



UNIVERSITY OF
SOUTH DAKOTA
OFFICE OF RESEARCH AND
SPONSORED PROGRAMS

GRANTS AND CONTRACTS



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**FY2011 ANNUAL REPORT ON
EXTERNALLY SPONSORED PROJECTS**

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Executive Summary

Awards

The University of South Dakota (USD) received 206 awards in FY11, worth a total of \$38,151,936. Both the number of awards and the dollar total are all-time records. The average award size was somewhat over \$185,000. Approximately 5% of FY11 awards were made with ARRA (“stimulus”) money.

The College of Arts & Sciences received just over \$9.0 million in awards in FY11, more than double its total in FY07. Grant dollars were highest in the hard sciences (Biology, \$2.5 million; Chemistry \$2.1 million; Physics, \$3.4 million) although the number of awards was equal between the hard and social sciences, at 32 in each area. The humanities are primarily represented by awards in English, thanks to activity in the Dakota Writing Project.

The Division of Basic Biomedical Sciences led the Sanford School of Medicine in awards with \$11.38 million, including an award of over \$5 million for the South Dakota Biomedical Research Infrastructure Network. The Center for Disabilities has also been active, with 12 awards worth a total of \$2 million. The Sanford School of Medicine overall had \$15.3 million in awards, up from \$13.9 million in FY10. While this is less than the total of awards in FY07, the reduction is largely attributable to the reorganization of the School of Health Sciences and Sanford Research/USD.

The School of Education has grown extensively, with \$4.7 million in awards in FY11, up from \$2.9 million in FY10. This was headlined by continued grants from the Bush Foundation for teacher quality, a large Department of Education award for reading recovery, and continued activity in Head Start. The Beacom School of Business continued to grow its grant activity, with just under \$3 million in awards, primarily but not exclusively to the Small Business Development Center.

Other divisions in the University maintained their levels of activity. The Graduate School remained constant at about \$0.7 million in awards. The College of Fine Arts had funding levels approximately equal to previous years, although increased proposal activity suggests that the future may see growth.

Research projects provided the majority of awarded dollars (58%, \$22.2 million) and are the second most numerous type of award (37%, 76 awards total). The average size of awards in research projects increased slightly to \$292,705 in FY11 from \$268,246 in FY10. Public service projects were the most numerous type of award (84 awards, 41%), although the smaller dollar amounts associated with this type of project resulted in a total award amount of only \$8.4 million (22% of all awarded dollars).

Federal sponsors accounted for the vast majority of USD’s external funding, at \$28 million or 78% of all dollars awarded. While this technically represented a decline in Federal funding from FY10 (\$31 million; 87%), comparisons are complicated by the three-year Department of Labor grant to Nursing, for which all funds were awarded in one year. State funding, after a year of relatively low award amounts in FY10 (\$2.2 million, 6%), rebounded to account for \$6.5 million or 17% of the total. Private/industry sources provided approximately the same amount from FY10 to FY11. While still a relatively small portion of

USD's overall grant portfolio, nonprofit sources grew by 76% from FY10 to FY11 and these relationships should be fostered to maintain and grow this support.

Of the Federal sources of funding, the Department of Health & Human Services (DHHS, which includes the National Institutes of Health) continued to provide the lion's share with 44% of awards and 56% of dollars in FY11. The amount of awarded dollars from DHHS has been rebounding after the restructuring of Sanford Research/USD. Of the other "big science" agencies, NASA showed a clear trend of increased awards to USD, rising steadily from \$13,608 in FY07 to \$501,713 in FY11. Other agencies such as NSF, Defense and Energy had significant increases in the last two to three years but it is too soon to see if this will be a continuing trend.

Proposals

The University of South Dakota submitted 325 proposals in FY11, a decrease from the highs of FY09 (354 proposals) and FY10 (356) but continuing the long-term trend of proposal growth since 1998. Similarly, the total dollar request, \$146,344,989, represented a considerable decline from the FY10 peak of \$185,791,013.

The number of proposals to Federal sponsors was down sharply, although this was balanced in part by an increase in the number of proposals to nonprofit sponsors. Federal sponsors still accounted for 74% of all proposed dollars in FY11. Of the Federal sponsors, DHHS was by far the most popular source of funding, with 86 proposals submitted worth approximately \$70 million.

Conclusion

USD has enjoyed a productive year with a record amount of awarded grants. The proposals for future years of funding were fewer this past year than the previous two years. Many of the reasons for decreased proposal activity can be attributed to factors outside the University, primarily the economic downturn and belt-tightening among sponsors. Many departments (Chemistry, Physics, Biology, English, Basic Biomedical Sciences) across campus have maintained or increased their successful grantsmanship, while others have the opportunity for growth in sponsored activities.

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Abbreviations and Acronyms

- ARRA: American Recovery and Reinvestment Act of 2009 (“Stimulus”)
- CUBED: Center for Underground Background Experiments at DUSEL
- DHHS: US Department of Health & Human Services
- DOD: US Department of Defense
- DOE: US Department of Energy
- F&A: Facilities & Administration
- FY: Fiscal Year, measured from July 1 to June 30
- INBRE: IDeA Network of Biomedical Research Excellence
- NASA: National Aeronautic and Space Administration
- NIH: National Institutes of Health
- NSF: National Science Foundation
- SD BRIN: South Dakota Biomedical Research Infrastructure Network
- USD: The University of South Dakota
- USDA: US Department of Agriculture

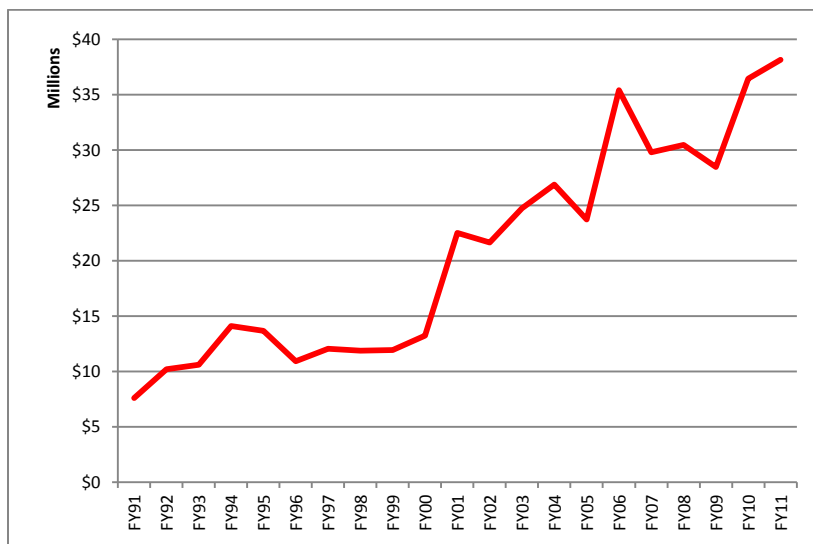
Awards

The University of South Dakota (USD) received 206 awards in FY11, worth a total of \$38,151,936. Both the number of awards and the dollar total are all-time records. The average award size was somewhat over \$185,000. This represents a smaller average award size compared to FY10 (~\$193,000), reflecting both the pursuit of smaller opportunities and cuts in awards from major sponsors such as the National Science Foundation (NSF) and National Institutes of Health (NIH).

Awards are reported by the fiscal year (July 1 to June 30) in which the official notice of award is received by the Office of Research & Sponsored Programs. Peaks and valleys in the receipt of awards are due to a number of factors, including faculty activity and the mismatch between the University fiscal year and the fiscal year of sponsors, primarily the US Government.

ARRA (“stimulus”) funds were a significant portion of USD awards in FY09 through FY11, comprising approximately 5% of awards in FY11. Stimulus funds are largely spent out at the Federal level, so the impact of these funds can be expected to drop off over the next one or two University fiscal years. Nevertheless, the overall trend (as seen below in Figure 1) is impressive, with total awards tripling in the last 10 years.

Figure 1: Total Awards by Fiscal Year



The awards chart also illuminates important details. USD experienced the fastest growth in awards during the period FY01-FY06. This corresponded to a period of rapid growth in budgets at the major Federal funding agencies such as NIH¹ and NSF². It should be noted that the rate of growth has been declining since approximately FY08, which should be interpreted as both increased competition for sponsor dollars and also the result of structural factors at USD. These factors include the restructuring of the Sanford School of Medicine and the basic fact that USD has a small faculty population with a resulting finite capacity for research activities. However, since FY06 USD continued to grow its awards

¹ [http://officeofbudget.od.nih.gov/pdfs/FY12/Mechanis Detail, Total NIH, FY 1983 - 2010.pdf](http://officeofbudget.od.nih.gov/pdfs/FY12/Mechanis%20Detail,%20Total%20NIH,%20FY%201983%20-%202010.pdf)

² http://dellweb.bfa.nsf.gov/nsffundhist_files/frame.htm

at a greater rate than the growth in the budgets of the funding agencies, indicating that the University has become more competitive on the national stage.

By college/school

Credit for the increase in awarded dollars can be shared across the University (see Table 1 below) as almost every unit has seen improvement. The one major exception is Health Sciences, which had an exceptional year in FY10 with a \$5 million grant from the US Department of Labor for nursing education.

Table 1: Five Year History of Awarded Dollars by School and College

College/School	FY07	FY08	FY09	FY10	FY11
Arts & Sciences	4,223,251	4,922,439	8,425,939	8,571,332	9,028,935
Administration	5,922,659	1,850,371	1,574,765	3,151,042	5,228,044
Business	1,629,249	1,461,317	1,442,062	1,991,131	2,979,297
Education	1,799,078	2,209,302	1,976,403	2,920,094	4,723,863
Fine Arts		750	500	1,500	1,500
Grad School		396,345	763,013	674,044	619,638
Health Sciences		185,214	314,841	5,585,611	209,454
Law	24,000	50,000	48,025		
Libraries					14,000
Medicine	16,230,173	16,588,509	13,910,765	13,536,929	15,347,204
Grand Total	29,828,410	27,664,247	28,456,312	36,431,683	38,151,935

In general, the number of awards is a less informative metric than the dollar amount awarded because of the wide range in the value of individual awards. Most units showed an increase in the number of awards, with the standout being the Business School with almost twice as many awards in FY11 as in FY10, primarily but not exclusively due to increased activity in the Small Business Development Center.

Table 2: Five Year History of Number of Awards by School and College

College/School	FY07	FY08	FY09	FY10	FY11
Arts & Sciences	38	50	57	60	69
Administration	12	16	15	22	31
Business	19	15	16	12	22
Education	17	12	22	17	22
Fine Arts		1	1	1	1
Grad School		5	7	4	4
Health Sciences		4	8	13	5
Law	1	1	1		
Libraries					1
Medicine	70	72	62	58	51
Grand Total	157	176	189	187	206

By department

College of Arts & Sciences. The College of Arts & Sciences continues its trend of increasing awards, as seen below in Table 3, both in terms of number of awards and awarded dollars, buoyed largely by successes in Biology and Physics.

Table 3: Five Year History of Awards by Department, College of Arts & Sciences

Department	FY07		FY08		FY09		FY10		FY11	
	Dollars	#	Dollars	#	Dollars	#	Dollars	#	Dollars	#
Anthropology	71,452	3	\$ 130,000	2						
Biology	1,574,324	9	1,393,718	9	816,973	15	1,711,236	13	2,499,759	15
Chemistry	1,789,081	5	2,008,248	10	2,314,670	7	3,731,817	10	2,104,414	8
Communication Sciences & Disorders	123,261	1	280,557	4	2,560	1	252,498	3	154,776	2
Computer Science	259,104	1	511,336	1	608,114	3	267,408	1	126,122	1
Criminal Justice			296,826	2						
Earth Sciences	103,755	2			50,761	1	11,111	1	23,500	1
English	46,500	2	48,000	1	52,500	4	46,000	1	53,700	5
Government Research Bureau			30,886	6	253,566	11	529,579	15	360,704	8
History			885	1			52,972	2		
Languages Linguistics & Philosophy	17,600	1								
Mathematics	5,700	2	5,830	1	13,500	2	100,766	3		
Native Studies	8,940	1					409,000	1		
Physics	60,000	1	101,876	3	3,496,425	4	886,828	5	3,426,208	7
Political Science			51,559	5	15,207	1			56,121	7
Psychology	163,534	10	62,718	5	801,663	9	572,118	5	223,631	15
Total	4,223,251	36	4,922,439	49	8,425,939	56	8,571,332	60	9,028,935	69

Grantsmanship in Arts & Sciences is evenly split between the hard sciences (biology, chemistry, computer science, earth science, physics) and the social sciences (communication disorders, political science, psychology, and the Government Research Bureau) with 32 awards in each area in FY11. Awards tend to have a larger dollar figure in the hard sciences, reflecting the higher “cost of business” in these areas. Several of the social sciences and humanities did not have award activity in FY2011, suggesting that these are areas where USD could still foster growth.

Sanford School of Medicine. The Division of Basic Biomedical Sciences led the Sanford School of Medicine (and indeed, the University as a whole) in awards with over \$11 million in new and renewed funds, as seen below in Table 4. These awards were headlined by the continuation of the SD BRIN (INBRE) project and the Center of Excellence in Minority Health Disparities grant, itself the continuation of the former Project EXPORT.

Table 4: Five Year History of Awards by Department, Sanford School of Medicine

Department	FY07		FY08		FY09		FY10		FY11	
	Dollars	#	Dollars	#	Dollars	#	Dollars	#	Dollars	#
Alcohol & Drug Abuse Studies*	109,853	5	46,992	1						
Basic Biomedical Sciences	7,970,119	20	8,758,056	21	7,197,449	29	8,002,760	22	11,382,262	27
Center for Disabilities	3,143,554	25	1,863,260	31	2,932,983	22	2,467,808	25	2,044,363	12
Continuing Medical Education	599,000	1								
Family Medicine	355,765	6	152,635	4	32,010	1	372,016	1	1,114,620	2
Internal Medicine			118,445	2	44,477	1	13,168	1		
Laboratory Medicine	315,000	1	381,000	1	394,000	1	648,000	2	551,480	2
Medical Administration			1,991,890	4			57,348	2	41,875	2
Neurology			60,000	1						
Nursing*	107,673	1								
Obstetrics/Gynecology	134,311	2			30,000	1			35,645	1
Pediatrics							211,460	2	5,000	2
Physician Assistant*	97,701	1								
Sanford Research	3,204,897	4	2,776,815	3	2,953,983	3	1,602,842	3		
Surgery	192,300	4	184,132	4	325,863	4	161,528	3	171,959	3
Total	16,230,173	70	16,333,224	72	13,910,765	62	13,536,930	58	15,347,204	51

* Now administered in the School of Health Sciences

All in all, the Sanford School of Medicine has been rebounding from the restructuring of Sanford Research/USD and the School of Health Sciences. The fact that awarded dollars have been increasing even as the number of awards has been decreasing can be seen in both a positive light (USD researchers are being successful at large projects) and a negative light (increasing dependence on just a couple of large projects).

Other Schools. As seen above in Table 2, the Beacom School of Business has shown growth in the number and amount of awards over the last several years, primarily due to activities in the Small Business Development Center. Similarly, the School of Education had a significant increase in awards from FY10 to FY11. Notable projects in the School of Education include the Partnership for Teacher Education with the Bush Foundation and the Reading Recovery initiative from the US Department of Education (via Ohio State University). The award history for the School of Health Sciences is skewed by the three-year nursing education project, which was funded in its entirety in FY10 from ARRA money. This aside, the School of Health Sciences, the College of Fine Arts and the Graduate School maintain their historical pace of awards.

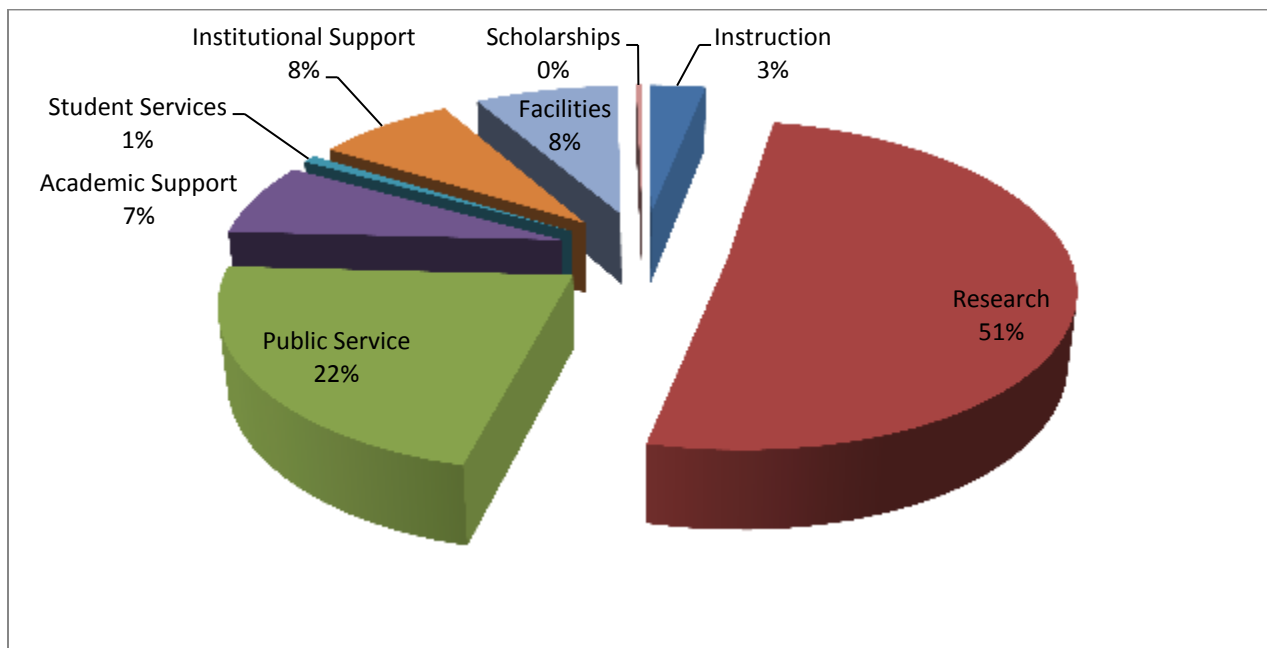
By type of project

Research projects continued to provide (Table 5 and Figure 2, below) the majority of awarded dollars (58%, \$22.2 million) and are the second most numerous type of award (37%, 76 awards total). This is a significant increase from FY10 in terms of the amount of awarded dollars (FY10: \$19.3 million). The average size of awards in research projects increased slightly to \$292,705 in FY11 from \$268,246 in FY10. Public service projects were the most numerous type of award (84 awards, 41%), although the smaller dollar amounts associated with this type of project resulted in a total award amount of only \$8.4 million (22% of all awarded dollars). This is a small decrease from FY10 when public service projects represented 28% of awarded dollars at just over \$10 million. The most notable increase is in the Facilities project type, due to four awards from the Board of Regents for energy efficiency upgrades.

Table 5: Awarded Dollars by Project Type, FY11

Project Type	Total Dollars Awarded	#
Instruction	1,186,184	16
Research	22,245,606	76
Public Service	8,414,295	84
Academic Support	2,785,058	6
Student Services	293,504	14
Institutional Support	35,000	1
Facilities	3,061,100	4
Scholarships	131,189	5
Total	38,151,936	206

Figure 2: Percentage Distribution of Awarded Dollars by Project Type, FY11



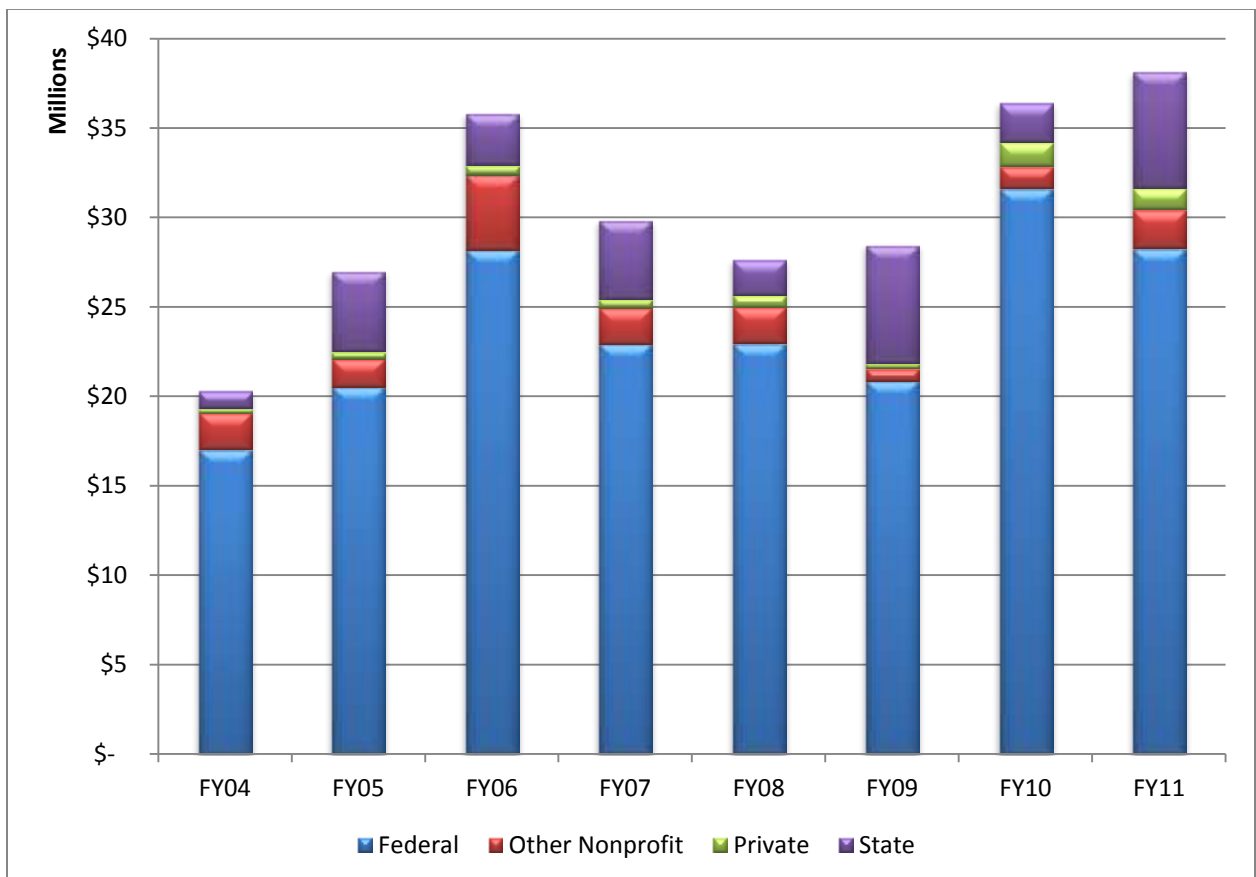
By funding source

Federal sources comprise the majority of USD’s external funding (below, Table 6 and Figure 3). Because Federal grants tend to be much larger, this dominance is especially pronounced when looking at the dollar amount. The role of state funds increased dramatically compared to FY10 in part due to the receipt of the CUBED grant in Physics; this multi-year award was granted in FY09 and FY11 but skipped FY10. Private and Nonprofit sources have grown substantially since FY09, from just less than \$1 million (3.4% of all awarded dollars) to over \$3.3 million (9% of all awarded dollars). This can be attributed in large part to the successful partnership with the Bush Foundation, although it should be noted that nonprofits were a significant portion of awards in the period prior to FY09.

Table 6: Awards by Source of Funds, FY11

Source Type	Total Dollars		Number	
Federal	28,286,245	74%	109	53%
State	6,492,840	17%	52	25%
Other Nonprofit	2,189,580	6%	35	17%
Private	1,183,271	3%	10	5%
Total	38,151,936		206	

Figure 3: Awarded Dollars by Source of Funds, FY04-FY11

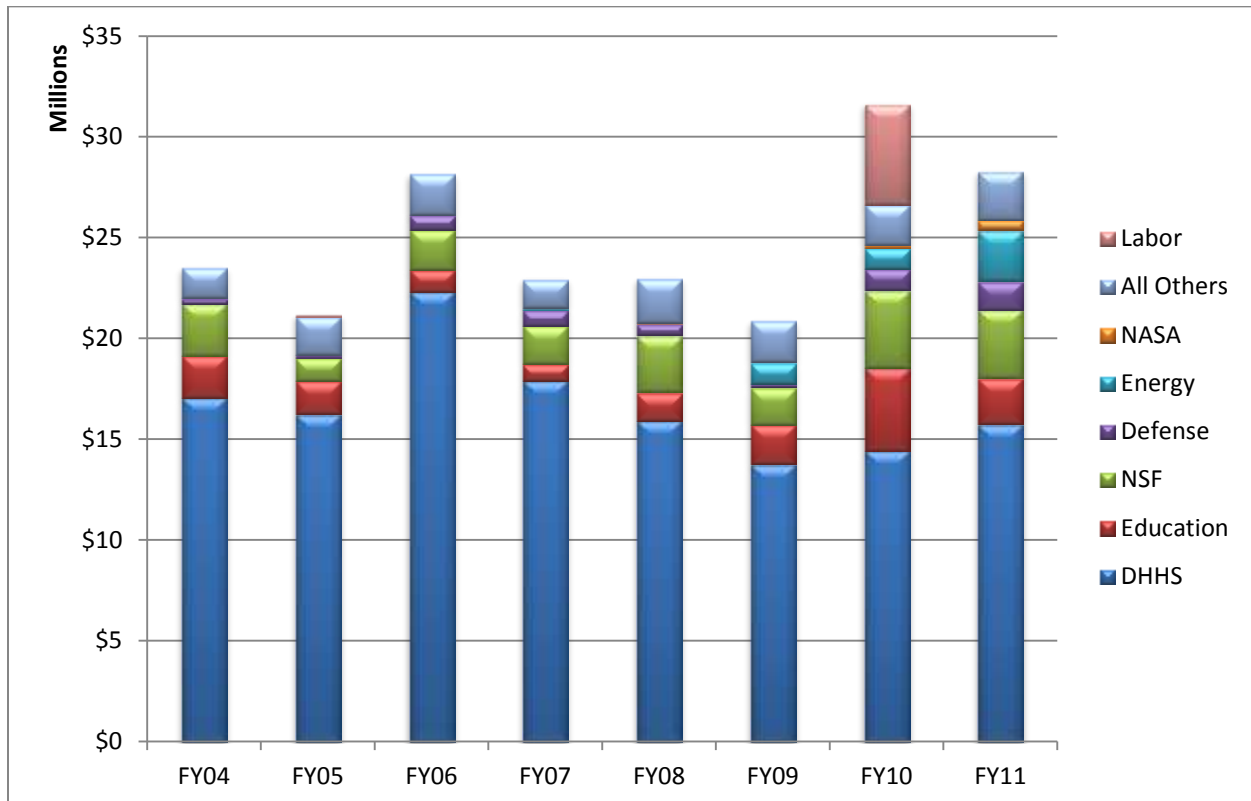


Of the Federal sources of funding, the Department of Health & Human Services (DHHS, which includes the NIH) continued to provide the lion’s share with 44% of awards and 56% of dollars in FY11 (Table 7 and Figure 4, below). The amount of awarded dollars from DHHS has been rebounding after the restructuring of Sanford Research/USD. Of the other “big science” agencies, NASA showed a clear trend of increased awards to USD, rising steadily from \$13,608 in FY07 to \$501,713 in FY11. Other agencies such as NSF, Defense and Energy had significant increases in the last two to three years but it is too soon to see if this will be a continuing trend.

Table 7: Awarded Dollars by Federal Agency, FY11

Federal Agency	Total Dollars	#
DHHS	15,737,868	48
Education	2,292,525	13
NSF	3,395,756	13
Defense	1,403,915	6
Energy	2,547,648	2
NASA	501,713	3
Labor	8,610	1
All Others	2,398,210	23
Total	28,286,245	109

Figure 4: Awards by Federal Agency, FY04-FY11



Overall, USD continues to diversify its Federal sources of funding while increasing the value of awards from each agency. The historical chart (Figure 4) suggests that Federal dollars decreased from FY10 to FY11, but this is entirely due to the single, one-time large grant from Labor. If Labor had awarded these funds over the three years of the project, as is the usual practice by Federal agencies, the trend of growth in Federal awards would be clearer. Other Federal awards increased from FY09 to FY11 at a scale parallel to the growth of awards overall.

Proposals

The University of South Dakota submitted 325 proposals in FY11, a decrease from the highs of FY09 (354 proposals) and FY10 (356) but continuing the long-term trend of proposal growth since 1998. Similarly, the total dollar request, \$146,344,989, represented a considerable decline from the FY10 peak of \$185,791,013.

By college/school

As expected, the research-intensive College of Arts & Sciences and Sanford School of Medicine led the University in both the number and dollar request of proposals in FY11 (below, Table 8). Collectively, these two units comprised approximately two-thirds of the proposals submitted and over 60% of the dollars requested. Compared to FY10, this represents a small decrease in the role of Arts & Sciences and Medicine as other schools increased their proposal activity. Administrative units submitted about the same proportion of proposals (10%) but requested a significantly smaller portion of the dollars (16% in FY11 as opposed to 22% in FY10). The Graduate School and the School of Education had small decreases in line with that of the University as a whole. The School of Health Sciences had a noticeable decline, slipping from 22 proposals worth over \$6 million to 12 proposals worth just under \$1.8 million. Significant increases in proposal activity were seen in Business, which nearly doubled both the number of proposals and the dollars requested; the Law School, with four proposals compared to one in FY10; and the College of Fine Arts, with nine proposals.

Table 8: History of Proposals by College/School, FY07-FY11

College/ School	FY07		FY08		FY09		FY10		FY11	
	Dollars	#	Dollars	#	Dollars	#	Dollars	#	Dollars	#
Arts & Sciences	15,802,269	85	20,770,703	92	34,225,439	125	42,064,619	123	31,596,169	104
Admin- istration	5,831,520	14	1,655,902	15	6,585,995	20	39,522,666	36	24,160,487	35
Business	1,998,385	22	1,770,357	18	3,727,684	16	2,010,189	13	5,757,797	26
Education	1,946,905	19	2,465,858	19	3,401,747	26	11,415,924	27	10,606,707	20
Fine Arts	66,156	3	750	1	18,300	2	1,500	1	407,811	9
Graduate School			1,428,254	11	4,690,796	10	6,095,272	10	5,564,779	12
Health Sciences			812,062	9	2,979,175	13	6,280,878	22	1,794,341	7
Law	24,000	1	61,665	1	661,648	2	61,700	1	778,179	4
Library							14,000	1		
Medicine	39,894,733	157	31,249,854	147	125,625,487	140	78,322,763	122	65,678,719	108
TOTAL	65,563,968	301	60,215,405	313	181,916,271	354	185,789,511	356	146,344,989	325

By type of project

Research projects continued to dominate the portfolio of sponsored programs, both in terms of the number of proposals and the dollars requested (Figure 5 and Table 9, below). Just over half (52%) of the proposals submitted in FY11 were classified as research, down slightly from 56% in FY10. Overall, the

blend of project types approximated the historical trend, with changes of less than 5% in any type from FY10 to FY11.

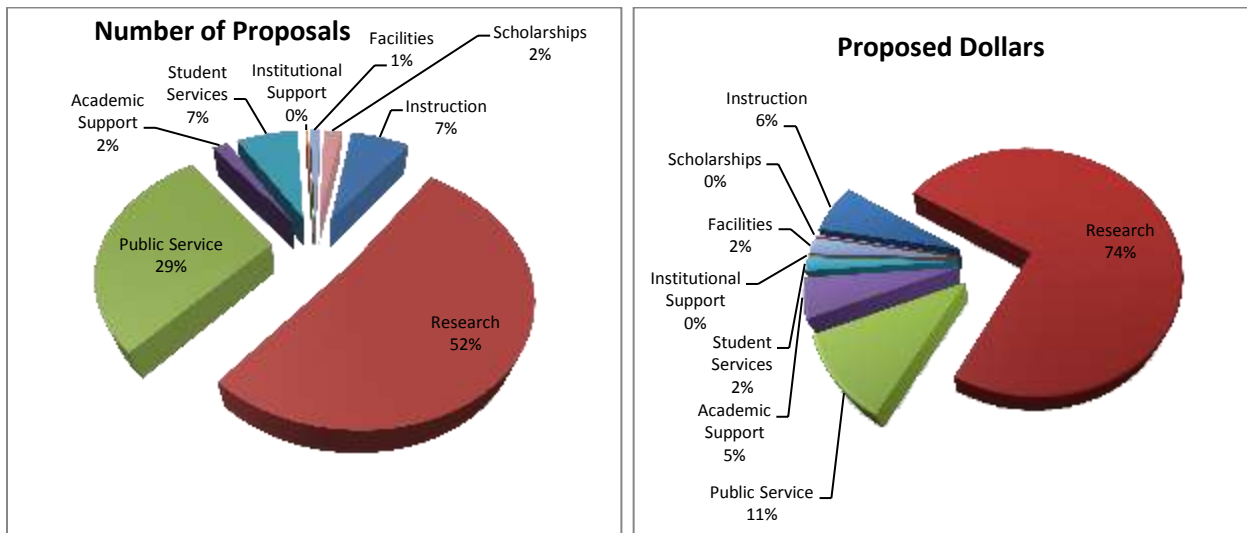
Because research projects tend to have the largest budgets, 74% of proposed dollars were for research. This is a notable decrease from FY10 when approximately 82% of requested dollars were for research. The decrease in the number of research dollars requested is a function of both fewer research proposals submitted (161 in FY11 as opposed to 198 in FY10) and smaller budget amounts requested for these proposals. Research proposals had an average request of \$770,000 in FY10 and only \$602,000 in FY11.

Other project types were mixed. Academic support decreased while remaining well above the 10-year average. Instruction jumped significantly from FY10 to FY11, from about 2% of dollars requested to over 6%; this reverses the long-term declining trend from over 11% in FY00. Other project types are within the range of previous years.

Table 9: Proposals by Type, FY11

Project Type	Total Dollars	Number
Instruction	9,297,197	6.4% 23
Research	108,068,358	67.4% 167
Public Service	15,772,010	10.2% 93
Academic Support	7,364,751	5.1% 6
Student Services	2,459,621	1.6% 24
Institutional Support	35,000	6.8% 1
Facilities	3,061,100	2.1% 4
Scholarships	286,950	0.2% 7

Figure 5: Proposals by Type of Project, FY11

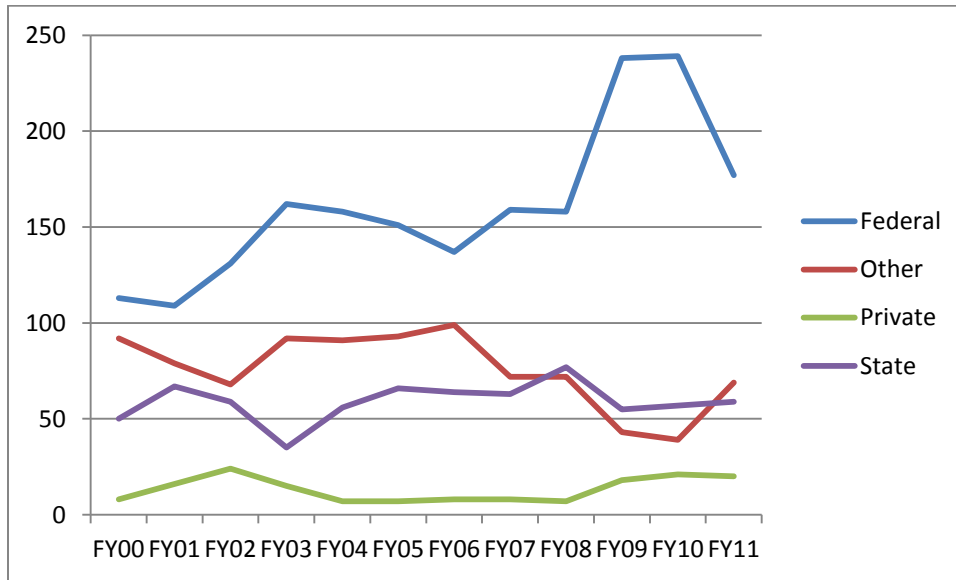


By funding source

Federal sources are, as usual, the primary source of funding for sponsored projects at USD. The number of Federal proposals dropped significantly from FY10 to FY11, from 239 to 177. Fortunately, much of the

shortfall was recovered by an increase in the number of proposals to other nonprofits (foundations), which jumped from 39 proposals in FY10 to 69 in FY11. The number of proposals to private industry and to state agencies has been constant for the last three years. Figure 6 below shows that Federal and Other (foundation) proposals have had a mirror relationship for the last several years—when the number of proposals to one sponsor type increases, the number to the other decreases. This suggests that faculty are seeking alternative sources of funding when Federal sources are unavailable.

Figure 6: Number of Proposals by Sponsor Type, FY00-FY11



The downside of this strategy of seeking alternatives to Federal sources is that Federal grants tend to be much larger than those of the other sponsor types. Thus, while the number of proposals overall dropped by only about 9% (356 to 325) the dollars requested dropped by 22%, from \$185.8 million to \$146.3 million. Looking at the sponsor types individually highlights the impact of the decrease in Federal proposals. Dollars requested from Federal sponsors fell from \$177.2 million in FY10 to \$114.4 million in FY11, a decline of over 35%. In contrast, dollars requested of all other sponsor types increased. State agencies increased from \$4 million to \$11.3 million; private sources increased from \$1.4 million to \$8.3 million; and other non-profit organizations increased from \$3.1 million to \$12.3 million. Such high levels are not typical, particularly for proposals to private industry. It remains to be seen whether these levels can be maintained in future years. Certainly, keeping state, private, and other sources at high request levels while returning Federal requests to a high amount would be the best strategy for continuing USD’s growth in proposals. A further downside to the use of other sponsor types to cover for decreased grant activity from Federal sources is that non-Federal sponsors also tend to sharply limit or even disallow charging for indirect costs, thus reducing the University’s ability to make strategic investments.

Figure 7 below illustrates the dominance of Federal proposals, even with the reduced number of proposals in FY11.

Figure 7: Proposed Dollars by Funding Source, FY11

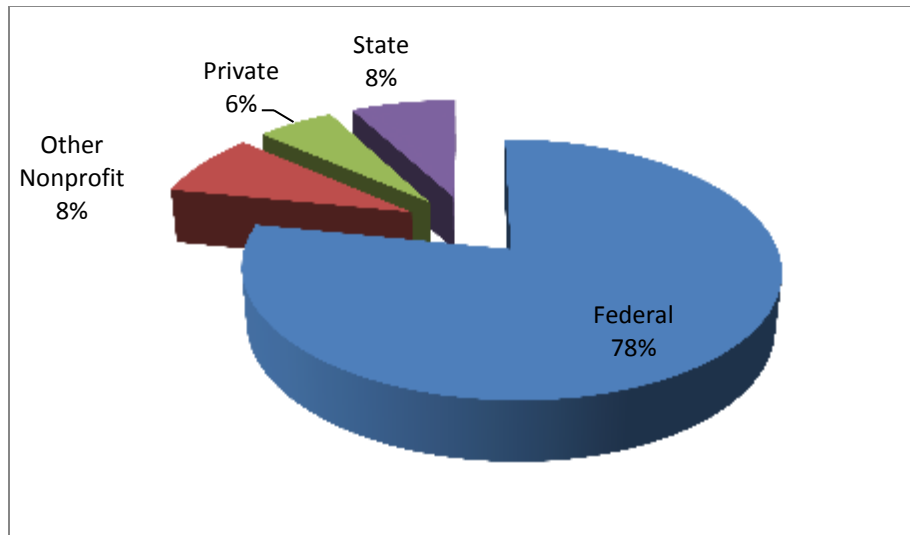
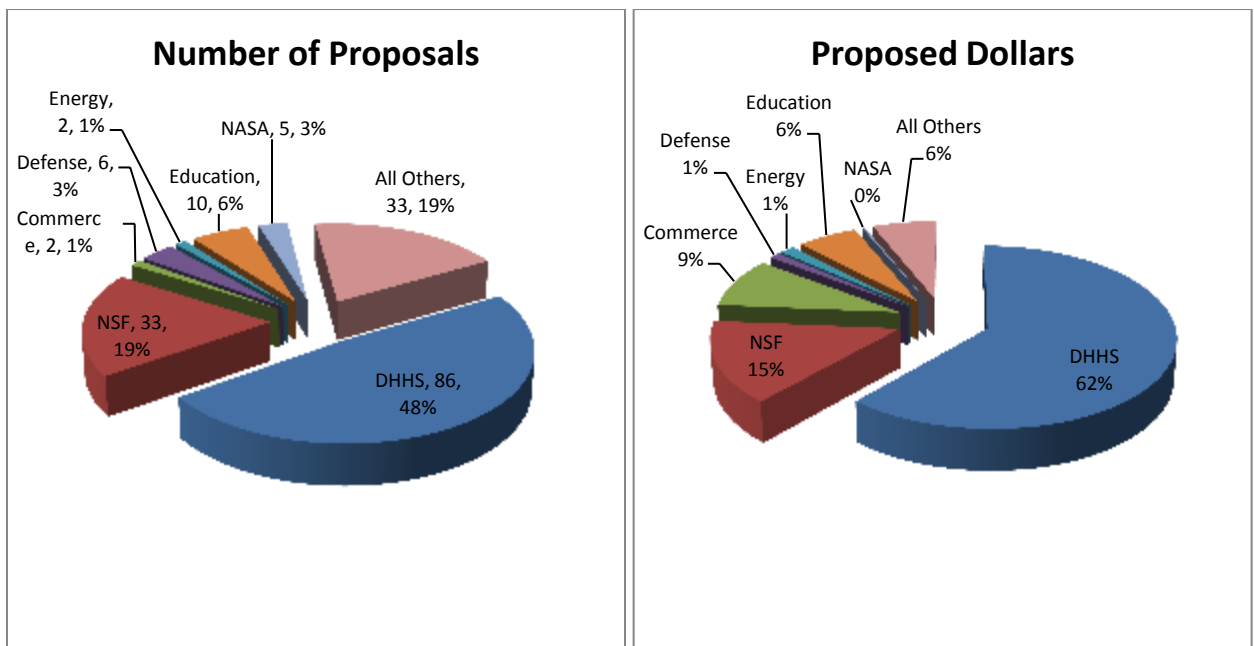


Figure 8 below shows that of Federal sources, DHHS was by far the largest source in terms of both number of proposals (86 proposals or 48% of all Federal proposals) and the total dollar request (\$70 million; 62%). This represents a small decline from FY10 which had 108 proposals to DHHS worth a total of \$77.6 million. Other Federal agencies showed more significant decreases. Proposals to the NSF fell to 33 proposals worth \$16.9 million (FY10: 51 proposals, \$35.9 million); Education fell to 10 proposals worth \$6.7 million (FY10: 29 proposals, \$17.7 million); Defense fell to six proposals worth \$1.2 million (FY10: 17 proposals, \$4 million); and Energy only two proposals worth \$1.7 million (FY10: 5 proposals, \$4.3 million).

Figure 8: Proposals by Federal Agency, FY11



Analysis

Why is the rate of proposal activity so much lower this year than in the previous two years? This is a combination of a number of factors. First, the economic climate has closed off some avenues for submitting proposals. The US Department of Education cancelled or postponed a number of competitions, for example. Numerous private foundations have also cancelled or sharply curtailed their giving. The elimination of earmarks has also restricted the opportunities for proposals. Second, there is a degree of fatigue among the research faculty. Developing grant proposals is a lengthy process and one which competes with other University activities. Faculty, at all levels, need the mentoring and infrastructure to integrate proposal activities into their long-term goals so that research, teaching, and service are seen as mutually reinforcing, rather than as a zero-sum game. Finally, with funding rates as low as they are (NSF and NIH report average proposal success rates below 25%) it can also be very discouraging to receive rejection after rejection, causing faculty to drop off the proposal treadmill.

Conversely, another factor is that many of the faculty who are successful with proposals for major research grants are victims of their own success. With one or two multi-year grants, such as USD faculty have had success with in the last couple years, a researcher could have adequate funding and not need to pursue additional opportunities. Such a researcher may not have any more time available for research, given his or her workload assignment. Additionally, some agencies (primarily NSF) place a cap on the amount of time they will fund for any researcher.

Research Expenditures – Comparisons with Other Institutions

The National Science Foundation Survey of Research and Development Expenditures at Universities and Colleges (“NSF Survey”) is an annual questionnaire in which academic institutions self-report their *research* expenditures from various sources. These expenditures do not include funds for public service, instruction, or other activities outside of research, although expenditures may be from sources external or internal to the college or university. Each year the NSF publishes the *Academic Research and Development Expenditures*, which tracks and compares research dollars among all private and public institutions willing to report their expenditures. In the tables that follow, research expenditures for USD and several comparable and aspirational peer institutions are shown — over time, from various sources, and from federal agencies. Note that these are only science and engineering (S&E) research expenditures. The latest data in the NSF Survey are from FY2009.

In FY09, USD’s S&E research expenditures were \$29.4 million, of which approximately 57% (\$16.7 million) were from federal sources (Table 10, below). Expenditures lag one to two years behind awards; thus the flat expenditures from 2006-2008 reflect the drop in DHHS funding balanced by growth in awards from other Federal agencies. In FY09 USD corrected its practices and began accounting more accurately for institutional investments in research, including graduate research assistant stipends, salary cost-share, start-up costs, equipment, etc.

Table 10: USD S&E Research Expenditures Reported to the NSF Survey, FY02-FY09, in thousands of dollars

Fiscal Year	Total	Federal	State/Local	Industry	Institutional	All Other
2009	29,417	16,684	1,866	98	10,113	656
2008	22,742	17,569	2,411	0	1,304	1,458
2007	21,473	16,683	2,183	0	1,180	1,427
2006	22,613	17,308	2,445	0	1,169	1,691
2005	18,681	15,448	1,160	0	758	1,315
2004	15,523	12,849	126	0	1,422	1,126
2003	11,148	8,308	226	0	877	1,737
2002	8,368	5,830	174	0	681	1,683

For FY10 USD reported S&E expenditures to the NSF of \$27.5 million with an additional \$3.1 million in non-S&E fields, for a total of \$30.6 million. This is a decrease compared to the FY09 reported expenditures (all fields) of \$34.7 million.

Compared with peer institutions (Table 11), between FY08 and FY09 USD improved its ranking by two rungs, although the relative performance of the peer institutions is largely unchanged. This improvement can be ascribed in large part to the change in the accounting for institutional R&D funds; expenditures are now in line with those of the peer institutions. USD continues to lag significantly behind its peer institutions (even those with less overall research expenditure) in the area of funding from private industry.

Institutions with research expenditures greater than that of USD tend to have one or more of the following characteristics:

- Significant state support (Table 11 and Table 13)
- Balanced portfolio of funding among Federal agencies (Table 11). This is especially apparent for aspirational peer institutions (Table 13).
- Research expertise and projects aimed at agencies with substantial budgets for research such as Defense, Energy, and Agriculture (Table 12 and Table 14).

Table 11: Institutions with Comparable S&E Research Expenditures, FY09, by Source of Funds, in thousands of dollars

Institution	Total	Federal	State/Local	Industry	Institutional	All Other
University of Texas-Dallas	61,214	25,651	14,183	11,474	9,906	0
South Dakota State University	55,334	24,303	14,182	4,435	3,267	9,147
University of Massachusetts-Lowell	52,431	23,083	1,466	6,772	21,110	0
University of South Dakota	29,417	16,684	1,866	98	10,113	656
University of South Alabama	29,197	15,807	563	2,717	10,110	0
University of Missouri-Kansas City	27,500	15,786	1,086	675	8,528	1,425
Marshall University	22,437	16,787	1,345	456	3,849	0
Idaho State University	20,524	12,428	364	3,676	3,829	227
University of Massachusetts- Dartmouth	19,343	9,667	1,312	606	7,164	594

Table 12: Institutions with Comparable S&E Research Expenditures, FY09, by Federal Agency, in thousands of dollars

Institution	Total Federal	USDA	DOD	DOE	DHHS	NASA	NSF	Other
University of Texas-Dallas	25,651	29	6,498	0	9,182	1,708	5,073	3,161
South Dakota State University	24,303	5,683	3,084	2,099	2,545	2,277	4,129	4,486
University of Massachusetts-Lowell	23,083	0	11,097	460	4,993	350	4,128	2,055
Marshall University	16,787	265	4,275	0	6,065	2,099	1,390	2,693
University of South Dakota	16,684	81	60	199	12,091	18	1,080	3,155
University of South Alabama	15,807	0	154	1	11,158	339	783	3,372
University of Missouri-Kansas City	15,786	124	1,608	431	11,796	21	1,511	295
Idaho State University	12,428	172	2,454	3,044	2,315	672	2,780	991
University of Massachusetts-Dartmouth	9,667	639	1,775	0	703	127	1,449	4,974

Table 13: Aspirational Peer Institutions, S&E Research Expenditures, FY09, by Source, in thousands of dollars

Institution	Total	Federal	State/Local	Industry	Institutional	Other
University of Idaho	88,242	42,207	24,662	723	19,491	1,159
University of Wyoming	77,633	29,479	3,895	1,154	41,720	1,385
University of Maryland-Baltimore County	75,571	53,867	2,204	1,766	15,262	2,472
University of North Dakota	71,656	49,215	5,595	10,130	5,285	1,431
University of Montana-Missoula	59,505	36,631	2,289	882	15,332	4,371
University of South Dakota	29,417	16,684	1,866	98	10,113	656

Table 14: Aspirational Peer Institutions, S&E Research Expenditures, FY09, by Federal Agency, in thousands of dollars

Institution	Total Federal	USDA	DOD	DOE	DHHS	NASA	NSF	Other
University of Maryland-Baltimore County	53,867	222	6,229	136	12,265	29,001	3,081	2,933
University of North Dakota	49,215	2,994	9,576	19,480	9,266	4,188	1,508	2,203
University of Idaho	42,207	9,590	6,130	3,007	9,568	2,451	5,700	5,761
University of Montana-Missoula	36,631	3,899	2,361	129	12,231	1,012	5,105	11,894
University of Wyoming	29,479	1,897	2,674	1,746	7,406	820	9,213	5,723
University of South Dakota	16,684	81	60	199	12,091	18	1,080	3,155

Prospectus

FY11 set new records for awards at USD, surpassing both FY10 and FY06. While the FY06 record can be attributed to a sudden increase in the budget of the NIH, and FY10 can be attributed to stimulus spending, neither of these are significant factors in the FY11 figure. Structural factors must be credited for the continued good performance in awards: USD research projects are becoming competitive on the national stage.

The university's goal in its FY07-FY12 strategic plan was to reach \$60 million in grants and contracts; that is, to double its awards within five years. With one year remaining in this goal it is unlikely that the University overall will achieve this goal, but the goal has been achieved in some units. Both the College of Arts & Sciences and the School of Education have more than doubled their respective awards since FY07. Similarly, FY11 award dollars in the Beacom School of Business were 83% higher than the FY07 amount. Awards in FY11 in the Division of Basic Biomedical Sciences of the Sanford School of Medicine increased by 43% compared to the award dollars in FY07. A comparison between FY07 and FY11 for the Sanford School of Medicine overall is complicated by the restructuring of Sanford Research and the School of Health Sciences.

The prospects for FY12, however, are mixed. On the one hand, many of the major awards received in FY11 are for multiple-year projects, pointing towards a continued high level of funding coming to the University. On the other hand, the relatively low number of proposals in FY11 suggests that there may be fewer awards. Without a consistently high level of proposal activity, award rates cannot be sustained. Researchers who have not been active with proposals in the last few years must be brought back into the fold, and units that have not ever been active with proposal activity must be encouraged. New faculty joining the University must be held to the expectation of sustaining significant sponsored activity, and must be given the support necessary to implement this expectation. Responsibility for grants must be shared across divisions; continued reliance on a small number of large projects is a recipe for disaster.

Successful grantsmanship tactics are not secrets: identify core areas of strength and expertise and make use of unique resources. The corollary is that these factors must receive investment priority. Past major successes have focused on unique resources, such as the underground laboratory at Homestake, and have made targeted hiring decisions to bolster key areas of strength such as the nanomaterials group in chemistry. Additional strength areas suitable for similar tactics are the Missouri River Institute and the National Music Museum, each of which is unparalleled in the US. USD's relationship with Tribal institutions, such as tribal colleges, Native-dominated secondary schools, and the Great Plains Tribal Chairmen's Health Board, is also a powerful discriminator and should be fostered. Collaboration between faculty in different fields and departments can illuminate possible future areas of strength as well as give relatively inexperienced faculty a leg up by partnering with more successful proposers. Underlying all efforts is the development of strong relationships with sponsors and a commitment at every level—investigator, department chair, and administrative offices—to create compelling projects and high quality proposals.