1. Please briefly describe the relationship of your institution's economic development activities to the enhancement of economic growth in the state. The description should cover, but not necessarily be limited to the following:
A. the relationship between institutional activities and creation of jobs and wealth in Iowa
B. Institutional activities and services which indirectly promote economic development, such as training provided to staff of local economic development agencies

1A. Enhancement of Economic Growth through Job Creation and Retention, Investments, Sales, and Cost Savings

Iowa State University engages in several activities that have direct impact on both the creation as well as the retention of jobs in Iowa. The ISU Research Park is a technology community that encourages commercialization of university research. Likewise, the Innovations Development Facility, part of the Plant Sciences Institute, incubates new companies. In addition, the IPRT (Institute for Physical Research and Technology) Company Assistance Program, ISU Extension’s Outreach Center for Industrial Research and Service (CIRAS), the Small Business Development Center (SBDC) and the ISU Pappajohn Center for Entrepreneurship interact with companies across Iowa to solve production and management problems. These interactions lead to the resolution of problems related to product development and business management. As a consequence of the improved production resulting from these interactions, businesses have been able to retain and often expand their work force. Some examples of the direct impact that these ISU units have had this past year are as follows:

- The ISU Research Park continues to be successful in initiating as well as nurturing numerous new businesses. Nine new companies and affiliates have joined the Park in FY11, bringing the historical total to 210 companies, research centers, and affiliates. Currently, there are 53 companies, research centers, and affiliates located in the Park, employing 839 people.
- There are currently four faculty-affiliated start-up companies located in the Innovations Development Facility, the on-campus business incubator in the Roy J. Carver Co-Laboratory under direction of the Plant Sciences Institute. The PSI met with three entrepreneurs interested in forming Limited Liability Corporations involving plant science. They are currently working with these individuals and ISURF (Iowa State University Research Foundation) to develop SBIR phase I proposals to be submitted to USDA and NIH. A total of 15 companies have used this business incubator space since the facility opened in September 2003.
- A summary of project evaluation data clearly shows that Iowa companies with technical problems and research and development needs continue to find important technical help through the services of IPRT Company Assistance. Companies report positive impacts affecting their sales, investments, and operating costs despite the economic recession of 2009-2011. Of the IPRT clients responding to the survey, the estimated impact of projects conducted in FY10 was $16.9 million; the average impact over the last 5 years is $12.8 million
per year. Companies also estimated over twenty-four jobs were created or retained each year from 2005-2010, with twenty jobs retained or created from projects surveyed in the past year. The satisfaction rating given by clients during the past year is 4.8 (1-5 scale, with “1” being “is not satisfied” and “5” being “very satisfied).

- BodyViz, a spin-off company from IPRT’s Virtual Reality Applications Center, was named Breakout Company of the Year for 2011 at the Technology Association of Iowa’s Prometheus Awards ceremony in April. The awards are recognized as Iowa’s largest and most prestigious awards devoted to promoting and celebrating the innovation and high-tech excellence in Iowa. The company, founded in 2007, is the maker of BodyViz software that creates 3D MRI, CT scan visualizations, unlocking medical imaging for the practicing surgeon, diagnostics and treatment. The company is located in the Iowa State University Research Park. It has 3 full-time and 4 part-time employees.

- Catilin Inc., a spin-off of IPRT’s Center for Catalysis (CCAT), has been acquired by Albemarle Corp. of Baton Rouge, LA. Catilin, founded in 2007, is a technology leader in development and application of heterogeneous biodiesel catalysts. The company will restart Catilin’s pilot plant operation at the Iowa Energy Center’s Biomass Energy Conversion (BECON) Facility in Nevada, Iowa, to test catalysts on different feedstocks for reducing the cost of producing biodiesel, with the goal of running the facility 24 hours a day, seven days a week. Two former students of the late Victor S.-Y. Lin, Catilin founder, director of CCAT, and a professor of chemistry at Iowa State University, will be staying with the company.

- The Extension and Outreach Center for Industrial Research and Service (CIRAS) has a mission to improve the quality of life in Iowa by enhancing the performance of industry through applied research, education, and technical assistance. Cumulatively, over the past five years, CIRAS and its partners have reported impact from companies totaling more than one billion dollars (new investments $331 million, costs saved or avoided $83 million, sales gained or retained $960 million) with 18,255 jobs added or retained as a result of the assistance they received.

- In FY11, 1,235 businesses from 95 counties in the state received assistance on projects or attended educational workshops from CIRAS staff or partners. Companies responding to surveys reported $43 million in new investments, $19 million in costs saved or avoided, and $331 million in sales gained or retained. Company executives stated that 6,037 jobs were added or retained as a result of the assistance they received from CIRAS and partners.

- Over 750 participants were trained in FY11 by attending conferences and workshops offered through a partnership of CIRAS, Civil, Construction, and Environmental Engineering, Electrical and Computer Engineering, Alliant Energy, Black Hills Energy, CIPCO, the Iowa Association of Electric Cooperatives, Iowa Association of Municipal Utilities, Iowa Energy Center, MidAmerican Energy, and the Iowa Office of Energy Independence. Energy short courses educated participants on motor systems management with a goal of improving energy efficiency in facilities. Continuing education was provided for civil engineering practitioners in engineering survey, structural engineering, transportation
engineering, geotechnical engineering, water resources and flood management, and environmental engineering. Attendees were able to obtain professional development hours towards retention of their Iowa engineering licenses.

- CIRAS government contracting specialists work with Iowa businesses, from one person operations to some of the state's largest employers to help them understand the government procurement process and to secure contracts. As the only organization in the state of Iowa providing contracting assistance at all three levels of the government market segmentation – local, state, and federal – CIRAS staff provided counseling to more than 800 companies. Companies reported over $203 million (an eight percent increase over FY10) in government contract impact due in part to the assistance they received. The Defense Logistics Agency, which funds CIRAS to provide assistance to Iowa companies, indicated this impact helped create or retain over 4,000 jobs.

- In 2011 CIRAS, working with the U.S. Department of Agriculture (USDA) and ASTM International, developed and initiated the USDA Biobased Product Certification and Labeling Program. The new label makes it easier for customers to identify biobased products, as well as serving as a valuable marketing tool for the manufacturers and vendors of the products.

  As the manager of the biobased product certification and labeling program, CIRAS facilitates the label usage applications from manufacturers, vendors, and industry associations. Staff also implements quality control and corrective action procedures to maintain the level of excellence expected of the USDA brand.

  In addition to the labeling and certification program, efforts by CIRAS staff increased the database of biobased products available for consideration under the BioPreferred program to 483 Iowa products sold by over 90 Iowa manufacturers and vendors. Nationally 26,654 products sold by over 3,300 companies have been identified.

- CIRAS is working with the BEST of Iowa (Business Expansion and Strategic Trends), a partnership of Iowa utility concerns, Iowa Department of Economic Development, Iowa Workforce Development and Iowa Department of Education to provide a statewide coordinated business retention and expansion program. Economic Developers throughout the state use the Synchronist data system to interview executives of Iowa industries to create a Competitive Capacity Scorecard for the state. CIRAS worked with this group to include interview questions concerning research and development and product design. Comparison of industry segments to other states has begun. This information will assist economic developers in focusing on high value, high growth companies that may be facing challenges with their mature products.

- During FY11, the Small Business Development Center (SBDC) provided business assistance to companies, involving 2,786 clients and 11,641 counseling hours. They also conducted 351 training workshops in which 4,017 individuals participated.

- The ISU SBDC, along with the ISU Pappajohn Center for Entrepreneurship, provided 571 hours of counseling assistance to start-up and existing companies;
served 127 clients with one-on-one counseling; educated 404 attendees through workshops; provided advice to several hundred clients via telephone and email; and advised 7 technology companies in the areas of licensing, equity based financing, market entry, and numerous operational areas.

- Every year the SBDC commissions Professor James J. Chrisman to review the economic impact of the SBDC’s clients who receive five or more hours of counseling from the SBDC, which account for only 20% of the total SBDC client base. In a report on this client segment published by Professor Chrisman, *Economic Impact of Small Business Development Centers (SBDC’s)*, it was shown that for every $1.00 in state and federal funding in FY09, the total tax dollars returned to the State of Iowa and the federal government by SBDC clients in 2010 was $.94. Among these clients there were 831 jobs retained, 403 jobs created, and nearly $12 million in new sales. The SBDC helped these clients raise over $70 million in financing for their businesses.

- Technologies originating at ISU and licensed to Iowa companies have resulted in over $86 million in sales by those companies in calendar year 2010. Total sales of ISURF-licensed technologies were $627 million, not including germplasm.

- The Office of Intellectual Property and Technology Transfer began supporting SBIR (Small Business Innovation Research) and STTR (Small Business Technology Transfer) outreach efforts in FY06. Since then, SBIR and STTR funding in Iowa has rebounded. In FY11, eighteen different Iowa companies won twenty-seven new or continuing SBIR and STTR awards worth $7.1 million. This is a slight decrease from FY10, but the figure remains significantly higher than in FY06 and FY07 and is the second year it has surpassed $7 million. An emphasis has been placed on outreach and training activities. This includes a monthly newsletter and workshops presented by Federal program managers. In addition, comprehensive proposal preparation support has contributed to an increasing number of companies applying for funding. Twenty-two Iowa companies were assisted in the preparation of twenty-five proposals during FY11, including five Iowa State faculty or staff-related companies. The funded projects reflect Iowa’s strengths in biotechnology, information systems, materials development and agriculture. Over $2.8 million in support was awarded by NIH for diverse projects that range from the development of medical devices and vaccines to new cancer drugs and new animal models for human diseases. An additional $2.3 million was received from the National Science Foundation for projects that include bioreactors, novel sensors, improved quality control for medical imaging procedures and electricity generation.

- The ISU Grow Iowa Values Fund program has a competitive research component that pairs ISU faculty members with Iowa industries to create economic benefit for the companies. Surveys completed by companies on projects funded from June 2006 – June 2009 (surveyed one year after project completion) documented more than 100 jobs created or retained and an annual sales impact of more than $14 M impact due to the research projects conducted in partnership between ISU and the companies.
1B. Training Opportunities for Staff of Local Economic Development Agencies and Other Activities that Indirectly Promote Economic Development

- As part of the College of Engineering efforts to help grow the wind industry in Iowa, the college hosted a training session on Vistagy FiberSIM, a design and manufacturing software for composite layup. The session was attended by ISU researchers, engineers from TPI Composites, and Sandia National Laboratories.

- The College of Engineering and ISU Extension and Outreach Center for Industrial Research and Service (CIRAS) in partnership with the Iowa Alliance for Wind Innovation and Novel Development (IAWIND) acquired metrology equipment to support Iowa industry. The Faro laser tracker is used in student courses, to support research, and to assist Iowa companies. Support to industry will be enhanced by the recent acquisition of an articulated arm with a laser scanner.

- CIRAS developed and delivered a training curriculum for Iowa businesses to provide education on new compliance requirements regarding the Federal Funding Accountability and Transparency Act (FFATA). The FFATA legislation requires information on federal awards be made available to the public via a single, searchable website for the purpose of increasing government accountability. Five workshops and one-on-one counseling sessions were held throughout the state with over 100 businesses receiving assistance. This training provided companies with the necessary tools to meet their reporting requirements as federal vendors.

- As flooded rivers throughout the Midwest strained levees to the breaking point, CIRAS educated businesses regarding the importance of flood emergency planning. A flood emergency planning checklist was distributed directly to over 300 western Iowa companies. In addition, Safeguard Iowa, Iowa Workforce Development, Iowa Innovation Gateway, Iowa Association of Business and Industry, North and South Dakota Manufacturing Extension Partnership, Nebraska Manufacturing Extension Partnership, Nebraska Procurement Technical Assistance Program, and the Siouxland Chamber of Commerce provided the checklist to over 2,000 additional business leaders and company executives.

- In 2011 CIRAS was engaged in nine significant research projects in support of the biobased products industry. Efforts were focused on two major areas of importance to industry: economic impact and barriers to development and adoption.

  Collaborating with faculty from the Colleges of Engineering and Design, CIRAS researched improvements in performance and processing of biobased products as well as breaking down barriers to consumer adoption. Outcomes included the development of a methodology for cutting and welding biobased plastic film using ultra sonic energy, resulting in a patent disclosure being filed with ISURF, and the development of testing resources at ISU for evaluation of compostability of plastics.
Using the expertise of faculty and staff from the Survey and Behavioral Research Services, the College of Agriculture and Life Sciences Department of Economics, and the College of Liberal Arts and Sciences Sociology Department, CIRAS research focused on developing benchmark data, industry input, and increased knowledge of potential growth and impact of the biobased products industry. Reports on the analysis of the biobased products industry survey data and the biobased manufacturer index pilot survey were released.

Ongoing research in consumer acceptance of biobased products, recycling impacts for biobased products, and continuing industry input surveys will help expand and improve the growth and impact of this important economic sector.

Nearly 500 people attended Iowa’s Advanced Manufacturing Conference: Manufacturing in the Global Economy. CIRAS partnered with the Iowa Association of Business and Industry (ABI), the Des Moines Area Community College (DMACC), and Rockwell Collins to provide education and discussion on a broad range of issues affecting manufacturing in the Midwest.

- The Electric Power Research Center (EPRC) is a consortium of eleven utilities that sponsor multidisciplinary power systems research at Iowa State University. Nine of the eleven companies provide services in Iowa; the remaining two are international. Funds provided by the companies are used to conduct research on the reliable and economic operation of power systems. In addition, the research deals with the integration of increasing amounts of wind energy into the grid and the implications of the electrification of transportation. EPRC research helps assure that Iowa, the U.S., and the world have a supply of electric power that is cost-effective, reliable, and sustainable.

- Keeping the pipeline full of youth interested in STEM fields is a key component of Iowa’s economic development plans. Participants from every Iowa county engaged with the College of Engineering and its industrial partners to inspire the next generation of Iowa’s STEM workforce. The College of Engineering plays a vital role in this effort because of the need for engineers in Iowa companies. The College provides leadership for K-12 efforts, including Project Lead the Way, FIRST Lego League, Junior FIRST LEGO League, engineering kids camps, Mom’s Night out for STEM, and more. In FY11, over 620 K-12 students engaged in summer camp activities, 242 FIRST LEGO League teams were formed, and over 143 Project Lead the Way sites offered pre-engineering curriculum to middle and high school students.

2. Please provide the following information for FY11: (If your institution utilizes additional metrics specific to your institution’s specialized areas of research or service, please include them here)

   Note: Unless noted, the data provided below are FY11 data.

   a. Number of disclosures of intellectual property: 106
   b. Number of patent applications filed: 47
   c. Number of patents awarded: 25
d. Number of license and option agreements executed on institutional intellectual property, in total and in Iowa: 49 total, 19 in Iowa

e. Number of license and option agreements yielding income: 217

f. Revenue to Iowa companies as a result of licensed technology: $86 million (CY10)

g. Number of startup companies formed, in total and in Iowa (through licensing activities): 2 total, 2 in Iowa

h. Number of companies in research parks and incubators: ISU Research Park: 40 private and 13 university-related; Plant Sciences Institute Innovations Development Facility (IDF): 4 (all university-related or affiliated)

i. Number of new companies in research parks and incubators: ISU Research Park: 4 private, 1 university-related & 4 affiliates; Plant Sciences Institute IDF: 1 (university-affiliated)

j. Number of employees in companies in research parks and incubators: ISU Research Park: 618 private and 221 university-related; Plant Sciences Institute IDF: 7 FTE (all university-related or affiliated)

k. Royalties and license fee income: $11.3 million

l. Total sponsored funding received: $342.3 million of which $197.4 million is for research

m. Corporate sponsored funding received for research and economic development, in total and in Iowa: $24.9 million total, $12 million in Iowa

n. Iowa special appropriations for economic development in the following categories:
   • Annual state appropriations for ongoing programs (such as research parks, SBDC, IPRT, IDM, Metal Casting Center): $2.5 million—includes $894,929 SBDC (includes state-wide programs), $130,010 ISU Research Park & $1,451,043 IPRT
   • Grow Iowa Values Fund appropriations: $1,459,200

o. Research expenditures (including state appropriations and external funding) $250.1 million—Note that this is an FY10 number, most recent number available NSF Survey of R&D Expenditures

p. Licenses and options executed per $10 million research expenditures: 4 (est.)—Note that this is an FY10 figure, most recent number available

q. Sales of licensed products by Iowa-based companies: See d. above

r. Number of employees for current Research Park tenants and incubator, as well as former tenants that are still in existence in basic form worldwide: 2,993

3. Please describe the ways in which your institution is engaged in the following activities (For example, what is the nature of the outreach and service activities? Which units provide it? What kinds of people and organizations benefit?)
   A. Direct and hands-on technical assistance to businesses and entrepreneurs
   B. Direct economic development assistance to Iowa communities
   C. Economic development services provided by research parks, incubators or similar service units
3A. Direct and Hands-on Technical Assistance to Businesses and Entrepreneurs: ISU System for Innovation

Iowa State University is charged with advancing economic development and technology transfer activities that promote growth and benefit all citizens. While creation of knowledge remains the basic responsibility of a research university, the way we share knowledge determines our success. ISU shares knowledge and expertise with students (learning and teaching), communities (engagement), and business and industry (technology transfer and economic development). ISU ranks as one of the most successful universities nationwide in several categories of technology transfer and economic development. The activities of the colleges, institutes and centers are coordinated through the Research and Economic Development Council that advises the Vice President for Research and Economic Development. The Vice President and this Council continuously communicate with economic development entities within the State such as the Iowa Department of Economic Development, the Iowa Innovation Council, the Iowa Business Council, the Greater Des Moines Partnership, the Ames Economic Development Commission and other local and regional agencies.

The Iowa State University “System for Innovation” was developed to focus on the transfer of university technologies into commercial applications in start-up or existing companies. Functions of the ISU System for Innovation include:

- **Business Development & Assistance and Entrepreneurial Activities**: Efforts related to start-up companies, including business assistance services & SBIR/STTR applications.
- **Technical Assistance & Technology Development**: Solving technical problems, assisting in product development and process improvement projects for existing businesses. This includes the current efforts of no-cost technical assistance and cost-sharing projects.
- **Industry Relations**: Facilitation of a multitude of interactions between ISU and its industry partners, including the management of research relationships and interactions with economic development groups, legislative groups, and other third parties.
- **Community Development**: To disseminate and develop programming, facilitating community organizations, fostering community planning, and coordinating with community and regional economic development networks and organizations.
- **Technology Transfer and Licensing**: The transfer of intellectual property (patentable inventions, copyright works and proprietary materials) to business and industry through license agreements.
- **Physical Space**: Physical space for business incubation is available in the ISU Research Park, the Plant Sciences Institute, and the Center for Crops Utilization Research.
- **Research and Instrumentation Facilities**: Iowa State University maintains more than 20 central research facilities that also serve communities and businesses on a fee-for-service basis.

- Senior capstone design projects are the culmination of engineering education for undergraduate students. Iowa companies, through a partnership between CIRAS and the College of Engineering, provide students the opportunity to apply their
engineering knowledge to real-world applications as a final step in preparation for joining the workforce.

As Iowa experienced the second highest net out-migration of young, single, and college educated residents (only behind North Dakota) from 1995 to 2000, this program has a further goal of slowing the Iowa brain drain. Students are able to obtain a better understanding of job opportunities within the state and businesses discover the value of making an investment in their workforce by providing higher level, higher wage jobs.

By working with the students, companies gain a new perspective on difficult engineering problems with many achieving innovative solutions that enhance productivity and lower costs. Companies have a heightened understanding of the value engineers bring to an organization and are able to showcase their company to students nearing graduation.

In addition to the senior capstone design projects, engineering students have worked with companies on projects related to cellular lean, materials, and facility planning.

In FY11, students worked on 33 projects with 22 different companies. Companies reported impact of nearly $10 million for these projects.

### 3B. Direct Economic Development Assistance to Iowa Communities

- In FY11, CIRAS was awarded a 3-year grant under the Economic Development Administration (EDA) University Center program to develop and implement the Sustainable Economies Program in the state of Iowa. This program provides Regional Trade Centers (RTCs) in rural Iowa with an in-depth economic assessment of the financial, social, and environmental “triple bottom line” well-being of the region coupled with technical assistance to the critical organizations and businesses of the region.

  The program provides sustainability assessments, technical assistance, and mentoring within the communities and businesses that drive the regional economy. During the first year of the program, CIRAS staff, Extension Community and Economic Development staff, and College of Agriculture and Life Sciences economists researched, developed and launched a pilot implementation in the region of Carroll, IA.

  Through the Sustainable Economies Program, applied research is ongoing in business and economic sustainability, employee wellness and supply chain sustainability.

### 3C. ISU’s Key Units Engaged in Economic Development

Iowa State University, as part of the higher education system in the State, is charged with advancing technology transfer and economic development activities that promote
growth and benefit all citizens. The University evolves these goals by contributing to workforce development, creating intellectual property, advancing ideas to the stage of market readiness, supporting creation of new companies, offering assistance to existing companies, and attracting new companies to the State. The University’s economic development/technology transfer support system includes the following units that are coordinated through the Research and Economic Development Council:

- **Pappajohn Center for Entrepreneurship and the Small Business Development Center at ISU (SBDC).** These units work with researchers to define the technologists' role in the company, evaluate markets, assist in the creation of a business plan and help the company develop connections with a network of business resources including consultants, accountants, attorneys, prospective employees and investors. In a typical year, the Pappajohn Center, working with IPRT, the Plant Sciences Institute, ISURF/OIPTT and other research centers, identifies approximately 25 prospective new technologies. These technologies can take six to 26 months to develop sufficiently to justify the formation of businesses. During this time the researcher receives assistance from, among others, the Small Business Development Center at ISU in moving the technology from the researcher's bench to the marketplace. The Pappajohn Center helps the researcher develop the model for the business and establish the network of resources necessary to implement the plan. These resources can include business assistance, students or capital. The Pappajohn Center/SBDC also continues to provide a referral network and facilitates the recruitment of students including access to internships.

- **Institute for Physical Research and Technology (IPRT).** Through IPRT's Company Assistance Program, Iowa companies can leverage the expertise of the IPRT research centers and other ISU capabilities in order to solve technical problems, create new products and processes, and increase productivity and quality. IPRT Company Assistance provides help through both its Research and Development cost-sharing program and through short-term, no-cost technical assistance. IPRT actively collaborates with Iowa companies on technology development projects. Many successful businesses have emerged from IPRT technologies, including Mechdyne of Marshalltown, BodyViz of Ames and PowerFilm, Inc. of Ames.

The staff members of the Materials Group and the Nondestructive Evaluation Group within Company Assistance provide significant and broad expertise to help Iowa manufacturers address material and inspection issues. These programs offer state of the art knowledge to business, and both groups have expanded their capabilities and facilities to keep pace with research advances and modern industrial needs. This direction allows them to interact with various industrial clients and tackle an increasingly wide range of challenges.

- **Iowa State University Research Park.** The Iowa State University Research Park is a 230-acre development with over 325,000 square feet of building space and is located south of the Iowa State University campus. The ISU Research Park is more than just land and buildings; it is a technology community that encourages commercialization of University research.
Extension and Outreach Center for Industrial Research and Service (CIRAS). CIRAS provides applied research, education, and technical assistance to Iowa industry through partnerships with Iowa's universities and community colleges, government agencies, and business associations. Account managers throughout the state meet with clients to assess needs and provide links to resources that companies can use to increase their competitiveness. Solutions are offered through a combination of direct assistance from center staff, university faculty, partner organizations, and outside consultants.

CIRAS staff has expertise in engineering, biobased products and biorenewables, energy systems, management practices, government contracting, productivity, growth services, supply chains, quality systems, and community-business economic development. Service to industry includes technical assistance in conjunction with ISU College of Engineering labs, regional economic development studies to better understand rural economies, engineering workshops for utilities, county and city engineers, educational workshops and mentoring for small to medium sized businesses.

CIRAS manages the statewide National Institute of Standards and Technology’s Hollings Manufacturing Extension Partnership (MEP), a program of the Department of Commerce. The MEP mission is to act as a strategic advisor to promote business growth and connect manufacturers to public and private resources essential for increased competitiveness and profitability. The objective of the program is to enhance productivity, technological performance, and strengthen the global competitiveness of small-medium sized manufacturers. CIRAS provides companies with the training, tools, and connections to accelerate innovation, leading to new opportunities in domestic and export markets.

The USDA BioPreferred program, enacted as part of the 2002 and 2007 Farm bills, has a goal of increasing the purchase of biobased products by the federal government. CIRAS has helped USDA build this program since its inception in 2002. CIRAS staff manages implementation of the program by gathering industry input, developing government focused marketing strategies, testing biobased content, and facilitating participation in the program. Staff educates public and private stakeholders, manages the biobased product certification and labeling program, and assists with the development of programmatic infrastructure and policy.

The Defense Logistics Agency, on behalf of the Department of Defense, administers the Procurement Technical Assistance Program (PTAP). The purpose of the program is to generate employment and to improve the general economy by assisting business firms in obtaining and performing under federal, state, and local government contracts. CIRAS is responsible for this program in the state of Iowa. Staff helps businesses determine if they are suitable for government contracting, provides workshop training and outreach events, assists businesses with capturing government sales, and provides post award contract assistance.

CIRAS manages the Economic Development Administration (EDA) University Center Program in Iowa. The EDA’s mission is to lead the federal economic
development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy. In FY2011, CIRAS was awarded a 3-year grant to develop and implement the Sustainable Economies Program. This program integrates detailed economic studies with financial, social, and environmental technical assistance to communities and businesses in rural trade centers across Iowa. This integrated, scientific-based approach to sustainability and the triple-bottom line helps the businesses, communities, and overall regional economy begin the process of reliable, long-term growth.

- **ISU Research Foundation (ISURF) and the Office of Intellectual Property and Technology Transfer (OIPTT).** ISURF owns and ISURF and OIPTT jointly manage, market and license the intellectual property for Iowa State University. ISURF/OIPTT works with faculty members in regard to the reporting and protection of innovations, including patenting inventions. It markets the innovations to find commercial partners interested in licensing. It also funds projects within the University that have potential for broadening the intellectual property protection or providing value for its commercial potential. ISURF also provides assistance to Iowa companies, including ISU faculty start-ups with SBIR and STTR applications.

- **Innovations Development Facility (IDF).** This is a business incubator operated by the Plant Sciences Institute to promote the commercialization of plant biotechnology. IDF encourages ISU faculty, staff, and students to commercialize their research in the plant sciences and promotes the development of start-up companies among aspiring entrepreneurs. IDF is housed in the Roy J. Carver Co-Laboratory and consists of six well-equipped laboratory modules. The facility offers an environment to transition research from a university to a business setting. The IDF facility is a productive research location where scientists from academe and industry can work together to advance the mission of the Plant Sciences Institute and to promote economic development in Iowa.

- **Extension to Communities and Economic Development (CED)**

  **Iowa’s Living Roadways Community Visioning Program**

For 15 years, the Community Visioning Program has helped rural communities plan transportation enhancements using state funds from the Iowa DOT. To-date, 180 Iowa towns have completed the process and collaborated with design teams to create conceptual transportation enhancement plans. Documented impacts of the program since 1996 include:

- Ninety-four percent of participating communities complete at least one project.
- Internet research of state funding shows that to date, 124 visioning communities received funding from five state programs to do 285 projects. Seventy-seven percent of the projects were directly related to visioning concept plans and 27% were not directly related to the program.
- More than $16.9 million in state funds was awarded to visioning projects and $12.4 million to non-visioning projects for a total of nearly $30 million.
- Estimated cash matches from awardees exceed $12.6 million for an estimated $42 million generated.
West Liberty Economic Area Development (WE-LEAD)

WE-LEAD is a non-profit 501(c)(3) corporation organized in 2006 to create, develop, and maintain strong business relationships, and to establish a climate in which new and existing businesses can flourish. As part of this initiative, the City of West Liberty (75%) and ISU Extension Community and Economic Development (CED) (25%) jointly hired a community development specialist. In 2010, WE-LEAD worked with 173 clients, including shareholders, entrepreneurs, local leaders and elected officials, community residents, and students. In 2010 WE-LEAD assisted with 11 business plans, five of which were completed, and added more than 35 jobs in West Liberty. Leadership West Liberty is a community-focused leadership program designed to grow the next generation of leaders in West Liberty. Twenty-nine students have graduated from the four-year-old program. Completion of a community project is a requirement and more than 15 projects have been completed. Keokuk and Jones County are considering the WE-LEAD model. Extension CED is in the process of negotiating a similar contract with the City of Keokuk.

Tourism

ISU Extension CED specialist Diane Van Wyngarden, Ph.D. developed a model travel program for Iowa and marketed it to a national audience through Road Scholar. Current programs include: Exploring Uncommon Communities: a Touch of History, a Taste of Utopia; Upper Mississippi River Reflections: Historic Towns, Trails and Tales; and Missouri River Reflections: a Ribbon of Legends through Four States. Nationally, the Road Scholar program has suffered due the recession, with roughly half of its scheduled programs canceled. None of ISU Extension’s programs have been canceled, and most were sold out with waiting lists. In 2010:

- 229 people from 42 states and two foreign countries participated in the Road Scholar Program. Tuition is $1,000 to $1,500 per participant.
- The program has affected more than 100 businesses, and the estimated dollar value of those impacts is $288,915. The program is self-supported, and the money generated goes directly to travel-related businesses along tour routes.

Sustainability

The ISU Extension and Outreach began a “green initiative” in 23 counties four years ago and has been working with Fairfield on sustainable living and energy-efficient technology. Part of an Iowa Power Fund partially funded a sustainability specialist position shared between ISU Extension and Outreach and the City of Fairfield. The sustainability specialist serves the 9,200 Fairfield residents, as well as southeast Iowa and the state, facilitating community sustainability programs initiated by businesses, industry, and other organizations.

- For example, Fairfield’s Green Commission set goals to process 75% more recyclables with a corresponding 25% decrease in waste going to landfills by December 2012.
- After two months of the new program, recyclables increase 67% from the previous monthly average, and in December 2010 the increase in recyclables was 132%. This spring the contract with Fairfield was extended five years.
Extension CED has been approached by the State of Iowa to expand this program.

Local and Regional Housing Trust Funds

The Iowa Finance Authority (IFA) administers a state housing trust fund offering forgivable loans to rehabilitate existing housing; however, many Iowa communities do not have the structure in place to apply for and administer such loans. Through an agreement with IFA, ISU Extension CED is helping communities, counties and regions develop local housing trust funds (LHTF), with which they can apply for seed money from the state to use for affordable housing.

Existing housing trust funds cover 52% of Iowa’s population. Primary clientele include counties and regional COGs. Extension CED has incorporated the LHTF development format into regional housing trust fund development. The following regions applied for certification on October 1:

- Region 6 Housing Trust Fund, Inc.—Hardin, Tama, Marshall and Poweshiek Counties
- Northeast Iowa Regional Housing Trust Fund—Allamakee, Clayton, Howard and Winneshiek Counties
- Northwest Iowa Regional Housing Trust Fund, Inc.—Emmet, Lyon, O’Brien, Osceola and Sioux Counties

Lake Delhi Alternative Futures

In summer 2010, the Delhi Dam on the Maquoketa River collapsed under pressure from rising floodwaters. The breach drained a nine-mile lake behind and dam and the resulting flash flood destroyed 16 homes, caused damage to more than 70 others, and released tons of accumulated sediment downstream. In response, the Governor created the Lake Delhi Recover and Rebuild Task Force to develop strategies to assist in the recovery and rebuilding of the area. With ISU Extension Community and Economic Development, the community design studio in the ISU landscape architecture program presented a plan to IDED to collect public input, conduct community and economic analyses of the area, and create scenarios for future development of the Lake Delhi area. The class presented three development scenarios for the area and a final report was presented to the state task force in December 2010.

- Extension to Families

Horizons

Thirty-six Iowa communities with populations under 5,000 and poverty rates over 10% trained 301 local facilitators to lead 1,538 community members in a discussion, “Thriving Communities – working together to move from poverty to prosperity for all” discussion.

- 29 communities addressed food insecurity,
- Dunlap’s food pantry served 300 people in 2010.
- Eleven Volunteer Income Tax Assistance (VITA) sites completed over 500 returns without charge and claimed over $250,000 in Earned Income Tax Assistance to eligible families.
• Twelve communities prepared 434 youth for academic success with mentoring, tutoring or early learning programs. Elma built an early learning center which now serves 70 children.
• Ten communities engaged entrepreneurs to increase family income.
• 105 local trained volunteers taught leadership skills to 923 participants. Some became mayors, city council members or provided leadership to local boards, commissions, clubs and organizations thus building stronger communities and families.
• 8,829 community residents shared their thoughts as part of a local visioning process leading to a local action plan to help reduce the local effects of poverty.

Community Volunteers Help Reduce Poverty and Return Dollars to Economy

The Earned Income Tax Credit (EITC) augments the wages of low- and moderate-income workers and, in turn, this flow of income makes a substantial economic impact in local communities. EITC recipients circulate their refunds through the local economy, creating a ripple effect many times the size of the original refund. This money strengthens neighborhoods, assists small businesses, and spurs local economic development. ISU Extension worked with community partners to recruit and train 84 volunteers to provide free tax preparation services to low- and moderate-income families through the Volunteer Income Tax Assistance (VITA) program. In 2011, VITA volunteers working at 37 VITA sites helped 1,875 low- and moderate-income Iowans complete income tax returns. Special efforts were made to increase awareness of the EITC and VITA in rural Iowa. Nine of the VITA sites were established in underserved rural communities that are part of the Horizons project, a Families Extension initiative to reduce poverty and build assets. Twenty Horizons communities conducted EITC awareness campaigns to inform eligible residents about this refundable tax credit. 601 of the filers who qualified for the Earned Income Tax Credit (EITC) received $816,635 in the 42 counties that participated in the Extension-community partnerships to expand VITA programs in rural Iowa.

Early Childhood Programs

Iowa currently ranks 2nd in the nation for the percentage of young children with all parents in the household employed. An estimated 75 percent of Iowa’s children under six-years of age need early care and education while their parents work. The 2009 Iowa Early Care and Education workforce study, found that only 7% of child care center assistant teachers and only 34% of teachers had a bachelor’s degree in early childhood or related field. A turnover rate of 31% for assistant teachers and 14% for teachers coupled with low education levels, meant that many of Iowa’s children were constantly in the care of a poorly educated, constantly changing workforce. The Better Kid Care New Staff Orientation program has been adopted by Iowa as a key component for stabilizing workforce turnover and providing a basic level of knowledge for new early childhood teachers and assistant teachers who may have limited education and experience. This outstanding program provides new teachers with 30-lessons over a four month period. Teachers view DVD demonstrations, practice and fulfill on-site activities and complete workbook lessons, which are sent into Iowa State University for review. Currently 733 centers and preschools (53% of Iowa licensed programs) participate in the Better Kid
Care New Staff Orientation (NSO) program. As a result of participating in NSO program, 620 new child care teachers have completed a total of 18,600 training hours and report making significant gains in knowledge and program improvements. Ninety-one child care center directors participating in the program report made significant improvements in their skills for effective supervision and support of new early childhood teachers.

- **Agriculture and Natural Resources Extension**

**Drainage Professionals**

Faculty and staff in ISU Extension to Agriculture and Natural Resources (ANR) provide educational leadership to drainage contractors in Iowa through annually hosting the three-day Iowa Drainage School. In 2010, 40 participants attended the drainage school. Post-meeting evaluations indicated that 75% of respondents indicated the program would help them increase revenues with their work with dollar values ranging from $50,000 to $250,000 or up to $150/acre.

**Co-Products from the Ethanol Industry**

Co-products of the ethanol fermentation process can be cost effective feeds but have unique characteristics and present challenges in handling storage and delivery. A comprehensive, integrated research and educational program is ongoing. Activities included cattle feeding research, feeding and long term storage demonstrations, workshops, meetings, software development, factsheets newsletters and consultations. In 2007 alone, 67 meetings were held for producers and consultants on the topic. In 2011, participants in educational programs were surveyed on changes in their knowledge, behavior and cost outcomes as a result of educational activities conducted by ISU Extension on ethanol co-product feeding for beef cattle during the period 2006-2010.

- Of those surveyed, 69% had received information or attended an educational event during that time period.
- Of those that had obtained information on this topic from ISU Extension, 88% indicated that the information improved their knowledge of effective ways to incorporate these feeds into the diets of cattle.
- During that time period, 57% of those surveyed increased the usage of ethanol co-products in cattle diets.
- Of those surveyed 91% reported either improved cattle performance or reduced costs of at least 10% as a result of the information received. Of that group, 27% reported a 10% or more reduction in feed costs without decreasing animal performance, 19% reported a 10% or greater improvement in animal performance, and 45% reported both a 10% improvement in animal performance and a 10% decrease in cost of production.
- With today’s costs, a 10% reduction in feed costs has a value per animal fed of over $60. With over 2 million head of cattle fed annually this represents a significant contribution to this growing sector of the Iowa agricultural economy and their local communities.
Financial Decision Making

Beginning farmers often lack access to credit at reasonable rates and terms, to use for purchasing operating inputs and financing purchases of land, livestock, and equipment. To be eligible for financing from the Farm Service Agency, beginning farmers must show knowledge of sound financial management principles by completing an approved course in farm financial management. ISU Extension developed an Internet-based home study course titled Financial Decision Making that allows borrowers to meet this requirement. The course consists of modules covering topics such as developing financial statements to financing long-term assets. Enrollees must satisfactorily complete on-line quizzes and homework assignments.

- As of August 21, 2011, at total of 345 FSA loan applicants have completed the Financial Decision Making course.
- In January 2011 graduates of the course were asked to estimate their annual gross farm income and farm net worth before and after completing it. The average change reported was an increase of $247,101 in annual gross farm income and $381,458 in net worth.
- Based on data from the Iowa Farm Business Association, the average net farm income as a percent of gross income during the years that enrollees completed the course was 25%, and the average return on net worth was 9.8%. Applying these rates to the average increases reported results in an estimated increase in annual net income per operator of $38,182 per operator, or over $13 million annually for all the families who have completed the course. These dollars will be reinvested in the state economy and keep more young farmers employed in Iowa agriculture.

Community Vitality Center

The Community Vitality Center (CVC) is a statewide catalyst for identifying and demonstrating new strategies for improving the economic vitality of Iowa’s communities and rural areas. CVC received the 2010 Iowa Venture Distinguished Leadership Award from the Iowa Area Development Group for the creation of Iowa MicroLoan and other entrepreneurial and philanthropy development activities. Iowa MicroLoan was founded in 2008 as an independent 501(c)(3) foundation by the Community Vitality Center (CVC) to serve as a statewide microfinance. Since then, Iowa Microloan has received more than $3.5 million in grants and loan capital as an intermediary for the SBA MicroLoan Program and USDA Rural Micro-Entrepreneur Assistance Program (RMAP). Iowa MicroLoan provides a business plan “second look” and technical assistance for entrepreneurs who have been denied credit from conventional lenders.

- During 2010, IFMCV had loans outstanding to 26 businesses.
- Seventeen of the businesses were startups.
- Fourteen of the businesses were from rural counties (54%) and 12 were from metro counties (46%).
- Of the total co-signors and guarantors involves, 56% were women and 44% were men, 5% were minority, and 5% were people with disabilities.
- Of the total, 15% were below the HHS poverty level, 29% were below HHS 150% poverty level, and 46% were below the HUD low income level.
During 2010, CVC assisted IDED and Iowa Microloan in implementing the Iowa Small Business (ISB) Loan Program approved by the Iowa General Assembly and signed by the Governor in 2010. CVC provided input for the Administrative Rules, facilitated loan application and underwriting process subcontract between IDED and Iowa MicroLoan, facilitated coordination of the ISB Loan Program among IDED, Iowa MicroLoan and Iowa Small Business Development Centers, and conducted an evaluation of the program.

- During the eight months in operation from August 1, 2010 to March 31, 2011, the ISB Loan Program provided loans to 42 businesses that created or retained 130 direct jobs and generated $3,423,837 in new business financing investment by leveraging $1,639,889 in direct loans with $1,783,948 in co-financing by local financial institutions.
- As a result, it is estimated that 228 total direct, indirect and induced jobs were created and/or retained by the implementation of the Iowa Small Business (ISB) Loan Program.
- Twelve of the applications approved were for startup businesses. Applications were received from 29 of Iowa’s 99 counties with 30 applications from enterprises located in rural counties and 24 from metro counties. Two of the companies receiving ISB Loans have more recently been highlighted in separate features by the Des Moines Register for innovations in their respective industries.
- CVC and Iowa MicroLoan’s involvement and performance in the ISB Loan Program led to participation in IDED’s recently approved application for $13.1 million from the State Small Business Credit Initiative (SSBCI) program of the U.S. Treasury Department in which $3.2 million is allocated for continuation of the ISB program.

The Office of the Vice President for Research and Economic Development (OVPR/ED) works closely with all of the above units, including the Office of the Vice President for Extension and Outreach, in promoting the University’s mission related to technology transfer and economic development.

- The Research and Economic Development Council (chaired by the VPR/ED) coordinates ISU research, technology transfer and economic development activities. Members meet periodically to discuss problems, update each other on activities, assess the state and national environment for technology transfer, and propose policy and procedures to encourage technology transfer and economic development activities at ISU. This council, formed in 1993, is comprised of representatives from all units on campus that have a primary role in economic development and technology transfer as well as representatives from each of the seven colleges.

- The recently initiated comprehensive management strategy for key industrial partners is continuing to show results. This effort is co-led by the Industry Relations Team and the Corporate and Foundations Relations group in the ISU Foundation. The goal is to develop ten strategic partners during the period FY11 – FY16. Based on the established metrics, we are halfway toward achieving that goal.
The above units are the key units that focus attention on economic development and technology transfer at ISU; however, significant additional related activity also occurs across campus in individual academic departments, centers and institutes, and colleges.

4. Please briefly describe two or three examples of major economic development collaborative projects with such other entities as Regent universities, Iowa community colleges, the Iowa Department of Economic Development, Iowa Workforce Development, or other state agencies.

**Major Economic Development Collaborative Projects**

**NSF EPSCoR.** ISU collaborated with UNI and the U of I on an NSF EPSCoR proposal that received funding ($20 M) in September 2011. The grant will develop a statewide energy plan for the State of Iowa, covering two renewable energy platforms--wind and bioenergy--and a third platform dealing with energy efficiency. The ultimate outcome will be an energy plan leading to energy efficiency and sustainability for the State. Other partners include the Iowa Economic Development Authority, the Iowa Energy Center, community colleges and other four-year institutions in Iowa, and industry.

**Grow Iowa Values Fund.** This legislation is providing the universities and private colleges financial resources to expand technology transfer and commercialization efforts. We are in the seventh year of GIVF funding, in addition to providing core support for infrastructure in the Research Park, Pappajohn Center and the VPR/ED office. Each year projects are funded that pair ISU researchers and Iowa companies. More information appears later in this report.

**Innovate Iowa Proof of Concept Initiatives.** Iowa State is establishing an initiative that will focus on increasing the transfer of technology while reducing the time required to commercialize it. Technology and business development will occur in parallel by engaging staff from the ISU Research Foundation, the ISU Research Park, the Pappajohn Center for Entrepreneurship and technology experts. This initiative will provide a single, visible interface for faculty, staff and students seeking opportunities and provide simplified, coordinated communication.

**A reinvigorated process for prospect development and start-up company acceleration.** The ISU Research Foundation, the ISU Research Park and the Pappajohn Center for Entrepreneurship are engaged in a strategic partnership to reinvigorate our approach to engaging students, staff and faculty in entrepreneurial start-up activities. Information about this new process will be available in early 2012.

**State-wide committees** – Many people from ISU serve on committees that promote economic development programs such as the Iowa Innovation Council, the Biosciences Alliance of Iowa, the Iowa Innovation Council’s Iowa Advanced Manufacturing Committee, Iowa Meat Processors Association, Institute of Food Technologists-Iowa Section, the Iowa Lean Consortium, the Partnership for Industrial Energy Efficiency, Professional Developers of Iowa, the Iowa Business Council, the Iowa Alliance for Wind Innovation and Novel Development (IAWIND), Innovate Iowa!, etc.
5. Please provide the following information about Grow Iowa Values Fund projects for FY 2010:
A. Identify and briefly describe each project or initiative which received GIVF funding in FY 2011 including information on outcomes or progress made
B. Identify metrics which were used to measure outcomes for each project and report progress on each metric for FY 2011
C. Provide a description of the sources of the matching institutional dollars for each GIVF-funded project

The ISU Grow Iowa Values Fund (GIVF) program has a competitive research component that pairs ISU faculty members with Iowa industries to create economic benefit for the companies. See Appendix 1 and Appendix 2 for complete report.

6. Optional: If desired, please include observations regarding:
A. Availability of startup and venture capital for technology entrepreneurs
B. Suggestions for new programs or activities that could further enhance the impact of university technology transfer and service on creation of jobs and wealth in Iowa.

6A. Iowa continues to suffer from a lack of investment capital for start up and rapidly growing technology/innovation based firms.

- The Values Funds to the universities have provided a valuable source of funding for proof of concept/early stage development funding for the innovations that will become the next generation of businesses.

- There has been an increase in the number of Angel/Seed funds throughout the state. Available capital and experience varies widely and there is little coordination between the funds. The seed funds have typically brought more individual investors into play.

- The funding provided by Wellmark through the Pappajohn Center's has been a very valuable tool for early stage investment.

- There are very few true venture capital firms located in the state of Iowa actively investing funds at this point in time. Iowa continues to suffer from a lack of investment capital for start up and rapidly growing technology/innovation based firms.

- Each fund has a particular focus, the investment profile further limiting choices and resulting in very little competition.

- Most venture firms invest with other venture firms, one as lead with the others in secondary positions to spread risk and assure the ability to continue to fund the needs of the company—this is a major problem in Iowa.

- Firms must look outside the state for significant investments of $5 million plus.
Really good businesses with really good management teams will attract money; a major problem is the development of an experienced/skilled management team.

6B. Restoration of funds for economic development and technology transfer activities due to budget cuts in the past several years would greatly enhance the University’s efforts in this area. The following is a summary of what benefits would occur if funds were restored in the units affected by budget cuts.

- **Small Business Development Centers.** The legislature cut a total of $16,373 from the SBDC budget for FY09 and another $99,436 for FY10. In FY10 the state appropriation after the 10% reduction was $894,930. In FY11, the legislature appropriated an additional $100,000 restricted solely to business counseling and for no other purpose, raising the total line item appropriation for FY11 to $994,930. The FY12 state line item appropriation was reduced to $936,345. In addition, the $266,000 the program received from the Grow Iowa Values Fund in FY11, all of which was distributed to the service centers, was reduced to $105,000. Total state resource dollars directed to the program for FY12 is $1,041,345, down from $1,260,929 in FY09. In addition, pursuant to census changes, the program’s allocation of federal funds is reduced by $34,063 for FY12. The total reduction in funding for FY12 over FY11 is $195,063.

As demonstrated by an independent study, for every Iowa tax dollar spent on the Small Business Development Center program, $2.47 is generated in increased tax collections the following year from SBDC counseling services alone. The majority of any restored and new funds would be directed toward client counseling, resulting in an increase in tax revenues over tax expenditures.

State budget cuts for FY12 have been addressed by forcing austerity budgets on the program’s service centers and requiring them to divert program funds from other uses. These budgets are too lean to allow for adequate services. Thus, if state funding is not restored to at least FY09 levels, including $350,000 originally allocated to the program through Grow Iowa Values Funds, multiple service centers will have to be closed, thereby diminishing the net beneficial impact of the program.

- **Iowa State University Research Park.** The restoration of approximately $230,000 in funding to the Iowa State University Research Park would provide direct benefit to Iowa State University efforts to establish and support new technology ventures. New funds would be utilized to support the costs of providing incubator space and the support services required by new and early stage companies. The additional funds will increase the capacity for business incubation resulting in more new companies created and higher quality support for the young companies.

- **Center for Industrial Research and Service.** CIRAS has successfully leveraged its state budget to bring in additional federal grants and fees to expand technical assistance, education programs and economic development studies to support Iowa businesses. In FY11, CIRAS helped generate an additional $2.70 for each $1 of state funds provided. Of the approximately $4.5 million of additional funding generated, more than $1.2 million was distributed to other
business outreach units on campus to help them expand their work with Iowa companies.

CIRAS has lost over $1.6 million of funds (in 2011$) from their annual budget in the past decade. This includes state appropriations and matching funds provided by the Iowa Department of Economic Development. These funds were used as match on the Department of Commerce/NIST Manufacturing Extension Partnership award and the Department of Defense Procurement Technical Assistance Program award. This loss of state funds reduces the extent of CIRAS assistance to companies and communities and limits the amount of additional funds that might be brought to Iowa via new business assistance grants.

The loss of annual funding from state appropriations and agencies equates to a reduction of approximately 13 full time staff - includes salary and fringe benefits, and associated expenses. This can cause a further reduction of roughly 13 staff due to a loss of federal awards requiring matching funds from the state. Based on an analysis of data provided by Iowa companies, these 26 staff positions might have generated nearly $60 million of impact and more than 700 jobs in Iowa companies — each year.

Using this same data, for every $100,000 of additional state funds that are made available, CIRAS would be able to leverage the funds to bring in an additional $150,000 from grants and fees and hire two new business professionals to provide services in the areas of engineering, biobased products and biorenewables, energy systems, management practices, government contracting, productivity, growth services, supply chains, quality systems, and community-business economic development. These two staff would help create nearly 50 jobs and $5,000,000 of new sales, cost savings, and investment impact in Iowa companies.

- **Institute for Physical Research and Technology (IPRT).** The IPRT economic development programs suffered losses of over $500,000 over the past three years. These losses follow $2,500,000 in budget cuts in 2003, which were never restored. Ironically, these cuts came at times when the need for IPRT’s expertise by Iowa industries was rapidly growing. Although pieces of the program have survived the cuts, it now serves only a fraction of the Iowa companies it once served and the current personnel are overextended. Companies seeking help outside the core competencies of the IPRT Company Assistance staff cannot be assisted. In the past these potential clients were guided to working with faculty members via subsidized projects. Because of the budget cuts, IPRT has restricted the technical assistance it provides to Iowa companies to those services that fall within the core competencies of IPRT staff rather than pursuing these collaborative, cross-disciplinary projects. Also, fewer R&D cost-share projects that can lead to new products are pursued due to the declining funding. Over 75% of the Iowa manufacturers that IPRT serves have less than 100 employees. This means that the typical industrial client will likely not have the needed expertise internally to address their material and inspection issues.

The materials assistance unit of the IPRT economic development program provides short-term no cost technical assistance to Iowa manufacturers and is often the first interaction that manufacturers have with the University.
Restoration of funding would allow for growth of materials assistance, enhancing their delivery of services. They seek to offer a wider scope of services directly meeting the needs of Iowa manufacturers.

The NDE (nondestructive evaluation) unit of this program functions similarly to the materials group, in that short-term technical assistance is provided to Iowa manufacturers on a no-cost basis. The focus of the NDE Group is to assist companies in areas of inspection and quality control. To that end, the NDE Group serves as an unbiased source of information, offering clients a broad range of expertise in various inspection methodologies. Manufacturers often do not have staff acquainted with these capabilities, so the group in effect complements the engineering capabilities of their clients. The group assists client companies in addressing problem areas, ensuring product development and quality. This assistance requires robust budget support to maintain the needed flexibility to successfully address the wide range of industrial concerns that are presented to it.

The technology commercialization unit administers cost-sharing, contract research projects, working with Iowa’s small to medium-sized manufacturers. These small companies have very limited Research and Development dollars and facilities, and now, this unit does not have the funds needed to leverage Iowa companies’ limited resources. These are projects with obvious economic impact—introduction of new products, addressing manufacturing processes, and improving quality—all areas that impact Iowa’s global competitiveness in the manufacturing sector. Before the budget cuts of the last several years, the staff proactively marketed the research and development strengths of ISU’s faculty to potential Iowa industry partners. This outreach effort was eliminated due to constraints on staff time and funds available for these projects, which may have had other unintended consequences.

A unique feature of the economic development program in IPRT is the active participation of scientists from internationally renowned ISU centers such as the Center for Nondestructive Evaluation, the Virtual Reality Applications Center and the Center for Catalysis. These centers have excellent track records of spinning off new Iowa start-up companies in the areas in which they excel. Restoring the budget cuts to IPRT units would have a rapid positive impact on Iowa’s manufacturing sector. An investment now will result in continuing benefits to Iowa’s companies, important opportunities to retain our brightest students, and new start-up companies based on increased technology transfer from IPRT centers.