

THE BIOBUSINESS ALLIANCE OF MINNESOTA
FINAL GRANT REPORT DECEMBER 2009
STATE OF MINNESOTA
DEPARTMENT OF EMPLOYMENT AND ECONOMIC DEVELOPMENT
BUSINESS AND COMMUNITY DEVELOPMENT DIVISION
Re: Special Appropriation Grant Agreement
SPAP-09-0001-P-FY10

AGENCY	VENDOR NUMBER	OBJECT CODE	TOTAL AMOUNT
B22100			\$1,750,000

Introduction

The BioBusiness Alliance of Minnesota (BBAM) has fulfilled the agreed upon deliverables. The detailed progress is spelled out in this report. Per the reporting requirements of the contract, the report will cover specific reporting requirements, special conditions regarding use of funds, metrics and match requirements.

As an intro to the overall theme of this report, the staff of eight people at BBAM is incredibly proud to have been awarded the 2009 Southern Minnesota Partner of the Year award by the Southern Minnesota Initiative Foundation (SMIF). The annual award recognizes an outstanding partner who has helped further SMIF's mission of creating economic vitality in southern Minnesota. We believe this award is a strong representation of our work to date both in southern Minnesota, but also throughout Minnesota.

General Highlights

The current partnership with the State of Minnesota, Department of Employment and Economic Development (DEED), has led to several key accomplishments and partnerships which will be expanded upon later in the report:

- Destination 2025 Kick Off and Implementation: On January 28, 2009, Destination 2025, a 20-year strategy for the life science industry in the state of Minnesota, was released. Since its unveiling, BBAM and its partners have been working to implement core recommendations through the Biobusiness Resource Network (BRN).
- The BioBusiness Resource Network connects the state's life science and business resources to help companies start, expand and relocate in Minnesota. This year's projects were focused on strategic planning and developing the community that supports the strategic plan laid out by Destination 2025.

The following is a list of key projects we are implementing, as recommended through Destination 2025:

- The Full Spectrum Funding Initiative is an effort to improve the availability of financial mechanisms to support companies in their efforts to start, grow and re-invent themselves. Currently, BBAM is an active partner pushing for an angel investor tax credit and is also

working with three new funds in Minnesota that are actively raising \$1.035 billion to invest in Minnesota companies.

- Elk Run: BBAM worked with Tower Investments and Burrill & Company to secure funding for the biotechnology building at the Elk Run Biobusiness Park now under construction in Pine Island, Minnesota.
- The Nano-Scale Science and Engineering Initiative will help to ensure a globally competitive nano technology economy exists in the upper Midwest. This project is in partnership with MnNano, the University of Minnesota, the Minnesota State College and University System and approximately 25 private sector companies and the state of Minnesota.
- The Combustible Biomass Industry Development Initiative focuses on developing awareness and formulating appropriate strategies and policy recommendations that leverage Minnesota's forest and agricultural resources. This initiative will aid the state in reaching its 25x'25 renewable portfolio standard goal while creating immediate job opportunities throughout the value chain.
- The Biomass Sustainability Value Chain Analysis incorporates a system dynamics modeling process that allows decision makers to identify and simulate public and private actions that can help ensure the long term sustainability of forest-based bioenergy throughout the value chain.
- Biobusiness in Northeastern Minnesota: A Regional Evaluation and Implementation Plan: A study was conducted by BBAM to examine biobusiness activity in northeastern Minnesota. The objective was to assess the region's life science capabilities, and provide recommendations for biobusiness job and wealth creation that build on the strengths of the region. Implementation of the recommendations from this report will be occurring in 2010 and beyond.
- Diabetes Initiative: BBAM and its partners are working to establish globally recognized leadership in the diabetes field by leveraging existing capabilities for economic benefit to the state and to improve health and wellness for our citizens and others. BBAM continues to support this project by coordinating the formation of relationships and information exchange, and by organizing the private sector in an effort to partner more closely with the academic institutions.

Use of Funds

There are four core areas where our funds are being utilized and leveraged:

- 1) Implementing the Destination 2025 statewide plan
- 2) Implementing the BioBusiness Resource Network
- 3) Conducting a statewide bioscience business industry assessment
- 4) Developing and implementing scenario-planning and business models.

1) Implementing the Destination 2025 statewide plan

On January 28, 2009, Destination 2025, a 20-year strategy for the life science industry in the state of Minnesota, was released.

The Destination 2025 roadmap and visioning project was a statewide, collaborative project between BBAM and Deloitte Consulting LLP to develop a strategy for Minnesota to move forward in six markets of life science: Medical Devices, Biologics and Biopharmaceuticals, Animal Health, Food, Renewable Energy and Renewable Materials. Destination 2025 was designed to help Minnesota better understand its assets and strengths, compare them with the evolving global markets and create a coordinated and sophisticated statewide biobusiness growth strategy with regional components. The process involved over 600 people, locally, nationally and internationally who work in and with the industry and who are experts in their area of focus. The Destination 2025 process also yielded a wide network of individuals committed to developing the life science industry. The reports and roadmap recommendations are available online at: <http://biobusinessalliance.org/destination/>.

Since the release of the reports, BBAM has been traveling throughout the state educating interested people on the possibilities of Destination 2025, and providing assistance to communities and companies as they seek to implement specific recommendations which will be discussed in the following sections.

To date, there have been over 7,700 Destination 2025 documents downloaded from around the world.

2) Implementing the BioBusiness Resource Network

The BioBusiness Resource Network (BRN) connects the state's life science and business resources to help companies start, expand and relocate in Minnesota. There are three parts to the BRN where our funds are being invested. First, we have a strong team dedicated to helping companies grow. Second, we are catalyzing projects that will drive the growth of biobusiness in Minnesota. Third, we are improving the climate for biobusiness in Minnesota.

A) Helping Companies Grow

As is demonstrated in the chart below, BBAM's client companies are creating jobs in Minnesota. Between 2008 and 2009, BBAM supported 154 companies. The 154 companies had 1,080 direct jobs and 814 indirect jobs, for a total of 1,894 jobs in Minnesota. The companies raised \$24,423,000 in 2009 to support their growth. In 2009 alone, BBAM supported 109 companies, with 657 direct jobs and 502 indirect jobs for a total of 1,159 jobs in Minnesota. The 109 companies expect to add 1,858 jobs in the next three years, and raised a total of \$6,146,000 in 2009 to support their growth.

BioBusiness Resource Network Scorecard

Total Companies Supported January 1, 2009 – December 31, 2009

	Medical Device	Pharma / Biologics	Animal Health	Food	Renewable Energy	Renewable Materials	Total
Create							
requests	15	15	0	2	20	6	58
Companies	14	14	0	2	20	6	56
Retain/Expand							
Requests	1	1	0	0	9	5	16
Companies	1	1	0	0	9	5	16
Recruit							
Requests	12	0	1	0	9	1	23
Companies	12	0	1	0	9	1	23
Community Capability companies	Note that the community capability companies are not related to any specific industry; they support all six industries.						
Requests	N/A	N/A	N/A	N/A	N/A	N/A	14
Companies	N/A	N/A	N/A	N/A	N/A	N/A	14
TOTAL							
Requests	28	16	1	2	38	12	111
Companies	26	15	1	2	38	12	109
Jobs	657 Direct Jobs	502 Indirect Jobs					1159 direct and indirect jobs
Funding							\$6,146,000

B) Catalyzing Projects

Destination 2025 outlined many core recommendations that Minnesota can and needs to implement now to be competitive going forward.

BRN International Business Support Center

One of the key projects focuses on recruiting new companies to Minnesota and facilitating Minnesota companies to new strategic international markets, companies and governments, we created the International Business Support Center (IBSC). To date, the IBSC has focused on three countries:

- Sweden: BBAM continues to grow its relationship with Sweden for two primary industries: Renewable Energy and Medical Devices.
 - International Renewable Energy Technology Institute (IRETI): To show the benefits of this relationship, The International Renewable Energy Technology Institute (IRETI), a collaboration between Minnesota and Sweden, celebrated its official ground breaking in November 2009 at Minnesota State University, Mankato. This institute is designed to assist international companies in technology transfer with an initial focus in combustible biomass.
- Japan: BBAM's relationship with Japan is extremely important to Minnesota's medical device industry. The core assets in Medical Devices within the Osaka region of Japan are

very similar to Minnesota's medical device cluster. It is easy for us to assist these companies abroad by utilizing our core skill sets within Minnesota. Also, with Japan's strong biologics/biopharmaceutical industry, through our relationship, we will better understand how these two industries are converging.

- Canada: In June 2009, BBAM hosted a delegation from the University of Saskatchewan's Vaccine and Infectious Disease Organization (VIDO). VIDO is a world leader in the research and development of vaccine and immunity-enhancing technologies for humans and animals. The tour included visits at the University of Minnesota and with leadership from multiple Minnesota companies with a focus on connecting Minnesota and Canadian companies working on vaccine research and production.

BBAM is implementing many catalytic projects that are having statewide impact. Projects include:

- The Full Spectrum Funding Initiative Full Spectrum Funding: This project is an effort to improve the availability of financial mechanisms to support companies in their efforts to start, grow and re-invent themselves. Great progress has been made in creating awareness and in establishing specific funds that will support Minnesota's industry growth.
- Elk Run: BBAM was instrumental in securing funding for the biotechnology building at the Elk Run Biobusiness Park in Pine Island, Minnesota. BBAM worked with Tower Investments and Burrill and Company, who have both put venture capital funds toward the establishment of the business park. The Elk Run Park has 200 acres and is designed to accommodate the needs of a broad spectrum of biotech companies, from start-ups to industry leaders. It is designed to support early-stage development, clinical development and commercial manufacturing in one location, with a state-of-the-art infrastructure. It will utilize the world-class biotech industry and logistical resources Minnesota has to offer, making Minnesota a major player in the biologics/biopharmaceuticals market.
- The Nano-Scale Science and Engineering Initiative will help to ensure a globally competitive nano technology economy exists in the upper Midwest. This project is in partnership with MnNano, the University of Minnesota, the Minnesota State College and University System and approximately 25 private sector companies and the state of Minnesota.
- The Combustible Biomass Industry Development Initiative Combustible Biomass Industry Development: Minnesota has a vibrant renewable energy industry, a strong academic research capacity, and is well positioned to be a leader in the production and conversion of biomass and the conversion of biomass to heat and power. To accelerate the utilization of these assets and bring value to Minnesota's economy in the near future, BBAM is advocating for and leading efforts in the development of a combustible biomass industry in the state. By expanding the application of combustion in the generation of heat and power, Minnesota has a better chance of reaching its renewable energy standard and creating immediate job opportunities in every community. If we leverage our forest and agricultural resources in an environmentally sound manner, we can create heat and electricity from biomass, currently a highly underutilized resource for our state.
- The Biomass Sustainability Value Chain Analysis Minnesota Biomass Sustainability Value Chain Analysis: BBAM is working with industry leaders from the private, academic and government sectors to develop a system dynamics model to help decision makers make

choices regarding the use and allocation of biomass that will produce the most favorable and sustainable business and environmental outcomes over time.

- **Diabetes Initiative:** BBAM and its partners are working to establish globally recognized leadership in the full diabetes field by leveraging existing capabilities for economic benefit to the state and to improve health and wellness for our citizens and others. BBAM continues to support this project by coordinating the formation of relationships and information exchange, and by organizing the private sector in an effort to partner more closely with the academic institutions.
- **BIOMAP:** BBAM is in the process of conducting a complete data update of the over 2,400 data points that make up the BIOMAP. In addition, BBAM is revising the web interface for the BIOMAP to make the site more searchable, in response to feedback from users.
- **Value Chains:** BBAM has taken a value chain approach to understand the development of industries and the opportunities inherent to any industry from raw material through end product use and disposal. Missing a step in a value chain for a life science based industry would mean a missed opportunity for job creation, given the strengths Minnesota possesses. The value chain can be used to systematically understand where Minnesota has clear strengths and other areas where development has not yet occurred. Identification of the underlying skills and assets may inform strategy on improving segments of the industry.

For example, in the value chain for renewable materials, one can use the value chain image to easily communicate Minnesota's strength and skill sets that have made chemistry development especially strong, but the converters in the next step of the line have not developed such an industry and is therefore an opportunity for improvement and a strong candidate for focus from the BBAM.

C) Improving the Climate for Biobusiness

BBAM is working with three specific geographic regions in Minnesota to improve the regional biobusiness environment.

a. Southern Minnesota

BBAM is in the second year of implementation of the Regional BRN Support Capability, funded in part by McKnight Foundation, and in collaboration with the SMIF. We have expanded the three year project from the southeast pilot to include three additional regions: northeast, southwest, and west central Minnesota. Each region is taking the model developed in the southeast and putting their own regional stamp upon it and teaching the BBAM and SMIF more about how to further develop the system for optimal results.

BBAM and SMIF collaborated to develop a template for creating and expanding the BRN capability across the state.

The Critical Components to Regional BRN Support Capability Success (The Model Process)

1. Identify **CHAMPIONS** with significant technical and industry knowledge
2. Inventory **STRENGTHS/CAPABILITIES** of the region
3. Connect to **ACADEMIC SUPPORT** for workforce, research, technology
4. Develop **ACCELERATION CAPABILITY** (money, management)

5. Create a **STRATEGY AND COMMUNITY** that supports implementation.

The objectives of the Regional BRN Support Capability program are:

- I. Accelerate growth and expansion of life science -based businesses.
- II. Increase availability of funding resources to support early- and late-stage financial needs.
- III. Develop and implement a marketing campaign to attract start-ups and expansion of biobusiness.

The following details progress towards these objectives and is structured around the components of the model process.

With the lessons learned from the first year of the grant period, BBAM and SMIF continue to provide the vast majority of staff time to support the growth of the Regional BRN Support Capability.

In the second year, we hired four experienced consultants who had both technical and business backgrounds to lead and support Regional BRN Support Capability projects. The consultants helped to refine the pilot company review system for biotechnology companies in the southeast, expand the asset-based strategic planning for the life science in the northeast, assess the status of the access to capital for life science companies in Minnesota, and create a model for management of the biomass value chain.

In order to afford the level of expertise needed, we brought on four individuals as independent contractors focused on specific tasks rather than as full-time employees of the BBAM. This was necessary to ensure access to the appropriate level of technical and business expertise without overextending the project budget. In addition to the four consultants, BBAM and SMIF have significantly expanded the network of individuals who can support life science companies across Greater Minnesota.

Partnership for Regional Competitiveness – Southern Minnesota is a partnership of organizations, businesses and government agencies working together to create a strategic economic development plan for the 38 counties of southern Minnesota. BBAM was a founding partner and advisor to this economic development strategic planning process. The region chose biobusiness, renewable energy, and high technology as their three largest opportunities. These opportunities build on existing regional strengths of agriculture and food, manufacturing, and healthcare.

Key areas of implementation focus include building a regional capital fund including both equity and debt options to support companies in the region, the creation of a virtual business accelerator to help build business expertise to move research to commercialization, and sustained involvement from key regional stakeholders to support the process.

Entrepreneur Mentoring Program: BBAM is working with SMIF and other leaders in the region to create a business support model and entrepreneur mentoring program to support bioscience-based business growth in southern Minnesota. This pilot structure will then be available for use across the state to provide a support network for mentoring entrepreneurs and developing promising CEO talent.

Southern Minnesota Initiative Foundation 2009 Southern Minnesota Partner of the Year Award:

BBAM was awarded the 2009 Southern Minnesota Partner of the Year award by the SMIF. The annual award recognizes an outstanding partner who has helped further SMIF's mission of creating economic vitality in Southern Minnesota. BBAM received this award, in part due to efforts in:

- Assisting with the Southern Minnesota Regional Competitiveness Project, a strategy for economic growth for the lower 38 counties in Minnesota

- Providing technical expertise to assist SMIF support bioscience-based business in the region
- Defining a strategy for expanding access to capital for bioscience companies in the region and across the state
- Establishment of the International Renewable Energy Technology Institute (IRETI)
- BIOMAP, an interactive online resource for identifying Minnesota's bioscience capabilities

b. Northeast Project

Biobusiness in Northeastern Minnesota: A Regional Evaluation and Implementation Plan: A study was conducted by BBAM to examine biobusiness activity in northeastern Minnesota. The objective was to assess the life science capabilities, and provide recommendations for biobusiness job and wealth creation that build on the strengths of the region. The northeast report examines biobusiness activity in northeastern Minnesota and recommends actions to foster a stronger biobusiness presence in the regional economy. The study was conducted by BBAM with a grant from the Blandin Foundation. The objective of the report was to do an assessment of the northeast Minnesota's life science capabilities, and provide recommendations for job and wealth creation that build on the strengths of the region. The outcome was a report called "Biobusiness in Northeastern Minnesota: A Regional Evaluation and Implementation Plan." Implementation of the recommendations from this report will be occurring in 2010 and beyond.

c. West Central Coalition

Strategy Built on Inventoried Strengths and Capabilities: The West Central Minnesota Biomaterials Coalition is a collaboration of economic development professionals, private companies, state government, academic institutions, and nonprofit entities actively engaged in fostering the growth and innovation of the renewable materials sector in the west central portion of Minnesota and the eastern portion of North Dakota. After reading the Destination 2025 strategy and conducting a preliminary assessment of the region's strengths and assets, a group of west central regional economic development champions asked BBAM to work with them in April 2009 to develop a strategy for increasing biobusiness activity in the region.

The region chose to focus on the engineering of products made from renewable materials to capitalize on their expertise in plastics manufacturing and also to be part of the growing trend towards green and sustainable packaging and polymer products. The economic development champions brought in private sector manufacturers to discuss what issues need to be addressed to make the business case for becoming a center for the engineering of products from renewable materials clear and convincing. The group is currently working with three separate companies to design green chemistry components into their product lines, establish academic testing capability, and work force development strategies for the region.

Following the model developed in Southern Minnesota, the West Central area has begun focusing on the development of manufacturing capacity using renewable materials, which was one of the recommendations from the Vision paper in Renewable Materials. Economic development professionals from the area are leading the charge to help navigate the significant plastic manufacturing capacity that is already well established using traditional polymers. A loosely organized group known as the West Central Minnesota Renewable Materials Coalition has been formed to support the effort. Several businesses in the Fergus Falls area are interested in the application of renewable materials and have invested in research to determine its viability in part by

collaborating with Nature Works, a subsidiary of Cargill. We have begun to create relationships with the public, private, and academic institutions that can provide resources to manufacturers, including product testing and development, resin providers, and downstream users, and potential funders. The Agricultural Utilization Research Institute has committed financial and technical assistance to help companies understand the technical and market aspects of the industry that identify applications likely to be successful. BBAM has committed a staff person to provide administrative support and technical assistance to help the Renewable Materials Coalition achieve its goals.

3) Statewide bioscience business industry assessment

BBAM is planning to conduct an update to the statewide industry in 2010 during the second half of this contract period.

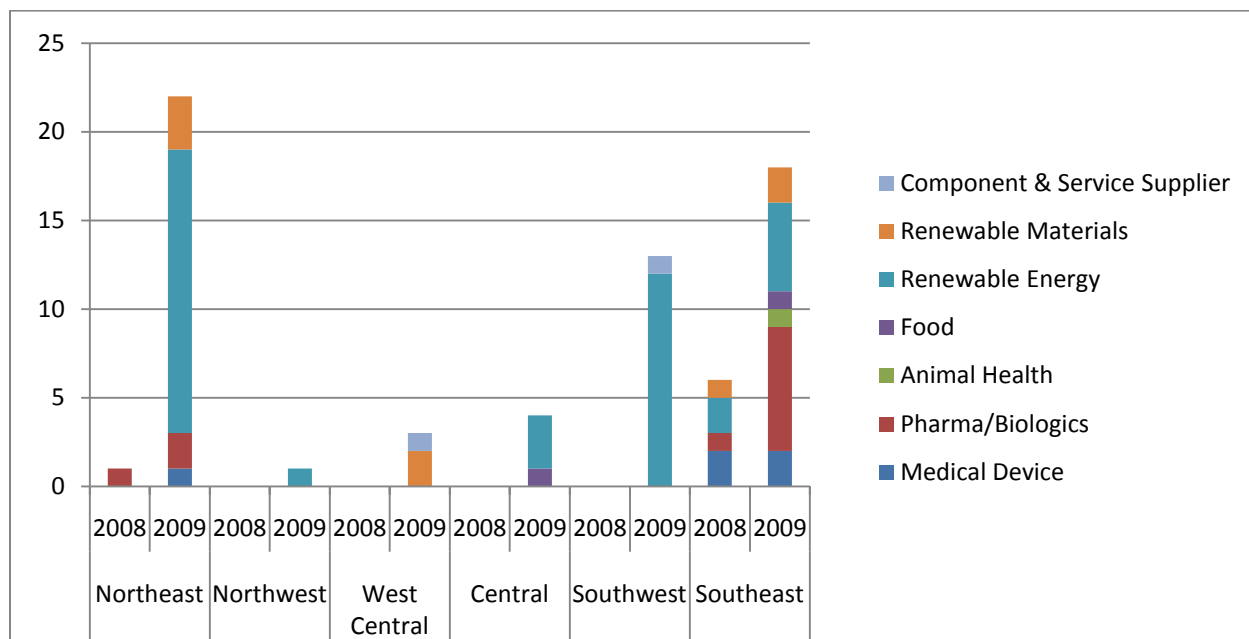
4) Develop and implement scenario-planning and business models to create, recruit, retain and expand biobusiness activity in Minnesota

In 2009, the Minnesota Renewable Fuels Simulator was presented to over 130 decision-makers, stakeholders, and other interested parties through outreach efforts related to Destination 2025 implementation. The simulator was utilized and referenced to inform policymakers of the opportunities that could be realized by including heat generation from combustible biomass as part of the state's 25 x '25 renewable energy mandate. Additional insights derived from the systems dynamic model were also utilized to help identify target technologies from locations around the globe that could be deployed in Minnesota through technology transfer efforts in coordination with the International Renewable Energy Technology Institute (IRETI) located at Minnesota State University, Mankato.

A follow-on model is looking at the growth harvest and allocation of woody biomass (forest products). This model complements the previous renewable fuels simulator model and gives insights to how biomass can be used to help our understanding of how biomass can help achieve the stated 25x'25 goal in a sustainable manner. This model was recently completed and validated. The first scenario planning meeting utilizing the model is being scheduled for March 2010 with the DNR and several private sector stakeholders. The results of this planning session will yield preliminary recommendations for allocation of forest product to end product applications (such as energy, lumber, polymers). These preliminary recommendations and supporting model simulations will be further vetted with private, public and academic partners with final recommendations formally published in the form of a white paper in Q2 2010.

METRICS:

As outlined previously throughout the report, and specifically in the BioBusiness Resource Network Scorecard, BBAM is making strong progress in growing the biobusiness industry in Minnesota. In 2008, we evaluated a total of nine companies in the six regions. In 2009, we evaluated 68 companies.



Of the six companies supported in 2008, four of the five are still continuing the commercialization process. One company is conducting clinical studies with the Mayo Clinic, and the other is expanding its product offerings into additional industries.

Of the 56 companies supported in 2009, one company has signed an agreement to conduct clinical trials at the Mayo Clinic. Another five companies are in negotiations with other companies to license their technology.

REQUIRED MATCH:

The contract states that “The February 15, 2010 annual report will provide an update as to the progress made on the match requirement.” The contract further states that “match shall be inclusive of cash monies, donations and in-kind contributions, and volunteer hours, excluding board meetings. Grantee will raise a minimum cash match of \$500,000 over the Term. Work-in-kind and volunteer hours will be tracked and recorded at fair market value for each volunteer.”

As the chart below outlines, we are making good progress to our first year match goal of \$500,000 and our \$250,000 goal of cash monies. (Please note: this reporting period is abbreviated because of the report submission date moving up from June 30th to February 15th).

BioBusiness Alliance of Minnesota Work-In-Kind: July, 2009 through January, 2010

Volunteer Name	# of Hours	Fair Market Value	Donation Amount
Jones, Blaine Best Buds Gardening Supply, Inc.	56	\$125 per hour	\$7031
France, Greg International BioEnergy Days	89	\$140 per hour per agreement	\$12,460 \$21,000
Johnson, Scott	703.5	\$310 per hour	\$218,085
Judd, Tom	1	\$410 per hour	\$410

Judd, Tom	24.5	\$440 per hour	\$10,780
Mast, Marion	145	\$50 per hour	\$7250
Perera, Susan	10	\$20 per hour	\$200
Risdall Advertising Agency		per agreement	\$1458
Wagy, Dave	92	\$200 per hour	\$18,400
		TOTAL	297,074

BioBusiness Alliance of Minnesota

Cash Donations: July, 2009 through January, 2010

Donor	Amount
Blandin Foundation	\$75,000
Eisai	\$20,000
McKnight Foundation	\$100,000
14 Individual Donations	\$1600
TOTAL	196,600

Work-In-Kind Donations	\$297,074	
Cash Donations	<u>\$196,600</u>	
	\$493,674	TOTAL MATCHING FUNDS

SUMMARY

We believe this report demonstrates significant progress towards the stated goals in our contract with DEED.

As an example, the asset-based approach to community development and strategic planning is catching on across the state. Local communities and larger regions are starting with an assessment of their assets and capabilities when creating a strategic plan for engaging in the life science industry. This understanding of assets and capabilities allows the regions to see where in the life science value chain they can add the most value, without incurring major cost. Stakeholders are surprised at how much capability they have to support the life science industry with only a small amount of retraining or cost to understand the markets.

We continue to find ways to work with our partners across the state. Many organizations and individuals have volunteered their time or have provided significant discounts for their services because they believe in the work the BBAM is doing in Minnesota. As an example, all consultants who worked with BBAM on Regional BRN Support Capability projects in southeastern Minnesota provided BBAM with a significant discount to their normal rate. By leveraging these in-kind resources, we have been able to greatly expand the work we do and work with more companies in Minnesota to help them achieve success.

We look forward to providing you progress reports in person throughout the year prior to the next official report in February 2011.