

08 - 0137

June 29, 2007

Dan McElroy
Commissioner
Department of Employment and Economic Development
1st National Bank Building
332 Minnesota St., Suite E200
St. Paul, MN 55101-1351

RE: Contract # SPAP-06-0013-P-FY07

Dear Commissioner McElroy,

As part of the one-time grant appropriation from the 2006 Minnesota Legislature, BioBusiness Alliance of Minnesota (BBAM) is required to submit to DEED a report on the budgeted expenditure by June 30th. The attached report summarizes the work of BBAM from July 1, 2006 through June 30, 2007.

We are pleased to be collaborating with government, academia and the private sector to help make Minnesota a better place to invest in biobusiness. We look forward to continuing to work closely with you and your department in the future.

Warm regards,



Dale Wahlstrom
CEO/Acting Chairman
The BioBusiness Alliance of Minnesota

Attachment

Cc:

Senator Tarryl Clark, Vice Chair, Rules and Administration
Senator James Metzen, Chair, Business, Industry & Jobs
Senator Ellen Anderson, Chair, Environment, Energy and Natural Resources Budget Division
Senator Jim Vickerman, Chair, Finance – Agriculture and Veterans Budget and Policy Division
Senator David Tomassoni, Chair, Finance – Economic Development Budget Division

Representative Margaret Anderson Kelliher, Speaker of the House
Representative Tom Rukavina, Chair, Higher Education and Work Force Development Policy and Finance
Representative Lyndon Carlson, Chair, Finance
Representative Al Juhnke, Agriculture, Rural Economies and Veteran Affairs
Representative Jean Wagenius, Environment and Natural Resources Finance
Representative Mary Ellen Otremba, Chair, Agriculture, Rural Economies and Veterans Affairs

Representative Kent Eken, Chair, Environment

Representative Tim Mahoney, Chair, Biosciences and Emerging Technologies

Kevin McKinnon, DEED

The 2006 grant for \$467,000 to BioBusiness Alliance of Minnesota (BBAM) was “for bioscience business development programs that will work to grow and create bioscience jobs in this state and position Minnesota as a global biobusiness leader.” As our organization committed to in the contract, BBAM is working to provide clarity to:

- help our research institutions to target research,
- our legislators to target investments and policy needs,
- our educators to develop curriculum,
- our investment community to grow their confidence in the State’s business development capability, and;
- our businesses to grow and create jobs for the citizens of the State.

To achieve the goals, BBAM is undertaking the following responsibilities:

1. Providing an organization for interaction and collaboration among constituents of the State.
2. Assessing and benchmarking the State’s capabilities and opportunities in the biosciences.
3. Creating a 20-year biobusiness vision and roadmap for the State.
4. Developing a structure to provide support to investors in the State.

The following outlines specific projects and achievements related to each of the stated responsibilities:

- 1. Providing an organization for interaction and collaboration among constituents of the State.**

The BioBusiness Alliance of Minnesota is an organization that brings together Minnesota companies, academia, and government, devoted to:

- (1) building the bioscience industry,
- (2) retaining and creating jobs, and
- (3) positioning Minnesota as a global leader in biobusiness with the ultimate goal of improving economic, health, social, and environmental well-being.

These guiding principles are common themes through all that we do as an organization and in the projects we are coordinating and implementing. This deliverable is woven through the project summaries that follow.

- 2. Assessing and benchmarking the State’s capabilities and opportunities in the biosciences.**

BBAM completed this major deliverable through publishing “Biobusiness: Minnesota’s Present Position and Future Prospects” on August 1, 2006. We believe our corner-to-corner industry-specific report was the first-of-kind to be conducted in Minnesota.

The goal of the assessment was to provide a baseline from which strategic action could be implemented. To accomplish the assessment and deliver on our promises, we commissioned two independent studies. The first was a comparative study conducted by Willoughby International, LLC. This study used public information to assess the private sectors of Minnesota compared to 10 other states with similar goals for their economic growth in biobusiness-related fields. The academic sector was not part of this study. The study yielded a clear picture of where Minnesota stands compared with these other states.

The second commissioned study was conducted by the ANGLE Technology Group. This study followed a grassroots approach that included both for-profit and not-for-profit organizations, in both the academic and industry sectors. There were two primary deliverables for this study. The first was to develop a census of both for-profit and not-for-profit enterprises (operating independently or as a unit of a larger corporation or organization) in Minnesota that develops biobusiness-related technology. The second was to produce an understanding of the markets, products and technologies these enterprises employ to meet their organizational objectives. ANGLE looked at both current capacity and future directions. The research was conducted using questionnaires, telephone conversation and face-to-face interviews.

The extensive findings have been distilled into several critical needs for improving Minnesota's biobusiness economy. These needs include catalyzing and supporting start-up of new business in medical devices and keeping it here in Minnesota, catalyzing research and development in the life sciences, and creating plans for a sustainable renewable energy and convergence in the human health industries.

It is worth noting that this major deliverable was completed through non-State donations, before the State grant dollars related to this report arrived.

3. Creating a 20-year biobusiness vision and roadmap for the State.

BBAM is coordinating Destination 2025, a strategic visioning process that is developing a short medium- and long-term strategy and plan for growth in the Minnesota biobusiness industry. It is intended to help give direction and priority for Minnesota to sustain a long term competitive position in the bioscience based industry. The data gathered through the statewide industry assessment outlined in #2 was the starting point for Destination 2025.

The process and support structure in Illustration 1 (see below) has already been established. The **Core Governance Council** is in place. It is led by the private sector with membership from the academic and government sectors. The responsibility of this council is to manage the overall strategic planning process.

The **Advisory Board** is partially in place. This group consists of the "experts" in their respective areas of expertise. The role of the board is to offer insights into the future direction markets will be taking as science, technology, policy and market needs evolve and converge. They will also help us to identify pitfalls and to help educate the public and their constituents when the final strategy is delivered.

The **Strategy Board** is a working board. This group will actually write the strategy that will be presented to the community. This will involve contracting with a yet-to-be-determined outside professional consultant who will work closely with the Core Governance Board and the Analysis Teams (yet to be discussed) to extract all of the appropriate information that will be used to identify our areas of opportunity. It is clear that we cannot be everything to everyone and we will need to target our efforts and investments.

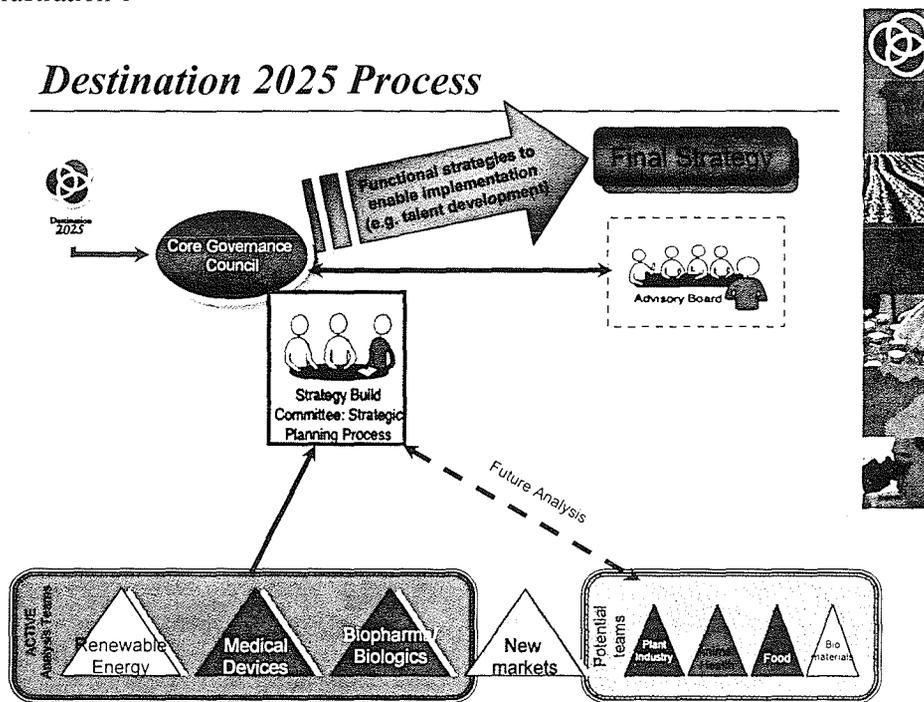
The final categories of teams are called the **Analysis Teams**. To start with, Destination 2025 has three Analysis Teams: Renewable Energy, Medical Devices and Biopharma/Biologics. Each of these teams will consist of 15–20 people in the state who are the technical, market, and policy experts in their respective areas. The role of each team is to define to the best of their ability what each of the markets will most probably be in the 5, 10, 15, and 20 year time frame. They will formulate possible scenarios that could be reality in each of the 5 year incremented time

frames that we are asking them to study. Using **system dynamics modeling** (to be explained shortly), the team will pick the most probable scenario. Once this is done, the strategy build team will look for common themes across all analysis teams that will result in a further refined statewide strategy.

The Renewable Energy Analysis Team is the first team “off the starting line”. For each team, BBAM is working with a strategic partner(s) who can help us to bring all of the appropriate people to the table. For renewable energy, we are partnering with Agricultural Utilization Research Institute (AURI), the University of Minnesota and the Minnesota Corn Growers Association. This team is in place and fully functioning with facilitation by BBAM staff and modeling expertise provided by Sandia National Labs (Albuquerque, NM). We have held dozens of meetings, and have had three large extended group meetings in St. Cloud that were attended by over 50 people (each) from all over the state. Attendees represented Minnesota State Colleges and Universities (MnSCU), the University of Minnesota, growers, producers, state government, local economic development people, etc. We have been told many times that most of these people had never been in the same room together. It is very rewarding to see the teamwork evolving. We expect to have over 200 people engaged in the overall process. The first major milestone is the delivery of a report outlining renewable energy market constraints, risks and uncertainties, opportunities and recommendations by the end of August 2007.

The Medical Devices and Biopharma/Biologics teams are being formed now and will be reported on in next year’s report.

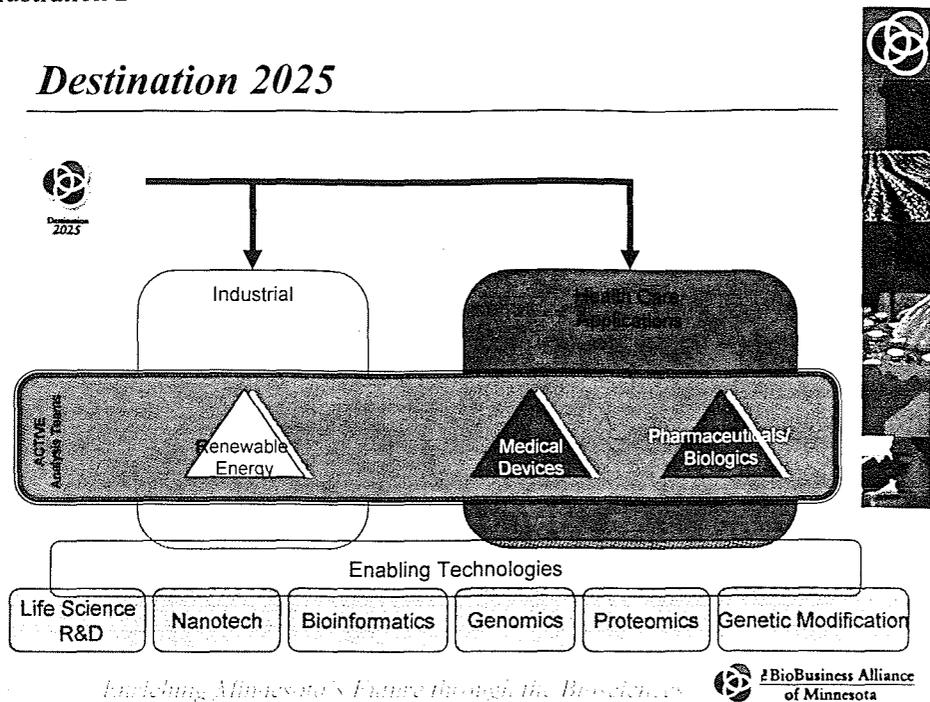
Illustration 1



The enabling technologies at the bottom of Illustration 2 are critical. These are the basic skills and infrastructure that will allow us to be successful in biobusiness industries over the long term.

We are just now trying to frame our capabilities in these areas so we can assess more precisely what we need to be successful. Much of this work is being done under the umbrella of the BioBusiness Resource Network that will be discussed later in the report.

Illustration 2



As you can imagine, creating a picture of the future is difficult. It must take into account the projected successes and limitations of science and technology, as well as consumer acceptance, policy, global issues, and many other constraints. This is where modeling and Sandia National Laboratories (Sandia) become important.

Sandia is a leading expert in the application of systems modeling. Specifically, they are experts in “System Dynamics Modeling” (SD), which is a specific form of systems modeling. Although SD has been used for 50 years, it is quite different from the traditional economic or linear modeling to which most of us have had exposure. SD is designed specifically to work on complex problems that have many forms of variables. In the case of renewable energy, it is important to look at the interactions of wind, solar, renewable fuel, public attitude, infrastructure, policy, financial incentives, global considerations, and many other factors. In the case of medical devices and biopharma/biologics, we need to look at many of the same social issues mentioned above, but we also need to consider convergence and what will be the implications to our device-based bioscience economy.

It is only through the use of a sophisticated tool such as SD that we will be able to manage the interactions of all of the various components that go into understanding alternatives for implementation. It is important to note that these models will give us tools to evaluate options that will improve our chances for success. Models give probabilities of success and guidance on “how to” accomplish a goal. The SD model will tell us how we can achieve a goal, and will identify the areas of risk and constraints that must be eliminated to ensure success.

Unfortunately, we do not have this modeling skill base locally. These skills are only available on the east or west coasts at this time. We intend to begin building local capability by starting with facilitation and hiring modeling capability locally in the near future.

The two-year Destination 2025 strategic visioning process will be completed by late 2008/early 2009.

4. Developing a structure to provide support to investors in the State.

BBAM is leading the creation of the BioBusiness Resource Network (BRN) as the last of its three major strategies. The goal of the BRN is to make doing business in Minnesota a pleasant and rewarding experience through supporting investors in the State. The BRN has two sub-projects: (1) providing support to companies as they seek to start-up, expand, or relocate in Minnesota and, (2) creating the infrastructure needed to foster the biobusiness industry in Minnesota.

(1) Providing support to companies as they seek to start-up, expand, or relocate in Minnesota

The BRN is a collaborative project of representatives from industry, academia, and government that helps to support bioscience companies as they seek to start-up, relocate, or expand in Minnesota. Key partners include the BioBusiness Alliance of Minnesota, Minnesota Department of Employment and Economic Development, LifeScience Alley, and the University of Minnesota.

BRN staff and partners help connect new and existing bioscience businesses to the resources they need to be successful, from business development assistance to funding to real estate. The network of partners includes biobusiness industry representatives, the University of Minnesota, the Department of Employment and Economic Development, LifeScience Alley, Minnesota State Colleges and Universities system, Mayo Clinic, and the Southern Minnesota Initiative Foundation. BRN partners provide expertise, funding, and work-in kind.

In fiscal year 2006, the BioBusiness Alliance received approximately 100 requests for support to companies. Of those 100 requests, the BRN provided support to 44 companies. Examples of active support to these companies includes connecting start-up companies to financing resources; serving as a temporary CEO for a start-up company; introducing companies to potential incubators for their business; connecting companies to existing customer, supplier, and industry networks; and assisting companies in finding qualified technical, scientific and business managers.

BRN partners helped three companies to relocate or start-up in Minnesota in 2006, creating 20 jobs which are currently in the hiring process. In addition, we are actively working with six international companies who wish to relocate or expand their business in Minnesota. The partnership is currently supporting 28 U.S. companies; 20 of which are Minnesota companies and eight of which are from other U.S. states.

The BRN partnership's stated goal is to help at least five more companies to start-up, expand, or relocate in Minnesota in the fiscal year 2007.

(2) Creating the infrastructure needed to foster the biobusiness industry in Minnesota

As mentioned earlier, BBAM has four infrastructure projects that were initiated during the fiscal year 2006 including:

- Statewide Life Science Community;
- Acceleration and Incubation; and,
- Early Stage (and Non-Traditional) funding for start-up companies; and,
- Biosciences Education-Industry Partnership Council.

Statewide Lifescience Community

(The Distributed Lifescience Community changed its name to the Statewide Life Science Community in December 2006.)

The Statewide Lifescience Community represents the whole of Minnesota's bioscience capabilities. Its objectives are fourfold:

- To identify, organize and connect the statewide capability to develop bioscience-based businesses at the local level;
- To facilitate collaboration and targeted investments to optimize the potential of our available dollars;
- To provide a mechanism to educate local communities on the importance of bioscience to our state and our communities; and,
- To transfer knowledge and technology to the metro and greater Minnesota region and provide a support system to help individuals and communities to take advantage of opportunities that arise.

The Statewide Lifescience Community working group currently includes representatives from the following organizations:

- BioBusiness Alliance of Minnesota
- City of Minneapolis
- City of St. Paul
- DEED
- LifeScience Alley
- Minnesota High Tech Association
- MnSCU
- University of Minnesota

This group will be expanding to include additional organization and representatives in the coming weeks and months.

The Statewide Lifescience Community has formed 17 centers of excellence to organize the state's capabilities in key bioscience areas. The centers of excellence are grouped into three broad categories: *sources of innovation, workforce development and public education, and commercialization support*. Five of these centers are currently active including: nanotechnology, convergence, welcome and help center, modeling, international start-up support center, pharmaceutical and biopharma lab and engineering support.

Acceleration and Incubation

Business incubators and accelerators are key to helping grow the bioscience industry in Minnesota. In the summer of 2006, the BioBusiness Alliance conducted an inventory of the incubators and accelerators in Minnesota. (By way of definition, incubators provide low-cost office space for companies, where as accelerators offer low-cost space and business development assistance.) The inventory identified 37 incubators, 20 of which are active in supporting businesses.

Early Stage (and Non-Traditional) Funding

Many bioscience start-up companies require some form of early financing to allow them to complete needed research, prototypes, and other milestones after they have used private financing to support their business to get them to the point where they can seek angel or venture capital funding. This “valley of death” funding is critical to creating the infrastructure needed to help start-up bioscience companies be successful in Minnesota.

To date, the BioBusiness Alliance has agreement from five funding sources who are willing to come together to discuss the creation of an early stage and non-traditional funding network for small bioscience companies. The BioBusiness Alliance will continue to work with this group of funders to begin to solve the “valley of death” funding issue for small bioscience companies.

Biosciences Education-Industry Partnership Council

The Biosciences Education-Industry Partnership Council was formed in June 2006 as the educational arm of the BRN. Its vision is to make Minnesota a world leader in bioscience education and workforce preparedness. Its mission is:

- To create an ongoing dialogue between education and industry about current and future workforce needs as they relate to the biosciences,
- To create an environment where relationships can be built and partnerships can form to advance bioscience education at all levels, and
- To develop an informed and engaged group of industry representatives to serve as advisors and advocates for bioscience education and educators.

Council members include representatives from K-12 education, higher education (including Minnesota State Colleges and Universities, the University of Minnesota and the private colleges), government (including the Department of Employment and Economic Development and the Minnesota Department of Education), private industry, and economic and workforce development entities. The director of the National Science Foundation’s Advanced Technological Education (ATE) Center for Biotechnology Technician Training in San Francisco is also a member.

The council is divided into three action teams which undertake projects that support the council’s mission. Members on each action team include a cross-section of member organizations.

Action Team	Goal	Current Projects
K-12	Improving and expand bioscience education opportunities for K-12 students and teachers; expand student and teacher engagement in and awareness of related careers.	The team is in the process of identifying its first project.
Higher Education	Improve and expand bioscience education opportunities for post-secondary students and faculty; expanding student engagement in and awareness of related careers.	The team is exploring the creation of an internship program for postsecondary students.

Date Collection & Dissemination	Create sources of information regarding educational options, career options, and workforce gaps related to bioscience.	The team is collaborating with DEED to help the department develop a semi-annual Biosciences Job Vacancy Report.
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The council meets monthly. Meeting activities include: (1) informational presentations and (2) action team meetings. The presentations allow members to share information about (1) programs and best practices, and (2) workforce needs. The December 2006 meeting featured an industry panel discussing workforce needs. Because of the broad interest in this topic, this meeting was opened to guests, drawing approximately 100 attendees.

Coordination for the council is provided by two staff members from Minnesota State Colleges and Universities, one of whom is a BBAM board member. The initiative operates on a very modest budget, provided by Minnesota State Colleges and Universities. Expenses for fiscal year 2007 totaled approximately \$1,500 for meeting costs. In addition, through an interagency agreement signed in June 2007, \$28,000 has been allocated by Minnesota State Colleges and Universities through March 2008 to purchase the services of a DEED analyst and intern who are working with the council to develop biosciences section of DEED existing job vacancy report.

One last item for inclusion in this report is a requirement by the 2006 legislation which stated the report "must include the impact, if available, of the subsidy on reducing consumer costs of bioengineered products, and the jobs created, including wages and benefits." As the projects above outline, BBAM is focused on business development activities to strengthen Minnesota's biobusiness economy. Implementing this mission includes better understanding critical economic development needs, creating critical infrastructure and providing direct support to companies. In this business development role, BBAM does not track consumer costs. In regards to jobs, the BBAM published a report that identified over 35,000 jobs in the state in 425 biobusiness technology enterprises. This report did not separating out benefits from wages.

No match was required in the 2006 contract.