficiently large experience is measured. This tends to smooth statistical aberrations and make the results more credible.

D. **Historical Consistency**

As noted above, experience during the quinquennium is being reviewed in this report as one of the tools for predicting future experience of the Retirement Plan. However, credible past experience alone is insufficient for the actuary to directly apply in developing his future actuarial assumptions under the Retirement Plan. Therefore, an actuary needs to review related professional research to project credible experience into the future. These studies, known as secular trend studies, are very important to the prediction of certain events such as expected future retirement and mortality rates. Therefore, the following sections of this report will discuss such projected secular trends as they relate to the results of the quinquennial experience study.

E. **Plan Provisions**

The experience during the quinquennium reflects the actual plan provisions in effect during this period, which, for purposes of this study, were materially the same. If the plan provisions are significantly changed, past experience alone may not be appropriate to project experience in the future. For example, if eligibility for retirement is significantly changed, then future retirement experience may be different than that of prior experience. The only change in plan provisions during this study period was the introduction of the “Level Two” benefit provisions (with a lower accrual rate) for members hired on or after October 1, 2012. We do not anticipate that this change will have any effect on future demographic experience, except perhaps for future retirement rates. However, there were no Level Two members included in the retirement experience, as none were yet eligible for retirement, and we are not recommending any different assumptions for Level Two members at this time.
SECTION II
ANNUAL INVESTMENT RETURN ASSUMPTION
AND ASSET VALUATION METHOD

A. **Objective**

As indicated in Section I of this report, the actuarial valuation process compares the present value of future pension liabilities with the plan’s current assets and thereby develops annual contribution requirements to fully fund any unfunded liabilities over prescribed periods of time.

This process requires the actuary to assign a value to the current assets which will reflect their ultimate worth when such assets will be required to fund pension payments, and to make an assumption as to the average rate of growth that current assets and future contributions will achieve in future years.

B. **Asset Valuation**

For actuarial valuation purposes, market value of the Plan’s assets are not used. In lieu of using market value of assets, an “actuarial” value of assets is employed. Originally, the actuarial value of assets used in the actuarial valuation of the University Plan was book value. Effective with the October 1, 2001 actuarial valuation, the University adopted a new asset valuation methodology referred to as the Expected Return Asset Valuation Method using five-year smoothing.

Under this methodology, the actuarial value of assets are valued at market value less unrecognized returns in each of the prior five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period. The actuarial value is further adjusted, if necessary, to be within 20% of the market value.
<table>
<thead>
<tr>
<th>Valuation Date</th>
<th>Actuarial Value of Assets</th>
<th>Market Value</th>
<th>Ratio of Actuarial Value to Market Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 1,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>$1,949,793,833*</td>
<td>$1,624,828,194</td>
<td>120.0%</td>
</tr>
<tr>
<td>2003</td>
<td>2,067,727,548</td>
<td>1,875,784,774</td>
<td>110.2</td>
</tr>
<tr>
<td>2004</td>
<td>2,075,032,000</td>
<td>2,059,391,310</td>
<td>100.8</td>
</tr>
<tr>
<td>2005</td>
<td>2,125,656,340</td>
<td>2,366,280,626</td>
<td>89.8</td>
</tr>
<tr>
<td>2006</td>
<td>2,325,263,899</td>
<td>2,578,022,645</td>
<td>90.2</td>
</tr>
<tr>
<td>2007</td>
<td>2,651,534,668</td>
<td>2,983,628,277</td>
<td>88.9</td>
</tr>
<tr>
<td>2008</td>
<td>2,808,125,912</td>
<td>2,427,134,469</td>
<td>115.7</td>
</tr>
<tr>
<td>2009</td>
<td>2,843,422,463*</td>
<td>2,369,518,719</td>
<td>120.0</td>
</tr>
<tr>
<td>2010</td>
<td>2,851,957,127</td>
<td>2,518,673,108</td>
<td>113.2</td>
</tr>
<tr>
<td>2011</td>
<td>2,828,696,693</td>
<td>2,504,265,310</td>
<td>113.0</td>
</tr>
<tr>
<td>2012</td>
<td>2,790,622,385</td>
<td>2,788,322,126</td>
<td>100.1</td>
</tr>
<tr>
<td>2013</td>
<td>2,950,555,185</td>
<td>3,051,916,429</td>
<td>96.7</td>
</tr>
<tr>
<td>2014</td>
<td>3,160,999,182</td>
<td>3,244,105,034</td>
<td>97.4</td>
</tr>
<tr>
<td>2015</td>
<td>3,289,215,768</td>
<td>3,109,173,461</td>
<td>105.8</td>
</tr>
<tr>
<td>2016</td>
<td>3,433,435,252</td>
<td>3,303,240,367</td>
<td>103.9</td>
</tr>
</tbody>
</table>

*Limited to 120% of market value*

Market values are prone to wide fluctuations from year to year due to changes in prevailing economic conditions. Fluctuations in market value cause the annual contribution requirements to fluctuate in a reverse fashion, i.e., inflated market values would produce smaller contribution requirements and vice versa. Because of the long term nature of the plan’s obligations, the University determined that it would be beneficial to not have the University’s cost oscillate with temporary (though sometimes violent) market swings. However, a 20% corridor around market value (i.e. 80% - 120%) is employed to control the differential between actuarial value and market value.

The Expected Return Asset Valuation Method for purposes of determining actuarial value of assets is now the most widely used methodology by both governmental and private sector pension plans. We recommend that the University continue the use of the current method.
C. Assumed Rate of Average Annual Future Investment Return

The economic assumptions have a significant impact on the development of plan liabilities. Changes to these assumptions can substantially alter the results determined by the actuary. The goal of our analysis is to produce a consistent set of economic assumptions that appropriately reflect expected future economic trends.

The primary economic assumptions that affect the System’s funding are:

- Investment return
- Salary increases

The Actuarial Standards Board (ASB) has adopted Actuarial Standard of Practice No. 27 (ASOP 27), Selection of Economic Assumptions for Measuring Pension Obligations, to provide actuaries guidance in developing economic assumptions. A key feature of the ASB’s guidance is the “building block” approach in developing economic assumptions. This approach requires the actuary to consider the key component parts of major assumptions and determine reasonable best-estimates for each component.

Under this approach, we consider the investment rate of return assumption as the combination of an inflation component and a real rate of return component. The components of the salary increase assumption are inflation and productivity. The inflation component is included in all economic assumptions, and therefore is key to developing a consistent set of actuarial assumptions.

In developing a recommendation for the assumed inflation component, we reviewed a commonly referenced historical measure of inflation, the Consumer Price Index for all urban consumers (CPI-U). The table below shows how recent inflation experience is below the longer-term average rate.

### Average Annual Change in CPI-U
**(periods ended September 30, 2016)**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Past 5 Years</td>
<td>1.3%</td>
</tr>
<tr>
<td>Past 10 Years</td>
<td>1.8%</td>
</tr>
<tr>
<td>Past 20 Years</td>
<td>2.2%</td>
</tr>
<tr>
<td>Past 30 Years</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

December 7-8, 2017

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The average annual rate of increase in the CPI-U over the five years ended September 30, 2016 is 1.3%. Historical trend is a less important consideration for the assumed rate of inflation, but assists in determining the reasonable bounds of expected inflation.

As another basis for estimating the future expected inflation, we reference the 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (2017 OASDI Trustees Report). The range of inflation rates in this report was 3.2% for low-cost projection, 2.6% for the intermediate and 2.0% for high-cost projection.

Yet another source in the Survey of Professional Forecasters published by the Federal Reserve Bank of Philadelphia. The 10-year forecast from the Third Quarter 2017 report is 2.25%. The Philadelphia Fed also publishes the Livingston Survey, which shows a 2.32% projected long-term inflation assumption in the June 2017 survey. Other data points include the rates of inflation implied by TIPS and the Federal Reserve’s target inflation rate.

After reviewing and considering the range of future inflation, we determine the specific point in the range which is to be the estimate of long-term future inflation rates. Because we find no compelling reasons to favor either the high or low end of the range, we determined that a 2.2% inflation rate as a reasonable estimate for the future annual rate of inflation for purposes of the building block approach in developing the investment return assumption and the salary increase assumptions.

The investment rate of return assumption is developed using the “building block” approach as outlined in the ASOP 27. Under this approach, the investment rate of return assumption is made up of two components; the inflation component and the real investment rate of return component. The inflation component determined above is combined with the reasonable real rate of return component. This total return is then evaluated and refined. The final recommendation is then made.

For purposes of developing the real rates of return, we reviewed the 10-year capital market assumptions used by the University’s investment consultant, Verus. We compared
these to the 10-year capital market assumptions for 2017 from Segal Marco Advisors and, for the available asset classes, to the *Horizon Actuarial Services, LLC, Survey of Capital Market Assumptions – 2017 Edition*. We found the Verus assumptions to be reasonable and consistent with other market forecasts. These capital market assumptions were based on total return. Therefore, to arrive at the real rates of return, the expected inflation component was subtracted from the total return provided by Verus to derive the real rate of return by class. The components of the real rate of return are shown below:

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Target Allocation</th>
<th>Expected Real Rate of Return</th>
<th>Contribution to Total Real Rate of Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Large</td>
<td>14.4%</td>
<td>3.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>International Developed Large</td>
<td>14.4%</td>
<td>9.2%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>3.2%</td>
<td>9.7%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>10.0%</td>
<td>8.7%</td>
<td>0.9%</td>
</tr>
<tr>
<td>TIPS – Bridgewater</td>
<td>7.0%</td>
<td>0.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>US TIPS – Long Duration</td>
<td>10.0%</td>
<td>0.6%</td>
<td>0.1%</td>
</tr>
<tr>
<td>US Treasury – Long Duration</td>
<td>15.0%</td>
<td>0.6%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Private Debt</td>
<td>3.0%</td>
<td>5.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Commodities</td>
<td>5.0%</td>
<td>3.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Core Real Estate</td>
<td>1.6%</td>
<td>3.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Value Added Real Estate</td>
<td>4.8%</td>
<td>6.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Opportunistic Real Estate</td>
<td>1.6%</td>
<td>9.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Risk Parity</td>
<td>10.0%</td>
<td>8.7%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Portable Alpha Overlay</td>
<td>20.0%</td>
<td>3.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Cash</td>
<td>-20.0%</td>
<td>0.1%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Based on the above current target allocation and real rate of return assumptions by asset class, the expected real rate of return on an geometric basis per is 5.1%. When added to the assumed inflation, less an adjustment for plan administrative expenses, it results in a net expected total rate of return on a geometric basis of 7.2%.

*Actuarial Standard of Practice No. 27, Selection of Economic Assumptions for Measuring Pension Obligations,* contains the following discussion on the use of geometric returns:
The use of a forward looking expected geometric return as a discount rate will produce a present value that generally converges to the median present value as the time horizon lengthens (i.e., if the actuary determines a funding obligation using the forward looking expected geometric return to discount the obligation to produce a present value, it is expected that in the limiting case there will be enough money to fund the obligation 50% of the time).

A review of 127 state and local government retirement plans contained in Public Plan Database (PPD) from the Center for Retirement Research and the Center for State and Local Government Excellence reveals that over 80% of plans have reduced their assumed investment return since 2010. The most recent data shows a median investment return of 7.50% and an average investment return of 7.45%. The chart below shows the results of the latest Public Plan Database.

We recommend a change to the assumed investment rate of return from the current assumption of 7.75% to 7.20%.
SECTION III
SALARY PROGRESSION TRENDS

A. Objective

Under the University of Missouri Retirement, Disability and Death Benefit Plan, the annual pension payable at normal retirement age is computed by multiplying the number of years of an employee’s service by 2.2% (1.0% for members hired on or after October 1, 2012) of their final average compensation base (average annual salary for the five highest consecutive years of employment).

The actuarial process requires that a projection of compensation base at retirement or termination be made in order to compute expected future pension payments and the current actuarial value of such payments. In order to make this compensation projection, the actuary must develop an assumed salary progression scale based on the relative average salary levels of employees at various points in their careers.

The salary increase assumption consists of two components – one representing inflation, and one that represents increases for promotion and longevity. The inflation component is considered in Section II of this report.

B. Methodology

Salary experience during the five-year period from September 30, 2012 through September 30, 2016 has been analyzed for purposes of evaluating the promotion and longevity component of the salary increase assumption. We compiled salary increase experience separately for the Academic and Administrative employees and the Clerical and Service employees by age, for all members included in any two consecutive valuations during the 2012-2016 period. The results are shown in the tables at the end of this section.
C. **Results of Salary Progression Rates Study**

In reviewing the total salary increases shown in the tables, it was consistent with the inflation component of the increases being an average of 2.0% over the five-year period and the balance representing the promotion and longevity components of the increases.

The results of the salary increase study reveal the following:

- There continues to be differences between the results of Academic and Administrative personnel and those of Clerical and Service.

- Academic and Administrative personnel averaged approximately 0.2% higher annual increase than Clerical and Service.

- Therefore, we are proposing continuing different salary progression rates for Academic and Administrative personnel then for Clerical and Service employees.

<table>
<thead>
<tr>
<th>Periods</th>
<th>Observed Average Annual Rate of Pay Increases*</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Academic and Administrative</td>
<td>Clerical and Service</td>
<td></td>
</tr>
<tr>
<td>10/1/11 to 9/30/12</td>
<td>3.4%</td>
<td>3.4%</td>
<td></td>
</tr>
<tr>
<td>10/1/12 to 9/30/13</td>
<td>3.4</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>10/1/13 to 9/30/14</td>
<td>3.5</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>10/1/14 to 9/30/15</td>
<td>3.7</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>10/1/15 to 9/30/16</td>
<td>2.5</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Average rate observed over quinquennium</td>
<td>3.3%</td>
<td>3.1%</td>
<td></td>
</tr>
</tbody>
</table>

*Total salary increases of which 2.0% represented the average observed basic inflation component over the five-year period.

Based on these results, we recommend that the current salary increase scale be modified as indicated in the following tables. The overall rates of promotion and longevity increase proposed for Academic and Administrative are higher for ages 20-31, lower for ages 54-63, and unchanged for ages 32-53 and 64-65. For Clerical and Service, the proposed promotion and longevity rates of salary progression are higher for ages 26-43, lower for ages 60-63, and unchanged for ages 20-25, 44-59, and 64-65. In addition, the assumed inflation component of the salary increases was lowered from 2.75% to 2.2% at all ages.
### Academic and Administrative Employees

#### Experience Study 5-Year Period Ended September 30, 2016

#### Rates of Promotion and Longevity Pay Increases*

<table>
<thead>
<tr>
<th>Age</th>
<th>Actual Total Salary Increase (%)</th>
<th>Expected Increase (%)</th>
<th>Proposed Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>21.2%</td>
<td>7.8%</td>
<td>8.5%</td>
</tr>
<tr>
<td>21</td>
<td>6.6%</td>
<td>7.8%</td>
<td>8.0%</td>
</tr>
<tr>
<td>22</td>
<td>8.8%</td>
<td>6.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>23</td>
<td>8.9%</td>
<td>5.6%</td>
<td>7.0%</td>
</tr>
<tr>
<td>24</td>
<td>6.3%</td>
<td>5.1%</td>
<td>6.5%</td>
</tr>
<tr>
<td>25</td>
<td>5.6%</td>
<td>4.6%</td>
<td>6.0%</td>
</tr>
<tr>
<td>26</td>
<td>5.5%</td>
<td>4.3%</td>
<td>5.5%</td>
</tr>
<tr>
<td>27</td>
<td>4.6%</td>
<td>4.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>28</td>
<td>4.4%</td>
<td>3.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>29</td>
<td>4.3%</td>
<td>3.4%</td>
<td>4.0%</td>
</tr>
<tr>
<td>30</td>
<td>3.8%</td>
<td>3.1%</td>
<td>3.5%</td>
</tr>
<tr>
<td>31</td>
<td>3.0%</td>
<td>2.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>32</td>
<td>2.9%</td>
<td>2.8%</td>
<td>No change</td>
</tr>
<tr>
<td>33</td>
<td>2.7%</td>
<td>2.7%</td>
<td>No change</td>
</tr>
<tr>
<td>34</td>
<td>2.6%</td>
<td>2.6%</td>
<td>No change</td>
</tr>
<tr>
<td>35</td>
<td>2.1%</td>
<td>2.5%</td>
<td>No change</td>
</tr>
<tr>
<td>36</td>
<td>2.3%</td>
<td>2.4%</td>
<td>No change</td>
</tr>
<tr>
<td>37</td>
<td>2.2%</td>
<td>2.3%</td>
<td>No change</td>
</tr>
<tr>
<td>38</td>
<td>2.2%</td>
<td>2.3%</td>
<td>No change</td>
</tr>
<tr>
<td>39</td>
<td>1.9%</td>
<td>2.2%</td>
<td>No change</td>
</tr>
<tr>
<td>40</td>
<td>1.8%</td>
<td>2.1%</td>
<td>No change</td>
</tr>
<tr>
<td>41</td>
<td>1.5%</td>
<td>2.0%</td>
<td>No change</td>
</tr>
<tr>
<td>42</td>
<td>1.8%</td>
<td>1.9%</td>
<td>No change</td>
</tr>
<tr>
<td>43</td>
<td>1.7%</td>
<td>1.9%</td>
<td>No change</td>
</tr>
<tr>
<td>44</td>
<td>1.9%</td>
<td>1.8%</td>
<td>No change</td>
</tr>
</tbody>
</table>

*Excludes the basic inflation component, which was assumed to be 2.75% per annum but was observed to be a 2.0% across the board increase over the 5-year period.*
# Academic and Administrative Employees (continued)

## Experience Study 5-Year Period Ended September 30, 2016

### Rates of Promotion and Longevity Pay Increases*

<table>
<thead>
<tr>
<th>Age</th>
<th>Actual Total Salary Increase (%)</th>
<th>Expected Increase (%)</th>
<th>Proposed Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>1.5%</td>
<td>1.7%</td>
<td>No change</td>
</tr>
<tr>
<td>46</td>
<td>1.2%</td>
<td>1.6%</td>
<td>No change</td>
</tr>
<tr>
<td>47</td>
<td>1.2%</td>
<td>1.5%</td>
<td>No change</td>
</tr>
<tr>
<td>48</td>
<td>1.6%</td>
<td>1.4%</td>
<td>No change</td>
</tr>
<tr>
<td>49</td>
<td>1.3%</td>
<td>1.3%</td>
<td>No change</td>
</tr>
<tr>
<td>50</td>
<td>1.4%</td>
<td>1.3%</td>
<td>No change</td>
</tr>
<tr>
<td>51</td>
<td>1.2%</td>
<td>1.3%</td>
<td>No change</td>
</tr>
<tr>
<td>52</td>
<td>0.9%</td>
<td>1.2%</td>
<td>No change</td>
</tr>
<tr>
<td>53</td>
<td>0.6%</td>
<td>1.0%</td>
<td>No change</td>
</tr>
<tr>
<td>54</td>
<td>0.7%</td>
<td>0.9%</td>
<td>0.8%</td>
</tr>
<tr>
<td>55</td>
<td>0.9%</td>
<td>0.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>56</td>
<td>0.4%</td>
<td>0.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>57</td>
<td>0.4%</td>
<td>0.7%</td>
<td>0.4%</td>
</tr>
<tr>
<td>58</td>
<td>0.2%</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>59</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>60</td>
<td>0.0%</td>
<td>0.5%</td>
<td>0.1%</td>
</tr>
<tr>
<td>61</td>
<td>0.0%</td>
<td>0.4%</td>
<td>0.1%</td>
</tr>
<tr>
<td>62</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0.1%</td>
</tr>
<tr>
<td>63</td>
<td>-0.1%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>64</td>
<td>-0.9%</td>
<td>0.1%</td>
<td>No change</td>
</tr>
<tr>
<td>65</td>
<td>-0.5%</td>
<td>0.0%</td>
<td>No change</td>
</tr>
</tbody>
</table>

*Excludes the basic inflation component, which was assumed to be 2.75% per annum but was observed to be a 2.0% across the board increase over the 5-year period.*
Clerical and Service Employees  
Experience Study 5-Year Period Ended September 30, 2016  
Rates of Promotion and Longevity Pay Increases*

<table>
<thead>
<tr>
<th>Age</th>
<th>Actual Total Salary Increase (%)</th>
<th>Expected Increase (%)</th>
<th>Proposed Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>6.2%</td>
<td>6.1%</td>
<td>No change</td>
</tr>
<tr>
<td>21</td>
<td>3.5%</td>
<td>5.5%</td>
<td>No change</td>
</tr>
<tr>
<td>22</td>
<td>4.9%</td>
<td>5.0%</td>
<td>No change</td>
</tr>
<tr>
<td>23</td>
<td>3.9%</td>
<td>4.0%</td>
<td>No change</td>
</tr>
<tr>
<td>24</td>
<td>4.0%</td>
<td>3.5%</td>
<td>No change</td>
</tr>
<tr>
<td>25</td>
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<td>2.5%</td>
<td>2.7%</td>
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<td>2.6%</td>
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<td>2.3%</td>
<td>2.5%</td>
</tr>
<tr>
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<td>2.2%</td>
<td>2.4%</td>
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<td>2.1%</td>
<td>2.3%</td>
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<td>2.1%</td>
<td>2.2%</td>
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<td>1.9%</td>
</tr>
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<td>1.3%</td>
<td>1.7%</td>
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<td>1.2%</td>
<td>1.6%</td>
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<td>1.5%</td>
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<td>1.3%</td>
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<td>1.2%</td>
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<td>1.0%</td>
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<tr>
<td>44</td>
<td>1.2%</td>
<td>1.0%</td>
<td>No change</td>
</tr>
</tbody>
</table>

*Excludes the basic inflation component, which was assumed to be 2.75% per annum but was observed to be a 2.0% across the board increase over the 5-year period.*
### Clerical and Service Employees (continued)

#### Experience Study 5-Year Period Ended September 30, 2016

*Rates of Promotion and Longevity Pay Increases*  

<table>
<thead>
<tr>
<th>Age</th>
<th>Actual Total Salary Increase (%)</th>
<th>Expected Increase (%)</th>
<th>Proposed Rate (%)</th>
</tr>
</thead>
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<tr>
<td>45</td>
<td>1.1%</td>
<td>0.9%</td>
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</tr>
<tr>
<td>46</td>
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<td>0.8%</td>
<td>No change</td>
</tr>
<tr>
<td>47</td>
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<td>0.7%</td>
<td>No change</td>
</tr>
<tr>
<td>48</td>
<td>0.5%</td>
<td>0.6%</td>
<td>No change</td>
</tr>
<tr>
<td>49</td>
<td>0.9%</td>
<td>0.6%</td>
<td>No change</td>
</tr>
<tr>
<td>50</td>
<td>1.1%</td>
<td>0.6%</td>
<td>No change</td>
</tr>
<tr>
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<td>0.7%</td>
<td>0.6%</td>
<td>No change</td>
</tr>
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<td>0.3%</td>
<td>0.5%</td>
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</tr>
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<td>0.5%</td>
<td>No change</td>
</tr>
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<td>0.4%</td>
<td>0.5%</td>
<td>No change</td>
</tr>
<tr>
<td>55</td>
<td>0.4%</td>
<td>0.5%</td>
<td>No change</td>
</tr>
<tr>
<td>56</td>
<td>0.5%</td>
<td>0.4%</td>
<td>No change</td>
</tr>
<tr>
<td>57</td>
<td>0.4%</td>
<td>0.4%</td>
<td>No change</td>
</tr>
<tr>
<td>58</td>
<td>0.2%</td>
<td>0.3%</td>
<td>No change</td>
</tr>
<tr>
<td>59</td>
<td>0.3%</td>
<td>0.2%</td>
<td>No change</td>
</tr>
<tr>
<td>60</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>61</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>62</td>
<td>-0.1%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>63</td>
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<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>64</td>
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<td>0.1%</td>
<td>No change</td>
</tr>
<tr>
<td>65 and over</td>
<td>0.1%</td>
<td>0.0%</td>
<td>No change</td>
</tr>
</tbody>
</table>

*Excludes the basic inflation component, which was assumed to be 2.75% per annum but was observed to be a 2.0% across the board increase over the 5-year period.*
SECTION IV
SEVERANCE OF EMPLOYMENT

A. Objective
Our primary objective in this section of the report is to make as accurate a prediction as possible of the future rate of employment termination exclusive of the retirement and mortality causes which are discussed in Sections V and VII, respectively, of this report. Based on such predictions, the actuary will perform periodic actuarial valuations and will (based on mathematical formulae) calculate how many employees of the current University staff will remain in employ long enough to qualify for retirement benefits. The Actuary will also compute how many of the remaining employees will be vested in a pension at the time of employment termination and in what amount, which is dependent upon length of service at such vested termination. These calculations then undergo further refinement due to other factors in order to arrive at a value of actuarial liabilities used in developing annual University contribution requirements.

B. Methodology
We have measured the rates of employment severance experienced among those persons who were employed by the University at the beginning of the quinquennium on October 1, 2012 and those persons who were subsequently employed during the quinquennium and then terminated employment during the quinquennium (ended September 30, 2016). Severance of employment from causes other than retirement, mortality, and disability, which were studied separately, was considered.

The resulting severance was separately plotted by employment category (Academic and Administrative or Clerical and Service) and by sex. Within each of the groupings, severance was plotted in comparison with the attained years of service with the University at the time of severance.

C. Results of Severance Investigation
The results of our analysis of the exhibited severance during the quinquennium may be summarized as follows:

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December 7-8, 2017
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• Turnover observed was somewhat higher than in the prior quinquennium. The currently assumed turnover patterns were generally within the boundaries set by the last two quinquenniums.

• We previously had separate severance probabilities by sex. However, the assumptions were not significantly different and we could find no consistent pattern of higher or lower severance by sex in this quinquennium as compared to the prior quinquennium. In addition, we were able to improve the statistical credibility by combining the observed severance figures. Therefore, we are recommending a single unisex severance assumption.

• Set forth on the table is the observed rate of termination during this quinquennium (except for mortality, retirement, or disability) for the grouping and completed years of service shown per one thousand active participants at the beginning of that year of service. For comparative purposes, we are also showing both our current assumed rates of severance.

• The severance rates observed during 2012-2016 quinquennium are generally consistent and credible with those currently assumed. Based on the experience for the current quinquennium, we recommend the following changes.
# Rates of Employment Severance

**Annual Rates Per 1,000 Active Lives**

<table>
<thead>
<tr>
<th>Years of Service</th>
<th>Academic and Administrative</th>
<th></th>
<th></th>
<th>Clerical and Service</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
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<td>200</td>
<td>238</td>
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<td>324</td>
<td>260</td>
</tr>
<tr>
<td>1</td>
<td>212</td>
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<td>200</td>
<td>210</td>
<td>228</td>
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</tr>
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<td>168</td>
<td>185</td>
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<td>199</td>
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<tr>
<td>3</td>
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<td>145</td>
<td>150</td>
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<td>135</td>
<td>136</td>
<td>110</td>
</tr>
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<td>104</td>
<td>104</td>
<td>120</td>
<td>115</td>
<td>85</td>
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<td>100</td>
<td>58</td>
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<td>65</td>
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<td>85</td>
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<td>75</td>
<td>116</td>
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<td>11</td>
<td>70</td>
<td>55</td>
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<td>70</td>
<td>59</td>
<td>45</td>
</tr>
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<td>12</td>
<td>62</td>
<td>45</td>
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<td>60</td>
<td>72</td>
<td>45</td>
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<td>45</td>
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<td>57</td>
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<td>50</td>
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<td>45</td>
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<td>25</td>
<td>35</td>
<td>50</td>
<td>20</td>
</tr>
</tbody>
</table>
SECTION V
DISABILITY RATES

A. **Objective**
The University offers a Long Term Disability Program. Although this Plan does not pay LTD benefits, the Plan does provide that the retirement benefit is determined reflecting service credit during the period of disability. Since those members who sever employment due to disability are treated differently under the Plan than members who sever employment due to other reasons, the actuary will need to project the number of members that will become disabled and the number among those who will survive to collect a retirement benefit.

B. **Methodology**
We have measured the rates of disability severance experienced among those persons who were employed by the University at the beginning of the quinquennium on October 1, 2012 and those persons who were subsequently employed during the quinquennium and then became disabled during the quinquennium (ended September 30, 2016).

C. **Results of Disability Rates Study**
The results of our analysis of the exhibited disablement during the quinquennium may be summarized as follows:

- Disablement observed was lower than expected.

- Set forth on the table is the observed number of those who became disabled during the quinquennium compared with the number expected to become disabled.

- Since the total number of disablements was small and not fully credible, and this pattern of lower disablements was not observed in the prior quinquennium, we recommend no change to the current assumption.
<table>
<thead>
<tr>
<th>Valuation Year</th>
<th>Expected Number of Disableds</th>
<th>Actual Number of Disableds</th>
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</thead>
<tbody>
<tr>
<td>10/1/2011 – 9/30/2012</td>
<td>38</td>
<td>37</td>
</tr>
<tr>
<td>10/1/2012 – 9/30/2013</td>
<td>39</td>
<td>30</td>
</tr>
<tr>
<td>10/1/2013 – 9/30/2014</td>
<td>39</td>
<td>29</td>
</tr>
<tr>
<td>10/1/2014 – 9/30/2015</td>
<td>39</td>
<td>37</td>
</tr>
<tr>
<td>10/1/2015 – 9/30/2016</td>
<td>37</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>192</strong></td>
<td><strong>156</strong></td>
</tr>
</tbody>
</table>
SECTION VI
RETIREMENT RATES

A. Objective

Another key facet of our experience study relates to the determination of the age at which plan participants retire from the University. There are two different types of retirement under the University’s Retirement Plan. The two different types of retirement are, first, normal retirement (i.e., retirement at or after attaining age sixty-five) and early retirement (i.e., retirement prior to attaining age sixty-five).

All employees who retired during the quinquennium were analyzed to determine the frequency of retirement at each attained age. Separate frequency analyses were then done by attained age at retirement within the subsets of employment classification (Academic and Administrative or Clerical and Service) and by service.

With regard to those plan participants who retire at or after normal retirement age, it is important to determine the frequency of plan participants who retire when first eligible (age sixty-five) in comparison with those plan participants who defer retirement beyond age sixty-five. This is relevant since, for example, a plan participant retiring at age sixty-seven will be receiving an increased pension due to two additional years of pension service credit and an increased final average salary. However, such a plan participant will receive pension payments for a shorter duration since the retiree commenced receiving payments later in life. Therefore, whether deferring retirement beyond age sixty-five will result in an increase or decrease in contribution requirements, in comparison with the contribution requirements if the plan participant would retire at age sixty-five, depends upon the specific compensation, service and other data of the particular plan participant.

In the case of plan participants who retire early, we must again ascertain the frequency of retirement at each age. This is important in that early retirement benefits are subsidized, especially for those with 25 years of service, i.e., the reductions which apply to the pension otherwise payable at normal retirement to ascertain the smaller pension payable...
commencing upon early retirement date do not fully reflect the additional cost inherent for disbursing this benefit for a longer expected future lifetime. Because subsidized early retirement benefits provide an “actuarial reward” for employees who may wish to retire prior to age 65, there can be a significant cost involved in such a program.

B. **Results of retirement age examination**

- We continue to find a difference in the probability of retiring at a given attained age at retirement by employment category (Academic and Administrative or Clerical and Service). Therefore, we recommend that the probabilities of retirement by attained age continue to be applied separately for the Academic and Administrative or Clerical and Service subsets.

- We have found a sufficient analysis basis within each of the subsets so that the pattern of retirement at most retirement ages forms a credible basis for examination at such ages. At very early and very late retirement ages there was statistically less data to provide totally credible results and mathematical techniques of graduation were applied to determine consistent probabilities of retirement at those ages free of statistical aberration.

- We have shown the retirement experience separately for those who had less than 25 years of service and those who had 25 or more years of service at retirement. In particular, the issue was to determine any differences in early retirement experience (ages 55-64) for those who can retire without any reduction at age 62 (and prior to age 62 have reductions calculated from age 62) with those who have reductions for benefit commencement prior to age 65. The results show that the retirement rates prior to age 65 for those who had 25 or more years of service are higher than those who had less than 25 years. Set forth below are the observed rates of retirement during the quinquennium by age, separately by category of employment and by service.
## ANNUAL RATES OF RETIREMENT PER 1,000 LIVES*

<table>
<thead>
<tr>
<th>Age</th>
<th>ACADEMIC AND ADMINISTRATIVE</th>
<th>CLERICAL AND SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Service</td>
<td>Current Assumption</td>
</tr>
<tr>
<td></td>
<td>Under 25 years</td>
<td>25+ years</td>
</tr>
<tr>
<td>55</td>
<td>41</td>
<td>72</td>
</tr>
<tr>
<td>56</td>
<td>29</td>
<td>28</td>
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</tr>
<tr>
<td>80</td>
<td>375</td>
<td>200</td>
</tr>
</tbody>
</table>

* Excludes those who retired from terminated vested status.
We recommend the following rates of retirement to be used for actuarial valuation purposes. Based on observed experience, we are now assuming that members may continue in active employment until they are 80 years old.

### Academic and Administrative

<table>
<thead>
<tr>
<th>Attained Ages</th>
<th>Current Assumption</th>
<th>Recommended Under 25 years of Service</th>
<th>Recommended Over 25 years of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>50</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>56-59</td>
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<td>30</td>
<td>40</td>
</tr>
<tr>
<td>60-61</td>
<td>55</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>62</td>
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<td>200</td>
</tr>
<tr>
<td>63-64</td>
<td>110</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>65</td>
<td>120</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>66</td>
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</tr>
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<td>67-69</td>
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</tr>
<tr>
<td>70-71</td>
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<td>200</td>
<td>200</td>
</tr>
<tr>
<td>72-79</td>
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<td>200</td>
</tr>
<tr>
<td>80</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

### Clerical and Service

<table>
<thead>
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<th>Recommended Over 25 years of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>80</td>
<td>70</td>
<td>90</td>
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<td>56-59</td>
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SECTION VII
MORTALITY EXPERIENCE AMONG ACTIVE AND RETIRED PARTICIPANTS

A. Objective

As actuaries, we have studied mortality rates for various occupational segments of the U.S. population and the trends relative thereto. The following two subsections will explain the importance of the mortality assumption in a pension plan valuation:

• Retired Participants - One of the most profound effects of mortality experience in a pension plan is with regard to the mortality experience of pensioners after their retirement. In order to accurately gauge the amount of reserves necessary to provide pensions for the lifetime of the covered employees, we must first determine how long the pensioners will be collecting their monthly benefit checks. However, the mortality effect does not stop merely at this point. Some pensioners will have, upon their deaths, reduced pensions payable to their surviving spouses for the spouses’ remaining lifetimes.

Thus, we must determine the average expected future lifetime of the pensioners, the probabilities of these pensioners predeceasing the spouses and the average expected future lifetime of the spouses and others who will be collecting survivorship benefits.

• Active Participants - In addition to projecting the mortality rates of pensioners, we must also make assumptions as to the probability of employees dying prior to retirement, since the death of active employees prior to their meeting the eligibility requirements for retirement pensions and pre-retirement death benefits reduces the cost of the plan.

Thus, we must distinguish the following probabilities of active employees: (1) dying in-service prior to meeting the eligibility requirements for any plan benefits, (2) becoming eligible for pre-retirement death benefits under the plan, and (3) surviving to the retirement age specified in the plan.
B. **Methodology**

To analyze the assumption of future mortality of plan participants, we must look to published reports and studies of various segments of the national population. Since the probability of death at any age between twenty-five and sixty-five is rather small (averaging approximately 0.2%, a statistical analysis of the University’s active population of 18,200 members should find approximately 36 active deaths per year). As of September 30, 2016, there are approximately 9,200 retirees and beneficiaries in pay status. Given the University’s retiree age distribution, the probability of death in a year for the retiree population is 2.6% (approximately 240 retiree deaths per year). These small numbers that are found through historical analysis of actual data are of insufficient size to determine a credible mortality table.

We therefore turn to published studies of mortality performed with larger groups that do present credible information. Mortality rates in the United States have continued to improve. The mortality assumption used in valuing liabilities under the University’s pension plan for the prior quinquennium has been the RP-2000 Combined Healthy Table projected to 2023 using Scale BB. This table has been adjusted for purposes of the University’s Pension Plan by applying an adjustment to that table’s mortality rates. That adjustment has been 95% of the published general national table. That is, the mortality rates (probability of death) being used for the University is 5% less than that under the published RP-2000 Combined Healthy Table projected to 2023 using Scale BB.

Although the University’s statistical data on mortality is not sufficient to determine a credible mortality table, actual mortality experience for the University’s retirees were determined. This experience is partially credible and was taken into account when setting the mortality assumption. Shown below is a comparison of the assumed healthy mortality rates with the actual rates at selected ages.
### HEALTHY MORTALITY RATES FOR RETIREEs (PER 1,000 LIVES)

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Ratio of actual deaths to expected: 126.9% (Male) 114.3% (Female)

*95% of RP 2000 Combined Healthy Table projected to 2023 using Scale BB  
**RP-2014 Mortality Table for Healthy Annuitants

The actual mortality rates are volatile because of the relatively small number of deaths. While the actual experience rates are not credible to determine a mortality table, they do show that in more deaths occurred among retirees during the quinquennium than were assumed. However, the mortality experience for the academic and administrative group was significantly different than for the clerical and service group. Since these two groups have significantly different benefit amounts, and therefore, impact on the Plan’s liabilities, we have also prepared the mortality experience study on a benefits-weighted basis. On this basis, the ratio of actual to expected deaths for male and female retirees changes from the values of 126.9% and 114.3%, respectively, shown above to values of 105.0% and 122.2%, respectively. On a combined-sex benefits-weighted basis, the ratio of actual to expected deaths is 109.0%. It is unsurprising to have more deaths than expected because the current mortality table included a projection of future mortality improvement through 2023.
A further analysis of the actual mortality rates in this quinquennium show:

- A lower mortality than the actual rates found in the prior quinquennium (2008-2012).

- Regarding male mortality, the ratio of actual to expected deaths for the Academic and Administrative group was 95.8% and for the Clerical and Service group it was 210.7%.

- Regarding female mortality, the ratio of actual to expected deaths for Academic and Administrative group was 127.9% and for Clerical and Service it was 111.7%.

Although actual mortality was improved from the prior quinquennium, in aggregate it still remained higher than assumed during the quinquennium as measured on a per capita basis. However, as indicated, actual mortality was closer to assumed if measured on a benefits-weighted basis. We propose a change in the mortality rate assumptions to rates based on the RP-2014 Healthy Annuitant Mortality Table. In addition, we propose that mortality rates should be assumed to improve in the future based on a generational projection in accordance with the MP-2017 mortality improvement scale published by the Society of Actuaries. This will result in increasing the margins for males and females.

The experience reported above is for healthy retired members. The mortality experience for active members and disabled members is either not available or the available sample was too small to be credible. However, we propose a change to the mortality table for disabled members from the RP-2000 Disabled Retiree Table projected to 2023 using Scale BB to the RP-2014 Disabled Annuitant Mortality Table with projection in accordance with scale MP-2017. The proposed mortality table for active members is the RP-2014 Employee Mortality Table.

Set forth on the following pages is the probability of death per one thousand lives at the beginning of each age indicated, in accordance with 95% of the RP-2000 Combined Healthy Table projected to 2023 as well as that for the proposed table. The rates shown for the proposed table are for the base table, which corresponds to the mortality rates in 2014. The mortality improvement scale will reduce the mortality rates in future years.
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Current Table: 95% of RP-2000 Combined Healthy Table Projected to 2023 using Scale BB
Proposed Table: RP-2014 Employee/Healthy Annuitant Mortality Table
### BASIS OF ACTUARIAL COST ESTIMATES FOR FEMALE PARTICIPANTS

#### Annual Mortality
(Per 1,000 Active Lives)

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<td>17.21</td>
<td>98</td>
<td>194.01</td>
<td>231.99</td>
</tr>
<tr>
<td>49</td>
<td>1.37</td>
<td>1.00</td>
<td>74</td>
<td>18.32</td>
<td>18.98</td>
<td>99</td>
<td>205.14</td>
<td>251.12</td>
</tr>
</tbody>
</table>

Current Table: 95% of RP-2000 Combined Healthy Table Projected to 2023 using Scale BB
Proposed Table: RP-2014 Employee/Healthy Annuitant Mortality Table
SECTION VIII
SUMMARY OF ACTUARIAL FUNDING ASSUMPTIONS

Set forth below is a summary of the recommended actuarial standards developed for use in the computation of annual contribution requirements during this quinquennium:

1. Mortality  The expected incidence of mortality varies according to attained age for each sex. Sample rates of assumed mortality for healthy annuitants per 1,000 lives at each age are presented as follows:

<table>
<thead>
<tr>
<th>Attained Age</th>
<th>Mortality Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>50</td>
<td>4.1</td>
</tr>
<tr>
<td>55</td>
<td>5.7</td>
</tr>
<tr>
<td>60</td>
<td>7.8</td>
</tr>
<tr>
<td>65</td>
<td>11.0</td>
</tr>
<tr>
<td>70</td>
<td>16.8</td>
</tr>
<tr>
<td>75</td>
<td>26.8</td>
</tr>
<tr>
<td>80</td>
<td>44.7</td>
</tr>
<tr>
<td>85</td>
<td>77.5</td>
</tr>
<tr>
<td>90</td>
<td>135.9</td>
</tr>
<tr>
<td>95</td>
<td>218.6</td>
</tr>
</tbody>
</table>

The above mortality rates are for 2014. Mortality rates in future years are projected to improve with scale MP-2017.

2. Termination  Employee turnover for is assumed to vary with duration of employment services for each group. Sample rates of assumed turnover per 1,000 lives are presented as follows:

<table>
<thead>
<tr>
<th>Years of Service</th>
<th>Rates of Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Academic and</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
</tr>
<tr>
<td></td>
<td>Clerical &amp; Service</td>
</tr>
<tr>
<td>0</td>
<td>215</td>
</tr>
<tr>
<td>1</td>
<td>210</td>
</tr>
<tr>
<td>2</td>
<td>185</td>
</tr>
<tr>
<td>4</td>
<td>130</td>
</tr>
<tr>
<td>6</td>
<td>120</td>
</tr>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>10</td>
<td>75</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>14</td>
<td>50</td>
</tr>
<tr>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>18</td>
<td>40</td>
</tr>
</tbody>
</table>

December 7-8, 2017
3. Retirement

Probabilities of retirement among Academic and Administrative employees were assumed to vary with attained age. Rates of retirement per 1,000 lives are indicated below:

<table>
<thead>
<tr>
<th>Attained Age</th>
<th>Under 25 Years of Service</th>
<th>Over 25 Years of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>56-59</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>60-61</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>62</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>63-64</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>65</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>66</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>67-69</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>70-71</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>72-79</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>80</td>
<td>1,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Corresponding probabilities of retirement among Clerical and Service employees are as follows:

<table>
<thead>
<tr>
<th>Attained Age</th>
<th>Under 25 Years of Service</th>
<th>Over 25 Years of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>70</td>
<td>90</td>
</tr>
<tr>
<td>56-59</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>60-61</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>62</td>
<td>200</td>
<td>350</td>
</tr>
<tr>
<td>63-64</td>
<td>140</td>
<td>190</td>
</tr>
<tr>
<td>65</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>66</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>67-69</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>70-71</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>72-79</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>80</td>
<td>1,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

4. Salary progression

Future salary increases were anticipated. The following are sample rates of expected increases in salary at select ages. Note, the increases shown below include increases in salary as a result of inflation and productivity and longevity.
Rates of Salary Increase at Select Ages

<table>
<thead>
<tr>
<th>Attained Age</th>
<th>Academic and Administrative</th>
<th>Clerical and Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>8.2%</td>
<td>5.2%</td>
</tr>
<tr>
<td>35</td>
<td>4.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>45</td>
<td>3.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>55</td>
<td>2.8%</td>
<td>2.7%</td>
</tr>
<tr>
<td>60</td>
<td>2.3%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

5. a. Method of valuing assets
Expected Return Method. Assets are valued as the market value less unrecognized returns in each of the last five years. Unrecognized returns is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period. The actuarial value is further adjusted, if necessary, to be within 20% of the market value.

b. Investment yield
An average annual investment return of 7.20% is anticipated.

c. Inflation
Average annual inflation of 2.2% is anticipated.
### SECTION IX

**IMPACT OF RECOMMENDED ASSUMPTIONS ON THE RESULTS OF THE ACTUARIAL VALUATION**

<table>
<thead>
<tr>
<th>Normal Cost</th>
<th>Unfunded liability</th>
<th>Net employer contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Amount</td>
</tr>
<tr>
<td>October 1, 2016 Valuation</td>
<td>$68,987,885</td>
<td>$459,286,212</td>
</tr>
<tr>
<td>Change due to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement Rates</td>
<td>-$34,769</td>
<td>-$12,554,027</td>
</tr>
<tr>
<td>Severance Rates</td>
<td>-5,378,992</td>
<td>4,387,192</td>
</tr>
<tr>
<td>Mortality Rates</td>
<td>1,319,104</td>
<td>55,067,990</td>
</tr>
<tr>
<td>Salary Scale</td>
<td>-4,124,733</td>
<td>-57,430,085</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>7,848,271</td>
<td>254,878,250</td>
</tr>
<tr>
<td>Total Changes</td>
<td>-371,119</td>
<td>244,349,320</td>
</tr>
<tr>
<td>Total Recommended Assumptions</td>
<td>$68,616,766</td>
<td>$703,635,532</td>
</tr>
</tbody>
</table>
The recommended changes in the assumptions will impact the results of the actuarial valuation as follows:

<table>
<thead>
<tr>
<th>Contribution Requirements:</th>
<th>Total Plan</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Total Plan</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dollar Amount</td>
<td>% of pay</td>
<td>% of pay</td>
<td>Dollar Amount</td>
<td>% of pay</td>
<td>% of pay</td>
</tr>
<tr>
<td>Normal cost</td>
<td>$68,987,885</td>
<td>7.26%</td>
<td>3.24%</td>
<td>$68,616,766</td>
<td>7.18%</td>
<td>3.32%</td>
</tr>
<tr>
<td>Amortization* of unfunded liability</td>
<td>39,677,403</td>
<td>3.47%</td>
<td>3.47%</td>
<td>57,926,789</td>
<td>5.06%</td>
<td>5.06%</td>
</tr>
<tr>
<td>Expected employee contribution</td>
<td>14,858,830</td>
<td>1.33%</td>
<td>1.23%</td>
<td>14,858,830</td>
<td>1.33%</td>
<td>1.23%</td>
</tr>
<tr>
<td>Net employer contribution</td>
<td>$93,806,458</td>
<td>9.39%</td>
<td>5.48%</td>
<td>$111,684,725</td>
<td>10.91%</td>
<td>7.15%</td>
</tr>
<tr>
<td>Funding Status:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuarial liability</td>
<td>$3,892,721,464</td>
<td></td>
<td></td>
<td>$4,137,070,784</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuarial value of assets</td>
<td>3,433,435,252</td>
<td></td>
<td></td>
<td>3,433,435,252</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfunded liability</td>
<td>459,286,212</td>
<td></td>
<td></td>
<td>703,635,532</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on a 27-year amortization schedule.

8614123v7/03731.080

December 7-8, 2017

OPEN - FIN - 4-52
No. 5

Recommended Action - Adjourn Board of Curators Finance Committee Meeting

It was moved by Curator __________ and seconded by Curator __________, that the Board of Curators Finance Committee Meeting, December 7-8, 2017, be adjourned.

Roll call vote of the Committee: YES NO
Curator Brncic
Curator Chatman
Curator Layman
Curator Snowden
Curator Steelman
Curator Sundvold

The motion _________________.

December 7-8, 2017
OPEN – FIN – 5-1
ACADEMIC, STUDENT AND EXTERNAL AFFAIRS COMMITTEE
RESEARCH AND ECONOMIC DEVELOPMENT
ANNUAL REPORT

There are no materials for this information item.
BOARD ENGAGEMENT WITH INTERCAMPUS FACULTY COUNCIL
ANNUAL REPORT

There are no materials for this information item.
Executive Summary

The Political Science Department is proposing a BA in International Relations as a way to increase enrollment for the university, meet an academic need for traditional, international, and military students, and fill a need for employers in the region. Interest in a major in International Relations has come from a variety of constituents. Current and prospective UMSL students, advisors at community colleges, Interim Vice President of Academic Affairs for STLCC Forest Park, UMSL's Director of Undergraduate Admissions, Admissions Representatives, International Admission Recruiters, Director of Community College Relations, College of Arts and Sciences' Associate Dean and Advisors, and Chair of Military and Veteran’s Studies have sent a consistent and overwhelming message that there is demand for a BA in International Relations (IR).

Not only is there demand for the program, but departmental faculty are internationally known scholars in international relations and comparative politics, and so we will be able to offer this program with current faculty and existing departmental resources. No additional assets are needed, and we project it will be profitable in year one.

This program responds to the needs of students and employers. Currently, there are only three students majoring in Political Science/Public Policy who are international students. This population has a great potential for enrollment in a BA in IR. Both the recruiters for international students and the students themselves have emphasized the demand for such a program. International Relations is also a field of interest for military students, another population the university is actively recruiting, and one that is underrepresented in Political Science. There is also a strong job market for those with a BA in IR. The New York Federal Reserve (2017) found that more than 94% of graduates with a degree in International Affairs or Political Science are employed; their median early career salary is $40,000 and their median mid-career salary is $70,000.

The BA in International Relations was designed to prepare students for the workforce as well as graduate school. The program was designed to meet competencies identified by the National Association of Colleges and Employers as critical for career readiness. Those include global/intercultural fluency, critical thinking/problem solving, communication skills, teamwork/collaboration, and professionalism/work ethic. We have integrated experiential learning such as internships and study abroad in order to help students develop these competencies.

We have also evaluated programs in the area and found that only two schools offer a BA in International Relations. We have confirmed students in the region are interested in this degree and that we have tuition and expertise advantages; therefore, we project that we would be highly competitive in the market.

The BA in International Relations presents opportunity for growth, and the department can offer this degree program using resources currently in place. We hope to maximize efficiency and increase enrollment for the Political Science Department while providing an outstanding academic opportunity for students. Thus, we believe the BA in IR will make strategic use of our resources in better serving our majors and the UMSL campus, attracting and retaining more students from the local community and well beyond.

December 7-8, 2017

OPEN – AS&EA 1-1
No. 1

Recommended Action – Bachelor of Arts in International Relations, University of Missouri, St. Louis

It was recommended by Sr. Associate Vice President Steve Graham, endorsed by President Mun Choi, recommended by the Academic, Student and External Affairs Committee, moved by Curator ____________, seconded by Curator ________________, that the following action be approved:

that the University of Missouri, St. Louis be authorized to submit the attached proposal for a Bachelor of Arts in International Relations to the Coordinating Board for Higher Education for approval.

Roll call vote of the Committee: YES NO
Curator Farmer
Curator Layman
Curator Phillips
Curator Snowden
The motion ____________.

Roll call vote of Board: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold
The motion ______________.
Bachelor of Arts, International Relations

University of Missouri-St. Louis
1. Introduction..........................................................................................................................................
2. Fit With University Mission and Other Academic Programs.........................................................
   2.A. Alignment with Mission and Goals..............................................................................................
   2.B. Duplication and Collaboration within Campus and Across System........................................
3. Business-Related Criteria and Justification......................................................................................
   3.A. Market Analysis..........................................................................................................................
       3.A.1 Need for Program..................................................................................................................
       3.A.2. Student Demand for Program..............................................................................................
   3.B. Financial Projections...................................................................................................................
       3.B.1. Additional Resources Needed..............................................................................................
       3.B.2. Revenue................................................................................................................................
       3.B.3. Net Revenue.........................................................................................................................
   3.C. Business and Marketing Plan: Recruiting and Retaining Students..........................................18
4. Institutional Capacity........................................................................................................................
5. Program Characteristics....................................................................................................................
   5.A. Program Outcomes......................................................................................................................
   5.B. Structure...................................................................................................................................
   5.C. Program Design and Content......................................................................................................
   5.D. Program Goals and Assessment................................................................................................
   5.E. Student Preparation......................................................................................................................
   5.F. Faculty and Administration........................................................................................................
   5.G. Alumni and Employer Survey.....................................................................................................
   5.H. Program Accreditation................................................................................................................
Appendices............................................................................................................................................
Appendix A: Letters of Support............................................................................................................
Appendix B: Abbreviated Syllabus for New Course.............................................................................
Executive Summary

The Political Science Department is proposing a BA in International Relations as a way to increase enrollment for the university, meet an academic need for traditional, international, and military students, and fill a need for employers in the region. Interest in a major in International Relations has come from a variety of constituents. Current and prospective UMSL students, advisors at community colleges, Interim Vice President of Academic Affairs for STLCC Forest Park, UMSL's Director of Undergraduate Admissions, Admissions Representatives, International Admission Recruiters, Director of Community College Relations, College of Arts and Sciences' Associate Dean and Advisors, and Chair of Military and Veteran’s Studies have sent a consistent and overwhelming message that there is demand for a BA in International Relations (IR).

Not only is there demand for the program, but departmental faculty are internationally known scholars in international relations and comparative politics, and so we will be able to offer this program with current faculty and existing departmental resources. No additional assets are needed, and we project it will be profitable in year one.

This program responds to the needs of students and employers. Currently, there are only three students majoring in Political Science/Public Policy who are international students. This population has a great potential for enrollment in a BA in IR. Both the recruiters for international students and the students themselves have emphasized the demand for such a program. International Relations is also a field of interest for military students, another population the university is actively recruiting, and one that is underrepresented in Political Science. There is also a strong job market for those with a BA in IR. The New York Federal Reserve (2017) found that more than 94% of graduates with a degree in International Affairs or Political Science are employed; their median early career salary is $40,000 and their median mid-career salary is $70,000.

The BA in International Relations was designed to prepare students for the workforce as well as graduate school. The program was designed to meet competencies identified by the National Association of Colleges and Employers as critical for career readiness. Those include global/intercultural fluency, critical thinking/problem solving, communication skills, teamwork/collaboration, and professionalism/work ethic. We have integrated experiential learning such as internships and study abroad in order to help students develop these competencies.

We have also evaluated programs in the area and found that only two schools offer a BA in International Relations. We have confirmed students in the region are interested in this degree and that we have tuition and expertise advantages; therefore, we project that we would be highly competitive in the market.

The BA in International Relations presents opportunity for growth, and the department can offer this degree program using resources currently in place. We hope to maximize efficiency and increase enrollment for the Political Science Department while providing an outstanding academic opportunity for students. Thus, we believe the BA in IR will make strategic use of our resources in better serving our majors and the UMSL campus, attracting and retaining more students from the local community and well beyond.

December 7-8, 2017
1. Introduction

Overview

The Bachelor of Arts in International Relations is a 36 credit hour undergraduate degree program offered by the Department of Political Science. This degree program provides structure in its required courses, making sure students have the foundational knowledge in the field, and also provides flexibility in allowing students to select international relations and comparative politics courses that will prepare them for their specific career and academic needs. Students in this major are also required to complete three semesters of a foreign language and encouraged to pair it with a minor such as a language or economics. Students are also encouraged to meet their degree requirements through experiential learning options such as study abroad and internship opportunities.

Graduates of this program will be prepared to work in government agencies such as the US Foreign Service, the Agency for International Development, the Departments of Agriculture, Commerce, Education, and Justice, and the National Geospatial Intelligence Agency; research think tanks and foundations such as US Institute for Peace, the International Institute, Oxfam, and American Foreign Policy Council; and private consulting firms, defense contractors, nonprofit organizations. Our graduates will also be prepared to contribute to a variety of businesses in the area, such as Monsanto and Boeing, nationally, and internationally as there is an increasing need for corporations to employ those who have a global, multicultural understanding, are able to interpret policy policy, and can think critically and incorporate a variety of perspectives in order to effectively solve problems.

Missouri’s growing role as a site of transnational commercial and cultural exchanges can be enhanced by an influx of UM St. Louis graduates in the field of international relations. Graduates of UM St. Louis’s BA in Political Science are gainfully employed in both public and private sectors, but increased global demands highlight the need for our campus to provide systematic academic training needed to address 21st century
challenges facing our city and our region. The BA in International Relations is designed to address this gap and meet the needs of both our students and the regional economy.

Our location in metropolitan St. Louis provides our students numerous opportunities to participate in internships that will offer them valuable experiences and global networking connections, which will prepare them to participate in a global marketplace. The BA in International Relations will also prepare students for law school as well as graduate studies in International Relations, Political Science, Public Policy, and other related fields.

History and Evolution

The BA in IR is a response to a growing interest in international studies coursework on the part of our student body, including not only traditional students but also other clientele, such as the roughly 1,000 international students and 500 military veterans enrolled at UMSL. The program is designed for students interested in international careers in government service (not only the U.S. State Department and foreign policy establishment but also other government agencies increasingly involved in international activities), intergovernmental and nongovernmental organizations, business, education, and other areas of employment. The curriculum would enable students to develop skills in critical thinking, communication, quantitative analysis, and cultural awareness along with deeper knowledge of cross-cultural and international phenomena, thereby providing broad preparation for either further graduate study or the workforce in international-related fields.

Many of our graduates who have gone on to work in such settings as the U.S. Foreign Service, CIA, U.S. Geospatial Intelligence Agency, Washington-area research think tanks and foundations, the U.S. Institute for Peace, and similar venues have praised their political science education but have expressed frustration over the lack of any BA degree program focused on the international arena. We can serve many more students and take greater advantage of our expert faculty in international and comparative politics by adding the new degree program to our existing programs. Our department can claim not only a high-quality, nationally and internationally recognized faculty that has published dozens of scholarly books but also more IR faculty than any political science department in the St. Louis region. Thus, we believe the BA in IR program has the potential to make strategic use of our resources in better serving our majors and the UMSL campus, attracting and retaining more students from the local community and well beyond.

The Political Science Department has long offered a rich array of courses in international relations. These have fallen into two subfields of the discipline: International relations and Comparative Politics. Currently, the BA in Political Science degree program requires majors to fulfill an area requirement, completing at least one course in four of seven political science subfields that can include the International Relations and Comparative Politics subfields. While students can elect to take a number of international and comparative courses in fulfilling their 36 credit hour requirement for the degree, they nonetheless are limited in concentrating their coursework in this area since
the degree covers the broad political science discipline and is not aimed at students specifically interested in graduate work or careers in the international field. We do allow students to pursue a minor in International Relations or Comparative Politics (15 hours), in which they must choose whether to focus on international or comparative politics.

Thus, the Political Science department has a wealth of instructional resources it has utilized in offering international-related undergraduate coursework to UM-St. Louis students. However, this has not been in the context of a degree program devoted to students with international interests that allows them to take a complete range of international and comparative politics courses geared to maximizing their preparation for graduate school or careers in the international field, deepening their knowledge and skills in an increasingly important area of inquiry and employment. The proposed curriculum incorporates existing courses that include a “core” set of courses (Intro to Comparative Politics, World Politics, Political Analysis, and Senior Seminar) providing a foundation and capstone and an extensive menu of courses students can choose from both the International Relations and Comparative Politics listings.

The curriculum was designed to build not only content knowledge, but global and intercultural fluency, critical thinking, problem solving, oral and written communications, teamwork and collaboration, and professionalism, which are competencies identified by the National Association of Colleges and Employers (2017) as essential for career readiness. The experiential learning component of the program has been found to “build social skills, work ethic, and practical expertise” as well as helping “students link experience with theory and, thereby, deepening their understanding and ability to use what they know” (Eyler, 2009). While we are confident that we have designed a program that will strengthen students’ academic and professional skills, as well as prepare them to be contributing, informed global citizens, we also will be evaluating course artifacts and student and employer surveys to ensure the curriculum is meeting these goals and make any necessary adjustments.

As an undergraduate program, the Director of Undergraduate Studies for Political Science, Anita Manion, will be primarily responsible for the success of this program. She has worked closely with Ruth Iyob and Marty Rochester, Professors in Political Science, in the development of this program and will continue to collaborate with them in to ensure effective implementation and growth of the program. No additional expenses will be incurred for program oversight.


2. Fit With University Mission and Other Academic Programs

2.A. Alignment with Mission and Goals

The mission of the University of St. Louis-Missouri is to “provide excellent learning experiences and leadership opportunities for a diverse student body. Outstanding faculty and staff, innovative research, and creative partnerships foster synergies that advance the welfare of our stakeholders and benefit the global society”. The Bachelor of Arts in International Relations is aligned with this mission for a number of reasons. The program will provide quality learning experiences to a diverse student body, and the degree is specifically intended to increase enrollment among international and military students, as well as more traditional students. The Political Science Department has uniquely qualified faculty who are recognized and widely published experts in international relations and comparative politics, and those faculty can deliver a degree that is not currently offered in the UM System to advance the welfare of our stakeholders—students, alumni, government, nonprofits, and private businesses—and to benefit global society by educating graduates with a global perspective who are equipped to work locally, nationally, and global to make positive economic and societal impacts.

The proposed BA in International Relations (BA in IR) degree program is squarely consistent with and supportive of the UMSL campus goals. In 2015, the UMSL Strategic Framework for the Future included the preparation of globally aware students as a campus priority: “Understanding that UMSL graduates are the workforce for St. Louis and drive the economic vitality of the region, every campus unit shares responsibility to graduate students who are: career-ready, culturally competent, physically and emotionally healthy, globally aware, and locally engaged[italics ours].”

The BA in IR is expected to further the mission of the campus by adding to the opportunities for students to develop global competencies. In the process, we will be reinforcing the work of other units such as the Office of International Studies and Programs, as our students will be encouraged to explore overseas study and immersion in foreign cultures; the College of Arts and Sciences (which has numerous internationally-oriented faculty in foreign languages, economics, anthropology and other departments), as our students will be encouraged to take interdisciplinary coursework to supplement the political science offerings; and our highly esteemed International Business program, which also offers opportunities for cross-discipline synergy.

The Political Science Department mission statement states: “In addition to helping students become more knowledgeable about politics and public policy, political science course work provides rich opportunities for students to develop a variety of practical skills – such as information-gathering and processing, analysis, research, decision making, and oral and written communication – that are transferable to many career paths and job settings after graduation.” The proposed BA program allows students to develop this knowledge and tool set specifically as they relate to international affairs. International relations and comparative politics are two of the major subfields within the Political Science Department. These are the two key foci of the proposed BA program,
which will be able to utilize the expertise of our faculty in international political economy, international organization and law, security studies, US foreign policy, and area studies.

2.B. Duplication and Collaboration within Campus and Across System

A bachelor’s degree in International Relations is not offered by any schools in the UM System. Neither Missouri S&T nor University of Missouri-Kansas City offers anything similar. University of Missouri-Columbia offers a BA in International Studies, which is a different academic program from International Relations. International Studies is a multidisciplinary curriculum that emphasizes global cultures. The MU International Studies program, for example, includes a wide range of cultural and science courses, and encourages students to build their own major. The BA in International Relations is a political science degree that focuses more directly on the politics, policies, and relationships between state and non-state actors. Top departments of political science offer this degree (sometimes under titles such as World Politics, as at Ohio State). Thus, this new program will contribute to the diversity of academic choices and will not duplicate existing programs.

We have also evaluated programs in the area. The only two schools to offer a BA in International Relations are Webster University and Lindenwood University. The BA in International Relations at Webster University is the 5th highest enrollment undergraduate program in the College of Arts and Sciences at Webster, and at $650/credit hour their tuition rates are much higher than UMSL's. At $453/credit hour, Lindenwood's tuition is also higher than UMSL’s rate of $336. In addition to our tuition advantage, the Political Science Department has internationally recognized scholars in international relations and comparative politics whose expertise and research will bolster our program. Having confirmed students in the region are interested in this degree and that we have tuition and expertise advantages, we project that we would be highly competitive in the market.

In addition to avoiding duplication, collaboration was a foundational goal in the development of the BA in International Relations. The Political Science Department consulted with Languages and Cultural Studies Department, the Department of Military and Veterans Studies, the Office of International Studies and Programs, Admissions, the Economics Department, and many other campus constituents. We have discussed ways this major will aid in recruitment and how minors in other programs will pair well with the BA in International Relations. They have reviewed our curriculum and are supportive of the program. While at a glance our curriculum may seem solely focused on Political Science courses, many of our courses are interdisciplinary and are cross-listed with Gender Studies, Anthropology, Criminology, Military and Veterans Studies, and the Honors College.

There is also potential for collaboration with other institutions as the program grows. We could share courses with other universities in the UM system through the intercampus course share program. There are also possibilities for collaborations with other universities with study abroad and student research. Finally, we plan on connecting with

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community college student organizations such as St. Louis Community College’s International Club and Global Justice Project collaborations on speakers and events and for recruitment opportunities.

3. Business-Related Criteria and Justification

3.A. Market Analysis

As the Bureau of Labor Statistics (2008) explains because of the way they classify jobs, it can be difficult to specifically identify outlooks and salaries for jobs in International Relations and Political Science. Following is a sampling of the many career paths at the regional, state, national, and international levels, and some of the projections by MERIC and BLS.

St. Louis is home to global companies such as Anheuser Busch-INBEV, Monsanto, Boeing, and Solae, which creates a natural demand for graduates with a background in international relations as these businesses try to navigate international cultures, policies, and exchanges, but the field is much larger than that. MERIC (2010) predicts that continued increases in demand from China and developing countries will position Missouri to play a key role in global agriculture and food manufacturing. MERIC (2010) also notes that continued expansion of aerospace manufacturing and defense research, important industries in the state and local economies, requires “a broader mix of companies and public sector organizations [which] can hopefully turn this spot strength into a core cluster that would offer longer-term stability”.

When it comes to specific occupations, there are a wide variety of fields that International Relations majors go into. MERIC’s occupational projections for 2014-2024 include career paths for these majors including:

- Area, Ethnic, and Cultural Studies Teachers—projected to increase 10.2% in the central Missouri region and 13.3% in the St. Louis region (salary data unavailable)
- Urban and Regional Planners—projected to increase 8.39% in the St. Louis region, with a mean salary of $65,266
- Training and Development Managers—projected to increase 8.11% for the central Missouri region, with a mean salary of $66,128.
- Meeting, Convention, and Event Managers—projected to increase 12.5% in the central region and 9.92% in the St. Louis region, with a mean salary of $46,893 and $51,647 respectively

Of course, careers in the civil service are the path for many graduates of International Relations. There are hundreds of jobs related to International Relations and/or requiring a degree in International Relations posted on USAjobs.gov, including:

- International Program Mgt Specialist--$61,654
- Confidential Assistant, US International Trade Commission--$66,510

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Many of our students will work in the private and nonprofit sectors as consultants, lobbyists, and social and community service workers. The Bureau of Labor Statistics projects that there will be 10% growth in social and community service managers from 2014-2024--13,200 jobs. Those jobs will have a typical entry-level education of a bachelor’s degree and a median salary of $63,530.

This degree will also prepare our students for graduate school. Forbes (2014) identified the Master of Arts in International Relations as the #5 best master’s degree for jobs, with median pay of $97,500 and 21% projected employment increase.

3.A.1 Need for Program

Not only does the Bachelor of Arts in International Relations serve an unmet academic need in Missouri and prepare students for employment, but it also helps to meet Missouri’s economic needs. According to the Business Roundtable (2015):

- International trade, including exports and imports, supports 826,700 Missouri jobs – nearly 1 in 4. These trade-related jobs grew eight times faster than total employment from 2004 to 2014 and are at large and small companies, on farms, in factories, and at the headquarters of Missouri's globally engaged firms.
  - Customers in 201 countries and territories buy Missouri-made goods and services, including billions of dollars in annual exports to top markets like Canada, Mexico and China. Missouri's goods exports have grown more than two times faster than state GDP since 2004.
  - Free trade agreements (FTAs) have helped fuel rapid export growth from Missouri to partner countries. In 2014, $8.4 billion of Missouri's goods exports, or 53 percent, went to FTA partners. This represents a 50 percent increase since 2004.

Additionally, there is a significant immigrant population in Missouri. Although Missouri’s foreign-born workforce makes up a relatively small percentage of the state’s total labor force, it grew at a rate that was seven times faster than that for the native-born workforce (Business Roundtable, 2015). And, in recent years St. Louis has experienced the biggest percent increase in foreign-born people of any major metropolitan area in the US (Hulsey, 2016). As the state welcomes an increasing amount of foreign-born residents into our communities and the workforce, we will have a continued need for public and private sector employees who are trained in international relations and can assist in the transition.
Looking beyond Missouri, the New York Federal Reserve (2017) found that more than 94% of graduates with a degree in International Affairs or Political Science are employed; their median early career salary is $40,000 and their median mid-career salary is $70,000. Those are higher median salaries than for graduates with degrees in Chemistry, Nutrition Sciences, Communications, Business Management, and many other degrees.

In addition to the employment and salary data, we have affirmation from alumni including David Banks with the National Security Council, Adis Alagic with the Joint Chiefs of Staff, and Luke Coffey at the Heritage Foundation that graduates of this program are in demand (see appendix).

https://www.missourieconomy.org/pdfs/sl_region_pattern_analysis.pdf
https://www.missourieconomy.org/occupations/occ_proj.htm
https://www.newyorkfed.org/research/college-labor-market/college-labor-market_compare-majors.html

3.A.2. Student Demand for Program

The Political Science Department is proposing a BA in International Relations as a way to increase enrollment for the university, as well as meet an academic need for traditional, international, and military students. The department has spent several months determining the need for this program. We administered surveys to current UMSL students and advisors at East Central and Jefferson College which indicated a strong interest in a BA in International Relations. We also had conversations with current UMSL students; prospective students; the Interim Vice President of Academic Affairs for STLCC Forest Park; and UMSL’s Director of Undergraduate Admissions, Admissions Representatives, International Admission Recruiters, Director of Community College Relations, College of Arts and Sciences' Associate Dean and Advisors, and Chair of Military and Veteran’s Studies. In these conversations there was a consistent and overwhelming message that there is demand for a BA in International Relations.

Currently, there are only three students majoring in Political Science/Public Policy who are international students. This is a population with great potential for enrollment in a BA in International Relations. Both the recruiters for international students and the students themselves have emphasized the demand for such a program. Research on degree preferences for international students has also indicated that from 2008-2012 International Relations has been the 4th highest enrolled degree area for international students studying in the US, UK, and Australia (Hanover Research, 2014). Thus, we see this as a growth opportunity for the university and the Political Science Department.
International Relations is also a field of interest for military students, another population the university is actively recruiting, and one that is underrepresented in Political Science. The Chair of Military and Veteran’s Studies believes that this would be a popular degree for military students. The Million Records Project (Cate, 2014) found that for a million students who used their GI benefits from 2002-2010, 79.2% attended public institutions, and 10.8% of initial bachelor's degrees for those students were in social sciences (the 2nd most popular field); so, the BA in International Relations presents an opportunity to enroll more military students in Political Science at UMSL.

We have also evaluated programs in the area. The only two schools to offer a BA in International Relations are Webster University and Lindenwood University. The BA in International Relations at Webster University is the 5th highest enrollment undergraduate program in the College of Arts and Sciences at Webster, and at $650/credit hour their tuition rates are much higher than UMSL's. At $453/credit hour, Lindenwood's tuition is also higher than UMSL’s rate of $336. In addition to our tuition advantage, the Political Science Department has internationally recognized scholars in international relations and comparative politics whose expertise and research will bolster our program. Having confirmed students in the region are interested in this degree and that we have tuition and expertise advantages, we project that we would be highly competitive in the market.

Although the BA in International Relations presents opportunity for growth, the department can offer this degree program using resources currently in place. We hope to maximize efficiency and increase enrollment for the Political Science Department while providing an outstanding academic opportunity for students.

References:


Table 1a. Student Enrollment Projections (anticipated total number of students enrolled in program during the fall semester of given year).

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>8</td>
<td>11</td>
<td>19</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Part-Time</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>18</td>
<td>30</td>
<td>40</td>
<td>53</td>
</tr>
</tbody>
</table>

We already have 7 students who are majoring in other disciplines or undecided who want to major in International Relations. We also have regular inquiries from community college students who are interested in this program, so we project we can have 14 students in the major in the first year. We based the remaining modest projections on current enrollments in undergraduate political science degrees, estimates from admissions.
and international recruiters, and believe those projections will be met as we get the word out, work with community colleges, traditional admissions, military and veterans students, and the international recruiters. Additionally, our department is working on strengthening relationships with high schools, and we believe this program will be attractive to high school students as well. We have added five new Advanced Credit Program high school partners in summer 2017. These schools teach Introduction to Comparative Politics and US Foreign Policy, which are part of the International Relations curriculum. So, we see this as an excellent recruitment opportunity.

Our current mix of part-time and full-time students is reflected in these projections.

**Table 1b. Student Enrollment Projections (anticipated number of students enrolled during the fall semester of given year who were new to campus).**

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>4</td>
<td>7</td>
<td>9</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Part-Time</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>12</td>
<td>16</td>
<td>18</td>
<td>20</td>
</tr>
</tbody>
</table>

**Table 1c. Projected Number of Degrees Awarded**

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Degrees Awarded</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

There are currently students who have been anticipating the program and are ready to complete the degree requirements to graduate in the 2017-18 academic year. There will be a few similar students in year two, and then we will see an uptick of graduates as students have time to complete the degree requirements.

3.B. Financial Projections

3.B.1. Additional Resources Needed

No additional resources are being requested.

3.B.2. Revenue

The revenue projections stem from undergraduate, in-state tuition estimated for our projected mix of full-time and part-time students, as well as a projected online course fee for 15% of our credit hours.

3.B.3. Net Revenue

Because the only additional resource the department is requesting is an adjunct-taught course, we will be in a positive financial standing in the first year of this program. There will be some marketing costs that will be made from the department’s current budget.


The financial viability of this program is easily calculated, because we are currently...
teaching these courses and have capacity to add students from the BA in IR, we will not occur any additional costs with the current projections, other than an adjunct salary each year to teach a specialized course. Our financial projections including revenue and expenses are that we will have net revenue of $14,693 in the first year, $29,132 in the second year, $40,371 in the third year, $48,577 in the fourth year, and $55,320 in the fifth year, for a cumulative net revenue of $188,093 for the first five years.

When considering academic viability, we also have an advantage that most of the courses will include students from the BA in Political Science, BA in International Relations, and BS in Public Policy Administration. So, we can have robust courses from year one. However, to continue to justify an additional major from an academic standpoint, we would like to have at least 20 students in the major by year five. We believe we will far exceed that number.

Table 2
Enrollment at the End of Year 5 for the Program to Be Financially and Academically Viable.

<table>
<thead>
<tr>
<th>Viability</th>
<th>Minimum Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>2</td>
</tr>
<tr>
<td>Academic</td>
<td>20</td>
</tr>
</tbody>
</table>
# Table 2. Financial Projections for Proposed Program for Years 1 through 5.

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Expenses per year</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>A. One-time</strong></td>
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<tr>
<td>New/Renovated Space</td>
<td></td>
<td></td>
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<tr>
<td>Equipment</td>
<td></td>
<td></td>
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<tr>
<td>Library</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Consultants</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Other</td>
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<td></td>
<td></td>
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<tr>
<td><strong>Total one-time</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>B. Recurring</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Faculty</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
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<tr>
<td>Staff</td>
<td></td>
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<tr>
<td>Benefits</td>
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<tr>
<td>Equipment</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total recurring</strong></td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
<td>4000</td>
</tr>
<tr>
<td><strong>A+B</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. Revenue per year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition/Fees</td>
<td>14,693</td>
<td>33,132</td>
<td>44,371</td>
<td>52,577</td>
<td>59,320</td>
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<tr>
<td>Institutional Resources</td>
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<tr>
<td>State Aid -- CBHE</td>
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<tr>
<td>State Aid -- Other</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>14,693</td>
<td>33,132</td>
<td>44,371</td>
<td>52,577</td>
<td>59,320</td>
</tr>
<tr>
<td><strong>3. Net revenue (loss) per year</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14,693</td>
<td>29,132</td>
<td>40,371</td>
<td>48,577</td>
<td>55,320</td>
</tr>
<tr>
<td><strong>4. Cumulative revenue (loss)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14,693</td>
<td>43,825</td>
<td>84,196</td>
<td>132,773</td>
<td>188,093</td>
</tr>
</tbody>
</table>

Budget notes:

- Students will be enrolled in additional courses outside Political Science. The revenue for those courses would amount to approximately an additional 133% of these projections to be distributed across the college for general education and elective courses.
o Year 1 additional campus revenue = $19,542 + dept revenue=$34,235
o Year 2 additional campus revenue = $38,746 + dept revenue=$67,878
o Year 3 additional campus revenue = $53,693 + dept revenue=$94,064
o Year 4 additional campus revenue = $64,607 + dept revenue=$113,184
o Year 5 additional campus revenue = $73,576 + dept revenue=$128,896
o Total five year cumulative revenue = $438,257

- Very conservative projections were used.
- Only net new tuition and only Political Science courses were considered.
- Full-time students were projected at 6 Political Science hours/semester, and part-time students were projected at 3 Political Science hours/semester.
- For additional revenue calculations, a multiplier of 133% was used to account for full-time students taking a total of 12-15 hours/semester and part-time students taking 6-9 hours/semester.
- Because these courses are currently offered, library holdings and other support needs are already in place.
- Online fees were calculated using our current online enrollment rates.

Table 3. Enrollment at the End of Year 5 for the Program to Be Financially and Academically Viable.

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Full-Time</th>
<th>Part-Time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

3.C. Business and Marketing Plan: Recruiting and Retaining Students

To develop this program, our Director of Undergraduate Studies, Anita Manion, conducted an extensive round of meetings with Admissions, International Recruiters, the Center for International Studies, the Department of Military and Veterans Studies, Academic Advisors, the Director of Community College Relations, and the Dean of the College of Arts and Sciences. They are all excited about the new program and are supportive of our efforts to increase awareness and recruit students. We have created some marketing pieces for the program and shared them with these entities; they have agreed to help us in recruitment and marketing efforts to a variety of potential students.

Departmental faculty are also working to promote the program; we hosted a successful information session in the fall and will continue to host those regularly. Another way we are working to create external awareness is through the department’s webpage and social media efforts. Once the program is approved, we will have a greater presence on the university’s webpage as well. In addition, outreach to high schools and community colleges will be essential. The department is engaging in outreach efforts via personal
emails to prospective students as well as visits to high schools participating in the Advanced Credit Program and would like to be able to include this new and exciting program in those efforts. We have added five new Advanced Credit Program high school partners in summer 2017. These schools teach Introduction to Comparative Politics and US Foreign Policy, which are part of the International Relations curriculum. So, we see this as an excellent recruitment opportunity. We are already getting inquiries based on word-of-mouth that we have provisional approval for the program, and will build on this enthusiasm to increase enrollment in the Political Science Department. Overall, the Director of Undergraduate Studies, Anita Manion, will have the responsibility of implementing and coordinating marketing efforts.

Based on the inquiries the provisional program is getting, we are confident that when we can fully market and recruit for the program, it will be a great success. As the program begins to grow and mature, we plan on having testimonials from graduates as videos that can be viewed on the website as well as print materials that can be mailed to prospective students. We are already strategizing with the Director of Community College Relations for UMSL on ways we can connect with community college students, including site visits, posters, classroom talks, and collaborations with student organizations. Strategies are also being discussed with UMSL’s Director of Undergraduate Admissions and international recruiters for ways to market the program to domestic and international students. There seems to be significant interest from international students, so as the program grows our marketing efforts for that population will also develop and become more sophisticated, in consultation with the Office of International Studies and Programs.

Once we recruit students, it will be critical to retain them and help them persist through graduation. In the Political Science’s efforts to retain students, we have an associate teaching professor who advises all undergraduate majors in Political Science, including the BA in International Relations. This allows the department to be more in touch with student concerns and barriers including scheduling issues, particular courses that have retention issues, and opportunities for students’ academic development. In response to this feedback, the department has already secured grant funding for a tutor for a course that had low retention rate; adapted the undergraduate schedule to include early morning, afternoon, online, evening, hybrid, and face-to-face courses; and the undergraduate committee is in the process of developing a new course to strengthen students’ academic writing, research design, and analysis skills so they are better prepared for the senior seminar and other departmental courses. The department is also in the process of developing an advising survey where we will get feedback on advising, scheduling, and other departmental aspects that contribute to student persistence. Additionally, we work closely with the dean’s office and the academic advisors for the College of Arts and Sciences. We utilize systems such as MyConnect to take advantage of student success and retention efforts and connect students with appropriate resources. These efforts will be continued and expanded for the BA in International Relations.

4. Institutional Capacity
Other than one adjunct salary a year, the only new expenses associated with this program will involve marketing. The courses in the BA in International Relations curriculum are currently being offered and have capacity to accommodate additional students. No new faculty lines or additional space will be required for the degree. The current Director of Undergraduate Studies will provide academic advising to these students and will collaborate with the Chair and international and comparative faculty to provide program oversight. The department projects an enrollment increase by introducing this new degree program; thus, we expect revenue to increase without an increase in expenses, benefitting the department, the university, and the system.

5. Program Characteristics

5.A. Program Outcomes

Graduates from the program will be able to:

- Explain the major features of contemporary international relations and the international system, including key trends relating to power, alignments, actors, issues, and other variables.
- Demonstrate understanding of global and regional challenges.
- Evaluate and prescribe foreign policy decisions based on an understanding of how foreign policy in the United States and elsewhere is made and implemented.
- Apply major international relations theories to real-world problems.
- Explain the role of both state and nonstate actors in international and transnational relations, and the politics of security, economic, environmental, and other issue-areas, including how international regimes are developed.
- Apply lessons from historic international relations to current circumstances.
- Analyze international issues from a legal or ethical perspective based on an understanding of the role of law and morality in international relations.
- Interpret issues from various cultural perspectives.
- Assess countries in terms of democratization, stability, and other characteristics based on an understanding of how different kinds of political systems operate.
- Design a research question, conduct qualitative and/or quantitative analysis, and write a research paper on international topics.

Graduates of the Bachelor of Arts in International Relations at UM-St. Louis will have an understanding of international relations and comparative politics and will be able their skills and knowledge to current, real-world situations. Our graduates will have experience in identifying a problem, developing a research question, conducting research, analyzing results, and drafting policy recommendations. They will also have opportunities to enhance their academic experience through experiential learning such as internships, study abroad, and the Model United Nations.

5.B. Structure
The BA in International Relations will require 36 credit hours in the major. There are three parts to the program. Part A consists of 15 hours of required courses; part B allows students to select 12 hours of international relations courses; and part C allows students to select 9 hours of comparative politics courses. All of the required courses are housed in the Political Science Department.

5.C. Program Design and Content

Having attained consensus on the need for a B.A. in International Relations, numerous meetings were held where the Director of the Undergraduate Studies Program and international relations faculty - Professors Iyob, Rochester and Thomas - deliberated on the objectives, content and structure of the proposed curriculum, keeping in mind student and employer needs and reviewing curricula for other programs. Following these consultations, two courses (POL SCI 2850 and 3880) were revised and one new course, POL SCI 1820, was designed to ensure that all IR majors were introduced to contending contemporary international relations theories, approaches and perspectives. The numbering of the capstone course, POL SCI 3950, was not changed. It was agreed that when the seminar was taught with a focus on international relations and taught by IR faculty, students would require approval from the Director of Undergraduate Studies, and that appropriate independent research projects and experiential learning could be used for students’ capstone experience.

Following is the complete curriculum for the program.

General Education Requirements
Majors must satisfy the university and college general education requirements. Political science courses may be used to satisfy the social sciences requirement. The foreign language requirement for the B.A. degree may be satisfied in any language.

Degree Requirements
All majors must complete at least 15 credit hours at the 3000 level or above.

PART A: Core Courses (15 credit hours):
- POL SCI 1500 Introduction to Comparative Politics
- POL SCI 1800 World Politics
- POL SCI 1820 Contemporary International Relations
- POL SCI 2000 Political Analysis
- POL SCI 3950 Senior Seminar in Political Science (when focus is on international relations) or capstone experience approved by the Undergraduate Advisor

PART B: International Relations Courses (12 credit hours)—Select 4 of the following courses:
- POL SCI 2510 The Politics of the European Union
- POL SCI 2820 US Foreign Policy
- POL SCI 2850 Gender, Power and International Politics
- POL SCI 3800 Media, Film, Literature, and International Politics
• POL SCI 3830 International Political Economy
• POL SCI 3850 International Organizations and Global Problem-Solving
• POL SCI 3860 Studies in War and Peace
• POL SCI 3880 African Diasporas: International Relations, Transnational Communities & Citizenship
• POL SCI 3890 Studies in International Relations
• POL SCI 3900 Special Readings (with consent of instructor and Undergraduate Advisor)
• POL SCI 4850 International Law

PART C: Comparative Politics Courses (9 credit hours)–Select 3 of the following courses:
• POL SCI 2500 Comparing Different Worlds
• POL SCI 2530 Political Systems of South America
• POL SCI 2540 Political Systems of Mexico, Central American, and the Caribbean
• POL SCI 2550 East Asian Politics
• POL SCI 2580 African Politics
• POL SCI 2590 Globalization: Prospects and Problems
• POL SCI 3500 Politics of the Middle East
• POL SCI 3570 Gender, Ethnicity, and Public Policy
• POL SCI 3590 Women and Leadership World-Wide: Breaking the Glass Ceiling
• POL SCI 4510 Comparative Public Policy and Administration
• POL SCI 4520 Mega-Cities and Diasporas: Understanding Global Migration

It is recommended that majors take POL SCI 1500, POL SCI 1800, POL SCI 1820, and POL SCI 2000 as early as possible since these courses are designed to provide a substantive foundation as well as conceptual and analytical tools for subsequent course work.

Majors are strongly encouraged to broaden their academic experience by including relevant curricular experiences including study abroad and electives in departments such as Language and Cultural Studies and Economics.
PROGRAM STRUCTURE

1. Total credits required for graduation: 36 in the major; 120 for the BA

2. Residency requirements, if any: 18 hours

3. General education

Total credits for general education courses: 42

Courses (specific course or distribution area and credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities/Fine Arts</td>
<td>9</td>
</tr>
<tr>
<td>Social Sciences*</td>
<td>9</td>
</tr>
<tr>
<td>Math &amp; Sciences</td>
<td>12</td>
</tr>
<tr>
<td>US History &amp; Govt</td>
<td>3</td>
</tr>
<tr>
<td>Info Literacy*</td>
<td>3</td>
</tr>
<tr>
<td>Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

*These requirements can be met within the major courses.

4. Major requirements

Total credits specific to degree: 36

Courses (specific course or distribution area and credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS 1500 Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>PS 1800 World Politics</td>
<td>3</td>
</tr>
<tr>
<td>PS 1820 Contemporary IR</td>
<td>3</td>
</tr>
<tr>
<td>PS 2000 Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PS 3950 Senior Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

International Relations Courses 12

Comparative Politics Courses 9

*The College of Arts and Sciences at University of Missouri-St. Louis requires three semesters, 15 hours, of a foreign language for students earning a Bachelor of Arts. So, this would be an additional requirement for the BA in International Relations students.*
5. **Free elective credits**
Total free elective credits:
42 hours general education
30 hours major courses (PS 2000 meets Info Literacy gen ed; PS 1800 meets Social Science gen ed)
15 hours foreign language
33 hours **free elective credits**
120 hours for graduation

6. **Requirement for thesis, internship or other capstone experience:**
PS 3950 Senior Seminar is required of all majors in their last year of coursework as an integrative, capstone experience. Emphasis is on student-faculty interaction in a seminar format designed to engage upper-level students in a critical examination of a broad theme in international relations, leading to the production of a major research paper.

7. **Any unique features such as interdepartmental cooperation:**
The Political Science Department is collaborating with the Languages and Cultural Studies Department to encourage students to combine a major in IR with a minor in a foreign language, and vice versa. Many of the Political Science department’s courses are interdisciplinary and are cross-listed with Gender Studies, Anthropology, Criminology, Economics, Military and Veterans Studies, and the Honors College to give students a broad, multidisciplinary perspective.
5.D. Program Goals and Assessment

The Senior Seminar, as the capstone course in the curriculum, will be used for assessment purposes. The Senior Seminar is meant to be a culminating, common experience course all BA in International Relations students will be required to take, engaging students in discussion of a “big” theme having to do with international or cross-national phenomena, with the emphasis on building a learning community through the seminar format and demanding a major research paper (roughly 20 pages in length, fully documented) as an exit project demonstrating knowledge and skills students are expected to have acquired in the program. Depending on which faculty member teaches the Senior Seminar, the topic may vary, but the essence of the course remains the same. Students are expected to demonstrate sophisticated knowledge along with critical thinking, oral and written communication, analytical, and research skills. As we have done with the Senior Seminar course we have been offering for years as part of our BA in Political Science curriculum, student research papers will be sent out to an external reviewer for assessment, with the results providing us feedback on whether we are meeting our program goals and what, if anything, needs to be improved. The department uses this assessment feedback to continually improve our curriculum and instruction.

As one concrete example, one international relations professor who has regularly taught the Senior Seminar in the BA in Political Science program has had students select a “global public policy” issue or concern of interest to them (say, global warming or tropical deforestation), research the nature and magnitude of the problem, formulate a policy proposal to address the problem, and, employing an analytical tool called “the PRINCE model,” assess the political feasibility of the proposal. The PRINCE model enables students to explore the political dynamics of the issue – determining the relevant political actors, along with the latter’s issue-position on the proposal in question, as well as their power and degree of saliency they attach to the issue – and predict the likely outcome. It is a practical exercise in politics that demands students demonstrate practical skills of research, analysis, and communication of the sort we want students to gain from the program.

When it comes to retention and graduation rates, the department will set the same goals for the BA in International Relations as benchmarked in the university’s strategic plan—an 82% first year retention rate and a 55% six-year graduation rate. The department has a six-year graduation rate of about 50% for freshman and about 60% for transfer students, so we believe this is an attainable rate, and one we hope to improve on. We expect to award 8 degrees in the third year and 13 degrees in the fifth year of the program. The freshman first year retention rate in Political Science has averaged 78.8% in recent years, so we also believe the university’s benchmark of 82% is attainable there. We also will set a transfer retention rate of 82%, as our six-year average has been 80.5%. We are setting these goals at what we believe to be reasonable for a new program and in alignment with university goals, but with a dedicated faculty advisor and departmental enthusiasm for the program, we plan on raising the benchmarks and the attainment numbers as the program becomes more established.

December 7-8, 2017

OPEN – AS&EA 1-25
According to the New York Federal Reserve (2017), the unemployment rate for those with a degree in International Affairs is 5.5%, slightly lower than the rate for those with a degree in Political Science, 5.7%. To further ensure our students’ career success after graduation, we encourage them to enroll in PS 3940 Public Affairs Internship. This course gives them real-world experience in an organization or business related to their field. Many of our students have been employed by these agencies after graduation.

We also require our students to have three years in a foreign language, and encourage them to participate in study abroad and pair the BA in International Relations with a minor in Languages & Cultures, Economics, or another related field. All of these are efforts to increase the likelihood that they can find employment in their field after graduation. So, we expect our placement rates to be high. We project a 95% employment rate. Based on Federal Reserve (2017) data on underemployment, 43.5% of recent college graduates are underemployed; we expect our students to experience a similar trend as others across the country, but will make efforts to engage them in the opportunities described above and connect them with career services, so their likelihood of being employed in their field will be higher than the national average.

https://www.newyorkfed.org/research/college-labor-market/college-labor-market_underemployment_rates.html

5.E. Student Preparation

U.M. – St. Louis campus, as mentioned above, serves a widely-varied community of learners ranging from beginning first-year students, transfer students from four-year colleges and two-year community colleges, international and domestic students, and mature students with corporate and military experiences. There are no special admission procedures that exceed regular university admission. The three 1000-level core courses for the B.A. in International Relations, POL SCI 1500, 1800 and 1820, are designed to introduce majors to the fundamentals of comparative politics and international relations. POL SCI 2000 is a required course which provides a set of skills in using quantitative and qualitative analyses. Following the completion of these core courses, students are given the opportunity to choose 4 out of 11 intermediate and advanced international relations courses and 3 out of 10 courses focusing on specific geographic areas and/or globalization-oriented courses. The final requirement is enrollment in POLI SCI 3950, a Senior Seminar in International Relations, which provides a capstone experience for graduating seniors.

5.F. Faculty and Administration

The Director of Undergraduate Studies for Political Science will be primarily responsible for the success of this program. She has collaborated with colleagues to develop the curriculum and proposal, and shepherd the program through the approval process. She advises undergraduate students in Political Science and plays a large role in the
department’s outreach efforts. Approximately 20% of her time will be dedicated to this program.

We will take advantage of utilizing whatever faculty resources in international relations and comparative politics we in Political Science now have, which is substantial. Estimates of time dedicated to this program follow the faculty member’s brief bio. This includes the following:

- Ruth Iyob, Professor of Political Science (Ph.D. University of California-Santa Barbara) – African and Middle East politics, diaspora studies, and international relations theory. 60% of time to program
- J. Martin Rochester, Curators’ Teaching Professor of Political Science (Ph.D. Syracuse University) – international law, politics and organization and US foreign policy 60% of time to program
- Jean-Germain Gros, Professor of Political Science (Ph.D. University of California-Berkeley) – African politics and comparative public policy. 40% of time to program
- Kenneth Thomas, Professor of Political Science (Ph.D. University of Chicago) – international political economy, international relations theory. 20% of time to program
- Joyce Mushaben, Curators’ Professor of Political Science (Ph.D. Indiana University) -- German and European politics, comparative politics, and gender studies. 20% of time to program
- Joel Glassman, Associate Professor of Political Science and Director, UMSL Office of International Studies and Programs (Ph.D. University of Michigan) – China and East Asian studies. 5% time to program

In addition, there are other faculty in the department who do research and teaching in international-related areas as secondary interests, including immigration studies. Part-time adjunct faculty can be used to cover courses which we cannot currently cover with regular faculty (e.g. Latin American studies).

The faculty listed above are all nationally and internationally known scholars who have published numerous books by respected presses and articles in respected journals. Professor Rochester, for example, is the author of 10 books and has published in the leading scholarly journals, including the American Political Science Review, International Organization, and International Studies Quarterly. Professor Mushaben has published 5 books, the latest on German Chancellor Angela Merkel, and authored articles in such prestigious journals as World Politics and the Journal of Peace Research, in addition to serving as president of the German Studies Association and as a Fulbright Scholar. Professor Gros has authored several books, most recently on African health care policy. Professor Iyob likewise has authored several books, with her work focusing especially on Eritrea, Sudan and the Horn of Africa. Professor Thomas has been a leading scholar of international political economy, having written several books and articles on multinational corporations and capital mobility and being widely quoted in
major media outlets worldwide. Professor Glassman is a well-known China specialist and, along with Gros and Rochester, has won a best teaching award at the university. Such is the quality of the faculty expected to instruct in the program, combining both scholarly and teaching expertise.

Full-time faculty will teach the vast majority of the courses in the BA in International Relations. For the fall semester, 8 courses are being offered in the major, and one is being taught by an adjunct. The rest are being taught by full-time faculty. We expect to add an additional adjunct after the first year, so we project that 80% of the courses will be taught by full-time faculty and 20% will be taught by adjunct faculty.

5.G. Alumni and Employer Survey

Currently we work with UMSL Career Services to use Qualtrics to email the postgraduate outcomes survey to graduates six months after graduation. Based on the new funding requirements from the Missouri legislature, additional data are now being collected on outcomes. We are working with Career Services and Institutional Research to collect additional data asking graduates to define where they are—employed, graduate school, military, etc; if their current position related to their degree; if their position is commensurate with their degree level; and satisfaction rates. Our undergraduate survey response rate average is 44% for the last four years. For that time the respondents have reported a professional success rate of 74% (employed in a field that directly or somewhat relates to their degree/career goals or pursuing further education). The respondents also report a 94.5% comprehensive success rate (employed or pursuing further education). Of course, this data is self-reported from less than half of our graduates. To supplement the survey data, Career Services also has student workers investigating graduates’ positions on social media such as LinkedIn and Facebook. We will have that data as well in the future. Based on our professional success rate of 74%, we would expect our satisfaction rates to be at least 74%.

The department will work with Alumni Relations, Institutional Research, and Career Services to develop a survey for employer feedback. Career Services currently is using the postgraduate outcomes survey data as well as social media research to develop a list of employers. The department will use that list to distribute annual surveys. We expect employer satisfaction rates to be at least 85% satisfied.

5.H. Program Accreditation

While the Association of Professional Schools of International Affairs is an accrediting body for graduate programs, there is no specialized accreditation for an undergraduate International Relations program. So, the department has no plans to seek specialized accreditation at this time.
Appendix A: Letters of Support
Friday, April 7, 2017

J. Martin Rochester
Curators’ Distinguished Teaching Professor of Political Science
University of Missouri-St. Louis
One University Blvd.
St. Louis, MO 63121

Dear Professor Rochester,

I am writing in regards to the news that the creation of a Bachelor of Arts in International Relations (IR) degree is being considered by the University of Missouri-St. Louis (UMSL). This is very welcome and is great news for future students of UMSL who someday aspire to have a career in international affairs.

I would have benefited from such a degree myself. Even though I was determined to have a future career in international affairs when I was an undergraduate at UMSL (2000-2002), the only academic route I had to help me achieve this was completing a Bachelor of Arts in Political Science in conjunction with an International Affairs certificate. While the certificate program is better than nothing, in my opinion it only skirts around the edges of what is required for a well-rounded understanding and knowledge of IR.

Consequently, in many ways I felt that I was slightly behind some of my colleagues, at least in the early stages of my career, when it came to possessing a fundamental core knowledge of IR. This was particularly true during my graduate studies at the London School of Economics and Political Science when I felt like I had only a partial view of IR and had to quickly play ‘catch-up’ with my fellow classmates who possessed an IR undergraduate degree.

In this day and age, with inward looking and isolationist tendencies becoming increasingly prevalent and acceptable in the USA, it is more important now than at any time since the Cold War that the next generation of American foreign policy practitioners have the best education and training opportunities available. Therefore, I do hope that the proposal for an undergraduate degree in IR will soon become a reality at UMSL.

If you have any questions I can be reached at luke.coffey@heritage.org or 703-341-9663.

Yours faithfully,

Luke Coffey
Director, Douglas and Sarah Allison Center for Foreign Policy
April 19, 2017

To Whom It May Concern:

As the Director of Undergraduate Admissions at the University of Missouri-St. Louis, it is my pleasure to support the International Relations major within the Department of Political Science. The courses and curriculum that Dr. Manion and her colleagues have put together for this degree program are tremendous! This is such an exciting time in the history of our nation and world, and many students are seeking out new options for their studies. I hear many students interested in more global options to our degree offerings. While International Business has received national acclaim, there are many students who have more of a political or public policy interest that cannot be satisfied by the business option. Thus, the need for the International Relations degree program here at UMSL.

In addition, most companies and organizations are now thinking more globally, and are looking for college graduates who have an understanding and appreciation of how the United States relates to other countries with regard to trade, business, and in the political arena. This program will adequately prepare UMSL graduates to compete in this new marketplace.

I wholeheartedly support the approval of the International Relations major at UMSL. The interest is definitely there. We need this program to keep up with local competitors, as well as to revive interest in U.S./foreign relations.

Feel free to reach out to me should you need any further comments or action supporting the International Relations program at UMSL. I may be reached at 314-516-6941 or askdrew@umsl.edu. Thank you for your consideration.

Respectfully,

Drew Griffin
Director of Admissions
University of Missouri-St. Louis
Prof J Martin Rochester
University of Missouri St. Louis
One University Blvd
St. Louis, MO 63121

Dr. Rochester,

Kraig Holt and I would like to extend our thanks and gratitude for your continued interest in and your
tremendous support to the National Geospatial Intelligence Agency’s internship program. For me personally,
your mentorship and guidance has proved to be invaluable.

We were privileged to participate in the Career Fair this past May as both NGA employees and UMSL alumni.
We spoke to many students enrolled in a variety of programs. NGA values and appreciates diversity in
education, and we recognize that UMSL offers a wide assortment of programs. As it relates to International
Affairs, NGA values these degree programs for their ability to provide the social, political, and economic
context for NGA’s mission, as well as prepare students with the ability to analyze and convey data to their
leadership and external customers. International Affairs degrees rank in the Top 5 degrees of current analyst
incumbents within the Agency, and NGA continues to seek out candidates with international affairs experience
and education, particularly at the Masters level. As NGA employees and alumni of the Political Science
program at UMSL, we understand and appreciate the value that an advanced degree in International Affairs
would provide to prospective NGA employees.

Thank you again for your support to the Agency’s internship program.

Best regards,

Janet Drake, PhD

Kraig Holt
Dear Professor Rochester,

I am writing today to voice my strongest support for the establishment of a Bachelor of Arts degree in International Relations, to be housed within UMSL’s Department of Political Science. During my undergraduate studies at UMSL, I informally pursued an emphasis in International Relations. Although I am satisfied with my career trajectory, which was positively impacted by my undergraduate studies in Political Science at UMSL, students like myself would have strongly benefited from a formal degree program in International Relations. As a public land grant institution (and the only one of its type in the St. Louis region), UMSL has an obligation to provide its students with an avenue through which to formally study International Relations. In an increasingly competitive and global career market, this would enable its graduates to stay competitive with those who have completed undergraduate degrees through more formalized and specialized International Relations programs.

The International Relations courses I took at UMSL provided me a strong analytical foundation which I have relied on extensively since graduating in 2013. These courses have enshrined in me an analytical rigor, both qualitative and quantitative, and have extensively shaped the way I view the world and approach problem-solving in the interconnected and complex world we find ourselves in. The informal program I pursued pushed a development of skills that is essential to success in the civil service sector.

In my Introduction to International Politics course, I learned about the theoretical constructs that underpin the international political order. Here, my instructor cultivated in me the need to assess global problems through a global lens. In my International Organizations class, I learned about various Intergovernmental Organizations, their evolutions, and their importance within an evolving and interdependent world order. I used (and continue to use) the lessons I learned in these courses daily when thinking about the complicated world of national security and international order. The personalized instruction that I received from the faculty helped prepare me for the challenges I see every day working in our nation’s capital. I am eternally grateful to the superb staff of instructors at UMSL, who learned to innovate and do more with less in continuously declining budget environments. I would not be where I am professionally without them or the classes they have taught.

The strength of our nation rests in part on our diversity—I see this day in and day out when working for the Joint Chiefs of Staff at the Pentagon. When thinking about the national security problem set, more lenses are better—and UMSL can provide the national security community with a different, unique set of lenses. UMSL’s obligation to educate those who wish to pursue careers in national security would be much more effectively met with an institutionalized and formal degree path for International Relations, enabling students from the St. Louis area to be competitive in extremely competitive career fields. UMSL and its students would benefit as much as the national security establishment. The formalization of International Relations as a degree path has my highest endorsement!

Respectfully,
Adis Alagic
The Pentagon
Washington, DC
Appendix B: Abbreviated Syllabus for New Course

PS 1820  Theories of International Relations  Spring 2017

Instructor: Professor Iyob.  Office Hours: Tu/Th 12:30-1:00 pm Weds. by appointment.
Class Time: Tues. & Thur.11-12:30  Office Address: Social Science Building #800
Class Room: Clark Hall #412  E-Mail: iyob@umsl.edu  Telephone: 314-516-6372

This course provides the foundation for an informed discourse on international relations and the diverse theoretical perspectives that lead to analyses of the causes of war, conditions of peace, humanitarian intervention, hegemonic cooperation and globalization. Students will examine the various theories that offer explanations to real-world problems and dilemmas, ranging from justification of wars, defense of the right of nations to protect their interests as well as the right of human beings to fundamental freedoms, the relationship of knowledge to power and established and emergent theories and practices in global politics. The course format includes class lectures, case studies and group discussions.

Students are encouraged to meet with the professor to discuss course-related concerns, assignments, and progress throughout the semester.


Additional Readings, video podcasts and social media reports will be posted on MyGateway.

Course Requirements: Participation: 30  Exam#1: 40  Exam #2: 60  Case Study: 70
Executive Summary

Biomedical engineers integrate principles of engineering and biomedical sciences to solve medical problems and meet healthcare needs. Biomedical engineering (BME) is one of the fastest growing sectors of industry nationally and in Missouri, and was recently ranked #1 by Forbes in its “Most Valuable College Majors” based on Bureau of Labor Statistics data. Missouri, however, is one of the few states in the country that do not offer a BME major in its public universities.

BME has been the main track, though not an official emphasis, of the BS in Biological Engineering (BE) program at the University of Missouri (MU) since 1997. The BE program has been accredited by ABET (the national accreditation organization) for multiple cycles and the BME track defines a curriculum that is not different from other accredited BME programs. Because BE and BME programs are now accredited separately by ABET, however, the BME track no longer serves student and industry needs. We, therefore, propose to convert the BME track into a BS degree program (BS BME) so that it can be ABET-accredited separately.

The proposed BS BME program, the first and only one in Missouri public institutions, is well aligned with the mission and goals of MU. MU identified “One Health, One Medicine” as an advantage and aims to invest in new innovative degree programs that build on its strengths. MU’s College of Engineering recently established “Biomedical Innovations” as a major pillar of pursuit. A key mission of the Dept. of Bioengineering has been to bridge engineering and medicine.

The program will attract new students. The BME track grew to nearly 300 outstanding students three or four years ago with approximately 40% women, the highest in engineering majors. The lack of a separate accreditation, however, has led students to go elsewhere in recent years. The conversion will bring at least 10 new students each year over the first five years. We expect to award 50 to 65 degrees per year.

The program will begin to produce a positive net revenue in the fourth year and onward based on new students and Engineering course income only, and it will do so from the start if the total MU revenue is considered. The necessary faculty, courses, advising personnel and materials, and other infrastructure are already in place; and thus, few additional resources are required. Any initial deficits will be covered by the college and department. Moreover, as part of MU’s strategic investment in engineering, at least a dozen new BME faculty will be hired regardless of the proposed program conversion. The tuition and fee revenues from new students will rapidly outgrow the anticipated expenses.

Success of the program is measured by attainment of our program educational objectives (PEOs) and student outcomes (SOs), as entailed by the ABET accreditation process. We have a well-established system for yearly SO assessment and evaluation for continuous improvement. PEO attainment is evaluated periodically via alumni surveys and by an employer focus group. We anticipate little difficulty in receiving expeditious accreditation of the BS BME program. The program as a track in the BE program has been successful by all measures and we are confident that the conversion into a separate accredited program will allow it to reach new heights.

December 7-8, 2017
No. 2

Recommended Action – Masters of Science in Biomedical Engineering, University of Missouri, Columbia

It was recommended by Sr. Associate Vice President Steve Graham, endorsed by President Mun Choi, recommended by the Academic, Student and External Affairs Committee, moved by Curator ______________, seconded by Curator ________________, that the following action be approved:

that the University of Missouri, Columbia be authorized to submit the attached proposal for a Masters of Science in Biomedical Engineering to the Coordinating Board for Higher Education for approval.

Roll call vote of the Committee: YES NO

Curator Farmer
Curator Layman
Curator Phillips
Curator Snowden
The motion ____________.

Roll call vote of Board: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold
The motion ____________.
Masters of Science, Biomedical Engineering

University of Missouri-Columbia
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Executive Summary

Biomedical engineers integrate principles of engineering and biomedical sciences to solve medical problems and meet healthcare needs. Biomedical engineering (BME) is one of the fastest growing sectors of industry nationally and in Missouri, and was recently ranked #1 by Forbes in its “Most Valuable College Majors” based on Bureau of Labor Statistics data. Missouri, however, is one of the few states in the country that do not offer a BME major in its public universities.

BME has been the main track, though not an official emphasis, of the BS in Biological Engineering (BE) program at the University of Missouri (MU) since 1997. The BE program has been accredited by ABET (the national accreditation organization) for multiple cycles and the BME track defines a curriculum that is not different from other accredited BME programs. Because BE and BME programs are now accredited separately by ABET, however, the BME track no longer serves student and industry needs. We, therefore, propose to convert the BME track into a BS degree program (BS BME) so that it can be ABET-accredited separately.

The proposed BS BME program, the first and only one in Missouri public institutions, is well aligned with the mission and goals of MU. MU identified “One Health, One Medicine” as an advantage and aims to invest in new innovative degree programs that build on its strengths. MU’s College of Engineering recently established “Biomedical Innovations” as a major pillar of pursuit. A key mission of the Dept. of Bioengineering has been to bridge engineering and medicine.

The program will attract new students. The BME track grew to nearly 300 outstanding students three or four years ago with approximately 40% women, the highest in engineering majors. The lack of a separate accreditation, however, has led students to go elsewhere in recent years. The conversion will bring at least 10 new students each year over the first five years. We expect to award 50 to 65 degrees per year.

The program will begin to produce a positive net revenue in the fourth year and onward based on new students and Engineering course income only, and it will do so from the start if the total MU revenue is considered. The necessary faculty, courses, advising personnel and materials, and other infrastructure are already in place; and thus, few additional resources are required. Any initial deficits will be covered by the college and department. Moreover, as part of MU’s strategic investment in engineering, at least a dozen new BME faculty will be hired regardless of the proposed program conversion. The tuition and fee revenues from new students will rapidly outgrow the anticipated expenses.

Success of the program is measured by attainment of our program educational objectives (PEOs) and student outcomes (SOs), as entailed by the ABET accreditation process. We have a well-established system for yearly SO assessment and evaluation for continuous improvement. PEO attainment is evaluated periodically via alumni surveys and by an employer focus group. We anticipate little difficulty in receiving expeditious accreditation of the BS BME program. The program as a track in the BE program has
been successful by all measures and we are confident that the conversion into a separate accredited program will allow it to reach new heights.

1. Introduction

Biomedical engineers apply principles of engineering and biomedical sciences in solving medical problems and meeting healthcare needs. They design, analyze, and implement systems, devices, and processes for medicine and health. They measure and interpret data from living systems and solve problems involving interactions between living and nonliving systems. They are employed by medical/healthcare companies (such as manufacturers of implants and other devices, equipment and instruments, pharmaceuticals, and healthcare management systems), hospitals, government (such as regulatory agencies), universities, and research organizations. A significant number of students take biomedical engineering (BME) as their pre-medicine major.

The BME curriculum at the BS level consists of basic sciences (math, physics, chemistry, biochemistry, biology, and human physiology), general education courses, engineering fundamentals (such as thermodynamics and fluid mechanics), and specialty courses, which include a major design experience. The main difference between BME and other engineering majors is in the requirement of biological sciences and in the specialty courses.

To capitalize on the breadth and strengths of MU in life sciences, we established the Biological Engineering (BE) program in 1997. The vision was that BE would be a broad-based program with a strong emphasis on biomedical engineering (BME), in addition to bioprocess engineering and bioenvironmental engineering. BME has been an unofficial but primary track of the BE program since its inception.

When the BE program was established 20 years ago, there was not a common definition of the “bio”-related engineering degree names (bioengineering vs. biological engineering vs. biomedical engineering); thus, we chose what seemed to fit our vision the best. The BS BE program has been accredited by ABET (the accreditation organization for engineering, computer science, and technology programs) under the BE name. In recent years, however, a level of differentiation began to emerge, in part because of changes in the ABET engineering program accreditation criteria and in part because of increased industry needs. There are now separate accreditation criteria for BE and BME. As a result, many in industry have begun to consider BE as a program that focuses on non-medical problems, which is not what we intended.

While BME has not been a separate degree program, we in fact have had a BME curriculum at MU for nearly 20 years. Our BME track defines a curriculum that is not different from those of ABET-accredited BME degree programs offered elsewhere in the country. The track has attracted a large number of outstanding undergraduate students to MU. Because of the emerging differentiation between BE and BME, however, having BME as part of BE no longer serves the students’ needs because the BME track cannot be ABET-accredited as a separate degree program.
To meet student and industry needs, we propose to convert the BME track into a separate BS degree program in Biomedical Engineering (BS BME) so that it can be ABET-accredited separately. The remaining ABET-accredited BE program will focus on bioprocess engineering and bioenvironmental engineering.

Both the BME and the BE programs will continue to be supported by the Department of Bioengineering faculty, which will allow us to continue to build on the efficiency and effectiveness afforded by the synergy between the two programs as we originally envisioned. The Bioengineering faculty, led by Dr. Jinglu Tan, Professor and Chair (tanj@missouri.edu, 573-882-2369), will be responsible for the success of the program.

2. Fit with University Mission and Other Academic Programs

2.A. Alignment with Mission and Goals

*University of Missouri (MU) Mission Statement:* Our distinct mission, as Missouri’s only state-supported member of the Association of American Universities, is to provide all Missourians the benefits of a world-class research university. We are stewards and builders of a priceless state resource, a unique physical infrastructure and scholarly environment in which our tightly interlocked missions of teaching, research, service and economic development work together on behalf of all citizens. Students work side by side with some of the world's best faculty to advance the arts and humanities, the sciences and the professions. Scholarship and teaching are daily driven by a commitment to public service — the obligation to produce and disseminate knowledge that will improve the quality of life in the state, the nation and the world.

As a public land-grant institution, MU strives to provide Missourians the benefits of world-class research, education, and service. Without a strong, accredited BME program, however, MU would fall short of fulfilling its missions of meeting the needs of a rapidly-growing biomedical industry in the state and educating young Missourians for employment opportunities in one of the most exciting and fastest-growing fields. The proposed BME program, the only one in Missouri public institutions, is thus important for MU to meet its obligations. As shown by its program educational objectives (see Section 5.A), the BME program is designed to produce not only great engineers, but also graduates that can interact effectively with life science and other professionals to integrate engineering with biological sciences. This interdisciplinary capability allows BME graduates to become leaders and entrepreneurs, and thus contribute to the pursuit for economic development and improved standards of living in Missouri, as stated in the MU Mission Statement.

As a major part of its current strategic plan and priorities, MU aims to “enhance its strengths to prepare graduates to face tomorrow’s challenges” by “investing in new innovative degree programs that build on MU’s strengths.” MU is one of only a handful of universities in the country with engineering, medicine, veterinary medicine, and agriculture on the same campus. More than 1,000 faculty scientists work to improve human and animal health, food, and the environment. As a result, MU identified “One Health, One Medicine” as a “Mizzou Advantage”. The proposed BME program builds on
MU has recognized the importance of BME in each of its strategic initiatives in recent years. In fact, the Bioengineering Department and its programs were created and then enhanced first by the MU “Life Sciences Mission Enhancement” program and then by the “Mizzou Advantages” initiative. In addition to campus investments, the College of Engineering (CoE), CAFNR, School of Medicine (SoM), Dalton Cardiovascular Research Center, Life Sciences Center, and Veterinary Medicine have all contributed to faculty hiring in the Dept. of Bioengineering. The BE program and the BME track, in particular, have played an important role in forging collaborations among these units.

MU strives to advance its national and international stature by building on its strengths afforded by a comprehensive and collaborative campus. To achieve this goal, it is imperative that CoE and SoM work together to substantially advance their research and education programs. New leadership has been recruited and major resources have been committed to the two colleges. In this context and given the additional strengths in Veterinary Medicine, CoE has recently established “Biomedical Innovations” as one of its four strategic pillars to invest in and to build on. The interdisciplinary nature of BME makes the program strategically important for the campus, the colleges involved, and the department.

The Dept. of Bioengineering has served as an important link between engineering and medicine. For example, the department led the MU effort to win a Coulter Translational Partnership in Biomedical Engineering award (though our degree program does not bear the BME name). The award, a $5.2M contract with the Coulter Foundation, was based on the strengths and potential of an awardee for translational programs in BME. MU joins an elite group of only 15 universities in the nation that have this program. The program has made a measureable positive impact at MU on federal research funding, faculty innovation, engineer-clinician collaboration, and BME education. This is a clear strength and momentum the campus, CoE, SoM, and the department should continue to enhance.

2.B. Duplication and Collaboration within Campus and across System

There are currently no BS BME degree programs within the University Missouri System (UM). In fact, there are no BS BME programs in public institutions in the state of Missouri.

The Materials Science & Engineering Department at Missouri University of Science & Technology (Missouri S&T) recently announced an undergraduate minor in BME, which is supported with courses from Biological Sciences, Chemical Engineering, and Materials Science & Engineering. Missouri S&T has significant strengths in engineering and a great deal of interest in biomedical applications, while MU has strengths in engineering and clinical/biomedical sciences. The Missouri S&T minor and the MU major will thus be complementary rather than competitive. The minor will serve Missouri S&T engineering students that have a BME interest and the MU major will meet the needs of students interested in majoring in BME.
We have explored and will continue to explore opportunities to collaborate. For example, MU could provide courses unavailable at Missouri S&T and we may exchange students for undergraduate research, which is an important component of BME programs. We feel strongly that the MU major and the Missouri S&T minor will be conduits for faculty collaborations. Recently, the MU Coulter Program (led by Bioengineering and supported by MU Engineering and Medicine) funded a biomedical innovation project led by Dr. Len Rahaman, a Missouri S&T professor of Materials Sci. & Eng. involved in the BME minor, and Dr. Sonny Bal, an MU professor of Orthopedic Surgery. As we move forward, we anticipate more and more collaborations in both education and research.

3. Business-Related Criteria and Justification

3.A. Market Analysis

3.A.1. Need for Program
Nationally, biomedical engineering has been and will continue to be a top field in terms of job and wage growths. New technologies and their applications to medicine, along with an aging population, will increase the demand for biomedical engineers in the decades to come.

According to the Bureau of Labor Statistics:

- Jobs in BME are on track to grow by 72% from 2010 to 2018, making BME one of the fastest expanding fields of employment.
- The strong trend will continue with a projected growth rate of 23% from 2014 to 2024, much faster than the average of all occupations.
- With a median entry-level salary at $61,815, mean annual salary at $91,230, and top 10% salary at $139,520; BME is also one of the top fields in pay and pay growth.

The biomedical industry is no longer concentrated in just a few areas in the country. It is also a rapidly-growing sector in the Midwest and in Missouri (See Figure 3.1). One directory lists approximately 900 life sciences companies in Missouri and the greater St. Louis and Kansas City areas, and a large percentage of these companies are biomedical. Besides established companies such as Mallinckrodt, Cerner and MRIGlobal, which have hired quiet a number of our BME-track graduates, there are a large and growing number of startup companies in the state. With the “I-70 Life Sciences Corridor” initiative, this number will continue to grow, creating

Figure 3.1. Location quotient of biomedical engineers (from Bureau of Labor Statistics website)
demand for BME graduates. In Missouri, biomedical engineers earn a median salary of $70,270 per year. Salaries typically start from $45,070 and go up to $138,180.

Missouri is one of the few states in the country that do not offer a BME degree program in its public universities. As of 2017, there are 107 ABET-accredited BS BME degree programs in the United States. Nearly all states with a biomedical industry offer at least one BME degree program in their public universities. These include all the states Missouri borders except Kansas. As a comparison to other states in the Midwest, Illinois has 4, Ohio has 8, Indiana has 3, and Michigan has 5 BME degree programs in their public universities.

While the BME-track at MU has, to an extent, fulfilled the needs by the industry in Missouri and the surrounding area, it is no longer adequate because the track is not an ABET-accredited degree program in BME, which is increasingly noticed by both industry and students. Enrollment has seen a decrease (see next subsection) and industry wants accreditation. As shown above by the Bureau of Labor Statistics and other projections, the biomedical industry and demand for BME graduates will continue to grow at a high pace in Missouri, the surrounding region, and the nation. The proposed program will therefore be important for Missouri and the region to be competitive in the biomedical industry, which will be a major driver for future economic growth in Missouri.

The Bioengineering Advisory Council (BEAC, our industry advisory board) enthusiastically supports our plan to convert the BME track into a separate degree program and seek ABET accreditation of the program under the BME criteria. Two representative members have provided support letters (see letters in the Appendix).

- Dr. Jason Gordon, Section Manager of System Design & Testing at MRIGlobal in Kansas City; and
- Dr. Sudeep Basu, Global Practice Leader, Innovation Services, Frost & Sullivan, a major business consulting company based in Mountain View, CA.

Lastly, we conduct an exit survey and interview of all graduating seniors every semester. In recent years, there have been 20 to 40 students completing their degrees in the BME track per semester. An increasing number of BME-track graduates suggest that we make the BME track a separate degree program. During the exit interviews in recent semesters, almost all students responded positively to the question regarding whether we should convert the track into a separate BME degree program.

### 3.A.2. Student Demand for Program

Enrollment projections are not needed to demonstrate the student demand for the program because we have years of actual enrollment data. The enrollment in the BME track grew from a couple of dozen initially to nearly 300 students in 2014 (See Figure 3.2). An enrollment of this size will make the program not just viable but one of the largest majors at MU. After the conversion to a separate degree program, we expect to gain at least 10 new students per year over the first five years (Table 1b).
In the past few years, however, we have seen a notable decline in enrollment. Part of the decrease may be associated with the overall enrollment reduction at MU, but, given the strong interest in BME, we know that the decrease is partially because ours is not an ABET-accredited BME program. An increasing number of perspective students who visit us have asked about our program structure and later decided to go elsewhere to pursue a BME degree.

Strong demand for the BME degree program is also evident around the country. Despite the rapid increase in the number of BME programs, demand for the program is not yet met. At a number of peer institutions (such as Michigan, Wisconsin, and Purdue), the BS BME program has a waiting list and declines many qualified applicants every year.

Based on student demand for a BME program and our past experience with the BME track, we are confident that the conversion to a separate degree program will reverse the enrollment decline and gain new students. The projected enrollment numbers are shown in Table 1a.

Table 1a. Student Enrollment Projections (anticipated total number of students enrolled in program during the fall semester of given year).

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>250</td>
<td>260</td>
<td>270</td>
<td>280</td>
<td>290</td>
</tr>
<tr>
<td>Part-Time</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>265</td>
<td>275</td>
<td>285</td>
<td>295</td>
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</tbody>
</table>

From our interactions with prospective students who would have come to MU, we are certain that the conversion will attract at least 10 new students each year to MU over the next five years as shown in Table 1b. We expect to award 50 to 65 degrees per year (Table 1c).

Table 1b. Student Enrollment Projections (anticipated number of students enrolled during the Fall semester of each year who are new to campus).

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Part-Time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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</table>

Table 1c. Projected Number of Degrees Awarded

<table>
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<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

Table 3.2. Enrollment in the BME track
(Note, since F2014, CoE freshmen are no longer admitted into and thus counted in a major. For data consistency, however, the chart includes freshmen that intended to enter the BME track after 2014.)
3.B. Financial Projections

3.B.1. Additional Resources Needed

Since we have had BME as a track for two decades, the faculty, courses, labs and other infrastructure are already in place and few additional expenses are required to offer the basic program. Our goal, however, is to have a nationally-recognized program in the area. With the proposed conversion, significant improvement of the program is expected as a result of the MU strategic investment in the College of Engineering (CoE).

As part of its strategic plan and in partnership with MU School of Medicine (SoM) and other units, MU CoE is currently recruiting to add at least 15 new faculty members in its strategic pillar area of Biomedical Innovations (See support letters from Deans Lobo and DelaFontaine in the Appendix). These new hires are part of the MU strategic investment and will be made regardless of the proposed program conversion. While these new hires may not be exclusively housed in the Dept. of Bioengineering, a substantial percentage of them will have a joint appointment in the department and contribute to the BME teaching program, and all will contribute to BME research and undergraduate mentoring.

3.B.2. Revenue

The proposed new program will bring new revenues to MU through the following mechanisms:

- It will attract additional undergraduate students to MU and thus generate new tuition revenue. As shown in Table 1b, we are confident that converting the BME track into a separate BS degree program will attract at least 10 new undergraduate students each year in the first five years.
- It will help attract faculty talents in BME who will bring new grants and contracts to MU. BME is a rapidly-expanding area of research with significant funding opportunities at the federal level.

3.B.3. Net Revenue

The program will produce a positive net revenue for MU. As discussed in Subsections 3.B.1 and 3.B.2 above, there are already over 200 students who will move into the program and we expect to gain at least 10 new students per year in each of the first five years. The basic needs are already met and we are adding new faculty regardless. For the added new students, a ½-FTE TA and additional lab supplies are budgeted. Renovation of a teaching lab space may be needed in the third year for additional lab experiences the new faculty may add. These needs will be covered by the college and the department, and no new resources are requested from the campus. Table 2 shows the tuition and fee revenue from only the new students in two ways. One is based on Engineering courses only (3, 8, 18, and 28 engineering credit-hours in the first, second, third, and fourth year; respectively), and the other based on the total MU credit-hours (32/year) they take. The net and cumulative revenues are based on Engineering courses only. The program will

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begin to produce a positive net revenue in the fourth year and onward based on
Engineering course income only, and it will do so from the start if the total MU revenue
is considered.

As explained above, there are students already to make the program financially and
academically viable.

Table 2. Financial Projections for Proposed Program for Years 1 through 5

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Expenses per year</strong></td>
<td></td>
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<tr>
<td><strong>A. One-time</strong></td>
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<tr>
<td>New/Renovated Space</td>
<td></td>
<td></td>
<td>292,500</td>
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<tr>
<td>Equipment</td>
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<td>Library</td>
<td></td>
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<tr>
<td>Consultants</td>
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<td></td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Total one-time</strong></td>
<td></td>
<td></td>
<td>292,500</td>
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<tr>
<td><strong>B. Recurring</strong></td>
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<tr>
<td>Faculty</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Staff (GTA)</td>
<td>24,000</td>
<td>24,840</td>
<td>25,709</td>
<td>26,609</td>
<td>27,541</td>
</tr>
<tr>
<td>Benefits</td>
<td></td>
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<tr>
<td>Equipment</td>
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<tr>
<td>Library</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other (lab supplies)</td>
<td>1,100</td>
<td>2,200</td>
<td>10,860</td>
<td>11,960</td>
<td>11,960</td>
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<tr>
<td><strong>Total recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total expenses (A+B)</strong></td>
<td>25,100</td>
<td>27,040</td>
<td>329,069</td>
<td>38,569</td>
<td>39,501</td>
</tr>
<tr>
<td><strong>2. Revenue per year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tuition/Fees:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Courses Only</td>
<td>10,750</td>
<td>45,848</td>
<td>136,059</td>
<td>320,909</td>
<td>327,260</td>
</tr>
<tr>
<td>All MU Courses</td>
<td>76,059</td>
<td>195,696</td>
<td>320,643</td>
<td>479,733</td>
<td>489,299</td>
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<tr>
<td><strong>Institutional Resources</strong></td>
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<tr>
<td>State Aid -- CBHE</td>
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<tr>
<td>State Aid -- Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Total revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Eng courses only)</td>
<td>10,750</td>
<td>45,848</td>
<td>136,059</td>
<td>320,909</td>
<td>327,260</td>
</tr>
<tr>
<td><strong>3. Net revenue (loss) per year</strong> (based on Eng course income only)</td>
<td>(14,395)</td>
<td>18,808</td>
<td>(193,011)</td>
<td>282,340</td>
<td>287,759</td>
</tr>
</tbody>
</table>
4. Cumulative revenue (loss) (based on Eng course income only) | (14,395) | 4,413 | (188,598) | 93,743 | 381,502

* Note: The net and cumulative revenues are based on new students and Engineering courses only. The initial deficits will be covered by the college and the department.

Table 3. Enrollment at the End of Year 5 for the Program to Be Financially and Academically Viable

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Full-Time</th>
<th>Part-Time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

3.C. Business and Marketing Plan: Recruiting and Retaining Students

This is a formalization of a BME program people around the country know we have had for a long time as we have had continuous presence in the BME community nationally and internationally. For example, we have had an official student chapter of the Biomedical Engineering Society or BMES (the overarching professional society for BME), we have been a Coulter program as described earlier, and we have been a member of the Academic Council of the American Institute for Medical & Biological Engineering (AIMBE). Consequently, a formal announcement of the new degree program could cause confusion and is thus not planned.

Rather than marketing the program as a new one, we will promote the program by taking the following steps:

- Seek ABET accreditation as soon as the program is eligible (see Subsection 5.H), which will be the most fruitful promotional effort;
- Increase the program visibility by increasing participation in national/regional student activities such as various competitions;
- Grow awareness of the BME program through Engineering Summer Camp, Mizzou Engineering Awareness Night, and other recruiting events; and
- Update program materials, websites, and catalogs.

As the only BME major in Missouri public universities, we anticipate no major difficulty in attracting more students to reach or exceed the enrollment goals, as we have done with the BME track. Our recruiting efforts will focus on high-caliber students. Attracting high-achieving students entails a strong reputation in terms of faculty, curriculum, success of graduates, and other indicators. Enhancing the national and international stature of the Bioengineering Department has been and will continue to be our goal and recruiting strategy.

The recruiting activities are what we do regularly and thus no significant additional expenses are expected.

Over the years, we have regularly refined our student advising and mentoring process, course prerequisites and sequence, and student record monitoring system. These efforts, along with student success resources the campus and the college provide, have allowed us
to retain over 80% of our BME-track students through graduation. We will continue these efforts.

4. Institutional Capacity

Since the curriculum has actually existed at MU for almost 20 years, no extra burden on campus resources is expected. In particular, because enrollment reached a peak three or four years ago, we have already dealt with capacity issues related to classroom size, lab equipment and setups, and class offering frequency. Modest increases in enrollment will not add significant strains to the existing resources.

5. Program Characteristics

5.A. Program Outcomes

ABET accreditation requires that each program has defined program educational objectives (PEOs) and student outcomes (SOs). The SOs are to be regularly assessed and evaluated to assure attainment of the PEOs. The process is detailed in Section 5.D. The PEOs and the SOs for the BME-track students along with BME-specific experiences are as follows.

The PEOs are that graduates of the BS in biomedical engineering program will, within 3-5 years of graduation:

1) Show proficiency in quantitative analysis, engineering design and development.
2) Interact effectively with life science and other professionals.
3) Leverage principles of biological and engineering sciences for the design and development of innovative systems.
4) Demonstrate leadership and professionalism as they continually add value to their chosen field of endeavor.
5) Succeed in advanced study in engineering, medicine or other fields, if pursued.

To attain the PEOs, students will achieve the following SOs, by the time of graduation:

a. an ability to apply knowledge of mathematics, science and engineering;
b. an ability to design and conduct experiments, as well as to analyze and interpret data;
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
d. an ability to function on multi-disciplinary teams;
e. an ability to identify, formulate and solve engineering problems;
f. an understanding of professional and ethical responsibility;
g. an ability to communicate effectively;
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
i. a recognition of the need for, and an ability to engage in, life-long learning;
j. a knowledge of contemporary issues;
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice; and
l. an ability to integrate engineering and biological sciences in developing systems and processes to fulfill unmet needs in medicine and human health.

Specific to the program, the curriculum will provide both breadth and depth across the range of engineering and science topics consistent with the PEOs and SOs. The curriculum will prepare graduates with experience in:

- applying principles of engineering, biology, human physiology, chemistry, calculus-based physics, mathematics (through differential equations), and statistics;
- solving bio/biomedical engineering problems, including those associated with the interaction between living and non-living systems;
- analyzing, modeling, designing and realizing bio/biomedical engineering devices, systems, components, or processes; and
- making measurements on and interpreting data from living systems

5.B. Structure

The program has the structure of typical engineering programs but requires additional courses in chemistry and biological sciences. It requires 126 credit hours comprising:

- 21 hours of general education courses;
- 19 hours of math (through differential equations) and statistics;
- 28 hours of basic sciences including university physics, chemistry, biology, and human physiology;
- 14 hours of basic engineering courses;
- 18 hours of biomedical engineering courses including a major design experience;
- 24 hours of upper-level engineering courses from approved lists to build a focus in an area of interest; and
- 3 hours of free electives.

5.C. Program Design and Content

The curriculum is designed to attain the program education objectives, student outcomes, and specific experiences required by ABET for accreditation of BS degree programs in biomedical engineering as listed in Section 5.A. The structure and basic requirements have not fundamentally changed since its inception nearly two decades ago, but adjustments have been continuously made, primarily in the courses offered by the department, as a result of the ABET assessment, evaluation, and continuous improvement process. The process includes the following steps or activities:

- Yearly student outcomes (SO) assessment by using various instruments including exams, projects, national exams, and surveys;
- Yearly evaluation of the SO level of attainment by analyzing SO data and using quality control tools; and
- Design and implementation of improvement actions in terms of course design, content, student activities and experiences.
The following groups have been involved in the process and have been providing inputs regularly:

- Department faculty,
- Current students,
- Alumni, and
- Industry Advisory Board (BEAC).

The course sequences in the major are shown in Figure 5.1 on the next page. There are primarily two parallel sequences students need to follow till they reach the technical courses in the major:

- A math, physics, and basic engineering sequence; and
- A chemistry, biology, and bioscience sequence.

The two sequences feed into the required or elective technical courses in the major as illustrated in the figure.
Figure 5.1 Flowchart of the main technical courses of the BS BME program.
# Program Structure

1. **Total Credits Required for Graduation:** 126

2. **Residency Requirements, if Any:**

3. **General Education**

   Total credits for general education courses: 21

   Courses (specific course or distribution area and credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral and Social Science (Including Economics and American History or Government)</td>
<td>9</td>
<td>English 1000 – Exposition and Argumentation</td>
<td>3</td>
</tr>
<tr>
<td>Humanities and Fine Arts (from approved list)</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **Major Requirements**

   Total credits specific to degree: 102

   Courses (specific course or distribution area and credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
<th>Course</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math and Statistics (19)</td>
<td></td>
<td>Basic Sciences (28)</td>
<td></td>
</tr>
<tr>
<td>Calculus I (5)</td>
<td></td>
<td>Univ. Physics I (5)</td>
<td></td>
</tr>
<tr>
<td>Calculus II (5)</td>
<td></td>
<td>Univ. Physics II (5)</td>
<td></td>
</tr>
<tr>
<td>Calculus III (3)</td>
<td></td>
<td>Gen. Chemistry I (4)</td>
<td></td>
</tr>
<tr>
<td>Differential Eqns. (3)</td>
<td></td>
<td>Org. Chemistry (3)</td>
<td></td>
</tr>
<tr>
<td>Statistics (from list) (3)</td>
<td></td>
<td>Biology (5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hum. Physiology (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bio Electives (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomedical Eng. (18)</td>
<td></td>
<td>Tech Electives (24)</td>
<td></td>
</tr>
<tr>
<td>Programming (3)</td>
<td></td>
<td>Upper-level eng. courses from approved lists to build a focus</td>
<td></td>
</tr>
<tr>
<td>Professional Devel. (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioprocess Analysis (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport in Bio Sys (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumentation (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capstone Design (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. **Free Elective Credits**

   Total free elective credits: 3
The sum of hours required for general education, major requirements and free electives should equal the total credits required for graduation.

6. Requirement for thesis, internship or other capstone experience:

A major engineering design experience is required. Two required courses provide this experience. In BE 4980 (Capstone Design), students complete an engineering design project and each design team is mentored by a faculty member. In BE 4380 (Instrumentation), student teams design and implement a computerized system to meet certain specifications as a class project.

7. Any unique features such as interdepartmental cooperation:
5.D. Program Goals and Assessment

The Program Educational Objectives (PEOs), Student Outcomes (SOs), and program-specific experiences described in Section 5.A are the program goals and student outcomes we have been assessing and evaluating for ABET accreditation and will continue to assess and evaluate for ABET accreditation for this new degree program. Through multiple cycles of accreditation, our process is well established and is outlined below.

The ABET process for continuous improvement entails that the SOs be regularly assessed and evaluated to ensure attainment of the long-term student performance goals defined by the PEOs. Each PEO is supported by one or more SOs and each SO may support one or more PEOs. The SO assessment/evaluation process involves three yearly steps: (1) data collection (assessment), (2) data analysis (evaluation), and (3) design of improvement actions (loop closing).

SO Data Collection
The following instruments are used to collect SO data on a yearly basis:

- **Course-based Assessment:** Each engineering course in the major is designed to address a number of SOs and is assigned to assess one or more SOs most closely related to the course. The instructor chooses a method (such as a specific exam, class project, or homework) most suitable to an SO and the course. All instructors use a commonly defined and understood numerical scale.
- **Exit Survey:** We conduct an exit survey of all the graduating seniors every semester. The survey consists of sixty-one wide-ranging questions, including those designed for students to assess their own attainment of the SOs.
- **Fundamentals of Engineering (FE) Exam:** The FE is a nationally-normed exam. We use the FE data as direct measures of a subset of SOs.

SO Data Analysis
The SO data are tabulated and analyzed every year. We use several statistical procedures to characterize the data, perform detailed comparisons, and discuss trends and changes. Data from different instruments may be analyzed separately or in a composite form. We have found that systematic and continuing graphical analysis of the SO data facilitates the discussions. In this context, we maintain Statistical Quality Control (SQC) charts for each outcome using historical data.

Continuous Improvement
From SO data analysis, we determine the level of attainment of each SO with respect to a minimum target score and spot trends and variations in the SO. The faculty then discuss the possible reasons for any lowered level of attainment, an undesirable trend, or an unexpected change; and design a set of actions, if necessary, in terms of course content modification, course restructuring, or enrichment activities. These actions are implemented for continuous improvement of the program (closing the loop).

Nationally-Normed Exam
Students are encouraged to take the Fundamentals of Engineering (FE) exam during the senior year as their first step towards licensure as a Professional Engineer (PE). As mentioned above, student performance in this nationally-normed exam is part of the SO data we collect and evaluate every year. Our assessment scale is defined such that the minimum acceptable passing rate for the first attempt is 60%. Our actual passing rate has been averaging at approximately 80%.

Retention and Graduation Rates
Our one-year retention rates for the BME-track students have been consistently above 90%, owing to the high-quality students attracted. The graduation rate has been approximately 85%. Our six-month placement rate of graduates has been between 85-90%. These numbers, the retention rates in particular, are excellent for engineering programs, but we will continue our efforts to improve.

Our conservative estimations on the number of graduates per year are shown in Table 1c. We have been graduating between 50 and 60 students per year in the BME track in recent years. With additional students attracted by the new degree program, we anticipate no major difficulty in producing 65 graduates a year in steady state as Table 1c shows.

Additional Measure
Success of the program will be measured by the attainment of the PEOs or graduate performance 3-5 years in the workplace, as discussed above. We have used and will continue to use two methods for assessment of graduate performance. See Section 5.G below for details.

5.E. Student Preparation

For the BME program, we will follow the MU and MU College of Engineering (CoE) admission processes and requirements. The requirements for freshman admission into MU CoE are an ACT Math score of at least 24, and an ACT Composite of at least 24 or a high school class rank in the upper 25 percent. Students who have not taken a college calculus course must take the math placement test ALEKS (Assessment and Learning in Knowledge Spaces).

Beginning in Fall 2014, students admitted enter MU CoE as undeclared and work to complete a foundational curriculum consisting of math, science, and engineering courses during their first year. At least 12 hours of stipulated classes must be completed at MU, and upon completion of requirements, students will be evaluated for admittance into available degree programs. Students accepted into the new BS BME program must complete Calculus I, Calculus II, General Chemistry, and University Physics I. It is recommended that Biological Sciences I be completed.

Direct admission to the BS BME program is available to students that meet the minimum requirements of ACT of 32, cumulative and in math, and are in the 10% of the high school class.
Based on our own and peers’ experiences, the BME program will attract the highest percentage (40-50%) of women among all engineering majors. Increasing women in STEM disciplines, in engineering in particular, has been a long-time national and institutional goal.

5.F. Faculty and Administration

Dr. Jinglu Tan, Professor and Chair of Bioengineering, will be responsible for the success of the program. This will be part of his administrative responsibility as department chair.

The Dept. of Bioengineering currently (August 2017) has 15 full-time and 2 half-time (Assistant Teaching Professors) faculty members with teaching appointments. The average effort by a full-time faculty member in teaching is approximately 40% time. All the core required courses are covered. Thirteen of the current faculty have expertise in teaching technical elective courses in BME. The current technical electives offered in Bioengineering and other engineering departments provide courses for four sub-tracks (focused areas of interest) within the BME track.

Five new faculty members are expected to join the department during Fall 2017. These are joint hires with the MU School of Medicine and other units. Three of these new hires will be able to add new BME courses. At least half a dozen additional new faculty hires are expected next year.

All existing or new faculty members have a PhD in BME or a closely-related discipline. All are active professionally. The two part-time positions will be phased out within the coming year and thus 100% of the credit hours in the major will be taught by full-time faculty.

The college has a centralized advising office where professional advisors provide curricular advising. At least one advisor has detailed knowledge about the BME curriculum. The faculty serve as mentors that:
- provide career and professional guidance to students,
- mentor undergraduates for research (approximately 50% BME students do research under the mentorship of a faculty member before graduation), and
- mentor student design teams in the Capstone Design class.

5.G. Alumni and Employer Survey

Success of the program or attainment of the PEOs are measured by graduate performance 3-5 years in the workplace, as discussed earlier. We have used and will continue to use two methods for assessment of graduate performance:
- Alumni survey, and
- BE Advisory Council (BEAC, our industry advisory board) as an employer focus group.
The BEAC has been periodically consulted to refine the alumni survey questionnaire so that objective evidence is gathered as measures of graduate performance. The latest instrument had six main sections:

a) A general section designed to gather objective evidence on graduates’ general career progress by using questions related to history of job titles, awards received, promotion and raises received, and expansion of responsibilities.

b) A section for each of the five PEOs. Example questions designed to probe objective evidence on their performance included whether a graduate has:
   - Participated in or led R&D projects,
   - Implemented an engineering solution,
   - Worked on interdisciplinary teams,
   - Been involved in integration of biological sciences and engineering,
   - Been active in professional and other organizations,
   - Pursued additional education (degree or non-degree), and
   - Obtained advanced degrees (MD, PhD, JD, MS etc.).

Some BEAC members are direct employers of our graduates and all come from industries that employ our graduates. Those members that have employed or observed our graduates work as an employer focus group to provide evaluation of graduate performance in terms of the PEOs based on the survey data.

5.H. Program Accreditation

Immediately upon approval of the proposed program, we will start the process to seek ABET accreditation of the BS BME program.

The current BE program has been successfully accredited for multiple cycles. Through the process, we have had the necessary knowledge and an established system for what is required for successful engineering program accreditation. All engineering programs follow the same process of continuous improvement to achieve accreditation. We anticipate no issues with obtaining expeditious accreditation of the BS BME program.
Appendix A: Letters of Support

MU Deans of Engineering and Medicine
  ▪ Dean Elizabeth Loboa, MU College of Engineering
  ▪ Dean Delafontaine, MU School of Medicine

Industry Advisory Board Members
  ▪ Dr. Jason Gordon, Section Manager of System Design & Testing at MRI Global in Kansas City, and
  ▪ Dr. Sudeep Basu, Global Practice Leader, Innovation Services, Frost & Sullivan, a major business consulting company based in Mountain View, CA.
August 2, 2017

Board of Curators
University of Missouri System

Dear Curators:

I would like to indicate my strong support and commitment to the BS in Biomedical Engineering (BME) degree program proposed by the MU Department of Bioengineering.

We have, in fact, had a BME program for two decades as a significant track in our accredited Biological Engineering degree program. The BME track has attracted a large number of outstanding students (among the very best at MU by all measures) with approximately 40% of those students being women. Because of changes in the accreditation criteria however, the track must be converted into a separate degree program to receive accreditation. Accreditation is necessary for us to meet student demands and to sustain the strong momentum of the program.

The initiative is not only consistent with the college goals, but also timely. In support of the campus strategic plans and initiatives, the MU College of Engineering leadership, faculty and staff have established Biomedical Innovations as one of the four pillars of pursuit outlined in our strategic plan. Under this plan, and in cooperation with Medicine, Vet Medicine and other schools and colleges across the MU campus, we are in the process of hiring approximately 15 new faculty in that area. All of these new hires are expected to have a biomedical engineering background or interest, and will thus be able to contribute to teaching in biomedical engineering. Resources have been set aside for these new hires as part of our strategic plan. The program conversion will require no new investment from MU or the UM System.

With engineering, medicine, vet medicine, animal sciences and other life sciences disciplines on the same campus, MU is in a unique position to deliver a strong BME program. Our Bioengineering Department is one of the 15 programs in the country to receive the Cottrell Translational Partnership in Biomedical Engineering award. An accredited BME program will help further advance our interdisciplinary efforts.

In conclusion, the proposed BME program is an important part of our strategic initiatives. We are committed to its continued growth, success, and collaborative contribution to the University.

Sincerely,

Elizabeth G. Lobo, PhD
Dean
Board of Curators  
University of Missouri System

Dear Curators:

I am writing with enthusiasm to support the BS in Biomedical Engineering degree program proposed by the MU Department of Bioengineering. My support is based on the following.

The degree program will help attract bright engineering students to the MU School of Medicine MD program. Biomedical engineering has become an exciting pre-medicine program in recent years. Students with an engineering background add strengths and diversity to the MD program by bringing in problem-solving skills, logical thinking ability, understanding of both living and nonliving systems, and knowledge in technology use for medicine. The new program will thus help strengthen our MD education program.

The program is important for us to attract talented faculty. More and more physicians and medical scientists have an engineering background or use engineering approaches in their research. These faculty expect to be affiliated with a biomedical engineering program so that they can employ biomedical engineering students for research and recruit them as graduate students. Faculty with an engineering background or interest add major strengths to our clinical and research teams.

The program will help strengthen ties between MU School of Medicine and College of Engineering. As part of our strategic plans, we are making a significant number of joint faculty hires between Medicine and Engineering and building strong interdisciplinary teams. Many of these hires are expected to be connected with the proposed program. Through the Coulter Translational Partnership program, we have made great strides in strengthening our clinician-engineer collaborations. This new program will help us go a step further.

In summary, the proposed program is important to advancing our education and research programs in the School of Medicine and at MU. I strongly support the proposal.

Sincerely,

Patrice Delafontaine, MD  
Hugh E. and Sarah D. Stephenson Dean
August 11, 2017

Dear Sir/Madam:

I am honored to write this letter strongly recommending approval be granted to the Bioengineering Department at the University of Missouri – Columbia (MU) to offer a Bachelor of Science degree in Biomedical Engineering (BME).

While not a Biomedical Engineer myself (I hold a Ph.D. in Chemical & Biomolecular Engineering), I am quite familiar with the impressive and industry-focused capabilities that BME graduates possess. Missouri’s growing biomedical industry needs these graduates.

My employer, MRRGlobal, is a long-standing contract research organization (founded in 1944) located in Kansas City, MO. MRRGlobal conducts research for government and commercial clients throughout the nation. As a company, we have successfully conducted a wide variety of programs, such as those focused on the development and testing of detection systems for identifying biological materials in the environment, pharmaceutical development and testing, and advanced analytics due in no small part to our bioengineering staff. As the field advances, we are increasingly introducing new capabilities to our clients programs focused on human health. For instance, we are beginning programs employing medical-grade wearable sensor technologies allowing early identification of health problems. We need new employees with the ability to apply engineering and computer science expertise to these health challenges. Specifically, we need talented biomedical engineers.

Beyond MRRGlobal, Missouri has a unique and well-known “Animal Health Corridor”: The Kansas City Animal Health corridor is comprised of more than 300 companies, including Bayer Animal Health, Cargill Animal Nutrition, and Merck Animal Health. The Corridor is at the nexus for One Health initiatives (juncture of animal and human health), and we are the home of numerous strong human-focused biomedical organizations and companies (e.g., Stowers Institute for Medical Research, Cerner, Gamim, Medtronic, RBC Medical, etc.) as well. The local biomedical industry needs talented locally-trained BME graduates to sustain and spur further development.

Currently, no public university in Missouri offers a B.S. degree in BME. Missouri’s talented students desire this educational path and the state benefits when these bright students stay within the state rather than leaving to pursue their education (and likely not returning). We also benefit when we entice bright students from other states to earn their degrees in Missouri, and these students will potentially remain Missouri residents, benefiting our rapidly developing biomedical industry.

Stepping back from the local demand for a MU offered BME degree, the nationwide statistics supporting this degree are significant. Current and projected job growth rates are well in excess of most other occupations (projected 24% growth rate from 2014 to 2024 by the US Department of Labor Bureau). The field has received considerable favorable publicity, often cited as a top job by numerous publications (e.g., CNN Money and Forbes).

Beyond statistics, BME appeals to students and employers given its position at the forefront of bringing solutions to our ever-growing healthcare challenges. This is a unique degree bridging several disciplines, as skills developed from traditional engineering fields are blended with mathematical and computer science capabilities and biological science expertise to tackle medical challenges. This interdisciplinary approach has resulted in the development of artificial organs, bionic arms, new medical treatments, and new medical devices. These innovative solutions are essential as we face yearly healthcare expenditures in excess of $3 billion per year with an aging population.

I trust that you agree about the importance of MU offering a BS degree within BME. If I can be of further assistance in helping you reach a favorable decision on this matter, please do not hesitate to contact me.

Sincerely,

Jason Gordon, Ph.D.
Section Manager, MRRGlobal
jgordon@mrrglobal.org; 816-326-5135

Missouri - Colorado - Florida - Maryland - Virginia - Kansas - Washington, D.C.

December 7-8, 2017
August 4th, 2017

To: Whom It May Concern

Subject: Letter of Support for the Establishment of a BS in BME Program at the University of Missouri

Dear Reviewer,

I feel privileged to write this letter in support of the new degree program proposal for a BS degree in Biomedical Engineering (BME) at the University of Missouri. I am compelled by an overwhelming sense of responsibility to the field, as well as by my learnings spanning business and technology advisory in the global healthcare industry. I should also note that I currently serve on the Bio-Engineering Advisory Council (BEAC) at the University of Missouri, am an advisor to the Coulter Biomedical Partnership Program at the University of Pittsburgh, guest faculty at Rutgers University and have also served as a reviewer at the NSF (National Science Foundation), NIH (National Institutes of Health) and FLC (Federal Laboratories Commission).

I draw attention to the fact that Biomedical engineering in itself is an amalgamation of three distinct fields: Biology, Medicine and Engineering that have converged to create a new discipline. This discipline of BME has had tremendous impact on our lives and lifespan alike. This process of convergence of technologies giving rise to awe inspiring innovations has accelerated greatly in the last decade and hence needs specialized and highly trained human capital to continue on this growth trajectory. This is exactly where the University of Missouri can, and must, play the role of a catalyst by empowering the field with its specialized BME BS degree holders.

To further support the significance of the proposed BS in BME program I would like to note that the global medical device market has grown rapidly and is currently valued at $350 Billion in 2017 and is expected to soon achieve the half a trillion dollar market potential. While previously considered the bastion of only healthcare centric companies, the biomedical devices arena has witnessed several new entrants from the “Tech world”. Companies such as Google, Apple and others have recognized the potential of biomedical engineering and have been on a recruiting spree soaking up talent in the BME field into their highly regarded product development programs. The University of Missouri is hence uniquely positioned to leverage this opportunity via the establishment of the proposed program.

In order to exemplify the importance of BME, and trained biomedical engineers, I would like to draw attention to the following:

- In 2016, the US FDA approved the world’s first artificial pancreas. The device monitors blood sugar and supplies insulin automatically. In addition, Google’s patented blood glucose monitoring digital contact lens is revolutionizing diabetes care.

- 3D printing and micro-manufacturing are anticipated to serve as the frontline technologies in the production of personalized orthopedic or orthotic implants. 3D printing could also help drive mass customization in the medical industry.
IBM Watson, the company’s advanced artificial intelligence program, is transforming healthcare into a quantifiable service where every bit of information is available. This could boost the whole idea of physicians needing help from algorithms.

Companies are notching up big advances in growing human tissue in labs that can be implanted safely in the body. For example: Humacyte is engineering blood vessels in labs for dialysis.

With the introduction of driverless cars, companies are incorporating more and more sensors. Thus, companies are expected to incorporate health sensors and the potential in itself can allow the car to operate as a point-of-care in the future.

Surgical robots have the potential to change how surgeons will operate in the future. Google and Johnson & Johnson are working together to create a new intelligent and affordable surgical robot system.

The continuum of care has broken all silos and segmentation in the biomedical industry and the schematic above developed by Frost & Sullivan clearly demonstrates the transformation that is underway. The time is ripe for a specialized BME BS program that focuses on these transformative themes and provides the necessary training, experience and skills to the next generation of students to help further the progress in the field of Biomedical Engineering.
It is with great hope that I strongly recommend that a BS in BME program be established at the University of Missouri. Having interacted personally with the esteemed faculty and leadership at the University over several years, I am confident that such a program once established will soon become a feather in the cap of the University. It is very likely to achieve international repute and stature drawing global attention to the program, and to the University at large. It is also likely to concomitantly attract research funding from corporate R&D groups and federal agencies.

I wish the BS in BME program grand success as it helps chart the future of Biomedical Engineering.

Sincerely,

[Signature]

Sudeep Basu, PhD

Global Practice Leader
Innovation Services,
Frost & Sullivan
Contact: sbasu@frost.com
Cell: +1-650-776-7
Executive Summary

The proposed Master’s of Science in Care Management will be an interdisciplinary degree offered online through the University of Missouri, Sinclair School of Nursing (SSON). Qualified applicants with a health-related bachelor’s degree will complete 33 graduate level credits, including 240 hours of clinical practicum, and completion of a master’s exam. Graduates who individually meet certification practice hour requirements may also complete a Case Manager Certification Exam.

The need for care managers is evident. The number of older adults will double to 98 million by 2060 (Colby & Ortman, 2015). With this aging population comes multiple chronic conditions, psychiatric illness, substance abuse, and the need for more health services including ongoing care management. Additionally, big data has fueled growth in population health management and thereby the need for more professionals such as care managers to support managed care efforts.

Online job searches uncovered between 300-600 care management jobs per site across the United States. A needs assessment survey sent to SSON undergraduate nursing students and alumni (n=213) indicated participants were both moderately to extremely interested in the Care Management degree offering (52%) and interested in applying in the next 2-10 years (44%). A search for existing care management programs revealed there are no care management MS degree programs offered in the state of Missouri or surrounding states. Only 13 programs in the US provide a care management degree.

The proposed MS in Care Management aligns with campus and departmental goals emphasizing interdisciplinary teaching and a focus on preparing graduates to meet tomorrow’s challenges as reflected in the Mizzou 2020 strategic plan. To assure that the proposed program met a need in the health care community, representation from MU Health, local hospitals, the insurance industry, and clinical experts was convened to discuss critical skills needed in care management practice and used in the development of the Care Management degree option. Graduates of the program will be employed in a number of different settings including: hospitals, primary care, or mental health care facilities, insurance companies, governmental agencies, non-health care settings, and independent business ventures.

The addition of the Care Management MS degree is economically feasible. Projected budgets show revenue generation for the Sinclair School of Nursing and for other MU divisions. Furthermore, as a distance degree, this offering could be shared within the university system to promote continued program growth and sustainability.
No. 3

Recommended Action – Masters of Science in Care Management, University of Missouri, Columbia

It was recommended by Sr. Associate Vice President Steve Graham, endorsed by President Mun Choi, recommended by the Academic, Student and External Affairs Committee, moved by Curator ______________, seconded by Curator ________________, that the following action be approved:

that the University of Missouri, Columbia be authorized to submit the attached proposal for a Masters of Science in Care Management to the Coordinating Board for Higher Education for approval.

Roll call vote of the Committee: 

YES  NO

Curator Farmer
Curator Layman
Curator Phillips
Curator Snowden
The motion ______________.

Roll call vote of Board:  

YES  NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold
The motion ______________.
Masters of Science, Care Management

University of Missouri-Columbia
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Executive Summary

The proposed Master’s of Science in Care Management will be an interdisciplin ary degree offered online through the University of Missouri Sinclair School of Nursing (SSON). Qualified applicants with a health-related bachelor’s degree will complete 33 graduate level credits, including 240 hours of clinical practicum, and completion of a master’s exam. Graduates who individually meet certification practice hour requirements may also complete a Case Manager Certification Exam.

The need for care managers is evident. The number of older adults will double to 98 million by 2060 (Colby & Ortman, 2015). With this aging population comes multiple chronic conditions, psychiatric illness, substance abuse, and the need for more health services including ongoing care management. Additionally, big data has fueled growth in population health management and thereby the need for more professionals such as care managers to support managed care efforts.

Online job searches uncovered between 300-600 care management jobs per site across the United States. A needs assessment survey sent to SSON undergraduate nursing students and alumni (n=213) indicated participants were both moderately to extremely interested in the Care Management degree offering (52%) and interested in applying in the next 2-10 years (44%). A search for existing care management programs revealed there are no care management MS degree programs offered in the state of Missouri or surrounding states. Only 13 programs in the US provide a care management degree.

The proposed MS in Care Management aligns with campus and departmental goals emphasizing interdisciplinary teaching and a focus on preparing graduates to meet tomorrow’s challenges as reflected in the Mizzou 2020 strategic plan. To assure that the proposed program met a need in the health care community, representation from MU Health, local hospitals, the insurance industry, and clinical experts was convened to discuss critical skills needed in care management practice and used in the development of the Care Management degree option. Graduates of the program will be employed in a number of different settings including: hospitals, primary care, or mental health care facilities, insurance companies, governmental agencies, non-health care settings, and independent business ventures.

The addition of the Care Management MS degree is economically feasible. Projected budgets show revenue generation for the Sinclair School of Nursing and for other MU divisions. Furthermore, as a distance degree, this offering could be shared within the university system to promote continued program growth and sustainability.

1. Introduction

Care management, also referred to as care coordination or case management, has become an essential role to improve the management of complex physical, psychological, and/or social problems. As health care costs have escalated, so has the demand for health
professionals educated to support patients and their family/care providers to navigate the increasingly complex health care environment. Use of care managers has been identified as a practice to rein in run-away health care costs for vulnerable people. Populations who would benefit include those with serious or multiple chronic diseases, high utilizers of costly health care resources, those at risk for problems related to mental health care needs, or those who lack capacity to meet their own needs because of poverty, living situations, or access to essential resources.

Care managers serve as the hub of communication, connecting patients/families, and diverse members of the community and health care team to impact chronic illness and improve population health (Popejoy, Jaddoo, Sherman, Howk, Nguyen, & Parker, 2015). Chronic disease affects half of all Americans and is the leading cause of death and disability (Centers for Disease Control [CDC], 2015b). Cardiovascular disease including hypertension and stroke, respiratory disease including Chronic Obstructive Pulmonary Disease (COPD) and asthma, Type 2 diabetes, cancer, and arthritis are the most common and costly chronic conditions. These conditions can often be prevented and are strongly influenced by modifiable behaviors, primarily tobacco use, poor nutrition, physical inactivity, and alcohol abuse (World Health Organization [WHO], 2013; CDC, 2014). Care managers support patients with multi-disease states, which is particularly salient for Missouri where 75% of adults have one or more chronic diseases (Missouri Department of Health and Senior Services, 2013a) and reflect Missouri ranking in the bottom one-third of US health status measures (Missouri Department of Health and Senior Services, 2013b).

The program evolved from the experience of faculty who are experts in care coordination practice research, who identified this degree as a significant need in Missouri and the region. Three Centers for Medicare and Medicaid Innovation grants, totaling nearly $48 million focused on care coordination, have recently been completed or are in process. Two of the three interdisciplinary grants are in the School of Nursing, and one is in the School of Medicine. Our faculty experience with care coordination, along with these recent initiatives, focused our attention on the need to prepare a work force to deal with complex health care needs of those with chronic illnesses. To further hone our idea, we convened a Task Force comprised of stakeholders that included a representative from Missouri Care, Director of Care Coordination MU Health Center, Director of Enterprise Revenue Cycle Services (who is responsible for the care management program in the University of Missouri Health System), representatives from the School of Nursing faculty, and the recent past Chief Nurse Executive from Boone Hospital Center. The stakeholder group identified potential employers, existing programs, and certification exam requirements. Final program design was reviewed with an external consultant, Ginny Pepper, PhD, RN, FAAN, who recently retired from the University of Utah, College of Nursing. Changes were made to the program based upon her recommendations. The University of Utah care management program offers a curriculum specific to geriatric care management for non-nurses, as well as MS in Nursing with an emphasis in care management.

The proposed Master’s of Science in Care Management will be an interdisciplinary degree. Qualified applicants may have a bachelor’s degree from any health care
Enrollees will be required to successfully complete 33 graduate credits, which will include 240 hours of clinical practice, and a master’s exam. The sequencing of courses builds on the students’ unique perspectives and foundational knowledge of theory applications of care coordination, research principles, an understanding of basic physiology and pharmacology, and care management principles and skills. The clinical practica will allow students to apply these principles and skills in order to determine how care management practices are used within health care settings. Student’s will learn how to use the principles of quality improvement to evaluate the impact of care management on vulnerable populations of people, including those with multiple chronic conditions.

Graduates of the program will be employed in a number of different settings and positions. Graduates who are licensed as either professional nurses, health behavioral change specialists, therapists, pharmacists, or social workers may work in hospitals, primary care, mental health care, or may be employed as independent care managers in non-health care settings, working privately with individuals. Depending on setting, certification may or may not be required. Those graduates who wish to be credentialed must first meet the practice requirements in order to complete a certification exam. Certification exam requirements vary but range from 2 to 3 years of previous practice experience. The American Nurses Credentialing Center (ANCC) also requires 2,000 hours of practice in care management within 3 years prior to taking their Case Manager Certification Exam.

We do not currently offer a minor or certificate in care management. Our curriculum will provide mentored care management experiences tailored to the student’s future career goals. Certificate programs may be considered in the future based on market demand.

Of the required 33 credits to complete this master’s degree, 15 credits will be new care management specialty courses. The remaining required 18 credits are courses that currently exist in nursing and other disciplines such as Health Management and Informatics, Social Work, and Public Health.

A program director will be hired who has either a Doctor of Nursing Practice or a Doctor of Philosophy degree. This individual will work closely with faculty member Lori Popejoy, PhD, RN. Dr. Popejoy has worked in the field of care coordination practice, education, and research since 1999. Dr. Popejoy will be working with the new program director and other faculty members experienced in care coordination including Kari Lane, PhD, RN; Amy Vogelsmeier, PhD, RN; Greg Alexander, PhD, RN; and Marilyn Rantz, PhD, RN.

2. Fit with University Mission and Other Academic Programs

2.A. Alignment with Mission and Goals

The proposed MS in Care Management degree aligns with campus and departmental goals. Specifically, the Mizzou 2020 strategic plan emphasizes Mizzou’s unique interdisciplinary research and teaching strengths; focusing on preparing graduates to meet tomorrow’s challenges through investment in innovative new degree programs.
The Sinclair School of Nursing strives for excellence and cultivates an environment in which students are held to standards of high moral integrity and respect for all. The SSON excels at inter-professional collaboration, using it as a foundation for research, teaching–learning, practice, and entrepreneurship. The SSON’s vision of service to all in an interdisciplinary innovative manner is a hallmark of successful care management, making us uniquely qualified to develop the MS in Care Management degree within the SSON. The SSON strategic plan specifies that we are to design programs for the future, meeting emerging health care needs. Without a doubt, the Care Management program is such a program.

Mizzou 2020 emphasizes our goal to improve the lives of Missourians and beyond. This program builds on the interdisciplinary strengths of MU and is aimed at impacting quality of life and cost containment of persons within the health care system. This program will address our 2020 goal to ensure MU has the resources to support high-impact teaching and research. The Care Management program will generate revenue beginning in year 1 for MU and year 3 for the SSON with expected enrollment and will afford students from a variety of health care disciplines a graduate option at MU.

The University of Missouri values include respect, responsibility, discovery, and excellence. The SSON core values are complementary to those core MU values and include excellence, collaboration, scholarship, leadership, innovation, integrity, diversity, and compassion. This proposed Care Management MS program will reflect and demonstrate SSON core values as we prepare care managers educated to provide or facilitate interdisciplinary, innovative, high quality, high value care to diverse populations in order to improve health across the life span.

2.B. Duplication and Collaboration within Campus and Across System

No degree programs in the UM system, or in the state of Missouri, offer a master’s degree in care management. Care Management is an interdisciplinary degree; therefore, courses from other degree programs, where feasible and reasonable, will be integrated. There are program offerings within Human Development and Family Studies, School of Social Work, School of Health Professions, and Health Management and Informatics that can be applied toward the degree depending on the student’s substantive area of interest. The SSON already has multiple collaborations in place for our PhD program with both UMSL and UMKC. While we do not currently plan to collaborate on this program with UMSL or UMKC, we are willing and capable of developing these collaborations as the program grows and evolves. The SSON actively works with our sister campuses and routinely meets on academic program initiatives. We have communicated with both Deans Cary (UMKC) and Dean-Bar (UMSL) about the proposed program.

The SSON has partnered with other units on campus to identify course offerings and offered to assist in moving offerings to an online format. For example, we met with Dr. Dale Fitch, Chair of the School of Social Work, to talk about the proposed program, determine appropriate courses in the School of Social Work, and consider increasing course availability by moving courses to an online format. Additionally, we spoke with Dr. Sue Boren in Health Management and Informatics to determine which informatics
course could be integrated into the degree offering and ensure course availability for distance students.

3. Business-Related Criteria and Justification

3.A. Market Analysis

3.A.1. Need for Program

According to the Commission for Case Manager Certification (CCMC) (n.d.), board-certified case managers number more than 37,000 today – an increase from 20,000 a mere five years ago representing a nearly 50% increase in certification. Recently, the National Role and Function Study (Tahan, Watson, & Sminkey, 2015) surveyed 52,370 individuals working in case management practices or settings across the full continuum of health care, regardless of certification status. There was a 15% response (N=7,768) of which 89% were nurses (N=6,795); 6% were social workers (N=447); 1% were counselors (N=87); 0.6% were occupational/physical/respiratory therapy (N=48); and the remaining 4.4% were from other disciplines. The respondents were employed in a variety of settings including: community programs, disease management programs, ambulatory care, home health care, hospice, hospitals, long term care, primary medical homes, military treatment centers, rehabilitation centers, and in the insurance industry. The largest employers were health insurance companies and hospitals, 29% and 23% respectively. Job titles commonly included were care coordinators, case managers, care managers, discharge planners, disease managers, health coaches, health navigators, mental behavioral health counselors, quality management specialists, rehabilitation counselors, vocational counselors, transitional care coordinators, and workman compensation specialists.

The need for care management is expected to grow due to the increasing demands from managed care (i.e., payors that provide insurance programs), rapidly increasing numbers of older adults, and the increase in the number of patients with multiple chronic health care conditions, psychiatric illness and/or substance abuse. Furthermore, the Affordable Care Act has provided a way for care management to be reimbursed, which is fueling market demand. Online job search engines such as NURSE.com, CareerBuilder, and American Case Management Association uncovered between 300-600 jobs per site across the United States. Within the Columbia, MO area, there are 53 openings for care management positions. Evolving Medicare/Medicaid rules such as for “bundled payment” and penalties for readmission to hospitals, presents more justification for this role preparation to ensure efficient and effective care to patients when and where they need it in a cost efficient manner.

In investigating other care management degree programs, no care management MS degree is offered in the state of Missouri or surrounding states. We discovered that there are only 13 programs in the US of which eight were online programs. Of the 13, 10 programs offered a degree with nine offering an MS and one a bachelor’s degree. The three other programs offered a certificate. Eight of the 13 programs required degrees in nursing, and five allowed other degrees. Currently, in the SSON, we offer master’s
degree programs focused on Nursing Education and Leadership in Nursing and Healthcare Systems. This additional degree offering in Care Management will be a very attractive option to practicing nurses who desire to focus their careers in care coordination and patient care. Just 25% of the individuals surveyed in the National Role and Function study (Tahon et al., 2015) had a graduate degree. Clearly, as the role becomes more complex, the need for graduate education will grow. Additionally, these positions are well compensated. The median RN annual salary for care managers is $72,000, and non-RN annual salary is $61,000 (salary.com).

3.A.2. Student Demand for Program

The needs assessment of this proposed program included 350 undergraduate and accelerated BSN students in the clinical major (juniors and seniors) and 1,650 alumni. The response rate was 11% (n = 213). Based on the results of student interest/demand surveys, 90% (n = 194) of the 213 respondents indicates this master’s degree is very or extremely important. Just over half (52%, n = 100) are moderately to extremely interested in completing such a master’s degree. Nearly 44% (n = 92) would be moderately to extremely interested in applying in the next 2-10 years. Three participants requested that we keep them informed of progress in this degree development as they are very interested in applying when the degree is available. Other participants commented they believe that more MS options in the SSON would be beneficial and this was an excellent idea. Additionally, an Education Advisory Board (EAB) market research analysis is in process.

Projections for student enrollment are in Tables 1a-c. We anticipate enrollment to be 12 students the first year, with enrollment of 17 students per year thereafter. As shown in Table 1b, we anticipate all students will be new to MU and anticipate that there will be 12-17 students graduating each year.

Table 1a. Student Enrollment Projections (anticipated total number of students enrolled in program during the fall semester of given year).

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Part-Time</td>
<td>12</td>
<td>29</td>
<td>46</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>29</td>
<td>46</td>
<td>51</td>
<td>51</td>
</tr>
</tbody>
</table>

Table 1b. Student Enrollment Projections (anticipated number of students enrolled during the fall semester of given year who were new to campus).

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-Time</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Part-Time</td>
<td>12</td>
<td>29</td>
<td>46</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>29</td>
<td>46</td>
<td>51</td>
<td>51</td>
</tr>
</tbody>
</table>

Table 1c. Projected Number of Degrees Awarded*.

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Degrees Awarded</td>
<td>0</td>
<td>0</td>
<td>10-12</td>
<td>13-17</td>
<td>13-17</td>
<td>13-17</td>
<td>13-17</td>
<td>13-17</td>
<td>13-17</td>
<td>13-17</td>
</tr>
</tbody>
</table>
*Student retention in the current MS program offerings reflects a 75% retention rate. Therefore, the table reflects a range of projected number of degrees to be awarded.

3.B. Financial Projections

3.B.1. Additional Resources Needed

Additional resources would include funding for one non-tenure track/teaching faculty member who is funded for 0.6 time for this program. Duties include serving as the program coordinator and teaching one care management course a semester. Total credit hours taught will be 9 credit hours per semester during the academic year with one course being taught in the care management program, and the other courses being taught in the SSON undergraduate or graduate program. This individual will also advise students. This additional graduate program focus area requires 5 new care management specific courses (15 credits of the total 33 credits). Within the first year of hire, this individual is responsible for developing the new care management online courses in addition to teaching existing sections of required established courses. These courses have been designed with no more than two offered each semester with the initial cohort of students having one specialty course a semester for each of the four semesters. The proposed program builds on existing courses in the SSON and/or cognates in social work and public health. No additional resources are anticipated for office space or library support. There would be a modest increase in supplies, phone and monthly computer line costs, computer, and printer for the new faculty hire.

This program will be self-sustaining. It is our intent to apply for the Mizzou Online funding for new online programs to help support the marketing costs and startup costs for this new online program endeavor.

3.B.2. Revenue

*Revenue generated will be from student tuition and fees. Students will be “full pay” and no discounts/waivers included.*

3.B.3. Net Revenue

The break-even point will occur in year 1 for MU and year 3 for the SSON with full expected enrollment. The SSON Dean will support the program up to that point with carryover funds. The best case scenario financially impacting the SSON is that the student will take 30 credit hours toward their degree from the SSON and 3 credit hours from the Department of Health Management and Informatics (HMI).

Table 2a. Financial Projections for Proposed Program for Years 1-5.

<table>
<thead>
<tr>
<th>Expenses per year</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. One-time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New/Renovated Space</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Equipment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

December 7-8, 2017

OPEN – AS&EA 3-11
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<tr>
<th>Library</th>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Marketing</td>
<td>$10,000</td>
<td>$7,000</td>
<td>$7,000</td>
<td>$5,000</td>
<td>$5,000</td>
</tr>
<tr>
<td><strong>Total one-time</strong></td>
<td><strong>$10,000</strong></td>
<td><strong>$7,000</strong></td>
<td><strong>$7,000</strong></td>
<td><strong>$5,000</strong></td>
<td><strong>$5,000</strong></td>
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</table>

**B. Recurring**

<table>
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<tr>
<th>Faculty</th>
<th>$48,000</th>
<th>$48,960</th>
<th>$49,939</th>
<th>$50,938</th>
<th>$51,957</th>
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<td>Staff</td>
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<td>0</td>
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</tr>
<tr>
<td>Benefits</td>
<td>16,978</td>
<td>17,317</td>
<td>17,663</td>
<td>18,017</td>
<td>18,377</td>
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<tr>
<td>Equipment</td>
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<tr>
<td>Library</td>
<td>0</td>
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<tr>
<td>Other</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Total recurring</strong></td>
<td><strong>$64,978</strong></td>
<td><strong>$66,277</strong></td>
<td><strong>$67,603</strong></td>
<td><strong>$68,955</strong></td>
<td><strong>$70,334</strong></td>
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<tr>
<td><strong>Total expenses (A+B)</strong></td>
<td><strong>$74,978</strong></td>
<td><strong>$73,277</strong></td>
<td><strong>$74,603</strong></td>
<td><strong>$73,955</strong></td>
<td><strong>$75,334</strong></td>
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**Revenue per year**

<table>
<thead>
<tr>
<th># of students (based on expected enrollment)</th>
<th>12</th>
<th>29</th>
<th>46</th>
<th>51</th>
<th>51</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuition/Fees</strong></td>
<td>$80,808</td>
<td>$188,419</td>
<td>$284,790</td>
<td>$319,281</td>
<td>$328,859</td>
</tr>
<tr>
<td><strong>Institutional Resources</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>State Aid -- CBHE</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>State Aid -- Other</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total revenue to MU</strong>*</td>
<td>$80,808</td>
<td>$188,419</td>
<td>$284,790</td>
<td>$319,281</td>
<td>$328,859</td>
</tr>
<tr>
<td><strong>Net revenue (loss) per year to MU</strong></td>
<td>$5,830</td>
<td>$115,142</td>
<td>$210,187</td>
<td>$245,326</td>
<td>$253,525</td>
</tr>
<tr>
<td><strong>Cumulative revenue (loss) to MU</strong></td>
<td>$5,830</td>
<td>$120,972</td>
<td>$331,160</td>
<td>$576,486</td>
<td>$830,010</td>
</tr>
<tr>
<td><strong>Total revenue to SSON</strong></td>
<td>$28,774</td>
<td>$84,088</td>
<td>$143,195</td>
<td>$164,021</td>
<td>$168,942</td>
</tr>
<tr>
<td><strong>Net revenue (loss) per year to SSON</strong></td>
<td>($46,204)</td>
<td>$10,811</td>
<td>$68,592</td>
<td>$90,066</td>
<td>$93,608</td>
</tr>
<tr>
<td><strong>Cumulative revenue (loss) to SSON</strong></td>
<td>($46,204)</td>
<td>($35,393)</td>
<td>$33,200</td>
<td>$123,266</td>
<td>$216,873</td>
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<table>
<thead>
<tr>
<th># of students (based on ~25% attrition/year)</th>
<th>10</th>
<th>23</th>
<th>36</th>
<th>39</th>
<th>39</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuition/Fees</strong></td>
<td>$67,340</td>
<td>$148,924</td>
<td>$221,930</td>
<td>$244,156</td>
<td>$251,481</td>
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<tr>
<td><strong>Institutional Resources</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>State Aid -- CBHE</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>State Aid -- Other</strong></td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total revenue to MU</strong></td>
<td>$67,340</td>
<td>$148,924</td>
<td>$221,930</td>
<td>$244,156</td>
<td>$251,481</td>
</tr>
<tr>
<td><strong>Net revenue (loss) per year to MU</strong></td>
<td>($7,638)</td>
<td>$75,647</td>
<td>$147,327</td>
<td>$170,201</td>
<td>$176,147</td>
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<tr>
<td><strong>Cumulative revenue (loss) to MU</strong></td>
<td>($7,638)</td>
<td>$68,009</td>
<td>$215,337</td>
<td>$385,538</td>
<td>$561,684</td>
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<tr>
<td><strong>Total revenue to SSON</strong></td>
<td>$23,978</td>
<td>$67,192</td>
<td>$112,146</td>
<td>$125,428</td>
<td>$129,191</td>
</tr>
</tbody>
</table>
Net revenue (loss) per year to SSON

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<tr>
<th></th>
<th>($51,000)</th>
<th>($6,085)</th>
<th>$37,543</th>
<th>$51,473</th>
<th>$53,857</th>
</tr>
</thead>
</table>

Cumulative revenue (loss) to SSON

<table>
<thead>
<tr>
<th></th>
<th>($51,000)</th>
<th>($57,085)</th>
<th>($19,541)</th>
<th>$31,932</th>
<th>$85,788</th>
</tr>
</thead>
</table>

*At year 5 total revenue to MU is $328,859 of which the SSON receives $168,942 based upon the funding model with Mizzou Online (we receive 60% of tuition and retain 100% of clinical fees). If there is 25% attrition, at year 5, total revenue to MU is $251,481 of which the SSON receives $129,191. These numbers are based on students taking 30 credit hours in the SSON. HMI revenue is included in MU financial projections, but not in the SSON projections. See Appendix A for expanded budget details.

Because this is an interprofessional degree, students may elect to take up to 9 credit hours from another MU division. Table 2b shows revenue for 51 students taking all classes at MU with the majority through the SSON and the potential SSON revenue in the unlikely event students take the maximum of 9 credits from other MU divisions. This is based upon projected enrollments after year 3 of program initiation. Table 2c represents potential revenue based upon a 75% retention rate (39 students).

**Table 2b. Potential MU Revenue based upon Yearly Student Enrollment Projections (51 students).**

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>SSON Revenue</th>
<th>HMI Revenue</th>
<th>Other MU Division</th>
<th>Total MU Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 SSON credits 3 HMI credits</td>
<td>$812,244</td>
<td>$145,596</td>
<td></td>
<td>$957,840</td>
</tr>
<tr>
<td>21 SSON credits; 3 HMI credits 9 other MU credits</td>
<td>$582,561</td>
<td>$145,596</td>
<td>$192,945</td>
<td>$701,102</td>
</tr>
</tbody>
</table>

*A maximum of 30 credit hours and a minimum of 21 credit hours per student would be generated from the SSON depending on the number of courses taken from other MU divisions.

**All students in the Care Management program will take 3 credit hours from HMI. All revenue from these credits will go to HMI and MU.

***Represents a maximum of 9 credit hours which may be taken from other MU divisions toward the MS in Care Management degree, such as Health-Related Professions, Social Work, or Public Health. Please note there are differences in costs per credit hour among graduate programs, other MU division tuition totals are a conservative estimate of revenue that will be generated.

**Table 2c. Potential MU Revenue based upon Trends in Student Retention (39 students).**

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>SSON Revenue</th>
<th>HMI Revenue</th>
<th>Other MU Division</th>
<th>Total MU Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 SSON credits 3 HMI credits</td>
<td>$621,128</td>
<td>$111,338</td>
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<td>$732,466</td>
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<tr>
<td>21 SSON credits; 3 HMI credits 9 other MU credits</td>
<td>$445,488</td>
<td>$111,338</td>
<td>$147,546</td>
<td>$704,372</td>
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</table>

Table 3. Enrollment at the End of Year 5 for the Program to Be Financially and Academically Viable.

<table>
<thead>
<tr>
<th>Viability</th>
<th>Minimum Enrollment</th>
</tr>
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<tbody>
<tr>
<td>Financial</td>
<td>39</td>
</tr>
<tr>
<td>Academic</td>
<td>39</td>
</tr>
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</table>

3.C. Business and Marketing Plan: Recruiting and Retaining Students

Primary recruitment for the MS Care Management degree will be through dissemination of the information through select list serves and geomarketing email reaching local, regional, and national markets; advertisement to University of Missouri employees; brochure handouts at regional and national conferences; and on the Sinclair School of Nursing website. The program will also be promoted through links to our website provided on other MU colleges and schools that would be a part of this interdisciplinary degree (e.g., School of Social Work, School of Public Health, and School of Health Professions). Scholarship and loan opportunities are noted on our website, which provide an incentive to attend MU.

The individuals responsible for marketing of the program will include the program director (TBD) under the guidance of the Associate Dean for Academic Affairs at the SSON in collaboration with marketing efforts through Mizzou Online. Targeted online recruitment will be used when this technique is refined by Mizzou Online.

The goal of the program is to reach and maintain 17 students per cohort on an annual basis. The first year, we anticipate admitting a cohort of 12 students and then increase enrollment by five students in year two. If the number of students applying to the major increases, cohort sizes could be increased to 20 students without adding additional faculty resources. As the program is initiated, marketing endeavors will need to be focused on recruiting students into this new degree area.

Marketing costs for years 1-5 are $10,000 for year 1, $7000 for years 2 and 3, and $5,000 for years 4 and 5. If funding is awarded through Mizzou Online, we will increase the marketing expenditures to 10% of the total program costs.

Retention efforts will include similar methods as currently used with the other SSON degree offerings. Students work with faculty advisors to design a plan of study that meets their work-life-academic commitments. Students are to contact their faculty advisors at least once a semester to discuss their progress. Each semester, the program director and academic advisors review student progress. Students who are identified as requiring additional support will work with their advisor and program director to create a support plan. There are other programs available to help students who require additional assistance, including but not limited to the Online Nursing Writery, Student Health Services, and Career and Counseling Services.
Each year, data will be collected regarding student enrollment in the program and the number of students who have withdrawn or taken a leave of absence; this includes documenting their reason for leaving the university. This data will be used to help guide program evaluation and design, allowing for targeted changes to strengthen the program including design, support services, and course offerings. This information will be shared on an annual basis with the Dean of the Sinclair School of Nursing and Associate Dean for Academic Affairs to ensure program goals are met and there is clear communication about programmatic needs, including plans for quality improvement. The MS/DNP Curriculum Committee will review program requirements to ensure that courses are of sufficient quality and rigor. The program director will review student numbers regarding admission, enrollment, and retention with the goal of ensuring student progression and early problem identification.

4. Institutional Capacity

Capacity to accommodate the Care Management students exists with current online courses (18 of the required 33 credits will be from existing online courses). Resources to accommodate this new program will be obtained from tuition (60% of online fees will be retained by the SSON). Net revenue is estimated to be -$46,204 for the SSON and $5,830 for MU in year 1, $10,811 for the SSON and $115,142 for MU in year 2, and $68,592 for SSON and $210,187 for MU in year 3. Select carryover funds will be used until 2020 (year 3) when income from tuition will exceed expenditures. The cumulative revenue at year 3 is estimated to be $33,200 for SSON and $331,160 for MU. Accounting for 25% attrition moves program viability to year 4, where cumulative revenue will be $31,932 for SSON and $385,538 for MU. There is the possibility that a total of 9 credits in addition to HMI, will be taken outside the SSON, but we believe this is unlikely as the majority of students will be nurses and will take courses through the SSON.

5. Program Characteristics

5.A. Program Outcomes

The goal of the Master’s of Science in Care Management is to educate health care professionals to improve health outcomes, enhance care quality, and reduce health care costs. Graduates will provide care coordination to diverse people across the life span using care management principles and approaches that include facilitating delivery of health care to individuals/family, engagement of individuals/family in care plan design, and implementation resulting in high quality, high value, cost effective care using a collaborative, interdisciplinary approach. This program supports preparation for national certification as a care manager through the American Nurses Credentialing Center, American Case Management Association, and the Commission for Case Manager Certification.

Upon completion of the Master's program in Care Management, the learner will:
1. Communicate, collaborate, and engage individuals/families, health care professionals, and health care systems to facilitate appropriate use of health care resources in order to deliver high-quality, high-value care in all health care settings.

2. Critique, assimilate, and evaluate research, technology, health care costs, and informatics data as a basis for promoting health, improving health care coordination, and influencing changes at the systems and policy level.

3. Advocate, through leadership and policy, for all persons in need of health care coordination regardless of race, religion, color, national origin, sex, sexual orientation, age, disability, and military veteran or socioeconomic status.

4. Practice professional accountability and behavior consistent with the Code of Professional Conduct for Case Managers.

5.B. Structure

The curriculum for the MS in Care Management will largely be built upon existing courses currently offered through the SSON as well as other schools and departments within the university. The MS in Care Management will require 33 total credit hours of which there will be 60 hours of quality improvement practicum, 180 hours of clinical practicum experience in a care management role, and successful completion of the master’s exam. The program will be offered online, with no on-campus requirements to be completed. Students can complete the plan of study in three years as a part-time student or two years as a full-time student. Based upon current enrollment trends, the majority of our graduate students select a part-time plan of study, in which they complete approximately 12 credit hours per academic year. The completed Program Structure Form includes the specific program curricula details.

5.C. Program Design and Content

As previously described, the MS Care Management Task Force, created under the direction of Dean Judith Miller, brought together individuals from industry, practice, and academe knowledgeable of care management practice to develop the Care Management program. Task force members searched existing care management programs, care management certification requirements, and solicited the input of existing care managers to create a degree program reflective of the current and future needs of care managers. Current evidence as reported in the literature yielded information about care management principles and models of practice that were incorporated into the structure and design of the MS Care Management program. Final program design was reviewed with an external consultant, Ginny Pepper, PhD, RN, FAAN from the University of Utah, College of Nursing, and changes were made to the program based upon her recommendations. Dr. Pepper has just recently retired as Director of the Hartford Center of Geriatric Excellence. Their care management program offers a program specific to geriatric care management for non-nurses, as well as MS in Nursing with an emphasis in care management.

The sequencing of courses builds on the students’ unique perspectives and foundational knowledge of theory applications of care coordination, research principles, an understanding of basic physiology and pharmacology, and care management principles.
and skills. From this foundation, students then begin to apply these principles and skills in order to determine how care management practices are used within health care settings. Additionally, from the perspective of continuous quality improvement, students will learn to evaluate the impact of care management on vulnerable populations, including those with complex medical conditions. As students near completion of the program, they will determine how these foundational skills and principles will be applied in practice to different patient populations by completing a care management practicum experience.

PROGRAM STRUCTURE

1. Total credits required for graduation: 33

2. Residency requirements, if any: None

3. General education: N/A

4. Major requirements:

<table>
<thead>
<tr>
<th>Year One</th>
<th>MS in Care Management</th>
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<tbody>
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<table>
<thead>
<tr>
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<th>Credit Hrs</th>
<th>Clinical Hrs</th>
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<td>HMI 7430</td>
<td>Introduction to Health Informatics</td>
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<td>0</td>
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<tr>
<td>7XXX</td>
<td>Foundations of Care Coordination: Professional, Legal, Financial, and Business</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Course Name</th>
<th>Credit Hrs</th>
<th>Clinical Hrs</th>
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<tr>
<td>7XXX</td>
<td>Pharmacology, Pathophysiology, &amp; Physical Assessment for Care Managers</td>
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<td>N7150 or P_HLTH 7952 or SW7952</td>
<td>Nursing Research (or select a research course from the School of Social Work or School of Public Health)</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Year Two</th>
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</tr>
</thead>
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<table>
<thead>
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<th>Credit Hrs</th>
<th>Clinical Hrs</th>
</tr>
</thead>
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<td>N8XXX</td>
<td>Interprofessional Practice: Transforming Healthcare</td>
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<td>0</td>
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<tr>
<td>N8920</td>
<td>Quality, Safety, and Performance Outcomes</td>
<td>3</td>
<td>60/DNP</td>
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<table>
<thead>
<tr>
<th>Spring</th>
<th>Course #</th>
<th>Course Name</th>
<th>Credit Hrs</th>
<th>Clinical Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>N8XXX</td>
<td>Care Management Practice for Individuals and Populations</td>
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<td>0</td>
<td></td>
</tr>
<tr>
<td>Course #</td>
<td>Course Name</td>
<td>Credit Hrs</td>
<td>Clinical Hrs</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------</td>
<td>--------------</td>
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</tr>
<tr>
<td>N8940 or SW8220 or SW8240 or P HLTH 7850</td>
<td>Nursing and Health Policy (or select a policy course from the School of Social Work or School of Public Health)</td>
<td>3</td>
<td>0</td>
<td></td>
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</table>
| ELECTIVE      | N8720 Symptom Management of Acute and Chronic Illness  
N8010 Family Dynamics cross listed H_D_FS2012  
SW7480 Helping Strategies of Older Adult  
SW7390 Helping Strategies of Children and Adolescence  
N8120 Applied Epidemiology in Community Assessment  
(other electives upon advisor approval) | 3          | 0            |
| N8XXX         | Care Management Role-Focused Practicum                                       | 3          | 180          |
|               | Master’s Exam                                                                |            |              |
|               | **Total:**                                                                   | **33**     | **240**      |

New courses are highlighted in yellow.

5. **Free elective credits:** None

6. **Requirement for thesis, internship or other capstone experience:** During the MS Care Management program, students will complete a total of 240 practicum hours. Of those, 60 hours are completed within the N8920 Quality, Safety, and Performance Outcomes course working on complex quality improvement cases and is led and precepted by the course instructors. In addition, students must complete a 180 hour Care Management Role-Focused Practicum. Within these hours, students are expected to identify best care management practices and work closely with their preceptor learning through experience the principles of care management at the individual and population level.

7. **Any unique features such as interdepartmental cooperation:** Several courses provide students the opportunity to collaborate among other MU divisions for course credit. For example, students must enroll in a research course; however, they can select from Nursing Research or select a research course from the Department of Public Health. This allows for a more flexible program to meet the student needs and their individual backgrounds and provides for collaboration among departments across campus. See the sample Program of Study under the Program Structure section.
5.D. Program Goals and Assessment

Student learning outcomes will be assessed through completion of the required coursework and practicum required for the degree. Students must maintain a 3.0 GPA on all graduate coursework throughout the MS Care Management program. Each semester (fall and spring) student progress within graduate coursework is evaluated. Students receiving incomplete grades or grades of “C” or below in care management specific courses are to be counseled by their faculty academic advisor.

Currently there are no national or local assessments related to care management. We anticipate 100% of students will pass national certification exams for which they are eligible.

Within the Sinclair School of Nursing, as a comparator, 75% of Master’s of Science in Nursing students graduate. If we remove those who left for personal reasons, the graduation rate is over 90%. Taking these figures into consideration, it is reasonable to approximate that we will retain 75% of students entering into the MS in Care Management program and reflect at minimum a 75% graduation rate over 5 years.

Each year the program anticipates enrolling 17 students per cohort after year one. As many students enrolling in graduate nursing programs, public health, and social work tend to be working professionals, we anticipate that many of the students will select a three year part-time plan of study. Using this three-year timeframe and taking into account attrition, a minimum of 13 students and maximum of 17 students will graduate each year by the fourth year of program initiation.

Students enrolled in the MS in Care Management program will be eligible for certification through various certifying bodies, including the American Nurses Credentialing Center, American Case Management Association, and the Commission for Case Manager Certification. Certification in care management requires both educational and practice hour requirements. Generally care managers must have between 12 to 36 months of practice experience in their role as a care manager prior to certification. Therefore, we estimate that at 3 years post-graduation a minimum of 70% of students will become certified care managers as not all managers require certification.

The need for care managers is evident through national, regional, and local advertisement for care management openings and the rapidly increasing need for coordinated health care. We anticipate 90% of our students will be employed in a care management role at one year post-graduation.

Additional measures of success will include:

- 80% of students attempting the master’s exam will pass on their first attempt.
- 20% MS graduates achieve leadership roles within 5 years of graduation.
o 20% MS graduates will present at professional meetings within 5 years of graduation.
o 90% of MS Care Management alumni will rate the SSON programs at or above the mid-point on the program satisfaction scale.
o 90% of employers will rate graduates of the MS Care Management program at or above the mid-point on the employer satisfaction scale.

5.E. Student Preparation

Students entering the MS in Care Management program must be prepared with a health-related baccalaureate degree from an accredited university. Health-related degrees such as nursing, medicine, physical therapy, occupational therapy, respiratory therapy, public health, social work, health education, and health sciences will be considered. Students must have a minimum of a 3.0 GPA from the last 60 hours of their undergraduate coursework to be considered.

Students applying for the MS in Care Management degree must meet the following criteria:
o GPA 3.0 from the last 60 hours of undergraduate coursework;
o Health-related baccalaureate or graduate degree from an accredited university;
o Submission of a curriculum vitae or resume; and
o A one-page essay describing their academic and professional goals.

5.F. Faculty and Administration

One additional faculty member will be needed, prepared with a Doctor of Nursing Practice or Doctor of Philosophy degree and experience with care coordination and health systems preferred. The new faculty for the degree offering will be mentored by doctoral prepared faculty with research and practice expertise in care coordination as previously listed (Popejoy, Lane, Vogelsmeier, Alexander, and Rantz). The new faculty member will be responsible for the success of the program and 60% of their time will be spent in coordination, recruitment retention, course instruction, and program evaluation related to the Care Management degree.

Instructional needs will be met through the various faculty who are teaching existing courses through the SSON and previously named departments who have agreed to accept students admitted for this program. Only faculty with specific experience or training in care management, care management related fields, or expertise will be utilized for course instruction in care management specific courses. The use of educational conferences, workshops, and seminars will be utilized to ensure faculty are competent and up to date in care management practices and principles.

Faculty expectations for teaching, advisement, and professional activities are consistent with those required of all full-time faculty employed within the SSON. Based upon our faculty workload for non-tenure track teaching faculty, workload is 80% teaching and
20% service. The expectation is that service includes academic advisement and participation in departmental and university committees.

5.G. Alumni and Employer Survey

Exit surveys are distributed to graduates at completion of their degree program and then to alumni at 1, 3, and 5 years post-graduation. These surveys are distributed through the online Qualtrics surveying system available through the University of Missouri. All measures must be above four on a one to five scale with five being very satisfied, indicating above average achievement of institutional goals.

Employer surveys will also be distributed at 1, 3, and 5 years to obtain feedback regarding the performance of the Care Management graduates. This will follow the same process currently in place for employee satisfaction data retrieval and evaluation at the SSON.

5.H. Program Accreditation

The Sinclair School of Nursing has full accreditation from the Commission on Collegiate Nursing Education (CCNE) for all existing programs including the BSN, MS, and DNP. There is no national certification or academic accrediting body for PhD programs in nursing or for care management programs. Students will seek individual certification.
References


# Appendix A: Expanded Budget Detail

## Expected Enrollment

<table>
<thead>
<tr>
<th>Year 1 (2018-2019)</th>
<th>Students</th>
<th>Courses</th>
<th>Clinical Hrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1</td>
<td>12</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$3,986.39</td>
<td></td>
<td>$125.05</td>
<td>$4,111.44</td>
</tr>
<tr>
<td>SSON Generated Revenue Year 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SSN Generated Revenue Year 1</td>
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<td></td>
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</tbody>
</table>

## Year 2 (2019-2020)

<table>
<thead>
<tr>
<th>Year 2 (2019-2020)</th>
<th>Students</th>
<th>Courses</th>
<th>Clinical Hrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1</td>
<td>12</td>
<td>12</td>
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</tr>
<tr>
<td></td>
<td>$4,848.38</td>
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<td>$171.74</td>
<td>$5,020.12</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>SSN Generated Revenue Year 2</td>
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</table>

## Year 3 (2020-2021)

<table>
<thead>
<tr>
<th>Year 3 (2020-2021)</th>
<th>Students</th>
<th>Courses</th>
<th>Clinical Hrs</th>
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<td>Cohort 1</td>
<td>12</td>
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<td>SSN Generated Revenue Year 3</td>
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</table>

## Year 4 (2021-2022)

<table>
<thead>
<tr>
<th>Year 4 (2021-2022)</th>
<th>Students</th>
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<tr>
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</table>

## Year 5 (2022-2023)

<table>
<thead>
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<th>Clinical Hrs</th>
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<td></td>
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<tr>
<td>SSN Generated Revenue Year 5</td>
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<td></td>
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<td></td>
</tr>
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</table>

## Total SSON Generated Revenue

| Total SSON Generated Revenue |          |         |             |       |
|------------------------------|          |         |             |       |

* SSON projected revenue based on 30 credits per student over 3 years. See page A-3 for revenue generated from other MU Divisions.

## tuition

<table>
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<tr>
<th>Fall 2017</th>
<th>Fall 2018</th>
<th>Fall 2019</th>
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<th>Fall 2021</th>
<th>Fall 2022</th>
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<td>$14.74</td>
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<td>$15.64</td>
</tr>
</tbody>
</table>

Tuition calculated 3% increase per year.
### HMI Revenue

<table>
<thead>
<tr>
<th>Year 1 (for each cohort)</th>
<th># Students</th>
<th># Credit hrs</th>
<th># Clinical hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1 (2018-2019)</td>
<td>12</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Cohort 2 (2019-2020)</td>
<td>17</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Cohort 3 (2020-2021)</td>
<td>17</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Cohort 4 (2021-2022)</td>
<td>17</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Cohort 5 (2022-2023)</td>
<td>17</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Cost for 1 Student

<table>
<thead>
<tr>
<th></th>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1</td>
<td>$2,472.00</td>
<td>$98.88</td>
<td>$41.68</td>
<td>$2,612.66</td>
</tr>
<tr>
<td>Cohort 2</td>
<td>$2,546.16</td>
<td>$101.85</td>
<td>$42.93</td>
<td>$2,690.94</td>
</tr>
<tr>
<td>Cohort 3</td>
<td>$2,622.54</td>
<td>$104.90</td>
<td>$44.22</td>
<td>$2,771.67</td>
</tr>
<tr>
<td>Cohort 4</td>
<td>$2,701.22</td>
<td>$106.05</td>
<td>$45.55</td>
<td>$2,854.82</td>
</tr>
<tr>
<td>Cohort 5</td>
<td>$2,782.26</td>
<td>$111.29</td>
<td>$46.92</td>
<td>$2,940.46</td>
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</tbody>
</table>

#### Revenue for Cohort

<table>
<thead>
<tr>
<th></th>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1</td>
<td>$29,664.00</td>
<td>$1,160.56</td>
<td>$500.21</td>
<td>$31,325.77</td>
</tr>
<tr>
<td>Cohort 2</td>
<td>$43,284.72</td>
<td>$1,731.39</td>
<td>$729.89</td>
<td>$45,745.90</td>
</tr>
<tr>
<td>Cohort 3</td>
<td>$44,583.26</td>
<td>$1,783.33</td>
<td>$751.79</td>
<td>$47,118.38</td>
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<tr>
<td>Cohort 4</td>
<td>$45,900.76</td>
<td>$1,896.83</td>
<td>$774.34</td>
<td>$48,571.93</td>
</tr>
<tr>
<td>Cohort 5</td>
<td>$47,296.38</td>
<td>$1,991.94</td>
<td>$797.57</td>
<td>$49,186.09</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMI Revenue</td>
<td>$210,751.12</td>
<td>$8,430.04</td>
<td>$3,553.79</td>
<td>$222,734.90</td>
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</table>

### MU Revenue

#### MU Revenue/Year

<table>
<thead>
<tr>
<th>Year</th>
<th>tuition</th>
<th>clinical &amp; course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1 (2018-2019)</td>
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<tr>
<td>Year 2 (2019-2020)</td>
<td>$179,122.01</td>
<td>$4,317.01</td>
<td>$4,980.42</td>
<td>$188,419.44</td>
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<tr>
<td>Year 3 (2020-2021)</td>
<td>$263,638.04</td>
<td>$13,546.77</td>
<td>$7,808.30</td>
<td>$284,790.11</td>
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<td>Year 4 (2021-2022)</td>
<td>$293,381.99</td>
<td>$17,381.01</td>
<td>$8,517.73</td>
<td>$319,280.73</td>
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<tr>
<td>Year 5 (2022-2023)</td>
<td>$302,183.45</td>
<td>$17,904.44</td>
<td>$8,773.28</td>
<td>$328,860.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MU Revenue</th>
<th>tuition</th>
<th>clinical &amp; course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,115,946.16</td>
<td>$54,332.79</td>
<td>$31,878.54</td>
<td>$1,202,157.49</td>
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### 25% Attrition/Year

#### SSON Generated Revenue*

<table>
<thead>
<tr>
<th>Year 1 (2018-2019)</th>
<th>Students</th>
<th>Credit hour tuition</th>
<th>Credit hour clinical fee</th>
<th>Credit hour IT fee</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1</td>
<td>10</td>
<td>$3,966.39</td>
<td>$125.05</td>
<td>$4,121.44</td>
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</tr>
<tr>
<td>SSON Generated Revenue Year 1</td>
<td></td>
<td>$3,963.90</td>
<td>$125.05</td>
<td>$4,121.42</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 2 (2019-2020)</td>
<td>10</td>
<td>$5,488.38</td>
<td>$215.47</td>
<td>$5,875.85</td>
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<td>Cohort 2</td>
<td>13</td>
<td>$4,116.28</td>
<td>$128.80</td>
<td>$4,245.09</td>
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<tr>
<td>SSON Generated Revenue Year 2</td>
<td></td>
<td>$54,833.75</td>
<td>$2,164.69</td>
<td>$1,717.38</td>
<td>$58,715.62</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 3 (2020-2021)</td>
<td>10</td>
<td>$4,239.77</td>
<td>$665.80</td>
<td>$5,008.24</td>
<td></td>
</tr>
<tr>
<td>Cohort 1</td>
<td>13</td>
<td>$5,653.03</td>
<td>$176.89</td>
<td>$6,051.95</td>
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<tr>
<td>Cohort 2</td>
<td>13</td>
<td>$4,239.77</td>
<td>$132.67</td>
<td>$4,372.44</td>
<td></td>
</tr>
<tr>
<td>SSON Generated Revenue Year 3</td>
<td></td>
<td>$42,397.70</td>
<td>$6,657.99</td>
<td>$1,717.38</td>
<td>$50,773.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 4 (2021-2022)</td>
<td>10</td>
<td>$4,366.86</td>
<td>$685.77</td>
<td>$5,119.83</td>
<td></td>
</tr>
<tr>
<td>Cohort 2</td>
<td>13</td>
<td>$5,822.62</td>
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<tr>
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<td>$4,366.86</td>
<td>$136.65</td>
<td>$4,503.51</td>
<td></td>
</tr>
<tr>
<td>SSON Generated Revenue Year 4</td>
<td></td>
<td>$56,770.52</td>
<td>$8,915.04</td>
<td>$1,776.42</td>
<td>$67,461.98</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 5 (2022-2023)</td>
<td>10</td>
<td>$4,487.97</td>
<td>$706.35</td>
<td>$5,345.06</td>
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<tr>
<td>Cohort 3</td>
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<td>$5,897.30</td>
<td>$187.66</td>
<td>$6,920.41</td>
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<td>13</td>
<td>$4,487.97</td>
<td>$140.75</td>
<td>$4,638.72</td>
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<tr>
<td>SSON Generated Revenue Year 5</td>
<td></td>
<td>$58,473.63</td>
<td>$9,182.49</td>
<td>$1,829.72</td>
<td>$69,485.84</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SSON Generated Revenue</td>
<td></td>
<td>$703,510.53</td>
<td>$35,827.86</td>
<td>$22,013.77</td>
<td>$761,352.15</td>
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<tr>
<td>Total SSON Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
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* SSON projected revenue based on 30 credits per student over 3 years. See page A-3 for revenue generated from other MU Divisions.
## HMI Revenue

<table>
<thead>
<tr>
<th>Year 1 (for each cohort)</th>
<th># students</th>
<th># credit hrs</th>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 1 (2018-2019)</td>
<td>10</td>
<td>3</td>
<td>$2,472.00</td>
<td>$98.88</td>
<td>$41.88</td>
<td>$2,612.56</td>
</tr>
<tr>
<td>Cohort 2 (2019-2020)</td>
<td>13</td>
<td>3</td>
<td>$2,546.16</td>
<td>$101.85</td>
<td>$42.93</td>
<td>$2,690.94</td>
</tr>
<tr>
<td>Cohort 3 (2020-2021)</td>
<td>13</td>
<td>3</td>
<td>$2,022.54</td>
<td>$104.90</td>
<td>$44.22</td>
<td>$2,171.67</td>
</tr>
<tr>
<td>Cohort 4 (2021-2022)</td>
<td>13</td>
<td>3</td>
<td>$2,701.22</td>
<td>$108.05</td>
<td>$45.55</td>
<td>$2,854.82</td>
</tr>
<tr>
<td>Cohort 5 (2022-2023)</td>
<td>13</td>
<td>3</td>
<td>$2,782.26</td>
<td>$111.20</td>
<td>$46.82</td>
<td>$2,940.40</td>
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</tbody>
</table>

## Cost for 1 Student

<table>
<thead>
<tr>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$24,720.00</td>
<td>$988.80</td>
<td>$418.84</td>
<td>$26,125.64</td>
</tr>
<tr>
<td>$33,160.08</td>
<td>$1,324.00</td>
<td>$558.15</td>
<td>$34,042.23</td>
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<tr>
<td>$34,890.08</td>
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<td>$36,831.70</td>
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<tr>
<td>$30,115.87</td>
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<td>$592.14</td>
<td>$32,012.64</td>
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<tr>
<td>$30,169.35</td>
<td>$1,446.77</td>
<td>$609.91</td>
<td>$32,226.03</td>
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</tbody>
</table>

HMI Revenue: $163,198.39

## Revenue for Cohort

<table>
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<tr>
<th>tuition</th>
<th>course fee</th>
<th>IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>$6,627.94</td>
<td>$2,751.93</td>
<td>$172,478.26</td>
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</table>

## MU Revenue

<table>
<thead>
<tr>
<th>Year</th>
<th>tuition</th>
<th>course &amp; IT fee</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1 (2018-2019)</td>
<td>$64,683.90</td>
<td>$988.80, $1,667.36</td>
<td>$67,340.06</td>
</tr>
<tr>
<td>Year 2 (2019-2020)</td>
<td>$141,495.49</td>
<td>$3,478.69, $3,949.99</td>
<td>$148,924.17</td>
</tr>
<tr>
<td>Year 3 (2020-2021)</td>
<td>$205,097.13</td>
<td>$10,966.84, $5,925.84</td>
<td>$221,992.80</td>
</tr>
<tr>
<td>Year 4 (2021-2022)</td>
<td>$224,350.94</td>
<td>$13,281.36, $6,513.56</td>
<td>$244,145.85</td>
</tr>
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<td>Year 5 (2022-2023)</td>
<td>$231,081.46</td>
<td>$13,680.10, $6,786.96</td>
<td>$251,460.53</td>
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</table>

MU Revenue: $866,708.92

MU Revenue/Year: $42,355.79, $24,765.70, $933,830.41

December 7-8, 2017
Revenue with Other Discipline

MS in Care Management

Calculated using tuition Fall 2021 (4th year) - see MU Revenue sheet

<table>
<thead>
<tr>
<th></th>
<th>SSON tuition</th>
<th>SSON clinical fee</th>
<th>HMI tuition + course fee</th>
<th>MU graduate tuition</th>
<th>MU IT fee</th>
<th># of students</th>
<th>projected retention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ 485.22</td>
<td>$ 228.59</td>
<td>$ 936.43</td>
<td>$ 405.18</td>
<td>$ 15.18</td>
<td>51</td>
<td>39</td>
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</tbody>
</table>

### HMI Revenue

<table>
<thead>
<tr>
<th></th>
<th>3 credit hours</th>
<th>0 clinical hours</th>
<th>30 credit hours</th>
<th>4 clinical hours</th>
<th>MU Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>per student</td>
<td>$ 2,854.83</td>
<td></td>
<td>$ 15,926.36</td>
<td></td>
<td>$ 18,781.19</td>
</tr>
<tr>
<td>x 51 students</td>
<td>$ 145,596.33</td>
<td></td>
<td>$ 812,244.36</td>
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<td>$ 957,840.69</td>
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<tr>
<td>x 39 students</td>
<td>$ 111,338.37</td>
<td></td>
<td>$ 621,128.04</td>
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<td>$ 732,466.41</td>
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</tbody>
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### SSON Revenue

<table>
<thead>
<tr>
<th></th>
<th>3 credit hours</th>
<th>0 clinical hours</th>
<th>4 clinical hours</th>
<th>MU Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>per student</td>
<td>$ 2,854.83</td>
<td></td>
<td>$ 11,422.76</td>
<td>$ 3,783.24</td>
</tr>
<tr>
<td>x 51 students</td>
<td>$ 145,596.33</td>
<td></td>
<td>$ 582,560.76</td>
<td>$ 192,945.24</td>
</tr>
<tr>
<td>x 39 students</td>
<td>$ 111,338.37</td>
<td></td>
<td>$ 445,487.64</td>
<td>$ 147,546.36</td>
</tr>
</tbody>
</table>

### Other MU Division

<table>
<thead>
<tr>
<th></th>
<th>9 credit hours</th>
<th>0 clinical hours</th>
<th>MU Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>per student</td>
<td>$ 3,783.24</td>
<td></td>
<td>$ 18,060.83</td>
</tr>
<tr>
<td>x 51 students</td>
<td>$ 192,945.24</td>
<td></td>
<td>$ 921,102.33</td>
</tr>
<tr>
<td>x 39 students</td>
<td>$ 147,546.36</td>
<td></td>
<td>$ 704,372.37</td>
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</tbody>
</table>

### MU graduate tuition

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<th>Fall 2017</th>
<th>Fall 2018</th>
<th>Fall 2019</th>
<th>Fall 2020</th>
<th>Fall 2021</th>
<th>Fall 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>tuition</td>
<td>$ 360.00</td>
<td>$ 370.80</td>
<td>$ 381.92</td>
<td>$ 393.38</td>
<td>$ 405.18</td>
<td>$ 417.34</td>
</tr>
</tbody>
</table>

Tuition calculated 3% increase per year.
Appendix B: Letters of Support
May 25, 2016

Garnett Stokes, PhD
Provost
University of Missouri
Columbia, MO 65211

Dear Provost Stokes:

This is a letter of enthusiastic support for the development and implementation of our master’s online program, Case Management. As a result of concerted effort by the faculty to be “forward thinking” in developing the new 10 year strategic plan for the Sinclair School of Nursing, a large section of the plan focuses on “designing curricula for the future.” Preparing case managers is an example of this type of curricula within health care and is an important addition to the program offerings at the SSON. These case management professionals are needed to maintain continuity of care for persons and families moving within and among varied health care systems. Maintaining physical and emotional integrity of patients as they navigate systems, humanizing the health care experience, while containing costs is an imperative in today’s health care market. Case managers can accomplish these challenging tasks.

There are no other programs preparing case managers in the state of Missouri, despite a need for their care coordination competence. There is an academic market supporting the need for these graduates, considering the over 150 applicants each year to our accelerated program, by persons who have degrees in other disciplines. We are able to admit only 50 of these highly qualified applicants per year. All of these applicants are interested in careers in health care and this program will provide a graduate degree alternative for those not admitted to nursing. This program would also meet needs for nurses wanting to further their academic careers thereby providing an opportunity to attract new applicants to MU.

The curriculum committee at the SSON directly responsible for this program, the Masters/Doctor of Nursing Practice Curriculum Committee, unanimously endorsed this Case Management program on May 2, 2016.

Sincerely,

Judith Fitzgerald Miller, PhD, RN FAAN
Dean and Professor
May 5, 2016

Dear Dr. Harris,

During the May 2016 meeting of the MS(N)/DNP Curriculum Committee your proposal for the addition of the Master of Science in Case Management degree was unanimously approved. The Committee enthusiastically supports the development of this interdisciplinary online program to educate professionals who will be able to improve health outcomes, enhance care quality and reduce health care costs. This additional degree offering in Case Management will be a very attractive option to nurses and non-nurses who plan to focus their careers in care coordination. This program is greatly needed as the demand for case managers is expected to grow due to the increasing demands from managed care, the rapidly increasing numbers of older adults and the increasing numbers of patients with multiple chronic health care conditions, psychiatric illness and/or substance abuse.

The faculty at the MU Sinclair School of Nursing have a long and industrious history of providing innovative distance education programs including a master of science in Nursing Education, a master of science in Leadership in Nursing and Healthcare Systems, a doctor of nursing practice (DNP), and a doctor of philosophy in nursing (PhD). Given that no Case Management MS degree is offered in the State of Missouri or surrounding states, the MU Sinclair School of Nursing is perfectly positioned to offer an on-line graduate degree in case management in the Midwest region where MU typically attracts students.

Sincerely,

Jane Bostick, RN, PhD, PMHCNS-BC
Teaching Professor
Coordinator, Family PMHNP DNP area of study
Chair, MSN/DNP Curriculum Committee
February 27, 2017

Robin Harris, DNP, RN  
DNP Director  
Nursing Leadership and Innovations  
DNP Area Coordinator  
Assistant Teaching Professor  
Sinclair School of Nursing S429  
University of Missouri

Dear Dr. Harris:

I am writing to show support for the MS in Care Management to be offered to graduate students through the University of Missouri Sinclair School of Nursing. The important goal of the Master's of Science in Care Management is to educate professionals to improve health outcomes, enhance care quality, and reduce health care costs. We agree to provide HMI 7430: Introduction to Health Informatics as an online option during the fall semester beginning in the fall of 2018. While this course is currently offered in traditional residential and executive hybrid formats, we understand that there will be some funds available to facilitate the preparation of this course to be offered online.

Best regards,

Sue Boren

Sue Boren, PhD, MHA  
Associate Professor and Director of Academic Programs
February 22, 2017

Judith Miller, PhD, RN, FAAN
Dean of the Sinclair School of Nursing
S215 Sinclair School of Nursing

Dear Dean Miller:

It is with great enthusiasm that I write this letter of support for your proposed program, MS in Care Management. I have spoken with both Professors Popejoy and Harris about this program, the need it addresses, and the goals to which it aspires and I can think of no better way of achieving these goals than through the joint collaboration the School of Social Work would like to contribute.

As a former medical social worker for over 11 years, I can sincerely attest to the value of the training this program will deliver. As your proposal outlines, the delivery of health care today spans numerous systems from the home, the community, clinics, and hospitals covering a broad range of patient conditions and ancillary services. Navigating this service delivery system will require the type of training and preparation this program is designed to deliver.

The course the School of Social Work is ready to offer cover a range of practice skills from working with individuals through policy level issues. Specifically:

- SW 7480 Helping Strategies of Older Adult
- SW 7390 Helping Strategies of Children and Adolescence
- SW 8220 Integrated Health Policy & Services
- SW 8240 Social Policy for Older Adults

In summary, we look forward to the approval of your proposal so we can begin our collaboration to address the health care needs of the individuals who will receive case management services from students trained in this program.

Sincerely,

Dale Fitch, PhD, MSSW
Associate Professor
Director, School of Social Work
University of Missouri
March 7, 2017

To: Robin Harris

       DNP Director, Sinclair School of Nursing

Re: Care Management MS degree proposal

Dear Dr. Harris:

Please accept this letter in support of the proposed Master of Science in Care Management. The Sinclair School of Nursing is a primary collaborative partner for the Master of Public Health (MPH) Program and I look forward to our continued collaboration on this degree, for which I agree there is substantial need in the state of Missouri. Currently the SSON is represented on the MPH core faculty committee and several SSON courses are included in our core curriculum. Nursing students who are interested in public health practice are among those taking public health coursework and many have completed or are working toward graduate certificates in public health. I welcome the opportunity to include several public health courses as options in the MS Care Management curriculum, including PH_8300 (Health Care in the U.S.) and PH_8920 (Social and Behavioral Science in Public Health). As you are aware, both of these courses are currently available online. I can anticipate that some of the students who enroll in this new Care Management degree may be interested in completing further coursework in our program, thereby expanding their options at MU and increasing their skills and options in the marketplace.

Please do let me know if there is anything further I can do to support the success of this proposal and the implementation of the degree program.

Sincerely,

Lise Saffran, MPH, MFA
Director, MU MPH Program
September 22, 2016

Leona Rubin, PhD
Associate Vice Chancellor, Graduate Studies
UM Associate Vice President, Academic Affairs and Graduate Education

Dear Dr. Rubin:

This is a statement of support for Sinclair School of Nursing’s proposed Master's degree in Case Management. Please forward this to the appropriate committee of the Graduate Faculty Senate.

The US healthcare system us rapidly evolving to a value based system. Case management is vital to achieving better health and better care at lower costs by enhancing care efficiencies and ensuring effective care delivery within a variety of health care agencies. Case managers serve a vital role assuring that patients get the care they need in the right setting by the right services and receive these in a timely fashion so as to reduce the possibility of complications and a lengthy difficult illness course. Case managers work with all members of the health care team to be certain that patients do not fall through the cracks; thus assuring improved quality of care. All of this is essential for optimal reimbursement. There is a current and growing need to increase the number of prepared case managers in health care to manage complex patients in community settings and reduce the need for re-hospitalization.

Select faculty at the Sinclair School of Nursing have a national reputation in care coordination and have received funding for such work. Their work has been widely disseminated. Certified case managers have been involved in the planning of this master’s offering.

Graduate students from a variety of disciplines will be able to benefit from a Case Management master’s program. Students completing this master’s degree in Case Management will be eligible for certification as Case Managers by the Commission for Case Management Certification.

Sincerely,

Patrice DelaFontaine, MD
Hugh E. and Sarah D. Stephenson Dean
Appendix C: Care Management Course Descriptions

8XXX: Interprofessional Practice: Transforming Healthcare
Credits: 3

Course Description: This course provides an introduction to interprofessional care management theories and models within the health professions. Differences and similarities of the specific elements that comprise various models of care management will be explored. Specific emphasis will be placed on developing a wraparound service model that uses an interprofessional team approach.

Prerequisite: None.

Course Objectives:
1. Identify, apply, and evaluate theories and models used in interdisciplinary care coordination.
2. Analyze the differences and similarities among theories and models of care coordination.
3. Evaluate the potential impact of different care management theories and models on patient outcomes.
4. Integrate interprofessional team based approaches to the development of a wraparound service model for vulnerable populations.

7XXX: Pharmacology, Pathophysiology, & Physical Assessment for Care Managers
Credits: 3

Course Description: Focuses on the normal and altered physiological functioning of body systems, physical assessment, and pharmacotherapy for common acute episodic and chronic health conditions. Provides basic knowledge and treatment of human health and disease across the life span necessary for care management practice.

Course Objectives:
1. Identify physical assessment findings of common pathophysiologic conditions affecting individuals throughout the life span.
2. Differentiate normal physical and physiological aging processes from typical and atypical manifestations of acute, critical, and/or chronic illness.
3. Discuss basic principles of drug action and interaction.
4. Recognize appropriate drug therapy regimens and expected therapeutic responses of medications used in the management of common acute and chronic illnesses.
5. Utilize current research, best clinical evidence, and critical thinking skills to assist in the medication management of individuals with acute and chronic health problems taking into consideration medication efficacy, cost-effectiveness, health literacy, patient safety, and patient self-efficacy.

N7XXX: Foundations of Care Coordination
Credits: 3

Course Description: This course will provide fundamental knowledge of the interdisciplinary care management role, practice settings and models of care, and
professional, legal, financial, and leadership responsibilities within the context of the current US health system.

Course Objectives:
1. Identify the principle functions of care managers.
2. Analyze the similarities and differences between care coordination, case management, and transitional care.
3. Describe the various practice settings, models of care, and legal implications impacting service delivery.
4. Recognize the influence of health care policy decisions on reimbursement and service delivery.
5. Develop strategies to manage problems related to limited fiscal resources, services, and multiple complex mental and physical health conditions among diverse populations.
6. Apply professional standards of care management practice and leadership principles that are used when working in interdisciplinary teams to achieve patient centered outcomes.
7. Utilize care coordination concepts and theories to develop a personal framework that guides care coordination best practices.

Mullahy
ISBN-10: 1284102408

N8XXX: Care Management Practice for Individuals and Populations
Credits: 3
Course Description: This course builds upon fundamentals of interdisciplinary care management. Tools, assessments, and techniques used in the management of complex patients with physical and mental health needs will be explored.

Course Objectives:
1. Identify the various tools, assessments, and techniques used in the assessment and management of complex patients across the life span.
2. Apply various care management tools, assessments, and techniques specific to different populations in achieving patient centered outcomes.
3. Develop patient service plans based upon assessments that meet the needs of complex patients taking into consideration the triple aim (better care, better health, lower cost).

N8XXX: Care Management Role-Focused Practicum
Credits: 3
Practicum Hours: 180
Course Description: Participation in the application of care management strategies and principles in a selected population and setting of interest.

Course Objectives:
1. Collaborate effectively with patients, families, interdisciplinary teams, and community stakeholders in the delivery of care management services to diverse populations.
2. Differentiate the key care management functions in the coordination of patient care services in various settings.
3. Assess the effectiveness of care management in achieving patient outcomes.
4. Demonstrate professional accountability in the care manager role.
5. Identify relevant public policy issues in the care management role in achieving the triple aim for health care (better health, better care, lower cost, provider satisfaction).
No. 4

Recommended Action - Adjourn Board of Curators Academic, Student and External Affairs Committee Meeting.

It was moved by Curator __________ and seconded by Curator __________, that the Board of Curators Academic, Student and External Affairs Committee meeting, December 7-8, 2017, be adjourned.

Roll call vote of the Committee: YES NO

Curator Farmer
Curator Layman
Curator Phillips
Curator Snowden

The motion ________________.
COMPENSATION AND HUMAN RESOURCES COMMITTEE
Summary

In response to recently released results from the Campus and System Climate Surveys, as well as common themes voiced by Faculty and Staff Councils from across the campuses, University leaders began exploring additional opportunities to demonstrate appreciation of our faculty and staff and to recognize the high value contributions they are making through their work at the University of Missouri.

The goal is to enhance work-life balance of University employees and also to improve our ability to recruit and retain top faculty and staff, as well as future students of the University of Missouri.

There are three proposals that would either amend a current Collected Rule & Regulation (CRR) or create a new CRR. These include:

1. Creation of a new CRR that gives the President and Chancellors the opportunity to declare a Winter Break Reduced Operation schedule for the System office or the campuses.
2. Creation of a new CRR that establishes a framework for a Shared Leave Program.
3. An amendment to the current Educational Assistance CRR
Recommended Action – Addition to the Collected Rules and Regulations, Section 340.045 Winter Break Reduced Operations; Addition to the Collected Rules and Regulations, Section 340.055, Principles for Establishment of a Shared Leave Program; and Revision to the Collected Rules and Regulations, Section 230.070 Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants

It was recommended by Vice President Ryan Rapp, endorsed by President Mun Choi, recommended by the Compensation and Human Resources Committee, moved by Curator ____________ and seconded by Curator ____________, that the following action be approved:

- That 340.045 Winter Break Reduced Operations be added to the Collected Rules and Regulations of the University of Missouri as set forth in the attached;
- That 340.055 Principles for the Establishment of a Shared Leave Program be added to the Collected Rules and Regulations of the University of Missouri as set forth in the attached; and
- That Collected Rules and Regulations 230.070 Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants be amended as set forth in the attached.

Roll call vote of Committee:   YES  NO

Curator Chatman
Curator Farmer
Curator Layman
Curator Steelman
Curator Sundvold

The motion _______________
Roll call vote of the Board: YES  NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.
New Collected Rules and Regulations, Chapter 340.045, Winter Break Reduced Operations Summary

Winter Break Reduced Operations

Background

- A large number of staff and faculty, including the Chancellors, have expressed interest in allowing additional time off for staff during winter break.
- There has not been a consistent practice among the campuses regarding staff time off for winter break.
- University of Missouri-St. Louis has routinely shut the campus down during this time period, and staff have used their vacation or personal time.
- In 2016, the University of Missouri-Columbia interim Chancellor shut down campus operations, and granted four additional administrative days to staff members, which provided compensation at the normal rate of pay without requiring use of vacation or personal time.

Recommendation

- The University will operate under a reduce operation plan during the period starting the day after Christmas Day holiday is observed and running through the end of the day before New Year’s Day holiday is observed. The dates of observation of those holidays shall be specified in Section 340.040 of these Collected Rules and Regulations. This rule will not apply to the operations of University of Missouri Heath Care or employees of that unit.
- Each Chancellor will determine what operations will continue during the period of reduced operations and create a campus reduced operation plan, subject to approval by the President.
- The President will determine what operations will continue during the period of reduced operations for the System office and create a System office reduced operation plan.
- Eligible Employees are regular Administrative, Service and Support employees and certain non-regular academic employees as approved by the Chancellor and President who are in positions that accrue vacation, sick and personal leave.
- Eligible Employees who are held out of work because of Winter Break Reduced Operations will receive Winter Break Leave to be used during this time period only and not to exceed the amount of hours of their regular work schedule, with 99% to 75% FTE employees to receive on a prorata basis.
- Eligible Employees who are required to work during Winter Break Reduced Operations either pursuant to the reduced operation plan or due to call-in or call-back, will be allowed to use an equivalent amount of their Winter Break Leave hours at a later date. Those Winter Break Leave hours must be taken before November 30 of the following year, or they will be forfeited.
Chapter 340: Employee Absences
340.045 Winter Break Reduced Operations

A. Period of Winter Break Reduced Operations
   The University will operate under a reduced operation plan during the period starting the
day after Christmas Day holiday is observed and running through the end of the day before
New Year’s Day holiday is observed. The dates of observation of those holidays shall be
as specified in Section 340.040 of these Collected Rules and Regulations. This rule will
not apply to the operations of University of Missouri Health Care or employees in that unit.

B. Winter Break Reduced Operation Plan
   1. Each Chancellor will determine what operations will continue during the period of
      reduced operations and create a campus reduced operation plan, subject to approval by
      the President.
   2. The President will determine what operations will continue during the period of
      reduced operations for the System office and create a System office reduced operation
      plan.

C. Compensation during Winter Break Reduced Operations
   1. Eligible Employees
      The following will apply to regular Administrative, Service and Support employees
      and certain non-regular academic employees as approved by the Chancellor and
      President who are in positions that accrue vacation, sick and personal day leave.
      a. Such employees who are held out of work because of Winter Break Reduced
         Operations will receive Winter Break Leave, to be used during this time period
         only and not to exceed the amount of hours of their regular work schedule, with
         99% to 75% FTE employees to receive on a prorata basis.
      b. Such employees who are required to work during Winter Break Reduced
         Operations, either pursuant to the reduced operation plan or due to call-in or
         call-back, will be allowed to use an equivalent amount of their Winter Break
         Leave hours at a later date. Those Winter Break Leave hours must be taken
         before November 30 of the following year or they will be forfeited.
   2. Special Considerations
      a. Variable Hour and Student Employees
         Variable Hour and Student Employees who do not work during Winter Break
         Reduced Operations will not receive Winter Break Leave. However, such
         employees may be requested to work and will be paid under normal pay
         procedures for hours worked.
b. Leaves

Notwithstanding any other provision, employees who are on leave of absence during Winter Break Reduced Operations will not be eligible for Winter Break Leave.
Winter Break Reduced Operations

- Loss of production, but no actual increase in labor costs, but will result in some increase in vacation liability.
- Estimated cost savings of approx. $116,350 - $126,350 from reduced operations of campuses.

Benchmarking versus other higher education institutions regarding practices for staff schedules during the period between Christmas Day and New Year’s Day. Some institutions extend this time-off benefit, or winter closure, beyond just the time period between the two holidays.

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<th>Missouri Colleges &amp; Universities</th>
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<td>Paid Leave</td>
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<td>Use of Personal Days (intended to be used for this closure period)</td>
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</tr>
<tr>
<td>N/A or only closed 12/25 &amp; 1/1</td>
<td>9</td>
</tr>
</tbody>
</table>

* Extended Christmas Day and/or New Year’s Day Holidays (extra days before or after the observed holidays, typically the eves and/or the day following)

AAU-Public Benchmark Institutions
Georgia Institute of Technology (Atlanta, GA)
Indiana University Bloomington (Bloomington, IN)
Iowa State University (Ames, IA)
Michigan State University (East Lansing, MI)
Pennsylvania State University (University Park, PA)
Purdue University Main Campus (West Lafayette, IN)
Rutgers the State University of New Jersey System Summary (New Brunswick, NJ)
State University of New York at Stony Brook (Stony Brook, NY)
Texas A&M University (College Station, TX)
The Ohio State University Main Campus (Columbus, OH)
The University of Arizona (Tucson, AZ)
University at Buffalo - State University of New York (Buffalo, NY)
University of California-Berkeley (Berkeley, CA)
University of California-Davis (Davis, CA)
University of California-Irvine (Irvine, CA)
University of California-Los Angeles (Los Angeles, CA)
University of California-San Francisco (San Francisco, CA)
University of California-Santa Barbara (Santa Barbara, CA)
University of Colorado Boulder (Boulder, CO)
University of Florida (Gainesville, FL)
University of Illinois at Urbana-Champaign (Champaign, IL)
University of Iowa (Iowa City, IA)
University of Kansas Main Campus (Lawrence, KS)
University of Maryland College Park (College Park, MD)
University of Michigan-Ann Arbor (Ann Arbor, MI)
University of Minnesota-Twin Cities (Minneapolis, MN)
University of North Carolina at Chapel Hill (Chapel Hill, NC)
University of Oregon (Eugene, OR)
University of Pittsburgh (Pittsburgh, PA)
University of Texas at Austin (Austin, TX)
University of Virginia (Charlottesville, VA)
University of Washington (Seattle, WA)
University of Wisconsin-Madison (Madison, WI)

Missouri High Education Benchmark Institutions
AT Still University
Avila University
Central Methodist
Calvary University
Columbia College
Concordia Seminary St. Louis
Cottey College
Crowder College
Drury University
East Central College
Evangel University
Fontbonne University
Jefferson College
KC Art Institute
KC University Medicine and Bioscience
Lindenwood University
Logan University
Maryville University
Metropolitan Community College KC
Mineral Area College
Moberly Area Community College
Missouri State University
Missouri Southern State University
Missouri Western State University
Park University
St. Charles Community College
St. Louis College of Pharmacy
State Fair Community College
Stephens College
Southeast Missouri State University
Three Rivers Community College
University Central Missouri
William Jewell College
New Collected Rules and Regulations, Chapter 340, Principles for the Establishment of a
Shared Leave Program Summary

**Shared Leave Framework**

**Background**

- Establishing a Shared Leave Program to allow eligible employees to donate vacation
  leave benefits to provide additional paid leave benefits to eligible employees who
  have experienced certain catastrophic events and exhausted other sources of available
  paid leave, is something that has been requested and researched a number of times
  over the course of the last decade across the University.
- University of Missouri Healthcare has had a pilot program in place since 2010 and
  more the 24,000 hours have been donated and used by employees.
- The goal is to create a system-wide framework for a Shared Leave Program.
- A Shared Leave Committee, consisting of Human Resources, Finance and Payroll
  professionals from each campus, MU Healthcare and UM System office has been
  established to define a University HR Shared Leave Policy.

**Recommendation**

One Shared Leave Program shall be adopted for all eligible employees. Separate and
unique plans may not be adopted for individual departments or business units, nor may
individual departments or business units elect out of the plan.

The Shared Leave Program must meet the following elements and standards. Specific
operational policies consistent with these elements and standards will be developed for
the Shared Leave Program and stated in University Human Resources policies, provided
that they must be approved as stated in this rule.

1. **Eligibility.** The Program will apply to Regular Administrative, Service and
   Support employees and certain non-regular academic employees who are eligible
   for paid leave plans. This includes donors and recipients.

2. **Donations.** Eligible employees may donate unused vacation leave benefits only.
   No other forms of leave or compensatory time off may be donated. The Shared
   Leave Program policy will define other requirements for donors, such as
   minimum donations, maximum limits, and length of service.

3. **Pool.** Donations will be made to a shared leave pool and distributed to recipient
   employees who apply for leave benefits from the pool and meet qualifications as
   defined in the Shared Leave Program policy. Donations will not be made to or
   designated for individual recipients.
5. **Recipients.** To receive leave benefits from the Shared Leave Program, eligible employees (a) must have exhausted all other forms of paid leave; (b) must not be approved for long-term University disability benefits; and (c) have experienced a catastrophic event, as defined in the Shared Leave Program Policy, requiring prolonged absence from work. The Shared Leave Program policy will define other requirements for recipients including types of catastrophic events covered, maximum amount of leave, length of service, and application and documentation process.

6. **Process.** The Shared Leave Program Policy will identify a fair and equitable process for review and approval of applications for leave benefits from the pool.

7. **Voluntary.** All donations and receipt of eligible leave shall be voluntary. No employee may intimidate, threaten, or coerce any other employee with respect to donating or receiving leave under the Shared Leave Program.
Chapter 340: Employee Absences

340.055 Principles for the Establishment of a Shared Leave Program

A. Purpose

This rule directs the establishment of a Shared Leave Program to allow eligible employees to donate vacation leave benefits to a pool that will be available to provide additional paid leave benefits to eligible employees who have experienced certain catastrophic events and exhausted other sources of available paid leave. This rule also sets standards for design and approval of the Shared Leave Program.

B. Scope

One Shared Leave Program shall be adopted for all eligible employees. Separate and unique plans may not be adopted for individual departments or business units, nor may individual departments or business units elect out of the plan.

C. Program Elements and Standards

The Shared Leave Program must meet the following elements and standards. Specific operational policies consistent with these elements and standards will be developed for the Shared Leave Program and stated in University Human Resources policies, provided that they must be approved as stated in this rule.

1. Eligibility. The Program will apply to Regular Administrative, Service and Support employees and certain non-regular academic employees who are eligible for paid leave plans. This includes donors and recipients.

2. Donations. Eligible employees may donate unused vacation leave benefits only. No other forms of leave or compensatory time off may be donated. The Shared Leave Program policy will define other requirements for donors, such as minimum donations, maximum limits, and length of service.

3. Pool. Donations will be made to a shared leave pool and distributed to recipient employees who apply for leave benefits from the pool and meet qualifications as defined in the Shared Leave Program policy. Donations will not be made to or designated for individual recipients.

5. Recipients. To receive leave benefits from the Shared Leave Program, eligible employees (a) must have exhausted all other forms of paid leave; (b) must not be approved for long-term University disability benefits; and (c) have experienced a catastrophic event, as defined in the Shared Leave Program Policy, requiring prolonged absence from work. The Shared Leave Program policy will define other requirements for recipients including types of catastrophic events covered, maximum amount of leave, length of service, and application and documentation process.
6. **Process.** The Shared Leave Program Policy will identify a fair and equitable process for review and approval of applications for leave benefits from the pool.

7. **Voluntary.** All donations and receipt of eligible leave shall be voluntary. No employee may intimidate, threaten, or coerce any other employee with respect to donating or receiving leave under the Shared Leave Program.

**D. Approval Process**

The Vice President for Human Resources will identify an appropriate committee including, but not limited to, human resources and finance personnel, to develop the Shared Leave Program policy, review the operation of the policy periodically, and propose revisions to the policy as appropriate. The Shared Leave Program policy and any material revisions to the policy must be approved by the General Counsel as to legal form and content and by the President before being implemented. Non-material changes may be approved by the Vice President of Human Resources or designee.
New Collected Rules and Regulations, Chapter 340, Principles for the Establishment of a Shared Leave Program

Background and History

- Dating back to 2001 committees and staff advisory councils have been requesting a program similar to this.
  - 2004: University of Missouri Extension Association (UMEA) proposed a plan
  - 2006: UM Staff Advisory Council proposed a plan
  - 2007: UMKC proposed a plan
  - 2009: MU Staff Advisory Council proposed a plan
  - 2014: MU Staff Advisory Council established a Shared Leave Committee

- In 2010 MU Healthcare established a Shared Leave program that has continued until the present time. Over 24,000 hours have been donated and used since that time.

Benchmarking

- 30+ plans reviewed, including:
  - State of Missouri
  - 8 AAU plans
  - 6 surrounding states or multi-campus universities

AAU-Public Benchmark Institutions

University of Illinois
University of Minnesota
The Ohio State University
Texas A&M University
University of Kansas Main Campus
University of North Carolina at Chapel Hill
University of Washington
University of Wisconsin-Madison

Contiguous States

University of Arkansas - Fayetteville

University of Nebraska-Lincoln
University of Oklahoma

Other System Campuses

Colorado State University
University of Colorado (system)
University of Colorado at Boulder
University of Colorado, Colorado Springs
University of Colorado, Denver
University of Georgia - Georgia Southwestern State University (campus policy)
University of Georgia (system policy)
University of Wisconsin System

State of Missouri
State of Missouri (umbrella)
State of Missouri Agency Plan - Missouri Public Service Commission
State of Missouri Agency Plan – MOSERS

Other
NW Arkansas Community College
California State University at Fresno
University of Miami
University of Idaho
University of Louisville
University of New Mexico
Cornell University
University of Texas at San Antonio
Collected Rules and Regulations Amendment 230.070, Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants

Summary

Educational Assistance

Background

- The current tuition program provides a 50% reduction of tuition to benefit-eligible employee’s dependents and spouses.
  - This benefit is only available after an employee has completed five years of service.
- Benchmarking was conducted versus public institutions with an Association of American Universities (AAU) designation as well as other higher education institutions within the state of Missouri.
  - University of Missouri’s five-year vesting requirement was identified as an outlier.
- The recommended changes are:
  - Beneficial in recruiting faculty and staff.
  - Beneficial in recruiting enrollment of eligible students.

Recommendations

1. Reduce the vesting timeframe, required for tuition reduction for spouses and dependents, from five-years to one year of continuous, full-time service with the University at some point, prior to the deadline for registration.
2. Extension of tuition reduction benefit for spouses and dependents, who are receiving the tuition reduction benefit during a course of study prior to the sponsoring employee’s death.
3. Extension of tuition reduction benefit for spouses and dependents, who are receiving the tuition reduction benefit during the semester of or immediately prior to the sponsoring employee’s retirement.
230.070 Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants

Chapter 230: Student Fees

Bd. Min. 2-19-71, p. 35,487; Amended Bd. Min. 3-18-77, 6-18-82; Amended Bd. Min. 12-12-86, 12-7-90, Amended Bd. Min. 5-23-03, Amended Bd. Min. 11-29-07; Amended Bd. Min. 10-23-09; Amended 12-08-11; Amended Bd. Min. 12-07-12; Amended Bd. Min. 9-13-13; Amended Bd. Min. 12-9-16.

A. All employees classified at least 75 percent FTE with an indicated appointment duration of at least nine months may enroll for not more than six credit hours per semester (a maximum of three during the summer session or intersession) in college level, credit courses. Those appointed on a full-time, nine-month basis, however, may enroll for not more than the maximum number of hours allowable by that campus during the summer session, provided they do not hold an appointment for the summer session. Those employees not eligible to participate in the program include employees on unpaid leave of absence, students and employees in positions considered to be student employment (including but not limited to Graduate Teaching Assistants, Graduate Research Assistants, Graduate Instructors and Student Assistants).

1. These employees:
   a. Shall be permitted to receive credit for courses taken within the regulations of the University of Missouri;
   b. Will pay 25 percent of the normal Tuition and Supplemental Fees when enrolling with the intention of receiving academic credit for the course(s). He (or she) will pay the normal amount on all other fees. No Tuition nor Supplemental Fee is required if the employee audits courses on employee’s his or her own or at the request of the department head.
   c. Prior to the end of the semester/session in which Educational Assistance is being requested, an employee must submit to the campus Human Resource Services Office a request (Form #UM84-1), approved by employee’s his department head, the dean or director or by the Provost or designee on campuses with no schools or colleges, indicating the course(s) to be taken, its (their) purpose, and how the time is to be adjusted.
   d. Employees must file an application to enroll with the Registrar and meet the student admission requirements.

B. Administrative, Service and Support Staff (non-academic) enrolling in college classes are subject to the following conditions:

1. Immediately prior to registration, the employee must have completed a six-month period of continuous employment. If the course work is part of the required job training procedure for the work to be done by the employee, the six-month employment requirement may be waived.
2. The course(s):
   a. Must be taken outside scheduled working hours, or
   b. An equivalent adjustment must be made in the employee's work schedule to make up the time away from work, or
   c. An equivalent adjustment must be made in the employee's pay, or
   d. The time away from work must be deducted from an employee's vacation.

3. When an employee is requested by the department head to enroll in a course(s) which is (are) directly related to employee's assigned University responsibilities, the time away from work to attend classes shall be considered as part of employee's regular work schedule.

4. Class attendance shall not take priority over the work to be performed except as outlined above.

5. An employee who has retired under the University of Missouri Retirement, Disability and Death Benefit Plan, will be permitted to register and receive credit for courses without payment of tuition, providing there is space available. Such retired employee must meet the student admission requirements. The retired employee shall also present to the Registrar the Retirement Identification Card at time of registration.

C. Tuition Reduction for Spouses and Dependents

1. Definitions
   a. Employee: Employees must be currently employed in a Fully Benefit Eligible Academic Appointment or as a Regular administrative, service and support employee and have five one years of continuous, full-time service with the University at some point, prior to the deadline for registration. The employee must remain a University of Missouri employee through the beginning of the course in which the spouse/dependent is enrolled. If the employee separates from the University, the spouse/dependent may complete the semester in which enrolled.
   b. Eligible Spouse: The legal spouse of an Employee, excluding a divorced spouse or a spouse separated by contract or decree from the Employee. Employees eligible for the Educational Assistance Program are excluded from the definition of Eligible Spouse.
   c. Eligible Dependent includes:
      • Eligible Dependent Child or Children must meet the criteria required under the definitions of “Child or Children” and
“Dependent” based on the terms and conditions of the University of Missouri Medical Benefits Plan with the exception that foster children shall not be eligible under this program. Employees eligible for the Educational Assistance Program are excluded from the definition of Eligible Dependent.

- An eligible Sponsored Adult Dependent who meets the criteria required under the definitions of “Sponsored Adult Dependent” based on the terms and conditions of the University of Missouri Medical Benefits Plan. Employees eligible for the Educational Assistance Program are excluded from this program.

d. Course: University of Missouri college credit course is defined as any undergraduate, graduate, or professional credit course offered by the institution up to a total of 140 credit hours per eligible spouse or dependent. University programs of study, which blend undergraduate and graduate courses, are included and may be accessed up to the 140 credit hour limit.

e. Fees: Tuition only. Supplemental course fees, activity, facility, and health fees, books and other expenses are the responsibility of the participant. Application for this tuition reduction must be made prior to the end of the semester/session in which Tuition Reimbursement is being requested. No tuition reduction will be granted for courses previously completed. The regular refund policy of the University applies in cases of withdrawal from a course.

2. Benefit: The University will provide a benefit equal to a 50% reduction of tuition for an Eligible Spouse or an Eligible Dependent of Eligible Employees for up to 140 credit hours of University of Missouri college credit courses per Eligible Spouse or Eligible Dependent. Under no circumstances will the benefits under this policy exceed 50%, even if both parents of the dependent are University employees. Notwithstanding any other provision, if an Eligible Spouse or an Eligible Dependent has received a tuition reduction benefit during a course of study prior to the sponsoring Employee’s death, the University will continue to provide a benefit equal to a 50% reduction of tuition in that course of study for up to a total of 140 credit hours of University of Missouri college credit courses, but in no event for a period longer than five years after the Employee’s death. Notwithstanding any other provision, if an Eligible Spouse or an Eligible Dependent has received a tuition reduction benefit in a course of study during the semester of or immediately prior to the sponsoring Employee’s retirement under the University of Missouri Retirement, Disability and Death Benefit Plan, the University will continue to provide a benefit equal to a 50% reduction of tuition in that course of study for up to a total of 140 credit hours of University of Missouri college credit courses, but in no event for a period longer than five years after the Employee’s retirement. For all courses (undergraduate,
graduate, or professional), the rate of such tuition reduction shall be based upon the tuition charged to a resident student for undergraduate courses.
230.070 Educational Assistance Program for University Employees, Other than Graduate Teaching and Research Assistants

Chapter 230: Student Fees

Bd. Min. 2-19-71, p. 35,487; Amended Bd. Min. 3-18-77, 6-18-82; Amended Bd. Min. 12-12-86, 12-7-90, Amended Bd. Min. 5-23-03, Amended Bd. Min. 11-29-07; Amended Bd. Min. 10-23-09; Amended 12-08-11; Amended Bd. Min. 12-07-12; Amended Bd. Min. 9-13-13; Amended Bd. Min. 12-9-16.

A. All employees classified at least 75 percent FTE with an indicated appointment duration of at least nine months may enroll for not more than six credit hours per semester (a maximum of three during the summer session or intersession) in college level, credit courses. Those appointed on a full-time, nine-month basis, however, may enroll for not more than the maximum number of hours allowable by that campus during the summer session, provided they do not hold an appointment for the summer session. Those employees not eligible to participate in the program include employees on unpaid leave of absence, students and employees in positions considered to be student employment (including but not limited to Graduate Teaching Assistants, Graduate Research Assistants, Graduate Instructors and Student Assistants).

1. These employees:
   a. Shall be permitted to receive credit for courses taken within the regulations of the University of Missouri;
   b. Will pay 25 percent of the normal Tuition and Supplemental Fees when enrolling with the intention of receiving academic credit for the course(s). He (or she) will pay the normal amount on all other fees. No Tuition nor Supplemental Fee is required if the employee audits courses on employee’s own or at the request of the department head.
   c. Prior to the end of the semester/session in which Educational Assistance is being requested, an employee must submit to the campus Human Resource Services Office a request (Form #UM84-1), approved by employee’s department head, the dean or director or by the Provost or designee on campuses with no schools or colleges, indicating the course(s) to be taken, its (their) purpose, and how the time is to be adjusted.
   d. Employees must file an application to enroll with the Registrar and meet the student admission requirements.

B. Administrative, Service and Support Staff (non-academic) enrolling in college classes are subject to the following conditions:

1. Immediately prior to registration, the employee must have completed a six-month period of continuous employment. If the course work is part
of the required job training procedure for the work to be done by the employee, the six-month employment requirement may be waived.

2. The course(s):
   a. Must be taken outside scheduled working hours, or
   b. An equivalent adjustment must be made in the employee's work schedule to make up the time away from work, or
   c. An equivalent adjustment must be made in the employee's pay, or
   d. The time away from work must be deducted from an employee's vacation.

3. When an employee is requested by the department head to enroll in a course(s) which is (are) directly related to employee’s assigned University responsibilities, the time away from work to attend classes shall be considered as part of employee’s regular work schedule.

4. Class attendance shall not take priority over the work to be performed except as outlined above.

5. An employee who has retired under the University of Missouri Retirement, Disability and Death Benefit Plan, will be permitted to register and receive credit for courses without payment of tuition, providing there is space available. Such retired employee must meet the student admission requirements. The retired employee shall also present to the Registrar the Retirement Identification Card at time of registration.

C. Tuition Reduction for Spouses and Dependents

1. Definitions
   a. Employee: Employees must be currently employed in a Fully Benefit Eligible Academic Appointment or as a Regular administrative, service and support employee and have one year of continuous, full-time service with the University at some point, prior to the deadline for registration. The employee must remain a University of Missouri employee through the beginning of the course in which the spouse/dependent is enrolled. If the employee separates from the University, the spouse/dependent may complete the semester in which enrolled.
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Assistance Program are excluded from the definition of Eligible Spouse.

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Educational Assistance

Benchmarking Findings

- Current plan requiring 5-year vesting is an outlier
  - 20 of 21 AAU-Public institutions have vesting of one year or less.
  - 6 of 7 State of Missouri higher education institutions have vesting of one year or less.
- Extending benefit to retirees is a practice among select schools.
  - 4 of 21 AAU-Public institutions explicitly extend this benefit to retirees.
  - 4 or 7 State of Missouri higher education institutions explicitly extend this benefit to retirees.

Estimated cost associated with extending benefit to retirees

Of the actual retirements that occurred during 2015-2017, 73 retirees were participating in the Spouse and Dependent Tuition Reduction program during that same time period.

Of the 73 retirees, 32 retired during the same semester as, or in the semester immediately following, their most recent tuition reimbursement request.

Based on the class level of the student spouses or dependents of these 32 retirees, the total cost for the remaining semesters of study were estimated using an average reimbursement per student per semester of $1,750:

2015: 18 remaining semesters, with a total cost of $31,500
2016: 12 remaining semesters, with a total cost of $21,000
2017: 28 remaining semesters, with a total cost of $49,000

Estimated cost associated with reducing benefit vesting from five years to one year

During the spring semester of 2017 there were approximately 700 employees reimbursed through the Spouse and Dependent Tuition Reduction program.

If the program was modified to require only 1 year of vesting versus the current 5-years of vesting, below are estimated additional costs based on a range of increased levels of participation:

700 * 30% @ $1,750 / student / semester = 210 additional students * $1,750 = $367,500

700 * 75% @ $1,750 / student / semester = 525 additional students * $1,750 = $918,750

700 * 125% @ $1,750 / student / semester = 875 additional students * $1,750 = $1,531,250

December 7-8, 2017
**AAU-Public Benchmark Institutions**
University of Illinois
University of Tennessee
University of Colorado
University of Arkansas
University of Florida
University of Minnesota
University of Nebraska
Indiana University
Michigan State University
The Ohio State University
Penn State University
Purdue University
Rutgers University
University of Arizona
Texas A&M University
University of Iowa
University of Kansas Main Campus
University of Michigan-Ann Arbor
University of North Carolina at Chapel Hill
University of Pittsburgh
University of Virginia

**Missouri High Education Benchmark Institutions**
Columbia College
Missouri State University
Missouri Western State University
University of Central Missouri
Southeast Missouri State University
Northwest Missouri State University
St. Louis University
Recommended Action - Resolution for Executive Session of the Compensation and Human Resources Committee, December 7-8, 2017

It was moved by Curator __________ and seconded by Curator __________, that there shall be an executive session with a closed record and closed vote of the Board of Curators Compensation and Human Resources Committee meeting December 7-8, 2017, for consideration of:

- **Section 610.021(1), RSMo**, relating to matters identified in that provision, which include legal actions, causes of action or litigation, and confidential or privileged communications with counsel; and

- **Section 610.021(3), RSMo**, relating to matters identified in that provision, which include hiring, firing, disciplining, or promoting of particular employees; and

- **Section 610.021(12), RSMo**, relating to matters identified in that provision, which include sealed bids and related documents and sealed proposals and related documents or documents related to a negotiated contract; and

- **Section 610.021(13), RSMo**, relating to matters identified in that provision, which include individually identifiable personnel records, performance ratings, or records pertaining to employees or applicants for employment.

Roll call vote of the Committee:  
YES  NO

Curator Chatman
Curator Farmer
Curator Layman
Curator Steelman
Curator Sundvold

The motion ______________________.

December 7-8, 2017
AUDIT COMMITTEE
Provided for the Audit Committee is the electronic file of the External Auditor’s Report which includes the documents listed below relating to the audits of the financial statements for fiscal year 2017. Rachel Dwiggins, BKD Partner, will present the External Auditors Report at the Audit Committee Meeting and will be available to answer questions.

I. Required Communication with the Audit Committee of the Board of Curators

II. Overview and Scope of BKD’s Independent Audits

III. Management Representation Letters in connection with audits of the following financial statements as of and for the year ended June 30, 2016 for the University of Missouri System.
University of Missouri System

Report to The Board of Curators, Audit Committee and Management

October 12, 2017

Results of the 2017 financial statement audit and other required communications
2017 Audit Results

Contents

2017 Audit Results

Summary of Our Audit Approach & Results................................................................. 2
Significant Estimates ........................................................................................................ 3
Opinion ............................................................................................................................ 3
Required Communications............................................................................................ 4
Other Matters .................................................................................................................. 7

Appendix

Management Representation Letter & Schedule of Uncorrected Misstatements .......... Tab 1

December 7-8, 2017
October 12, 2017

The Board of Curators, Audit Committee and Management
University of Missouri System
Columbia, Missouri

Dear Board of Curators, Audit Committee and Management:

We have completed our audit of the financial statements of the business-type activities and the aggregate remaining fund information of the University of Missouri System (collectively referred to as the “System”), as of and for the year ended June 30, 2017. This report includes communication required under auditing standards generally accepted in the United States of America as well as other matters.

Our audit plan represented an approach responsive to the assessment of risk of material misstatement in financial reporting for the System. Specifically, auditing standards require us to:

- Express an opinion on the June 30, 2017, financial statements and supplementary information of the System
- Report on internal control over financial reporting and on compliance and other matters based on an audit of the financial statements performed in accordance with Government Auditing Standards
- Issue communications required under auditing standards generally accepted in the United States of America to assist the board in overseeing management’s financial reporting and disclosure process

This report also presents an overview of areas of audit emphasis, as well as future accounting standards and industry developments for the higher education and health care environments.

This communication is intended solely for the information and use of management, the Board of Curators, the Audit Committee and others within the System and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

Rachel Dwiggins
Partner
Summary of Our Audit Approach & Results

Our Approach

BKD’s audit approach focuses on areas of higher risk—the unique characteristics of the System’s operating environment, the design effectiveness of your internal controls and your financial statement amounts and disclosures. The objective is to express an opinion on the conformity of your financial statements, in all material respects, with accounting principles generally accepted in the United States of America.

Areas of Audit Emphasis

The principal areas of audit emphasis and results were as follows:

<table>
<thead>
<tr>
<th>Risk Area</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Management override of controls – The risk that management may override existing and functioning accounting controls is an inherent risk to the System.</td>
<td>▶ No matters are reportable.</td>
</tr>
<tr>
<td>• Revenue recognition – The risk that revenue is improperly categorized or recorded in the improper period. This risk includes timing of recognition of tuition and fee revenue and the consideration of the allowance of doubtful accounts.</td>
<td>▶ No matters are reportable.</td>
</tr>
<tr>
<td>• Revenue recognition (health system) – The risk that revenue is improperly categorized or recorded in the improper period. This risk includes consideration of the allowance for doubtful accounts, contractual allowances and consideration of amounts due to/from third-party payors.</td>
<td>▶ No matters are reportable.</td>
</tr>
<tr>
<td>• Valuation of investments – The assumptions and methods used by management to value difficult-to-value investments, such as alternative investments and the related derivative instrument liabilities.</td>
<td>▶ No matters are reportable.</td>
</tr>
<tr>
<td>• Net position classifications – The risk that management has improperly classified ending net position.</td>
<td>▶ No matters are reportable.</td>
</tr>
</tbody>
</table>
Significant Estimates

The preparation of the financial statements requires considerable judgment because some assets, liabilities, revenues and expenses are “estimated” based on management’s assumptions about future outcomes. Estimates may be dependent on assumptions related to economic or environmental conditions, regulatory reform or changes in industry trends.

Some estimates are inherently more difficult to evaluate and highly susceptible to variation because the assumptions relating to future outcomes have a higher degree of uncertainty. To the extent future outcomes are different than expected, management’s estimates are adjusted in future periods, sometimes having a significant effect on subsequent period financial statements. The following are considered to be significant estimates for the System:

- **Third-party Reimbursement** – Net operating revenues include management’s estimates of amounts to be reimbursed by third parties. Amounts received for patient billings are generally less than amounts billed. The difference between what is billed and expected to be received is recorded through contractual adjustments. Management’s process of estimating amounts to be received from third parties requires estimation based on payor classification, historical data and payor contract provisions. Estimates of third-party reimbursements also include management assumptions about uncertainties in health care reform, payor mix and state of the economy.

- **Allowance for Doubtful Accounts** – Primary collection risks related to patient accounts receivable include uninsured patients and patient balances where the insurance payor did not pay the entire balance. Management’s estimate for allowance for doubtful accounts is based on historical collection, payor mix and anticipated trends. Similar to third-party reimbursements, management assumptions about the economy and types of payors affect the estimation of allowance for doubtful accounts.

- **Valuation of Investment Securities** – Management values investments at fair value as of the balance sheet date. Accounting standards define fair value as the price that would be received to sell a financial asset in an orderly transaction between market participants at the measurement date. Investments are valued using quoted market prices or third-party sources, including appraisers and valuation specialists, when available.

- **Accrual for Malpractice Claims, General Liability Claims, Health Claims and Workers’ Compensation Claims** – These liability claims are based on estimates of known claims and estimates for incurred but not reported claims. Management estimates the liability based on specific claim facts, historical claim reporting and actuarial assumptions.

- **Defined Benefit Pension Plan Assumptions** – Assumptions are based on actuarial valuations based on age of participants, past history of the System and expected future return on investments.

Opinion

**Unmodified, or “Clean,” Opinion Issued on Financial Statements**

We have issued an unmodified opinion as to whether the business-type activities, and the aggregate remaining fund information of the System, as of and for the year ended June 30, 2017, are fairly presented, in all material respects.
Required Communications

Generally accepted auditing standards require the auditor to provide to those charged with governance additional information regarding the scope and results of the audit that may assist you in overseeing management’s financial reporting and disclosure process. Below, we summarize these required communications.

Auditor’s Responsibility Under Auditing Standards Generally Accepted in the United States of America and the Standards Applicable to Financial Audits Contained in Government Auditing Standards Issued by the Comptroller General of the United States

An audit performed in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States is designed to obtain reasonable, rather than absolute, assurance about the financial statements. In performing auditing procedures, we establish scopes of audit tests in relation to the financial statements taken as a whole. Our engagement does not include a detailed audit of every transaction. Our engagement letter more specifically describes our responsibilities.

These standards require communication of significant matters related to the financial statement audit that are relevant to the responsibilities of those charged with governance in overseeing the financial reporting process. Such matters are communicated in the remainder of this communication or have previously been communicated during other phases of the audit. The standards do not require the auditor to design procedures for the purpose of identifying other matters to be communicated with those charged with governance.

An audit of the financial statements does not relieve management or those charged with governance of their responsibilities. Our engagement letter more specifically describes your responsibilities.

<table>
<thead>
<tr>
<th>Area</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Accounting Policies</td>
<td>- GASB 74 and GASB 80 were adopted during the fiscal year ended June 30, 2017</td>
</tr>
<tr>
<td>Alternative Accounting Treatments</td>
<td>- No matters are reportable</td>
</tr>
</tbody>
</table>
## Management Judgments & Accounting Estimates

Accounting estimates are an integral part of financial statement preparation by management, based on its judgments. Areas involving significant areas of such estimates for which we are prepared to discuss management’s estimation process and our procedures for testing the reasonableness of those estimates are listed in the adjacent comments section.

- Refer to Significant Estimates section of this report

## Financial Statement Disclosures

The areas listed in the adjacent comments section involve particularly sensitive financial statement disclosures for which we are prepared to discuss the issues involved and related judgments made in formulating those disclosures.

- Determination of fair values
- Retirement, Disability and Death Benefit Plan

## Audit Adjustments

During the course of any audit, an auditor may propose adjustments to financial statement amounts. Management evaluates our proposals and records those adjustments that, in its judgment, are required to prevent the financial statements from being materially misstated. Some adjustments proposed were not recorded because their aggregate effect is not currently material; however, they involve areas in which adjustments in the future could be material, individually or in the aggregate.

Areas in which adjustments were proposed include:

**Proposed Audit Adjustments Recorded**
- No matters are reportable

**Proposed Audit Adjustments Not Recorded**

See attached for a summary of uncorrected misstatements we aggregated during the current engagement and pertaining to the latest period presented that were determined by management to be immaterial, both individually and in the aggregate, to the financial statements as a whole.

## Auditor’s Judgments About the Quality of the System’s Accounting Policies

During the course of the audit, we made observations regarding the System’s application of accounting principles listed in the adjacent comments section.

- No matters are reportable
## 2017 Audit Results

<table>
<thead>
<tr>
<th>Area</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Other Information in Documents</strong></td>
<td></td>
</tr>
<tr>
<td>Containing Audited Financial Statements</td>
<td></td>
</tr>
<tr>
<td>The audited financial statements are included in the System’s annual report. As part of our procedures, we read the entire report to determine if financial information discussed in sections outside the financial statements materially contradicts the audited financial statements. If we identify any such matters, we bring them to management’s attention and review subsequent revisions.</td>
<td><img src="https://via.placeholder.com/150" alt="No matters are reportable" /></td>
</tr>
<tr>
<td><strong>Other Material Communications</strong></td>
<td></td>
</tr>
<tr>
<td>Other material communications between management and us related to the audit include:</td>
<td></td>
</tr>
<tr>
<td>• Management representation letter <em>(attached)</em></td>
<td></td>
</tr>
<tr>
<td>• We orally communicated to management other deficiencies in internal control identified during our audit that are not considered material weaknesses or significant deficiencies.</td>
<td></td>
</tr>
</tbody>
</table>
Other Matters

We observed the following matters and offer these comments and suggestions with respect to matters which came to our attention during the course of the audit of the financial statements. Our audit procedures are designed primarily to enable us to form an opinion on the financial statements and, therefore, may not bring to light all weaknesses in policies and procedures that may exist. However, these matters are offered as constructive suggestions for the consideration of management as part of the ongoing process of modifying and improving financial and administrative practices and procedures. We can discuss these matters further at your convenience and may provide implementation assistance for changes or improvements if you require.

New Accounting Pronouncements

GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other than Pension* (GASB 75). GASB 75 replaces the requirements of GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. GASB 75 requires governments to report a liability on the face of the financial statements in accordance with the following:

- Employers that are responsible only for other postemployment benefits (OPEB) liabilities for their own employees and that provide OPEB through a defined benefit OPEB plan administered through a trust that meets specified criteria will report a net OPEB liability (the difference between the total OPEB liability and the assets accumulated in trust to make the benefit payments).

- Employers that participate in a cost-sharing OPEB plan that is administered through a trust that meets specified criteria will report a liability equal to the employer’s proportionate share for the collective OPEB liability for all employers participating in the plan.

- Employers that do not provide OPEB through a trust that meets specified criteria will report that total OPEB liability for their own employees.

GASB 75 requires more extensive note disclosures and required supplementary information (RSI) about the OPEB liabilities. GASB 75 is effective for fiscal years beginning after June 15, 2017 and requires restatements of any prior years presented, if practical.
# Networking and Learning Opportunities

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Higher Education Roundtable with colleges and universities throughout the region</td>
<td>February 2018</td>
</tr>
<tr>
<td>Not-for-Profit Day Long Seminar</td>
<td>January 10, 2018</td>
</tr>
<tr>
<td>CFO Seminar</td>
<td>October 26, 2017</td>
</tr>
</tbody>
</table>

This communication is intended solely for the information and use of management, the Board of Curators, the Audit Committee and others within the System and is not intended to be and should not be used by anyone other than these specified parties.

**BKD, LLP**

Kansas City, Missouri
October 12, 2017
October 12, 2017

BKD, LLP
Certified Public Accountants
1201 Walnut Street, Suite 1700
Kansas City, Missouri 64106-2246

We are providing this letter in connection with your audits of our financial statements as of and for the years ended June 30, 2017 and 2016. We confirm that we are responsible for the fair presentation of the financial statements in conformity with accounting principles generally accepted in the United States of America. We are also responsible for adopting sound accounting policies, establishing and maintaining effective internal control over financial reporting, operations and compliance and preventing and detecting fraud.

Certain representations in this letter are described as being limited to matters that are material. Items are considered material, regardless of size, if they involve an omission or misstatement of accounting information that, in light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

We confirm, to the best of our knowledge and belief, the following:

1. We have fulfilled our responsibilities, as set out in the terms of our engagement letter dated January 23, 2017, for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America.

2. We acknowledge our responsibility for the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

3. We acknowledge our responsibility for the design, implementation and maintenance of internal control to prevent and detect fraud.

4. We have provided you with:

   (a) Access to all information of which we are aware that is relevant to the preparation and fair presentation of the financial statements such as records, documentation and other matters.
   (b) Additional information that you have requested from us for the purpose of the audit.
   (c) Unrestricted access to persons within the entity from whom you determined it necessary to obtain audit evidence.
(d) All minutes of meetings of the governing body held through the date of this letter.
(e) All significant contracts and grants.

5. All transactions have been recorded in the accounting records and are reflected in the financial statements.

6. We have informed you of all current risks of a material amount that are not adequately prevented or detected by entity procedures with respect to:

(a) Misappropriation of assets.
(b) Misrepresented or misstated assets, liabilities or net position.

7. We believe the effects of the uncorrected financial statement misstatements summarized in the attached schedule are immaterial, both individually and in the aggregate, to the financial statements taken as a whole.

8. We have no knowledge of any known or suspected:

(a) Fraudulent financial reporting or misappropriation of assets involving management or employees who have significant roles in internal control.
(b) Fraudulent financial reporting or misappropriation of assets involving others that could have a material effect on the financial statements.

9. We have no knowledge of any allegations of fraud or suspected fraud affecting the University of Missouri System ("System") received in communications from employees, customers, regulators, suppliers or others.

10. We have disclosed to you the identity of the entity’s related parties and all the related party relationships and transactions of which we are aware. Related party relationships and transactions have been appropriately accounted for and disclosed in accordance with accounting principles generally accepted in the United States of America. We understand that the term related party refers to an affiliate; management, and members of their immediate families, component units; and any other party with which the entity may deal if it can significantly influence, or be influenced by, the management or operating policies of the other. The term affiliate refers to a party that directly or indirectly controls, or is controlled by, or is under common control with us.

11. Except as reflected in the financial statements, there are no:

(a) Plans or intentions that may materially affect carrying values or classifications of assets and liabilities.
(b) Material transactions omitted or improperly recorded in the financial statements.
(c) Material gain/loss contingencies requiring accrual or disclosure, including those arising from environmental remediation obligations.
(d) Events occurring subsequent to the balance sheet date through the date of this letter requiring adjustment or disclosure in the financial statements.

December 7-8, 2017
Agreements to purchase assets previously sold.
(f) Restrictions on cash balances or compensating balance agreements.
(g) Guarantees, whether written or oral, under which the University of Missouri System is contingently liable.

12. We have disclosed to you all known instances of noncompliance or suspected noncompliance with laws and regulations whose effects should be considered when preparing financial statements.

13. We have no reason to believe the System owes any penalties or payments under the Employer Shared Responsibility Provisions of the Patient Protection and Affordable Care Act nor have we received any correspondence from the IRS or other agencies indicating such payments may be due.

14. We have disclosed to you all known actual or possible litigation and claims whose effects should be considered when preparing the financial statements. The effects of all known actual or possible litigation and claims have been accounted for and disclosed in accordance with accounting principles generally accepted in the United States of America.

15. We have informed you of all pending or completed investigations by regulatory authorities of which we are aware. There are no known circumstances that could jeopardize the University of Missouri System’s participation in the Medicare or other governmental health care programs.

16. Adequate provisions and allowances have been accrued for any material losses from:

(a) Uncollectible receivables.
(b) Reducing obsolete or excess inventories to estimated net realizable value.
(c) Sales commitments, including those unable to be fulfilled.
(d) Purchase commitments in excess of normal requirements or above prevailing market prices.
(e) Medicare/Medicaid and other third-party payer contractual, audit or other adjustments.

17. Except as disclosed in the financial statements, we have:

(a) Satisfactory title to all recorded assets, and they are not subject to any liens, pledges or other encumbrances.
(b) Complied with all aspects of contractual and grant agreements, for which noncompliance would materially affect the financial statements.

18. With respect to the University of Missouri System’s possible exposure to past or future medical malpractice assertions:

(a) We have disclosed to you all incidents known to us that could possibly give rise to an assertion of malpractice.

December 7-8, 2017
(b) All known incidents have been appropriately considered in our malpractice liability accrual.
(c) We believe our accruals for malpractice claims are sufficient for all known and probable potential claims.

19. We have not been designated as a potentially responsible party (PRP or equivalent status) by the Environmental Protection Agency (EPA) or other cognizant regulatory agency with authority to enforce environmental laws and regulations.

20. We have notified you of any instances of noncompliance with applicable disclosure requirements of the SEC Rule 15c2-12 and applicable state laws.

21. With regard to deposit and investment activities:
(a) All deposit, repurchase and reverse repurchase agreements and investment transactions have been made in accordance with legal and contractual requirements.
(b) Disclosures of deposit and investment balances and risks in the financial statements are consistent with our understanding of the applicable laws regarding enforceability of any pledges of collateral.
(c) We understand that your audit does not represent an opinion regarding the enforceability of any collateral pledges.
(d) We believe that gross cash receipts and payments during the period qualify for net reporting in the statement of cash flows due to the number of transactions with quick turnover and short maturities.

22. We acknowledge that we are responsible for compliance with applicable laws, regulations and provisions of contracts and grant agreements.

23. We have identified and disclosed to you all laws, regulations and provisions of contracts and grant agreements that have a direct and material effect on the determination of amounts in our financial statements or other financial data significant to the audit objectives.

24. We have identified and disclosed to you any violations or possible violations of laws, regulations and provisions of contracts and grant agreements whose effects should be considered for recognition and/or disclosure in the financial statements or for your reporting on noncompliance.

25. We have taken or will take timely and appropriate steps to remedy any fraud, abuse, illegal acts or violations of provisions of contracts or grant agreements that you or other auditors report.

26. We have a process to track the status of audit findings and recommendations.

27. We have identified to you any previous financial audits, attestation engagements, performance audits or other studies related to the objectives of your audit and the December 7-8, 2017
corrective actions taken to address any significant findings and recommendations made in such audits, attestation engagements or other studies.

28. With regard to federal awards programs:

   (a) We have identified in the schedule of expenditures of federal awards all assistance provided (either directly or passed through other entities) by federal agencies in the form of grants, contracts, loans, loan guarantees, property, cooperative agreements, interest subsidies, commodities, insurance, direct appropriations or in any other form.

29. The financial statements disclose all significant estimates and material concentrations known to us. Significant estimates are estimates at the balance sheet date which could change materially within the next year. Concentrations refer to volumes of business, revenues, available sources of supply or markets for which events could occur which would significantly disrupt normal finances within the next year. Significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable.

30. The fair values of financial and nonfinancial assets and liabilities, if any, recognized in the financial statements or disclosed in the notes thereto are reasonable estimates based on the methods and assumptions used. The methods and significant assumptions used result in measurements of fair value appropriate for financial statement recognition and disclosure purposes and have been applied consistently from period to period, taking into account any changes in circumstances. The significant assumptions appropriately reflect market participant assumptions.

31. The supplementary information required by the Governmental Accounting Standards Board (GASB), consisting of management’s discussion and analysis, pension and other postemployment benefit information, has been prepared and is measured and presented in conformity with the applicable GASB pronouncements, and we acknowledge our responsibility for the information. The information contained therein is based on all facts, decisions and conditions currently known to us and is measured using the same methods and assumptions as were used in the preparation of the financial statements. We believe the significant assumptions underlying the measurement and/or presentation of the information are reasonable and appropriate. There has been no change from the preceding period in the methods of measurement and presentation.

32. Billings to third-party payers comply in all material respects with applicable coding guidelines, laws and regulations. Billings reflect only charges for goods and services that were medically necessary; properly approved by regulatory bodies, if required; and properly rendered.

33. With regard to cost reports filed with Medicare, Medicaid or other third parties:

   (a) All required reports have been properly filed.

   (b) Management is responsible for the accuracy and propriety of those reports.

December 7-8, 2017
(c) All costs reflected on such reports are appropriate and allowable under applicable reimbursement rules and regulations and are patient-related and properly allocated to applicable payers.
(d) The reimbursement methodologies and principles employed are in accordance with applicable rules and regulations.
(e) All items required to be disclosed, including disputed costs that are being claimed to establish a basis for a subsequent appeal, have been fully disclosed in the cost report.
(f) Recorded allowances for third-party settlements are necessary and are based on historical experience or new or ambiguous regulations that may be subject to differing interpretations.

34. With regard to supplementary information:

(a) We acknowledge our responsibility for the presentation of the supplementary information in accordance with the applicable criteria.
(b) We believe the supplementary information is fairly presented, both in form and content, in accordance with the applicable criteria.
(c) The methods of measurement and presentation of the supplementary information are unchanged from those used in the prior period.
(d) We believe the significant assumptions or interpretations underlying the measurement and/or presentation of the supplementary information are reasonable and appropriate.
(e) If the supplementary information is not presented with the audited financial statements, we acknowledge we will make the audited financial statements readily available to intended users of the supplementary information no later than the date such information and the related auditor’s report are issued.

Dr. Min Y. Choi, President

Ryan Rapp, Vice President for Finance and Chief Financial Officer

Eric Vogelweid, Controller

Jessica Opie, Associate Controller

December 7-8, 2017
This analysis and the attached "Schedule of Uncorrected Misstatements (Adjustments Passed)" reflects the effects on the financial statements if the uncorrected misstatements identified were corrected.

### Business Type Activities (Government-Wide Statements)

#### QUANTITATIVE ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Before Misstatements</th>
<th>Misstatements</th>
<th>Subsequent to Misstatements</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Assets</td>
<td>1,086,513,000</td>
<td>3,758,782</td>
<td>1,090,271,782</td>
<td>0.35%</td>
</tr>
<tr>
<td>Non-Current Assets &amp; Deferred Outflows</td>
<td>7,120,959,000</td>
<td>8,871,000</td>
<td>7,129,830,000</td>
<td>0.12%</td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>(1,026,204,000)</td>
<td>(13,363,023)</td>
<td>(1,039,567,023)</td>
<td>1.30%</td>
</tr>
<tr>
<td>Non-Current Liabilities &amp; Deferred Inflows</td>
<td>(2,294,461,000)</td>
<td></td>
<td>(2,294,461,000)</td>
<td></td>
</tr>
<tr>
<td>Current Ratio</td>
<td>1.06</td>
<td></td>
<td>1.05</td>
<td>-0.94%</td>
</tr>
<tr>
<td>Total Assets &amp; Deferred Outflows</td>
<td>8,207,472,000</td>
<td>12,629,782</td>
<td>8,220,101,782</td>
<td>0.15%</td>
</tr>
<tr>
<td>Total Liabilities &amp; Deferred Inflows</td>
<td>(3,320,665,000)</td>
<td>(13,363,023)</td>
<td>(3,334,028,023)</td>
<td>0.40%</td>
</tr>
<tr>
<td>Total Net Position</td>
<td>(4,886,807,000)</td>
<td>733,241</td>
<td>(4,886,073,759)</td>
<td>-0.02%</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>(3,770,857,000)</td>
<td>845,854</td>
<td>(3,770,011,146)</td>
<td>-0.02%</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>3,369,110,000</td>
<td>4,697,697</td>
<td>3,373,807,697</td>
<td>0.14%</td>
</tr>
<tr>
<td>Change in Net Position</td>
<td>(401,747,000)</td>
<td>5,543,551</td>
<td>(396,203,449)</td>
<td>-1.38%</td>
</tr>
<tr>
<td>Description</td>
<td>Financial Statement Line Item</td>
<td>Assets &amp; Deferred Outflows</td>
<td>Liabilities &amp; Deferred Inflows</td>
<td>Net Effect on Following Year</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------</td>
<td>---------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market value change between 3.31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and 6.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Term Investments</td>
<td>0 8,871,000</td>
<td>0 0 (1,108,378)</td>
<td>0 (7,762,622)</td>
<td>8,871,000</td>
</tr>
<tr>
<td>Investment and Endowment Income</td>
<td>8,871,000</td>
<td>0 (8,871,000)</td>
<td>0 (7,762,622)</td>
<td>8,871,000</td>
</tr>
<tr>
<td>PY Turnaround- Beg Net Position</td>
<td>7,762,622</td>
<td>0 (7,762,622)</td>
<td>0 (7,762,622)</td>
<td>8,871,000</td>
</tr>
</tbody>
</table>

Aggregation of GAAP Exceptions

<table>
<thead>
<tr>
<th>Factual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,555,782</td>
</tr>
<tr>
<td>0 (11,160,023)</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>1,954,232</td>
</tr>
<tr>
<td>4,697,697</td>
</tr>
<tr>
<td>2,952,312</td>
</tr>
<tr>
<td>(9,604,241)</td>
</tr>
<tr>
<td>9,604,241</td>
</tr>
</tbody>
</table>

Reclass credit balances for UMHS credit balances in AR

<table>
<thead>
<tr>
<th>Factual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,203,000</td>
</tr>
<tr>
<td>0 (2,203,000)</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Total passed adjustments

| 3,758,782 |
| 8,871,000 |
| (13,363,023) |
| 0 |
| 845,854 |
| 4,697,697 |
| (4,810,310) |
| (733,241) |
| 733,241 |

Impact on Change in Net Position 5,543,591

Impact on Net Position 733,241
This analysis and the attached "Schedule of Uncorrected Misstatements (Adjustments Passed)" reflects the effects on the financial statements if the uncorrected misstatements identified were corrected.

### Pension & OPEB

**QUANTITATIVE ANALYSIS**

<table>
<thead>
<tr>
<th></th>
<th>Before Misstatements</th>
<th>Misstatements</th>
<th>Subsequent to Misstatements</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assets &amp; Deferred Outflows</td>
<td>3,754,596,000</td>
<td>15,597,000</td>
<td>3,770,193,000</td>
<td>0.42%</td>
</tr>
<tr>
<td>Total Liabilities &amp; Deferred Inflows</td>
<td>(232,527,000)</td>
<td></td>
<td>(232,527,000)</td>
<td></td>
</tr>
<tr>
<td>Total Fund Balance</td>
<td>(3,522,069,000)</td>
<td>(15,597,000)</td>
<td>(3,537,666,000)</td>
<td>0.44%</td>
</tr>
<tr>
<td>Revenues</td>
<td>(516,412,000)</td>
<td>(15,597,000)</td>
<td>(532,009,000)</td>
<td>3.02%</td>
</tr>
<tr>
<td>Expenditures</td>
<td>250,114,000</td>
<td></td>
<td>250,114,000</td>
<td></td>
</tr>
<tr>
<td>Change in Fund Balance</td>
<td>(266,298,000)</td>
<td>(15,597,000)</td>
<td>(281,895,000)</td>
<td>5.86%</td>
</tr>
</tbody>
</table>
### Pension & OPEB

**Schedule of Uncorrected Misstatements (Adjustments Passed)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Financial Statement Line Item</th>
<th>Assets &amp; Deferred Outflows</th>
<th>Liabilities &amp; Deferred Inflows</th>
<th>Revenues</th>
<th>Expenditures</th>
<th>Fund Balance</th>
<th>Net Effect on Following Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>DR (CR)</td>
<td>DR (CR)</td>
<td>DR (CR)</td>
<td>DR (CR)</td>
<td>DR (CR)</td>
<td>DR (CR)</td>
</tr>
<tr>
<td>Market value change between 3.31 and 6.30</td>
<td>Investments</td>
<td>15,597,000</td>
<td>0</td>
<td>(15,597,000)</td>
<td>0</td>
<td>0</td>
<td>15,597,000</td>
</tr>
<tr>
<td></td>
<td>Investment Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15,597,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(15,597,000)</td>
</tr>
</tbody>
</table>

Total passed adjustments

<table>
<thead>
<tr>
<th>Description</th>
<th>Financial Statement Line Item</th>
<th>Assets &amp; Deferred Outflows</th>
<th>Liabilities &amp; Deferred Inflows</th>
<th>Revenues</th>
<th>Expenditures</th>
<th>Fund Balance</th>
<th>Net Effect on Following Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15,597,000</td>
<td>0</td>
<td>(15,597,000)</td>
<td>0</td>
<td>0</td>
<td>15,597,000</td>
</tr>
</tbody>
</table>

Impact on Change in Fund Balance: (15,597,000)

Impact on Fund Balance: (15,597,000)

---

Client: University of Missouri System

Period Ending: June 30, 2017

Revenues

Expenditures

Fund Balance

Net Effect on Following Year

December 7-8, 2017
OUR GOALS FOR TODAY

1. Audit Approach
2. Areas of Audit Emphasis
3. Significant Investments
4. Required Communications
5. Other Matters
6. Attachment – Report to the Board of Curators of the University of Missouri System
AUDIT APPROACH – APPLICABLE FRAMEWORK

**Financial Reporting**
- U.S. Generally Accepted Accounting Principles

**Auditing Standards**
- Auditing standards generally accepted in the United States of America
- Government Auditing Standards

**Compliance**
- Title 2 U.S. Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance)
Audit of financial statements of:
- University of Missouri System
- Capital Region Medical Center

Objective – express opinion on conformity of financial statements, in all material respects, with accounting principles generally accepted in the United States of America
## AREAS OF AUDIT EMPHASIS

- Communicated during planning:

<table>
<thead>
<tr>
<th>Risk Area</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management override of controls</td>
<td>No matters are reportable.</td>
</tr>
<tr>
<td>Revenue recognition</td>
<td>No matters are reportable.</td>
</tr>
<tr>
<td>Revenue recognition (health system)</td>
<td>No matters are reportable.</td>
</tr>
<tr>
<td>Valuation of investments</td>
<td>No matters are reportable.</td>
</tr>
<tr>
<td>Net position classifications</td>
<td>No matters are reportable.</td>
</tr>
</tbody>
</table>
SIGNIFICANT ESTIMATES

- Third-party Reimbursement
- Allowance for Doubtful Accounts
- Valuation of Investment Securities
- Accruals
  - Malpractice Claims
  - General Liability Claims
  - Health Claims
  - Workers’ Compensation Claims
- Defined Benefit Pension Plan Assumptions
## REQUIRED COMMUNICATIONS

<table>
<thead>
<tr>
<th>Area</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant Accounting Policies</td>
<td>Described in Note 1 of the financial statements. GASB 74 and GASB 80 were adopted during fiscal year 2017.</td>
</tr>
<tr>
<td>Alternative Accounting Treatments</td>
<td>No matters are reportable.</td>
</tr>
</tbody>
</table>
| Financial Statement Disclosures                                     | • Determination of fair values  
• Retirement, Disability and Death Benefit Plan                                                                                     |
| Auditor’s Judgments About the Quality of the System’s Accounting Policies | No matters are reportable.                                                                                                                                                                          |
### Audit Adjustments

#### Proposed audit adjustments recorded:
- None

#### Proposed audit adjustments not recorded:
- **System**:
  - Change in fair value of alternative investments – current year and prior year turnaround
  - Reclassify credit balances in health system accounts receivable
  - Aggregate of other immaterial items

#### Pension Trust Funds (Aggregate Remaining Fund opinion unit):
- Change in fair value of alternative investments
New Accounting Pronouncements – GASB 75, Accounting and Financial Reporting for Postemployment Benefits Other than Pension
OTHER DELIVERABLES

Issued:
- Financial Statements of Capital Region Medical Center
- Report on Debt Compliance of Capital Region Medical Center

To be Issued:
- Single Audit report in accordance with Uniform Guidance
- NCAA Agreed-Upon Procedures (Columbia and KC campuses)
Questions?
Thank You!
No. 1

Recommended Action - Adjourn Board of Curators Audit Committee Meeting

It was moved by Curator __________ and seconded by Curator __________, that the Board of Curators Audit Committee Meeting, December 7-8, 2017, be adjourned.

Roll call vote of the Committee: YES NO

Curator Brncic
Curator Farmer
Curator Phillips
Curator Sundvold

The motion ________________.
HEALTH AFFAIRS COMMITTEE
No. 1

Recommended Action - Minutes, September 28, 2017 Health Affairs Committee Meeting

It was moved by _______________ and seconded by _______________, that the minutes of the September 28, 2017 Health Affairs Committee meeting be approved as presented.

Roll call vote of Committee: YES NO

Mr. Ashworth
Curator Layman
Ms. Maledy
Curator Phillips
Curator Snowden
Curator Sundvold

The motion ________________.
Recommended Action – Resolution for Executive Session of the Health Affairs Committee Meeting, December 7-8, 2017

It was moved by __________ and seconded by __________, that there shall be an executive session with a closed record and closed vote of the Health Affairs Committee meeting December 7-8, 2017 for consideration of:

- **Section 610.021(1), RSMo**, relating to matters identified in that provision, which include legal actions, causes of action or litigation, and confidential or privileged communications with counsel; and

- **Section 610.021 (2), RSMo**, relating to matters identified in that provision, which include leasing, purchase, or sale of real estate; and

- **Section 610.021(12), RSMo**, relating to matters identified in that provision, which include sealed bids and related documents and sealed proposals and related documents or documents related to a negotiated contract; and

Roll call vote of the Committee: YES NO

Mr. Ashworth
Curator Layman
Ms. Maledy
Curator Phillips
Curator Snowden
Curator Sundvold

The motion ______________.
GENERAL BUSINESS

DAY TWO
UNIVERSITY OF MISSOURI – ST. LOUIS
HIGHLIGHTS

There are no materials for this information item.
UM SYSTEM PRESIDENT’S REPORT

There are no materials for this information item.
Critical Issue Discussion
Report of Administrative Review
Foreword to PwC Report
Mun Y. Choi, UM System President

Public higher education nationwide is facing unprecedented challenges due to reductions in state appropriations, student enrollment and federal research grants. The University cannot afford to allow burgeoning administrative costs and divisions to hold back progress. Evidence shows that we must implement new business models to reinvest and grow the key research, education and engagement activities at the core of our existence to be a more sustainable and efficient University.

To address these challenges, in June 2017, we announced short and long-term budget plans to support excellence in research, teaching and engagement. With a proactive approach to identify efficiencies and cost savings, we launched an administrative performance and process improvement assessment. This administrative review serves as an important initiative in a longer-term approach to identify important opportunities that can provide resources to reduce the cost of education and invest in activities that support our faculty and staff.

A contracted vendor, PricewaterhouseCoopers, helped facilitate this process by using a blend of operational data analysis and stakeholder interviews. The report provides a valuation of key administrative functions and identifies opportunities for improvement and potential cost savings within those functions. The eight-week assessment focused on only the University of Missouri-Columbia campus and UM System central office. University leadership accepts and endorses the report and recommendations contained therein.

The results of this assessment provide us with a direction to change the way our administrative offices operate. Yet, before we undertake any individual initiatives to implement the changes and realize the cost saving opportunities, we need to gather more information by:

1) Vetting and integrating the findings outlined in the report with the plans in place at UMKC, Missouri S&T and UMSL.

2) Performing an activity analysis of all staff across the organization to better understand what drives administrative work and where that work happens.

The results of this additional data gathering will be shared by the end of Fiscal Year 2018, after which University leadership will identify the specific actions and timelines to realize selected opportunities. Faculty and staff will continue to provide input throughout this process.
To date, the University has already undertaken considerable cost cutting initiatives to mitigate reductions in state support and declines in enrollment. There are additional significant saving opportunities to realize, however, doing so requires reevaluating the operating model for administrative functions. Leadership has already begun the work of defining a new operating model for our administrative services, with discussion centering around two broad frameworks:

- **Core management** – The creation of a larger-scale office within the UM System central office which will be involved in campus-level decisions and operations. Performance would be monitored jointly between campus and the UM System central office.

- **Strategic management** – The creation of a smaller-scale office within the UM System central office which coordinates important decisions to develop collaborations and efficiencies. Decision-making is based on campus performance and accountability.

Leadership will consider the following questions as they continue to discuss which model is most appropriate:

- Can risk be better managed with a single responsible office?
- Is the administrative area a compliance function across all campuses?
- Are there economies of scale to performing the function in a single place?
- Are there common requirements across all campuses for the function?

In all we do, we remain committed to collaboration, transparency and accountability, and welcome input from our University community as it will be central to this process.
Administrative Performance and Process Improvement Assessment Related to RFP #31018

-- Final Report --

November 29, 2017
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<td>2. Summary of Workstream Findings</td>
<td>16 – 24</td>
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<tr>
<td>3. Facilities Workstream</td>
<td>25 – 41</td>
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<td>4. Finance and Supply Chain Workstream</td>
<td>42 – 72</td>
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<td>5. Human Resources Workstream</td>
<td>73 – 100</td>
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<td>6. Information Technology Workstream</td>
<td>101 – 117</td>
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<td>7. Sustainability and Operating Model</td>
<td>118 – 123</td>
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<tr>
<td>8. Implementation Timelines</td>
<td>124 – 158</td>
</tr>
<tr>
<td>Appendix</td>
<td>159 – 161</td>
</tr>
</tbody>
</table>
1. Executive Summary
The University of Missouri’s four campuses and System Administration addressed a budget shortfall of $62M in FY18.

The two primary traditional revenue sources (1) State Appropriations (2) Net tuition and student fees are expected to be limited over the next five years.

**State Appropriations**

- The state of Missouri’s Higher Ed appropriation amount on a per capital basis ranks 46th across the nation at $170, the national average is $244.
- State appropriations have fallen from 62% of total revenues in 2000 to 35% in 2016.
- Moody’s projects lower state appropriations nationally due to competing priorities.
- Moody’s projects the State of Missouri revenues to drop by 7% over the upcoming five years.

**Note:** Budget shortfall projection from June 2017 Budget Presentation; Public University Tuition Increases per Moody’s Investor Services – Universities Face Another Year of Low Net Tuition Revenue Growth, November 2016; State of Missouri Revenue Outlook per Moody’s Investor Services August 2017 Rating report.
Assessment Context

- The University of Missouri’s four campuses and System Administration addressed a budget shortfall of $62M in FY18
- The two primary traditional revenue sources (1) State Appropriations (2) Net tuition and student fees are expected to be limited over the next five years

Net Tuition and Student Fees

- “Subdued growth underscores a heightened focus on freezing or limiting tuition increases coupled with a highly competitive environment” – Moody’s
- “The Midwest, confronted with a declining number of high school graduates, faces the greatest amount of pressure with over 61% of survey respondents reporting decreasing enrollment in fall of 2017” – Moody’s

Note: Budget shortfall projection from June 2017 Budget Presentation; Public University Tuition Increases per Moody’s Investor Services – Universities Face Another Year of Low Net Tuition Revenue Growth, November 2016
Assessment Context

- Revenue growth is not a viable path to a healthy bottom-line
- In order to balance the budget and make strategic reinvestments, UM has commissioned this report to identify potential cost savings opportunities at MU and the UM System Office and MU that may be implemented to improve the university’s overall financial health
- UM must expand these findings to all campuses in order to capture additional operational benefits
- This report is the first step in a multi-year transformation to create operational efficiency and excellence
- Through this work, it has become clear that the operating model will need to be transformed in order to improve operational effectiveness and to generate and sustain savings
## Assessment Overview

This document represents the findings related to the University of Missouri’s “RFP #31018 -- Consulting services for identification of administrative performance and process improvement opportunities”

<table>
<thead>
<tr>
<th>Scope</th>
<th>Approach</th>
<th>Limitations</th>
</tr>
</thead>
</table>
| • UM System central office and MU campus  
• Facilities, Finance, Human Resources and Information Technology at the UM system central office and MU campus have been analyzed  
• Findings that expand beyond UM System and MU campus are noted accordingly | • Based on Fiscal Year 2017 data  
• For those changes that already occurred in FY18, findings have been adjusted  
• **Performed over 70 interviews** with key leaders and stakeholders (details p.8)  
• **Over eight weeks** the four teams collaborated to identify and quantify opportunities  
• Many opportunities will **require robust planning** to ensure successful execution | • Opportunities were **based on currently available data** and assumptions reviewed by UM leads  
• Findings, while based on best available data, are directional and shouldn’t be taken as final as they will be refined during future stages of work  
• Applicability of opportunities to other campuses will **require further study** |
Information Gathering Process

- This assessment included an analysis of primary data sets such as the general ledger, payroll and accounts payables.
- Each workstream also collected data and information to develop an understanding of operations within each functional area.
- To supplement this dataset over 70 stakeholder interviews were performed to further identify and refine improvement opportunities.
- Additional engagement is being planned at UMKC, UMSL and S&T.

<table>
<thead>
<tr>
<th>University of Missouri Stakeholder Input by Workstream</th>
<th>UM System</th>
<th>Columbia</th>
<th>UMKC</th>
<th>UMSL</th>
<th>S&amp;T</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty and Staff Representation</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Facilities</td>
<td>3</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Information Technology</td>
<td>10</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Engagement Leadership and Communications</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Finance</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Human Resources</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>43</strong></td>
<td><strong>23</strong></td>
<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>2</strong></td>
<td><strong>72</strong></td>
</tr>
</tbody>
</table>
Spend Overview

Assessment scope includes 20% (~$0.6B) of total UM spend; a significant portion represented by benefits expenses.

Assessment Addressable Spend Breakout ($644M)

- Facilities - $47M
- Finance - $16M
- Human Resources - $9M
- Information Technology - $48M
- Distributed¹ - $41M
- Supply Chain² - $60M
- Benefits³ - $423M

Notes
1. Contains labor and non-labor operating costs across four workstreams
2. Includes selected system-wide vendors
3. Includes all university and hospital benefits costs

See Facilities Overview for detail on departments included in the total spend. Workstream scope spend is allocated into Distributed Employees and Benefits categories on this chart.

Note: All spend from FY17 GL
Observations

Based on the information gathered through interviews and data analysis, several observations are noteworthy and possibly explain the challenges to date in optimizing administrative operations. Consideration of these observations is needed when advancing forward with implementation.

- **Decision Rights & Norms**
  - Solutions to operational issues are generally known, but coming to agreement on how to implement is a challenge.
  - Sustainability of changes unwinds due to lack of accountability, metrics and oversight.
  - Near-term budgetary constraints have hindered long-term strategic planning.

- **Information & Data**
  - Executive decision making not always informed by robust and timely data.
  - Few leaders have access to information across organizational boundaries.
  - Multiple instances of key systems diminishes integrity and utility of data.

- **Structure**
  - Campus independence overrides “systemness”.
  - Inefficiencies have been created by distributed roles and accountability across system, campuses, and divisions.
  - Similar administrative functions and processes exist across campuses and between departments.

- **Change Management**
  - Recognition that the status quo is unsustainable.
  - An atmosphere of uncertainty and desire for transparency exists.
  - Communication and alignment across the university, including faculty and staff, will be a key to success.

---

University of Missouri System

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December 7-8, 2017
Keys to Success

For the University of Missouri System to implement and sustain meaningful operational efficiencies and cost savings it must:

1. Redesign the operating model to address underlying inefficiencies
   - Look across the entire system including each campus and in academic departments in order to identify savings
   - Central administrative functions have already implemented readily attainable cost savings
   - Clarify how and where decisions are made throughout the organization
   - Enable functional leaders to manage expenses across departments and organizational lines
   - Identify and implement current leading practices to reinvest resources into strategic organizational priorities

2. Embrace a thoughtful approach to implementation
   - Develop a Transformation Management Office to provide full time, dedicated resources to promote accountability and execution of implementation (details on p. 120-121)
   - Understand non-faculty employee workload by performing an Activity Analysis survey
   - Establish robust change management function; develop and execute a holistic communications plan
   - Rapidly implement near-term opportunities to build momentum and enable future phases to be self-funding
   - Include faculty and staff in the definition of strategy and vision, and during implementation

Success requires assessing and addressing administrative work in the academic enterprise.
Summary of Financial Opportunities

$44.3M of net financial impact identified out of $644M in total addressable spend (7%)
$26.8M of net financial impact identified out of $221M in non-benefits spend (12%)

<table>
<thead>
<tr>
<th>Workstream¹</th>
<th># of Opportunities⁴</th>
<th>Calendar Year Benefit ($M) – “Low” Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2018</td>
</tr>
<tr>
<td>Facilities²</td>
<td>6</td>
<td>$1.2</td>
</tr>
<tr>
<td>Finance</td>
<td>6</td>
<td>$4.4</td>
</tr>
<tr>
<td>Human Resources³</td>
<td>2</td>
<td>$2.2</td>
</tr>
<tr>
<td>Information Technology</td>
<td>6</td>
<td>$1.7</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>4</td>
<td>$3.7</td>
</tr>
<tr>
<td>Total Administrative Efficiency</td>
<td>24</td>
<td>$13.2</td>
</tr>
<tr>
<td>Benefits⁵</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>$13.2</td>
</tr>
</tbody>
</table>

Notes:
1 Indicates opportunities are net of non-capital investments
2 Facilities includes cost savings and revenue enhancement opportunities
3 HR includes administrative staff opportunity
4 Some opportunities have been scaled to multiple campuses to realize the benefit amount stated; details are provided within the workstream specific section
5 Benefits opportunities encompass several potential changes to health and welfare plans. Any plan changes should be vetted by the Total Rewards Advisory Committee and consider the impact on recruitment and retention as a part of a comprehensive total rewards package.
# Summary of Required Investments

UM will need to make key strategic investments to achieve the benefits and savings of the opportunities. Certain investments below are the reallocation of resources into different functional groups. All cost savings on previous page were net of these operating investments.

*Investments noted below are approximate and will be refined during the planning phase*

<table>
<thead>
<tr>
<th>Workstream</th>
<th>Investment Type and Description</th>
<th>One-Time Operating</th>
<th>Annual Operating</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>Space rationalization of real estate portfolio will require a capital outlay for furniture, fixtures, equipment, move costs, and reconfiguration / renovation of space. Reducing 3rd party leasing will require investment to relocate functions to new locations.</td>
<td>-</td>
<td>-</td>
<td>$13.7M</td>
</tr>
<tr>
<td>Finance</td>
<td>Expected financial investment is low, around 5 FTEs. Most of the needed investment is around people – training for talent development, communication, team building and responding to feedback. There is potential one time operating investment to reflect process changes in system(s) from consolidating functions and increasing accountability.</td>
<td>-</td>
<td>$500K</td>
<td>-</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Required investment of 30 to 50 additional FTEs in critical HR capabilities that are currently understaffed. There will also be an investment of time from HR leadership and impacted stakeholders to implement these opportunities.</td>
<td>-</td>
<td>$2.6 - $4.2M</td>
<td>-</td>
</tr>
<tr>
<td>Information Technology</td>
<td>The primary investment for IT is labor for implementation projects. There is a potential for minor phone or computer equipment investment if current systems can’t be reused or require expansion.</td>
<td>$900K</td>
<td>$670K</td>
<td>$175K</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>No financial investment has been noted</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>$900k</td>
<td>$3.8 - $5.4M</td>
<td>$13.9M</td>
</tr>
</tbody>
</table>

**Note:**
Most investments require further data in order to calculate, however they are not expected to compose a large percentage of the total calculated financial opportunities
The opportunities for these workstreams are net of non-capital investments (these investments have already been incorporated)
2. Summary of Workstream Findings
Transformation Timeframe

This assessment report is the next phase of a multi-phased transformation to coordinate efforts currently underway at the campus level; further analysis and input will be incorporated before changes to the university’s operations are implemented.

<table>
<thead>
<tr>
<th>Transformation Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Assessment</strong></td>
</tr>
<tr>
<td>&quot;We Are Here&quot;</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td><strong>Expanded Assessment</strong></td>
</tr>
<tr>
<td>(Jan-Mar)</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td><strong>Design</strong></td>
</tr>
<tr>
<td>(Apr-Jun)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
</tr>
<tr>
<td>FY 2019</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

**Purpose**
- High level assessment to determine direction and approximate magnitude of savings opportunities
- Assess current state of operations and determine relevance of findings across other campuses
- Design future state operating model and construct how the university will perform administrative functions
- Execute changes to operations, measure and improve as appropriate

**Activities**
- Identify potential improvement opportunities
- Quantify approximate magnitude of benefits
- Identify and plan to address further data needs
- High level opportunities development
- Assess operations from campuses excluded from initial assessment
- Determine applicability of current findings and relevance of potential opportunities
- Improve quality and depth of data
- Perform activity analysis workload survey
- Collaborative, cross campus and functional area design sessions
- Development of and iteration on future state design
- Redesign policies, procedures and processes around future design
- Develop new service level agreement and incentives
- Implement changes from design phase
- Pilot opportunities (as deemed appropriate)
- Test, refine and improve

**Outputs**
- List of recommendations
- Go forward strategy
- Understanding of additional data needs
- Refinement of opportunities across the system
- Completed activity analysis workload survey
- Recommended future state design with cost benefit analysis completed including investments needed
- Implemented, tested and refined new set of operating norms
- Improved operating model

---

**University of Missouri System**

**Executive Summary**

**Summary Findings**

**Facilities**

**Finance**

**Human Resources**

**IT**

**Sustainability and Operating Model**

**Implementation Timeline**

December 7-8, 2017
Facilities Area Overview

The Facilities workstream has identified $6.8M to $13.6M in net annual benefits

Key Recommendations
- Execute space utilization and rationalization opportunities
- Optimize lease portfolio to reduce operating costs
- Optimize operating costs and generate capital through partnerships and monetization opportunities

Example Action: Ending a lease to occupy underutilized space.

Opportunities identified as part of preliminary analysis

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Real Property Operating Model Realignment</td>
<td>Two Year</td>
<td>4</td>
</tr>
<tr>
<td>2. Real Property Rationalization (Owned and Leased Space)</td>
<td>Two Year*</td>
<td>4</td>
</tr>
<tr>
<td>3. Rationalize Landscaping Scope</td>
<td>Near-Term</td>
<td>2</td>
</tr>
</tbody>
</table>

Additional opportunities to be evaluated

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Monetize Excess and/or Underutilized Real Property Assets</td>
<td>Two Year*</td>
<td>4</td>
</tr>
<tr>
<td>5. Identify Public-Private Partnership Opportunities</td>
<td>Two Year</td>
<td>3</td>
</tr>
<tr>
<td>6. Review Staffing Model Efficiency</td>
<td>Two Year</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Spend represents net or gross departmental expense depending on charge-backs
Annual benefits are net of non-capital investments
*Implementation of certain opportunities can be achieved in two years others are expected to have a longer lead time
Finance Area Overview

The Finance workstream identified $8.8M to $13.3M in net annual savings

Key Recommendations

- Redesign operating model to improve efficiency of Finance-related resources across the university
- Drive broader accountability for financial results and budget targets including margin expectations and adopt an all funds approach to financial management
- Continue to leverage recently-installed technologies to improve business insight and planning capabilities
- Continue development of a Finance talent management program (recruitment, training, and progression)
- Improve supplier contract controls to allow Supply Chain to further manage vendor spend

Example Action: Creating a single point of contact for contract execution.

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design Future Operating Model (Align Finance Personnel)</td>
<td>Six Months</td>
</tr>
<tr>
<td>2</td>
<td>Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level (Operating Model)</td>
<td>One Year</td>
</tr>
<tr>
<td>3</td>
<td>Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level (Operating Model)</td>
<td>Two Years</td>
</tr>
<tr>
<td>4</td>
<td>Drive Broader Financial Accountability</td>
<td>One Year</td>
</tr>
<tr>
<td>5</td>
<td>Improve Business Insight Reporting and Planning Capabilities</td>
<td>One Year</td>
</tr>
<tr>
<td>6</td>
<td>Further Development of a Finance Talent Development Strategy</td>
<td>Two Years</td>
</tr>
</tbody>
</table>

Note: Annual savings are net of non-capital investments
Human Resources Area Overview

The Human Resources workstream identified $2.2M to $2.4M in net HR related savings
Total Rewards savings is $17.5M to $30.4M in total savings
Administrative Assistant Realignment is an additional $1.1M to $2.2M in savings

Key Recommendations
- Launch a formal HR Transformation effort focused on standardizing HR processes and governance structures, optimizing the usage of HR technology and redesigning the HR service delivery model
- Invest in HR technology and core HR capabilities that are currently missing or underutilized
- Involve campus leaders in the development of a system-wide “people strategy”
- Redesign benefit and pay packages to align the total dollars spent with what is most valued by employees

Example Action: Expanding the CAPS model for HR transaction processing.

<table>
<thead>
<tr>
<th>HR Related Opportunities</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HR Transformation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiencies in Distributed HR Spend</td>
<td>Two Years</td>
<td>5</td>
</tr>
<tr>
<td>Efficiencies in HR Spend</td>
<td>Two Years</td>
<td>4</td>
</tr>
<tr>
<td>Investments in Critical HR Capabilities and Roles</td>
<td>Two Years</td>
<td>4</td>
</tr>
<tr>
<td>Optimization of HR Technology</td>
<td>Two Years</td>
<td>4</td>
</tr>
</tbody>
</table>

| 1 Savings opportunity primarily resides in departmental spend |

<table>
<thead>
<tr>
<th>HR Related Opportunities</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Total Rewards Rationalization</td>
<td>Two Years</td>
<td>5</td>
</tr>
<tr>
<td>3 Administrative Assistant Realignment</td>
<td>Six Months</td>
<td>3</td>
</tr>
</tbody>
</table>

* Assumes 30% of work executed by 477 non-HR professionals identified as performing some level of HR work is attributable to HR
** May not include total costs associated with HR vendor/consultant fees and should be validated with HR; additionally, HR technology expenses may be currently mapped to IT spend and should be further validated with HR

Note: Annual savings are net of non-capital investments
The IT workstream identified net annual savings of $4.2M to $7.7M

**Key Recommendations**
- Redesign operating model to improve efficiency of IT-related resources across the university
- Consolidate IT services to reduce risk and lower costs
- Streamline student servicing across campuses to improve efficiency
- Empower IT to operate in a strategic manner across departments and campuses to better manage functional expenses

**Example Action:** Implementing a standard web delivery platform.

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Governance and Operating Model</td>
<td>Three Year</td>
<td>5</td>
</tr>
<tr>
<td>2 IT Spend Governance</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>3 Rationalize Distributed IT Desktop / Support Services</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>4 Consolidate Web Hosting Platforms</td>
<td>One Year</td>
<td>2</td>
</tr>
<tr>
<td>5 Increase App Development/Support ROI Requirements</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>6 Reduce Innotas Licensing</td>
<td>Two Year</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: Annual savings are net of non-capital investments*
Supply Chain Overview

Supply Chain identified net annual savings of $3.7M to $4.0M

Key Recommendations
- Improve Supply Chain’s ability to develop and enforce purchasing policies and processes in order to better manage cost
- Review departmental spend and partner with functional and academic leaders to address non-labor expense variances

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Support Operating Model Redesign for Non-Labor Spend</td>
<td>Two Year</td>
<td>2</td>
</tr>
<tr>
<td>2 Improve Enforcement of Supply Chain Controls</td>
<td>Near-Term</td>
<td>2</td>
</tr>
<tr>
<td>3 Increase Spend Under Management</td>
<td>Near-Term</td>
<td>2</td>
</tr>
<tr>
<td>4 Enhance Contract Review Process</td>
<td>Near-Term</td>
<td>2</td>
</tr>
</tbody>
</table>

A selection of University of Missouri contracts and procurement policies were reviewed in conjunction with the Finance Workstream, labor opportunities for Supply Chain are noted in the Finance section

Note: Annual savings are net of non-capital investments
Near-Term Opportunities

Certain opportunities have been identified that can quickly impact the FY18 budget, the savings captured from these initiatives can be used to fund future strategic initiatives. Additional opportunities may be identified upon further analysis.

<table>
<thead>
<tr>
<th>#</th>
<th>Workstream</th>
<th>Opportunity</th>
<th>Time to Complete (Months)</th>
<th>$ Benefit (Low End of Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Facilities</td>
<td>Rationalize Landscaping Scope</td>
<td>6</td>
<td>$50K</td>
</tr>
<tr>
<td>2</td>
<td>Supply Chain</td>
<td>Improve Enforcement of Supply Chain Controls</td>
<td>3</td>
<td>$500K</td>
</tr>
<tr>
<td>3</td>
<td>Supply Chain</td>
<td>Increase Spend Under Management</td>
<td>3</td>
<td>$1.5M</td>
</tr>
<tr>
<td>4</td>
<td>Supply Chain</td>
<td>Enhance Contract Review Process</td>
<td>3</td>
<td>$1.5M</td>
</tr>
</tbody>
</table>

Near-Term opportunities can be fully implemented by June 30, 2018 and will result in annual savings of $3.5M

Note:
Rapidly implementing operating model changes in the other centralized functional areas would result in additional savings in FY18
Full impact of near-term opportunities will not be realized until FY19
Opportunity Risk Scoring

The majority of the opportunities reside in “higher” risk quadrants and therefore a thoughtful approach to implementation will be required that prioritizes clear communication and change management.

### Implementation Risk / Difficulty Components

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Breadth and intensity of activities required to implement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investments</td>
<td>Financial and operational inputs required to implement</td>
</tr>
<tr>
<td>Stakeholder Impact</td>
<td>Perceived negative impact to stakeholders</td>
</tr>
</tbody>
</table>

### Implementation Risk / Difficulty

#### Near Term

- **I. Priority Implementation**
  - Risk: L
  - Time: L
  - Opportunities (#): 7
  - Opportunity ($M): $4.7

- **II. “Balance Risk & Reward”**
  - Risk: H
  - Time: L
  - Opportunities (#): 6
  - Opportunity ($M): $9.3

- **III. “Implement over time”**
  - Risk: L
  - Time: H
  - Opportunities (#): 1
  - Opportunity ($M): $0.03

- **IV. “Focused Commitment”**
  - Risk: H
  - Time: H
  - Opportunities (#): 6
  - Opportunity ($M): $30.5

---

**Note:** Enabler opportunities are excluded from graph. Annual benefits are net of non-capital investments.

---

**Table:**

<table>
<thead>
<tr>
<th>#</th>
<th>Quadrant</th>
<th>Risk</th>
<th>Time</th>
<th>Opportunities (#)</th>
<th>Opportunity ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Priority implementation</td>
<td>L</td>
<td>L</td>
<td>7</td>
<td>$4.7</td>
</tr>
<tr>
<td>II</td>
<td>“Balance Risk &amp; Reward”</td>
<td>H</td>
<td>L</td>
<td>6</td>
<td>$9.3</td>
</tr>
<tr>
<td>III</td>
<td>“Implement over time”</td>
<td>L</td>
<td>H</td>
<td>1</td>
<td>$0.03</td>
</tr>
<tr>
<td>IV</td>
<td>“Focused Commitment”</td>
<td>H</td>
<td>H</td>
<td>6</td>
<td>$30.5</td>
</tr>
</tbody>
</table>

**Bubble Size:** Expected Benefit

- <$.5M
- $5M+
3. Facilities Workstream

3.1 – Facilities Workstream Summary
3.2 – Individual Opportunity Overviews
3.3 – Additional Opportunities to be evaluated
3.1 Facilities
Workstream Summary
## Summary

The Facilities workstream reviewed $47M of spend and identified 6 opportunities. The initial analysis projects an identified net annual benefits of $6.8M to $13.6M

<table>
<thead>
<tr>
<th>Workstream Approach</th>
<th>Observations</th>
<th>Key Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data sourced primarily from</td>
<td>• Cost cutting measures / budget reductions over the past 15 years has significantly reduced the department’s size and operating expenses</td>
<td>• Address decision rights through operating model changes in order to better manage overall Facilities and Real Estate portfolio costs</td>
</tr>
<tr>
<td>o FY17 GL, payroll file, FY18 budget, and others</td>
<td>• The university may consider making additional investments in facilities to better manage costs</td>
<td>• Execute space utilization and rationalization opportunities</td>
</tr>
<tr>
<td>• Scope focused on select facilities functions</td>
<td>• The existing infrastructure and spatial footprint serves as a catalyst for underutilization of space, lack of density, growing cost inefficiencies, and deferred maintenance needs</td>
<td>• Optimize lease portfolio to reduce operating costs</td>
</tr>
<tr>
<td>• Met with 8 Facilities leaders and staff throughout MU and the system</td>
<td>• Institutional legacy overshadows strategic innovation of &quot;next-gen&quot; concepts</td>
<td>• Optimize operating costs and generate capital through partnerships and monetization opportunities</td>
</tr>
<tr>
<td>• Space opportunities include off campus or leased residential life buildings</td>
<td>• Departmental strategic planning is happening but there is a lack of a unified plan across Facilities / Real Estate departments</td>
<td>• Facilities will likely need to make investments in this department to execute these opportunities in a timely fashion, staffing needs will be identified during the design phase</td>
</tr>
<tr>
<td>• Areas not addressed / out of scope include construction, energy management, environmental safety, security, and parking (except for public-private partnerships) and others</td>
<td>• Decisions typically managed by Facilities departments reside with academic departments (e.g. space, new building leases, new buildings, renovations, construction, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

**Note**: Annual benefits are net of non-capital investments
Facilities Current and Future State

Legacy decisions, especially around cost cuts, have lead to positive near-term budget improvements, but a long-term strategic plan needs to be developed to manage costs more holistically.

**Current (Reactive, cost cutting)**

- Sightlines benchmarking indicates Facilities is under-investing
- Facilities can be a vehicle to manage expenses, but investments will be required
- There is $1.6B (system-wide) in deferred maintenance that continues to add to ongoing expenses
- Cuts have been made to the Facilities department, but having a long-term strategy will be the key to being better stewards of Facilities spend
- Thinking about meeting this year’s budget expectations in lieu of long term planning
- Limited ability of Facilities to strategically impact real estate decisions made by academic departments
- Lease portfolio reflects the priorities of the different departments vs an optimized, strategic portfolio
- Real property decisions are not formally and consistently made with input from Facilities

**Future (Proactive, holistic expense management)**

- Elevate the Finance, Real Estate, and Facilities departments to be “owners” of the entire lifecycle of real property decisions
- Develop accurate space inventory data to help drive decisions (buy, build, lease, or renovate)
- Think past this year’s budget

---

This will require a change in operating model and decision rights around how space decisions are made.
Facilities Needs Spend

External benchmarking indicates under-investment in Facilities and preventative maintenance

![Graph showing the history of target spend from 1994 to 2016.](image)

**History of Target Spend**

- **1994** - Analysis of Facilities determined 1.5% of Current Replacement Value (CRV) of E&G Facilities is required to maintain campus portfolio
- **2001** - Budget cuts resulted in less investment in Facilities and increased Facilities needs
- **2016** - Sightlines evaluation of Facilities recommends 2% of CRV of E&G space to meet Facilities needs

*Note: Sightlines is engaged each year to benchmark facilities operations with peer institutions*
Facilities Workstream Scope

Facilities scope includes the maintenance and upkeep of UM facilities along with real estate management and related activities

<table>
<thead>
<tr>
<th>Labor Department Focus</th>
<th>Non-Labor Areas</th>
<th>Out of Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Facilities Administration</td>
<td>• Leasing Portfolio</td>
<td>• Parking and Transport Services</td>
</tr>
<tr>
<td>• Facility Operations</td>
<td>• Space Utilization</td>
<td>• Environmental Health and Safety</td>
</tr>
<tr>
<td>• Landscape Services</td>
<td>• Public-private Partnerships</td>
<td>• Construction Management</td>
</tr>
<tr>
<td>• Space Planning and Management</td>
<td></td>
<td>• Security</td>
</tr>
<tr>
<td>• Property Maintenance, Custodial / Janitorial</td>
<td></td>
<td>• Sustainability</td>
</tr>
<tr>
<td>• Space Management</td>
<td></td>
<td>• Energy Management</td>
</tr>
<tr>
<td>• Landscape Services</td>
<td></td>
<td>• Real Estate / Lease Management</td>
</tr>
<tr>
<td>• Print and Mail Services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facilities scope includes the maintenance and upkeep of UM facilities along with real estate management and related activities.
## Expense Profile

<table>
<thead>
<tr>
<th>FY2017 Baseline</th>
<th>Total Spend *</th>
<th>UM and MU Central Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities Functional Rollup</td>
<td>$47M</td>
<td>232</td>
</tr>
</tbody>
</table>

### Expense Breakdown*

**Facilities E&G Spend $27M**
- $4.23 M&R Projects 16%
- $2.82 Landscape Services 10%
- $0.47 Space Planning 2%
- $2.35 Campus Facilities 9%
- $16.92 Facility Operations 63%

**Auxiliary Spend $20M**
- $10.81 Plan, Design & Construction 53%
- $9.40 Parking & Transportation Svcs 47%

*Facilities spend includes select spend from certain Operations, Auxiliary and other areas, based on discussion with the Facilities Department leads. Does not represent Facilities department budget only.

**Note:** Plan, Design & Construction includes In-House Design & Construction, and Project Management of $150 million D&C spend.
Opportunity Summary

The Facilities Workstream identified 6 opportunities with an annual benefit range of $7.0M to $13.6M

Opportunities identified as part of preliminary analysis

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Real Property Operating Model Realignment</td>
<td>Two Year</td>
<td>4</td>
</tr>
<tr>
<td>2 Real Property Rationalization (Owned and Leased Space)</td>
<td>Two Year*</td>
<td>4</td>
</tr>
<tr>
<td>3 Rationalize Landscaping Scope</td>
<td>Near-Term</td>
<td>2</td>
</tr>
</tbody>
</table>

Additional opportunities to be evaluated

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4 Monetize Excess and/or Underutilized Real Property Assets</td>
<td>Two Year*</td>
<td>4</td>
</tr>
<tr>
<td>5 Identify Public-Private Partnership Opportunities</td>
<td>Two Year</td>
<td>3</td>
</tr>
<tr>
<td>6 Review Staffing Model Efficiency</td>
<td>Two Year</td>
<td>4</td>
</tr>
</tbody>
</table>

During the design phase opportunities will undergo additional analysis to confirm savings, timeframe, and investment required

Note: Annual benefits are net of non-capital investments

*Implementation of certain opportunities can be achieved in two years others are expected to have a longer lead time
## Implementation Risk Summary

### Opportunities identified as part of preliminary analysis

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Complexity</th>
<th>Investments</th>
<th>Stakeholder Impact</th>
<th>Total Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Real Property Operating Model Realignment</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2 Real Property Rationalization (Owned and Leased Space)</td>
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<td>3 Rationalize Landscaping Scope</td>
<td>2</td>
<td>1</td>
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<td>2</td>
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### Additional opportunities to be evaluated

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<td>3</td>
</tr>
<tr>
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<td>5</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

### Risk Assessment Key

- **Complexity**: Assessment based on the number of actions required to implement the opportunity and the breadth of stakeholder buy-in needed.
- **Investments**: Assessment based on amount of technological, financial, personnel, and/or “soft” investments needed to implement the opportunity.
- **Stakeholder Impact**: Assessment based on the opportunity’s impact to normal workflow as well as the perceived impact of the opportunity to stakeholders.

**Implementation Risk Score** is an index that factors in:

1. Complexity
2. Investment Required
3. Impact to Stakeholders

- **Low Risk** – Limited risk to internal stakeholders; proceed with implementation, 1 – 2
- **Moderate Risk** – Develop and execute change management, track and manage progress closely, 3
- **High Risk** – Develop tactical work plan, execute change management strategy, involve key leaders, 4 - 5
3.2 Facilities

Individual Opportunities Overview

Full-time equivalent (FTE) impacts and investments require additional analysis to be performed during the design phase.
1. Real Property Operating Model Realignment

Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Real Property Operating Model Realignment</th>
</tr>
</thead>
</table>

**Description**
Explore opportunities for a cohesive roadmap to realign the various functions that handle real property matters for the University (e.g., facilities, real estate, leasing, operations, space planning/management, capital & strategic planning, design & construction). Identify distinct areas where centralized services can be most effective (e.g., Real Estate, Leasing, Contracting, Project Management, Technical Expertise, Code Enforcement, Reporting) and develop processes to integrate such centralized services into campus operations through formalized policies and procedures. This will effectuate consistent practices, reduce duplicative FTEs and administrative spend across campuses & System. Explore ways to implement strategies and objectives across the entire real property portfolio that create efficiencies and mitigate expense. This will involve a 360-degree analysis of the University's existing construction program, facility operations, space management & utilization and other real estate functions to enhance or improve the governing framework, service agreements, processes/controls, etc. This will likely contemplate a shared service hub and call center. Consider developing a consistent campus model across the system that fully integrates space inventory/management and master planning into a comprehensive planning, design & construction department. In conjunction with realignment efforts, explore opportunities to engage 3rd parties to aid or replace functions currently staffed by University employees. Initially this would explore 3rd parties available to provide such services, seek to compare level of service provided by such parties to services currently performed in-house, and quantify potential cost savings. See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity.

**Benchmarks**
- Comparable Higher Education models to validate current practices
- Number of FTE per function
- Average salary + benefits per FTE
- Operation cost per square foot of space per function
- Construction dollars per FTE
- Benchmarked to areas commonly outsources by other comparable organizations (from an industry and real estate footprint perspective)

**“Soft” Benefits Achieved**
- Improved communication across functions leads to coordination, insight into the perceived impact of decisions, and higher likelihood of success when executing real property strategy.
- Right-size the current staff mix to mitigate campus inefficiencies, capitalize on cross-functional synergies and economies of scale, and reduce overhead and operating expense.
- Generates a set of standardized polices, processes, and procedures that promote consistency and sound governance.

**Spend Addressed**
- Facilities Operating Expense Spend

**Design Phase Determinations**
- FTE Impact (average departmental attrition rate\(^*\) – 10%)
- Investment Required (Description and quantification)
- Savings Ramp-Up Schedule

**Implementation Duration**
- Two Year

**Implementation Risk**
- 4

<table>
<thead>
<tr>
<th>Impact to:</th>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
<th>UMKC</th>
<th>S&amp;T</th>
<th>UMSL</th>
</tr>
</thead>
</table>

\(^*\)Three year average across UM System and Columbia Campus

December 7-8, 2017
2. Real Property Rationalization (Owned and Leased Space)

**Opportunity Synopsis**

**Name:** Real Property Rationalization (Owned and Leased Space)

**Description:** Analyze the University's real estate and facility needs to right-size the portfolio and explore opportunities to maximize utilization, density, external funding, flexible work arrangements and, importantly, the user experience. Deferred maintenance, facility condition needs index, utilization metrics and other key performance indicators will be utilized to align the portfolio with the University's mission and needs. Stratify and analyze the University's real property portfolio to better understand business and contractual limitations associated with each space/use and explore alternative ways to optimize and reduce the University's existing space expense. This will be a multi-year process that will encompass the University's entire real estate footprint (owned and leased space), with the goal of reducing square footage and creating a self-funding real estate strategy. Review owned and leased buildings/spaces to identify each building's primary/secondary functions or purposes. Develop a list of considerations around redesign requirements necessary to repurpose certain buildings/spaces for multiple uses, increasing density and space utilization. University or leased facilities might be used for temporary purposes throughout the year, which can lead to underutilization across the portfolio. The goal is to analyze the impact of space optimization through redesign, furniture, fixtures and equipment investment, or shifts in previous operating models. Assess opportunities to right size the mix of owned vs. lease space taking into account the System's stated decision making factors for lease-build-renew- renovate decisions (e.g. availability of space and market, suitability of space, urgency of need, duration of need, adaptability, location, services required, costs, funding availability and funding type). Implement framework to require all new space requests be initiated through a formal business plan process that sets forth: program and space allocation plan, project definition/description, project justification, project costs and schedule, funding strategy, supporting documents, lease-build-renew considerations and present value analysis. Explore opportunities as it relates to spatial occupancy and rethinking the University's administrative and faculty operating model. For example, is there an opportunity to redesign the administrative model to allow certain personnel to work off campus, at home, or in more flexible space arrangements? Can the number of spaces occupied by faculty be reduced and/or identify areas or opportunities for shared space or consolidation? See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity.

**Benchmarks**

- University prepared draft space analysis
- Reduced anticipated savings by the $1.4M already anticipated based on planned relocations in process
- Market lease rates for comparable spaces in the local area
- Relocation cost quotes from local moving companies
- All administrative functions occupy campus real estate. Leading practice standards are being used to identify functions that (a) could employ a flexible work arrangement with a high-level of success and (b) would yield significant benefits and cost saving opportunities to the University

**“Soft” Benefits Achieved**

- Updated infrastructure
- Improved space utilization across the portfolio both on and off campus
- Opportunity to realize campus and department synergies that are related to realigning physical presence
- Improve the University's ability to track and monitor space utilization and enhance real-time efforts to address University priorities in unison with real estate strategy
- Enhance the reliability, relevance, and integrity of data used at varying levels in the decision making process
- Increase the level of administrative time put towards maintaining and monitoring the optimal leased portfolio in lieu of simply administering a larger portfolio
- Establishes a controlled environment that can improve productivity and product quality
- With an option to remain flexible in the workplace, employee satisfaction could increase and as a result benefit the University's ability to execute its mission

**Table:**

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces Capital Costs (annual savings based on Facilities Needs, Capital Expense)</td>
<td>Renovation, relocation, design costs and fit-out costs</td>
<td>Two Years*</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
<th>UM System</th>
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</tr>
</thead>
</table>

*Implementation of certain opportunities can be achieved in two years others are expected to have a longer lead time*
3. Rationalize Landscaping Scope

**Opportunity Synopsis**

<table>
<thead>
<tr>
<th>Name</th>
<th>Rationalize Landscaping Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Analyze the University's landscaping spend to identify opportunities to reduce cost by creating tiered landscaping requirements based on (a) student footprint, (b) campus tour routes, (c) planned facility demolition and relocation, (d) botanical garden areas, (e) safety, and (f) other aesthetic considerations. Creating tiered landscaping services may lead to cost savings, reduced FTE count, and allow high-traffic/priority areas to receive additional services. See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity.</td>
</tr>
</tbody>
</table>
| Benchmarks | - Landscaping cost per square foot  
- FTE per acre  
- Land areas  
- Anticipated savings of $265,000 planned by landscaping department in FY18 budget |
| "Soft" Benefits Achieved | Introduces flexibility in the way upper-management prioritizes evaluation and continuous improvement efforts |

**Spend Addressed**

| Landscaping Operating Expense Spend | None |

**Implementation Duration**

| Near-Term |

**Implementation Risk**

| 2 |

**Impact to:**

<table>
<thead>
<tr>
<th>UM System</th>
<th>Central Department</th>
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<th>MS&amp;T</th>
<th>UMSL</th>
</tr>
</thead>
</table>
3.3 Facilities - Additional Opportunities to be evaluated
4. Monetize Excess and/or Underutilized Real Property Assets

<table>
<thead>
<tr>
<th>Name</th>
<th>Monetize Excess and/or Underutilized Real Property Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Continue and expand upon ongoing efforts to monetize current real estate holdings. Identify additional resources required for real estate staff to: quantify the value of saleable/leasable real estate; understand market dynamics; identify potential lessees/buyers; advertise and solicit offers and; negotiate real property transactions. This is intended to focus on excess land holdings and underutilized buildings that are not part of the main campus. See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity.</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>Identification of buildings &amp; land that are nonessential to the University's mission, objectives, or real estate platform and have the potential for generating capital</td>
</tr>
</tbody>
</table>
| “Soft” Benefits Achieved | • Mitigate the risk associated with incurring reactive deferred maintenance for property nonessential to the University's core and/or ancillary missions  
• Allow employees to focus on the locations that are core to the University's mission |

**Design Phase Determinations**
- Spend Addressed
- FTE Impact
- Investment Required (Description and quantification)
- Savings Ramp-Up Schedule

**Implementation Duration**
- Two Year*

**Implementation Risk**
- 4

<table>
<thead>
<tr>
<th>Impact to:</th>
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<tbody>
<tr>
<td>UM System</td>
<td>[MU]</td>
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<td></td>
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<tr>
<td>Central Department</td>
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<td>S&amp;T</td>
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</tbody>
</table>

*Implementation of certain opportunities can be achieved in two years others are expected to have a longer lead time
## 5. Identify Public-Private Partnership Opportunities

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Identify Public-Private Partnership Opportunities</th>
</tr>
</thead>
</table>

**Description**

Identify public-private partnership opportunities that would optimize, complement, and improve the University's financial position to fund mission-oriented needs (education/research). See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity. Evaluate the ability to raise rates for parking, residential life, and other auxiliaries.

**Benchmarks**

- Relevant market rents, capitalization rates, sales pricing etc. from industry surveys and public articles pertaining to other universities
- University financial reporting and projected capital upgrades

**“Soft” Benefits Achieved**

- Transfer financial and operating risk to a third-party operator
- Ability to establish key performance indicators thresholds and hold third-party operators accountable, which in turn could improve service delivery efforts

### Spend Addressed

**Increases Cash Inflows (minor reduction in operating costs, but more so an increase in revenue that does not currently exist)**

### Design Phase Determinations

<table>
<thead>
<tr>
<th></th>
<th>FTE Impact</th>
<th>Investment Required (Description and quantification)</th>
<th>Savings Ramp-Up Schedule</th>
</tr>
</thead>
</table>

### Implementation Duration

<table>
<thead>
<tr>
<th></th>
<th>Two Year</th>
</tr>
</thead>
</table>

### Implementation Risk

<table>
<thead>
<tr>
<th></th>
<th>3</th>
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</thead>
</table>

### Impact to:

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</thead>
<tbody>
<tr>
<td>[UM System]</td>
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<td>✔️</td>
<td>✔️</td>
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</table>
6. Review Staffing Model Efficiency

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
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</tr>
</thead>
</table>

**Description**
Assess opportunities to redefine roles and responsibilities that could be leveraged using part-time and/or student resources that command lower costs of labor and relieve pressure on University benefit packages. Consider replication of managerial functions. See Implementation Plans for key dependencies, next steps and factors to consider when contemplating this opportunity.

**Benchmarks**
- Number of administrative employees across facilities department
- Average administrative salary & benefits costs/person
- Average hourly cost/student employee

**“Soft” Benefits Achieved**
- Improve connectivity between students and campus employees – an opportunity to empower students and enhance their educational experience and the overall campus culture
- Increase capacity that may otherwise be constrained by budget limitations
- Improve student employment rates and engagement in on campus operations

### Spend Addressed

**Operating Expense for All Operations (including Facilities) Full-and Part-Time Employees**

### Design Phase Determinations

- FTE Impact
- Investment Required (Description and quantification)
- Savings Ramp-Up Schedule

### Implementation Timeline

<table>
<thead>
<tr>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Year</td>
<td>4</td>
</tr>
</tbody>
</table>

### Impact to:

<table>
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<tbody>
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<td></td>
<td>UMSL</td>
</tr>
</tbody>
</table>
4. Finance and Supply Chain Workstream

4.1 – Finance Workstream Summary
4.2 – Individual Opportunity Overviews
4.3 – Supply Chain Workstream Summary
The Finance Workstream reviewed an estimated $34M of spend at UM system and MU and an estimated $6M spend at UM’s other campuses and identified 6 opportunities with a projected net savings of $8.8M to $13.3M.

### Workstream Approach
- Data used
  - FY17 GL and payroll file, Finance organizational trees
- Scope focused on traditional Finance and Supply Chain functions
- Met with 10 Finance leaders throughout UM, MU, including the CFOs of each campus
- Areas not addressed / out of scope include administrative processes and expenses related to research, e.g. sponsored programs, institutional research

### Observations
- Significant improvements appear to have occurred in the relationship between the Finance teams at the System and the campuses. However the operating model does not support efficient leverage of Finance related resources as evidenced by significantly distributed Finance resources and responsibilities.
- While the campuses are able to understand how they are doing in comparison to budget, financial accountability does not appear present especially as you move into deeper levels on each campus. Opportunities to improve interim forecasting ability also exist. Reporting does not clearly link business drivers (student credit hours, research, etc.) and financial performance.
- Though technology improvements have been made in recent years (Tableau, Hyperion, etc.), the Finance team acknowledges the benefit from additional enhancements to improve ease of use and integrate various data sets.
- Finance recognizes the strength and commitment within the existing Finance team but acknowledges the need to develop a strategy to maintain, develop and recruit Finance talent.

### Key Recommendations
- Redesign operating model to improve efficiency of Finance-related resources across the University
- Drive broader accountability for financial results and budget targets including margin expectations and adopt an All Funds approach to financial management.
- Continue to leverage recently-installed technologies to improve business insight and planning capabilities
- Continue development of a Finance talent management program (recruitment, training, and progression)
- Improve supplier contract controls to allow Supply Chain to further manage vendor spend

Note: An activity analysis survey will be key to determination of Finance activity and related FTEs

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**Note:** Annual savings are net of non-capital investments

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University of Missouri System
COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

OPEN – GB – INFO 5-43

December 7-8, 2017
## Finance Workstream Scope

### Labor Department Focus

- Finance Administration
- Accounting, Financial Information Systems, Payroll and Tax Reporting
- Risk and Insurance Management, Real Estate and Business Services, Records Management, Supplier Diversity and Small Business Development
- Budget Planning, Development and Monitoring, Appropriations Request, Supply Chain and Supply Chain
- Cash Management, Debt Management Banking Retirement and Endowment Fund Mgt.
- Finance Planning and Accounting
- Accounts Payables / Payroll
- Controller and Cash Management functions
- Supply Chain resources

### Non-Labor Areas

- AP and other Finance department efficiency measures, including One Card
- Supply Chain – Selected functional spend areas (Janitorial supplies and services, office supplies)

### Out of Scope

- Administrative processes and expenses related to research, e.g. sponsored programs, institutional research
- Student Services, including cashiers were not included in the spend analysis
Expense Profile

$34M of spend was reviewed including labor and non-labor expenses, labor includes known Finance employees and a count of “Distributed” employees which will be refined through an activity analysis survey

<table>
<thead>
<tr>
<th>FY2017 Baseline</th>
<th>Total Spend</th>
<th>UM and MU Central Headcount</th>
<th>MU Distributed Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Functional Rollup</td>
<td>$34 M</td>
<td>209</td>
<td>1,500 (approx.)</td>
</tr>
</tbody>
</table>

Executive Summary

Summary Findings

Facilities

Finance

Human Resources

IT

Sustainability and Operating Model

Implementation Timeline

*Includes distributed resources

Expense Breakdown*

- Supplies, Services and Other Operating Expenses, $4.7, 14%
- Distributed Benefits, $3.4, 10%
- Distributed Salaries and Wages, $10.7, 31%
- Salaries and Wages, $11.4, 34%
- Staff Benefits, $3.8, 11%

Distributed Methodology

- Stakeholder interviews acknowledged that significant employees with Finance function responsibilities exist throughout the University
- Identified total number of individuals executing Finance-related transactions in Finance PeopleSoft module
- Further evaluated list of individuals by using job titles, working with campus leadership to confirm
- Applied an estimated percent effort to estimate the dollar value (salaries, wages, and benefits) of the distributed headcount
- Activity analysis survey will be performed to more precisely identify distributed activities
Finance is highly decentralized and opportunities for improvement exist across each aspect of the Finance operating model.

<table>
<thead>
<tr>
<th>Finance Organizational Structures &amp; Roles</th>
<th>Finance Technology</th>
<th>Finance Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Based on Finance individuals mapped to Central Finance roles (79 FTEs), University of Missouri Columbia Campus and System is below the Higher Ed benchmarks, however, it is estimated that there are an additional 223 to 279 Finance FTEs supporting Finance activities that are disturbed across the organization or at UMSL, UMKC or S&amp;T; a formal activity analysis is required to more accurately understand FTEs supporting Finance processes across the organization.</td>
<td>• Though technology improvements have been made in recent years (Tableau, Hyperion, etc.), the Finance team acknowledges the benefit from additional enhancements to improve ease of use and integrate various data sets.</td>
<td>• The current decentralized and fragmented structure of the Finance organization results in inconsistencies in how results are analyzed and presented.</td>
</tr>
<tr>
<td>• The Finance service model is highly decentralized and fragmented which creates inefficiencies, potential redundancies and quality issues.</td>
<td>• People do not feel empowered to use existing tools to get to key metrics and insights.</td>
<td>• Finance recognizes the strength and commitment within the existing Finance team but acknowledges the need to develop a strategy to maintain, develop and recruit Finance talent.</td>
</tr>
<tr>
<td>• Significant improvements appear to have occurred in the relationship between the Finance teams at the System and the campuses, however, the operating model does not support efficient leverage of Finance related resources as displayed by significantly distributed Finance resources (1500+ distributed headcount performing finance functions) and responsibilities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Representative quotes from interviews with leadership and staff across the System and all four campuses

- "There is a wide variation and therefore inconsistency in talent and capabilities across fiscal roles."
- "There is significant lack of economic scale due to the widely distributed nature of fiscal activity."
- "There is a significant amount of activity at the department level related to intercompany transfers."
- "It's more important to focus on positioning UM as a world class AAU research and academic institution. Finance, HR and IT are commodities that need to work better."
- "Everyone working on their own list of priorities and individual business focus."
- "Need more standardization, automation, less redundancy and lower cost of transactional processing."
- "Transaction authorization to disseminated across the University leading to spending in excess of budget as well as transactions out of compliance with policy."
- "Historically difficult to engage with the fiscal officers since they are accountable to the deans and other leadership at the campus."
- "Development of analytic tools has led to silos of data – finance, HR, student data – that isn’t easily aligned."
- "There is a significant amount of activity at the department level related to intercompany transfers."
- "Finance is held back by wide fragmentation making it hard to prioritize."
- "Communication is not done well enough. Hard to get the right message to the right people."
- "Transactions take so much time, especially with their fragmentation."
- "Need more analytical, data driven decisions."
- "Need different talent to move the organization. Need critical thinkers, not just transaction processors."
- "Progress has been made with Hyperion and it is more efficient than it used to be but we need to better empower people to be more effective. It's an organizational issue."
- "We haven't been forceful on how things are done and we haven't limited people's ability to do transactions."
Leading Finance organizations invest more into value-add activities by reducing effort on traditional transactional processes.
Finance Benchmark Scope

The project scope includes two key components –

1) Finance FTE and Cost Benchmark

- Assessment of the resources and costs supporting the Finance function
- Enables objective comparison of the Finance function with external peers and supports leading practice gap analysis
- Data collected using data collection template and participant guide
- Provides an analysis of strength and opportunities, and actionable recommendations

2) Finance Executive Interviews

- Interviews with senior Finance executives to qualify benchmark findings
- Provides a diverse view of functional priorities, challenges and direct feedback about leadership, technology, support, organization and people
Finance and Supply Chain Benchmark Taxonomy

Mapped UM FTEs and process costs to the standard Finance and Supply Chain benchmark processes to promote relevant comparisons.

**Finance – Transactional Efficiency**
- Cash Disbursements
  - Accounts Payable
  - Travel & Entertainment Accounting
- Customer Billing
- Accounts Receivable
- Credit Management
- Debt Collection
- Payroll
- General Accounting
  - Fixed Asset Accounting
  - Intercompany Accounting
  - Inventory Accounting
  - Reconciliations, Consolidation and Closing the Books
- Financial & External Reporting
- Management Reporting

**Finance – Compliance & Control**
- Treasury
  - Cash Management
  - Risk Management
- Internal Audit
- Process Controls & Compliance
- Tax Accounting & Compliance

**Supply Chain**
- Transaction Processing
- Supplier & Contract Management
- Strategic Sourcing
- Performance Management

**Finance – Business Insight**
- Tax Planning
- Strategy & Planning
- Budgeting & Forecasting
- Business Analysis
  - Decision Support
  - Mergers & Acquisitions
  - Pricing & Analysis
  - Investor Relations
- Performance Improvement Projects
Typical Finance proportional effort on value-adding business insight activities has remained at 24% but will likely increase with rising expectations for Finance outcomes.

University of Missouri System Distribution of Finance time

A prior activity analysis study not only indicated a significant level of Finance activity but over 75% related to efficiency/transaction processing.

Expected FTE for University of Missouri System Scope

Benchmark FTEs Normalized to UM Revenue ($2.2B)
Centralized resources at UMSYS and MU are below benchmarks

- Finance workstream had difficulty identifying the FTEs associated to functions without an activity analysis which will provide understanding of:
  - Centralized resources at the other campuses
  - Distributed resource support at all four campuses (estimated additional 222 to 278 FTEs for total of an estimated 301 to 357 FTEs)

Centralized function compares well to benchmarks

Opportunity comes with estimated decentralized effort in finance
Leading Finance functions are also set apart by their ability to do the following

- Build a clear role for business partners
- Invest in emerging technologies
- Take the lead in driving behaviour and cultural change
- Drive transformation
Finance leaders are improving business results by investing in commercial insight, spending less time on transactional work and running at lower costs.

Top performers in the industry operate at lower cost not by reducing service levels but by standardizing and simplifying their core processes and systems—enabling them to free up resources to focus on business partnering.

Many Finance functions have self-reported over 30% of their time is spent on “waste”.

A combination of Lean process improvement and automation would release these costs.

At UM, many of the below processes are performed across the organization. The results of a multi-function activity analysis will demonstrate the opportunities to leverage LEAN concepts to reduce effort in transactional areas.

Waste reduction and automation potential based on industry benchmarks

- Billing: 46% automation, 34% waste
- Management reporting: 44% automation, 36% waste
- General accounting: 38% automation, 32% waste
- Budget & forecasting: 35% automation, 35% waste
- Tax accounting: 33% automation, 33% waste
- Business analysis: 33% automation, 33% waste
- Financial reporting: 32% automation, 32% waste
- Accounts payable: 28% automation, 32% waste
- Credit management: 25% automation, 25% waste
- Payroll: 23% automation, 27% waste
- Accounts receivable: 12% automation, 18% waste
- Finance strategy & planning: 11% automation, 19% waste
- Performance improvement: 10% automation, 19% waste
- Treasury: 8% automation, 12% waste
- Internal audit: 8% automation, 12% waste
- Tax planning: 4% automation, 16% waste
- Process controls: 3% automation, 9% waste

Source: PwC finance benchmark data, activity analyses
Finance Area Overview

Factoring distributed and campus FTEs into the Finance benchmark data shows a gap of 116 FTEs to 172 FTEs to median.

Activity Analysis is key to the true determination of Finance activity and related FTEs beyond the estimates below.

Finance FTEs Normalized to UM Revenue ($2.2B)

UM Finance FTE Summary (Low Estimate)

UM Finance FTE Summary (High Estimate)
## Opportunity Summary

The Finance Workstream identified $8.8M to $13.3M in annual net savings

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Design Future Operating Model (Align Finance Personnel)</td>
<td>Six Months</td>
<td>4</td>
</tr>
<tr>
<td>2  Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level (Operating Model)</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>3  Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level (Operating Model)</td>
<td>Two Years</td>
<td>5</td>
</tr>
<tr>
<td>4  Drive Broader Financial Accountability</td>
<td>One Year</td>
<td>5</td>
</tr>
<tr>
<td>5  Improve Business Insight Reporting and Planning Capabilities</td>
<td>One Year</td>
<td>4</td>
</tr>
<tr>
<td>6  Further Development of a Finance Talent Development Strategy</td>
<td>Two Years</td>
<td>3</td>
</tr>
</tbody>
</table>

**Opportunity Overview**

Total System-wide Spend = Estimated $40M

**Revised Base** (across all campuses – detail in following slide)

**Opportunity - $8.8M**

(Variance from median benchmark, includes benefits)

**Note:** Annual benefits are net of non-capital investment in capabilities needed
Implementation Risk Summary

Finance opportunities are tied directly to operating model changes and therefore carry a higher than average risk level

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Complexity</th>
<th>Investments</th>
<th>Stakeholder Impact</th>
<th>Total Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Future Operating Model (Align Finance Personnel)</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level (Operating Model)</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level (Operating Model)</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Drive Broader Financial Accountability</td>
<td>5</td>
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<tr>
<td>Improve Business Insight Reporting and Planning Capabilities</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Establish Finance Talent Development Strategy</td>
<td>3</td>
<td>3</td>
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</tr>
</tbody>
</table>

Implementation Risk Score is an index that factors in (1) Complexity (2) Investment Required (3) Impact to Stakeholders

- Low Risk – Limited risk to internal stakeholders; proceed with implementation. 1-2
- Moderate Risk – Develop and execute change management, Track and manage progress closely. 3
- High Risk – Develop tactical work plan, execute change management strategy, involve key leaders. 4-5

Risk Assessment Key

- **Complexity**: Assessment based on the number of actions required to implement the opportunity and the breadth of stakeholder buy-in needed.
- **Investments**: Assessment based on amount of technological, financial, personnel, and/or “soft” investments needed to implement the opportunity.
- **Stakeholder Impact**: Assessment based on the opportunity’s impact to normal workflow as well as the perceived impact of the opportunity to stakeholders.
4.2 Finance Individual Opportunities Overview
# 1. Design Future Operating Model (Align Finance Personnel)

## Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Design Future Operating Model (Align Finance Personnel)</th>
</tr>
</thead>
</table>

### Description

Establish direct reporting lines through the Finance function from campus Finance to system. The direct lines will allow for the establishment of an organization that becomes leaner and more focused on industry leading practice and a smaller size of the overall function. Direct lines will allow financial leadership to simplify and reduce transactional processing effort and increase focus on delivering business insights.

System → Campus (Chancellor, Provost) → College/School/Division (Dean, Executive) → Department (Chair/Executive)

### Key Dependencies and Risks

- Dependent on organizational cooperation
- Leadership support throughout the organization
- Alignment and support of academic leadership to maintain campus partnering relationships

(Average departmental attrition rate* – 10%)

### Stakeholders

- Finance leadership at System and campus level
- Chancellors, Provosts, Deans, Department Chairs
- Finance Operations Team
- Fiscal officers at each campus
- All resources supporting Finance activities

### Benchmarks

- 2017 Finance Effectiveness Benchmark Report

### “Soft” Benefits Achieved

- Improved line of site to campus related opportunities across the University and increased ability to standardize activities at the campus level
- Improve ability of the Finance organization to partner with the campuses, colleges, schools or divisions to develop and manage against their business strategies and plans

### Spend Addressed

| Finance labor costs | Investment in training, communication, team building and responding to feedback |

### Investment Required

- Investment in training, communication, team building and responding to feedback

### Implementation Duration

- Six Months

### Implementation Risk

- 4

### Impact to:

- UM System
- Central Department
- Distributed
- UMKC
- S&T
- UMSL

*Three year average across UM System and Columbia Campus
### 2. Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level

#### Opportunity Synopsis

**Name:** Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level

**Description:**
Further expand shared service focus to include additional Finance and Supply Chain transaction processing areas that are currently centralized at the campus level. Identify Finance and Supply Chain personnel by executing a multi-function activity analysis survey. These decisions should occur as a part of the Finance operating model discussion. Potential areas of benefit include contracting, accounting, gift processing, billing, cash receipts and collections.

**Key Dependencies and Risks and Stakeholders as noted in Opportunity 1**

**Benchmarks**
- Finance benchmark data pulled from Finance Effectiveness Benchmark ("FEB") database.
- UM benchmark data includes core Finance FTEs and estimates on distributed FTEs and Finance support at campuses

**"Soft" Benefits Achieved**
- Ability to expand standardization of Finance and Supply Chain activities
- Allows for further specialization of roles within the shared service center
- Improved alignment and business insight support

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance labor costs</td>
<td>Potential one time operating investment to reflect process changes in system(s)</td>
<td>One Year</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
<th>UMKC</th>
<th>S&amp;T</th>
<th>UMSL</th>
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<td>UM System</td>
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<td>UMSL</td>
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</tbody>
</table>
3. Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level

<table>
<thead>
<tr>
<th>Opportunity Synopsis</th>
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<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Further expand shared service focus to include additional Finance and Supply Chain transaction processing areas that are currently occurring at the college/department level. Identify Finance and Supply Chain personnel by executing a multi-function activity analysis survey. Identify areas of process waste and reduce the number of steps to complete transactions. Rationalize the location of service delivery based on a Finance operating model discussion, ensuring mission supporting activities are maintained via service level agreements and good relationships with customers.</td>
</tr>
<tr>
<td><strong>Key Dependencies and Risks and Stakeholders as noted in Opportunity 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Benchmarks</strong></td>
<td>• Finance benchmark data pulled from FEB database. • UM benchmark data includes core Finance FTEs and estimates on distributed FTEs and Finance support at campuses</td>
</tr>
<tr>
<td><strong>“Soft” Benefits Achieved</strong></td>
<td>• Ability to expand standardization of Finance and Supply Chain activities • Expansion of the shared service center would ultimately allow for a reduction of “admin” roles at the campus • Allows for further specialization of roles within the shared service center • Improved alignment and business insight support</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance labor costs</td>
<td>Potential one time operating investment to reflect process changes in system(s)</td>
<td>Two Years</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
<th>UM System</th>
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<tr>
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<td>✓</td>
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</tbody>
</table>
4. Drive Broader Financial Accountability

Opportunity Synopsis

Name: Align Finance Personnel (Operating Model)

Description:
Drive broader accountability for financial results and budget targets including margin expectations and adopt an All Funds approach to financial management. Relate financial accountability with decision making across the institution. Add financial accountability to the formal performance appraisal process for leadership across the institution.

Key Dependencies and Risks and Stakeholders as noted in Opportunity 1

Benchmarks:
• Finance benchmark data pulled from FEB database.
• UM benchmark data includes core Finance FTEs and estimates on distributed FTEs and Finance support at campuses

“Soft” Benefits Achieved:
• Improve accountability for and better alignment of budget and investments consistent with University wide and campus specific strategies
• Improve ability to assess, understand and react to YTD budget variances and project YE results from the department level up

Spend Addressed

Investment Required

Potential one time operating investment to reflect process changes in system(s)

Implementation Duration

One Year

Implementation Risk

5

Impact to:

<table>
<thead>
<tr>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
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</table>
5. Improve Business Insight Reporting & Planning Capabilities

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Improve Business Insight Reporting &amp; Planning Capabilities</th>
</tr>
</thead>
</table>

**Description**
Improve Business Insight reporting and planning capabilities by defining a consistent approach to analyzing financial results across System, alignment with shorter forecasts and longer term strategic planning improvements and establishing a more robust strategic and annual planning process that includes the ability to generate periodic forecasts that focus on accuracy and a strategic planning cycle with a 3 to 5 year horizon. Promote resources in business insight roles have the skills and capabilities to support. Align data relationships across Finance, Student, and HR administrative pillars to provide better reporting data.

**Key Dependencies and Risks and Stakeholders as noted in Opportunity 1**

**Benchmarks**
- Finance benchmark data pulled from PwC’s Finance Effectiveness Benchmark (FEB) database
- UM benchmark data includes core Finance FTEs and estimates on distributed FTEs and Finance support at campuses

**“Soft” Benefits Achieved**
- Ability to provide management with meaningful analysis to effectively manage the business
- Standard set of KPIs to measure business performance
- Improved strategic planning, budgeting and forecasting/long range planning
- Clearly defined budget and forecast processes and calendar
- Uniform level of data detail to allow for appropriate management reporting analysis and increased visibility

### Spend Addressed

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
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</thead>
<tbody>
<tr>
<td>Enabler</td>
<td>Potential one time operating investment to reflect process changes in system(s)</td>
<td>One Year</td>
<td>4</td>
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</table>

### Impact to:

<table>
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University of Missouri System
COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

OPEN – GB – INFO 5-63

December 7-8, 2017
6. Further Development of Finance Talent Development Strategy

<table>
<thead>
<tr>
<th>Name</th>
<th>Further Development of Finance Talent Development Strategy</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Further development of a robust Finance talent development strategy to build a network of strong Finance resources across the system. This will help promote the right people with the requisite leadership and technical skills are in the right Finance jobs to perform their respective roles. The Finance function should work to create career pathways and job rotation programs to build an internal talent base with a diverse skill set. There is an opportunity to leverage existing campus programs around Finance training to build a more comprehensive and consistent Finance knowledgebase.</td>
</tr>
</tbody>
</table>

**Key Dependencies and Risks and Stakeholders as noted in Opportunity 1**

| Benchmarks | • Finance benchmark data pulled from FEB database.  
• UM benchmark data includes core Finance FTEs and estimates on distributed FTEs and Finance support at campuses |

**“Soft” Benefits Achieved**

| • More engaged Finance workforce  
• Consistent application of Finance activities and processes  
• Reduced recruitment costs and more effective talent identification and placement |

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and development funds</td>
<td>Annual investment in training</td>
<td>Two Years</td>
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<th>Impact to:</th>
<th>UM System</th>
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</table>
4.3 Supply Chain
Supply Chain Overview and Summary

Scope & Approach
- Supply Chain is a sub-department of Finance that is responsible for managing the majority of the university’s non-labor spend
- As a centralized shared service, it provides contracting and Supply Chain services to all campuses
- This review focused on contracting practices and identification of measures to reduce non-labor spend around supplies and purchased services.
- Vendor contract review covered the following areas
  - Office supplies
  - Facilities (Elevators & Janitorial Services / Supplies)
  - Food Services
  - One Card

Findings
- Supply Chain identified $3.7M to $4.0M in annual net savings
- Vendor contract are consistent with industry leading practices
  - Well defined scope
  - Performance expectation clauses
  - Line item pricing
  - Volume based rebates
  - Clearly established remediation process
- UM would benefit by having a Supply Chain function that can better address non-labor spend through improved enforcement
- GL account code review will result in more accurate analytics that will feed improved spend management and contracting
- Department’s centralized model is in line with leading practices for Supply Chain management structure and strategy

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
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<tbody>
<tr>
<td>1 Support Operating Model Redesign for Non-Labor Spend</td>
<td>Two Year</td>
<td>2</td>
</tr>
<tr>
<td>2 Improved Enforcement of Supply Chain Controls</td>
<td>Near-Term</td>
<td>2</td>
</tr>
<tr>
<td>3 Increase Spend Under Management</td>
<td>Near-Term</td>
<td>2</td>
</tr>
<tr>
<td>4 Enhance Contract Review Process</td>
<td>Near-Term</td>
<td>2</td>
</tr>
</tbody>
</table>

Totals

Note: Annual savings are net of non-capital investments
Office Supplies

Supply pricing is largely on contract, with competitive pricing terms and contract conditions in place. Utilization for office supplies is better than benchmark across the system.

**Pricing & Contracting**
- Opportunities currently underway to continue to shift spend toward pre-negotiated contracts / Show Me Shop
- Contracting is strong across supply vendors, inclusive of many leading practice terms and conditions:
  - MSRP Discount (3-50% off retail) and Volume Rebates
  - Vendor profitability transparency (i.e., Hillyard ROS 1.5%)
  - Prompt Pay Discount
  - Capital equipment volume discounts
  - Market basket pricing

**Office Supply Utilization:**
- As a system, University of Missouri supply utilization is below benchmark ($163 / FTE versus benchmark of $200 / FTE).
- The majority of spend was purchased through Show-me Shop (SMS) $3.2M, with only a small amount procured through P-cards (~$100k).

* Excludes expenses from The Home Depot ($200k), Kaldis Coffee ($50k), Klein Surgical Systems ($2k), and 50% of spend from Sam's Club ($175k).
Commercial Card Program Expense

Commercial Card is effectively utilized, with market competitive terms and rebates. This program includes One Card utilized for purchasing and travel, and single use account (SUA). FY17 program expense was ~$150M, qualifying for $2.5M in rebates.

- University of Missouri has a strong commercial card program in place and spend in the top tier ($90M+) for qualifying rebates. The system has continually capitalized on the program, steadily shifting spend to commercial cards as appropriate.
- Commercial card expense is governed by robust policies and procedures, however there are minimal consequences if staff elects to use p-cards over pre-established forms of payment (PO, established contracts, etc.)
- This spend includes SUA, which needs to be targeted for growth (e.g. supplier payment terms, settlement options, et al)
- Future focus will be around building the SUA program as a form of settlement to increase overall card program spend, as individual card spend will likely decline as more centralized contracts are developed.

University of Missouri Historical Rebates

- 2012: Program moved to the Higher Education Consortium contract resulting in rebate basis point increase of .32. Programmed dipped in 2012, due to the program moving from a calendar year rebate grid to a fiscal year. 2012 only reflects rebate against 6 months of spend.
- 2013: $20M decrease in card program spend from 2011 to 2013, with a rebate gain of over $600K resulting from the new contract.
- 2015: Higher Ed Consortium contract was renegotiated for an additional 5 year term. New rebates were effective in 2016. Once again, we saw a program drop in spend of $22M compared to the previous year but still had an increase in rebate of $321K
- As card spend continues to decline, the bank has now offered payment term escalators to increase rebate, with the intent of keeping our program neutral over the next year.
## 1. Support Operating Model Redesign for Non-Labor

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Support Operating Model Redesign for Non-Labor Spend</th>
</tr>
</thead>
</table>
| **Description** | • Identify spend areas with variance above acceptable ranges and partner with functional service organization leadership (e.g., information technology & facilities) to develop processes and controls to manage non-labor spend.  
• Develop strategy to monitor and enforce new spending policies and procedures  
• Work with Finance around improving budget guidelines |
| Metric | Will further refine during design phase. Proposed: Expense Performance / FTE (See example in Non-Labor Departmental Expense Review Slide) |
| **“Soft” Benefits Achieved** | • Improved financial controls and influence over departmental spend  
• Increased line of sight to key spend areas |

### Spend Addressed and Investment Required

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Labor</td>
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</tr>
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### Implementation Duration and Risk

<table>
<thead>
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<th>Implementation Duration</th>
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### Impact to:

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</table>
## 2. Improve Enforcement of Supply Chain Controls

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Improve Enforcement of Supply Chain Controls</th>
</tr>
</thead>
</table>
| **Description** | Increase administrative support for Supply Chain’s enforcement of department spend that is not currently on contract.  
- Reduce confirming orders which comprise ~12% of total Purchase Orders (POs)  
- Direct all spend through approved appropriate channels  
Update policy language to allow Supply Chain to enforce departmental accountability |
| **Metric** | Spend Under Management / Total Spend |
| **“Soft” Benefits Achieved** |  
- Improved line of site to on/off contract spend  
- Reduction in rogue / unapproved spend for non-emergent purposes  
- Additional checks and balances for uncontrolled spend |

### Spend Addressed

<table>
<thead>
<tr>
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</table>
3. Increase Spend Under Management

**Opportunity Synopsis**

**Name**: Increase Spend Under Management

**Description**
Add additional suppliers/contracts to Show Me Shop (SMS). Focus initially on adding a minimum of 10 suppliers/contracts to SMS. New contracts being considered:

- Amazon Marketplace
- Lowes
- MWI Veterinary Supply
- Sherwin Williams and/or PPG Paints

Review Maintenance Repair and Operations (MRO) contracts to determine viability of adding new suppliers or enhancing current contracts.

Expand contract development for goods and services currently settled under non PO vouchers, confirming orders, direct reimbursements, et al.

**Metric**
Spend Under Contract / Total Spend

**“Soft” Benefits Achieved**

- Reduced off contract spend
- Delivers consistent, defensible, and centralized contracting services
- Increased spend visibility due to streamlined reporting and centralization
- Increase policy compliance

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Near-Term Opportunity
### 4. Enhance Contract Review Process

#### Opportunity Synopsis

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<tr>
<th>Name</th>
<th>Enhance Contract Review Process</th>
</tr>
</thead>
</table>
| Description | Utilize advanced analytics (e.g. Primrose, et al)  
- Identify significant spend reduction and standardization opportunities  
- Cultivate areas for tactical / corporate contracting  
Develop supplier management program to produce supplier accountability  
- Expand supplier diversity programming and increase spend  
- Establish performance metrics for contracts  
- Implement business review process and score cards based on predetermined metrics for major vendors |
| Metric | Meet stated savings objectives |
| “Soft” Benefits Achieved |  
- Grow spend under contract  
- Supports consistent, defensible, and centralized contracting services  
- Increased spend visibility due to expanded utilization of analytics |

#### Spend Addressed

<table>
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<tr>
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#### Implementation Duration

- Near Term

#### Implementation Risk

- 2

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**Impact to:**

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*Executive Summary*  
Summary Findings

- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model
- Implementation Timeline

*Near-Term Opportunity*
5. Human Resources Workstream

5.1 – Human Resources Workstream Summary
5.2 – Individual Opportunity Overviews
5.3 – HR Observations
The Human Resources workstream reviewed $19.3M of spend and identified two opportunities with a projected net savings of $3.3M to $4.6M and an additional $17.5M to $30.4M in projected savings from rationalizing benefits offerings.

**Workstream Approach**
- Data used
  - FY17 GL and payroll file
- Scope focused on traditional human resources and operations functions
- Met with 11 Human Resources leaders (includes 2 from Engagement Leadership category) throughout the system and Columbia campus as well as representative staff

**Observations**
- Lack of clear HR strategy, high turnover and capacity issues have inhibited ability to advance HR services in the organization and become a strategic business partner vs. purely transactional.
- Decentralized structure and lack of standardization of policies/processes and availability training for non-HR professionals creates inefficiencies, redundancies and legal risk.
- PeopleSoft 9.2 has been implemented, but efficiencies haven't been realized due to lack of full integration with HR processes and lack of manager and employee self-service tools.
- HR staff are excited about new HR leadership, but historical tension between campuses and, UM System central office poor communication and lack of clear decision rights has created "culture of fear" for HR staff in recent years

**Key Recommendations**
- Launch a formal HR Transformation effort focused on standardizing HR processes and governance structures, optimizing the usage of HR technology and redesigning the HR service delivery model
- Invest in core HR capabilities that are currently missing or underutilized and in HR technology (e.g., self-service, case management tools) to drive efficiencies and create a seamless employee experience
- Involve campus leaders in the developing of a system-wide "people strategy" and building consensus around the role that HR plays at UM in driving the "people strategy", business strategy and departmental workforce needs
- Redesign health benefits offerings to align to industry standards and consider adjusting salary levels to align to market levels

**Note:** Annual savings are net of non-capital investments
## Scope

HR scope includes generally all the functions that report in to HR leadership at MU and UM System.

<table>
<thead>
<tr>
<th>Labor Areas</th>
<th>Non-Labor Areas</th>
<th>Out of Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>• HR Administration &amp; Strategic Planning</td>
<td>• Operating expenses related to running HR functions</td>
<td>• N/A – all typical HR functions are considered in scope</td>
</tr>
<tr>
<td>• Recruiting &amp; Staffing</td>
<td>• Benefits Offerings (Medical, Dental, Retirement, etc.)^2</td>
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<tr>
<td>• Learning &amp; Development</td>
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<td>• Performance Management</td>
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<tr>
<td>• Talent Management</td>
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<td>• Organizational Effectiveness &amp; Culture</td>
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<td>• HR Consultants / Specialists</td>
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<tr>
<td>• Workforce Analytics</td>
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<td>• HRIS</td>
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<td></td>
</tr>
<tr>
<td>• Ratio of Executives Served per Administrative Assistant^1</td>
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</tr>
</tbody>
</table>

1 Administrative Assistant ratios included in scope for Human Resources team since any workforce related changes would have to be coordinated through the HR function.

2 Benefits included in Human Resources scope, although the addressable spend for Human Resources excludes total spend on benefits.
Expense Profile

$19.3M of spend was reviewed including labor and non-labor expenses, labor includes known HR employees and a count of “Distributed” employees which will be refined through an activity analysis survey.

<table>
<thead>
<tr>
<th>FY2017 Baseline</th>
<th>Total Spend</th>
<th>UM and MU Central Headcount</th>
<th>MU Distributed Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resources Functional Rollup</td>
<td>$19.3 M</td>
<td>106</td>
<td>477</td>
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</table>

**Expense Breakdown**

- **MU HR Labor**, $2.6, 14%
- **UM HR Labor**, $4.5, 23%
- **UM HR Technology, Vendor and Other HR-Related Expenses**, $2.2, 11%
- **MU Distributed HR Labor Costs**, $8.4, 44%
- **MU Distributed HR Technology, Vendor and Other HR-Related Expenses**, $1.6, 8%

**Distributed Methodology**

- 477 non-HR professionals were identified within Columbia campus as performing some level of HR work with departments/schools/divisions.
- It is also assumed that on average, 30-40% of their time is spent executing HR activities (140-190 FTEs) and the average labor cost (salary + benefits) is $60,000.
- In order to more accurately quantify the number of non-HR professionals performing HR work, an activity analysis survey is required.

* Assumes 30% of work executed by 477 non-HR professionals identified as performing some level of HR work is attributable to HR.
** May not include total costs associated with HR vendor/consultant fees and should be validated with HR; additionally, HR technology expenses may be currently mapped to IT spend and should be further validated with HR.
Opportunity Summary

- The Human Resources workstream identified $2.2M to $2.4M in net HR related benefits
- Total Rewards savings is $17.5M to $30.4M in total savings
- Administrative Assistant Realignment is an additional $1.1M to $2.2M in savings

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
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</thead>
<tbody>
<tr>
<td>1 HR Transformation¹</td>
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<tr>
<td>Efficiencies in Distributed HR Spend</td>
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<td>Investments in Critical HR Capabilities and Roles</td>
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<td>Optimization of HR Technology</td>
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<td>2 Total Rewards Rationalization</td>
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<td>3 Administrative Assistant Realignment</td>
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</tbody>
</table>

¹ Savings opportunity primarily resides in departmental spend

Note: Annual savings are net of non-capital investments
Implementation Risk Summary

HR Transformation and Total Rewards will require a thoughtful approach due to risk scoring

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Complexity</th>
<th>Investments</th>
<th>Stakeholder Impact</th>
<th>Total Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HR Transformation</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2 Total Rewards Rationalization</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3 Administrative Assistant Realignment</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Implementation Risk Score** is an index that factors in (1) Complexity (2) Investment Required (3) Impact to Stakeholders

- **Low Risk** – Limited risk to internal stakeholders; proceed with implementation.
- **Moderate Risk** – Develop and execute change management, track and manage progress closely.
- **High Risk** – Develop tactical work plan, execute change management strategy, involve key leaders.
5.2 Human Resources
Individual Opportunities Overview
HR is highly decentralized and opportunities for improvement across each aspect of the operating model exist

### HR Organizational Structure & Roles

- Based on individuals mapped to HR roles (106), *Columbia and UM System HR functions appear to be extremely lean compared to benchmarks*
- *Columbia identified 477 non-HR professionals to date that support HR-related work* and it is expected more exist across other campuses; a proper activity analysis survey is required to more accurately understand FTEs touching HR work across the system
- *HR service delivery model is highly decentralized and fragmented* which creates inefficiencies, redundancies and risk for non-HR personnel (477+) executing HR work
- *HR functions with opportunities to further centralize (where possible) and automate transactional processes* to achieve efficiencies or economies of scale across the system include: CAPS, SOS Staffing, Total Rewards, Service Center
- *HR functions that appear to be underinvested and should be further developed into Centers of Excellence* include: Recruiting, Talent Management, Learning & Development, Org Development & Culture

### HR Technology

- *PeopleSoft 9.2 has been implemented, but efficiencies haven’t been realized* due to functionality and technology not being utilized and lack of full integration with HR processes
- *Proper manager and employee self-service tools are not utilized today* and could result in reduced costs and ticket volume for the Service Center
- *Remedy case management tool was adopted from IT, but is not ideal for tracking HR-related tickets* and creates inefficiencies within the Service Center
- *Tableau is a relatively new tool with workforce reporting capabilities, but is currently only utilized for compliance and ad hoc reporting rather than strategic workforce planning at the division/department/school level*
- *Opportunities exist to increase the usage of digital tools to improve workflow and efficiencies* within functional areas (e.g., using DocuSign technology for intent to retire instead of paper forms and imaging)

### HR Governance

- *There has been a history of “tension” between UM System HR and Columbia HR due to lack of clarity around decision rights and poor communications, but new HR leadership has instituted greater coordination across campuses*
- *Some committee structures are in place (e.g., HR Council, Total Rewards Advisory Committee) but opportunity exists to streamline HR committee structures to improve communication and coordination across campuses and reduce redundancies*

### HR Processes

- The current decentralized structure, coupled with a lack of training capabilities for non-HR personnel creates *organizational risk in process areas with legal implications (e.g., FMLA, ADA, I-9)*
- *Divisions/departments/schools are accustomed to “old ways of working” with custom HR processes and tools, creating inefficiencies and redundancies*
- *UM System is in the process of inventorying different HR processes – as of September, 450+ unique processes were identified at UM System alone without expanding efforts to campuses*
There is consensus around the need to redefine and elevate the role of HR

- Recent leadership changes (University President, Interim CHRO) have resulted in an opportunity to rethink UM’s approach to becoming an “employer of choice” and the role HR plays in enabling UM’s strategy.
- In recent years, strong efforts have been made to embed HR strategic opportunities into the overarching strategy (e.g., 2020 Vision for Excellence), but the strategy lacks a common definition around a “people strategy” and the role HR plays in driving it forward across all campuses.
- As a result of the current fragmentation of the delivery of HR services across campuses, there are different viewpoints around the service that departments/schools/divisions expect from HR.
- Historically, Total Rewards has been utilized as a primary lever for employee satisfaction, but other elements of a proper “people strategy” are missing (e.g., career laddering, mobility, recruitment, learning & development, culture) that should inform the role HR plays.
- Some elements of a “people strategy” are defined, but not currently integrated with HR or are not properly being used to drive business needs/goals (e.g., diversity & inclusion, workforce analytics).
- Climate survey results were recently presented by Rankin & Associates, but no formal, annual employee engagement survey tool exists.

Representative Quotes:

- “We are in need of a real strategy around the role of HR”
- “HR has struggled to find its place in the organization”
- “We need greater collaboration between HR and academics”
- “Previous consulting reports called HR too ‘transactional’, but our current model, and the expectations of departments around the old ways of working, prevent us from becoming more strategic in nature”
Initial benchmarking indicates central HR is extremely lean; however, when distributed HR headcount is included, UM is below bottom quartile

In order to accurately assess total FTEs performing HR activities across campuses, it is recommended an activity analysis is performed in order to properly validate opportunities to achieve efficiencies and/or areas of investment.

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Total # Employees</th>
<th>Total # HR Employees</th>
<th>Employee : HR Ratio</th>
<th>MU Distributed</th>
<th>Adjusted # of HR Employees</th>
<th>Adjusted Employee : HR Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM System</td>
<td>552.0</td>
<td>74.0</td>
<td>-</td>
<td>-</td>
<td>74.0</td>
<td>34.4</td>
</tr>
<tr>
<td>Columbia</td>
<td>19,514.0</td>
<td>32.0</td>
<td>477.0</td>
<td>509.0</td>
<td>74.0</td>
<td>34.4</td>
</tr>
<tr>
<td>Total</td>
<td>20,066.0</td>
<td>106.0</td>
<td>189.3</td>
<td>477.0</td>
<td>583.0</td>
<td>34.4</td>
</tr>
</tbody>
</table>

1 Total headcount across business units
2 Total HR headcount who report into HR
3 HR headcount ratio measures the number of regular headcount employees supported by HR employees who report into HR
4 Additional headcount embedded within business units that provide HR support; activity analysis required to validate headcount and business unit allocation
5 # of Employees HR + MU Distributed HR Headcount
6 Revised ratio incorporating # of Employees HR + MU Distributed
7 Benchmarks from the 2016 Saratoga Institute

Benchmarking of current HR headcount indicates UM and MU are above top quartile

An additional 50 FTEs would be required to move within the Median-Top Quartile range

However, when MU’s 477 distributed, non-HR personnel are included, UM and MU are below bottom quartile

<table>
<thead>
<tr>
<th>Total HR Staff</th>
<th>HR Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>189.3</td>
</tr>
<tr>
<td>159</td>
<td>126</td>
</tr>
<tr>
<td>248</td>
<td>81</td>
</tr>
<tr>
<td>340</td>
<td>59</td>
</tr>
<tr>
<td>583</td>
<td>34.4</td>
</tr>
</tbody>
</table>
There are two primary opportunities to drive efficiencies and elevate the role of HR in the current organizational structure.

**Opportunity #1:**
Realign existing HR resources and organizational structure to align to leading practices to (a) better support UM’s “people strategy”, (b) create economies of scale across campuses and (c) drive consistency in the delivery of HR services.

**Opportunity #2:**
Redesign HR delivery model between campus HR and divisions/schools/depts. to (a) mitigate risks of non-HR personnel executing specialized HR work and (b) drive greater value by properly managing and fulfilling the workforce needs within each division/school/dept.
Investments in HR will be required to ultimately generate savings and improve overall HR delivery

<table>
<thead>
<tr>
<th><strong>Opportunity #1:</strong> Realign Existing HR Capabilities &amp; Resources</th>
<th><strong>Opportunity #2:</strong> Redesign the Campus HR Delivery Model</th>
</tr>
</thead>
</table>
| A deeper dive into individual HR functional areas within the UM System central office and Main Campus indicates:  
- Opportunities to invest in building core HR capabilities in the following areas: Recruiting & Staffing, Talent Management, Learning & Development, Organizational Effectiveness & Engagement  
- Potential efficiencies can be achieved by realigning resources to gain scale across the system, optimizing the usage of technology or improving processes in the following areas: Service Center, CAPS, Retirement Plan  
- Opportunities to realign resources or repurpose work to focus current resources on more value-add HR activities in the following areas: Employee Relations, HRIS, Compensation, Workforce Analytics, HR Strategic Planning | There are opportunities to reduce departmental spend by redesigning how HR services are performed and delivered within departments/divisions/schools based on the following assumptions:  
- 477 non-HR professionals performing HR work spend an average of 30% of their time executing HR activities  
- Approximately 50% of efficiencies within this population of non-HR personnel can be gained by redesigning the HR delivery model  
- Additional investment would be required to shift to more formal HR Business Partner (HRBP) roles to supplement existing MU labor relations staff  
- Opportunities may exist to repurpose existing non-HR personnel roles executing HR work into formal HRBP roles |
In order to drive efficiencies and create a seamless employee experience, the portfolio of HR technology should be more closely assessed and coordinated with IT to develop a proper business case outlining specific investment needs and resource requirements.

**An integrated HR technology strategy should be developed to support the long-term HR service delivery model and evolving needs of UM**

<table>
<thead>
<tr>
<th>PeopleSoft 9.2 HCM</th>
<th>Self-Service</th>
<th>Case Management</th>
<th>Tableau</th>
<th>Other HR Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opportunities to reassess usage of HR technology</strong></td>
<td><strong>• Assess opportunities within current platform to enable functionality that will result in increased efficiencies and visibility into HR activities (e.g., applicant tracking, candidate communication, absence management, benefits administration)</strong></td>
<td><strong>• Implement manager and employee self-service tools (e.g., Oracle) to provide all managers and employees with a single point of entry for HR information and processes, empower managers and improve HR workflow across campuses and UM System.</strong></td>
<td><strong>• Optimize, upgrade or replace current case management tool (Remedy) with another HR case management tool to drive efficiencies within the Service Center and improve customer satisfaction</strong></td>
<td><strong>• Explore usage of Tableau functionality and identify opportunities to access and/or automate reporting for divisions / departments / schools to support recruiting and workforce planning needs</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Assess effectiveness and opportunities to enhance UM and MU employee web portals to align to delivery model</strong></td>
<td><strong>• Assess opportunities to increase the usage of digital tools to improve efficiencies in functional areas (e.g., DocuSign for intent to retire forms)</strong></td>
<td><strong>• Assess ability to integrate phone tree capabilities for all Shared Service functions (e.g., IT, HR, Payroll)</strong></td>
<td></td>
</tr>
</tbody>
</table>

By optimizing the usage of technology and embracing a cloud-based, employee-centric view, organizations can see structural benefits that lie beyond technology advantages. This digital model makes it possible to connect various HR opportunities and technology across the enterprise. It integrates design, user experience, and the nature of service delivery to create a consistent, user-friendly and impactful environment - making HR more effective.
The following framework can be used as a guideline for redesigning the HR delivery model

**HR Conceptual Organizational Structure**

**HR Capabilities**
- **Shared Service Center** *(Transactions and Administration)*
  - Shared service center to manage requests and administrative activities
  - Dedicated customer service center for call intake and basic to intermediate issue resolution

**Aligning HR service and business direction**
- **Centers of Excellence** *(System, Process and Policy)*
  - Development and execution of HR strategy, policies and procedures
  - Delivers guidance and policy to Shared Service Center and receives feedback to adjust policies
  - Proactive business focus to drive continuous improvement

- **Strategic Business Partners** *(Local Delivery)*
  - Focused on talent delivery and outcomes
  - Drives local delivery and execution of system-wide strategies
  - Balances unique business unit needs with enterprise
  - Integral partner with the business to review results, develop and execute future workforce plans to achieve business targets

**HR Service Delivery**
- **Tier 0 – Self Service**
  - If resolution can occur via self service, greater % would be solved at tier 0 prior to going to tier 1

- **Tier 1 – 50%**
  - Initial routing to specialist in requested topic area; team will be skilled in multiple disciplines

- **Tier 2 – 30%**
  - Specialist in specific topic area

- **Tier 3 – 20%**
  - Subject Matter Experts

**Summary Findings**
- Executive Summary
- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model
- Implementation Timeline

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December 7-8, 2017
As proper investments are made in HR’s capabilities, delivery model and technology, UM can align more closely to a leading practice HR service delivery model.

**HR Service Delivery Model**

- **HR Leadership – Sets Strategy**
  - Technology Filter
  - “High Touch” Filter
  - “Resolution” Filter
  - Planning & Policy Resolution

- **Institutional Leaders**
  - Schools
  - Divisions
  - Departments

- **Managers**
- **Current employees**
- **Applicants**
- **Former employees**

- **HR Customers**
  - Institutional Leaders
  - Managers
  - Current employees
  - Applicants
  - Former employees

- **HR Customers**
  - Institutional Leaders
    - Schools
    - Divisions
    - Departments
  - Managers
  - Current employees
  - Applicants
  - Former employees

- **HR Support**
  - Recruiting
  - Learning Admin
  - Performance Mgmt.
  - Data Management
  - HR Analytics/Reporting (standard & ad-hoc)
  - Compensation & Benefits Admin

- **Contact Center**
  - Tier 0: Self-service
    - Information
    - Transactions
    - Online Inquiries
  - Tier 1: Execution Support
    - Provide information on policies and procedures
    - Support self-service issues
    - Create service requests which require specialist handling

- **Center of Excellence**
  - Tier 2: HR Shared Service Support
  - Tier 3: Center of Excellence
  - Tier 0: Self-service

- **HRBP**

- **Portal**
  - Shared Services
  - Contact Center

- **Self-service**

- **Policy/Strategy**
  - Develop and interpret policy
  - Decide on exception requests
  - Resolve referred questions and complex issues requiring expert knowledge
Gaining alignment around a “people strategy” is at the core of shifting HR to a more strategic function…

HR must have the capabilities to:
- Understand business strategy
- Develop and drive execution of aligned talent strategies
- Equip and enable business leaders and managers with the tools to effectively manage talent
- Manage its own HR costs and measure HR’s impact on financial performance
- Measure the return on human capital and ROI of talent programs

**Alignment of HR’s Role in the Organization**

- **Business Strategy**: Sets direction and priorities for the organization
  - Drives
  - Enables execution of strategic priorities throughout the organization

- **People Strategy**: Determines people programs, plans, and opportunities to deliver business goals
  - Executes
  - Prioritizes

- **HR’s Role**: Enables execution of strategic priorities

**Business Strategies**

**Goal #1**
- **Develop a nimble, talented workforce**
  - **People Strategies**: Expand and strengthen programs that improve the lives of citizens of Missouri, the nation, and the world
  - **People Drivers**: Improve Quality of Hire
  - **Outcome Measures**: Quality Hire Rate

**Goal #2**
- **Become an “employer of choice” and improve employer reputation**
  - **People Strategies**: Build the Mizzou Advantage to capitalize on existing strengths and bring new international distinction to MU
  - **People Drivers**: Invest in Employee Training & Development
  - **Outcome Measures**: Training Cost Factor

**Goal #3**
- **Develop a sustainable workforce**
  - **People Strategies**: Promote MU has the infrastructure and human/financial resources to support innovation and excellence
  - **People Drivers**: Pay Employees Appropriately
  - **Outcome Measures**: Average Tenure, Voluntary Separation

**Measurement (SAMPLE)**

- **Objective**: Improve Quality of Hire
- **Measure**: Quality Hire Rate
- **Goal**: Develop High Potential Leaders
- **Measure**: Bench Strength
- **Goal**: Invest in Employee Training & Development
- **Measure**: Training Cost Factor
- **Goal**: Engage Employees
- **Measure**: Employee Engagement Scores
- **Goal**: Pay Employees Appropriately
- **Measure**: Compa-Ratio
- **Goal**: Develop Culture
- **Measure**: Average Tenure, Voluntary Separation
- **Goal**: Retain High Performers
- **Measure**: Retention Rate
- **Goal**: Increase Workforce Productivity
- **Measure**: Enrollment per FTE, HR Cost per FTE
- **Goal**: Enable a Diverse & Inclusive Workforce
- **Measure**: Diverse Hires
… and involves defining UM’s desired Employee Value Proposition and the role HR plays in enabling the “EVP”

<table>
<thead>
<tr>
<th>Being an “employer of choice” means…</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instilling a sense of pride in where you work:</strong></td>
</tr>
<tr>
<td>• Create a sense of community and belonging</td>
</tr>
<tr>
<td>• Recognition of hard work, new ideas, and driving employee desire to stay in face of competing offers</td>
</tr>
<tr>
<td>• Strong employer brand recognition</td>
</tr>
<tr>
<td>• Creating an environment that you would recommend to friends / family</td>
</tr>
<tr>
<td><strong>Creating an environment where employees feel heard / valued:</strong></td>
</tr>
<tr>
<td>• Creating a “family feel” where employees can build relationships and friendships with colleagues</td>
</tr>
<tr>
<td>• Teamwork is valued, everyone matters, and “we’re all in it together”</td>
</tr>
<tr>
<td>• Competitive pay and benefits commensurate with value add</td>
</tr>
<tr>
<td><strong>Building a platform for continuous employee development:</strong></td>
</tr>
<tr>
<td>• Working with talented colleagues who challenge one another and drive excellence</td>
</tr>
<tr>
<td>• Learning and development opportunities that enable to staff to grow, adapt and learn</td>
</tr>
<tr>
<td>• Opportunities for long term career trajectories (vertically and horizontally)</td>
</tr>
<tr>
<td><strong>Providing transparency on inner workings of the organization</strong></td>
</tr>
<tr>
<td>• Frequent communication on job stability and changing workplace dynamics</td>
</tr>
<tr>
<td>• Ability to develop meaningful relationships with supervisors and leaders</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Employee Value Proposition (“EVP”) articulates why people want to work for UM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culture &amp; Well-being</strong></td>
</tr>
<tr>
<td>• Work life balance</td>
</tr>
<tr>
<td>• Physical / virtual workspace</td>
</tr>
<tr>
<td>• Organizational norms</td>
</tr>
<tr>
<td>- Transparency</td>
</tr>
<tr>
<td>- Camaraderie &amp; teamwork</td>
</tr>
<tr>
<td>- Trust, respect, fairness, pride</td>
</tr>
<tr>
<td><strong>Brand and Promise</strong></td>
</tr>
<tr>
<td>• Purpose and mission</td>
</tr>
<tr>
<td>• Vision and values</td>
</tr>
<tr>
<td>• Opportunity to make a difference</td>
</tr>
<tr>
<td>- Internal &amp; external reputation</td>
</tr>
<tr>
<td>• Ability to positively contribute to the community (social responsibility)</td>
</tr>
<tr>
<td><strong>Total Rewards</strong></td>
</tr>
<tr>
<td>• Competitive base compensation</td>
</tr>
<tr>
<td>• Variable / performance based incentives</td>
</tr>
<tr>
<td>• Non-monetary rewards and recognition</td>
</tr>
<tr>
<td>• Health &amp; wellness benefits</td>
</tr>
<tr>
<td><strong>Career Development &amp; Opportunities</strong></td>
</tr>
<tr>
<td>• Career ladder – vertical and horizontal mobility</td>
</tr>
<tr>
<td>• Learning &amp; growth opportunities</td>
</tr>
<tr>
<td>• Real-time feedback (including upward and 360)</td>
</tr>
<tr>
<td>• Ability to develop new or valuable skillsets</td>
</tr>
</tbody>
</table>
UM will require a structured approach to align organizational priorities, obtain stakeholder buy-in and sequence HR redesign activities appropriately.

### Proposed workstreams for HR Transformation effort

<table>
<thead>
<tr>
<th>People &amp; HR Strategy</th>
<th>HR Governance</th>
<th>HR Operating Model</th>
<th>HR Process Standardization</th>
<th>HR Technology</th>
</tr>
</thead>
</table>
| • Revise FY18 annual HR goals to incorporate achievable HR Transformation goals for the remainder of the FY  
• Conduct voice of the customer interviews / focus groups to inform strategy development  
• Define People Strategy and Employee Value Proposition  
• Define HR capabilities needs to support strategy and evaluate gaps | • Redefine HR governance needs/structure across campuses  
• Define and agree on decision rights and interaction model between UM System HR, Campus HR and Depts. | • Deploy activity analysis survey  
• Evaluate FTEs against benchmarks for all HR activities  
• Design future state HR service delivery model  
• Evaluate current and future talent needs  
• Develop transition plans  
• Transition to future state HR operating model | • Collect and evaluate all current state HR processes and activities across campuses and UM System  
• Prioritize and re-design key process areas to improve service delivery and reduce administrative work  
• Implement process improvement opportunities | • Conduct assessment of HR technology portfolio  
• Determine near-term opportunities  
• Determine gaps and explore technology enhancements  
• Develop business case(s) to define investment needs and resource requirements  
• Issue RFPs and engage vendors, as needed  
• Implement new technology solutions to align to service delivery model |

### Transition Management Office

### Change Management & Communications

A number of key dependencies that should be considered as part of the transformation efforts include:

- Inclusion of faculty and staff members in the definition of a people strategy, HR vision, role and strategic objectives
- Capacity of HR to drive to target state while continuing to support the needs of the organization
- HR’s role in managing change and supporting the transition of other potential workforce changes resulting from the Administrative Review process
## 1. HR Transformation

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR Transformation</td>
<td>Launch a formal HR Transformation effort that will elevate the role of HR to support talent/workforce needs of the organization, drive efficiencies throughout the system and is focused on the following areas:</td>
</tr>
<tr>
<td></td>
<td>a. <strong>People &amp; HR Strategy</strong> – Engage campus, school, department and UM System HR leaders to align on a consistent definition on the role HR plays in (1) partnering with institutional leaders to deliver on organizational goals and (2) enabling an employee experience that positions UM as an employer of choice.</td>
</tr>
<tr>
<td></td>
<td>b. <strong>HR Process Standardization</strong> – Evaluate variation in policies and process across campuses and standardize and launch formal training and communication efforts to minimize risk in key process areas (e.g., FMLA, ADA, I-9 processing)</td>
</tr>
<tr>
<td></td>
<td>c. <strong>HR Governance</strong> – Clarify accountabilities between divisions/schools/departments, campus HR and UM System HR and increase the degree of formal cross-campus, cross-functional HR committees to improve collaboration within HR</td>
</tr>
<tr>
<td></td>
<td>d. <strong>HR Technology Enablement</strong> – Launch effort to evaluate and deploy new technologies and/or enhancements to existing technologies to improve automation of manual processes and improve access to HR services for employees (e.g., optimizing PeopleSoft 9.2, deploying manager and employee self-service tools, implementing a new case management tool)</td>
</tr>
<tr>
<td></td>
<td>e. <strong>HR Operating Model</strong> – Redesign the HR delivery model and organization structure to shift transactional activities into a shared services model, build centers of excellence focused on system-wide strategy/policy and enhance the local delivery model to departments, divisions and schools by redefining the role of HR business partners across campuses)</td>
</tr>
</tbody>
</table>

**Benchmarks**

- 106 individuals were mapped to UM System and main campus (Columbia) HR functions, with another 477 non-HR individuals identified on main campus that execute some degree of HR work activities
- Although a proper activity analysis is required to accurately estimate opportunities for efficiencies, additional investments may be required to achieve efficiencies in distributed HR staff to support the new delivery model.

**“Soft” Benefits Achieved**

- Improved communication and coordination across campuses
- Reduced organizational risk in process areas with legal implications (e.g., FMLA, ADA, I-9)

### Spend Addressed

<table>
<thead>
<tr>
<th>Departmental labor cost savings, HR labor costs (savings and investment), HR technology</th>
<th>Investment Required in critical HR capabilities; Cost to launch and support new HR tech</th>
</tr>
</thead>
</table>

### Impact to:

<table>
<thead>
<tr>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
<th>UMKC</th>
<th>S&amp;T</th>
<th>UMSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

*Three year average across UM System and Columbia Campus*
2. Total Rewards Rationalization

**Opportunity Synopsis**

**Name**
Total Rewards Rationalization

**Description**
The Total Rewards Advisory Committee (“TRAC”) should work with HR leadership to further evaluate potential adjustments to health and wellness benefit offerings. **Any adjustments to health and wellness benefits should be coordinated with any planned changes to retirement benefits and increases in compensation as part of a holistic Total Rewards strategy for UM faculty and staff.** A proper communication strategy and plan is critical for impacted employees to understand the net impact to their compensation levels and deductions.

**Benchmarks**
2017 PwC Health and Well-Being Touchstone Survey of PPO, CNP, and HSA plans, as well as ancillary benefits, in Higher Education.

**“Soft” Benefits Achieved**
Wellness program will promote health and wellness, preventative care, etc. for UM employees and staff

---

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and wellness benefit offerings</td>
<td>Adjustments to faculty and staff benefits to align with market compensation benchmarks</td>
<td>Two Years</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
<th>UMKC</th>
<th>S&amp;T</th>
<th>UMSL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>University of Missouri System</strong></td>
<td><img src="icon.png" alt="MU" /></td>
<td><img src="icon.png" alt="UMSystem" /></td>
<td><img src="icon.png" alt="UMSystem" /></td>
<td><img src="icon.png" alt="UMKC" /></td>
<td><img src="icon.png" alt="S&amp;T" /></td>
<td><img src="icon.png" alt="UMSL" /></td>
</tr>
</tbody>
</table>
While benchmarks indicate an opportunity to reduce health benefits, any adjustments to health benefit offerings should be done as part of a holistic, comprehensive approach to evaluate UM’s total rewards strategy (including aligning compensation to market levels) and should not come at the expense of losing key contributors towards the institutional mission. TRAC should help evaluate any changes.

**Total Rewards Advisory Committee (“TRAC”)**

**Charter:** The Total Rewards Advisory Committee serves in an advisory capacity in matters related to benefits programs and in the treatment of pay and benefits as interrelated parts of the University's overall Total Rewards.

**Membership:** VP of HR or designee (1), Faculty member from each campus (4), Staff member from each campus (4), Hospital representative (1), Retiree representative as appointed by the VP of Human Resources from nomination from campuses, retiree associations and self-nominations (1), Additional at large committee members (at discretion of VP of HR).

### Goals of Rationalizing Total Rewards

- Optimize the usage of total rewards to align to the organizational strategy, employee preferences and budgetary goals
- Design a core set of benefits (health & welfare, retirement) that is both market competitive and cost effective
- Evaluate compensation levels to ensure market competitiveness and internal equity
- Institute a set of performance-based rewards (monetary and non-monetary) to recognize performance and motivate employees

### Elements of Total Rewards

- Health & Welfare
- Retirement
- Compensation
- Rewards & Recognition

### Change Management Considerations

- Ensure proper buy-in from representative faculty and staff members prior to any changes
- Rollout changes to total rewards as a comprehensive approach rather than an incremental set of changes
- Provide transparency into the net financial impact to employees and how total benefits and compensation levels compare to others in the market
- Ensure appropriate lead-time in order to address areas of complexity and rollout proper communication plans
### 3. Administrative Assistant Realignment

#### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Administrative Assistant Realignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Increase the ratio of executives per administrative assistant from 1.25:1 to 3:1 across UM System and Columbia campus</td>
</tr>
</tbody>
</table>

**Benchmarks**

Leading practice for creating efficiencies in the utilization of administrative assistant positions is a 3:1 ratio of executives per administrative assistant. The current average ratio system-wide is 1.25.

Currently, administrative assistants are used inconsistently across departments/divisions/schools and many have broader facility or functional support responsibilities than traditional administrative staff roles. As a result, an activity analysis should be utilized to better understand the distribution of administrative assistant responsibilities and more accurately assess the opportunity to optimize administrative assistant roles.

An activity analysis survey will be required in order to better identify administrative workload.

**“Soft” Benefits Achieved**

Standardization of executive support across the system

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Assistant Labor Costs</td>
<td>None</td>
<td>Six Months</td>
<td>3</td>
</tr>
</tbody>
</table>

**Impact to:**

- UM System
- Central Department
- Distributed
- UMKC
- S&T
- UMSL

---

University of Missouri System

COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

OPEN – GB – INFO 5-94

December 7-8, 2017
5.3 HR Observations
# Executive Summary

**Service Center, Employee Relations, HRIS, CAPS Observations**

<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
<th>Alignment to Leading Practice</th>
<th>Findings</th>
<th>Opportunity Type</th>
</tr>
</thead>
</table>
| **Shared Services** | **Service Center**                 | ![Status Icon](status_icon.png) | - Largest area of opportunity is upgrading technology to automate manual processing and reduce call volumes/tickets:  
  - PS 9.2 modules currently not utilized (e.g., direct deposit processing)  
  - Manager and employee self-service tools  
  - Case management tool  
  - Current Service Center staff recently absorbed Wellness program processing and should look to realign to Total Rewards or outsource |
| **Employee & Labor Relations** | **Decentralized model** | ![Status Icon](status_icon.png) | - Decentralized model – Columbia campus has 6 FTEs assigned to divisions  
  - Union negotiations are managed centrally at UM System, with local campuses attending meet and confer’s and managing local labor relations  
  - Biggest risk area is non-HR personnel on campus processing FMLA, ADA and other legal processes without appropriate training/expertise  
  - Potential opportunity to centralize FMLA and other components of employee relations |
| **HRIS & HR Technology** | **Significant challenges** | ![Status Icon](status_icon.png) | - Significant challenges with execution of PS9.2 rollout  
  - Director position vacant for last 10+ months  
  - Team currently focused on PS9.2 bug fixes, enhancements / customizations requested by campuses and responding to inquiries  
  - Responsibilities not currently executed due to limited bandwidth include strategic planning for HR technology, active HR data management and managing web portal technology centrally  
  - Opportunity to refocus HRIS team on value-add work through proper rationalization of HR technology, and/or once bulk of fixes with current PS9.2 platform are complete |
| **Payroll / Time & Attendance (CAPS)** | **MU CAPS center highly regarded** | ![Status Icon](status_icon.png) | - MU CAPS center highly regarded as “leading practice” within the organization  
  - Manual reconciliations of Kronos from MU Health creates inefficiencies  
  - Largest area of opportunity is to centralize and scale CAPS services across system  
  - Additional efficiencies can be gained by appropriately training time approvers and time keepers within divisions/schools/departments (300+ identified at MU) |

**Consistent with leading practice**

- Capability does not exist or is missing critical components
- Some leading practices in place, but inefficiencies still exist
- Consistent with leading practice
# Total Rewards Observations

<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
<th>Alignment to Leading Practice</th>
<th>Findings</th>
<th>Opportunity Type</th>
</tr>
</thead>
</table>
| Total Rewards       | Compensation                           | 🟠                             | • New staff compensation model and titling scheme rolled out within last two years  
• Change management raised as concern with rollout which has caused high volume of JFIs (Justification For Increases) and PCQs (job reclassifications)  
• Current Compensation team spends majority of time processing JFIs/PCQs, maintaining compensation and title structure and consulting campuses on JFI/PCQ requests (700+ PCQs processed within last year for Columbia campus)  
• Currently, all academic compensation and job titling is handled by schools  
• Potential opportunity to realign Compensation function with Total Rewards function and to consult schools and monitor academic comp and titling centrally                                                                                                                                                                                                                                         | • Realignment of resources                      |
| Benefits (Health, Retirement, Wellness) |                                                        | 🟠                             | • Health plan administration and design is conducted in-house  
• Identified operational improvements for administration of retirement plan include:  
  – Migrating retirement data (e.g., contributions) to a single platform to improve calculation efficiencies (1,000+ completed annually) and reduce risk  
  – Establishing standards and improving training/communication to divisions/schools/departments on reporting retirement eligibility and employee information at time of retirement (currently, 50% of information provided is incorrect)  
  – Seeking opportunities to shift from manual processing of “intent to retire” forms to an automated tool such as DocuSign  
• 6 FTEs processing Wellness benefits recently terminated; responsibilities absorbed by existing Total Rewards and Service Center staff  
• While currently some Total Rewards administration is outsourced (e.g., portion of pension calculations), additional efficiencies can possibly be gained by fully outsourcing health, retirement and wellness administration functions, however, outsourcing these functions is not recommended until a broader HR service delivery model is determined                                                                                                                                                                                                 | • Savings potential  
• Realignment of resources  
• Process improvement                      |
## Recruiting & Staffing Observations

<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
<th>Alignment to Leading Practice</th>
<th>Findings</th>
<th>Opportunity Type</th>
</tr>
</thead>
</table>
| Talent Alignment  | Recruiting & Staffing    |                               | • Staff recruiting function at campus-level is completely decentralized with HR owning the opening and closing of requisitions  
• Departments own talent acquisition process which is done very inconsistently across departments and campuses and creates limited visibility into success rate of candidate searches and hires  
• Academic recruiting is also handled by departments; MU has one resource who specializes in academic employment contracting, but only supports these efforts part time and does not have a succession plan currently in place  
• UM System handles executive recruiting across campuses as well as staff recruiting for UM System functions – currently in process of establishing criteria for using executive search firms to reduce total spend on exec search consultants and developing a full life-cycle recruitment program focused on improving the candidate experience, reducing time to hire and improving quality hires system-wide  
• SOS Temp Staffing has received excellent reviews from faculty and staff; opportunity exists to expand this offering more formally across other campuses as a service offering  
• Opportunity exists to better integrate the Diversity and Inclusion function with recruiting efforts to build a diverse workforce and to better integrate workforce analytics capabilities in recruiting efforts to predict and plan talent pipeline needs  
• Opportunity to create center of excellence for recruiting and staffing and increase the role HR plays in driving and managing the talent pipeline for all employees | • Investment area  
• Capability development  
• Process standardization  
• Realignment of resources |
<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
<th>Alignment to Leading Practice</th>
<th>Findings</th>
<th>Opportunity Type</th>
</tr>
</thead>
</table>
| Talent Alignment | Talent Management | • “My Performance” opportunity launched within last year; majority of departments/divisions/schools are using common performance management tool  
• Currently, UM System is responsible for oversight of PM tool and process  
• Mobility across departments/schools/divisions is a common practice, but there is no standard process in place for supporting employees through the transition process  
• Interim leader assigned to oversee Careers and Culture function, but focus is primarily around leadership development training and there is an opportunity to further define and establish plans around career laddering, career trajectory, coaching and mentoring, mobility, performance management and succession planning | • Investment area  
• Capability development |
| Learning & Development | Central L&D team focuses primarily on leadership development training, however there is opportunity to increase levels of technical training or training for non-HR personnel executing HR work within divisions/departments/schools  
• Minimal L&D staff exist at campus level and focus is primarily on large training events (2-3 per year) rather than ongoing, continuous learning and development needs of campus staff and faculty  
• Opportunity exists to further evaluate L&D needs, staffing requirements and ability to expand the UM System L&D function into a Center of Excellence model to develop and drive a broader L&D strategy across campuses  
• Learning Management System, SkillSoft, currently used for eLearnings; opportunity exists to expand online training to support employee onboarding, orientation, timekeeping, ePAFs, eRecruit and other critical HR processes that are decentralized | • Investment area  
• Capability development  
• Technology optimization  
• Process standardization |
## Workforce Strategy Observations

<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
<th>Alignment to Leading Practice</th>
<th>Findings</th>
<th>Opportunity Type</th>
</tr>
</thead>
</table>
| **Workforce Strategy** | Workforce Intelligence & Analytics | ![Alignment to Leading Practice](image) | • Workforce analytics team recently formed – utilizes Tableau to support compliance and ad hoc reporting needs (e.g., span of control, demographics)  
• Team has coordinated with Total Rewards function to support retirement eligibility analytics for retirement plan administration  
• Opportunity exists to expand scope of responsibilities to provide campuses, divisions, departments and schools with analytics to support workforce planning needs (e.g., diversity hiring goals, retirement eligibility/succession planning needs, training needs, etc.) | • Capability development |
| **HR Strategic Planning** | UM System leader of HR Operations currently oversees HR strategic planning and system-wide labor relations  
• Currently in process of inventorying HR processes across the UM System central office  
• As the “people strategy” and HR role are further defined, opportunity exists to formalize HR Operations role to program manage all HR strategic opportunities | ![Alignment to Leading Practice](image) | • Climate survey recently conducted by Rankin & Associates; there currently is no annual employee engagement or workplace survey administered by HR  
• Careers and Culture function has historically focused on leadership development training; opportunity exists to expand change management, org effectiveness, employee engagement and employee experience capabilities | • Process Improvement |
| **Org Effectiveness, Culture & Engagement** | ![Alignment to Leading Practice](image) | • Climate survey recently conducted by Rankin & Associates; there currently is no annual employee engagement or workplace survey administered by HR  
• Careers and Culture function has historically focused on leadership development training; opportunity exists to expand change management, org effectiveness, employee engagement and employee experience capabilities | • Capability development |

### Summary Findings

- **Facilities**
- **Finance**
- **Human Resources**
- **IT**
- **Sustainability and Operating Model**
- **Implementation Timeline**

### Executive Summary

- **Consistent with leading practice**
- **Capability does not exist or is missing critical components**
- **Some leading practices in place, but inefficiencies still exist**
6. IT Workstream

6.1 - IT Workstream Summary
6.2 - Individual Opportunity Overviews
6.1 IT Workstream Summary
Summary

The IT workstream reviewed $77.5M of spend and identified 6 opportunities with a projected net savings of $4.2M to $7.7M

<table>
<thead>
<tr>
<th>Workstream Approach</th>
<th>Observations</th>
<th>Key Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data used</td>
<td>• DoIT does not manage all IT spend in Columbia, significant purchasing decisions are made in the departments</td>
<td>• Consolidate IT services to reduce risk and lower costs</td>
</tr>
<tr>
<td>o FY17 GL and payroll file</td>
<td>• DoIT is completing the process to centralize IT resources through the development of the “Distributed” IT function</td>
<td>• Streamline student servicing across campuses to improve efficiency</td>
</tr>
<tr>
<td>• Scope focused on traditional IT functions</td>
<td>• DoIT works with Supply Chain to develop purchased services and supplies contracts that are competitive with the market</td>
<td></td>
</tr>
<tr>
<td>• Met with 12 IT leaders in Columbia and the UM System central office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Areas not addressed / out of scope include research computing and MoreNet</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Opportunity details contain implementation estimates to achieve savings. Projects selected and scheduling will change implementation costs.

Note: Annual savings are net of non-capital investments.
IT Functional Area Current State

The Department of IT is focused on reducing cost where they have direct control. The 25% of IT spending controlled by departments can be reduced by changing governance of IT spend and IT delivery models. In order to drive down costs that are currently in distributed department budgets, IT will need to increase its ability to impact these budgets.

Academic and functional leaders will need to drive the changes that create IT cost savings.

IT leaders have started consolidation and efficiency projects.
- Consolidated IT technicians, rebalanced work and labor cost
- Department supported servers are identified with some work underway to move them to DoIT support.

IT competes with commercial providers, and frequently benchmarks itself to prove its value proposition to the university.
- IT services are compared to Amazon Web Services pricing on a quarterly basis

Process changes across campuses and changes in IT delivery models offer the best opportunity for substantial cost reduction.
- 7,500 people using over 400 applications perform student servicing in different ways at the four campuses. Shared services and simplification can produce significant benefit.
- A shift from desk side PC support to remote support can double the number of people a technician can support.

75% of all IT-related spend is managed by the central IT department. IT does not have a line of sight to or lacks control over a quarter of total IT spend.
Additional Observations

- The chargeback system for IT services is a leading practice to help business self regulate demand
- IT chargeback rates are compared to commercial services on a regular basis
- Currently there is no formal financial evaluation process for IT application development project requests. Especially in a time of resource constraint, a more formal business case assessment process that determines the cost and benefit of these projects (with participation by Finance) is warranted. A minimum hurdle rate for project return on investment is advised as a part of this.
- IT infrastructure services (servers, storage, network) are commodities that can scale at a relatively small incremental cost. Sequestering of IT systems by distributed organization units adds cost to the operation without bringing competitive advantage. Failure to fully leverage economies of scales raises costs for the University of Missouri.
- The Columbia IT helpdesk serves 20% to 200% more users per agent than the other campuses
- The use of IT Service Pros embedded in the business units is an expensive service model compared to remote support model common in IT organizations
The IT Workstream includes the provision of services and supplies related to technology and telecommunications.

### Scope

The following areas are included:

- **Labor Areas**
  - IAT Systems Admin
  - IT Systems Support
  - Security
  - Systems & Operations Support
  - Telecommunications
  - UM Information and Computing Services
  - VP of IS
  - Distributed IT within academic or other departments

- **Non-Labor Areas**
  - Software / licenses
  - Cloud computing
  - Storage
  - Hardware
  - Purchased services
  - 3rd party labor

- **Out of Scope**
  - Research computing
  - MOREnet
  - IT services and supplies related to research (e.g. sponsored programs & institutional research)
Expense Profile

$77.5M of spend was reviewed including labor and non-labor expenses, labor includes known IT employees and a count of “Distributed” employees which will be refined through an activity analysis survey.

<table>
<thead>
<tr>
<th>FY2017 Baseline</th>
<th>Total Spend</th>
<th>UM and MU Central Headcount</th>
<th>MU Distributed Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Technology Functional Rollup</td>
<td>$77.5 M</td>
<td>427</td>
<td>67</td>
</tr>
</tbody>
</table>

Distributed Methodology

- Gleaned from stakeholder interviews that **employees with information technology function responsibilities** exist throughout the University.
- Executed **keyword search for IT job titles** in employee list for Columbia and UM System.
- Identified employees with **same job titles as available in Central IT which were not part of the IT orgs** (including: System Admin, Network Engineer, User Support Analyst, System Support Analyst, Support System Admin, DB Programmer Analyst, DB Administrator and Programmer Analyst).
- **Applied a percent effort** to estimate the dollar value (salaries, wages, and benefits) of the distributed headcount.
- Activity analysis survey will be performed to more precisely identify distributed activities.

* Includes $20M of distributed non-labor IT expenses, not managed by Centralized departments, does not include depreciation.
### Expense and Operational Benchmarking

Decisions made throughout the organization have impacted the staffing model and cost structure within IT

<table>
<thead>
<tr>
<th>Metric</th>
<th>Benchmark</th>
<th>UM</th>
<th>Performance</th>
<th>Calculation</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenue per IT FTE</td>
<td>$167,613</td>
<td>$84,706</td>
<td>Red</td>
<td>$1,373M Columbia and UMSYS revenue / 16,214 FTE</td>
<td>Indicates overall staffing level at UM is higher than peers with similar revenue.</td>
</tr>
<tr>
<td>IT spend at UMSYS and Columbia as a percentage of UMSYS and Columbia revenue</td>
<td>5.70%</td>
<td>5.64%</td>
<td>Green</td>
<td>$77.5M / $1,373M Revenue</td>
<td>Overall, IT spending is slightly lower than peers.</td>
</tr>
<tr>
<td>IT spend per employee (UMSYS and Columbia) per FTE (UMSYS and Columbia)</td>
<td>$8,200</td>
<td>$4,780</td>
<td>Green</td>
<td>$77.5M / 16,214 FTE</td>
<td>Spend per employee is lower than peers.</td>
</tr>
<tr>
<td>IT staff as a percentage of Columbia and UMSYS Staff</td>
<td>4.80%</td>
<td>2.63%</td>
<td>Green</td>
<td>427 IT staff / 16,214 FTE</td>
<td>The low ratio of IT staff to employees correlates with the other metrics. These show the system has a higher number of employees than typical for the revenue level.</td>
</tr>
<tr>
<td>The number of supported users per IT technician</td>
<td>333:1</td>
<td>178:1</td>
<td>Red</td>
<td>18,826 People supported / 105.75 FTE</td>
<td>UM uses a high touch desk-side IT support model. This is more labor intensive and costly than the remote support model which is widely used in industry.</td>
</tr>
</tbody>
</table>

*Activity Analysis is key to the true determination of IT activity and related FTEs beyond the benchmarks above*
Opportunity Summary

The IT Workstream identified six opportunities with a net savings of $4.2M to $7.7M

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Governance and Operating Model</td>
<td>Three Year</td>
<td>5</td>
</tr>
<tr>
<td>2 IT Spend Governance</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>3 Rationalize Distributed IT Desktop / Support Services</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>4 Consolidate Web Hosting Platforms</td>
<td>One Year</td>
<td>2</td>
</tr>
<tr>
<td>5 Increase App Development/Support ROI Requirements</td>
<td>One Year</td>
<td>3</td>
</tr>
<tr>
<td>6 Reduce Innotas Licensing</td>
<td>Two Year</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: Annual benefits are net of non-capital investment in capabilities needed*
## Implementation Risk Summary

Relative to other Workstreams many IT opportunities carry a lower risk score

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Complexity</th>
<th>Investments</th>
<th>Stakeholder Impact</th>
<th>Total Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance and Operating Model</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>IT Spend Governance</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Rationalize Distributed IT Desktop / Support Services</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Consolidate Web Hosting Platforms</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Consolidate Web Hosting Platforms</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Reduce Innotas Licensing</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Implementation Risk Score** is an index that factors in (1) Complexity (2) Investment Required (3) Impact to Stakeholders.

- **Low Risk** – Limited risk to internal stakeholders; proceed with implementation, 1-2
- **Moderate Risk** – Develop and execute change management, Track and manage progress closely, 3
- **High Risk** – Develop tactical work plan, execute change management strategy, involve key leaders, 4-5
6.2 IT Individual Opportunities Overview
1. Governance and Operating Model

<table>
<thead>
<tr>
<th>Name</th>
<th>Governance and Operating Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The University of Missouri operates as four businesses with four different IT organizations. This operating and governance model has produced duplication in IT services and cost. There are multiple opportunities to consolidate back office processes that are not adding competitive advantage. These opportunities include: Consolidation of hosting and management of servers, consolidation of Help Desk services, creating common student servicing processes and consolidating the 400+ applications and 4 PeopleSoft instances that support today’s constellation of processes. A high level of autonomy and decision making exists within the campuses and departments around IT. Central IT is not positioned to lead and enforce functional decisions. This leads to a technology landscape that meets or exceeds end user wants and needs, but comes at a significant cost. The University needs to undertake a process to rationalize whether this model is in the best interest of the business units.</td>
</tr>
<tr>
<td>(Average departmental attrition rate* – 10%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 750 servers to consolidate across campuses and within Columbia. $4.2M difference between current equipment and labor and DoIT server rates.</td>
</tr>
<tr>
<td>• Helpdesk calculated by applying Columbia campus/DoIT HD staff ratio to other campuses. Staff change is $.1M-$6M reduction.</td>
</tr>
<tr>
<td>• Combining student servicing processes and moving to one PeopleSoft image reduces IT hardware by $.5M (DoIT estimate).</td>
</tr>
<tr>
<td>• There are 7,500 active student service functional users, 400 applications and 4 versions of the same PeopleSoft platform to provide the same services to the four campuses. There is a significant opportunity to simplify this environment and reduce costs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“Soft” Benefits Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved risk posture, lower physical security risk, reduction in people with system administrator access, reduction in system complexity which reduces cost and time to maintain and upgrade systems, and reduced complexity makes it easier to adopt new technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT and Functional Area OPEX</td>
<td>Transfer of FTE to Central IT. Labor to transition servers and helpdesk, to create and manage IT governance and project selection processes, and to consolidate student servicing processes, applications and PeopleSoft instances</td>
<td>Three Year</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM System</td>
</tr>
<tr>
<td>✓</td>
</tr>
</tbody>
</table>

*Three year average across UM System and Columbia Campus
2. IT Spend Governance

Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>IT Spend Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Reduce the $20M spent outside of DoIT on IT related products and services by 2% to 4% by promoting re-use, use of DoIT, and conservation.</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>FY2017 Ledger Review</td>
</tr>
<tr>
<td>&quot;Soft&quot; Benefits Achieved</td>
<td>Non-IT directed spend is the majority of IT spend on the Columbia campus. Action is needed in this area prioritize investments to improve the return to the University of Missouri</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Area OPEX</td>
<td>Education and communication of gating for IT purchasing. Enforcement of policies, revision of policies possible change in process. Project Manager and communications support for 6 months.</td>
<td>One Year</td>
<td>3</td>
</tr>
</tbody>
</table>

Impact to:

- UM System
- Central Department
- Distributed
- UMKC
- S&T
- UMSL
3. Rationalize Distributed IT Desktop / Support Services

<table>
<thead>
<tr>
<th>Opportunity Synopsis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Benchmarks</strong></td>
</tr>
<tr>
<td><strong>“Soft” Benefits Achieved</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT and Functional area Labor</td>
<td>IT management time and change in service expectation (move from on site support to more mobile support).</td>
<td>One Year</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impact to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM System</td>
</tr>
<tr>
<td>✔</td>
</tr>
</tbody>
</table>
# 4. Consolidate Web Hosting Platforms

## Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Consolidate Web Hosting Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Implement a single centralized web management platform to meet the university's marketing and communications needs by contracting with a provider to support both WordPress and Drupal. This consolidation, especially of the department level websites, will reduce risk and provide the university with significant cost savings. (In Process)</td>
</tr>
<tr>
<td><strong>Benchmarks</strong></td>
<td>The MU Digital Presence Business Case provided by DoIT</td>
</tr>
<tr>
<td><strong>“Soft” Benefits Achieved</strong></td>
<td>Better control of the University of Missouri brand. Risk reduction through fewer independently managed websites</td>
</tr>
</tbody>
</table>

## Spend Addressed

<table>
<thead>
<tr>
<th>IT and Functional OPEX</th>
<th>Investment Required</th>
<th>Implementation Duration</th>
<th>Implementation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In Plan</td>
<td>One Year</td>
<td>2</td>
</tr>
</tbody>
</table>

## Impact to:

<table>
<thead>
<tr>
<th>UM System</th>
<th>Central Department</th>
<th>Distributed</th>
<th>UMKC</th>
<th>S&amp;T</th>
<th>UMSL</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="path/to/um/system/icon.png" alt="Icon" /></td>
<td><img src="path/to/central/department/icon.png" alt="Icon" /></td>
<td><img src="path/to/distributed/department/icon.png" alt="Icon" /></td>
<td><img src="path/to/umkc/icon.png" alt="Icon" /></td>
<td><img src="path/to/st/department/icon.png" alt="Icon" /></td>
<td><img src="path/to/umsl/icon.png" alt="Icon" /></td>
</tr>
</tbody>
</table>

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**Executive Summary**

**Summary Findings**

**Facilities**

**Finance**

**Human Resources**

**IT**

**Sustainability and Operating Model**

**Implementation Timeline**
5. Increase App Development/Support ROI Requirements

### Opportunity Synopsis

<table>
<thead>
<tr>
<th>Name</th>
<th>Increase App Development/Support ROI Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Raise the expectations for return on investment for IT projects. Create a governance process for IT project initiation. Set and communicate a hurdle rate for acceptance of new application development projects. The higher hurdle rate will control the demand for development resources.</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>The reduction in requests for new development can reduce up to 20% of total FTE capacity in the custom application group</td>
</tr>
<tr>
<td>&quot;Soft&quot; Benefits Achieved</td>
<td>Increases the return on investment for IT development projects. Helps ensure the right projects are funded and expedited.</td>
</tr>
</tbody>
</table>

### Spend Addressed

<table>
<thead>
<tr>
<th>Spend Addressed</th>
<th>Investment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Labor</td>
<td>None</td>
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</table>

### Implementation

<table>
<thead>
<tr>
<th>Implementation Duration</th>
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</tr>
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<tbody>
<tr>
<td>One Year</td>
<td>3</td>
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</table>

### Impact to:

- UM System
- Central Department
- Distributed
- UMKC
- S&T
- UMSL

![Impact to: UM System](image1)
![Impact to: Central Department](image2)
![Impact to: Distributed](image3)
![Impact to: UMKC](image4)
![Impact to: S&T](image5)
![Impact to: UMSL](image6)
6. Reduce Innotas Licensing

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<tr>
<td>IT Operating Expense</td>
<td>None</td>
<td>Two Year</td>
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<tbody>
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7. Sustainability and Operating Model
Operating Model Current State Findings

The organization of the University of Missouri system and legacy decisions have created a distributed labor force and an operating model that varies across campuses and departments.

### Functional Area

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>UM and MU Central Headcount</th>
<th>Estimated MU Distributed Headcount</th>
<th>Estimated Total Functional Headcount</th>
<th>Percent Distributed</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>232</td>
<td>296</td>
<td>528</td>
<td>56%</td>
<td>2:1 relationship of MU campus buildings to building managers</td>
</tr>
<tr>
<td>Finance</td>
<td>209</td>
<td>1,500</td>
<td>1,709</td>
<td>88%</td>
<td>Peoplesoft Finance transactions</td>
</tr>
<tr>
<td>Human Resources</td>
<td>106</td>
<td>477</td>
<td>583</td>
<td>82%</td>
<td>Peoplesoft HR users and MU HR outreach and research</td>
</tr>
<tr>
<td>IT</td>
<td>427</td>
<td>67</td>
<td>494</td>
<td>14%</td>
<td>Job title search and IT system users</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>974</strong></td>
<td><strong>2,346</strong></td>
<td><strong>3,314</strong></td>
<td><strong>71%</strong></td>
<td><strong>Methodology</strong></td>
</tr>
</tbody>
</table>

Nearly 2,400 MU campus individuals appear to be performing tasks that are related to Facilities, Finance, Human Resources or IT.
UM System Role

In order to achieve the operational efficiencies noted, the University **must determine the role of the UM System central office** and its functional relationship with the campuses

**I. Holding Company Model**

**II. Strategic Management Model**
- Small core with management taking a pragmatic and strategic approach
- Campuses are largely self-contained and viable, but have inter-dependencies
- Decision-making is based on campus performance and accountability
- Performance of employees is managed through clear KPIs and incentives

**III. Core Management Model**
- Larger core with management actively involved in campus-level decisions and operations
- Core management has the depth of knowledge to make trade-offs between competing campus priorities
- Campuses have significant inter-dependencies
- Decision-making trades off individual employee performance and overall strategy
- Performance is incentivized, measured and monitored jointly by the UM System and campuses

**IV. Operationally Involved Model**

Desired future model

---

**Executive Summary**

**Summary Findings**
- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model
- Implementation Timeline

**University of Missouri System**

**Columbia | Kansas City | Rolla | St. Louis**

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December 7-8, 2017
Administrative Services Delivery Decision Process

Determining the appropriate operating model requires a series of decisions relative to function, desired service level and location needs as seen in the illustrative model below.

**Decision Tree**

- University wide policy, planning or strategy function?
  - Y: UM System central office
  - N

- Demonstrates economies of scale or scope?
  - Y
  - N

- Common requirements across campuses?
  - Y
  - N

- Common requirements across campus/division?
  - Y
  - N

- Allocation at campus-level essential to campus research and teaching performance?
  - Y
  - N

**Function Responsibility**

- Support Service at Campus Level
- Shared Service / Outsource
- Support Service at Campus and Academic Level

**Activity Types**

- ‘Direction setting’ activities for the university
- University-wide strategy, planning, policy
- University governance
- University budgeting, planning and capital

- Activities which exhibit economies of scale as activities are routinized, standardized, transactional
- Activities which exhibit economies of scope, which may:
  - Require common knowledge base to consistently deliver service
  - Be unaffordable within other campuses/divisions
  - Address similar business problems across campuses/divisions,
  - Share and enhance leading practice to strengthen service quality

- Faculty-unique activities
- Proximity-critical activities (due to responsiveness or effectiveness)
- Activities with a location-based competitive advantage
- Activities more cost effective when locally delivered

- Activities unique to the division
- Activities which are essential to research and teaching performance, i.e., direct impact on research output
Foundations of Sustainability

Organizations often struggle to implement large-scale change opportunities across multiple organizations because they fail to take into account the components and resources necessary to implement and sustain change.

A **Transformation Management Office** with direct reporting to executive leadership and a process that engages stakeholders is required to integrate these components into implementation planning effectively.
A dedicated TMO is necessary for successful implementation of large-scale, high-complex transformations. TMO should be housed with an existing executive and built with existing resources.

- Leadership engagement and alignment
- Encourage leadership by example
- Eliminate “opt-outs”

- Develop common methodologies, approach to promote consistency across opportunities
- Build repository of analytics tools to support tracking of progress

- Develop and execute holistic communications plan
- Create stakeholder outreach to minimize anxiety and disruption
- Serve as central clearinghouse for feedback to process

- Embed with entity resources to build lines of communication between Workstreams and campuses
- Develop tactics to address unique needs of entity leaders/functions
- Encourage “change agents” for system-wide solutions

- Build Performance Improvement into the culture to continually look for means to become more efficient
- As processes change, develop user and super-user training on new ways of doing business

- Embed performance benchmarking mentality in all functions / at all levels as part of the daily routine
- Deploy operational performance scorecards at all levels and operational dashboards that provide direction for daily management of processes
- Cultivate “source of truth” data and common definitions across the system to aid in internal benchmarking
8. Implementation Timelines

8.1 – High Level Implementation Approach

8.2 – Opportunity Implementation Plans
   A) Facilities Implementation Workplan
   B) Finance and Supply Chain Implementation Workplans
   C) Human Resources Implementation Workplan
   D) IT Implementation Workplan
8.1 High Level Implementation Approach

• This section includes preliminary workplan timelines
• These will be used to help guide the sequencing of activities during the design phase
• Timing is dependent on if/when the university decides to move forward with certain activities
# High Level Implementation Timeline

Mobilization for the Activity Analysis Survey and Campus Assessment is currently underway, this will enable UM to achieve operational improvements in FY19.

## Executive Summary

- **Summary Findings**
  - Facilities
  - Finance
  - Human Resources
  - IT
  - Sustainability and Operating Model

## Implementation Timeline

<table>
<thead>
<tr>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan - Mar</td>
<td>Apr - Jun</td>
<td>Jul - Sep</td>
</tr>
<tr>
<td><strong>I. Activity Analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop and execute AA survey</td>
<td>- Identify FTEs workload by function</td>
<td>- Inform operating model decisions</td>
</tr>
<tr>
<td><strong>II. Campus Assessment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Understand current state each campus</td>
<td>- Engage functional stakeholders</td>
<td>- Bring all campuses into engagement</td>
</tr>
<tr>
<td><strong>III. Transformation Management Office</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Design TMO</td>
<td>- Secure resources and budget</td>
<td>- Develop and track Service Level Agreements and Key Performance Indicators</td>
</tr>
<tr>
<td>- Engage campus stakeholders</td>
<td>- Execute change management and communications</td>
<td></td>
</tr>
<tr>
<td><strong>IV. Operating Model (Across all 4 functional areas)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Integrate campuses into design process</td>
<td>- Streamline distributed / duplicated functions</td>
<td>- Assess operations for additional underutilized resources</td>
</tr>
<tr>
<td>- Implement near term opportunities</td>
<td>- Optimize functional processes</td>
<td></td>
</tr>
<tr>
<td><strong>V. Operational Efficiencies (15 Opportunities)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Integrate campuses into design process</td>
<td>- Design in/outsourcing strategy</td>
<td>- Execute demand management strategies</td>
</tr>
<tr>
<td>- Implement near term opportunities</td>
<td>- Execute bid strategy</td>
<td></td>
</tr>
<tr>
<td><strong>VI. Revenue Enhancement / P3 (3 Opportunities)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Identify potential third-party partnership candidates</td>
<td>- Solicit P3 proposals from selected candidates</td>
<td></td>
</tr>
<tr>
<td>- Understand feasibility and impact of P3</td>
<td>- Select P3 partner(s) and measure impact</td>
<td></td>
</tr>
</tbody>
</table>

- **TMO Operational Opportunities Realized**
- **Op Model Implementation**
- **Quarterly Board Updates**
- **Full Savings Run Rate Achieved**

---

University of Missouri System
COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

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December 7-8, 2017
# Implementation Roadmap – Campus Assessment and Integration

## Executive Summary

### Summary Findings
- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model

### Implementation Timeline

#### Calendar Year

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Activity Analysis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribute AA survey system wide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analyze survey results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Campus Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop communication plan for functional assessment across all campuses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Engage functional leads at campus level to begin operating model discussions</td>
<td></td>
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<tr>
<td></td>
<td>Identify and interview key stakeholders to understand current state</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Gather data and assess functional operations</td>
<td></td>
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<tr>
<td></td>
<td>Identify leading practices at campuses</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Integrate campus and System/Columbia analyses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review and refine functional opportunities across UM system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integrate campuses into opportunity workstreams</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Implementation Roadmap – Operating Model

## Executive Summary

### Summary Findings

- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model

### Implementation Timeline

- Design
- Implement
- Construct
- Operate & Review

## Operating Model

### Activity Analysis

- Distribute AA survey system-wide
- Analyze survey results

### Campus Assessment

- Review and document functional structures and resources across all campuses

### Operating Model

- Review of current state similarities and differences across the system
- Develop and execute stakeholder engagement plan
- Implement activity analysis findings and implications
- Develop detailed implementation plan
- Address staff implications of reconfiguration (e.g. move, retrain)
- Rework incentives, governance, and service level agreements
- Develop and implement pilot models
- Incorporate learnings from pilot
- Implement new operating models
- Operate, measure, improve, and capture additional savings

### Calendar Year

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### Activity Analysis

- Campus Assessment

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### Operating Model

- Develop and execute stakeholder engagement plan
- Implement activity analysis findings and implications
- Develop detailed implementation plan
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### Campus Assessment

- Review and document functional structures and resources across all campuses

- Develop and execute stakeholder engagement plan
- Implement activity analysis findings and implications
- Develop detailed implementation plan
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### Activity Analysis

- Distribute AA survey system-wide
- Analyze survey results

### Campus Assessment

- Review and document functional structures and resources across all campuses

- Develop and execute stakeholder engagement plan
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### Operating Model

- Develop and execute stakeholder engagement plan
- Implement activity analysis findings and implications
- Develop detailed implementation plan
- Address staff implications of reconfiguration (e.g. move, retrain)
- Rework incentives, governance, and service level agreements
- Develop and implement pilot models
- Incorporate learnings from pilot
- Implement new operating models
- Operate, measure, improve, and capture additional savings

### Calendar Year

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### Activity Analysis

- Distribute AA survey system-wide
- Analyze survey results

### Campus Assessment

- Review and document functional structures and resources across all campuses

- Develop and execute stakeholder engagement plan
- Implement activity analysis findings and implications
- Develop detailed implementation plan
- Address staff implications of reconfiguration (e.g. move, retrain)
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### Operating Model

- Develop and execute stakeholder engagement plan
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### Activity Analysis

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</tbody>
</table>
## Implementation Roadmap – Operational Efficiencies

### Executive Summary

**Summary Findings**

- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model

### Implementation Timeline

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
<th>Operate &amp; Review</th>
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</table>

### Campus Assessment

- Calendar Year
- Activity Analysis
  - Identify Distributed FTEs
  - Review and document functional structures and resources across all campuses

### Operational Efficiencies

<table>
<thead>
<tr>
<th>Activity</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
</table>

- Identify stakeholders and develop outreach planning
- Identify non-MU campus opportunities and integrate into overall planning
- Design operational changes (non near term opportunities)
- Develop detailed implementation plan
- Define reporting and develop service level agreements / KPIs
- Execute training plan on new processes and technologies
- Pilot and test updated processes
- Incorporate learning from pilot
- Operate, measure, improve

### Integrated Implementation Timeline

<table>
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**University of Missouri System**

COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

OPEN – GB – INFO 5-129

December 7-8, 2017
# Implementation Roadmap – Revenue Enhancement

## Executive Summary

**Summary Findings**
- Facilities
- Finance
- Human Resources
- IT
- Sustainability and Operating Model

## Implementation Timeline

### Design
- Calendar Year
- January – March
- April – June
- July – September
- October – December

### Construct
- 2018
- 2019
- 2020

### Implement
- 2018
- 2019
- 2020

### Operate & Review
- 2018
- 2019
- 2020

## Revenue Enhancement

### Campus Assessment
- Review and document functional structures and resources across all campuses

### Identify facilities/real estate assets

### Prioritize and sequence opportunities

### Identify 3rd party partnerships

### Assess implications of P3 on operations, Finance, and strategy

### Develop detailed implementation plan

### Negotiate and finalize opportunities

### Transition and implement according to negotiated plan

### Monitor and adjust for continuous improvement
8.2 Implementation Timelines
8.2A Facilities Implementation Workplan
Facilities Implementation Plan

**Opportunities identified as part of preliminary analysis**

<table>
<thead>
<tr>
<th>2018</th>
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<td>Oct – Dec</td>
<td>Jan – Mar</td>
<td>Apr – Jun</td>
</tr>
<tr>
<td>Real Property Operating Model Realignment</td>
<td></td>
<td></td>
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<tr>
<td>Real Property Rationalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationalize Landscaping Scope</td>
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</tr>
</tbody>
</table>

**Additional opportunities to be evaluated**

<table>
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</tr>
<tr>
<td>Monetize Excess and/or Underutilized Real Property</td>
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<tr>
<td>Identify Public-Private Partnership Opportunities</td>
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<tr>
<td>Review Staffing Model Efficiency</td>
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</tbody>
</table>

- Design Phase
- Construct Phase
- Implement Phase
- Operate and Review Phase

Timelines are preliminary and will be refined during Design phase, certain investments may be required in order to achieve these milestones.
Facilities Savings Ramp Up

Over half of the Facilities Workstream savings will be captured by the middle of 2020

Legend:
- New Savings
- Existing Savings

Full savings ramp up anticipated to achieve 100% by CY 2021 Q1

Note: Annual benefits are net of non-capital investment in capabilities needed, Savings of initial opportunity realized in 2018, additional savings realized in perpetuity
Facilities Opportunities Identified – Implementation Plan (1 of 4)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
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<th>Operate and Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Real Property Operating Model Realignment</strong></td>
<td><strong>FY18 Q3 - FY18 Q4</strong></td>
<td><strong>FY19 Q1 - FY19 Q2</strong></td>
<td><strong>FY19 Q3 - FY20 Q4</strong></td>
</tr>
<tr>
<td>1. Perform an activity analysis across campuses and System to identify and map current resources with real property responsibilities (informed by the proposed framework)</td>
<td>1. Using industry leading practice models and the University of Missouri's requirements, map proposed FTE counts against framework.</td>
<td>1. Develop the policies, processes, and procedures that serve as the governing documents guiding the reporting hierarchy (establishing the governance structure).</td>
<td>1. Maintain and review change management protocols to mitigate business disruption risks</td>
</tr>
<tr>
<td>2. Gather stakeholder initial reactions to the conceptual roadmap and re-evaluate the impact of suggestions to the proposed framework</td>
<td>2. Develop a change management framework to guide the implementation process.</td>
<td>2. Execute the action plan, using change management protocols to guide the transformation process and limit disruption to on-going operations.</td>
<td>2. Encourage recurring check-ins to evaluate and adjust the structure as needed (more frequent check-ins at the onset)</td>
</tr>
<tr>
<td>3. Perform a deep dive analysis around each function built into the framework and the cost-benefit associated with centralizing vs. decentralizing each function</td>
<td>3. Obtain vendor quotes for each of the highest spend areas identified</td>
<td>3. Benchmark progress to pre-determined objectives and milestones.</td>
<td>3. Review University &quot;needs&quot; on an annual basis to assess and address skill-gaps, opportunities for technological investment, and performance.</td>
</tr>
<tr>
<td>4. Perform an activity analysis to identify what each individual within the department is doing and who within the University is performing related functions (e.g. work order management, leasing)</td>
<td>4. Analyze internal costs (all-inclusive) compared to vendor quotes with level-set of service-levels</td>
<td>Adjust plan action steps where necessary and maintain flexibility to realign the approach to on-going developments.</td>
<td></td>
</tr>
<tr>
<td>5. Identify potential service providers for areas of highest spend (e.g. maintenance, landscaping, construction, custodial, etc.)</td>
<td>5. Identify the capital investment required to execute the proposed plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Assess the impact of the proposed realignment against the current model. Adjust and simplify the various processes to the extent possible, and layer in an updated framework to complement the operating structure</td>
<td>6. Highlight estimated cost savings as a result of FTE realignment and measure against the capital investment required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Consolidate the framework into a multi-phase project plan outlining the detailed action steps required to execute the transformation. Gain plan approval from stakeholders.</td>
<td></td>
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</tbody>
</table>

Timelines are preliminary and will be refined during Design phase, certain investments may be required in order to achieve these milestones.
Facilities Opportunities Identified – Implementation Plan (2 of 4)

An implementation plan based on four clearly defined phases will help guide the path forward

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</tr>
</thead>
<tbody>
<tr>
<td><strong>FY18 Q3 - FY 18 Q4</strong></td>
<td><strong>FY19 Q1 - FY19 Q2</strong></td>
<td><strong>FY 19 Q3 - FY 21 Q3</strong></td>
<td><strong>FY 21 Q3 - Ongoing</strong></td>
</tr>
<tr>
<td>1. Consider existing plans to reduce 500,000 square feet and achieve operating reductions of $1.4 M anticipated</td>
<td>1. Map out multi-year relocation plan across campuses to meet goals and objectives (classify plan into &quot;near term opportunities&quot; and longer term)</td>
<td>1. Execute on near term opportunities</td>
<td>1. Maintain and review change management protocols to mitigate business disruption risks</td>
</tr>
<tr>
<td>2. Conduct accurate space utilization study using physical inspection and presence detection technology</td>
<td>2. Classify buildings into categories for demolition, retrofitting, new build, etc.</td>
<td>2. Monetize assets that are underutilized / liquid / high value assets (see public-private partnerships and Monetization opportunities for more details)</td>
<td>2. Implement bi-annual utilization assessment to assess changes needed</td>
</tr>
<tr>
<td>3. Assess 5 year staff, faculty and student growth projections</td>
<td>3. Identify capital needs to effect the relocation plan</td>
<td>3. Demolish, refurbish, build as needed and execute relocations / multi-purpose redesign</td>
<td>3. Review real estate holdings annually for monetization opportunities</td>
</tr>
<tr>
<td>4. Create mapping of current use by person / department and align with future projections</td>
<td>4. Identify public-private partnerships, monetization, bond/financing, or other sources of capital to effect the plan</td>
<td>4. Roll out hoteling on select areas</td>
<td>4. Regularly review multi-purpose space to analyze if intended uses are effective</td>
</tr>
<tr>
<td>5. Assess space use (density) and design requirements against industry standards and adjust as needed</td>
<td>5. Define design standards, Furniture, fixtures, and equipment needs, etc. by department</td>
<td>5. Determine specific roles / employees to start working remotely and effect that change</td>
<td>5. Monitor use of technology / remote working and employee / student satisfaction</td>
</tr>
<tr>
<td>6. Define goals and objectives of space redesign / moving people around campuses</td>
<td>6. Achieve stakeholder buy-in for relocation plan, redesign standards, funding, etc.</td>
<td>6. Hold discussions with landlords to terminate leases</td>
<td>6. Maintain and review change management protocols to mitigate business disruption risks</td>
</tr>
<tr>
<td>7. Identify facilities that could be structurally redesigned to allow more stakeholder usage and variety</td>
<td>7. Consider remote options / hoteling systems in redesign plans and space rationalization analysis</td>
<td>7. Establish a business case for each remaining leased location</td>
<td>7. Establish a standard leasing process</td>
</tr>
<tr>
<td>8. Identify use of each leased space</td>
<td>8. Identify leases that could be terminated</td>
<td></td>
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</tr>
<tr>
<td>9. Stratifies leases as needed vs desired</td>
<td>9. Obtain stakeholder buy-in for those impacted by a move</td>
<td></td>
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</tr>
<tr>
<td>10. Focus on leases that expire by 12/31/2018 first, then the remainder</td>
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<tr>
<td>11. Define a standard leasing process that includes, for example, approvals needed, required consult with the Real Estate department, rental rate thresholds, use of brokers, etc.</td>
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Facilities Opportunities Identified – Implementation Plan (3 of 4)

An implementation plan based on four clearly defined phases will help guide the path forward.

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<tr>
<td><strong>3. Rationalize Landscaping Scope</strong></td>
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<td><strong>FY 18 Q3</strong></td>
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<tr>
<td>1. Consider needs based on known $265,000 in cuts planned for FY18 under budget reductions</td>
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<tr>
<td>2. Identify campus zones and map individuals / costs to coverage areas</td>
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<tr>
<td>3. Determine areas for service reduction based on 3 service tiers (annual mow, monthly maintenance, botanical garden classification)</td>
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| FY 18 Q3 |
| 1. Obtain stakeholder buy-in for reduction in service plan |
| 2. Determine cost savings and additional effort needed from those remaining on staff |
| 3. Consider 3rd party services for lower-maintenance needs (annual and monthly needs) - follow process noted in other opportunity |

| FY 18 Q3 - FY 18 Q4 |
| 1. Effect cost savings through staff reductions |
| 2. Execute contracts with vendors |
| 3. Identify in-house or 3rd party vendor to quality-check vendors and in-house staff against Service Level Agreements and leading practices |

| FY 19 Q1 - Ongoing |
| 1. Perform quarterly reviews of vendor performance against Service Level Agreements |
| 2. Obtain annual survey reports from stakeholders to promote satisfaction with vendor / in-house performance |

| **4. Monetize Excess and/or Underutilized Real Property Assets** |
| **FY 18 Q2 - FY 18 Q4** |
| 1. Identify use of all owned land parcels and buildings owned by the System and all campuses |
| 2. Stratify portfolio between (a) currently used (b) planned for future use (c) not in use |
| 3. Achieve stakeholder buy-in on how funds from sales will be utilized (e.g., fund space rationalization xx%, research efforts yy%, etc.) |

| FY 19 Q1 |
| 1. Stratify not in use holdings by potential sale date (considering ease of sale, market interest, and potential sales revenue) |
| 2. Obtain appraisals of holdings planned for sale within 9 months (a continual process of appraisal within 9 months of planned sale to avoid stale valuation estimates) |
| 3. Identify potential buyers |
| 4. Create plan for real estate gifts received (e.g. immediate sale, income generating opportunities, incorporate into campus use, etc.) |

| FY 19 Q4 – FY 21 Q1 |
| 1. Obtain appraisals as needed prior to sales |
| 2. Engage potential buyers in discussions |
| 3. Execute sales |
| 4. Fund space rationalization efforts and others as defined in Design stage |

| FY 21 Q1 - Ongoing |
| 1. Review real estate holdings annually for monetization opportunities |
| 2. Perform look-back testing as sales occur to assess accuracy of appraisers |

Timelines are preliminary and will be refined during Design phase, certain investments may be required in order to achieve these milestones.
Facilities Opportunities Identified – Implementation Plan (4 of 4)

An implementation plan based on four clearly defined phases will help guide the path forward

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<td><strong>5. Identify Public-Private Partnership Opportunities</strong></td>
<td>FY 19 Q3 – FY 19 Q3</td>
<td>FY 19 Q4 – FY 20 Q4</td>
<td>Ongoing</td>
</tr>
<tr>
<td>FY 18 Q3 - FY 18 Q4</td>
<td>1. Define public-private partnership opportunities that are of interest to the University by campus (e.g., student housing, parking, dining facilities, retail)</td>
<td>1. Sign contracts with public-private partnership partners and commence design / construction work</td>
<td>1. Maintain and review change management protocols to mitigate business disruption risks</td>
</tr>
<tr>
<td></td>
<td>2. Determine which structuring opportunities are allowed under the University's known legal restrictions and obtain General Counsel buy-in</td>
<td>2. Request proposals from partners and promote RFP process is aligned with University's broader plans / needs</td>
<td>2. Implement quarterly Service Level Agreement assessment to promote public-private partnership partner execution</td>
</tr>
<tr>
<td></td>
<td>3. promote public-private partnership opportunities are aligned with the portfolio’s right sizing plan and University's Master Plans</td>
<td>3. Achieve stakeholder buy-in for identified opportunities</td>
<td>3. Align departmental job descriptions / compensation with public-private partnerships execution to promote quality</td>
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<tr>
<td></td>
<td>4. Prepare models to quantify annual and capital opportunities through various public-private partnership options and substantiate with market information</td>
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| FY 19 Q1 – FY 19 Q3 | FY 19 Q4 – FY 20 Q4 | |
| FY 19 Q4 – FY 20 Q4 | 1. Sign contracts with public-private partnership partners and commence design / construction work | |
| | 2. Request proposals from partners and promote RFP process is aligned with University's broader plans / needs | |
| | 3. Achieve stakeholder buy-in for identified opportunities | |

| FY 19 Q4 | FY 19 Q1 - FY 19 Q2 | FY 19 Q3 - Ongoing |
| FY 19 Q1 - FY 19 Q2 | 1. Implement changes to staffing model based on results of analyses | 1. Annually, assess model and potential for additional efficiencies |
| FY 19 Q3 - Ongoing | | |

**Timelines are preliminary and will be refined during Design phase, certain investments may be required in order to achieve these milestones**
8.2B Finance and Supply Chain Implementation Workplans
Finance Opportunity Roll-out

The following implementation plan will be used to guide our path forward

<table>
<thead>
<tr>
<th>CY2017</th>
<th>CY2018</th>
<th>CY2019</th>
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<tbody>
<tr>
<td>Nov</td>
<td>Dec</td>
<td>Jan</td>
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<tr>
<td></td>
<td></td>
<td>(1) Align Finance Personnel (Operating Model)</td>
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<td></td>
<td>(2&amp;3) Operating Model – Execute Activity Analysis survey</td>
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<td></td>
<td></td>
<td>(4) Drive Broader Financial Accountability</td>
</tr>
<tr>
<td>(2) Consolidate Activities Currently Centralized at the Campus Level (Operating Model)</td>
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<tr>
<td></td>
<td>(3) Identify Opportunities to Consolidate Activities Currently Occurring at the College/Department Level (Operating Model)</td>
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</tr>
<tr>
<td></td>
<td>(4) Drive Broader Financial Accountability</td>
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</tr>
<tr>
<td></td>
<td>(5) Improve Business Insight Reporting &amp; Planning Capabilities (Phase 1)</td>
<td>(5) Improve Business Insight Reporting &amp; Planning Capabilities (Phase 2)</td>
</tr>
<tr>
<td></td>
<td>(6) Further Development of Finance Talent Development Strategy</td>
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</tbody>
</table>

Note: This includes a high-level summary of the opportunities timing and prioritization. Additional details to be defined as a part of the mobilization stage.
Finance Savings Ramp Up

The majority of Finance savings will be implemented by early 2019 (excludes Supply Chain opportunities)

Legend:
- New Savings
- Existing Savings

Note: Annual benefits are net of non-capital investment in capabilities needed
## Finance Implementation Plan (1 of 6)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
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<th>Operate and Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Align Finance Personnel (Operating Model)</strong></td>
<td>• Determine and initiate process to engage stakeholders throughout opportunity execution</td>
<td>• Develop and socialize changes to organizational model which will require alignment and support of academic leadership to maintain campus partnering relationship</td>
<td>• Execute phase 1 implementation plan</td>
</tr>
<tr>
<td>• Review and document Finance structures and resources across all campuses, including reporting lines for existing dedicated Finance resources (e.g., System, campus centralized and college and division fiscal officers) and known resources with Finance accountability (e.g., the Finance leads)</td>
<td>• Develop detailing implementation plan – phase 1 – alignment of existing dedicated resources.</td>
<td>• Execute phase 2 implementation plan</td>
<td>• Solicit feedback on operating model changes</td>
</tr>
<tr>
<td>• Analyze alternative options for aligning Finance personnel while maintaining the balance between accountability at the System to the campuses, colleges, etc.</td>
<td>• Develop implementation plan – phase 2 – alignment of ‘distributed’ resources – must be done in conjunction with alignment of other functional accountabilities (e.g., HR)</td>
<td></td>
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</tr>
<tr>
<td>• Determine future state reporting lines through the Finance function from campus Finance to System</td>
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</tbody>
</table>
## Finance Implementation Plan (2 of 6)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
<th>Implement</th>
<th>Operate and Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Identify Opportunities to Consolidate Activities Currently Centralized at the Campus Level (Operating Model)</td>
<td>• Determine and initiate process to engage stakeholders throughout opportunity execution</td>
<td>• Execute activity analysis survey</td>
<td>• Solicit feedback on operating model changes</td>
</tr>
<tr>
<td></td>
<td>• Define survey participant population, including key demographic information for each participant</td>
<td>• Analyze activity analysis survey results to identify all resources that are supporting Finance and Supply Chain activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Design a multi-function activity analysis survey to determine functional support across the organization</td>
<td>• Evaluate opportunity to consolidate existing campus services across the University</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Accounting Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Business Services, Contracting</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Spans, layers and organizational rationalization within centralized Finance services (e.g., Card process, PO processing, Supplier Registration Process)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Other transactional processes included as part of sponsored research, student services and advancement/giving should be considered concurrently</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• UMAPSS &amp; Supply Chain already a shared service supporting all campuses</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Design process and organizational support for transaction processes (cash disbursements, accounts receivable / debt collection, credit management, customer billing, general accounting, financial and external reporting, management reporting), decision support processes (tax planning, strategy and planning, budgeting and forecasting, business analysis and performance improvement) and specialty services (treasury, internal audit, process controls and compliance and tax accounting and compliance)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Determine best alignment of consolidated and/or shared service capabilities and evaluate the need for new or modified SLAs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Develop a implementation plan for each shared service and Finance and Supply Chain change</td>
<td></td>
</tr>
</tbody>
</table>
### Finance Implementation Plan (3 of 6)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>• Determine and initiate process to engage stakeholders throughout opportunity execution</td>
<td>• Execute activity analysis survey</td>
<td>• Execute implementation plan</td>
<td>• Solicit feedback on operating model changes</td>
</tr>
<tr>
<td>• Define survey participant population, including key demographic information for each participant</td>
<td>• Analyze activity analysis survey results to identify all resources that are supporting Finance and Supply Chain activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Design a multi-function activity analysis survey to determine functional support across the organization</td>
<td>• Evaluate opportunity to move additional transaction processes to a shared service center (e.g., accounting services and processes such as T&amp;E which are done at department level). Evaluate in conjunction with appropriate segregation of duties and necessary service level.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Determine best alignment of consolidated and/or shared service capabilities. All activities performed at the department level should be evaluated to determine if those activities can be performed more effectively and efficiently through another approach (e.g., arranging travel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Design process and organizational support for transaction processes (cash disbursements, accounts receivable / debt collection, credit management, customer billing, general accounting, financial and external reporting, management reporting), decision support processes (tax planning, strategy and planning, budgeting and forecasting, business analysis and performance improvement) and specialty services (treasury, internal audit, process controls and compliance and tax accounting and compliance)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Assess opportunity to align Finance resources within the new operating model by campus to improve quality and consistency of business insight and other capabilities, enable a reduction of FTEs and align more consistently with size and complexity of College / School / Division (e.g. 21 fiscal officers at MU)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Evaluate the need for new or modified service level agreements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Develop a implementation plan for each shared service and Finance and Supply Chain change</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
<th>Implement</th>
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</tr>
</thead>
<tbody>
<tr>
<td>• Determine and initiate process to engage stakeholders throughout opportunity execution</td>
<td>• Determine appropriate responsibility center management approach for the University to include not only spend (including appropriate indirect costs) but revenue (including key metrics/drivers) and margin expectations down to college/school/division level</td>
<td>• Execute implementation plan</td>
<td>• Solicit feedback on all funds budgeting approach and identify ways to further educate and inform the organization on the new approach and reports</td>
</tr>
<tr>
<td></td>
<td>• Determine appropriate approach at the department and faculty level</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• Formalize all funds budgeting approach principles as well as reporting (operating, research, endowment and other specific purpose use funds)</td>
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<tr>
<td></td>
<td>• Develop implementation plan including the revamped budgeting approach</td>
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</tbody>
</table>
Finance Implementation Plan (5 of 6)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
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<th>Implement</th>
<th>Operate and Review</th>
</tr>
</thead>
</table>
| • Determine and initiate process to engage stakeholders throughout opportunity execution  
  • Understand and catalog current state business insight reporting tools, reports inventory and processes  
  • Understand current state strategic, budget and forecast capabilities through workshops and/or interviews  
  • Evaluate current state reports and processes against better practice and identify gaps  
  • Assess current state strategic, budget and forecast capabilities against better practice to determine gaps and identify issues and opportunities for improvement across process, organization, and supporting technology areas | • Conduct report standardization workshops to define and validate report content requirements and validate that existing reporting tools support  
  • Conduct workshops with key business stakeholders to define and achieve consensus on future state planning capabilities. This would need to prioritize System spend and campus investments and also support an operational understanding of financial results. These short and longer term capabilities would need to include Academic, Research and Other  
  • Create reporting standards, including: formatting, defined source systems, frequency, ownership / distribution, and archiving  
  • Develop and finalize standardized reports  
  • Establish processes and technology to sustain report standardization and rationalization improvements  
  • Communicate and conduct training to roll out business insight approach and reports to the organization  
  • As a part of the talent development strategy, work to improve the skills and capabilities of resources supporting business insight roles at the campus level which may result in fewer, higher paid partnering resources  
  • Develop implementation plan (which will likely include a multi-phase approach to meet near and longer term goals) | • Execute implementation plan | • Solicit feedback on processes and technology supporting business insight reporting capabilities  
  • Monitor Key Performance Indicators related to business insight reporting capabilities (e.g. days to forecast, etc.) |
## Finance Implementation Plan (6 of 6)

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
<th>Implement</th>
<th>Operate and Review</th>
</tr>
</thead>
</table>
| • Determine and initiate process to engage stakeholders throughout opportunity execution  
• Perform a high-level skills and training needs assessment to identify resource and training gaps  
• Identify additional talent requirements based on organization realignment | • Develop Finance career paths, including succession plans and identification of career mentors. This will help provide employees with an understanding of career path options and key contacts for career path support  
• Develop job rotation within a campus and across campuses, within a specialized area and between areas (e.g. within transaction processing and between Internal Audit and Fiscal officers)  
• Establish learning and development plans by resource role and level to help promote employees are involved in formalized learning opportunities throughout the year. This should also include in-role training so resources understand expectations for financial accountability, standardized reporting processes, etc.  
• Develop approach to identify and actively manage high performer roles and opportunities  
• Develop implementation plan which includes, the plan to: (1) Hire and retrain workforce based on talent requirements and gaps identified from high-level skills and training needs assessment, (2) Roll out talent changes related to career paths, job rotation programs, training and higher performer management and (3) promote the appropriate resources are in the correct roles and re-align as needed | • Execute implementation plan | • Solicit feedback on talent development capabilities  
• Monitor Key Performance Indicators related to Finance talent (e.g. resignation %, talent group as a % of Finance staff, Learning & Development hours per FTE, etc.) |
Supply Chain Implementation Plan

An implementation plan based on four clearly defined phases will help guide the path forward

<table>
<thead>
<tr>
<th>Design</th>
<th>Construct</th>
<th>Implement</th>
<th>Operate and Review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Support Operating Model Redesign for Non-Labor Spend</strong></td>
<td>FY18 Q2</td>
<td>FY18 Q3</td>
<td>FY19 Q2 - Ongoing</td>
</tr>
<tr>
<td>Perform spend analysis by department</td>
<td>• Informed by the spend analysis, work with outlying departments to develop targeted opportunities for spend reduction (dues and subscriptions, office supplies, etc.)</td>
<td>• Conduct GL training and communication roll out in coordination with the controllers office</td>
<td>• Measure and monitor performance, utilization and services delivered</td>
</tr>
<tr>
<td>Identify outliers by GL expense, &amp; review detail within each area</td>
<td>• Socialize opportunities with leadership and key stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socialize findings with departments</td>
<td></td>
<td>FY18 Q4</td>
<td></td>
</tr>
<tr>
<td>FY18 Q3</td>
<td></td>
<td>FY18 Q4</td>
<td></td>
</tr>
<tr>
<td>FY18 Q4</td>
<td></td>
<td>FY19 Q2 - Ongoing</td>
<td></td>
</tr>
<tr>
<td>FY19 Q2 - Ongoing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **2. Improved Enforcement of Supply Chain Controls** | FY18 Q2 | FY18 Q3 | FY19 Q1 - Ongoing |
| Perform source analysis to determine departmental compliance with Supply Chain processes | • Update policy language to allow Supply Chain to enforce departmental accountability | • Meet with departments to review Supply Chain process and level set expectations of PO / Supply Chain moving forward | • Monitor Confirming Order % and address slippage as needed |
| FY18 Q3 | • Enforce existing PO policies and procedures to ensure department compliance | • Implement controls and approval thresholds to promote confirming orders are captured within normal PO processes | |
| FY18 Q3 – FY18 Q4 | | | |
| FY18 Q4 | | | |
| FY19 Q1 - Ongoing | | | |

| **3. Increase Spend Under Supply Chain Management** | FY18 Q2 | FY18 Q3 | FY19 Q1 - Ongoing |
| Opportunity implementation already underway. Confirm vendors for Show Me Shop incorporation, and identify any additional areas for consideration (ongoing) | • Review Maintenance Repair and Operations (MRO) contracts to determine viability of adding new suppliers or enhancing current contracts. | • Ongoing roll out of vendors on SMS | • Monitor SMS vs P-Card utilization for further insights into key vendors for potential onboarding |
| FY18 Q3 | • Gain alignment on centralization of contract management for business services at S&T, UMKC, UMSL in cooperation with MU Finance | | |
| FY18 Q3 – FY18 Q4 | | | |
| FY18 Q4 | | | |
| FY19 Q1 - Ongoing | | | |

| **4. Enhance Contract Review Process** | FY18 Q2 | FY18 Q3 | FY19 Q1 - Ongoing |
| Create performance metric standards | • Utilize advanced analytics (e.g. Primrose, et al) to identify significant spend reduction opportunities | • Implement business review process and score cards based on predetermined metrics for major vendors | • Continue to identify areas for strategic contracts and contract collaboration that meet department needs, provide cost savings and bring forth value. |
| FY18 Q3 | • Identify areas for tactical / corporate contracting | | |
| FY18 Q4 | • Establish performance metrics for contracts | | |
8.2C Human Resources Implementation Workplan
Typically, an HR Transformation can take two to three years; the journey begins with aligning institutional leaders on UM’s “people strategy” and a common delivery model for HR services.

**Establish HR strategy and build the foundation**
- Obtain buy-in from institutional leaders on people strategy
- Employment Value Proposition (“EVP”) and human capital opportunities
- Gain alignment on HR scope of services and service delivery model (re-align and re-allocate resources as needed)
- Standardize HR processes to enable an effective service delivery model and drive efficiencies, where possible
- Establish strategy for optimizing usage of HR technology (e.g., HRIS, digital, cloud, automation, etc.)
- Clarify HR roles & responsibilities / refine HR processes
- Define and deploy employee engagement strategies and tools (e.g., annual survey)

**Optimize HR to drive people-oriented culture**
- Redesign HR reporting lines, roles and responsibilities
- Develop and implement strategic workforce planning capability and talent acquisition / onboarding process that promotes the right talent in the right roles at the right time
- Implement technology solutions to drive greater efficiency / effectiveness and access to real-time, actionable data
- Establish feedback loop between the business / HR

**Continuously seek and gain organizational buy-in and live the Employment Value Proposition**
- Strategic partnership between the business and HR – shared accountability for talent outcomes and cultural transformation
- Utilize data to drive strategic planning and decision making
- Robust pipeline of internal / external candidates
The bulk of the HR opportunities are achievable by the end of 2019, however more than half of the savings potential for rationalizing health benefits won't be realized until the end of the following year.

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 HR Transformation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2 Total Rewards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Administrative Assistant Realignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Year Savings (Low)</td>
<td>$2.2M</td>
<td>$20.8M</td>
<td>$20.8M</td>
</tr>
</tbody>
</table>
HR Savings Ramp Up

HR’s full savings will be realized in 2020 to allow for changes to employee benefits.

Legend:
- New Savings
- Existing Savings

Note: Annual savings are net of non-capital investments.

Full savings ramp up anticipated to achieve 100% by CY 2019 Q4

Calendar Year

Millions

$0 $5 $10 $15 $20 $25

Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

2017 2018 2019 2020

$20.8M
8.2D IT Implementation Workplan
IT Implementation Plan

After projects are approved, this plan will be revised to balance resources and adjusted for dependencies.

Calendar Year

<table>
<thead>
<tr>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct - Dec</td>
<td>Jan - Mar</td>
<td>Apr - Jun</td>
<td>Jul - Sep</td>
</tr>
<tr>
<td>1 Governance and Operating Model</td>
<td>2 IT Spend Governance</td>
<td>3 Rationalize Distributed IT Desktop / Support Services</td>
<td>4 Consolidate Web Hosting Platforms</td>
</tr>
<tr>
<td>5 Increase App Development/Support ROI Requirements</td>
<td>6 Reduce Innotas Licensing</td>
<td></td>
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</tbody>
</table>

- Design Phase
- Construct Phase
- Implement Phase
- Operate and Review Phase
IT Savings Ramp Up

IT’s full savings will be realized in 2020

Full savings ramp up anticipated to achieve 100% by CY 2020 Q3

Note: Annual investments are net of non-capital investments
An implementation plan based on four clearly defined phases will help guide the path forward.

### 1. Governance and Operating Model

**FY18 Q3 – FY19 Q1**
1. Define goals for the project. Create program charter. Align incentives. Assign executives to champion the program.
2. Prepare process maps, identify processes that provide competitive advantage or address a unique requirement.
3. Map servers to applications, identify capacity needed to host servers, plan migration groups, plan staff roles.
4. Inspect phone system and plan maintenance or upgrade for call volume. Plan call routing.
5. Identify Level 1 and Level 2 skills, call flow and dispatch processes.

**FY19 Q2 - FY20 Q1**
1. Install target servicing image. Configure the image with common processes.
2. Install common applications. Plan sunsetting of applications.
3. Install seed equipment for migration.
4. Update HD procedures, stage phone system changes.

**FY20 Q2 - FY20 Q4**
1. Move new student servicing image and supporting applications into production.
2. Stage cutover to new system and processes by campus.
3. Migrate servers by group.
4. Begin call routing to central HD by campus.

**FY21 Q1**
1. Use metrics and feedback to adjust processes.
2. Maintain an incident database and track resolution of incidents.
3. Create a problem database and start a problem management/root cause elimination quality process.

### 2. IT Spend Governance

**FY18 Q3**
Devise and implement gating process and begin communicating process.

**FY18 Q4**
Implement gating process for IT purchases.

**FY19 Q1**
Establish purchasing review board Inject IT thought leadership and review in budgeting process.

**FY19 Q2**
Monitor transactions with IT vendors to validate effectiveness of gating process.

**Note:** Prioritization, resourcing and dependency mapping will be done before project schedules can be approved.

IT Support is needed to complete opportunities from other work streams. These projects will need to be added to this list for prioritization and planning.
## IT Implementation Planning Steps (2 of 2)

An implementation plan based on four clearly defined phases will help guide the path forward.

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</thead>
<tbody>
<tr>
<td><strong>3. Rationalize Distributed IT Desktop / Support Services</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>FY18 Q3</strong></td>
<td><strong>FY18 Q4</strong></td>
<td><strong>FY19 Q1</strong></td>
<td><strong>FY19 Q2</strong></td>
</tr>
<tr>
<td>1. Review distributed team's workload and determine potential rebalancing</td>
<td>1. Communicate changes</td>
<td>1. Measure and monitor performance, utilization and services being delivered through the new operating model</td>
<td>1. Measure and monitor performance, utilization and services being delivered through the new operating model</td>
</tr>
<tr>
<td>2. Inform business units on changes in IT support</td>
<td>2. Staffing Changes</td>
<td>2. Make changes if needed based on utilization and performance of teams</td>
<td>2. Make changes if needed based on utilization and performance of teams</td>
</tr>
<tr>
<td>3. Identify actions to be taken</td>
<td></td>
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</tbody>
</table>

| **4. Consolidate Web Hosting Platforms** | | | |
| **FY18 Q3** | **FY18 Q4** | **FY19 Q1** | **FY19 Q2** |
| 1. Get approval and buy-in for the business case to adopt a central platform for web hosting strategy | Begin implementation as per project plan | 1. Monitor progress, remediate risks and engage stakeholders regularly to remove obstacles to project plan | Continue to consolidate web platforms and reduce roles across other campuses and departments |
| 2. Create and review implementation project plan with key stakeholders and align on implementation timeline and milestones | | 2. Reduce roles that were previously engaged in managing different web hosting platforms across departments and campuses | |

| **5. Increase App Development/Support ROI Requirements** | | | |
| **FY18 Q3** | **FY18 Q4** | **FY19 Q1** | **FY19 Q2** |
| Create IT intake governance process and publish to organization | 1. Revise pipeline | 1. Manage pipeline | 1. Manage pipeline |

| **6. Reduce Innotas Licensing** | N/A | N/A | N/A |
| Currently Implementing | | | |

**Note:** Prioritization, resourcing and dependency mapping will be done before project schedules can be approved. IT Support is needed to complete opportunities from other work streams. These projects will need to be added to this list for prioritization and planning.
Stakeholders Engaged in Process

Over seventy stakeholders have contributed to this engagement

<table>
<thead>
<tr>
<th>Engagement Leadership &amp; Communication (18)</th>
<th>Facilities (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Catlynn Adkins</td>
<td>• Beth Asbury</td>
</tr>
<tr>
<td>• Gary Allen</td>
<td>• Pete Millier</td>
</tr>
<tr>
<td>• Ashley Berg</td>
<td>• Jeff Brown</td>
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<tr>
<td>• Alex Cartwright</td>
<td>• John Haynes</td>
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<tr>
<td>• Catlynn Adkins</td>
<td>• Mike Sokof</td>
</tr>
<tr>
<td>• Mun Choi</td>
<td>• Kevin Hogg</td>
</tr>
<tr>
<td>• Chrissy Kintner</td>
<td>• Steve Wild</td>
</tr>
<tr>
<td>• David Russell</td>
<td>• Carly Wrisinger</td>
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<tr>
<td>• Garnett Stokes</td>
<td>• Jerry Wyckoff</td>
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<tr>
<td>• Gary Ward</td>
<td></td>
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<tr>
<td>• Kelly Wiemann</td>
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<table>
<thead>
<tr>
<th>Finance (10)</th>
<th>Human Resources (9)</th>
<th>Faculty and Staff Representatives (9)</th>
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</thead>
<tbody>
<tr>
<td>• Rick Baniak</td>
<td>• Jessica Baker</td>
<td>• Melanie Barger</td>
</tr>
<tr>
<td>• Karla Dowd</td>
<td>• Allen Johanning</td>
<td>• Elizabeth Beal</td>
</tr>
<tr>
<td>• Tracy Greenup</td>
<td>• Tonya Loucks</td>
<td>• Sean Brown</td>
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<tr>
<td>• Ed Knollmeyer</td>
<td>• Amy McKenzie</td>
<td>• David Fannin</td>
</tr>
<tr>
<td>• Sharon Lindenbaum</td>
<td>• Mackenzie Moorefield</td>
<td>• Jean Kirch-Holliday</td>
</tr>
<tr>
<td>• Todd Mackley</td>
<td>• Greg Nelson</td>
<td>• Mark McIntosh</td>
</tr>
<tr>
<td>• Michelle Piranio</td>
<td>• Jatha Sadowski</td>
<td>• Sahra Sedighsurvestani</td>
</tr>
<tr>
<td>• Cuba Plain</td>
<td>• Derek Smith</td>
<td>• Pamela Stuerke</td>
</tr>
<tr>
<td>• Thomas Richards</td>
<td>• Carol Wilson</td>
<td>• Alan Tolgo</td>
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</table>

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<tr>
<th>Information Technology (12)</th>
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<th>Supply Chain (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Kevin Bailey</td>
<td>• Brandon Hough</td>
<td>• Jennifer Alexander</td>
</tr>
<tr>
<td>• Aaron Berlin</td>
<td>• Kirk Keller</td>
<td>• Kristin Meade</td>
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<td>• Jason Lockwood</td>
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<td>• Rusty Crawford</td>
<td>• Nikki Witting</td>
<td>• Heather Reed</td>
</tr>
<tr>
<td>• Hala Dawood</td>
<td>•</td>
<td>• Marcy Maddox</td>
</tr>
<tr>
<td>• Megan Hartz</td>
<td></td>
<td>• Teresa Vest</td>
</tr>
</tbody>
</table>

Note: Many stakeholders engaged with multiple workstreams over the course of this assessment
Scoring Matrix Methodology

**Scoring Guiding Questions**

**A) Complexity**

- **A1)** How many different actions need to be taken in order to implement this opportunity?
  - Few, relatively simple workplan
  - Some, but relatively contained within functional area
  - Multi-step, significant dependencies that will need to be coordinated and across different business units

- **A2)** Are the decisions regarding implementation contained largely within each functional area and campus, or will buy-in from a larger stakeholder group be required, including 3rd parties?
  - Yes, at full discretion with the functional area leads
  - Requires informed / consult from other leaders, but limited to no involvement with 3rd parties
  - Requires buy-in from multiple leaders who may have concerns over opportunity and/or involves action steps from 3rd parties

**B) Investments**

- Are there technology or other financial investments that need to be made to enable implementation and realize the full savings goal?
  - No, no investments will be required to achieve opportunity
  - Yes, some investment, but within norms of reasonable budget requests
  - Yes, significant investment required, need sponsoring executive and Finance dept.

- What personnel or other “soft” investments including staff time will need to be made in order to achieve the benefits of this opportunity?
  - No additional investments identified
  - Yes, soft investments will be required, but fall within normal operating norms
  - Yes, significant investment required, including the hiring of new FTEs / positions or implementing new capabilities

**C) Impact to Stakeholders**

- What classification of stakeholders are being impacted?
  - No impact to employees or other stakeholders
  - Changes to the way work is done, but not fundamentally disruptive
  - Significant risk of negative impact to identified stakeholders

- Is the overall perceived impact to stakeholders negative or positive?
  - Extremely Positive
  - Neutral
  - Extremely Negative

**Inputs to scoring matrix**

1) **Bubble Size - Overall Expected Net Benefit to the University** -- This should incorporate all financial savings or increases in revenues less costs associated with implementation.

2) **X-Axis - Time in Years** -- Taken to achieve full savings (indicated by when the full run rate of savings has been achieved). Select between 1, 2 or 3 years to implement. Measure time in the length of time needed to achieve full implementation, not as a measure from today.

3) **Y-Axis - Risk to Implementation** -- This measure has subcomponents that will need to be individually scored on a 1 to 5 scale. 1 carrying the lowest risk and 5 the highest. The following subcomponents should be discussed and scored independently.

---

**Sample – instructive purposes only**

<table>
<thead>
<tr>
<th>Scoring matrix</th>
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<tbody>
<tr>
<td></td>
<td>“Balance Risk &amp; Reward”</td>
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<td>“Careful consideration”</td>
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<td>“Quick wins”</td>
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<td>“Implement over time”</td>
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Recommended Action - Election of Board of Curators Chairperson, 2018

Upon the motion of Curator ___________, Curator ___________ was nominated to serve as Chairperson of the Board of Curators for the term January 1, 2018 through December 31, 2018. The nomination was seconded by Curator ___________.

Roll call vote: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ____________.

December 7-8, 2017

OPEN – GB – 2-1
No. 3

Recommended Action - Election of Board of Curators Vice Chairperson, 2018

Upon the motion of Curator ___________, Curator ___________ was nominated to serve as Vice Chairperson of the Board of Curators for the term January 1, 2018 through December 31, 2018. The nomination was seconded by Curator ___________.

Roll call vote: YES NO
Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ____________.

December 7-8, 2017

OPEN – GB – 3-1
GOOD AND WELFARE OF THE BOARD

There are no materials for this information item.
Recommended Action - Adjourn Public Session of the Board of Curators Meeting, December 7-8, 2017

It was moved by Curator _________ and seconded by Curator __________, that the public session of the Board of Curators meeting, December 7-8, 2017, be adjourned.

Roll call vote: YES NO

Curator Brncic
Curator Chatman
Curator Farmer
Curator Graham
Curator Layman
Curator Phillips
Curator Snowden
Curator Steelman
Curator Sundvold

The motion ________________.

Time: ________________________     Date: ________________________

December 7-8, 2017

OPEN – GB – 4-1