

**Status on FY 2004 Research Funding
at the University of Missouri**

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Executive Summary

This report highlights research funding at the University of Missouri using data provided by the National Science Foundation (NSF). More specifically, it examines research funding at the public AAU institutions and at the four campuses of the University of Missouri.

Data used in this study are from fiscal year 2004. Although more recent data are available for the University of Missouri, this is the most recent data available for all public AAU institutions. References to the “University of Missouri” or the “University” refer to the four-campus system. In this report trends in research funding have been examined from at least five years up to and including FY 2004.

The key findings include:

Federal Research Expenditures

Total federal research expenditures at the University of Missouri have increased 50% since FY 2000. This compares to an average increase of 51% at the public AAU institutions. (Table 1)

Overall, the market share for the University of Missouri among the public AAU institutions has not changed, showing a slight decrease from 1.57 in FY 2000 to 1.56 in FY 2004. (Table 2)

In terms of federal research expenditures, the University of Missouri placed 27th among the 34 public AAU institutions in FY 2004. This is an improvement over its FY 2000 position (28th). (Table 3).

In FY 2004, life sciences was the discipline where most of the public AAU universities made the highest percentage of their federal research expenditures. UM-Columbia spent 75% of its federal research expenditures in life sciences. (Table 4)

Industry-Sponsored Research Expenditures

Organization

The report has been organized into the following sections:

Section I:	Federal Research Expenditures (Tables 1–5 and Figure 1)
Section II:	Research Expenditures from Industry (Table 6 and Figure 2)
Section III:	Research Expenditures by Source of Funds (Table 7)
Section IV:	Definitions and Technical Notes

SECTION I FEDERAL RESEARCH EXPENDITURES

The federal research expenditures reported in this section include expenditures classified as science and engineering research and development (R&D) funds. When trend data are examined, increases or decreases in funding are noted from various fiscal years as early as 1995 to 2004. In addition, a definition of *federal research expenditures* is provided in Section IV: Definitions and Technical Notes.

Federal Flow-Through Expenditures

Beginning in FY 1996, federal research expenditures for the University of Missouri include federal flow-through expenditures. Originating from a federal agency, these expenditures have been awarded to industry, state agencies in Missouri, foundations, or another college or university and then passed on to the University of Missouri. The University has typically classified these expenditures based on the intermediary (i.e., industry, etc.). In FY 1996, however, the University of Missouri began classifying these expenditures based on their original source, the federal government. Consequently, the increase in federal research expenditures in fiscal years 1996 to 2004 for the University of Missouri can be partially attributed to this NSF-accepted classification method.

Please note that annual totals in research expenditures for FY 1996 and FY 1997 were retroactively changed in 1999. Consequently, these revised totals will not match previously published figures for these two fiscal years.

Table 1:

Public AAU Institutions: Trends in Federal Expenditures for Science and Engineering R&D

Table 1 shows the trend in federal research expenditures for the public AAU institutions and the four campuses of the University of Missouri. Percentage increases in funds are displayed for fiscal year 2000.

Total federal research expenditures at the University of Missouri have increased 50% since FY 2000. This compares to an average increase of 51% at the public AAU institutions.

Since FY 2000, UM-Kansas City federal research expenditures had a 110% increase and UM-Rolla increased their original 106%.

Table 1. Trends in Federal Expenditures for Science and Engineering R&D at Public AAU Institutions for FY 1995, FY 2000-2004

Institution	(\$ in thousands)						change since FY00
	FY95	FY00	FY01	FY02	FY03	FY04	
Ohio State U.	122,660	132,219	161,092	177,883	198,488	284,675	115%
U. of Nebraska (all campuses)	50,272	60,161	69,232	82,728	96,627	115,833	93%
U. of Florida	79,361	120,374	139,744	167,108	194,958	221,898	84%
U. of Pittsburgh	144,487	228,155	268,571	306,913	345,625	394,444	73%
U. of California-Irvine	69,655	88,274	101,735	115,548	133,873	150,995	71%
U. of California-Los Angeles	201,773	274,162	312,858	366,762	421,174	461,145	68%
Rutgers, State U. of New Jersey	72,567	79,711	77,156	91,205	106,060	128,655	61%
U. of Washington	291,284	389,622	435,103	487,059	565,602	625,218	60%
U. of Virginia	85,244	119,243	122,868	152,358	173,442	188,121	58%
Purdue U.	93,256	92,010	98,151	107,477	129,199	144,090	57%
U. of California-Davis	122,645	141,740	154,937	176,644	208,327	221,937	57%
U. of North Carolina-Chapel Hill	156,626	194,794	221,615	254,571	280,678	304,204	56%
U. of Wisconsin-Madison	229,381	278,629	304,009	345,003	396,231	434,423	56%
Indiana U.	86,041	107,577	116,781	132,759	153,625	166,913	55%
Pennsylvania State U.	187,481	226,074	245,951	284,706	301,094	347,996	54%
Iowa State U.	58,766	59,976	62,024	71,419	82,297	92,235	54%
U. of Arizona	168,791	187,161	199,484	211,772	259,074	283,956	52%
U. at Buffalo, SUNY	75,713	96,410	96,595	128,842	129,794	143,865	49%
U. of Iowa	103,115	140,764	155,249	180,743	197,260	209,865	49%
U. of Kansas	42,209	68,950	74,494	82,663	90,876	101,920	48%
Michigan State U.	77,499	97,112	112,359	122,595	133,820	143,473	48%
U. of Michigan	275,956	364,033	396,117	444,255	516,818	521,339	43%
U. of California-San Diego	284,445	326,037	343,276	359,383	400,100	465,629	43%
U. of Illinois-Urbana/Champaign	139,078	193,490	195,316	214,323	266,487	275,896	43%
U. of Oregon	23,789	30,793	32,232	37,177	36,127	43,634	42%
U. of Colorado (all campuses)	169,666	300,394	308,643	340,466	377,941	414,986	38%
U. of Minnesota (all campuses)	194,819	229,958	264,289	295,301	293,266	308,369	34%
U. of Maryland-College Park	94,071	136,605	145,515	194,095	183,206	180,943	32%
U. of Texas-Austin	143,939	178,889	195,184	219,158	231,996	235,281	32%
U. of California-Berkeley	157,826	208,338	208,080	217,297	238,206	268,830	29%
Stony Brook U., SUNY	76,505	96,641	93,265	108,122	112,452	123,124	27%
Texas A&M U.	136,734	149,639	149,382	163,488	177,119	173,705	16%
U. of California-Santa Barbara	63,443	80,754	76,828	78,370	88,422	92,248	14%
Public AAU Institution Average*	129,670	166,021	179,943	203,582	227,887	250,601	51%
University of Missouri:**							
Columbia	32,420	65,420	68,435	77,742	84,211	90,304	38%
Kansas City	4,506	7,490	8,176	10,795	14,232	15,696	110%
Rolla	5,834	9,804	11,929	15,749	18,142	20,218	106%
St Louis	2,840	4,523	4,321	4,755	4,978	4,618	2%
University Total	45,600	87,237	92,861	109,041	121,563	130,836	50%

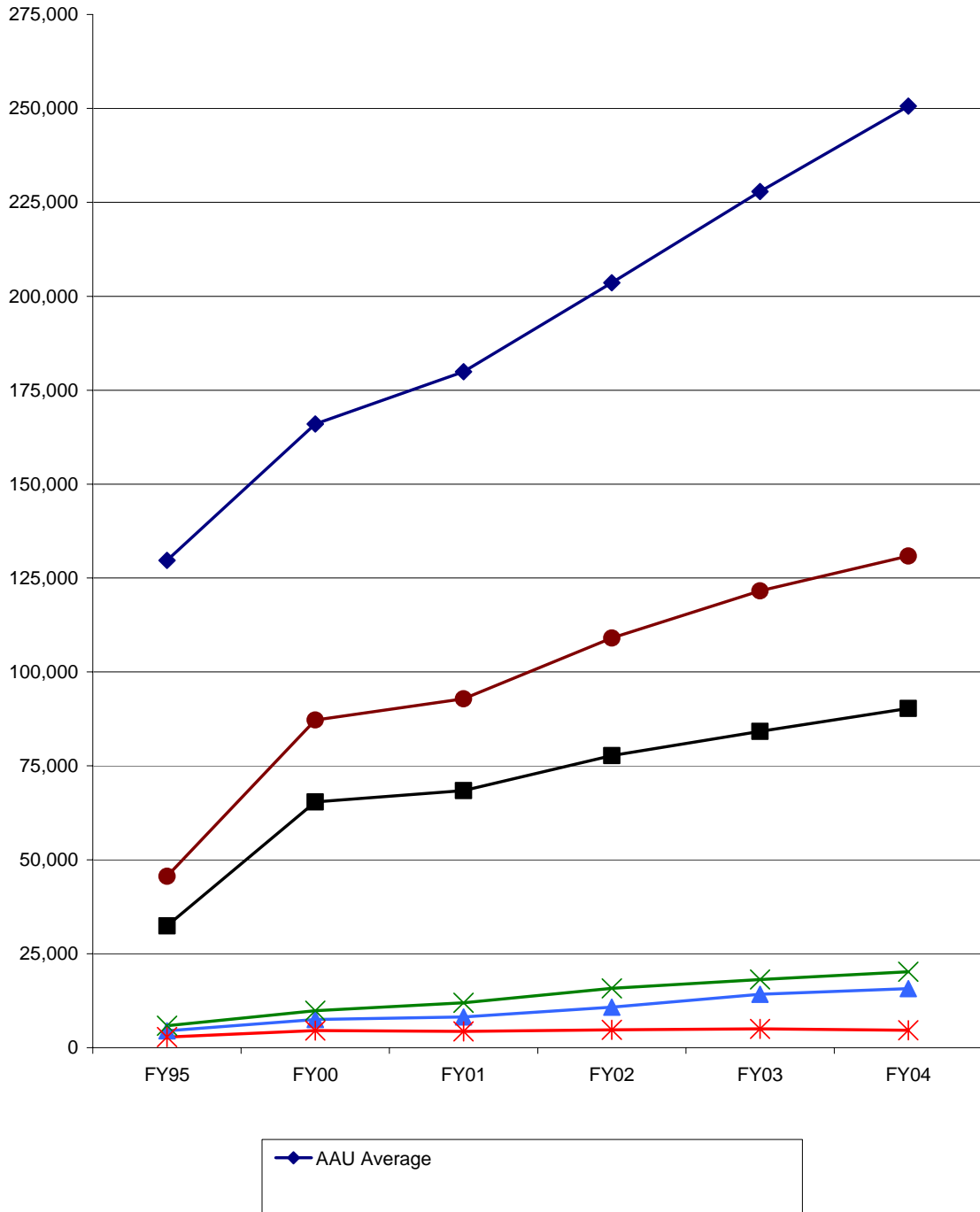
Source: National Science Foundation/Division of Science Resources Statistics, Academic Research & Development Expenditures, FY 2004, Table 24

*AAU average excludes University of Missouri-Columbia

**Federal flow-through funds are included in the University of Missouri figures beginning in FY 1996

If comparing data from this table with previous published tables, please notice that Texas A&M University and SUNY at Stony Brook were new members of the AAU with the 2000 data and are included for the first time that year.

Figure 1. Trends in Federal Expenditures for Science and Engineering R & D at Public AAU Institutions for FY 1995, FY 2000-2004 (\$ in thousands)



***Table 2:
Public AAU Institutions: Market Share Increases and Decreases in Federal Expenditures for Science
and Engineering R&D***

An alternative approach to understanding how well the University of Missouri has "competed" with other public AAU institutions is to examine the market share of each institution over time. That is, of the total federal research expenditures secured by the public AAU institutions in a given year, what percentage of that total has each institution secured? How has that institution's market share shifted from year to year? One advantage of market share analysis is that it helps to level the playing field among major and less-than-major players who compete for research dollars. In Table 2, the market share of federal research expenditures has been calculated for the public AAU institutions in fiscal years 2000 through 2004.

Overall, the market share for the University of Missouri among the public AAU institutions has not changed, showing a slight decrease from 1.57% in FY 2000 to 1.56% in FY 2004.

Most notable since FY 2000, UM-Columbia market share amongst other public AAU institutions decreased from 1.18% to 1.08%, while UM-Rolla increased from 0.18% to 0.24%.

Institution	Market		Market		Market		Market		Market		Market Share +/- since FY00
	\$	Share	\$	Share	\$	Share	\$	Share	\$	Share	
Ohio State U.	132,219	2.38	161,092	2.67	177,883	2.61	198,488	2.60	284,675	3.39	1.01
U. of Pittsburgh	228,155	4.10	268,571	4.45	306,913	4.50	345,625	4.52	394,444	4.70	0.60
U. of California-Los Angeles	274,162	4.93	312,858	5.19	366,762	5.37	421,174	5.51	461,145	5.49	0.56
U. of Florida	120,374	2.16	139,744	2.32	167,108	2.45	194,958	2.55	221,898	2.64	0.48
U. of Washington	389,622	7.00	435,103	7.21	487,059	7.13	565,602	7.40	625,218	7.44	0.44
U. of Nebraska (all campuses)	60,161	1.08	69,232	1.15	82,728	1.21	96,627	1.26	115,833	1.38	0.30

***Table 3:
Public AAU Institutions: The University of Missouri's Rank in Federal Expenditures for Science and Engineering R&D***

Table 3 ranks the public AAU institutions in terms of federal research dollars secured in fiscal years 2000 and 2004.

The University of Missouri placed 27th among the 34 public AAU institutions in FY 2004. This is an improvement over its FY 2000 position (28th).

Between FY 2000 and FY 2004, UM-Columbia dropped in its public AAU ranking from 31st to 33rd.

FY 2000			FY 2004		
Rank	Institution	\$	Rank	Institution	\$
1	U. of Washington	389,622	1	U. of Washington	625,218
2	U. of Michigan	364,033	2	U. of Michigan	521,339
3	U. of California-San Diego	326,037	3	U. of California-San Diego	465,629
4	U. of Colorado (all campuses)	300,394	4	U. of California-Los Angeles	461,145
5	U. of Wisconsin-Madison	278,629	5	U. of Wisconsin-Madison	434,423
6	U. of California-Los Angeles	274,162	6	U. of Colorado (all campuses)	414,986
7	U. of Minnesota (all campuses)	229,958	7	U. of Pittsburgh	394,444
8	U. of Pittsburgh	228,155	8	Pennsylvania State U.	347,996
9	Pennsylvania State U.	226,074	9	U. of Minnesota (all camp	(a21T27.9(S)7(rg)37(ani)6.2(433((9447(at)15)0 T

***Table 4:
Public AAU Institutions: Distribution of Federal Expenditures for R&D by Science and Engineering Field***

Table 4 displays the federal research expenditures by discipline area for the University of Missouri and other public AAU institutions.

In FY 2004, the average federal research funds expended by public AAU institutions were in the life sciences (57%) followed by engineering (15%), the physical sciences (11%) and environmental sciences (6%).

UM-Columbia federal research expenditures for FY 2004 were largely spent in life sciences (75%), followed by engineering (7%), and social sciences (6%).

Institution	Engi- neering	Physical	Environ- mental	Math & computer	Life sciences	Psy- chology	Social Sciences	Sciences Nec	Total (\$ in thousands)
U. of Washington	9	5	11	1	68	1	4	0	625,218
U. of Michigan	22	5	1	1	59	2	10	0	521,339
U. of California-San Diego	8	7	17	15	51	1	1	0	465,629
U. of California-Los Angeles	9	9	3	4	72	2	2	0	461,145
U. of Wisconsin-Madison	14	8	10	3	55	5	5	0	434,423
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***Table 5:
Public AAU Institutions: Market Share of Federal Research Expenditures by Science and Engineering
Discipline Area***

Table 5 displays each public AAU institution's market share within the eight discipline areas.

Market share leaders in each discipline area were: Pennsylvania State University in engineering (11.3%), the University of California-Berkeley in the physical sciences (8.6%), the University of California-San Diego in environmental sciences (15.3%), University of Illinois-Urbana/Champaign in math and computer science (17.5%), the University of Washington in life sciences (9.0%), University Wisconsin-Madison in psychology (11.2%), University of Michigan in the social sciences (15.5%) and University of Pittsburg in other sciences (22.9%).

UM-Columbia's most notable market shares for FY 2004 are in the fields of psychology (2.4%), social sciences (1.6%), and life sciences (1.4%).

Institution	Engi- neering	Physical	Environ- mental	Math & computer	Life sciences	Psy- chology	Social Sciences	Other sciences	Total (\$ in thousands)
U. of Washington	4.9	3.6	13.8	1.1	9.0	4.1	7.7	0.0	625,218
U. of Michigan	9.5	3.0	0.9	1.6	6.5	4.7	15.5	0.1	521,339
U. of California-San Diego	3.2	3.6	15.3	15.2	5.0	2.9	1.4	0.0	465,629
U. of California-Los Angeles	3.3	4.9	2.4	3.8	7.0	4.4	2.3	5.7	461,145
U. of Wisconsin-Madison	5.0	4.1	8.3	3.0	5.0	11.2	6.1	0.0	434,423
U. of Colorado (all campuses)	2.3	5.9	15.3	2.0	4.8	4.2	2.5	3.8	414,986
U. of Pittsburgh	1.1	2.0	0.1	1.0	7.2	3.4	1.2	22.9	394,444
Pennsylvania State U.	11.3	4.8	4.3	7.0	1.9	5.8	3.1	4.1	347,996
U. of Minnesota (all campuses)	2.4	2.2	1.4	3.2	4.7	4.3	2.5	0.0	308,369
U. of North Carolina-Chapel Hill	0.0	1.8	2.5	1.6	5.0	2.6	7.5	0.0	304,204
Ohio State U.	4.0	2.4	1.4	2.5	3.5	2.4	7.3	3.5	284,675
U. of Arizona	2.6	8.4	1.4	1.9	3.2	1.4	2.8	0.0	283,956
U. of Illinois-Urbana/Champaign	5.7	4.0	3.2	17.5	1.2	4.3	1.9	5.8	275,896
U. of California-Berkell	80.0036	11.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

SECTION II

RESEARCH EXPENDITURES FROM INDUSTRY

Table 6:
Public AAU Institutions: Trends in Industry-Sponsored Expenditures for Science and Engineering R&D

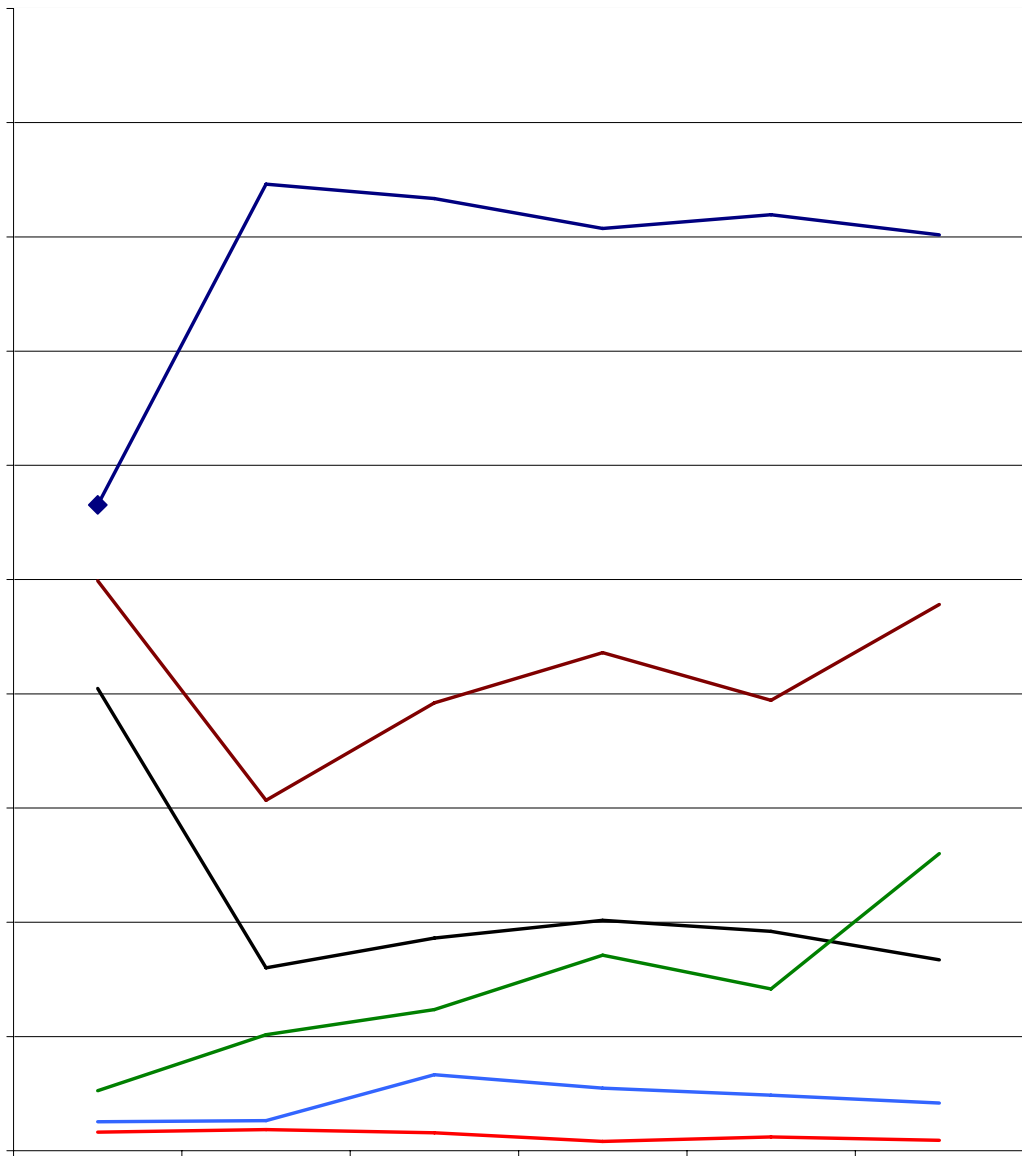
Table 6 shows the growth in industry-sponsored research expenditures for the public AAU institutions from fiscal years 1995 to 2004 and the gain or loss from FY 1995 and FY 2000. The institutions are arranged in descending order based on gain or loss since FY 2000. Please note that a definition of *industry-sponsored research expenditures* is provided in Section III: Definitions and Technical Notes.

Total industry-sponsored research expenditures at the University of Missouri have increased 56% since FY 2000. This compares to an average decrease of 5% at the public AAU institutions.

Since FY 2000, UM-Rolla industry-sponsored research expenditures had a 156% increase and UM-St. Louis decreased by 50%.

Institution	FY95	FY00	FY01	FY02	FY03	FY04	change since FY00
U. of Maryland-College Park	25,431	1,028	7,315	5,078	8,060	9,188	794%
U. of Oregon	391	237	155	68	247	549	132%
U. of California-Santa Barbara	2,576	5,499	6,001	10,482	13,550	12,286	123%
U. at Buffalo, SUNY	13,390	5,590	11,598	12,726	10,575	10,363	85%
Indiana U.	5,815	5,384	6,375	5,312	8,079	7,939	47%
U. of California-Davis	8,053	17,891	16,989	20,754	22,688	24,248	36%
Pennsylvania State U.	50,225	64,393	67,658	67,131	77,660	85,570	33%
U. of Arizona	15,300	22,412	22,934	23,104	31,079	29,571	32%
Purdue U.	25,147	29,997	29,765	29,614	34,720	37,908	26%
U. of Nebraska (all campuses)	7,048	11,552	11,840	13,982	14,314	13,471	17%
U. of Wisconsin-Madison	12,948	16,127	17,237	16,746	15,918	17,911	11%
U. of Texas-Austin	3,257	24,740	30,310	26,114	32,174	27,176	10%
Rutgers, State U. of New Jersey	7,797	8,843	10,965	11,772	10,821	9,665	9%
U. of Colorado (all campuses)	7,607	9,291	9,002	11,822	10,239	10,018	8%
U. of Illinois-Urbana/Champaign	11,832	12,693	10,992	11,796	13,253	13,128	3%
Texas A&M U.	31,452	31,084	35,110	33,300	27,006	32,094	3%
Iowa State U.	8,017	15,075	13,177	16,047	14,384	15,056	0%
U. of North Carolina-Chapel Hill	2,403	6,835	6,971	6,601	6,551	6,543	-4%
U. of Michigan	28,987	35,515	34,439	33,252	36,087	32,215	-9%
U. of California-San Diego	11,363	34,541	36,845	32,299	28,868	31,028	-10%
U. of California-Los Angeles	14,892	33,427	32,539	31,686	30,425	27,656	-17%
U. of Minnesota (all campuses)	23,427	26,392	26,454	26,572	24,152	21,832	-17%
U. of California-Berkeley	13,842	27,851	26,791	24,999	22,460	22,833	-18%
U. of Iowa	11,359	17,262	21,394	19,169	20,954	14,075	-18%
U. of Washington	36,892	57,405	43,312	46,702	48,222	46,531	-19%
Michigan State U.	7,853	11,230	10,953	11,458	11,307	8,628	-23%
Ohio State U.	21,827	57,075	54,736	51,135	45,957	42,763	-25%
U. of California-Irvine	9,139	18,615	15,803	14,261	11,101	13,391	-23,391

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Section III

RESEARCH EXPENDITURES BY SOURCE OF FUNDS

Universities have sources, other than federal agencies, for funding research operations. These sources include funds from state & local agencies, business & industry, funds that are provided by the institution itself and other funding sources.

Table 7:
Public AAU Institutions: Total Expenditures for Science and Engineering R&D by Source of Funds

Table 7 shows the sources of research expenditures for the public AAU institutions. The institutions are arranged in descending order, based on the institution's percentage of research funds that are provided by the federal government.

For FY 2004, the largest portion of average public AAU institution research expenditures were federal (59%), followed by institutional (23%).

The majority of University of Missouri research expenditures in FY 2004 came from federal (44%) and institutional (43%) sources.

Overall, the University of Missouri funds a higher percentage of its research programs with institutional funds than almost all of the other public institutions.

Institution	Federal Gov't	State & Local	Industry	Institutional*	Other	Total (\$ in thousands)
U. of California-Los Angeles	60%	3%	4%	18%	16%	772,569
U. of Michigan	68%	2%	4%	20%	6%	769,126
U. of Wisconsin-Madison	57%	5%	2%	28%	9%	763,875
U. of Washington	88%	1%	7%	2%	2%	713,976
U. of California-San Diego	66%	3%	4%	16%	11%	708,690
Pennsylvania State U.	58%	9%	14%	18%	0%	600,139
U. of California-B.	87%	6%	3%	2%	2%	876,875

