



**WORCESTER POLYTECHNIC INSTITUTE**  
**REPORT OF SPONSORED PROGRAM**  
**ACTIVITY**

**for the Period**  
**July 1, 2000 to June 30, 2001**

**Prepared by the**  
**Office of Research Administration**

**September 14, 2001**

**(For WPI Use Only)**

**WORCESTER POLYTECHNIC INSTITUTE  
OFFICE OF RESEARCH ADMINISTRATION**

**REPORT OF SPONSORED PROGRAM ACTIVITY**

**For the Period  
July 1, 2000 to June 30, 2001**

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## INTRODUCTION

This report has been prepared by the Office of Research Administration (ORA) at Worcester Polytechnic Institute (WPI) with editorial assistance from the Provost's Office. The objective of publishing this document is to provide to the University community a concise summary of activities surrounding the submission of proposals for extramural funding, the receipt of awards from Federal and other sponsors, and other activities falling under the responsibility of ORA. It is also hoped that the contents of this report will stimulate an ongoing dialogue about the direction of sponsored programs at WPI.

As with last year's effort, this report includes only those proposals and awards administered by ORA. It does not include any data regarding proposals and awards involving the University Relations Office or any other University offices in support of faculty efforts to gain extramural funding. It does, though, include the efforts of faculty to submit pre-proposals requiring a substantial effort to prepare and involving a financial commitment by the University, as well as supplemental data for the interested reader. A brief summary of proposal, award and expenditure activity for fiscal year 2001 is shown on the following page as Illustration Intro-1.

The information contained herein represents a substantial manual effort during the past several months to identify and capture important data about how we do our business and who is involved in the process. The report also questions some of the University's current business practices and offers suggestions for how we might improve the quality and levels of support for sponsored programs at WPI. Finally, it was determined during the compilation process that a few corrections to the data presented in last year's report are warranted. As a result, adjustments to previously reported information have been incorporated into the report text and supplementing illustrations.

In a manner of speaking, this report is also a call to the WPI community for greater involvement in sponsored program activities. For those who choose to read it and take an interest in continuing to build the University's sponsored program enterprise, ORA will be happy to respond to questions, concerns, suggestions and ideas for how we can create a greater sense of community while becoming better at what we are trying to accomplish. Your comments about and suggestions for improving this report in the future are, as always, welcomed and appreciated.

**Worcester Polytechnic**  
**Summary of Sponsored Program Activity by**  
**July 1, 2000 to June 30,**

Department	Proposals				Awards				Expenditure	
	7/1/00 -		7/1/99 -		7/1/00 -		7/1/99 -		7/1/00 -	7/1/99 -
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	Amount	Amount
Biology &	15	\$3,229,944	9	\$2,293,123	2	\$122,288	2	\$320,514	\$214,538	\$141,257
Biomedical	6	1,116,199	8	4,563,650	4	444,181	3	499,294	250,616	657,477
Chemical	36	16,465,201	17	8,091,228	15	1,921,888	11	603,695	812,142	1,177,753
Chemistry &	13	1,741,808	11	3,032,338	4	122,375	2	345,601	335,226	287,619
Civil & Environmental	26	3,692,040	18	1,415,132	10	467,743	8	624,429	637,556	598,818
Computer	18	6,203,794	20	5,058,715	11	492,203	8	453,640	413,063	316,575
Electrical & Computer	20	3,223,721	21	3,690,777	11	722,808	12	751,193	727,228	862,552
Fire Protection	6	434,232	4	210,304	4	268,638	3	88,924	240,382	236,131
Humanities &	1	415,077	0		0	0	0	0	0	0
Interdisciplinary & Global	2	604,008	1	350,000	0	0	2	14,880	21,639	21,624
Managemen	5	1,296,793	3	509,941	3	388,915	2	84,600	52,548	65,317
Mathematical	25	3,407,126	17	2,396,816	12	482,979	10	804,543	465,942	502,999
Mechanical	53	17,428,243	33	5,264,045	37	2,555,739	36	2,112,560	2,625,436	2,344,587
Physics	3	1,785,644	18	3,469,872	4	356,970	8	550,383	242,923	207,260
Social Science & Policy	1	20,000	0	0	0	0	0	0	0	2,000
Other	4	2,598,687	2	527,173	1	54,600	4	242,113	52,498	182,251
Totals	234	\$63,662,51	182	\$40,873,11	118	\$8,401,327	111	\$7,496,369	\$7,091,737	\$7,604,220

## I. ANALYSIS OF PROPOSAL ACTIVITY FOR FISCAL YEAR 2001

This section of the report provides a variety of data and commentary regarding proposal submissions by WPI faculty and staff in fiscal year 2001 with comparisons to fiscal year 2000. It should be noted that the data provided include pre-proposals when these are required submissions, but only when they involve significant investigator effort to prepare and University financial commitment.

While the overall numbers suggest that the University has turned the corner in its effort to achieve new levels of proposal submissions and participation by WPI faculty in sponsored programs activities, a closer look will reveal a more realistic view of these perceived successes and their derivation.

### **Proposal Submissions**

Illustration I-1 provides a breakdown by department of all proposals submitted in fiscal year 2001 and a comparison with similar activity for fiscal year 2000. Proposal volume reached \$63,662,517 in fiscal year 2001, representing an increase of \$22,789,343 (55.8%) over fiscal year 2000's level of \$40,873,174 and an increase of \$34,423,869 (117.7%) over the level achieved in fiscal year 1999 (\$29,238,648). The dollar volume of proposal submissions for fiscal year 2001 represents the highest ever achieved through the significant efforts of the University's faculty and staff. The number of proposals submitted also rose from 182 in fiscal year 2000 to 234 in fiscal year 2001, an increase of 28.6%, and represents the largest number of proposals ever submitted by WPI faculty. The increase above fiscal year 1999 levels (164 proposals) was 42.7%.

The average proposal amount varied significantly by department in fiscal year 2001 from a low of \$20,000 to a high of \$595,215. While much of this variance is due to the quantity and funding levels of available opportunities, it is also a reflection of the size differences (number of faculty) and physical resources available from department to department. Overall, the average proposal amount for all departments grew from \$224,578 in fiscal year 2000 to \$272,062 in fiscal year 2001, an increase of \$47,484 (21.1%). The increase in average proposal amount over fiscal year 1999's average of \$178,284 was \$93,778 (52.6%).

The average indirect cost rate on all fiscal year 2001 proposals was 47.2%, which is lower than the fiscal year 2000 average rate of 50.2%. This drop can be attributed primarily to the submission of a greater number of proposals for educational/training activities on which indirect costs are normally capped at between 8% and 15%. Also, proposals to sponsor programs that limit maximum indirect cost rates grew from 22 in fiscal year 2000 to 41 in fiscal year 2001. Despite this trend, the total amount of indirect costs proposed grew substantially in fiscal year 2001 (\$12,519,058 versus \$7,957,031 in fiscal year 2000) due to the greater overall number of proposals submitted with the University's Federally approved rate of 69.3%.

**Worcester Polytechnic Institute**  
**Summary of Proposal Activity by Department**  
**July 1, 2000 to June 30, 2001**

Department	No.	Proposal Amounts			Average Proposal Amount	Average Indirect Cost Rates	Proposed Cost Sharing <sup>1</sup>	Average Cost Sharing per Proposal	Cost Sharing Effective Rates <sup>2</sup>	Excess of Indirect Costs Over Cost Sharing
		Direct Costs	Indirect Costs	Total Costs						
Biology & Biotechnology	15	\$2,514,111	\$715,833	\$3,229,944	\$215,330	57.1%	\$372,021	\$24,801	11.5%	\$343,812
Biomedical Engineering	6	917,708	198,491	1,116,199	\$186,033	44.7%	232,204	\$38,701	20.8%	(33,713)
Chemical Engineering	36	14,120,710	2,344,491	16,465,201	\$457,367	48.4%	1,979,201	\$54,978	12.0%	365,290
Chemistry & Biochemistry	13	1,411,909	329,899	1,741,808	\$133,985	34.0%	126,365	\$9,720	7.3%	203,534
Civil & Environmental Engineering	26	2,761,671	930,369	3,692,040	\$142,002	58.9%	349,558	\$13,445	9.5%	580,811
Computer Science	18	4,803,045	1,400,749	6,203,794	\$344,655	51.8%	280,730	\$15,596	4.5%	1,120,019
Electrical & Computer Engineering	20	2,365,234	858,487	3,223,721	\$161,186	55.4%	105,429	\$5,271	3.3%	753,058
Fire Protection Engineering	6	322,282	111,950	434,232	\$72,372	69.0%	0	\$0	0.0%	111,950
Humanities & Arts <sup>3</sup>	1	275,418	139,659	415,077	\$415,077	69.3%	183,242	\$183,242	44.1%	(43,583)
Interdisciplinary & Global Studies	2	559,858	44,150	604,008	\$302,004	34.7%	668,132	\$334,066	110.6%	(623,982)
Management	5	1,011,680	285,113	1,296,793	\$259,359	45.2%	593,606	\$118,721	45.8%	(308,493)
Mathematical Sciences	25	2,537,215	869,911	3,407,126	\$136,285	58.0%	157,241	\$6,290	4.6%	712,670
Mechanical Engineering	53	13,688,804	3,739,439	17,428,243	\$328,835	58.1%	6,421,391	\$121,158	36.8%	(2,681,952)
Physics	3	1,429,125	356,519	1,785,644	\$595,215	46.2%	230,511	\$76,837	12.9%	126,008
Social Science & Policy Studies	1	19,046	954	20,000	\$20,000	6.3%	9,563	\$0	0.0%	(8,609)
Other	4	2,405,643	193,044	2,598,687	\$649,672	18.1%	2,733,348	\$683,337	105.2%	(2,540,304)
<b>Totals</b>	<b>234</b>	<b>\$51,143,459</b>	<b>\$12,519,058</b>	<b>\$63,662,517</b>	<b>\$272,062</b>	<b>47.2%</b>	<b>\$14,442,542</b>	<b>\$61,720</b>	<b>22.7%</b>	<b>\$(1,923,484)</b>

<sup>1</sup>Of the total amount shown as Cost Sharing on proposals, approximately \$5,392,700 represents primarily "in kind" cost sharing by industry or other non-WPI participants and approximately \$1.7 million indicated in pre-proposals.

<sup>2</sup>Cost Sharing Effective Rates are expressed as a percentage of Total Costs.

<sup>3</sup>Interdisciplinary & Global Studies played a major role in this proposal activity (ORA's database cannot record multiple department submissions).

## **Proposal Distribution**

It should first be recognized that the current database used by ORA does not allow for proper recording of proposal submissions on which WPI is a subcontractor. Only one sponsor can be recorded and the fact that this sponsor will be incorporating the University's proposal in its own proposal to a prime sponsor cannot be acknowledged in the University's records. This weakness was not recognized in last year's report, in which ORA indicated that, of the 179 proposals known to have been submitted in fiscal year 2000, 103 proposals (70%) were submitted to the Federal government. Corrected data is shown below and in Illustration I-2.

The University's reliance on Federal funding is greater than first thought. Of the 234 proposals submitted in fiscal year 2001, 181 proposals (77.4%) were submitted either directly to Federal agencies or to other organizations that incorporated WPI's submissions in their proposals to Federal agencies. WPI faculty submitted 145 proposals directly and 36 proposals through other organizations. Only 53 proposals (22.6%) were submitted to non-Federal sponsors. Of the corrected total of 182 proposals submitted in fiscal year 2000, 136 proposals (74.7%) were submitted to the Federal government either directly or as a subcontractor. A total of 46 proposals (25.3%) were submitted to non-Federal sponsors in fiscal year 2000.

Of the total dollar volume of proposals submitted in fiscal year 2001 (\$63,662,517), \$57,668,806, or 90.6%, was requested from the Federal government. This reliance on Federal sources represents an increase from fiscal year 2000, when, of the \$40,873,174 submitted, \$34,442,367 (84.3%) was requested.

A more detailed distribution of all proposal submissions by type of sponsor is provided in Appendix II.

## **Pre-proposal Submissions**

In addition to the pre-proposals included on the ORA monthly reports and in the above proposal submissions analysis, WPI faculty also submitted 12 pre-proposals (a.k.a., white papers, concept papers, abstracts) with an estimated value of \$5,061,053 to a variety of sponsors during fiscal year 2001. Some of these pre-proposals were not reviewed by ORA prior to submission and a few do not include requested amounts, but it is important to recognize this activity by WPI faculty as a preliminary undertaking toward the submission of full proposals. A listing of pre-proposal submissions of which ORA was made aware is included in Appendix II.

## **Proposed Cost Sharing Commitments**

As was the case in fiscal year 2000, the amounts shown in Illustration I-1 for proposed cost sharing in fiscal year 2001 vary greatly by department. Total proposed cost sharing was \$14,442,542 across all departments and proposals in fiscal year 2001, but this

**Worcester Polytechnic Institute**  
**Proposal Submissions by Sponsor**  
**FY2001 and FY2000**

Sponsor	FY2001			FY2000		
	No.	Amount	%	No.	Amount	%
Federal						
U.S. Air Force	3	660,436	1.0%	3	1,011,508	2.5%
U.S. Army	2	478,594	0.8%	6	1,429,233	3.5%
Defense Advanced Research Projects Agency	1	428,232	0.7%	1	433,163	1.1%
U.S. Department of Agriculture	5	776,076	1.2%	3	965,306	2.4%
U.S. Department of Education	8	4,966,549	7.8%	2	989,875	2.4%
U.S. Department of Energy	22	10,705,257	16.8%	11	3,301,123	8.1%
Department of Health & Human Services	14	1,702,809	2.7%	18	3,472,127	8.5%
U.S. Department of Transportation	3	457,812	0.7%	1	109,981	0.3%
U.S. Environmental Protection Agency	4	1,453,394	2.3%	0	0	0.0%
Federal Aviation Administration	1	79,917	0.1%	0	0	0.0%
Federal Emergency Management Agency	0	0	0.0%	1	133,809	0.3%
U.S. Geological Survey	2	93,520	0.1%	0	0	0.0%
National Academy of Science	4	795,589	1.2%	3	280,344	0.7%
National Aeronautics & Space Administration	17	5,012,362	7.9%	9	1,626,492	4.0%
National Imagery & Mapping Agency	1	221,721	0.3%	0	0	0.0%
National Institute of Standards & Technology	2	128,759	0.2%	0	0	0.0%
National Oceanic & Atmospheric Administration	3	284,338	0.4%	0	0	0.0%
National Science Foundation	87	29,361,541	46.1%	76	20,300,906	49.7%
National Security Agency	1	41,900	0.1%	0	0	0.0%
U.S. Navy	0	0	0.0%	2	388,500	1.0%
Other Federal	1	20,000	0.0%	0	0	0.0%
Subtotal - Federal	181	57,668,806	90.6%	136	34,442,367	84.3%
Commonwealth of Massachusetts	6	197,903	0.3%	3	120,355	0.3%
Corporations	24	2,899,162	4.6%	26	1,846,181	4.5%
Foundations	13	1,489,136	2.3%	15	4,309,527	10.5%
Foreign Organizations	7	417,823	0.7%	0	0	0.0%
Other Public	3	989,687	1.6%	2	154,744	0.4%
Totals	234	63,662,517	100.0%	182	40,873,174	100.0%

amount includes approximately \$6.5 million of in-kind cost sharing by non-WPI partner organizations and an additional \$1.7 million indicated in pre-proposals recorded in the totals above. After adjusting for these considerations, the net total cost sharing commitment for fiscal year 2001 approximated \$6.2 million with an average amount per proposal of \$26,500, or nearly double the average estimated cost sharing amount of \$13,334 in fiscal year 2000. Most of this increase can be attributed to the greater number of proposals submitted for educational/training activities (28 in fiscal year 2001 versus 15 in fiscal year 2000) that traditionally require a higher level of institutional commitment and/or a lower level of indirect cost recovery.

### **Faculty and Non-Faculty Participation**

In fiscal year 2001, 46.3% of the University's tenured and tenure track faculty ("regular" faculty), including new faculty<sup>1</sup>, was involved in the proposal submission process as Principal Investigators, Co-Principal Investigators, or both. While this level of overall participation is up by a small percentage (less than 1%) over fiscal year 2000, the rise can be attributed in large part to an increase in new regular faculty participation from 8 to 17. This offsets a decrease in the level of established regular faculty involvement, which dropped from 88 in fiscal year 2000 to 81 in fiscal year 2001. In addition, participation by non-tenure track faculty and staff increased from 12 in fiscal year 2000 to 18 in fiscal year 2001.

In fiscal year 2000, only 7 new regular faculty participated in proposal submissions as a Principal Investigator while, in fiscal year 2001, this number grew to 18. Likewise, 12 non-tenure track faculty and staff participated as Principal Investigators in fiscal year 2001 compared to only 7 in fiscal year 2000. Established regular faculty participation as a Principal Investigator dropped from 78 in fiscal year 2000 to 67 in fiscal year 2001.

There were a total of 62 regular faculty (~31.2% of total regular faculty) who participated in both FY2000 and FY2001. Their participation resulted in 113 proposals (62.4%) in FY2000 and 138 proposals (63.3%) in FY2001. A total of 78 regular faculty (~39.2%) did not participate in either FY2000 or FY2001.

A brief summary of faculty and staff participation is illustrated in Appendix II.

### **Special Considerations**

For many years, investigators have been required to complete ORA's Proposal Coordination Form (a.k.a., blue sheet). In addition to providing a summary of proposal information and recording approvals by submitting departments and ORA, this form contains much requested information in the section called "Special Considerations" that has not been effectively utilized by the University. Given the type and somewhat sensitive nature of the information requested on the form, it is important that it be used in the future to assist key departments in planning for awards that are received.

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<sup>1</sup> For purposes of this report, new faculty are defined as those tenure-track or tenured faculty at WPI for two years or less. Data in this section are based on 214 tenured or tenure-track faculty as of Fall 2000.

For example, on the 234 proposals submitted in fiscal year 2001, a total of 157 principal investigators indicated the need for graduate students to work on projects, if funded. What can the University do to begin managing this information? How can a connection be made between academic departments and, for example, the Graduate Admissions Office to ensure that those investigators who are funded have access to the necessary graduate students to perform the work? The answers to these and other questions regarding the special considerations indicated on proposals must be determined if the University is to adequately prepare for any significant increases in award volume in the coming years. A summary of all special considerations indicated on proposals submitted in fiscal years 2001 and 2000 can be found in Appendix II.

### **Proposal Success Rates**

Estimating the success rates for proposals requires a significant period of time (on average, from 6 to 12 months) following the dates proposals are actually submitted to allow sufficient time for funding decisions to be made by sponsors. For this reason, our faculty's success in receiving awards based on proposals submitted in fiscal year 2001 cannot be measured for this report.

For fiscal year 2000 though, a total of 77 awards (including increments to existing awards) valued at \$6,375,187 resulted from the 182 proposals submitted (including new, continuations, renewals, and supplements) with a value of \$40,873,174. Of these 77 awards, 68 were from new award actions. The overall proposal success rate for fiscal year 2000 was 42.3% and the dollar yield was 15.6% of the total amount requested.

Because the above results include continuations, renewals, and supplements, which tend to be more successful than new proposals given that awards are already in place, the results for new proposals only are somewhat different. In fiscal year 2000, a total of 163 new proposals were submitted, resulting in 57 awards, which translates to a success rate of 35%. The dollar yield on the \$39,473,187 value of these new proposals was \$5,875,762, or 14.9%. Summaries of proposal success rates for all types of proposals and for new proposals only are provided in Appendix II.

It should be noted that most awards rarely include "out year" funding for those awards with more than a one-year period of performance. Instead, such funding often originates without the need for any subsequent proposal submissions based upon satisfactory progress in accomplishing program objectives. Due to this method, which is used by a majority of the University's sponsors, an accurate total dollar yield on proposal submissions is nearly impossible to calculate.

Another way to measure the success rate of the University's proposal submissions is to view them in terms of amounts proposed. By stratifying the fiscal year 2000 proposals into logical groupings (see chart on following page), one can clearly see that, to this point, our faculty's successes have been heavily weighted toward lower dollar amounts.

If the University's programs are to grow in terms of dollar volume, individual awards will have to increase.

<b>FY2000 Proposal Success Rates</b>					
<b>(Awards Include Only New Award Actions and Total Dollar Yield)</b>					
<u>Proposal Levels</u>	<u>No. of Proposals</u>	<u>Proposal \$ Volume</u>	<u>No. of Awards</u>	<u>Award \$ Volume</u>	<u>Success Rate</u>
Up to \$50,000	47	\$ 1,255,702	30	\$ 732,449	63.8%
\$50,001-100,000	29	\$ 2,112,316	9	\$ 596,210	31.0%
\$100,001-250,000	52	\$ 8,690,411	16	\$2,117,485	30.8%
\$250,001-500,000	42	\$15,843,079	11	\$1,670,129	26.2%
Over \$500,000	<u>12</u>	<u>\$12,971,666</u>	<u>2</u>	<u>\$1,258,914</u>	16.7%
Totals	182	\$40,873,174	68	\$6,375,187	42.3%

Given the level of proposal submissions in fiscal year 2001 (as adjusted for pre-proposal submissions) and assuming no material variance from the above success rates, it is estimated that approximately 97 awards totaling \$9.3 million will be realized during fiscal year 2002. This estimate does not include incremental funding on awards already in place. Please note that this is a simple estimate that is being provided to give the reader a sense of the anticipated award growth that might be expected as a result of fiscal year 2001 proposal submissions. It is subject to adjustment based upon factors both within and beyond the University's control.

## **II. ANALYSIS OF AWARD ACTIVITY FOR FISCAL YEAR 2001**

### **Awards Received**

During fiscal year 2001, the University received a total of 118 awards with a value of \$8,401,327. This represents an increase of 6.3% over the 111 awards received in fiscal year 2000, but an increase of only 2.6% over the 115 awards received in fiscal year 1999. The award dollar increase over fiscal year 2000's volume of \$7,496,369 was 12.1% or \$904,958, while the increase from fiscal year 1999's level of \$7,187,816 was 16.9% or \$1,213,401. Illustration II-1 provides a summary of awards received by department.

The average amount for all awards received during fiscal year 2001 awards was \$71,198. This represents an increase of almost 4.5% over the average award amount of \$68,149 achieved in fiscal year 2000. At the department level, the average award amount ranged from a high of \$129,638 in the Management Department to a low of \$30,594 in the Chemistry and Biochemistry Department. On a per faculty member basis, an award rate of \$39,259 was achieved, representing an increase of \$4,229 (12.1%) over the \$35,030 rate for fiscal year 2000.

The amount received for indirect costs was up substantially over fiscal year 2000. The \$1,754,691 represents an effective rate of almost 57.9% of salaries over all programs. In fiscal year 2000, indirect costs of \$1,372,596 provided an effective rate of only 47.4%. Much of this increase is due to the greater success in soliciting research proposals over proposals for other programs, such as equipment and/or education/training, on which indirect costs are either not allowed or are capped at rates typically between 8% and 15%. The success enjoyed in fiscal year 2001 should translate into increased indirect costs return over the next one to three years.

### **Award Distribution by Sponsor and Sponsor Type**

Of the \$8,401,327 in awards received during fiscal year 2001, \$6,977,895 (83.1%) was from Federal sources. This level of Federal funding is up from fiscal year 2000 when \$5,544,442 (74.0%) of the \$7,496,369 received was from the Federal government. The University's largest Federal sponsor was the National Science Foundation (NSF), which provided \$3,139,001 in fiscal year 2001 compared with \$2,262,291 in fiscal year 2000, an increase of \$876,710.

The second largest increase in Federal funding was from the Department of Health and Human Services, which provided 12 awards at \$512,080, up 208% over the \$166,247 level achieved in fiscal year 2000. A total of 10 of these 12 awards was received from other prime grantees.

**Worcester Polytechnic Institute**  
**Summary of Award Activity by Department**  
**July 1, 2000 to June 30, 2001**

Department	No.	Award Amounts			Average Award Amount	Average of Awarded Indirect Cost Rates	Actual Cost Sharing	Average Cost Sharing per Award	Cost Sharing Effective Rates <sup>2</sup>	Excess of Indirect Costs Over Cost Sharing
		Direct Costs	Indirect Costs	Total Costs						
Biology & Biotechnology	2	\$103,936	\$18,352	\$122,288	\$61,144	33.8%	\$0	\$0	0.0%	\$18,352
Biomedical Engineering	4	407,831	36,350	444,181	\$111,045	5.0%	77,150	\$19,288	17.4%	(40,800)
Chemical Engineering	15	1,683,487	238,401	1,921,888	\$128,126	56.6%	0	\$0	0.0%	238,401
Chemistry & Biochemistry	4	121,500	875	122,375	\$30,594	6.3%	0	\$0	0.0%	875
Civil & Environmental Engineering	10	343,824	123,919	467,743	\$46,774	55.9%	76,566	\$7,657	16.4%	47,353
Computer Science	11	367,488	124,715	492,203	\$44,746	51.2%	13,357	\$1,214	2.7%	111,358
Electrical & Computer Engineering	11	535,065	187,743	722,808	\$65,710	49.8%	68,272	\$6,207	9.4%	119,471
Fire Protection Engineering	4	225,055	43,583	268,638	\$67,160	68.9%	0	\$0	0.0%	43,583
Humanities & Arts	0	0	0	0	\$0	0.0%	0	\$0	0.0%	0
Interdisciplinary & Global Studies	0	0	0	0	\$0	0.0%	0	\$0	0.0%	0
Management	3	303,201	85,714	388,915	\$129,638	25.8%	89,653	\$29,884	23.1%	(3,939)
Mathematical Sciences	12	357,616	125,363	482,979	\$40,248	61.3%	16,315	\$1,360	3.4%	109,048
Mechanical Engineering	37	1,894,942	660,797	2,555,739	\$69,074	55.8%	506,074	\$13,678	19.8%	154,723
Physics	4	248,091	108,879	356,970	\$89,243	68.4%	10,055	\$2,514	2.8%	98,824
Social Science & Policy Studies	0	0	0	0	\$0	0.0%	0	\$0	0.0%	0
Other	1	54,600	0	54,600	\$54,600	0.0%	0	\$0	0.0%	0
<b>Totals</b>	<b>118</b>	<b>\$6,646,636</b>	<b>\$1,754,691</b>	<b>\$8,401,327</b>	<b>\$71,198</b>	<b>41.4%</b>	<b>\$857,442</b>	<b>\$7,266</b>	<b>10.2%</b>	<b>\$897,249</b>

**Worcester Polytechnic Institute  
Award Distribution by Type of Sponsor  
FY 2001 and FY2000**

Sponsor	FY2001			FY2000		
	No.	Amount	%	No.	Amount	%
Federal						
U.S. Air Force	4	\$140,139	1.7%	2	\$67,072	0.9%
U.S. Army	4	164,037	2.0%	4	317,486	4.2%
Defense Advanced Research Projects Agency	2	232,230	2.8%	0	0	0.0%
U.S. Department of Education	2	228,467	2.7%	4	437,000	5.8%
U.S. Department of Energy	16	1,378,122	16.4%	16	1,226,722	16.4%
Department of Health & Human Services	12	512,080	6.1%	7	166,247	2.2%
U.S. Department of Transportation	3	131,324	1.6%	5	262,950	3.5%
National Academy of Science	1	60,792	0.7%	1	300,000	4.0%
National Aeronautics & Space Administration	9	547,496	6.5%	11	350,111	4.7%
National Imagery & Mapping Agency	1	113,718	1.4%	0	0	0.0%
National Institute of Standards & Technology	1	106,393	1.3%	1	48,017	0.6%
National Science Foundation	32	3,139,001	37.4%	31	2,262,291	30.2%
National Security Agency	0	0	0.0%	1	12,938	0.2%
U.S. Navy	2	224,096	2.7%	1	93,608	1.2%
Subtotal - Federal	89	\$6,977,895	83.1%	84	\$5,544,442	74.0%
Commonwealth of Massachusetts	1	49,723	0.6%	0	0	0.0%
Corporations	16	904,547	10.8%	16	770,129	10.3%
Foundations	6	322,342	3.8%	8	780,158	10.4%
Foreign Organizations	3	80,916	1.0%	1	166,190	2.2%
Other Public <sup>1</sup>	3	65,904	0.8%	2	235,450	3.1%
Totals	118	\$8,401,327	100.0%	111	\$7,496,369	100.0%

<sup>1</sup>FY2000 includes two internal awards

**Worcester Polytechnic Institute**  
**Awarded Cost Element Distribution by Department**  
**FY2001**

<b>Department</b>	<b>No.</b>	<b>Salaries &amp; Wages</b>	<b>Fringe Benefits</b>	<b>Supplies</b>	<b>Equipment</b>	<b>Travel</b>	<b>Sub- contracts</b>	<b>Tuition</b>	<b>Other</b>	<b>Indirect Costs</b>	<b>Total</b>
Biology & Biotechnology	2	\$26,483	\$6,753	\$52,700	\$11,000	\$4,000	\$0	\$0	\$3,000	\$18,352	\$122,288
Biomedical Engineering	4	240,499	23,985	52,107	29,355	5,000	0	54,285	2,600	36,350	444,181
Chemical Engineering	15	348,362	55,342	104,694	153,638	55,071	840,011	114,338	12,031	238,401	1,921,888
Chemistry & Biochemistry	4	58,316	6,602	24,895	6,000	0	0	25,687	0	875	122,375
Civil & Environmental Engineering	10	190,876	36,442	1,548	100,000	3,048	0	8,790	3,120	123,919	467,743
Computer Science	11	230,898	14,946	3,142	22,870	33,643	12,000	44,289	5,700	124,715	492,203
Electrical & Computer Engineering	11	279,299	37,649	28,354	54,054	47,500	0	81,709	6,500	187,743	722,808
Fire Protection Engineering	4	67,361	3,055	5,030	41,355	12,075	49,700	38,593	7,886	43,583	268,638
Humanities & Arts	0	0	0	0	0	0	0	0	0	0	0
Interdisciplinary & Global Studies	0	0	0	0	0	0	0	0	0	0	0
Management	3	162,104	29,397	1,500	0	29,632	0	41,058	39,510	85,714	388,915
Mathematical Sciences	12	219,971	41,713	4,246	15,986	50,164	6,600	8,436	10,500	125,363	482,979
Mechanical Engineering	37	1,014,651	118,292	88,749	101,231	86,959	162,658	300,365	22,037	660,797	2,555,739
Physics	4	159,231	14,587	5,200	3,900	8,100	0	56,173	900	108,879	356,970
Social Science & Policy Studies	0	0	0	0	0	0	0	0	0	0	0
Other	1	33,600	0	0	0	0	0	21,000	0	0	54,600
	<b>118</b>	<b>\$3,031,651</b>	<b>\$388,763</b>	<b>\$372,165</b>	<b>\$539,389</b>	<b>\$335,192</b>	<b>\$1,070,969</b>	<b>\$794,723</b>	<b>\$113,784</b>	<b>\$1,754,691</b>	<b>\$8,401,327</b>

Funding by corporations, while not resulting in more awards, was up by almost 17.5% in dollar value with \$904,547 being received in fiscal year 2001. This compares with the \$770,129 amount awarded in fiscal year 2000, an increase of \$134,418.

Foundation funding dropped significantly in fiscal year 2001, when only \$322,342 in award dollars was received, representing a decrease of 58.7% from the \$780,158 awarded in fiscal year 2000.

A complete summary of awards received by type of sponsor is shown in Illustration II-2. Additional award data are presented in Appendix II.

### **Awarded Costs by Type**

As shown in Illustration II-3, funding during fiscal year 2001 provided increases in several direct cost categories, including salaries & wages, fringe benefits, travel, subcontracts, tuition, and other expenses. Funding for equipment was the only significant decrease, from \$1,081,843 in fiscal year 2000 to \$539,389 in fiscal year 2001. Much of this drop can be attributed to having received no major equipment awards during the year. Funding for supplies was also down, but just slightly.

As indicated previously, the most significant increase in funding was for indirect costs, which rose to \$1,754,691 in fiscal year 2001 from \$1,372,596 in fiscal year 2000, an increase of \$382,095 (27.8%). This increase is due largely to the number of research proposals that were funded with the University's Federally approved rate of 69.3%.

### **Cost Sharing Obligations**

As shown in Illustration II-1, the total amount of mandatory cost sharing on awards received in fiscal year 2001 was \$857,442, or approximately 10.2% of award dollars. This level of cost sharing is down from fiscal year 2000, when \$1,371,022, or 18.3%, cost sharing was required. Considering that the University's proposed cost sharing was significantly higher in fiscal year 2001, it is interesting to note that many proposals on which cost sharing was a significant factor in funding decisions were not awarded.

### III. ANALYSIS OF EXPENDITURE ACTIVITY FOR FISCAL YEAR 2001

The Office of Research Administration (ORA) has no authority over the expenditure approval or other accounting processes at the University. The following brief analysis of sponsored program expenditures for fiscal year 2001 is provided as supplementary data for the reader.

Expenditure rates across all categories decreased from fiscal year 2000, when net sponsored program expenditures totaled \$7,604,220, to fiscal year 2001, in which only \$7,091,737 was incurred, a drop of 6.7%.

The annual per faculty expenditure rate in fiscal year 2001 decreased to \$33,139 from the \$35,534 rate achieved in fiscal year 2000, resulting in a similar percentage reduction based on 214 tenured and tenure-track faculty as of Fall 2000.

The specific reasons underlying the decrease in expenditures in fiscal year 2001 are not clear. Upon looking at the University's overall portfolio of awards though, it becomes apparent that the causes are not related to the current level of available funding. As of the end of fiscal year 2000, the funds available from all awards totaled \$14,464,320, against which expenditures for the year were \$7,604,220, or approximately 52.6% of available funds. For fiscal year 2001 though, the funds available from all awards totaled \$15,703,410, an increase of nearly 8.6% above the fiscal year 2000 level, yet the amount of expenditures incurred was \$7,091,737, or just over 45% of available funds.

The financial reports currently available do not provide adequate detailed information with which to perform an in-depth, categorical analysis of the reasons underlying this expenditure rate decrease. In the case of fiscal year 2001 though, this is of very little consequence, since expenditures are down across all categories. Illustration III-1 provides a summary of expenditures by cost element for both fiscal year 2001 and fiscal year 2000. Illustration III-2 provides a summary of fiscal year 2001 expenditures by department.

With the expectation that award levels will continue to increase based on the level of fiscal year 2001 proposals, the root causes of the decrease in utilization of available funds should be identified. The following two potential contributing factors are offered for consideration:

- Resources - At the department level, faculty do not have access to local, qualified, and dedicated financial staff (e.g., departmental administrators) to track expenditure rates and provide needed assistance in planning, processing, and reporting expenditures. From all reports, it also appears that many faculty are still not using the Banner system as an alternative resource. Without adequate human and technical support, investigators may not be able to utilize awarded funds accurately, efficiently, and on a timely basis.

**Worcester Polytechnic Institute**  
**Summary of Sponsored Program Expenditure Activity**  
**FY2001 and FY2000**

**Illustration III-1**

<u>Element of Cost</u>	<u>FY2001 Expenses</u>	<u>FY2000 Expenses</u>	<u>% Change</u>
Salaries & Wages	\$2,909,291	\$3,155,172	-7.8%
Fringe Benefits	449,894	536,482	-16.1%
Equipment	942,795	1,232,795	-23.5%
Other Direct Expenses <sup>1</sup>	<u>1,879,376</u>	<u>2,414,676</u>	-22.2%
Subtotal Direct Program Costs	\$6,181,356	\$7,339,125	-15.8%
Indirect Costs	<u>1,255,024</u>	<u>1,533,600</u>	-18.2%
Total Program Costs	\$7,436,380	\$8,872,725	-16.2%
Less: WPI Cost Sharing <sup>2</sup>	<u>(344,643)</u>	<u>(1,268,505)</u>	-72.8%
Total Sponsored Program Costs	<u>\$7,091,737</u>	<u>\$7,604,220</u>	-6.7%

<sup>1</sup>Includes \$74,522 of University of Delaware subcontract expenses billed but not paid as of 6/30/01.

<sup>2</sup>Due to the method used for recording expenditures, a breakdown of WPI cost sharing to net against direct sponsored program costs by category is not possible.

**Worcester Polytechnic Institute**  
**Summary of Sponsored Program Expenditure Activity by Department**  
**July 1, 2000 to June 30, 2001**

Departments	Direct Costs				Total Direct Costs	Indirect Costs	Total Program Costs	Less: Cost Sharing	Total Sponsored Program Expenses	Effective Indirect Cost Rates
	Salaries & Wages	Fringe Benefits	Equipment	Other Direct Expenses						
Biology & Biotechnology	\$96,355	\$11,940	\$9,852	\$55,783	\$173,930	\$40,608	\$214,538	\$0	\$214,538	42.1%
Biomedical Engineering	122,275	20,882	39,701	101,346	284,204	23,726	307,930	(57,314)	250,616	19.4%
Chemical Engineering <sup>1</sup>	194,764	28,737	122,697	368,945	715,143	104,337	819,480	(7,338)	812,142	53.6%
Chemistry & Biochemistry	159,261	38,149	14,544	92,347	304,301	30,925	335,226	0	335,226	19.4%
Civil & Environmental Engineering	269,698	40,387	49,709	192,866	552,660	146,751	699,411	(61,855)	637,556	54.4%
Computer Science	207,636	18,948	75,503	69,039	371,126	102,775	473,901	(60,838)	413,063	49.5%
Electrical & Computer Engineering	238,169	24,513	252,755	109,459	624,896	153,806	778,702	(51,474)	727,228	64.6%
Fire Protection Engineering	56,658	2,783	19,664	127,036	206,141	34,241	240,382	0	240,382	60.4%
Humanities & Arts	0	0	0	0	0	0	0	0	0	0.0%
Interdisciplinary & Global Studies	17,000	4,335	0	7,676	29,011	2,321	31,332	(9,693)	21,639	13.7%
Management	23,790	5,618	3,017	32,239	64,664	4,720	69,384	(16,836)	52,548	19.8%
Mathematical Sciences	207,353	37,251	32,650	89,456	366,710	103,194	469,904	(3,962)	465,942	49.8%
Mechanical Engineering	1,198,901	203,752	294,034	531,026	2,227,713	459,960	2,687,673	(62,237)	2,625,436	38.4%
Physics	118,386	12,599	25,249	56,596	212,830	47,660	260,490	(17,567)	242,923	40.3%
Social Science & Policy Studies	0	0	0	0	0	0	0	0	0	0.0%
Other	(955)	0	3,420	45,562	48,027		48,027	4,471	52,498	0.0%
Expense Totals	<u>\$2,909,291</u>	<u>\$449,894</u>	<u>\$942,795</u>	<u>\$1,879,376</u>	<u>\$6,181,356</u>	<u>\$1,255,024</u>	<u>\$7,436,380</u>	<u>\$(344,643)</u>	<u>\$7,091,737</u>	43.1%

Note: Expenses are as of 1st closing for fiscal year 2001. Immaterial reconciling items are included in "Other."

<sup>1</sup>Amount shown for Other Direct Expenses includes \$74,522 of University of Delaware subcontract expenses billed but unpaid as of 6/30/01.

- Training - Accounting is a difficult subject. Accounting for sponsored programs with the myriad guidelines and regulations that govern the expenditure of funds can be even more difficult. Add to this an investigator's portfolio of multiple awards with differing periods of performance and sponsor requirements and the need to better inform faculty with an increased training effort becomes clear. Currently, the University does not maintain a comprehensive program to train faculty in the fundamentals of sponsored program administration and the potential price to be paid is funding that is not utilized as efficiently as it could be, which may give rise to compliance and audit-related exposures in the future.

At a time when the strategic plan calls for increasing faculty expenditures to a level of \$60,000 per year by fiscal year 2006, any decreases in expenditure rates should be questioned, especially given the recent increases in award levels. It appears that additional resources at the department level, comprehensive training for faculty and administrators, and further coordination of administrative oversight efforts will be needed to reduce the likelihood of the University repeating this trend in the coming years.

#### **IV. SUMMARY OF RESEARCH DEVELOPMENT COUNCIL (RDC) PROPOSAL AND AWARD ACTIVITY FOR FISCAL YEAR 2001**

During fiscal year 2001, the funding mechanism for internal grants awarded by the Research Development Council (RDC) was named the Research Advancement Program (RAP). In conjunction with the creation of the new Office of Research Administration (ORA) web site, complete instructions and an on line cover page for proposal submissions were provided in an attempt to standardize the application process.

An additional \$100,000 was made available by the University during FY2001 to fund projects that will take place during FY2002. The Request for Proposals (RFP) was issued on March 23, 2001 with a deadline for proposal submissions of April 30, 2001.

A total of 13 proposals valued at \$118,889 were submitted by WPI faculty. After selecting reviewers and providing copies of all proposals during the first week of May, the RDC convened a review session on June 14, 2001, after which awards 8 totaling \$54,392 were made for the period from July 1, 2001 to June 30, 2002 (See Illustration IV-1).

It should be noted that, of the initial \$100,000 allocation for fiscal year 2002, only \$50,000 was appropriated as of the end of FY2001. The remaining \$50,000 was held back pending intermediate review of the operating budget. As a result, an additional 2 awards totaling \$20,905 are still pending as of the date of this annual report.

**RESEARCH DEVELOPMENT COUNCIL  
Research Advancement Program (RAP)  
Awards Listing**

**April 2001 Request for Proposals**

<u>Amount</u> <u>Researcher</u>	<u>Department</u>	<u>Proposal Title</u>	<u>Awarded</u>
Burnham, N.	Physics	Molecular Photomechanics of Bacteriorhodopsin	\$14,006
Camesano, T.	Chemical Engineering	Development of a Novel Technique for Probing Bacterial-Natural Organic Matter Interactions	6,625
Claypool, M. *Kinicki, R.	Computer Science	Congestion Control for Multimedia and the Web on the Internet	8,136
Demetriou, M.	Mechanical Engineering	Aerospace Applications of Intelligent Resource Allocation Control Schemes	12,200
Helmer, K.	Biomedical Engineering	Determination of Changes in Tissue Oxygenation Distributions of Murine Tumors in Response to Radiotherapy	4,425
Weathers, P.	Biology & Biotechnology	Improvement of Biomass Production in a Nutrient Mist Bioreactor	6,800
Zeng, A.	Management	A Framework for Designing an Efficient Outsourcing Process: A Preliminary Study	500
Zhu, J.	Management	Managing the Information Technology (IT) Investment in E-Business and E-Supply Chain Design	<u>1,700</u>
Total Awards			\$54,392

\*Co-Investigator

## V. CONCLUSIONS AND FUTURE DIRECTIONS

Fiscal year 2001 was an exciting and gratifying period for the staff of the Office of Research Administration (ORA). We witnessed the resurgence in faculty interest in sponsored programs, rekindled some old friendships, and made several new ones. Through the significant efforts of our faculty and staff, we also witnessed a more than 117% increase in proposal submissions above the level achieved just two years prior. Finally, we began to see our faculty realize the fruits of their efforts by achieving the second highest award volume in WPI history.

Upon a closer review of the data in the preceding sections of this report, several conclusions may be inferred relative to how the results of fiscal year 2001 should be interpreted by the University and the prospect of sustaining or increasing the current level of activity in the long term.

First, the University's proposal submission rates have increased dramatically, both in terms of numbers and dollars. While in and of itself, this is certainly a good thing, it raises the issue of whether or not this level of activity can be sustained in the long term. Consider that approximately one-third of faculty submitted two-thirds of the proposals over the past two fiscal years. Assuming that most, or all, of these faculty become "fully funded" as a result of their efforts, that leaves two-thirds of the faculty submitting only one-third of proposals in the coming year. While this may be considered an oversimplified view, the continued and increased participation of faculty will be necessary if the University hopes to repeat this performance level and reach or exceed the \$10 million annual funding plateau. This is especially true given the recent departure of several key faculty who were repeat players in the proposal submission process.

Second, the data regarding proposal success rates for fiscal year 2000 indicates that roughly one in three proposals gets funded. Because this success was heavily weighted toward smaller dollar proposals (57.4% of proposals funded were less than \$100,000 and 80.9% of proposals funded were less than \$250,000), the dollar yield more closely approximates 15% (approximately \$39,259 per faculty member). This yield should increase somewhat with the receipt of "out year" funding increments on current awards, provided recent proposal submission levels can be sustained. Increasing the dollar yield over time will be critical to the University's ability to meet the mandate of the strategic plan in achieving an annual faculty expenditure rate of \$60,000 by fiscal year 2006.

Finally, the University has made great strides during the past year in becoming more of presence in the sponsored program environment. For these successes to continue and improve, the University should recognize the financial resource allocation needs of key business functions that will ultimately affect future progress. Some of these needs include:

- additional staffing in ORA to handle data management, proposal/award overflow, industrial contract negotiations, training, funding opportunity dissemination, etc.,

- a proposal and award tracking database that will provide effective and timely business results reporting,
- financial staff in larger departments to localize assistance provided to faculty in proposal submissions, award management and expenditure forecasting, and
- adequate funds for training, workshops and other events of importance to the community.

In addition to the above conclusions and recommendations for fiscal year 2001, ORA commenced a variety of programs and initiatives directed at offering improved service to the WPI community, including:

- A web site for all-things sponsored programs, which includes a sponsored program handbook for investigators, policies and procedures, links to sponsors, and online templates. Although this web site is still under development, faculty and staff are urged to visit and provide comments and/or suggestions for improving it.
- An electronic newsletter to inform the community of legislative and procedural issues, upcoming proposal deadlines, workshops and other events, and significant accomplishments by WPI faculty. Depending on resource availability, ORA hopes to provide the WPI community with continued newsletters in the coming year and, again, would be happy to receive comments and/or suggestions regarding format and content.
- Increased electronic and hard-copy dissemination of significant funding opportunity announcements from federal and other potential sponsors (a listing of opportunities by sponsor distributed in fiscal year 2001 is included in Appendix II). As ORA moves forward, it is hoped that this process can be fine-tuned and expanded in such a way as to provide notification of funding opportunities directly to faculty rather than just to department heads.
- Proposal and creative writing workshops, speakers from the National Science Foundation (NSF) and the National Institutes of Health (NIH), and a web cast from the National Aeronautics and Space Administration (NASA). Faculty and staff should always feel free to suggest other events that might be of interest to them and the community at large.

During fiscal year 2002, ORA hopes to make additional improvements to the way it operates and, contingent upon sufficient resource allocation, offer additional services to assist faculty and staff in their sponsored program activities. Some of the activities planned for fiscal year 2002 include:

- conducting workshops to provide faculty and staff with a better understanding of the "ins and outs" of the sponsored program environment, including budgeting basics,

interpreting and complying with sponsor guidelines, regulations and audits, and legal issues, to mention a few,

- enhancing the ORA web site to make it more functional by creating additional on line forms and providing more funding opportunity information,
- conducting another holiday open house to welcome faculty to ORA,
- creating a periodic open forum for WPI faculty and staff to discuss issues of importance to them and provide answers to questions about participation in the sponsored program environment,
- implementing copying and mailing services for proposals meeting the recommended submission lead times, and
- changing the name "Office of Research Administration" to "Office of Sponsored Programs" to recognize the importance of the faculty's efforts in seeking extramural funding for a variety of activities rather than just research.

Please feel free to comment on and/or make suggestions for improving this annual Report of Sponsored Program Activity in the future.

## **APPENDIX I. FISCAL YEAR 2001 AWARD LISTINGS**

The following listings of awards received in fiscal year 2001 are sorted alphabetically by department and principal investigator. Additional names of co-principal investigators are provided below the principal investigator name with an asterisk (\*).

**AWARDS RECEIVED  
BIOLOGY & BIOTECHNOLOGY DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Politz, S.	Department of Health & Human Services	Genetic Control of Nematode Surface Antigen Switching	\$119,588
Robakiewicz, P.	The Norcross Wildlife Foundation. Inc.	Conservation Genetics of a Vernal Pool Amphibian	<u>2,700</u>
Total Awards (2)			\$122,288

**AWARDS RECEIVED  
BIOMEDICAL ENGINEERING DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Shonat, R.	The Whitaker Foundation	Three Dimensional Imaging of Oxygen Tension in The Diabetic Mouse Retina	\$239,896
Shonat, R.	University of Mass Worcester (DHHS)	Diabetes-Endocrinology Research Center	30,000
Shonat, R.	University of Mass Worcester (DHHS)	Diabetes-Endocrinology Research Center	30,000
Sotak, C.	Department of Education	Graduate Assistance in Areas of National Need - Support in Biomedical Engineering	<u>144,285</u>
Total Awards (4)			\$444,181

**AWARDS RECEIVED  
CHEMICAL ENGINEERING  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Datta, R.	W.L.Gore and Associates, Inc.	Composite Higher Temperature Proton-Exchange Membranes	\$135,141
DiBiasio, D.	NSF	The Role of Information Technology in Student Learning	9,961
Dixon, A.	Synetix	Catalyst Design for Improving Heat Transfer Near the Wall of a Fixed Bed Reactor Tube	55,916
Ma, Y-H.	Shell International Exploration & Production, Inc	Ultra Thin Pd and Pd/ Alloy Membranes for Hydrogen Separation and Reaction Applications	281,500
McNamara, K.	Lockheed Martin	Anticipating Mars Sample Return	77,052
Ribeiro, F.	Department of Energy	Complete Oxidation of Methane on Palladium Catalysts	100,000
Ribeiro, F.	Engelhard Corporation	Kinetics of Water-Gas Shift Reaction	100,000
Ribeiro, F.	Hyperion Catalysis International, Inc.	Nanotubes as Catalyst Supports	40,000
Ribeiro, F.	Hyperion Catalysis International Inc. (DOE)	New Nanoscale Catalysts Based on Molybdenum and Tungsten Carbides and Oxycarbides	50,000
Ribeiro, F.	Hyperion Catalysis International, Inc. (DOE)	New Nanoscale Catalysts Based on Molybdenum and Tungsten Carbides and Oxycarbides	24,183
Ribeiro, F.	Hyperion Catalysis International, Inc. (DOE)	New Nanoscale Catalysts Based on Molybdenum and Tungsten Carbides and Oxycarbides	13,532
Ribeiro, F.	NSF	CAREER: Educational and Research Opportunities in Environmental Engineering: Catalysis as a Tool for Solving Environmental Problems	4,688
Ribeiro, F.	NSF	CAREER: Educational and Research Opportunities in Environmental Engineering: Catalysis as a Tool for Solving Environmental Problems	25,000
Wyslouzil, B.	NSF	Collaborative Experimental Investigation of Vapor Phase Nucleation	16,000

**AWARDS RECEIVED  
CHEMICAL ENGINEERING (CONTINUED)  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Wyslouzil, B.	NSF	CRAEMS: Fundamental Studies of Nanoparticle Formation in Air Pollution	<u>\$988,915</u>
Total Awards (15)			\$1,921,888

**AWARDS RECEIVED**  
**CHEMISTRY & BIOCHEMISTRY DEPARTMENT**  
**JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Arguello, J.	Americal Chemical Society	Selectivity Determinants in Heavy Metal Transport ATPases	\$60,000
Arguello, J.	NSF	Crystallization of P1-Type Heavy Metal Transport ATPase	5,375
Dittami, J.	BASF Bioresearch Corporation	Synthesis of New Heterocyclic Pharmacophore Scaffolds and Their Evaluation for Applicability to Drug Research	50,000
McGimpsey, W.G.	Bayer Corporation	Development of Optical Probes for Blood Analytes	<u>7,000</u>
Total Awards (4)			\$122,375

**AWARDS RECEIVED  
CIVIL & ENVIRONMENTAL ENGINEERING  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Mallick,R.	Infrasense, Inc.	Non-Destructive Measurement of Pavement Layer Thickness	\$22,037
Mallick, R.	Maine Department of Transportation	Evaluation of Properties of Subsurface Soils and Reclaimed Base Material	26,000
Mallick, R.	University of Mass Dartmouth (NETC)	Evaluation of Permeability of Superpave Mixes	49,723
Mallick, R.	University of New Hampshire (DOT - FHWA)	Development of a Rational and Practical Mix Design System for Full Depth Reclamation	31,519
Ray, M. *Weir, J.	American Traffic Safety Services Association	ATSSA Guardrail Installation Training Course	17,867
Ray, M.	Department of Transportation	Center of Excellence in DYNA3D Analysis	49,805
Ray, M.	Department of Transportation	Center of Excellence in DYNA3D Analysis	50,000
Ray, M.	NSF	Acquisition of Structural Mechanics Testers	100,000
Ray, M.	University of Iowa (DOT - FHWA)	Side Impact: Finalizing the Test Procedures & Preliminary Countermeasures	60,000
Ray, M.	University of West Virginia (NAS)	Development of an Improved Roadside Barrier System	<u>60,792</u>
Total Awards (10)			\$467,743

\*Co-Principal Investigator

**AWARDS RECEIVED  
COMPUTER SCIENCE DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Cruz, I.	National Imagery and Mapping Agency	Multi-level Tailorable Visualizations for Decision Support in a Distributed Information Environment	\$113,718
Cruz, I.	NSF	Visual Query Languages for Database Systems	8,076
Fisler, K.	Northeastern University (NSF)	Computing Education for Every Student in Secondary Schools	46,568
Heineman, G.	Columbia University (Air Force)	Coping with Complexity: A Standards Based Kinesthetic Approach to Monitoring Non-Standard Componentbased Systems	60,000
Heineman, G.	Columbia University (Air Force)	Coping with Complexity: A Standards Based Kinesthetic Approach to Monitoring Non-standard Component-based Systems	12,200
Heineman, G.	NSF	A Model for Designing Adaptable Software Components	50,000
Rundensteiner, E.	NSF	Data Warehouse Maintenance Over Dynamic Distributed Information Sources	80,000
Rundensteiner, E.	NSF	NYI: Object-oriented Database Tools for Supporting Complex Evolutionary Software Systems	37,500
Rundensteiner, E.	NSF	NYI: Object-oriented Database Tools for Supporting Complex Evolutionary Software Systems	6,000
Ward, M. *Rundensteiner, E.	NSF	Hierarchical Visualization Techniques for Data Mining	12,000
Wills, C.	NSF	Exploiting Object Relationships for More Deterministic Management of Distributed Objects	<u>66,141</u>
Total Awards (11)			\$492,203

\*Co-Principal Investigator

**AWARDS RECEIVED  
ELECTRICAL & COMPUTER ENGINEERING DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Bromberg, M.	Radix Wireless, Inc.	Synchronization and Gain Control for Wireless OFEM Communication Using Smart Antennas	\$19,578
Clements, K. *Davis, P.	NSF	Stochastic OPF and Transaction Monitoring in Deregulated Power Markets	92,618
Looft, F.	NASA	Student Projects at the Goddard Space Flight Center	20,000
Looft, F.	NSF	Mechanosensitivity of Tactile Receptors	65,024
Ludwig, R. *Sullivan, J.	Department of Health & Human Services	Non-invasive Devices for FMRI Studies in Cocaine Abuse	55,055
Ludwig, R.	University of Mass Worcester (DHHS)	Feasibility Study to Develop a Novel Surface Gradient Technology for High Field MRI	29,034
Makarov, S.	NSF	Analysis and Design of Volume Photonic Metal Grid Antenna Elements	140,000
Makarov, S.	SFE, Berlin	Extension of Finite Element Acoustic Calculations to Medium Frequency Range	10,000
McNeill, J.	Perkin Elmer Optoelectronics	CMOS Linear Image Sensor	6,500
Pahlavan, K.	NSF	Indoor Geolocation Science for 4G Wireless Information	269,999
Pahlavan, K. *Makarov, S. *Beneat, J.	University of Oulu Finland	Preliminary Study of Small-Scale Ultra Wideband Antennas	<u>15,000</u>
Total Awards (11)			\$722,808

\*Co-Principal Investigator

**AWARDS RECEIVED  
FIRE PROTECTION ENGINEERING DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Barnett, J.	Navy	R & D of an Improved Full Scale Flame Test Apparatus for Clothing	\$147,245
Barnett, J.	National Institute of Standards & Tech.	Characterizing the Entry Resistance of Smoke Detectors	106,393
Barnett, J.	SFPE Educational & Scientific Foundation	SFPE Student Research	5,000
Zalosh, R.	National Fire Protection Research Foundation	International Road Tunnel Fire Detection	<u>10,000</u>
Total Awards (4)			\$268,638

**AWARDS RECEIVED  
MANAGEMENT DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Gerstenfeld, A.	Department of Education	Africa: A Focus on the Southern Cone	\$84,182
Strong, D. *Elmes, M. *Volkoff, O.	NSF	The Relationship of Enterprise Resource Planning (ERP) Implementation to Organizational Changes in Control, Task Structure, and Workarounds	299,987
Zeng, A.	APICS	Managing Information Flows in Global Supply Chains: A Bilateral Study	<u>4,746</u>
Total Awards (3)			\$388,915

\*Co-Principal Investigator

**AWARDS RECEIVED  
MATHEMATICAL SCIENCES DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Chen, M.	Dana-Farber Cancer Institute (DHHS)	Inference in Regression Models with Missing Covariates	\$37,029
Chen, M.	Dana-Farber Cancer Institute (DHHS)	Bayesian Approaches to Model Selection for Survival Data	33,507
Lipton, R.	Air Force	Characterization and Design of Electromagnetic, Chemical, and Thermal Transport Processes for Multiphase Systems	17,886
Lipton, R.	NSF	Optimal Design of Materials Structures and Devices	59,000
Lurie, K.	NSF	Material Mixing in Space-time and Dynamic Control in the Coefficients of Linear Hyperbolic Equations	30,000
Nandram, B.	Department of Health & Human Services	Optimizing Aggregation Parameters for Geographic Analysis	29,985
Vernescu, B. *Heinricher, A.	NSF	Research Experiences for Undergraduates in Industrial Mathematics and Statistics	61,171
Vernescu, B.	NSF	REU Site: Research Experience for Undergraduates in Industrial Mathematics and Statistics	20,500
Walker, H.	Sandia National Laboratory (DOE)	Nonlinear Solvers Research and Short Course	53,349
Walker, H.	University of Utah (DOE)	Numerical Algorithms and Software for C-Safe	89,059
Yakovlev, V.	Energyst Development Center, LLC	Models of Electromagnetic Processes in Combined System of Microwave Thermal Processing	30,927
Yakovlev, V.	The Ferrite Company, Inc.	Computer Characterization of Systems of Microwave Thermal Processing	<u>20,566</u>
Total Awards (12)			\$482,979

\*Co-Principal Investigator

**AWARDS RECEIVED  
MECHANICAL ENGINEERING  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Alexandrou, A. *Apelian, D.	DOE	Microstructural Development and Characterization	\$ 102,745
Alexandrou, A. *Apelian, D.	DOE	Semisolid Metal Processing Consortium	250,000
Apelian, D.	UT-Battelle, LLC (DOE)	Optimization of Heat Treating Response of SSM Processed Aluminum Based Casting Alloys	40,000
Bar-on, I	NSF	POWRE: Comparison of Solid Oxide Fuel Cell Technologies Based on Technological Cost & Environmental Impact Assessment	70,000
Fofana, M. *Rencis, J.	NSF	REU Site for Industrial Projects in Manufacturing Engineering	48,310
Gatsonis, N.	NASA	Experimental Investigation and Modeling of Pulsed Plasma Thruster Plumes	55,598
Gatsonis, N.	Air Force	Mathematical and Computational Issues in Advanced Gas and Plasma Microthrusters	50,053
Gatsonis, N.	MIT (NASA)	WPI/Space Grant Aerospace Projects	10,834
Hermanson, J.	NSF	CAREER: Disruption and Vaporization of Superheated Droplets in Compressible Flow	50,000
Hermanson, J. *Alexandrou, A. *Pedersen, P.	NASA	Stability and Heat Transfer Characteristics of Condensate Fluid Layers in Reduced Gravity	79,445
Hermanson, J. *Johari, H.	NASA	Combustion Characteristics of Fully-modulated, Turbulent Diffusion Flames	112,067
Hermanson, J.	NSF	Disruption and Vaporization of Superheated Droplets in Compressible Flow	10,000
Hoffman, A.	University of Mass Worcester (DHHS)	Stretch Sensitivity of Mouse Cutaneous Afferent Neurons	33,877
Hou, Z.	Factory Mutual Research Corporation	A Feasibility Study on Using Advance Technology to Improve Performance of Roof Systems in Severely Windy Environment	25,500

\*Co-Principal Investigator

**AWARDS RECEIVED  
MECHANICAL ENGINEERING (CONTINUED)  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Johari, H.	Army	Aerodynamics of Parachute Opening	\$17,605
Johari, H.	Army	Aerodynamics of Parachute Opening	46,255
Katz, R.	MER Corp. (Army)	Novel, Low-Cost Processing of Functionally Gradient Ceramic-Matrix, Metal-Matrix Composite Materials	30,177
LaFlamme, S.	DOE	The WPI Reactor Nuclear Science Outreach Program	7,000
Makhlouf, M. *Apelian, D	Advanced Technology Institute (DOE)	Development of an Electronic Data Base for Rapid Selection of Aluminum Die Casting Alloys	238,190
Olinger, D.J. *Demetriou, M.	Navy	Low-Dimensional Modeling of Flow Induced Cable Vibratin	76,851
Pryputniewicz, P. *Furlong, C.	BWXT Pantex (DOE)	Optimization of Optoelectronic Holography System	135,451
Pryputniewicz, P. *Furlong, C.	BWXT Pantex (DOE)	Development of a Laser-based Optoelectronic Holography System for Inside Shape Measurements	139,613
Pryputniewicz, R.	BWXT Pantex (DOE)	Semi-automation of Optoelectronic Holography System	50,000
Pryputniewicz, P. *Furlong, C.	Sandia National Laboratories (DOE)	Investigation of a Matrox Frame Grabber	25,000
Rong, Y.	Delphi Automotive Systems	Dedicated Fixture Design and Verification	20,000
Rong, Y.	Ford Motor Company	Computer-aided Fixture Design Verification	50,000
Rong, Y.	NSF	GOALI: Integrated and Computerized Setup Planning and Fixture Design	199,491
Rong, Y.	Seagate Technology	System Analysis, Design and Development for Sealink Project	34,636
Rong, Y.	Seagate Technology	System Analysis, Design and Development for Sealink Project	18,195

\*Co-Principal Investigator

**AWARDS RECEIVED  
MECHANICAL ENGINEERING (CONTINUED)  
JULY 1, 2000 TO JUNE 30, 2001**

<u>Principal Investigator(s)</u>	<u>Sponsor</u>	<u>Project Title</u>	<u>Amount</u>
Sullivan, J.	Dartmouth College (DHHS)	Adaptive Dual Mesh Strategy Development in Support of Alternative Breast Cancer Imaging Modalities	\$43,396
Sullivan, J.	University of Mass Worcester (DHHS)	Functional MRI of Sexual Motivation in Nonhuman Primates	29,538
Sullivan, J.	University of Mass Worcester (DHHS)	Functional MRI of Sexual Motivation in Nonhuman Primates	41,071
Tryggvason, G.	Brown University (DARPA)	Micro-bubble and Micro-bubble/Polymer Turbulent Drag Reduction	157,337
Tryggvason, G.	Chevron Petroleum Technology Company	Advanced Modeling of Multiphase Flow Problems Phase III	65,004
Tryggvason, G.	NASA	Splashing Drops	25,000
Tryggvason, G.	NASA	Computational Modeling of the Effect of Secondary Forces on the Phase Distribution in Dispersed Multiphase Channel Flows	95,000
Tryggvason, G.	NASA	Computations of Boiling in Microgravity	<u>72,500</u>
Total Awards (37)			\$2,555,739

\*Co-Principal Investigator

**AWARDS RECEIVED  
PHYSICS DEPARTMENT  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Iannacchione, G.	NSF	CAREER: Random Disorder in Phase Transitions of Complex Fluids	\$94,100
Ram-Mohan, L. R.	NSF	Investigation of Physical Mechanisms in Multi-band Tunneling in Layered Semiconductor Structures	117,977
Ram-Mohan, L. R.	Univ. of Buffalo (DARPA)	Spintronics and Spin-Photonics in Ferromagnetic InAs/GaSb-Based Heterostructures	74,893
Zozulya, A.	Univ. of Colorado at Boulder (Army)	Atom Beam Splitters	<u>70,000</u>
Total Awards (4)			\$356,970

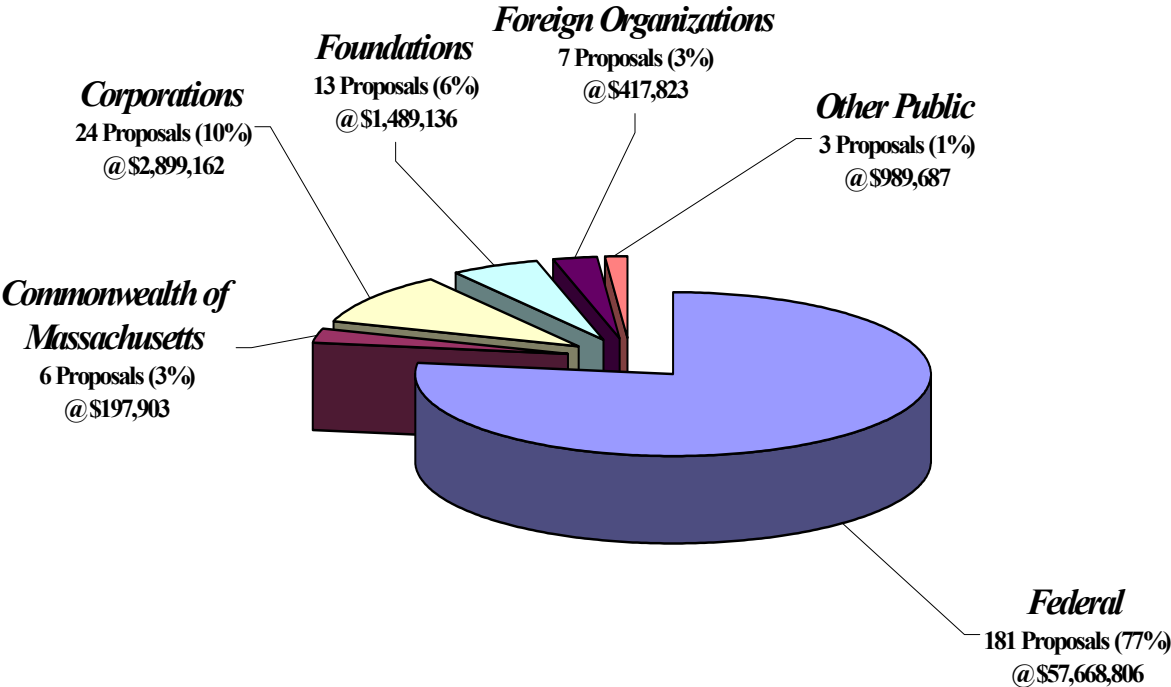
**AWARDS RECEIVED  
OTHER DEPARTMENTS  
JULY 1, 2000 TO JUNE 30, 2001**

<b><u>Principal Investigator(s)</u></b>	<b><u>Sponsor</u></b>	<b><u>Project Title</u></b>	<b><u>Amount</u></b>
Durgin, W.	NSF	Graduate Research Fellowship Program	<u>\$54,600</u>
Total Awards (1)			\$54,600

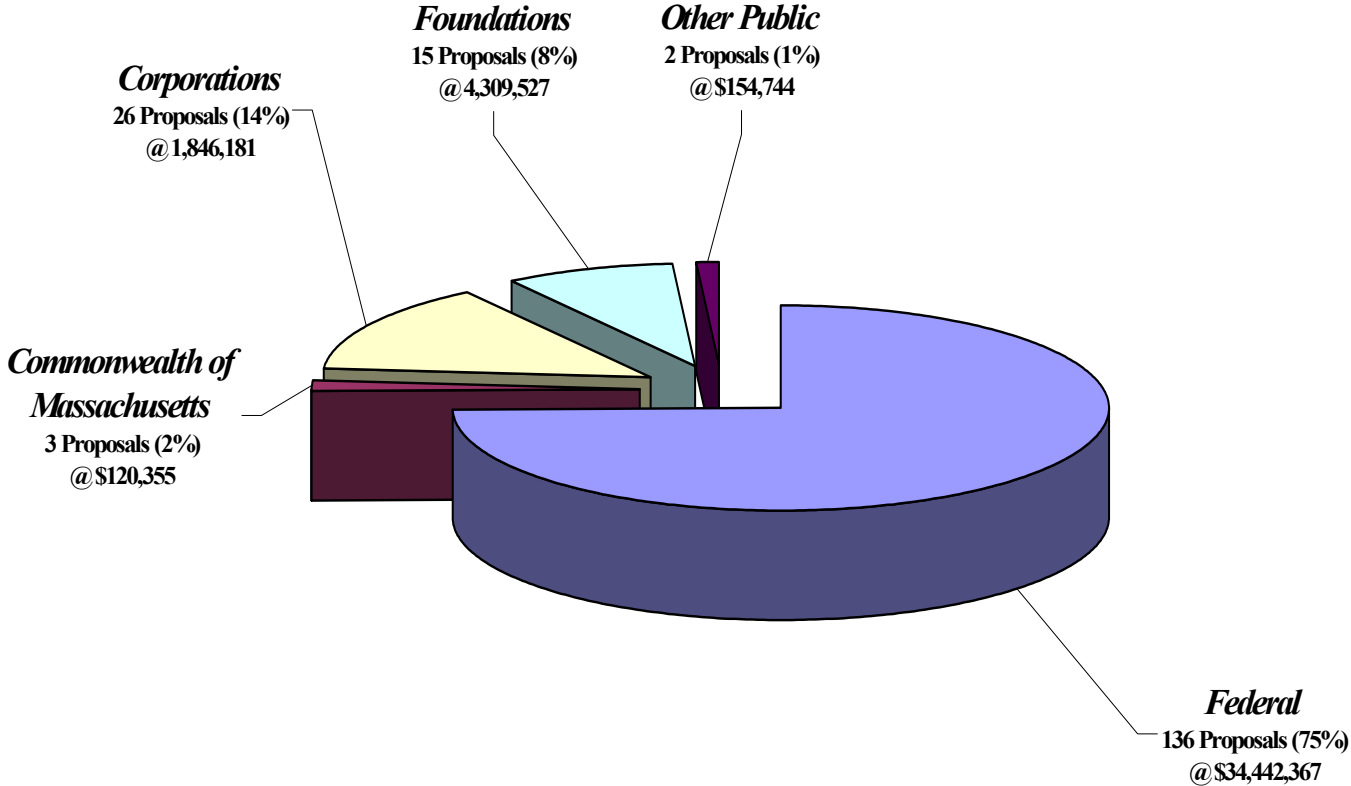
## **APPENDIX II. SUPPLEMENTARY DATA**

Several additional schedules and charts are provided as information supplemental to that included within the main sections of the report.

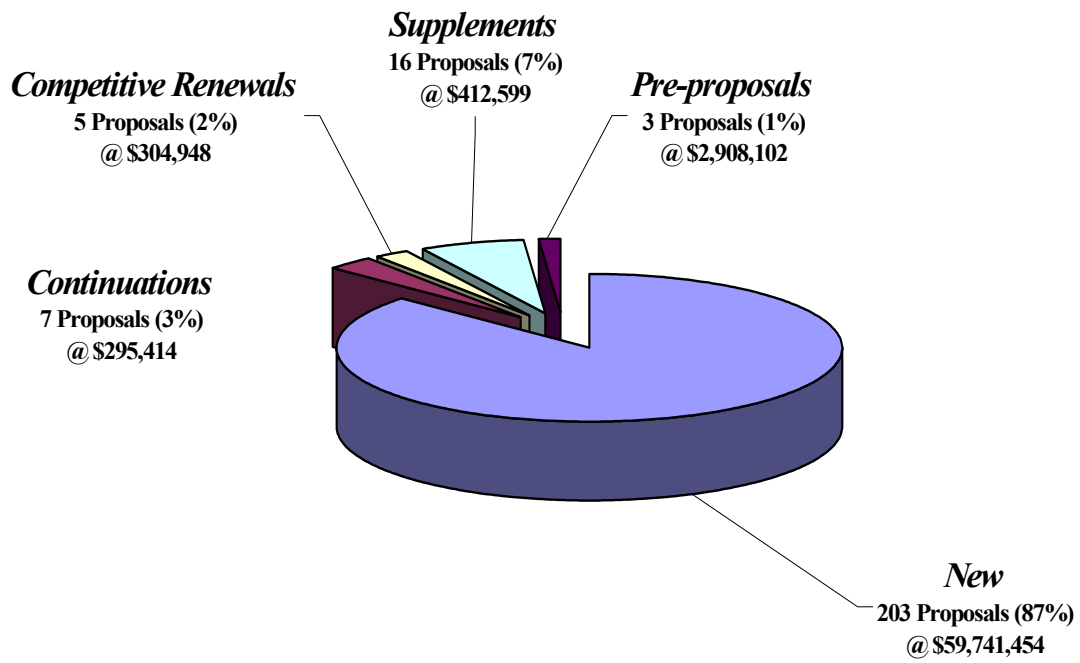
**FY2001 Proposal Submissions by Type of Sponsor  
(234 Proposals @ \$63,662,517)**



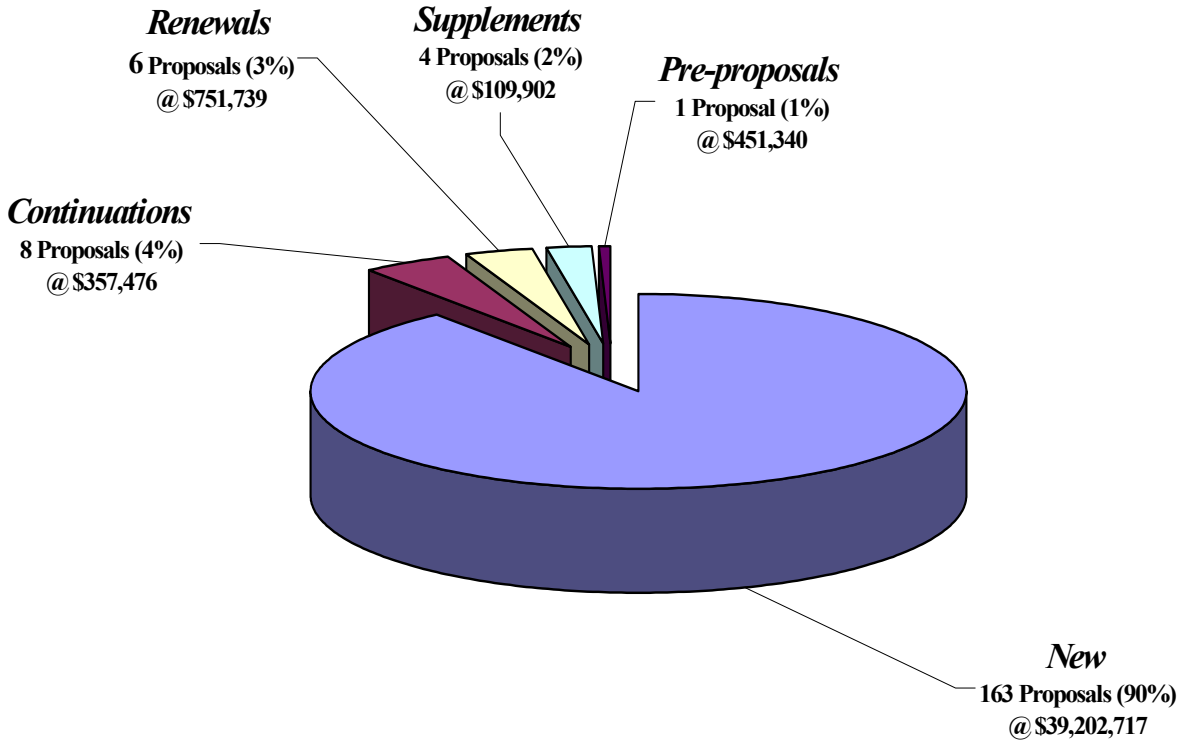
**FY2000 Proposal Submissions by Type of Sponsor**  
**(182 Proposals @ \$40,873,174)**



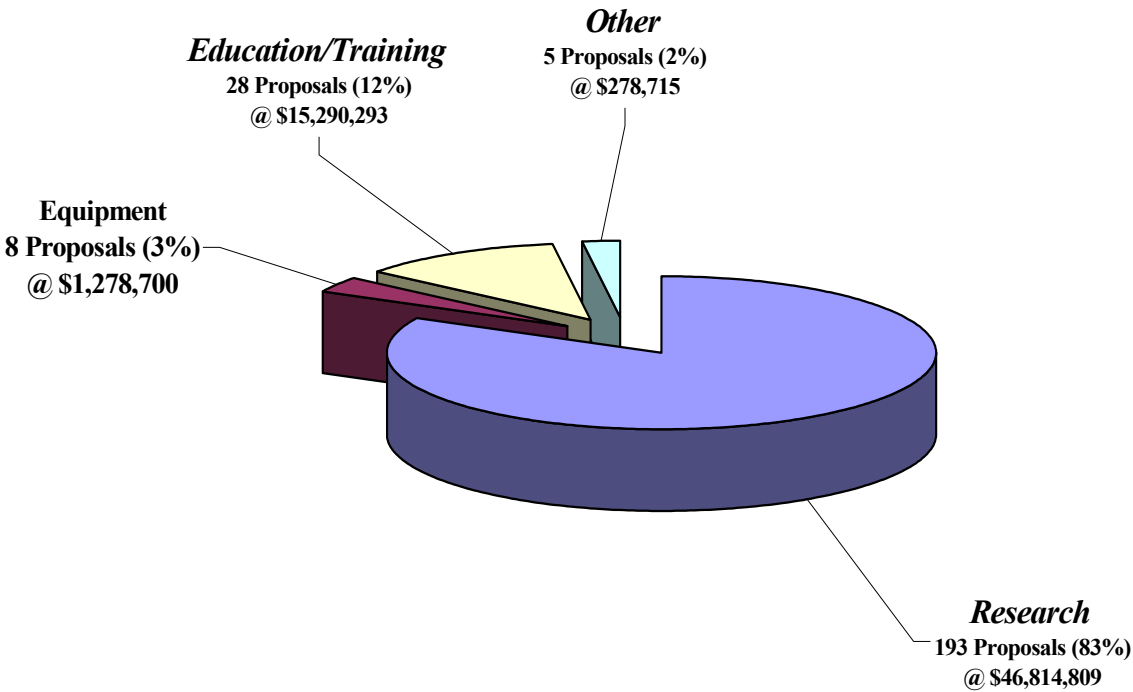
**FY2001 Proposal Submissions by Type of Proposal**  
**(234 Proposals @ \$63,662,517)**



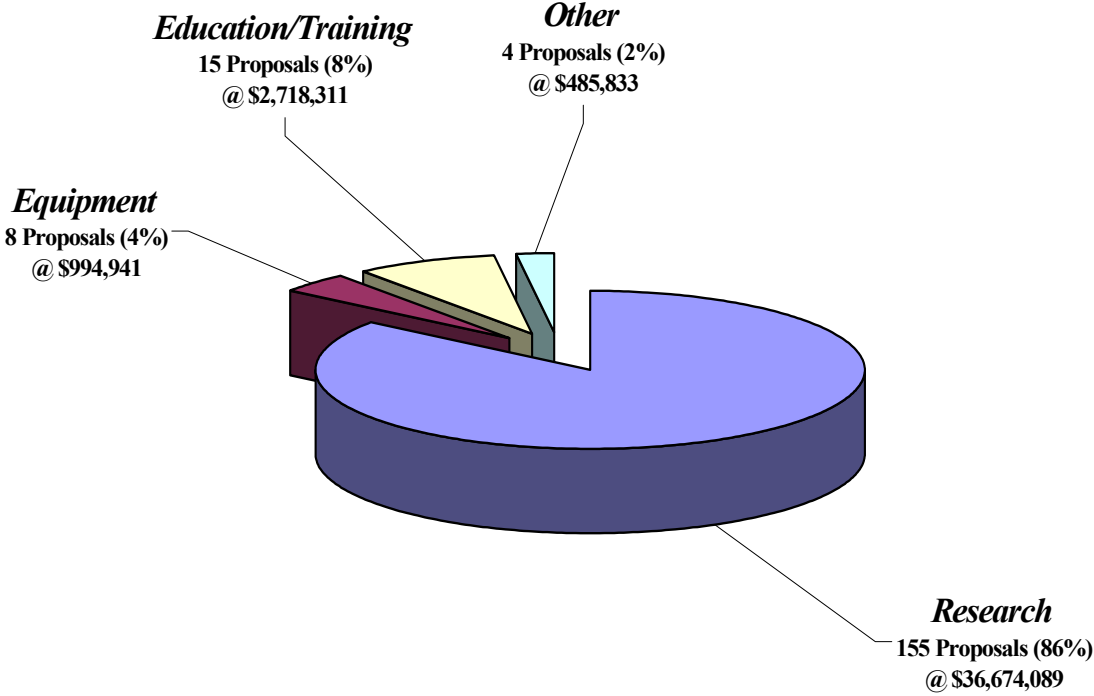
**FY2000 Proposal Submissions by Type of Proposal**  
**(182 Proposals @ \$40,873,174)**



**FY2001 Proposal Submissions by Type of Activity**  
**(234 Proposals @ \$63,662,517)**



**FY2000 Proposal Submissions by Type of Activity**  
**(182 Proposals @ \$40,873,174)**



**Worcester Polytechnic Institute  
Pre-proposal Submissions  
July 1, 2000 to June 30, 2001**

<b>Investigator</b>	<b>Department</b>	<b>Sponsor</b>	<b>Amount<sup>1</sup></b>
M. Bromberg	Electrical & Computer Engineering	U.S. Army Medical Research and Materiel Command	\$538,000
N. Burnham	Physics	Department of Energy	0
R. Datta *Y-H. Ma	Chemical Engineering	National Science Foundation	100,000
M. Fofana	Mechanical Engineering	University of Kentucky Research Foundation (NSF)	280,000
R. Mallick	Civil & Environmental Engineering	University of New Hampshire (Federal Highway Administration)	246,093
Y. Mendelson	Biomedical Engineering	U.S. Army Medical Research and Materiel Command	2,149,000
P. Pedersen	Electrical & Computer Engineering	U.S. Army Medical Research and Materiel Command	466,000
R. Pryputniewicz	Mechanical Engineering	National Imagery & Mapping Agency	496,684
L. R. Ram-Mohan	Physics	Air Force Office of Scientific Research	345,657
F. Ribeiro	Chemical Engineering	Department of Energy	0
K. Wilkens	Management	Foundation for Managed Derivatives Research	16,025
J. Zeugner	Interdisciplinary & Global Studies	Department of Defense (U.S. Army)	<u>423,594</u>
Total Pre-proposal Submissions			<u><u>\$5,061,053</u></u>

<sup>1</sup>Not all pre-proposals include budgets.

**Worcester Polytechnic Institute**  
**Summary of Participation in Sponsored Program Activities**  
**FY2001 and FY2000**

	<u>FY2000</u>	<u>FY2001</u>	<u>% Change</u>
<b><i>Total of all proposal submissions</i></b>	182	234	28.6%
<b><i>Proposal submissions as a Principal Investigator (PI)</i></b>			
No. of new regular faculty proposals on which faculty member is PI	11	39	254.5%
No. of regular faculty proposals as PI, excluding new faculty	161	177	9.9%
No. of non-tenure track & staff proposal submissions as PI	10	18	80.0%
Totals	<u>182</u>	<u>234</u>	28.6%
<b><i>Proposal submissions as a Co-Principal Investigator (CPI)</i></b>			
No. of regular faculty proposals on which new faculty member is CPI	3	9	200.0%
No. of regular faculty as CPIs, excluding new faculty	37	62	67.6%
No. of other non-tenure faculty and staff as CPIs	4	18	350.0%
Totals	<u>44</u>	<u>89</u>	102.3%
<b><i>Participation levels as a Principal Investigator (PI)</i></b>			
New regular faculty participating in proposal submissions as a PI	7	18	157.1%
Regular faculty participation as a PI, excluding new faculty	78	69	-11.5%
Subtotals	85	87	2.4%
Percentage of regular faculty participating as a PI	39.7%	40.7%	
Other participation as a PI by non-tenure track faculty and staff	8	12	50.0%
Totals	<u>93</u>	<u>99</u>	6.5%
<b><i>Participation levels as a Co-Principal Investigator (CPI)</i></b>			
New regular faculty participating in proposal submissions as a CPI	2	9	350.0%
Regular faculty participation as a CPI, excluding new faculty	30	38	26.7%
Subtotals	32	47	46.9%
Percentage of regular faculty participating as a CPI	15.0%	22.0%	
Other participation as a CPI by non-tenure track faculty and staff	4	10	150.0%
Totals	<u>68</u>	<u>104</u>	52.9%
<b><i>Total WPI participation in sponsored programs as either a PI, CPI or both</i></b>			
New regular faculty	12	18	50.0%
Regular faculty, excluding new faculty	94	90	-4.3%
Subtotal regular faculty participation	<u>106</u>	<u>108</u>	1.9%
Percentage of regular faculty participation	49.5%	50.5%	
Non-tenure track faculty and staff	12	19	58.3%
Total faculty and staff participation	<u>118</u>	<u>127</u>	7.6%
Non-tenure track faculty and staff participation as a percentage of regular faculty participation	11.3%	17.6%	

Notes: All data on regular faculty are based on Fall 2000 total (214). New faculty are defined as having been at WPI for 2 years or less. Data are based on hand counts and may contain minor discrepancies.

**Worcester Polytechnic Institute**  
**Summary of Special Considerations Indicated on Proposals**  
**FY2001 and FY2000**

<b>Type of Special Consideration</b>	<b>FY2001</b>	<b>% of Total</b>	<b>FY2000</b>	<b>% of Total</b>
	<b>Based on 234 Proposals</b>		<b>Based on 182 Proposals</b>	
1. Use of human subjects?	3	1.3%	3	1.7%
2. Use of vertebrate animals?	3	1.3%	2	1.1%
3. Use or generation of hazardous materials?	20	8.5%	8	4.4%
4. Purchase of equipment required?	89	38.0%	86	47.5%
5. Additional space or remodeling required?	13	5.6%	3	1.7%
6. Additional (non-student) personnel required?	32	13.7%	34	18.8%
7. Graduate student assistants required?	157	67.1%	117	64.6%
8. Introduction of new course work?	15	6.4%	13	7.2%
9. Consultants or subcontractors required?	37	15.8%	27	14.9%
10. Academic year faculty salary budgeted?	56	23.9%	28	15.5%
11. Proprietary/priviliged information included?	13	5.6%	16	8.8%
12. Specialized research equipment facility use required?	34	14.5%	19	10.5%
13. Use of in-house service shops?	40	17.1%	29	16.0%

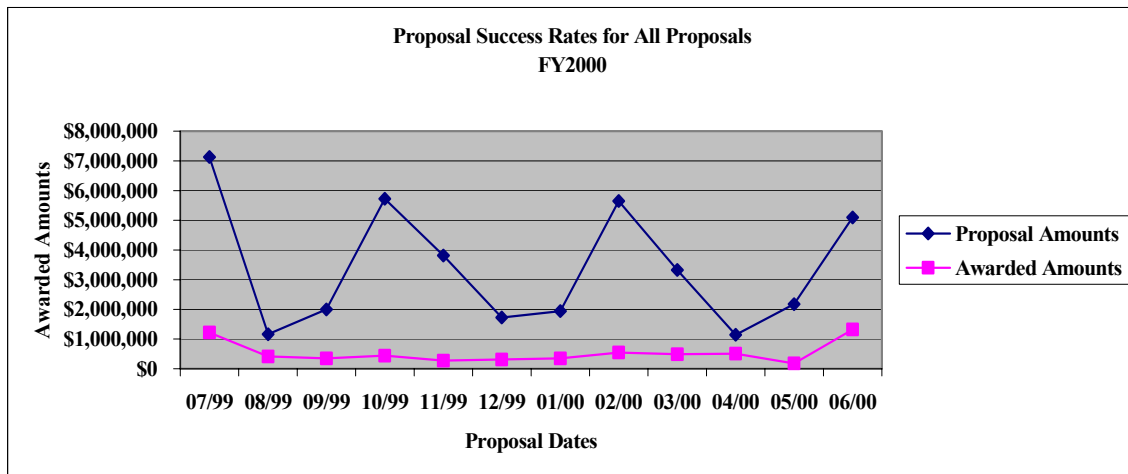
**Worcester Polytechnic Institute  
Proposal Success Rates  
All Proposal Submissions  
FY2000**

**FY2000 Total Proposal Submissions:**

**Yielded the Following Awards<sup>1</sup>:**

<u>Date</u>	<u>No. of Proposals</u>	<u>Proposed Amounts</u>	<u>No. of Awards</u>	<u>Awarded Amounts</u>	<u>Proposal Success Rate</u>	<u>% of Request Awarded</u>
07/99	24	\$7,130,356	10	\$1,219,763	41.7%	17.1%
08/99	10	1,163,816	4	414,267	40.0%	35.6%
09/99	13	1,995,411	6	342,503	46.2%	17.2%
10/99	12	5,721,901	6	442,965	50.0%	7.7%
11/99	16	3,815,389	5	272,817	31.3%	7.2%
12/99	13	1,728,275	5	305,221	38.5%	17.7%
01/00	15	1,942,775	7	346,218	46.7%	17.8%
02/00	21	5,646,608	6	543,395	28.6%	9.6%
03/00	16	3,322,524	7	488,816	43.8%	14.7%
04/00	12	1,141,636	11	502,192	91.7%	44.0%
05/00	14	2,169,886	3	177,511	21.4%	8.2%
06/00	16	5,094,597	7	1,319,519	43.8%	25.9%
	<u>182</u>	<u>\$40,873,174</u>	<u>77</u>	<u>\$6,375,187</u>	42.3%	15.6%

<sup>1</sup>Actual awards received, including increments to existing awards.



**Worcester Polytechnic Institute  
Proposal Success Rates  
New Proposal Submissions Only  
FY2000**

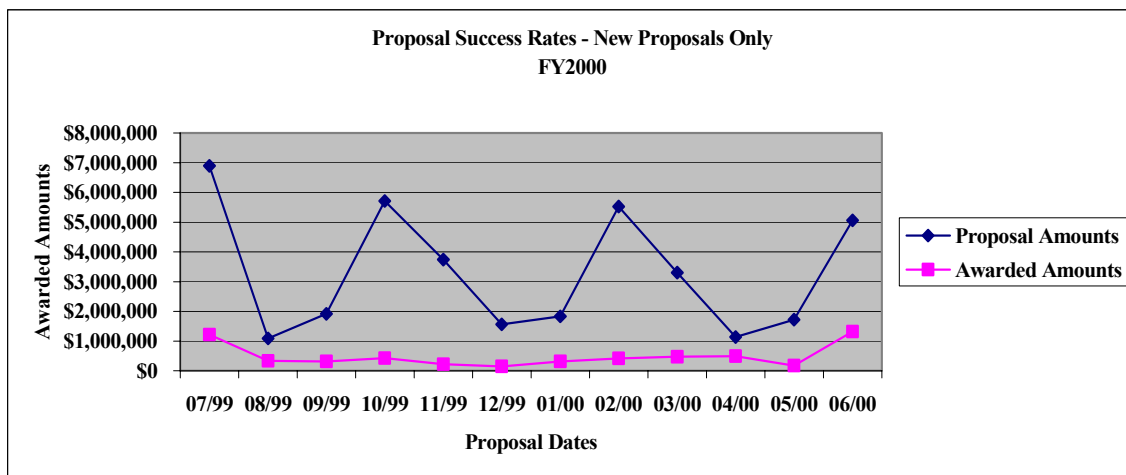
**FY2000 New<sup>1</sup> Proposal Submissions:**

**Yielded the Following Awards<sup>2</sup>:**

<u>Date</u>	<u>No. of Proposals</u>	<u>Proposed Amounts</u>	<u>No. of Awards</u>	<u>Awarded Amounts</u>	<u>Proposal Success Rate</u>	<u>% of Request Awarded</u>
07/99	23	\$6,891,201	9	\$1,219,763	39.1%	17.7%
08/99	9	1,087,983	3	338,434	33.3%	31.1%
09/99	11	1,917,718	4	314,810	36.4%	16.4%
10/99	11	5,711,494	3	432,558	27.3%	7.6%
11/99	14	3,735,389	3	224,237	21.4%	6.0%
12/99	10	1,565,389	3	145,652	30.0%	9.3%
01/00	13	1,835,243	5	313,686	38.5%	17.1%
02/00	20	5,523,799	5	420,586	25.0%	7.6%
03/00	13	3,299,004	5	478,066	38.5%	14.5%
04/00	11	1,130,384	7	490,940	63.6%	43.4%
05/00	13	1,718,546	3	177,511	23.1%	10.3%
06/00	15	5,057,037	7	1,319,519	46.7%	26.1%
	<u>163</u>	<u>\$39,473,187</u>	<u>57</u>	<u>\$5,875,762</u>	<u>35.0%</u>	<u>14.9%</u>

<sup>1</sup>"New" proposals, excluding continuations, competitive renewals, and supplements.

<sup>2</sup>"New" awards, not including subsequent increments.

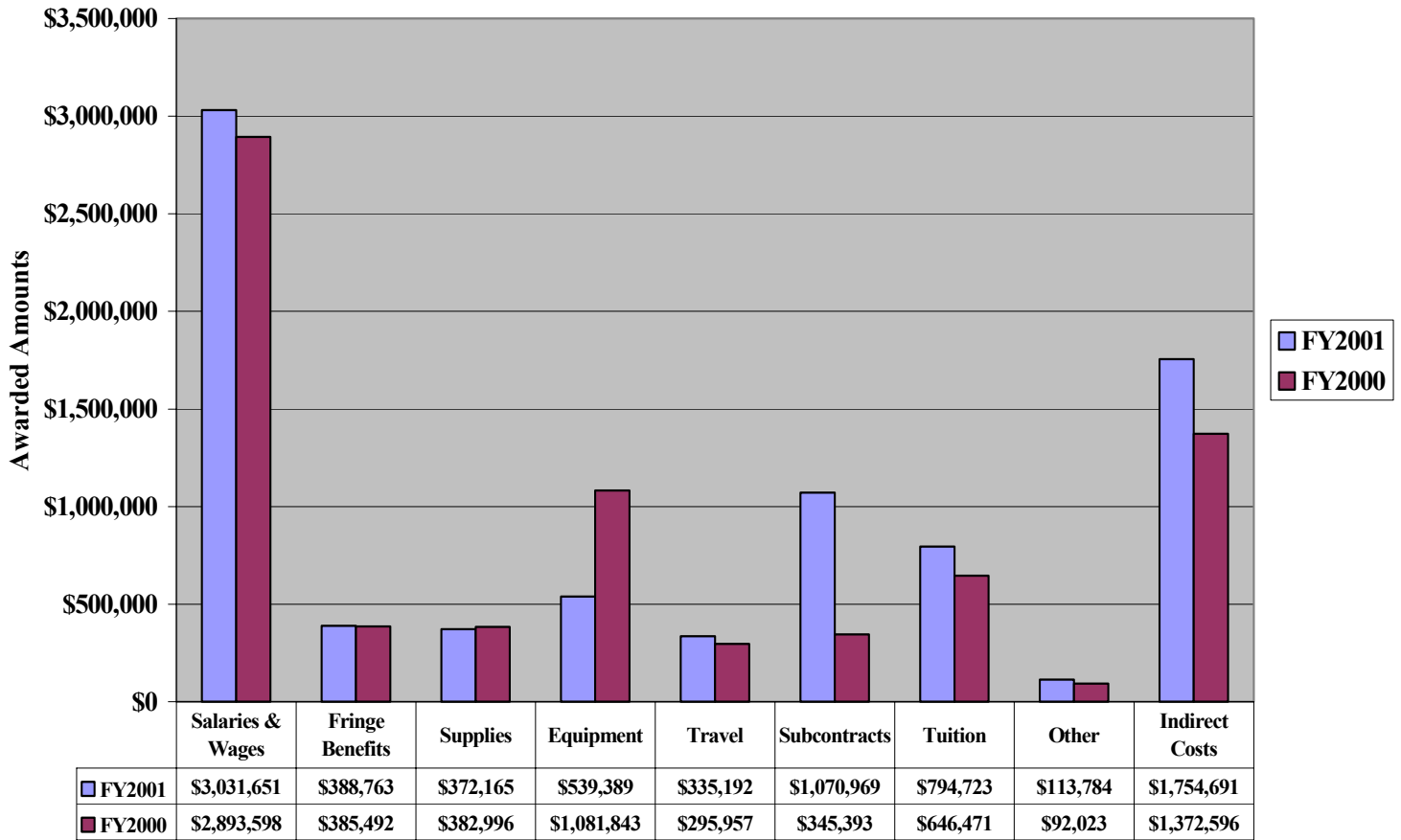


**OFFICE OF RESEARCH ADMINISTRATION  
DISTRIBUTION OF FUNDING OPPORTUNITY ANNOUNCEMENTS  
FISCAL YEAR 2001**

During fiscal year 2001, the Office of Research Administration disseminated a wide variety of funding opportunity announcements to WPI academic departments in an effort to increase participation by faculty.

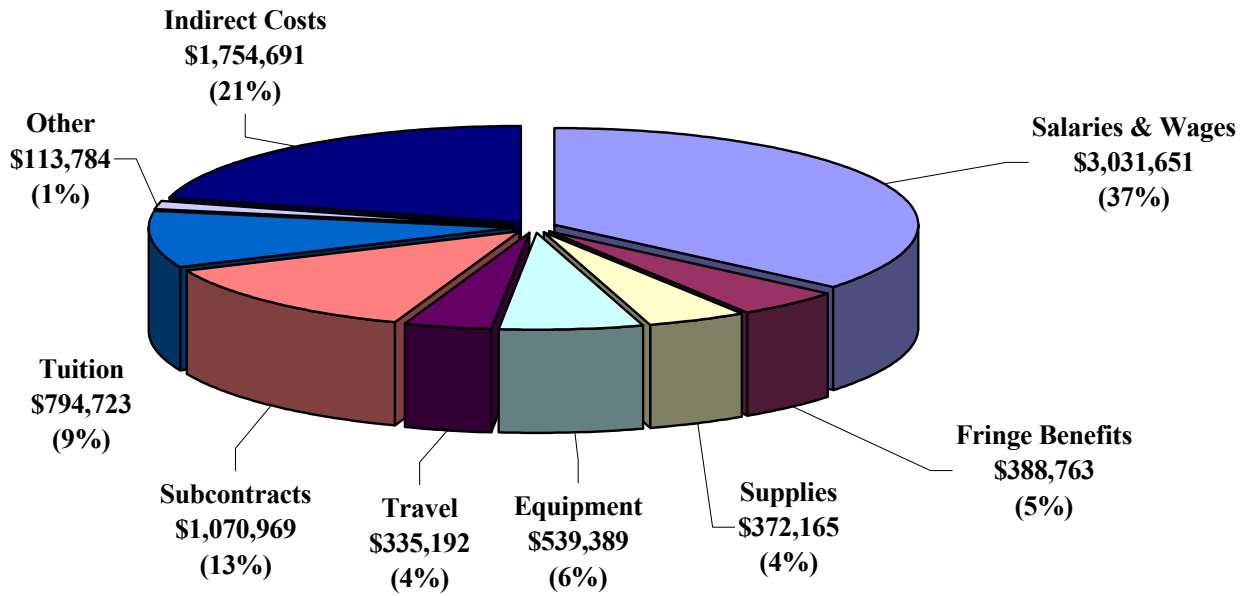
<u>Sponsor or Sponsor Group</u>	<u>Number of Announcements</u>
Air Force, Air Force Research Lab, Air Force Office of Scientific Research, etc.	15
Army, Army Research Lab, Army Medical Research Activity, etc.	15
Defense Advanced Research Projects Agency	23
Department of Commerce, National Oceanic & Atmospheric Administration	9
Department of Agriculture	3
Department of Defense	7
Department of Education	10
Department of Energy	23
Department of State	4
Environmental Protection Agency	14
National Aeronautics & Space Administration	18
National Endowments for the Humanities, National Endowment for the Arts	6
National Institute of Standards & Technology	4
National Institutes of Health	37
National Science Foundation	89
Other Federal (NIST, USGS, NTIA, DOT, NAS, NRC, NIMA, USIP, etc.)	27
Private Foundations and Associations	<u>57</u>
<b>Approximate Total</b>	<u>361</u>

**Comparative Awarded Cost Element Distribution  
FY2001 (Total - \$8,401,327) and FY2000 (Total - \$7,496,369)**

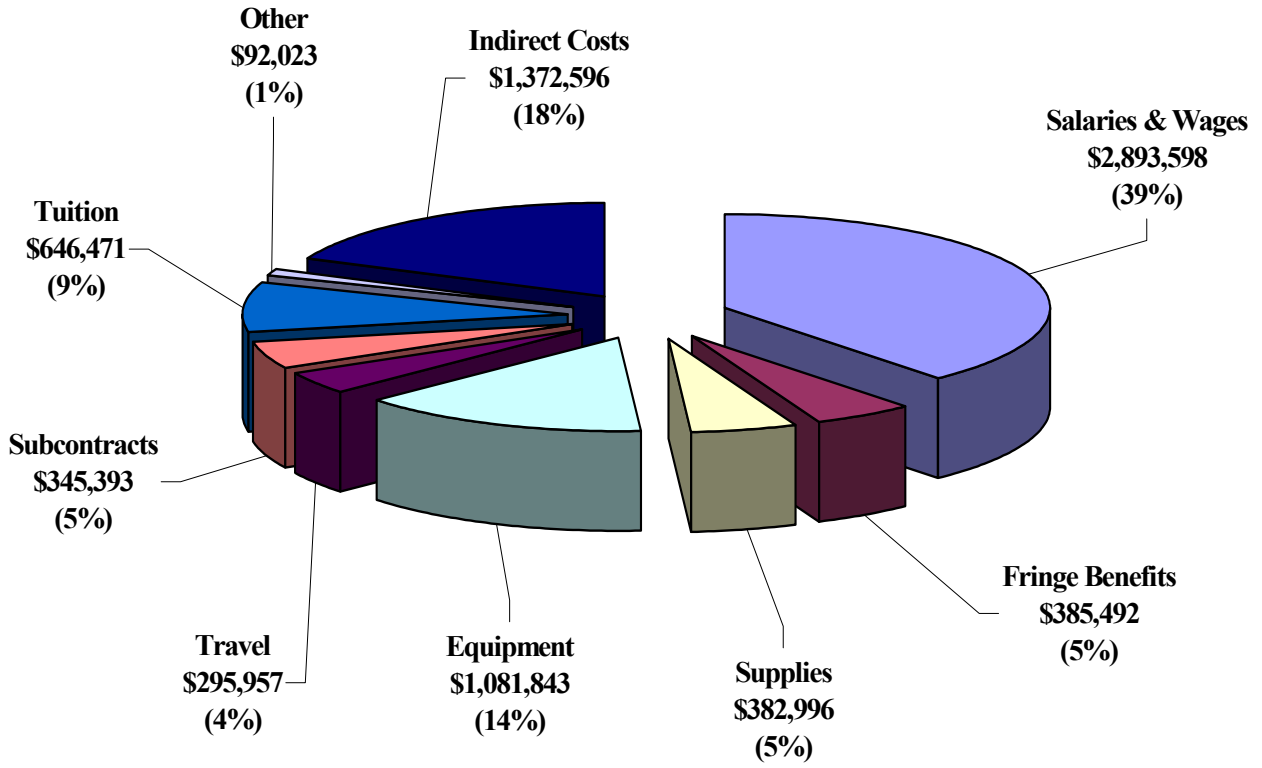


**Cost Elements**

**FY2001 Awarded Cost Element Distribution**  
**Total Award Volume - \$8,401,327**



**FY2000 Awarded Cost Element Distribution**  
**Total Award Volume - \$7,496,369**



### **APPENDIX III. TEN YEAR SUMMARY OF SPONSORED PROGRAM ACTIVITY**

In last year's annual report, which was the first in several years, a ten-year summary of sponsored program activity was provided in the main section to bring the reader up-to-date for the period. This year, a similar summary is being provided for your information as an appendix.

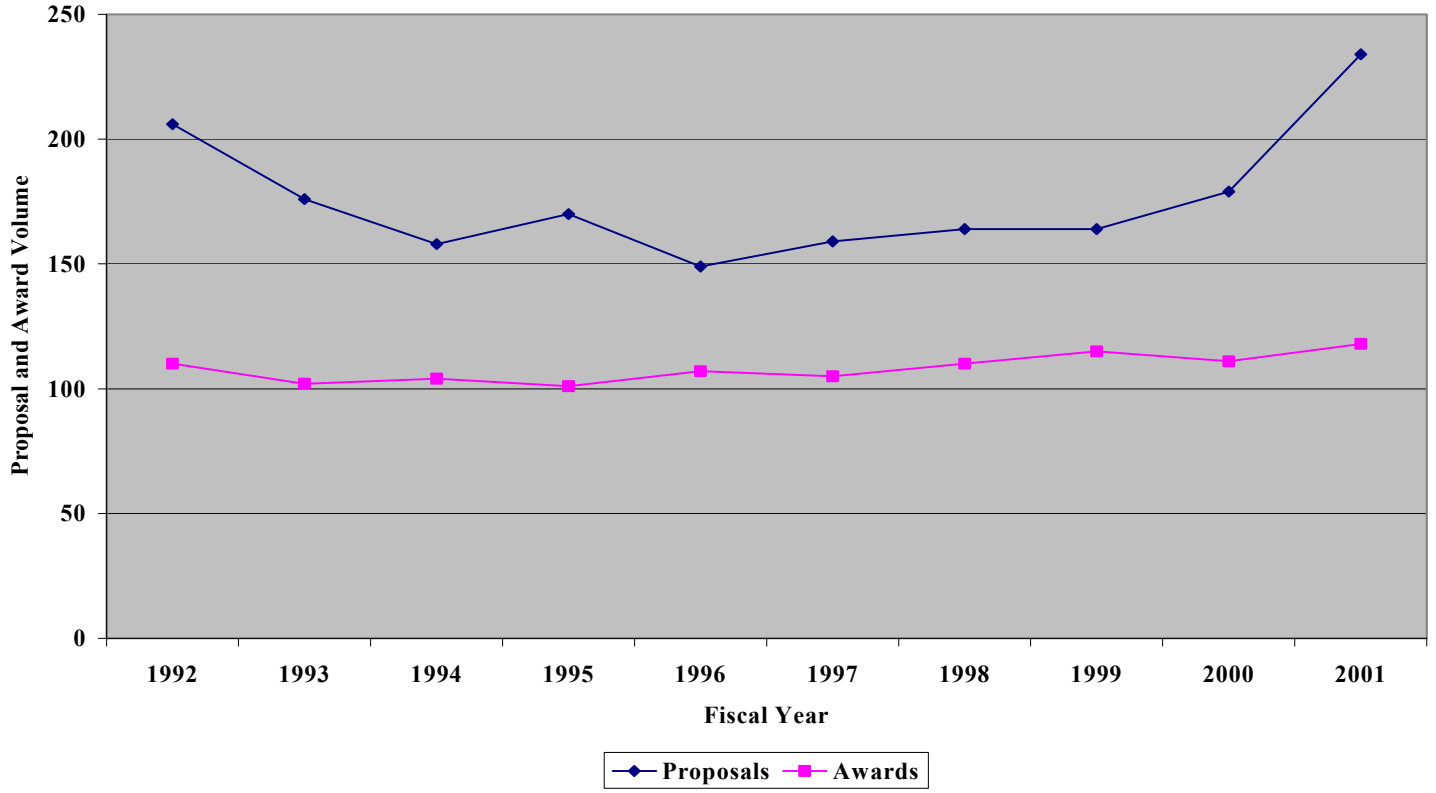
**Worcester Polytechnic Institute**  
**Ten Year Historical Summary of Sponsored Program Activity**  
**FY1992 (Base Year) to 2001**

Fiscal Year	Proposal Volume				Award Volume				Proposal Success Rate <sup>1</sup>	Expenditure Volume		
	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.	No.	Amount	% Change from Prior Yr.	% Change from Base Yr.		Amount	% Change from Prior Yr.	% Change from Base Year
Base 1992	206	36,595,181			110	5,405,609			53.4%	7,966,586		
1993	176	28,449,616	-22.3%	-22.3%	102	5,671,531	4.9%	4.9%	58.0%	10,506,703	31.9%	31.9%
1994	158	26,711,289	-6.1%	-27.0%	104	7,923,591	39.7%	46.6%	65.8%	9,320,007	-11.3%	17.0%
1995	170	35,345,412	32.3%	-3.4%	101	8,853,013	11.7%	63.8%	59.4%	9,715,251	4.2%	21.9%
1996	149	22,897,318	-35.2%	-37.4%	107	7,094,405	-19.9%	31.2%	71.8%	7,954,532	-18.1%	-0.2%
1997	159	27,437,075	19.8%	-25.0%	105	7,078,457	-0.2%	30.9%	66.0%	9,130,422	14.8%	14.6%
1998	164	29,584,759	7.8%	-19.2%	110	6,861,690	-3.1%	26.9%	67.1%	7,681,794	-15.9%	-3.6%
1999	164	29,238,648	-1.2%	-20.1%	115	7,187,816	4.8%	33.0%	70.1%	7,310,849	-4.8%	-8.2%
2000	182	40,873,174	39.8%	11.7%	111	7,496,369	4.3%	38.7%	61.0%	7,604,220	4.0%	-4.5%
2001	234	63,662,517	55.8%	74.0%	118	8,401,327	12.1%	55.4%	50.4%	7,091,737	-6.7%	-11.0%

<sup>1</sup>Proposal success rates are based on the number of awards received divided by the number of proposals submitted.

Source: Research Administration and Research Accounting files

**Worcester Polytechnic Institute  
Number of Proposals and Awards by Fiscal Year**



**Worcester Polytechnic Institute  
Proposal and Award Dollar Volume by Fiscal Year**

