

The Third Frontier Fiscal Years 2007

Request for Proposals (RFP)

Research Commercialization Program in Engineering and Physical Sciences

- **RFP Released – 3/25/2006**
- **Bidder's Conference – 4/26/2006 at 10 A.M. at the Business Technology Center, 1275 Kinnear Rd. Columbus, OH 43215**
- **Letters of Intent due by 2:00 PM – 5/10/2006**
- **Written Questions – 3/22/2006 through 6/7/2006**
- **Proposals due by 2:00 PM – 6/21/2006**
- **Review and Award approximately – 11/2006**



**RFP Administered by:
The Ohio Department of Development
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Research Commercialization Program in Engineering and Physical Sciences Fiscal Years 2006 and 2007

Request for Proposals (RFP)

1 Statement of Solicitation

1.1 Introduction

This Request for Proposal (RFP) is being issued for grants to be awarded under the Third Frontier Project. The Third Frontier Commission (TFC) reserves the right to fund any proposal in full or in part, to request additional information to assist in the review process, to require new proposals from interested parties, to reject any or all proposals responding to this RFP, or to re-issue the RFP if it determines that it is in the best interests of the State of Ohio. Issuing this RFP does not bind the State to making an award. The Ohio Department of Development (ODOD) administers the RFP. ODOD reserves the right to adjust the dates for this RFP for whatever reason it deems appropriate.

All costs incurred in preparation of a proposal shall be borne by the Lead Applicant. Proposal preparation costs are not recoverable under an award. The State shall not contribute in any way to recovering the costs of proposal preparation.

The funding decisions of the TFC are final. All Lead Applicants will be notified in writing of the outcome of their application after the TFC makes its decisions. If requested, Lead Applicants must attend the TFC meeting when proposals are considered for funding.

If requested, Lead Applicants selected for funding must attend the Controlling Board meeting when their application for capital funding is heard.

The ODOD's Technology Division will administer all grant awards made under this RFP.

1.2 The RFP Process

The RFP process will consist of the following steps:

- Release of RFP
- Bidder's Conference (optional attendance)
- Submittal of Letter of Intent
- Written Questions & Answers (Q&A)
- Submittal of proposals
- Review and evaluation of proposals
- Recommendation, decision, and approval of award winners
- Grant Agreement preparation
- Grant award

Each of these steps is discussed below.

1.2.1 Release of RFP

All RFP's covering Third Frontier Programs will be published on the Third Frontier web site (www.thirdfrontier.com). Lead Applicants must comply with all requirements stated in the RFP. Lead Applicants are advised that there will be no opportunity to correct mistakes or deficiencies in their proposal after the submission deadline. Proposals that are missing required forms and information may not be evaluated. It is solely the responsibility of the Lead Applicant to ensure its proposal is complete, accurate, responsive to the requirements, and received on time. Incomplete proposals and those not complying with the requirements of the RFP may be excluded from evaluation.

1.2.1. Bidder's Conference (Optional)

An optional Bidder's conference will be held regarding this RFP. Attendance is encouraged but is not mandatory. The conference will include a presentation by ODOD covering the intent and purpose of the RFP, the requirements of the RFP, and the evaluation process that will be used to determine awardees. Potential Lead Applicants will be given the opportunity to submit written questions to ODOD staff who will provide answers at the conference and who will then post the responses on the Third Frontier website.

1.2.2. Letter of Intent

Prospective Lead Applicants must submit a letter stating their intent to submit a full proposal. The Letter of Intent (LOI) must include the following information: the prospective Lead Applicant's name, address, phone number, contact person, e-mail address for the contact, known collaborators, proposed project title, estimated dollars to be requested, and one paragraph summary of proposed topic. Submitting an LOI does not bind the prospective Lead Applicant to submitting a proposal. However, no proposal will be reviewed unless an LOI has been submitted by the deadline for LOIs.

Prospective Lead Applicants submitting LOIs will be issued an identification number for the proposed project named in the RFP. The identification number must appear on the application Information Page of the proposal.

The LOI must be submitted by e-mail and received before the deadline. The e-mail should be addressed to 2007_RCP_RFP@odod.state.oh.us and use "2007 Research commercialization Projects in Engineering RFP LOI" in the subject line.

1.2.3. Questions and Answers

All questions regarding this RFP must be submitted in writing via e-mail. Substantive questions and answers will be posted in a Frequently Asked Questions section at the Third Frontier Project web site (www.thirdfrontier.com). Questions should be sent to 2007_RCP_RFP@odod.state.oh.us. Use "Research commercialization Projects in Engineering RFP Q&A" as the subject line. ODOD reserves the right to edit questions to provide brevity, clarity, and to cover the same general question from several potential Lead Applicants.

1.2.4. Proposal

It is the responsibility of the Lead Applicant to ensure that ODOT's Technology Division receives proposals at the prescribed place and by the submission date and time. Late proposals will not be reviewed. Lead Applicants must ensure that proposals submitted in response to this RFP comply with all the requirements set forth in the RFP. Lead Applicants are advised to read this RFP carefully to ensure a complete understanding of the proposal requirements. In particular, the form, format, and content of all proposals must follow the directions provided in Sections 3 and 5 and use the forms presented in appendix A. Proposals that do not include the required components may be returned to the Lead Applicant without review. No supplementary or revised materials will be accepted after the scheduled date for submission unless specifically requested by the ODOT. Decisions may be made solely on proposal's content.

1.2.5. Evaluation

All proposals will be subjected to an Administrative Review where the proposals will be reviewed with respect to compliance with RFP requirements. Proposals found not to comply with the RFP requirements may not be reviewed. For those meeting the requirements of the administrative review, ODOT will use external reviewers to read, evaluate, and score the proposals. The external reviewers will score the proposals based on the evaluation criteria discussed in Section 4.

External reviewers will implement a process to identify potential conflicts of interest on the part of both individual reviewers and the organization, and to implement ways to avoid and mitigate such conflicts.

External reviewers will create a rank ordered list of proposals recommended for funding based on how well they score, prepare a written set of comments about each proposal, and brief the ODOT staff about the risks and benefits of each proposal.

1.2.6. Recommendations, Decision, and Approvals

Based on the evaluation, a rank ordered list of the most competitive proposals will be prepared and forwarded to the Third Frontier Commission. A proposal must be included on the list to be considered for funding. The Third Frontier Commission shall take into account the evaluations made during the review process, the staff recommendations, and shall exercise its independent judgment in making its selection. The funding decisions of the Commission are final. If requested, Lead Applicants must attend the Third Frontier Commission meeting when proposals are considered for funding.

All Lead Applicants will be notified in writing of the outcome of their application after the Third Frontier Commission makes its decisions.

1.2.7. Grant Agreement Preparation

Following selection by the Commission, ODOT prepares the final terms of the grant award. The grant agreement may include changes to the proposal and budget due to evaluation findings, funding changes, or other reasons.

1.2.8. Award

A grant will be awarded based on the proposal as amended, budget, and any conditions set forth by the Third Frontier Commission. The Grant will remain open for the duration of the project plus a three-year reporting period when annual reports are required.

Grantees are expected to complete the project as described in the proposal as funded and as amended. ODOD will assign a Project Administrator who will work with the Grantee throughout the duration of the project. ODOD management and Grantees will develop a series of performance metrics that will be used to measure progress on the grant. Grantees will be required to utilize the ODOD Sub-grantee Performance Evaluation System (SPES) to submit required status and progress reports, invoices, document achievement of milestones, report success stories, and relay other matters of interest to the ODOD.

1.3 Mandatory Compliance

The following restrictions apply to all Third Frontier projects:

1.3.1 Human and Animal Research

The Lead Applicant organization's human subject policies and procedures must be compliant with the Code of Federal Regulations Title 45, Part 46. The Lead Applicant organization's animal subjects policies and procedures must be compliant with US Code Title 7, Sections 2131-2156.

1.3.2 Human Embryo Research

As required under Executive Order 2005-12T dated August 19, 2005, proposals involving human embryos will be considered for funding only if the project adheres to the criteria announced by President Bush on August 9, 2001. BRCP funds may be used for research on existing human embryonic stem cell lines as long as prior to the President's announcement (1) the derivation process had already been initiated and (2) the embryo from which the stem cell line was derived no longer had the possibility of development as a human being. To facilitate this research, the National Institute of Health (NIH) has created a Human Embryonic Stem Cell Registry that lists the human embryonic stem cells that meet the eligibility criteria. Requests for Biomedical Commercialization funding involving human embryo research must cite a human embryonic stem cell line that is listed on the NIH Registry.

1.3.3 State Compliance

Lead Applicants selected for award will be asked to sign a grant agreement in which the Grantee must affirmatively covenant that it does not owe: (1) any delinquent taxes to the State of Ohio (the "State") or a political subdivision of the State; (2) any moneys to the State or a state agency for the administration or enforcement of any environmental laws of the State; and (3) any other moneys to the State, a state agency or a political subdivision of the State that are past due, whether the amounts owed are being contested in a court of law or not.

The grant agreement will further require the Grantee to comply with all applicable federal, state, and local laws in the performance of the Project. Grantee must accept full responsibility for payments of all unemployment compensation, insurance premiums, workers' compensation premiums, all income tax deductions, social security deductions, and any and all other taxes or payroll deductions required for all employees engaged by Grantee on the performance of the work authorized by this Agreement.

1.3.4 Other Compliance

In accordance with ORC 2919.14, funds cannot be used for research involving tissue obtained from aborted fetuses. Additionally, following the intent of a March 4, 1997 Presidential Memorandum, State funds will not be used for cloning of human beings.

2 Background

2.1 The Third Frontier Project

The Third Frontier Project (TFP) represents the State's largest-ever commitment to expanding Ohio's high-tech research capabilities, promoting technology commercialization and innovation, creating technology based businesses, and creating high paying jobs for generations to come. The ten-year, \$1.6 billion State of Ohio initiative is designed to:

- Build world-class research facilities;
- Support early stage capital formation and the development of new products;
- Finance advanced manufacturing technologies to help existing industries become more productive.

The Third Frontier Commission (TFC) has overall responsibility for the TFP. In addition, a 16-member Third Frontier Advisory Board of leaders from industry, academia, and government was created to advise and counsel the TFC.

The TFC and Advisory Board developed strategic operating guidelines that provide the framework for awarding grants:

- Support the best the State has to offer, not just regions of the State;
- Anticipate and act on market opportunities;
- Demand strong industry involvement;
- Invest at the intersections of core competency areas;
- Recruit world-class talent and high growth companies;
- Engage regional partners;
- Emphasize accountability and use of metrics.

These strategic operating principles should be consulted and applied in the formulation of all proposals submitted for TFP awards.

The TFC also made the decision to focus Third Frontier investments in the following priority areas: 1) building world-class applied research capacity; 2) entrepreneurial assistance to accelerate formation and attraction of technology-based businesses; 3) product innovation; and 4) marketing of Ohio's competitiveness. Further, the Commission determined that TFP should be focused in the

Information Technology, Instruments-Controls-Electronics, Biosciences, Advanced Materials, and Power and Propulsion technology areas.

For fiscal years 2006 and 2007, Third Frontier resources will be used to fund a variety of grant programs designed to promote technology based economic development in Ohio. Information and RFP materials for each program can be obtained at the Third Frontier website.

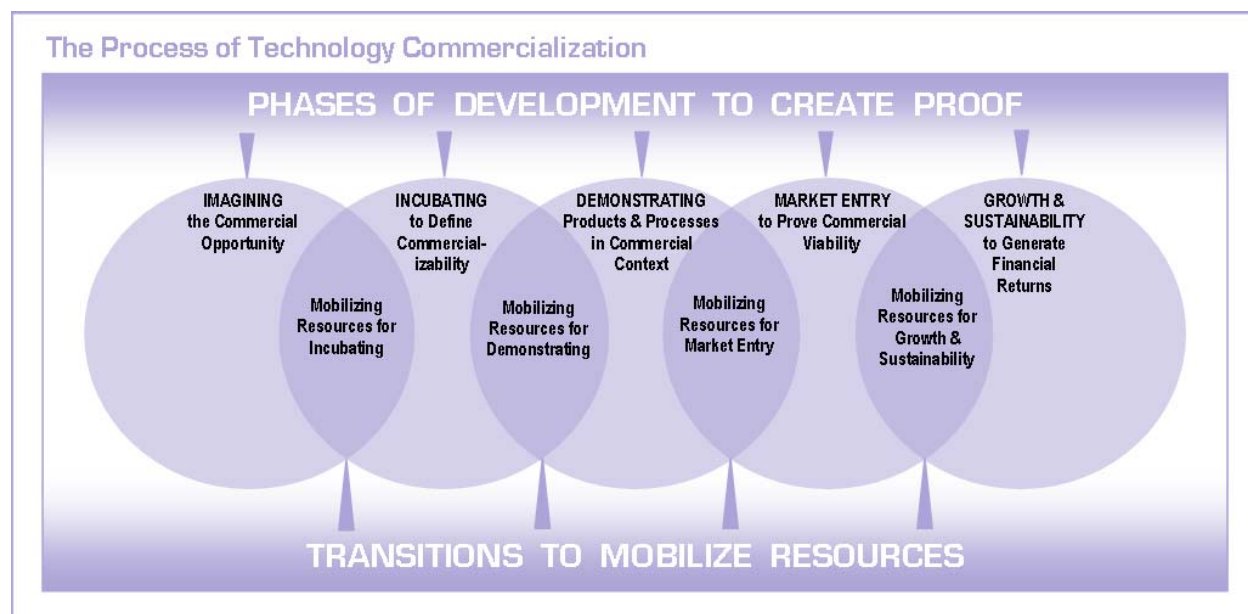
Science and technology activities within the Ohio Department of Development, the Ohio Board of Regents, and the Ohio Air Quality Development Authority represent a substantial annual investment of State funds for science and technology in addition to TFP funding. Lead Applicants for TFP funding are encouraged to be aware of the resources represented by these programs and to incorporate them into their proposals where appropriate.

Other Ohio programs that complement Third Frontier activities include: the Thomas Edison Program, Ohio Coal Development Office, Research Incentive, Action Fund, Hayes Investment Fund, Eminent Scholars, Computer Science and Graduate Education, Ohio Aerospace Institute, the Ohio Agricultural Research and Development Center, Ohio Supercomputer Center, Third Frontier Network, OhioLink, and the Third Frontier Industrial Intern program. Lead Applicants are encouraged to use these resources, as appropriate, in their proposals.

2.2 Commercialization Framework

All Third Frontier Programs share a common goal – to promote technology-based economic development within Ohio by funding activities that move technology from ideas to market. This goal requires the State to design programs, evaluate proposals and projects, leverage resources, and provide management oversight within the context of a commercialization framework. The Ohio Department of Development has adopted a technology commercialization framework based on an extensive literature review on the subject.¹ The framework is depicted in Figure 1.

Figure 1. Technology Commercialization Framework



¹ BizLogx LLC, "The Technology Commercialization Framework", September 30, 2004.

Key characteristics of the framework include five major phases of commercialization and the transitions that must occur as a technology moves from phase to phase. Within each phase, work must be accomplished to produce the technical and commercial proof or evidence required by the resource providers who may fund the next phase. A description of these phases is presented in figure 2.

Figure 2. Summary of Commercialization Phases

Phase	Technology-Related Activities	Status of Commercial Concept
IMAGINING	The <i>Imagining Phase</i> begins with the techno-market insight - the linking, if only in concept, of a technology and a market opportunity. Activities focus on the generation of a “proof of principle”, generally defined as the demonstration in a laboratory setting of critical components of the technology.	During the <i>Imagining Phase</i> , the commercial concept is highly speculative. Often, the concept is only supported by conjecture regarding the potential of the technology and the market opportunity.
INCUBATING	The <i>Incubating Phase</i> activities focus on defining product performance specifications, and then validating technical capabilities in the context of proposed performance specifications.	During the <i>Incubating Phase</i> , the participants begin to validate the commercial concept primarily through secondary research. Because the commercial concept lacks market confirmation and is still highly speculative, written descriptions of the business are often titled “Commercial Concepts” rather than “Business Plans”.
DEMONSTRATING	During the <i>Demonstrating Phase</i> , project teams attempt to generate technical proof within a more defined commercial context. Activities focus on product development and market acceptance. Working prototypes, performance to commercial specifications, and manufacturability within defined cost and quality standards characterize the goals on the technical side. On the market side, <i>Demonstrating Phase</i> activities focus on generating evidence that customers will buy the product.	During the <i>Demonstrating Phase</i> , participants focus on generating data regarding market acceptance – that customers will buy the product at or near the price required by the business plan. Participants then use the characteristics of the product / prototype and the market-generated data to create a business plan that defines the commercial opportunity.
MARKET ENTRY	In the <i>Market Entry Phase</i> , participants enter the market to validate the commercial opportunity. Activities are those typically associated with an ongoing business – production, service, distribution, sales and marketing. The technology is embedded in a product or service and the opportunity has attracted the resources necessary to expand marketing, sales, and service.	In the <i>Market Entry Phase</i> , the opportunity is generating direct feedback from the market, measured in terms of sales, revenue, margins and growth.
GROWTH & SUSTAINABILITY	The <i>Growth & Sustainability Phase</i> involves the execution of a comprehensive business plan to increase market share and/or total revenue and profit in context of a self-sustaining business.	In the <i>Growth & Sustainability Phase</i> , the goals, value creation mechanisms and resource providers are those generally associated with a thriving business seeking to identify opportunities for growth and profitability.

Given the multiple phases and non-linear nature of commercialization process, a challenge is to answer the question – “Is progress being made?” To address this critical issue, a measurement system is required. The measurement framework includes three categories of metrics – Level A Metrics, Level B Metrics, and Level C Metrics.

- *Level A Metrics* are synonymous with a Transition. The occurrence of a Transition (attracting the resources required to engage in the next Phase of commercialization) is the best evidence that a project is successfully progressing towards commercialization.
- *Level B Metrics* are tangible evidence that a project is on the path to achieving *Level A Metrics*. As an example, a *Level A Metric* for a project in the *Demonstrating Phase* would be an investment by a venture capital fund to provide the resources necessary to engage in *Market Entry Phase* activities. A *Level B Metric* for this project might include the receipt by the project of a term sheet detailing a potential investment, or even a commitment by the venture capital firm to engage in a defined set of diligence-related tasks within a relatively short time period.
- *Level C Metrics* measure activities and are the equivalent of “project milestones.” These activities (e.g. hiring qualified personnel, preparing patent applications, preparing a business plan, achieving certain technical milestones, etc.) are often critically important, but do not represent evidence of progress toward the goal of Transition or commercial success. Rather, they indicate that the participants are executing their plan.

In evaluating proposals, the ODOD will assess the Lead Applicant’s integration of the A, B, and C Metrics concept into day-to-day project management and into the performance evaluation sections of the proposal. The Commercialization Framework will be discussed at the Bidder’s Conference prior to proposal submission. Post-award, the ODOD will conduct a series of meetings to help Lead Applicants integrate the metrics framework into their actual project execution. The ODOD, through the grant agreement and the activities of our program administrators, will manage grants and investments in accordance with an agreed set of A, B, and C metrics.

A more extensive discussion of the Commercialization Framework is found on the Third Frontier web site at www.thirdfrontier.com.

2.3 Commercialization Questions

Most Third Frontier Programs are focused on the imagining, incubating, and demonstrating phases of the commercialization framework. The following guide is useful in identifying the type of work normally associated with these phases and may be helpful to Lead Applicants in determining into which phase their work falls.

Imagining Phase

- Developing an understanding of the basic science behind the technology.
- Developing a firm understanding about how and why the technology works.
- Developing a laboratory proof of principle.
- Assessing the work needed to achieve reduction to practice.
- Investigating the Lead Applicant’s freedom to operate within its targeted markets and constraints associated with existing patents or other forms of IP.
- Developing its own intellectual property strategy for this technology.

Incubating Phase

- Performing work to understand and adapt the technology to market needs.
- Confirmation that the company has the freedom to operate.
- Acquiring adequate IP protection for the technology and related applications to allow for market introduction.
- Completing the reduction to practice and producing a working model based on well-defined and unchanging specifications.
- Producing product designs and production processes that support the manufacture of a reliable product.

Demonstrating Phase

- Finalizing technical product specifications
- Developing a well-defined stage gate process to support the management of the design and development process.
- Establishing the reliability of the technology as embedded in a commercial product.
- Incorporating feedback from lead users into the design based on alpha and beta versions of the technology.
- Producing pilot runs that demonstrate functionality consistent with the product concept.
- Securing facilities adequate for near-term production.

3 Program Description**3.1 Purpose**

The purpose of the Research Commercialization Program (RCP) is to create jobs and business opportunities within Ohio through development and commercialization of innovative technologies and new products that will have beneficial long-term economic impacts for Ohio. Awards should support an integrated program of a substantial scale and consistent high quality that it will move Ohio toward a position of national and international leadership in the selected focus area.

The RCP program is complimentary to the Wright Centers of Innovation and provides grantees, including Wright Centers of Innovation (WCI), the opportunity for securing operating dollars directed toward specific commercialization activities. Lead Applicants contemplating the establishment of a large-scale, capital-intensive research center are required to submit a proposal for a WCI. (See www.thirdfrontier.com for the WCI RFP) Under the WCI RFP, up to \$20 million in capital funding is available for WCI awards and each project will be awarded \$5 to \$8 million in research commercialization project support. Lead Applicants for a new WCI cannot submit both a RCP and a WCI proposal in the same core technical area.

3.2 Goals and Objectives

The specific goal of the RCP is to make Ohio a national and international leader in creating new jobs and business opportunities by commercializing technologically based products. The Lead Applicants should build on their existing strengths and form collaborations that are sufficiently large that they bring national and international recognition to Ohio.

The specific objectives of the RCP are:

- To conduct applied research and development related to themes that have the potential for creating new products;
- To build sustainable partnerships between organizations that can develop and commercialize new products;
- To produce the technical and business information needed to secure additional funding;
- To use additional funding to accomplish the next phases of commercialization;
- To advance the commercialization of generated products.

These objectives are designed to ensure that the technologies developed through applied research and development are systematically moved through the commercialization process. The most significant economic impacts on Ohio's economy will be realized through the commercial introduction of products. Consequently, the most successful RCP projects will be those that have identified a market need for the technology, established proof of principle, have made significant progress toward validating technical capabilities as well as the commercial concept, and will next be working toward prototyping and business plan creation. Lead Applicants should recognize that basic or exploratory research will not be able to meet the commercialization objectives for the RCP.

ODOD will and measure project progress on the basis of how well the Lead Applicants perform the tasks needed to realize commercial progress. The "Level A" metrics for this program will be the successful acquisition of financial and other business resources that come from organizations that: 1) have not previously invested in the project (new); 2) are knowledgeable investors with the ability to assess the commercial and technical merits of the projects (smart); and 3) represents a significant investment on the part of the investing organization (meaningful). The ability to secure new, smart, meaningful resources is a clear indicator that the project is making positive commercial progress. "Level B" metrics will be tangible evidence that progress is being made toward acquiring these resources. Such evidence includes but is not limited to a term sheet from an investment source, notification of a federal grant award to cover expenses of performing regulatory testing, or strong indications of further internal organization resource commitments. "Level C" metrics will include all the scientific, technical, and business case evidence that the resource providers will need to make resource commitments. These metrics may include, but are not limited to, achieving acknowledged success with prototyping, securing intellectual property protection, recruiting staff, or building the business model for how the product will be brought to the market.

3.3 Eligibility

3.3.1 Technology Subject Matter

Proposals submitted for this grant must be from already well-established research and development programs that will enter the next level in terms of both national and international prominence and commercial market applications. They must address large and complex but focused commercialization opportunity areas that will have significant industry and economic impacts and require the interaction or collaboration among multiple investigators and institutions. Such projects must be mission or goal-oriented, with clearly defined endpoints and deliverables that create infrastructure, scientific capacity to enhance future research endeavors, and commercial advances. The project must realize near term (3 years) development and commercialization with the potential of ongoing commercialization beyond the project period.

Proposals may address any of the following opportunity areas or combinations thereof: advanced materials; information technology; instruments, controls and electronics; and power and propulsion. Proposals for topics in Energy Storage and other Advanced Energies can be submitted under the Power and Propulsion category. The focus is on translating research into customer driven needs that will support new product development. The focus of this RFP is on technologies that do not require Food and Drug Administration involvement for their commercialization.

Although the biosciences are not included in this RFP, the next RCP RFP will also include those areas traditionally funded under the Biomedical Research Commercialization Program.

A RCP Award may also be used for specialized personnel that can include the establishment of an endowment for an Eminent Researcher/Entrepreneur. Such an initiative would focus on an established research endeavor that, with the leadership of a nationally recognized scientist and entrepreneur, will likely gain international visibility and provide direct support to a continuing large scale program. Such use of this Award is restricted to the establishment of an endowed chair in a university, or a start/support package for a researcher residing primarily in a company's research and development facility.

3.3.2 *Lead Applicant*

The Lead Applicant must either be a for-profit firm in Ohio, an Ohio university, or a public or private research organization in Ohio. Ohio for-profit firms are encouraged to serve as lead applicants. An Ohio university is an accredited institution of higher education in Ohio. A public or private research organization in Ohio is an organization having business lines that include research and development, that have a significant portion of their R&D activities in Ohio, and that have a principal place of business in Ohio. An Ohio-based for-profit firm must already be licensed to do business in Ohio and have a principal place of business in Ohio.

Each proposal must designate a lead organization that will be responsible for the administration of the proposal should it be awarded. There is a limit of two new proposals from any one Lead Applicant. The organization designated as lead applicant must retain a significant share of the requested RCP budget to be spent in-house at that organization. The lead organization must also serve as both administrative and technical director of the project.

Previous Third Frontier Project award recipients are eligible to submit up to two proposals that will not count toward the limit of two proposals for their host organization. Proposals from existing awardees will be scored and evaluated using the same evaluation criteria as new proposals plus will be evaluated with respect to the progress that they have achieved with the existing grant.

Collectively, the teams submitting proposals must demonstrate both the ability and experience in commercializing products and the scientific ability and experience to perform the work needed to produce evidence necessary to satisfy investors, regulators, and the market.

3.3.3 *Collaborators*

Proposals must include collaborations between two or more institutions or organizations that meet the eligibility requirements set forth above. All collaborators must be represented by both a Co-Investigator and have an itemized budget. A "collaborator" must both be receiving RCP funds by way of a subcontract as well as contributing cost share. All collaborators must

submit both a letter of commitment signed by an authorized representative able to commit the organization and budget forms.

3.4 Funding

3.4.1 Use of Funds

Funding for the RCP will come from the Third Frontier Research and Development Fund established by Am. Sub. SB 236.

ODOD anticipates awarding 5 to 7 individual awards for funds in the range of \$5 million to \$8 million. No more than 10 percent of the total direct costs requested may be used as indirect costs. No more than 20 percent of the total funds requested may be used for capital equipment, construction, or renovation costs. If the Lead Applicant wishes to propose capital equipment, construction, or renovation costs in excess of the 20 percent, the lead applicant should consider submitting a proposal under the Wright Centers of Innovation for Engineering & Physical Sciences. The RFP for the Wright Centers is available at the Third Frontier website.

3.4.2 Cost Share Requirements

3.4.2.1 Magnitude

The monetary value of the cost share commitment must be a dollar for every dollar of the Research Commercialization award (i.e. a ratio of 1:1). All cost share must be identified in the proposal by amount, proposed use, source, and method of valuing if in-kind cost share is used. Lead Applicants may exceed the requirement for a 1:1 cost share ratio but that cost share ratio becomes a requirement of the grant agreement, regardless of the award amount

Cost share must be documented on the budget forms and in a letter from the organization contributing the cost share signed by an official authorized to commit the organization. Cost share cannot merely reiterate currently provided organizational resources, such as currently used space or equipment. The cost share must represent a specific new commitment to this proposed program.

In the evaluation of the proposals, the nature and amounts of resources available for cost share will be considered and the State seeks proposals with cost shares that have flexibility with respect to its use (cash being the most flexible cost share commitment). Preference will be given to proposals that pledge discretionary, unrestricted, and unallocated cash for at least 20 percent of the cost share. The cash must be available for any purpose deemed appropriate by the Lead Applicant and must appear on the financial records of the Lead Applicant. Proposals with such cash cost share will be given 5 additional evaluation points during the evaluation.

3.4.2.2 Sources

Cost share must be for allowable costs per OMB Circulars A-21 and A-110 and these costs must be verifiable and auditable. Cost share must be directly in support of the

Program Plan rather than coincidental or related/similar allocations. Cost share must be necessary and reasonable to the project objectives.

If the organizations have a published indirect cost rate, unrecovered indirect costs (the difference between 10 percent and the published rate) can be used as cost share. Without a published rate, this program will allow duplication of the 10 percent rate that becomes an allowable expense used as cost share. Only indirect costs not fully recovered from the requested State funds are eligible to be used as cost share. The expense of the cost share must take place during the project period. The cost share must be charged to resources of the Lead Applicant, collaborator, and/or third party and documented within the financial books of the Lead Applicant, collaborator, or third party contributor.

Third Frontier funding may not be used as cost share and funds awarded under this RFP may not be used as cost share against other Third Frontier projects. Other state sources of cost share are allowed, as are in-kind contributions. However, proposals having a higher percentage of cash and non-state sources of cost share of any kind relative to the total budget will be give greater consideration in the evaluation of the budget plan.

3.4.2.3 Constraints

It is solely the responsibility of the Lead Applicant to have adequate funds to cover the expenses of the Center that are not covered under the research commercialization project activities.

Proposals funded will be held responsible for the cost share ratio proposed (cost share pledged divided by state fund requested) regardless of the actual award amount. If a Lead Applicant proposes a higher cost share ratio than is required, the Lead Applicant and its collaborators may not, at any time later, lower their cost share ratio offer back to the 1:1 levels.

A portion of the cost share must be committed by the Lead Applicant and Collaborator Organizations. In the evaluation of proposals, the amount of committed resources will be taken into account. Cost share will be reviewed and evaluated on whether it is cash or in-kind; state or non-state funding; allocable and relevant to the Center's support and operation, and a tangible and auditable cost. Cost share committed by Collaborator Organizations must be evidenced by letters of commitment submitted with the proposal. No credit will be given in the evaluation process for commitments of cost share that do not have a letter of commitment or if the letters are missing any required information.

3.5 Term of Project

The RCP Grant Period will be six years. The first three years will be the Project Period during which the active work funded by the grant will take place. During the remaining 3 years, the grantee will be required to submit an annual report detailing the overall status of the research and commercialization activities, and the economic impacts of the Project.

3.6 Reporting Requirements

Awards will require mandatory reports that will be finalized in the grant agreement. A RCP grant will require, at minimum, a quarterly performance metric report, expenditure of matching funds report to accompany invoices to the State, periodic success stories, and the post-grant annual reports referenced above.

The Lead Applicant will be required to submit progress reports and invoices through mechanisms determined by ODOD.

3.7 Commercialization Requirements

Each proposal must contain a commercialization plan that is appropriate for the phase of commercialization of the various technologies that are the subject matter of the proposal. The commercialization plan must address the state of each technology being readied for commercialization. The plan should cover the current stage of commercialization, a statement of the total resources required to produce the technical and business evidence required to move the technology forward, an indication of what resource providers will finance the next stage of commercialization and what level of resources will be required. The plan should also discuss the long-term commercialization strategy model that will be used to bring the technology product into the market.

3.8 Past Performance

Proposals from previous Third Frontier award winners must include a section on their performance history with their previous Third Frontier award. The Lead Applicant should discuss the objectives, progress, and achievements of the previous award. Specific commercialization successes, leverage received, companies started and attracted, and employment impacts should be noted. Any major technical accomplishments can be highlighted in summary fashion. The past performance should be adequate to enable an external reviewer who is not familiar with the previous award to assess progress.

4 Evaluation Criteria

Only the most meritorious proposals are sought for funding. Proposals passing the administrative review will be evaluated based on the responsiveness to all the requirements of this RFP and to the evaluation criteria described in the following sections. External reviewers qualified to assess both the technical and commercialization aspects will evaluate the proposals. The Commercialization and Scientific Merit criteria are weighted equally and each are more important than the criteria related to Leveraging Funds. Proposals that contain at least 20 percent of the cost share as discretionary, unrestricted, and unallocated cash appearing on the financial records of the Lead Applicant will be given an additional 5 points in the evaluation.

4.1 Commercialization Potential

The following factors will be used to evaluate the commercialization potential.

- The proposed project has a high probability of successfully developing products with commercial potential within 3 years.
- The proposed projects have already achieved at least proof of principle
- The products expected from the proposed project will have a beneficial impact on jobs, income, and business formation or support in Ohio.
- The technologies and products proposed have or will have a competitive advantage over existing and alternative technologies that can meet market needs.
- The proposal team has experienced personnel with commercial product development expertise.
- The proposal clearly describes the strategies and approaches to commercializing the products resulting from the project.
- The applicant understands the commercialization process, resource requirements for commercialization, and resource providers.
- The proposed team has experienced personnel who will handle any regulatory approval processes that will enhance the potential for commercial benefits.
- The proposed team has a strong intellectual property management plan that provides assurance that commercialization will benefit Ohio.
- The collaborations between organizations are clear and reasonable with respect to future commercial authorities, responsibilities, and roles.
- The proposed project will lead to additional enabling technologies and further discoveries.
- The Lead Applicant and its collaborators have the financial capacity to finance the commercialization of the technologies or have a plan to raise necessary capital.

4.2 Scientific Merit

The following factors will be used to evaluate the scientific merit.

- The proposed team already has established a prominent reputation in the fields of science involved with the proposed project.
- The research project represents scientific excellence to the degree of being internationally competitive and will advance scientific knowledge.
- The conceptual framework, design, methods, and analyses are adequately developed, well integrated, and appropriate to the aims of the project.
- The Lead Applicant acknowledges areas of potential problems and has identified alternative tactics to resolve the problems.
- The proposed project employs novel concepts, approaches or methods and describes aims that are original and innovative.

- The investigators are appropriately trained and well suited to carry out this work, as are the other researchers on the project.
- The collaborative effort will likely produce a synergistic effect to further enhance the outcomes of the project.
- There is good evidence of strong institutional support and access to necessary resources.

4.3 Cost Share and Leveraging Funds

The following factors will be used to evaluate how well the Lead Applicant will contribute cost share and leverage funds.

- The proposed cost share meets the State's preference for discretionary, unrestricted, and unallocated cash and sources of cost share other than State funding sources.
- The project is of sufficient importance to attract the attention and interest of Federal agencies and leverage additional funds.
- The commercial potential of the project is sufficiently interesting and appealing to attract the attention and funds of private investors.
- The business and commercial plans are sufficiently well developed to identify realistic sources of additional funding.
- The sources of additional/future funding are realistic and the proposal provides evidence that the Lead Applicant understands the decision criteria of future funders.
- The Co-Investigators and other team members have demonstrated success in attracting significant sponsored research funds.
- The Co-Investigators and other team members have demonstrated success in attracting private investment capital for commercializing technology.

4.4 Performance History on Previously Funded Third Frontier Projects

If the proposal is from a previous award recipient, the following additional factors will be used.

- Has the previous work resulted in significant additional funding for directly related research and technology/product development?
- Has the previous work resulted in commercial progress?
- Has the previous work resulted in the identification and protection of commercially promising intellectual property?
- Has the previous work resulted in any national or international, refereed awards and recognitions for the research team or members of the team?
- Has the team working on the existing award met the deliverables, milestones, and commercial successes expected from their existing project?

- Has the team working on the existing award effectively utilized the resources and talents of their collaborators and built a sustainable team?
- Has the cost share pledged for the previous award been delivered according to plan?

5 General Proposal Requirements

5.1 General Instructions

- Submit Letter of Intent and receive a Letter of Intent Number from ODOD.
- Submit separate proposals for each proposed project.
- Proposals must be submitted in the following manner:

One original paper copy marked as “Original” and one additional paper copy marked “Copy” and two CDs each containing a PDF and a WORD compatible file of the proposal. Do not include multiple PDF or WORD compatible files containing individual proposal sections. The proposal must be completely contained in one PDF and one WORD compatible file.

- Proposals must be received at the location specified below before the RFP closes. Proposals may not be submitted by fax or e-mail.

Ohio Department of Development
Technology Division
77 South High Street
25th Floor
Columbus, OH 43215
Attention: “Wright Centers of Innovation in Engineering”

- Proposals are to be submitted on 8.5 x 11-inch paper.
- Margins must not be less than $\frac{3}{4}$ of an inch on all sides.
- Font must be 10 point or larger with no more than 6 lines per inch.
- All pages must be numbered consecutively using the format “Page # of total number of pages” (e.g. Page 2 of 25).
- The proposal title, Lead Applicant name, and Letter of Intent number must appear at the bottom of each page.
- Proposals should not include color figures that cannot be understood when photocopied in black and white.
- The first page of the proposal must be the Application Information Page.
- Do not include a cover other than the Application Information Page.
- Proposals must be stapled or clipped once in the upper left hand corner and must not be bound.

5.2 Trade Secrets

Lead Applicants are strongly discouraged from including any information that qualifies as a Trade Secret in the proposal.

All information submitted in response to this RFP is public information unless a statutory exception exists that exempts it from public release. If you include Trade Secret Information in your proposal you must:

- Identify each and every occurrence of the information within the proposal with an asterisk before and after each line containing Trade Secret Information and underline the Trade Secret Information itself;
- Check the “Trade Secret Information Included” box on the Applicant Information Page; and
- Include a page immediately after the Application Information Page that lists each page in the proposal that includes Trade Secret Information and the number of occurrences of Trade Secret Information on that page.

To determine what qualifies as Trade Secret Information, please refer to the definition in the Ohio Revised Code Section 1333.61(D):

- (D) “Trade Secret” means information, including the whole or any portion or phase of any scientific or technical information, design, process, procedure, formula, pattern, compilation, program, device, method, technique or improvement, or any business information or plans, financial information or listing of names, addresses, or telephone numbers, that satisfies both of the following:
- (1) It derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
 - (2) It is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Non-disclosure agreements are required of all non-ODOD persons who may have access to proposals containing Trade Secret Information.

5.3 Order and Content of Proposal Sections

5.3.1 Applicant Information Page

The first page of the proposal must be the completed Applicant Information Form found in the Appendix A to this RFP.

5.3.2 Trade Secret Information

This section of the proposal must disclose any Trade Secret Information included in the proposal. Follow the instructions in Section 5.2 of the RFP.

5.3.3 Applicant and Collaborator Information

Complete and include the Applicant Contact Information form. Refer to the definitions for an explanation of each position for which information is requested. One individual may serve in more than one capacity.

Complete and include the Collaborator Information Form for each Collaborator. Letters of Collaboration should appear in an Appendix to your proposal.

5.3.4 Abstract

Prepare an abstract that summarizes the proposed project and its expected commercial and technical outcomes. The Abstract should minimize use of jargon and technical language and be written so that a non-technical person can understand it. The Abstract may be used, in whole or part, in public documents including press releases. The Abstract may not contain any Trade Secret information.

5.3.5 Table of Contents

Prepare a Table of Contents with detail for three levels of headings in your proposal. Lead Applicants must use the outline provided by ODOD for their level 1 and 2 headings. The Table of Content should also include a listing and page number for Charts, Figures, and Tables.

5.3.6 Proposal Narrative

The narrative should address all the following items in the order presented.

- **Understanding the Program Intent.** This section must demonstrate the Lead Applicant's understanding of the purposes of the TFP, the specific role fulfilled by the RCP and how the proposed project is consistent with these purposes. The Lead Applicant should address the relationship between product and process commercialization and the activities being proposed. The Lead Applicant must demonstrate that the proposal is responsive to the long-term purposes of the TFP.
- **Problem Statement.** This section must describe the technical and commercial challenges to be addressed in the proposed projects and why solutions to these challenges will increase the likelihood of successfully achieving commercialization and other program objectives and goals. Evidence that the Lead Applicant understands the eventual customer needs and performance requirements is required.
- **Project Goals and Objectives.** This section must clearly state the goals and objectives of the proposed project and each of its related sub-elements. The goals should cover both the long-term commercialization purposes of the project and other longer-term goals beneficial to Ohio. The objectives should be related to the research, development, and demonstration activities that will be performed and how they are expected to provide the evidence and proof needed to carry the technology forward into phases of the commercialization framework. The objectives should be express as Level A, Level B, and Level C metrics discussed in Section 3.2 and at the Third Frontier web site (www.thirdfrontier.com)

- **Technical Approach.** This section of the proposal must outline and discuss the overall activities that are proposed to meet the project's goals and objectives. Important research techniques, methods, facilities, and equipment to be used in the proposed project should be discussed and compared to alternative approaches. Key factors that will affect the success of the project should be identified as well as significant risk factors. The Lead Applicant may elect to organize the technical approach according to different areas of investigation.
- **Work Plan.** This section of the proposal must identify all the tasks and activities that will be performed for each area of investigation. The tasks should be described in terms of their specific objectives, approach, resources and outcomes. The Work Plan should be detailed enough to provide a clear indication of how progress will be made.
- **Deliverables.** This section must identify the deliverables from the proposed project. Deliverables will include tangible evidence of commercialization and technical progress, mandatory reporting required by ODOD, and other deliverables that the Lead Applicant deems significant for measuring progress.
- **Schedule.** The proposal must contain a schedule that graphically displays the duration of tasks, interactions between the tasks, and the timing of deliverables and other key milestones. The schedule should be based on weeks or months from authorization to proceed, rather than any firm, fixed starting date.
- **Management Plan.** The Management Plan must identify the Principal or Co-Investigators and other key individuals who will be assigned to this project, their roles and responsibilities, and the rationale for their selection for key positions. One of the key individuals from the Lead Applicant must be designated as the Principal Investigator. One of the key individuals must have the required skills and experience to lead the commercialization aspects of the proposed program. The overall management team should possess all the required technical and commercial skills and experience needed for successful execution of the planned scope of work. A short, one paragraph description summarizing the technical and commercialization capabilities of the Co-Investigators and other key staff should be included. The Plan should address how the team will monitor and maintain progress, control quality, resolve problems, and obtain advice on key decisions about the technical and commercial dimensions of the project.

The Management Plan should also contain information about how the proposed management team will report into the Lead Applicant and the organizational authorities of key management.

5.3.7 Commercialization Strategy

The Commercialization Strategy must contain a discussion of the following general topics areas for each technology or area of investigation that is expected to lead to new product opportunities.

- What is the market place need addressed by the technology?
- What alternatives exist to satisfy this need and what alternative approaches are being investigated?

- What is the specific value proposition of the Lead Applicant's proposed approach and what are the differentiating benefits associated with the proposed technology? What evidence supports the contention that the market values these benefits?
- What is the market size and growth?
- What is the general magnitude of the investment that will be needed to bring the product into the market? How long will the commercialization process take?
- What are the additional potential sources of investment capital that can be used for financing the market entry of the product?
- What are the roles and responsibilities of the Lead Applicant and partners in the commercialization process?
- What type of business model (new company formation, license to an existing company, etc.) does the Lead Applicant and partners expect to implement? What are the strengths and weaknesses of the current Lead Applicant and partners with respect to implementing this business model?

In preparing this Commercialization Strategy section of the proposal, the Lead Applicant must relate the commercialization strategy to the ODOD Commercialization Framework described in Section 2.2 of this RFP. In addition to the topics listed above, the Lead Applicant should specifically address the following points about each product development opportunity that will be funded by the RCP grant.

- In which phase of the commercialization framework does each technology fall?
- What technical proof is required to convince additional investors to finance the next stage of work?
- How much will it cost to complete the technical proof and will the State's RCP funding be adequate? If not, where will additional investment come from and does the Lead Applicant have a firm commitment of these resources?
- How much will it cost to perform the next phase of the commercialization process and what organizations provide the types of resources the Lead Applicant will need to conduct the next stage of the commercialization process?
- Does the Lead Applicant have any commitments from potential resource providers about their willingness to fund additional commercial phases?

These points will be used to establish the Level A and B metrics for the proposed RCP project. Success is defined as the Lead Applicant and collaborators acquiring the resources needed to conduct the next phase of commercialization.

Management of intellectual property is a key success factor for RCP. The proposal should clearly define how the Lead Applicant intends to manage new intellectual property, describe how they will work with technology transfer offices and partners to establish ownership rights, and how they will work with Ohio-based companies and/or investors to realize positive economic impacts from the business opportunities being realized and brought to fruition in Ohio.

5.3.8 Projected Economic Impacts

In addition to the Level A, B, and C metrics, the Lead Applicant must estimate the employment, personal income, and product revenues from the commercialization success of the technologies. The proposal must contain a realistic forecast of the direct employment, personal income, and product revenue for two time points—the first being at the completion of the active work on the grant and the second being five years thereafter. The Lead Applicant should document how the projections were developed and key assumptions used in the analysis. For example, if the projections are based on capturing a particular share of the market, the proposal should indicate the magnitude of the market and the basis for the estimated market share. The Lead Applicant should identify the impacts for each distinct product or product platform that will come from the State investment. The Lead Applicant should report only direct impacts—not secondary or tertiary impacts derived from economic models.

The Lead Applicant may describe a longer term forecast, in addition to the two points required, if the Lead Applicant believes there will be substantial differences in the employment, income, and revenue levels at later periods of time. Again, all methods and assumptions should be disclosed.

5.3.9 Budget

The Lead Applicant must retain a significant percentage of the requested RCP budget to be spent in-house at that organization. No more than 10 percent of the total direct state funds requested may be requested as indirect costs. No more than 20 percent of the total funds requested may be used for capital equipment, construction, or renovation costs.

A rate of 10% of total direct costs may be used for facilities and administrative (F&A) indirect costs, but only on the operational portion of the budget. The difference between 10% and the Lead Applicant's federally approved facilities and administrative costs rate agreement (or published indirect rate if no federally approved rate exists), and therefore the unrecovered F&A costs from the State funds requested, may be used as cost shared indirect costs (note: Lead Applicant will need to insert the percent differences into the formula on the budget form). However, the Lead Applicant's indirect cost rate may not also then be applied to cost shared direct costs and used as cost shared indirect costs. In those cases where the Lead Applicant does not have a federally negotiated and approved F&A rate agreement, the Lead Applicant is limited to using 10% of their cost shared direct costs as cost shared indirect costs and no other unrecovered indirect costs from the operating budget may be claimed.

Budget Form 1 (Appendix A) is to be used to present the total three-year budget plan for the funds requested and all the cost share by the specific use categories listed on the form. The respective cost share presented on the form must be at least equal to the amount of funds requested from the RCP. On the bottom half of the form, estimate the allocation of funds by project areas. Generally, these project areas will correspond to the developing technologies identified in the Commercialization Plan. However, there may be additional project areas focused on supporting research.

Budget Form 2 (Appendix A) is to be used by the Lead Applicant. The total funds requested in the proposal must be represented on this form as the award amounts that will be used by the Lead Applicant and sub-awardees. The sub-awards on this form refer to the RCP funds provided to Collaborator Organizations by the Lead Organization.

Budget Form 3 (Appendix A) is to be completed for each Collaborating Organization. A “Collaborating Organization” is any entity that is receiving a sub-award from the Lead Organization and is committing cost share to the project.

The total of the requested funds in the collaborating organizations’ budget forms must equal the total amounts of the sub-awards reported in Budget Form 2.

Budget Form 4 Table of Cost Share (Appendix A) form requires the Lead Applicant to report the sources and kind of cost share by each contributing organization. A Letter of Commitment on the contributing organizations letterhead and signed by an authorized agent must support each cost share amount claimed.

Please note that Lead Applicants for TFP funding must identify their requirements for high performance computing facilities and services, including hardware, software, and infrastructure services in their proposals. If a Lead Applicant’s requirements exceed approximately \$100,000 for a proposed project, the Ohio Supercomputer Center shall convene a panel of experts. The panel shall review the proposal to determine whether the proposal’s requirements can be met through Ohio Supercomputer Center facilities or through other means and report such information to the Third Frontier Commission. Lead Applicant’s are encouraged to consult with the Ohio Supercomputer Center in advance of submitting a proposal with \$100,000 or more in high performance computing facilities, equipment, or infrastructure services.

5.3.10 Experience and Qualifications

Biographical information is limited to no more than 10 individuals who must be the same individuals named as key personnel.

The proposal must contain a description of relevant organizational experience, capabilities, facilities and equipment, and financial conditions of the Lead Applicant and key collaborators. Provide detail sufficient to evaluate whether the Lead Applicant and collaborators have the direct experience needed to perform both the technical and commercial work being proposed. The Lead Applicant should limit past project experience to activities that have occurred within the past 5 years.

Biographic information must be provided for each person listed as key personnel. Biographical sketches shall be no more than 2 pages each and one sketch must be included for each key personnel up to the total of 10 individuals. The biographical information should present the relevant work history, technical experience, commercialization experience, project management experience, educational attainment, honors and recognitions, and selected recent publications that relate directly to the subject matter of the proposed project. If a key position is to be filled upon grant award, please provide either a job description for that position or a description of a candidate to whom the Lead Applicant has made a contingent offer.

5.3.11 Past Performance on Previous Third Frontier Awards

If the Lead Applicant has been the recipient of a previous Third Frontier award, this section of the proposal must contain a review of the performance of that grant(s). The Lead Applicant should discuss the objectives, accomplishments, and impacts from the previous award(s). The discussion should be in sufficient detail that an external reviewer will be able to assess whether the performance on that grant has been satisfactory. This section is required when the

Lead Applicant is submitting a proposal that is an extension or related to the subject matter of the previous Third Frontier award.

5.3.12 Collaborator Information/Letters of Commitment

A Commitment Letter must be provided for each cost sharing and collaborating organization identified in Budget Form 4. No other support letters may be submitted. The letters must:

- Be submitted on the letterhead of the Collaborator Organization;
- Include the name of the Lead Applicant, the title of the proposal, and the LOI number assigned by ODOD;
- Briefly state the nature of the collaboration;
- State the duration of the collaboration;
- State the resources, other than cost share, the Collaborator is committing to the proposed Project;
- State how the Project will contribute to the strategy of the Collaborator;
- Be dated and signed by an official with the authority to commit the Collaborator;
- State the specific amount of the commitment that matches the amount on the corresponding Budget Form 3;
- State the source of the commitment;
- State when the committed resources will be available to the Lead Applicant;
- Be dated and signed by an official with the authority to make the cost share commitment.

5.4 Page Limitations

Any pages beyond the page limits listed below will be eliminated from the proposal before it is sent for technical review and evaluation. Except as otherwise noted, appendices or other methods to augment the information presented in the Narrative will count toward the total page limit. Referral to web-based information to augment the Narrative is not permitted and such references will not be used in the evaluation.

- Abstract – 1 page (500 words)
- Proposal Narrative – 25 pages (excluding “References”)
- Commercial Strategy – 15 pages
- Projected Economic Impact – 5 pages
- Budget – use specified forms
- Budget Narrative – 5 pages total
- Past Performance on Previous Third Frontier Awards --.5 pages
- Experience and Qualifications
 - Organizational Qualifications – 5 pages total including the lead and all collaborators

- Biographical Sketches – 20 pages (A maximum of 10 biographical sketches of key personnel and each bio is limited to 2 pages)

APPENDICES

A. Forms

B. Definitions

C. Cost Share Guidelines