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16. ABSTRACT

Work zone crashes are continuously putting workers and motorists at a high level of risk. The number of roadway work zones has been increasing over time, partly due to an aging transportation infrastructure. At the same time, traffic volumes and traffic congestion are growing. This means that workers and motorists are forced to coexist, often in tight spaces, which brings a great challenge to many transportation agencies that need to maintain work zone safety.

To protect worker at work zone areas, the California Department of Transportation (Caltrans) has successfully developed an innovative mobile work zone protection device, Balsi Beam, an extendable barrier that protects the flank of a work zone. Caltrans is planning to identify an efficient technology transfer vehicle and develop a deployment roadmap for statewide/nationwide implementation.

This project was designed to assist Caltrans on the aforementioned objectives. This document serves as the final report for the uncompleted Balsi Beam project. The report only covers the deliverables of the tasks that were completed before Caltrans' work termination order.

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CALIFORNIA CENTER FOR INNOVATIVE TRANSPORTATION
INSTITUTE OF TRANSPORTATION STUDIES
UNIVERSITY OF CALIFORNIA, BERKELEY

Balsi Beam: Technology Transfer and Deployment

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CCIT Research Report
UCB-ITS-CWP-2010-3

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The California Center for Innovative Transportation works with researchers, practitioners, and industry to implement transportation research and innovation, including products and services that improve the efficiency, safety, and security of the transportation system.

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July 2010

Project Fact Sheet

Task Order #1028

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Executive Summary

Work zone crashes are continuously putting workers and motorists at a high level of risk. The number of roadway work zones has been increasing over time, partly due to an aging transportation infrastructure. At the same time, traffic volumes and traffic congestion are growing. This means that workers and motorists are forced to coexist, often in tight spaces, which brings a great challenge to many transportation agencies that need to maintain work zone safety.

To protect worker at work zone areas, the California Department of Transportation (Caltrans) has successfully developed an innovative mobile work zone protection device, Balsi Beam, an extendable barrier that protects the flank of a work zone. Caltrans is planning to identify an efficient technology transfer vehicle and develop a deployment roadmap for statewide/nationwide implementation. This project was designed to assist Caltrans on the aforementioned objectives.
This document serves as the final report for the uncompleted Balsi Beam project. The report only covers the deliverables of the tasks that were completed before Caltrans' work termination order. The deliverables are as follows:

1. Balsi Beam Assessment Report
2. Balsi Beam Technical Transfer Report
3. IP Option for Licensing
4. Beam Scope of Work and Evaluation
5. Vendor Evaluation and Criteria Description

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Acronyms

AASHTO	American Association of State Highway and Transportation Officials
Caltrans	California Department of Transportation
DOTs	Departments of Transportation
DRI	Caltrans Division of Research and Innovation
IFB	Invitation for Bid
IP	Intellectual Property
OTT	Office of Technology Transfer
QA/QC	Quality Assurance/Quality Control
RFP	Request for Proposal
SOW	Statement of Work
TIG	(AASHTO) Technology Implementation Group

1. Introduction

After the completion of the State highway system, most of the State Departments of Transportation (DOTs) shifted their emphasis from new construction to reconstruction, operation and maintenance of the existing facilities. As traffic demand steadily increases, reconstruction and maintenance work activities create significant additional safety concerns and add to traffic delays on an already congested highway system.

Work zone crashes are continuously putting workers and motorists at a high level of risk. The number of roadway work zones has been increasing over time, partly due to an aging transportation infrastructure. At the same time, traffic volumes and traffic congestion are growing. This means that workers and motorists are forced to coexist, often in tight spaces, which brings a great challenge to many transportation agencies that need to maintain work zone safety.

The California Department of Transportation (Caltrans) has successfully developed an innovative mobile work zone protection device, the Balsi Beam, an extendable barrier that protects the flank of a work zone (see Figure 1). At the moment Caltrans owns the patent to the Balsi Beam. Assessments conducted by Caltrans' Division of Research and Innovation (DRI) and its research partners, including UC Davis' Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center, have proved the efficiency and effectiveness of the Balsi Beam to provide enhanced safety to workers and minimize traffic impacts. The American Association of State Highway and Transportation Officials (AASHTO) Technology Implementation Group (TIG) had accepted the Balsi Beam as an innovative technology. Caltrans has now identified the need to procure and deploy the proposed devices into general practice, for use by Caltrans' maintenance and geotechnical crews. At the same time, more transportation agencies around the nation or even the world may be interested in getting access to the Balsi Beam. This project aimed to provide Caltrans with support for effective technology transfer and deployment of the Balsi Beam.

Under Task Order 1028, master agreement 65A0212, CCIT was awarded to help Caltrans in statewide deployment of the Balsi Beam concept. The project objectives were as follows:

1. Provide deployment support, enabling Caltrans to procure manufacturing vendors for 20 Balsi Beam units. These units were supposed to be deployed to the maintenance and geotechnical crews across the state.

2. Provide post deployment support to promote the Balsi Beam at the national level.

Subsequently, CCIT awarded Cambria, as a sub-contractor, for further professional assistance. By bringing a subcontractor into the project, CCIT engaged services of an experienced consultant to provide advice and analysis. The consultant assisted the CCIT project team in developing an optimal procurement strategy, solicitation, and contracting document.

However, the project was not fully completed due to Caltrans' request for terminating the project dated on 02/27/2009.

Figure 1: Balsi Beam Barrier

2. Background

The Balsi Beam is a mobile barrier designed by Caltrans to protect workers in a closed lane adjacent to traffic. Both the design and the name of the device were prompted by a 2001 work zone incident that resulted in serious injuries to a Caltrans employee named Mark Balsi. The Balsi Beam is composed of a modified trailer pulled by a tractor truck at normal highway speeds and without the need for special permits. Upon arrival at the work site, the trailer can extend its telescoping side beams to create a protected work area up to thirty feet in length. These high-strength steel box beams can be hydraulically rotated to protect the work zone on the right, left or both sides.

The Balsi Beam design was pioneered by Calvin W. Schiefferly, Angela E. Wheeler, and Jeremy M. Matsuo of Caltrans Division of Equipment, based on guidance from Gary Gauthier of the Division of Research and Innovation (DRI). A working prototype was built in 2003. It was successfully tested for crash protection, and has been used in pilot deployments since then. A U.S. patent application for the mobile work zone protection device was filed by Caltrans in April, 2004. US patent #7,125,198 was granted for the device on October 24, 2006.

3. Scope of Document

This document serves as the final report for the uncompleted Balsi Beam project. The report only covers the deliverables of the tasks that were completed before Caltrans' work termination order.

4. Problem Statement

Safety, whether for workers or the traveling public, is Caltrans' top priority. Given that the Balsi Beam can provide additional safety to its workers, it is in Caltrans' best interest to deploy it as soon as possible. There are many maintenance and geotechnical crews in California that may benefit from the Balsi Beam. Moreover, several State DOTs including New York, New Jersey and Pennsylvania have expressed interest in the Balsi Beam in recent months.

Caltrans identified improving safety for the Department's work activities, workers, and traveling public as a major objective for deploying the Balsi Beam. In order to quickly provide the Balsi Beam to more Caltrans crews as well as to other transportation agencies, the technology transfer and deployment process must be established as soon as possible. However, the Balsi Beam is an innovative device with unique characteristics for which little operational feedback has been collected. This brings specific implementation challenges.

5. Project Proposed Scope of Work

CCIT's major role was to facilitate coordination between the multiple stakeholders of the project, and conduct technical investigations as necessary. Project stakeholders included Caltrans' Division of Research and Innovation, Division of Equipment, and Division of Maintenance, Caltrans Districts, and equipment manufacturers that could produce Balsi Beams. In addition, CCIT was supposed to partner with research centers and subcontractors to obtain adequate resources and skills.

The Balsi Beam technology transfer and deployment original proposal consisted of four phases:

Phase 1. *Technology Transfer*

Phase 2. *Procurement and Manufacturing / Project Management and Technical Support*

Phase 3. *Operational Deployment and Training Support*

Phase 4. *Post Deployment Technical and Marketing Support*

The proposed work plan for the four phases was as follows:

Phase 1: Technology Transfer

Task 1. Consolidation and assessment

Task 2. Develop technology transfer plan

Task 3. Facilitate and execute the technology transfer

Phase 2: Procurement and Manufacturing / Project Management and Technical Support

Task 4. Procurement and contracting plan (IFB& RFP...)

Task 5. Review and evaluate vendor proposal and response documents

Task 6. Finalize the manufacturing vendors list / select provider

Task 7. Assist in contract negotiations

Task 8. Management support for contract administration and contract closure as needed base

Phase 3: Operational Deployment and Training Support

Task 9. Develop deployment and technical support plan

Task 10. Develop training plan and training materials

Task 11. Pilot training and deployment at selected district level/functional crew

Task 12. Evaluation of training and deployment at district level

Task 13. Full training and deployment at statewide level

Task 14. Prepare and develop change management activities and institutional activities

Phase 4: Post Deployment Technical and Marketing Support

Task 15. Promote external market of Balsi Beam at the national level

6. Completed Tasks and Deliverables

Only Task 1 and Task 2 were completed. The detailed descriptions of the tasks, including the deliverables, are presented in Table 1.

Table 1: List of Completed Tasks and Deliverables

Task		Description	Deliverables
1.1	Assessment Report	CCIT and Cambria developed an Assessment Report providing, and overview of prior Balsi Beam analysis and how it was to be leveraged for this project.	Balsi Beam Assessment Report (Appendix I)
1.2	Technology Transfer Plan	Technology Transfer Plan. Cambria and CCIT developed a Technology Transfer Plan outlining the approach and initial analysis of procurement objectives and solicitation alternatives.	Balsi Beam Technical Transfer Report (Appendix II)
1.3	Vendor List	Cambria developed a Vendor List detailing vendors to receive the Balsi Beam RFP.	Balsi Beam Vendor List (Appendix III)
2.1	Procurement Evaluation Criteria	Cambria and CCIT conducted extensive analysis around procuring Balsi Beams and deploying new technology and viable solicitation vehicles. Cambria also developed a Decision Document to document Department approval to 'sell the Balsi Beam license'.	IP Option for Licensing (Appendix IV); Balsi Beam Scope of Work and Evaluation (Appendix V)
2.2	Selection Criteria of Solicitation Document	Cambria and CCIT developed draft evaluation criteria by analyzing procurement objectives, general vendor capabilities, evaluation criteria, and evaluation criteria weights. Cambria also developed scoring tools for use during vendor evaluations.	Balsi Beam Scope of Work and Evaluation; Vendor Evaluation and Criteria Description (Appendix VI)

Appendix I:

Assessment Report of the Balsi Beam Mobile Work Zone Protection Device

Assessment Report of the Balsi Beam Mobile Work Zone Protection Device

Submitted by:
California Center for Innovative Transportation (CCIT) /
Cambria Solutions, Inc. (Cambria)

Originally published March 19, 2008

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1. Introduction

The objective of this Assessment Report is to present the Balsi Beam technology and deployment activities to date and provide a foundation for a technology transfer plan. This report will review existing studies, state laws and regulations, and other information sources to develop an overview of technology transfer requirements and the California Department of Transportation's (department or Caltrans) current strategy to develop the Balsi Beam for its own internal use and the use of other public and private entities. In particular, this report will investigate state-owned intellectual property issues, as well as licensing and royalty requirements.

The department and its partners at the University of California have been conducting research regarding the Balsi Beam and its usefulness. This information has attracted attention of others not only in California, but also around the United States and in other countries. This report will identify and describe the various assessments of the Balsi Beam developed by Caltrans and others to date.

In the fall of 2007, the department developed a Budget Change Proposal (BCP) to acquire Balsi Beams for the use of the department's maintenance crews. The BCP was based on the demonstrated worker safety advantages of the Balsi Beam technology. In support of this BCP, an informal market survey was performed to capture cost information and gauge the vendor community's reaction to the manufacture and sale of the Balsi Beam to a national and international market. This report will provide an overview of the information developed in support of the Balsi Beam BCP and the accompanying market survey.

As will be discussed below, issues surrounding state-owned intellectual property (IP) and technology transfer are intertwined with the proposed purchase of Balsi Beams and the desire to make the Balsi Beam available to a national and international marketplace. This report will describe the lack of laws, regulations, and policies in place regarding state-owned IP and technology transfer, and reference detailed reports and recommendations regarding the future of state-owned intellectual property in California and identified best practices in other states.

2. Prior Balsi Beam Assessments

The Balsi Beam has been under study and development for several years leading up to the current project to release an RFP for the purchase of three Balsi Beams and the licensing of the Balsi Beam intellectual property (IP). Prior studies have examined the effectiveness of the Balsi Beam design, the department's experience with the first two

prototypes, and issues surrounding state-owned intellectual property generally and the Balsi Beam patent specifically. Below is a review of some of these assessments that are important to understanding the Balsi Beam and the current project methodology that will be incorporated into the technology transfer plan and the resulting Request for Proposal (RFP).

One of the department's partners in the Balsi Beam effort is the California Center for Innovative Transportation (CCIT). In May 2007, CCIT prepared a draft report titled "Intellectual Property Valuation and Licensing of the Balsi Beam" that provided a detailed analysis of the various IP issues available to the department and its partners. The report "summarizes the licensing options available to Caltrans and estimates the dollar value of the total US market for Balsi Beams." (CCIT report, page 4).

CCIT reviewed four licensing options for the Balsi Beam procurement and technology transfer project:

1. Free, open license – "*With a free and open license, Caltrans would remain the owner of the Balsi Beam invention, but it would let anyone use that invention to manufacture products without any royalties*." (CCIT report Page 9)

2. Non-exclusive royalty-based license – "*A variation on the first solution is to design an open license with standardized terms and conditions, attaching a royalty rate to it rather than allowing free usage. This solution would further alleviate concerns regarding the possible gift of State funds*." (CCIT report Page 10)

3. Exclusive license – "*In an exclusive license deal, Caltrans would grant a unique licensee with the right to manufacture and sell the Balsi Beam in exchange for royalty payments. The licensee would likely be selected through a competitive attribution process. The selection could be based on the capabilities of the candidate licensees, or more simply, on monetary bids for the license*." (CCIT report Page 11)

4. A public-sector-only license – "*In order to avoid the question of free license versus paid license, another option consists in not licensing at all. Instead, Caltrans could contract out the manufacturing of the Balsi Beam by soliciting competitive bids. In this scheme, manufacturers would work under contract and would not be granted a license to use of the invention outside of the scope of the contract. For States other than California, Caltrans could grant DOTs a public-sector-only, free license to operate under the same contractual mode with their own manufacturers*." (CCIT report Page 12)

CCIT concluded that it would be in the department's best interests to forego potential license fee revenues and instead grant a free, open license. While from a business perspective this may be preferable, additional issues related to non gift of state funds have made this approach impractical.

In addition to the discussion of licensing options, the CCIT report also estimated the nationwide market for the Balsi Beam. CCIT estimates "*a potential nationwide deployment of 68 units" resulting in a "total thirty-year US market for Balsi Beams would be have a net present value of about $2.6M*." (CCIT report, page 4).

To date, the department has purchased two prototype Balsi Beams. The first was ordered in 2002 and was produced by Harley Murray, Inc. at a cost of $198,750 ($214,153 w/tax). It is currently being used by the District 3 (Marysville/Sacramento) Bridge Maintenance crew. The second prototype was ordered in 2006 and was also built by Harley Murray, Inc. at a total cost of $325,418 ($350,638 w/tax). The second prototype is expected to be deployed in the near future.

In addition to the CCIT study on Balsi Beam IP issues noted above, various journal articles have appeared in recent years describing the history and status of the Balsi Beam. Below is a brief overview of some of the articles that have been published:

- "*Positive Work Zone Protection Device (Balsi Beam),"* by American Association of State Highway Transportation Officials (AASHTO) – Technology Implementation Group: This article provided an overview of the problems of work zone safety and presents the Balsi Beam as a innovative solution: "The Balsi Beam is an innovative device that serves as an extendable barrier to protect the flank of a work zone."

- "The *Balsi Beam: Protecting Workers with a Shield of Steel*," by Alyssa Sherman, UC Berkeley Institute for Transportation Studies, Technology Transfer Program, in Technology Transfer Newsletter (Fall 2006); This article provided a history of the Balsi Beam and details regarding the effort to offer the Balsi Beam to other state agencies. "*Reviews of the Beam from transportation departments in other states have been overwhelmingly positive. Comments include praise for the device's user-friendly interface, ease of operation, and potential to save lives*."

- Caltrans Division of Research and Innovation, Roadside Safety Research Group: "*Caltrans Mobile Work Zone Protection System: The Balsi Beam:*" This article provided an overview of an internal Caltrans research effort regarding the Balsi Beam.

3. Balsi Beam Market Survey

Goal of Market Survey

To assist in determining vendor capabilities and potential costs, an informal market survey was conducted in the summer of 2007. The *Mobile Work Zone Protection Device Market Survey* had the following objectives:

1 Elicit responses from potential manufacturers, dealers, or distributors who could produce the Balsi Beam.

2 Gather information from qualified vendors on their capabilities as it related to the following departmental objectives:

- Balsi Beam manufacturing and deployment timeline;
- Marketing and distribution capabilities to potential private and public sector clients;
- Design improvement for greater marketability and safety capabilities;
- Vendor stability in regard to mitigating deployment risks and legal risks if a vendor should become insolvent;

3 Assemble information on common industry intellectual property and licensing practices and fees.

4 Collect cost and materials estimates to allow for greater accuracy when budgeting for manufacturing and deployment of equipment.

5 Gather data to establish an accurate estimate of the potential market demand for safety equipment similar to the mobile work zone protection device.

Methodology

The market survey was developed for distribution to equipment manufacturers in the safety products and trucking industry. The survey requested information on potential licensing scenarios for the Balsi Beam, vendor manufacturing capabilities, potential market estimates, and cost information. The intention of the market survey was to solicit estimates that would assist the department in determining a viable approach to licensing and procurement of the Balsi Beam and determine an estimate of potential

market value. In the market survey, the following information was specifically requested from potential vendors:

- Number of years in the manufacturing business
- Number of employees employed
- Company's annual revenue
- Manufacturing and deployment approach
- Cost estimate
- Production schedule estimate
- Market size estimate
- Licensing and royalty options
- Approach to licensing and royalty modeling

Appendix I contains a detailed list of the questions and information requested of the vendors who participated in the Market Survey.

Initially, potential vendor information was collected from the Division of Research and Innovation, the Division of Maintenance, work zone safety experts contributing to the California Strategic Highway Safety Implementation Plan, and the New York Department of Transportation. A final pool of 37 vendors was selected to receive the market survey.

The vendors contacted for the market survey encompassed a broad spectrum of manufacturers. The vendors included large companies providing capital equipment focused on the transportation industry, as well as smaller manufacturers and dealers focused on truck trailers. Dealers were contacted as well to gain a better understanding of the marketing and distribution capabilities that would often not apply to a truck manufacturer. Listed below are the various types of vendors that were contacted with a brief description of their business focus:

- Safety Manufacturers – This category includes firms focused on roadway safety products and equipment. This includes large firms that have a variety of products ranging from crash cushions to truck-mounted attenuators.

- Truck Trailer Manufacturers – This category includes firms focused on truck trailer design, distribution, and manufacturing. The range of companies included small firms with regional distribution networks to large companies with global distribution networks.

- Freight and Equipment Manufacturers – This category includes firms that develop and manufacture large freight trailers, custom highway marking equipment, and other large equipment types.

- Dealers – These companies are not manufacturers but often times have design, testing, and small manufacturing facilities for equipment improvement and commercialization efforts. They deal mainly with the distribution, marketing, and redesign of the equipment and will sub-contract a manufacturer for the actual units.

The market survey included a section on proposed cost and schedule for the manufacturing of the Balsi Beam. The initial cost and schedule information provided for the prototype of the Balsi Beam was utilized as a baseline for the market survey.

Survey Results

In all, 37 vendors were sent the market survey. The responses to the survey were as follows:

- Two vendors provided full responses to the survey;
- Two vendors provided partial responses to the survey;
- Fourteen vendors responded that they had manufacturing capability;
- Thirteen vendors responded that they did NOT have manufacturing capability;
- Eight vendors responded that they had marketing capability;
- Sixteen vendors responded that they did NOT have marketing capability;
- The eight vendors claiming marketing capabilities also were amongst those claiming manufacturing capabilities;
- Nineteen vendors claimed to have “Market Availability” in California;
- Thirty vendors claimed to have “Market Availability” in North America;
- Eight vendors claimed to have “Market Availability” internationally.

Responses to the Market Survey also provided the following information:

- Cost per unit: $370,000 to $490,000;

- Cost per unit (with additional equipment and modifications): $420,000 to $540,000;
- Total Market Value (Continental US 2002-2112): $212.5 million for 443 units;
- Production timeline: 9 months to 30 months for ten units.

Respondents primarily were interested in exclusive licenses and, in exchange, indicated they would expect to pay licensing fees or royalties.

4. Existing Laws and Regulations

The State of California has been examining issues of state-owned intellectual property for many years. In 2007, this has resulted in proposed legislation (AB 1456 – Mullin) regarding the establishment of an Office of Intellectual Property. Although this legislation did not become law, similar legislation is likely to be proposed again in the near future. This legislation comes on the heels of a study by the "Council on Science and Technology, Intellectual Property Study Group" (January 2006) that contained recommendations incorporated into the proposed legislation. In addition, the Bureau of State Audits produced an important study on state-owned intellectual property in 2000 which has been very influential in the development of state IP policy since its publication. These studies and legislation are summarized below to provide a legal and regulatory context for the development of the Balsi Beam project.

All of the reports cited above remark upon the lack of legislation and policy direction regarding state-owned intellectual property. Indeed, the reports cite almost no federal or state laws or regulations that appear to be specifically relevant to the Balsi Beam. The exception is federal patent laws. The following are current federal Patent laws that pertain to the Balsi Beam:

Table 1: Current Federal Patent Laws Pertaining to the Balsi Beam

Title	Description
Bayh-Dole Patent Act of 1980	The Bayh-Dole Patent and Trademark Amendments Act of 1980 (Bayh-Dole) led to the development of consistent invention policies for federally funded research conducted at Universities and in small businesses. It allows universities and other research institutions to claim ownership of inventions developed through federal funding.
Federal Patent Act	Protects patent owner from others making, selling, offering for sale, or importing a patented product without the owner's consent. Protection lasts for 14 years.

In addition, various marginally relevant California Government Codes were referenced during the review of the above-listed studies and reports. Below is a brief description of each:

- Government Code Section 6254.9 – Part of Public Records Act – This code clarifies that computer software created by a state agency is not a public record. Therefore, a department is not required to distribute the software externally.

- Government Code Section 13994 to 13994.12 – This code is in relation to the creation of the Regional Technology Alliance Program relative to assisting in technology transfer. These code sections were primarily directed at defense industry conversion in California.

- Government Code Section 11152 – As stated in the Bureau of State Audits report reviewed below, the Department of Conservation cites Section 11152 of *The California Government Code* as one of the sources for its authority to issue all policies, including those related to owning intellectual property. Section 11152 states that the head of each department may adopt rules and regulations as needed to govern the activities of the department."

At the request of the Legislature, the Bureau of State Audits (BSA) published its findings on the administration of state-owned intellectual property in a report published in November 2000. The report, titled "*State Owned Intellectual Property: Opportunities Exist for the State to Improve Administration of Its Copyrights, Trademarks, Patents, and Trade Secrets*," the BSA found the state was deficient in tracking and managing the

state-owned IP assets that various state agencies had developed over the years. In particular, the BSA found:

- *"A lack of sufficient knowledge by state agencies of the intellectual property they own can hamper the State's protection of its interests. Not only is state-level direction for administering intellectual property limited, but state agencies have either no or incomplete policies for its management." (*BSA report, page 1, Audit Highlights)

Of particular relevance to the Balsi Beam project and the desire of the department to license its state-owned intellectual property was BSAs concern about the failure of agencies to receive revenues from their IP when possible.

- *"A final concern we observed was the limited extent to which state agencies appeared to capitalize on their intellectual property. Capitalizing on their intellectual property may lead to reduced contract costs or the development of new revenue sources. Yet, state agencies do not have statewide guidance that describes the circumstances under which they can or should capitalize on their intellectual property."* (BSA report, page 2).

BSA developed a series of recommendations in response to their findings. These recommendations include:

- The Legislature should clarify state law to specifically allow all state agencies to own and, if necessary, formally register intellectual property they create or otherwise acquire when it is deemed to be in the public's best interest;

- The Legislature should designate a single state agency as the lead for developing overall policies and guidance related to state-owned intellectual property. (see below for proposed legislation to create the Office of Intellectual Property);

- The Legislature should consider whether the interest of the public is best served when the State uses standard contract language that essentially gives contractors a free license to use and sell intellectual property they develop for the State. (BSA report, page 3).

In 2006, the California Council on Science and Technology (CCST) Intellectual Property Study Group published the "Policy Framework for Intellectual Property Derived from State Funded Research." This CCST report was requested by the Assembly Member Gene Mullin. Building on the BSA report discussed above, CCST states:

- *"The purpose of this report is to discuss the likely benefits associated with IP created with California state funding, describe models for handling IP, and suggest a policy framework that might be beneficial to the public, the state and the environment for science and technology innovation."* (CCST report, page 7).

Although the CCST report was in response to a request related to specific topics unrelated to this Assessment Report, many of the recommendations of the CCST report are relevant to the Balsi Beam procurement and technology transfer project. In particular, the CCST report recommends:

- Where appropriate, require that grantees (institutions, individuals, or both) provide a plan describing how IP will be managed for the advancement of science and benefit to California.

- Require diligent efforts to develop state-funded IP into applications and products that benefit the public.

- Leave license particulars to the owner who is in the best position to judge how best to ensure that discoveries are made widely available through commercialization or otherwise. (CCST report, pages 12-13)

The department's intention is to establish a partnership between the department and the selected vendor that benefits the public in the broadest possible sense and provides for the wide availability of the Balsi Beam through the commercialization of the Balsi Beam for the mutual benefit of the state and the vendor.

Both the BSA and CCST reports called for the establishment of an office within state government responsible for developing, coordinating and communicating the state's IP policies and guidelines. In 2007, Assembly Member Mullin proposed AB 1456 to establish the Office of Intellectual Property within the Business, Transportation and Housing Agency. Although this legislation did not become law, it is anticipated that a similar proposal will be offered as legislation in the near future. The following would be responsibilities of the proposed Office:

- Tracking intellectual property generated by state employees and by state-funded research,

- Establishing and updating guidelines for use by state agencies in administering their intellectual property,

- Developing an outreach campaign informing state agencies of their rights and abilities concerning intellectual property, and

- It would also require that state agencies or departments submit an annual report regarding royalties earned pursuant to the agency's or department's contracts, grants, or agreements to the office.

5. Technology Transfer Issues

Because of the relatively uncharted waters surrounding state-owned intellectual property and technology transfer issues, the Balsi Beam project has often involved gathering information and developing options regarding issues for which there are no clear guidelines or precedents. As such, the department has worked diligently to develop the background and options necessary to provide Balsi Beam project sponsors and stakeholders the information necessary to make the best decisions possible and to chart as direct a course as can be developed to guide the Balsi Beam project through to a successful completion. Below is an overview of the options developed for addressing IP and other important issues related to the Balsi Beam project and a summary of a prior departmental IP product and how it was handled.

The department has confronted the issue of how to make state-owned IP available in the past. The Department's Division of Engineering Services developed software called "CT Bridge" to meet new federal bridge design regulations. The software was requested to be made available to industry by various private organizations. In considering this request, the department confronted issues of liability and prohibitions of gifts of state funds. In response, a Decision Document was developed and signed in March 2007.

In determining the best course of action relative to the Balsi Beam IP, the department has considered various alternatives. The table below provides a description of each of the alternatives considered:

Alternative	Description
No License / Patent Protected - Caltrans as sole customer	Caltrans would offer a competitive bid for the manufacture and delivery of the Balsi Beam device. No intellectual property, licensing, or royalty information would be submitted to the manufacturer. Manufacturers would work under contract and would not be granted a license.
Public Sector Only License - Caltrans and other State DOT's as customers	Caltrans would solicit competitive bids and selected manufacturer would work under contract and not be granted a license. Caltrans would grant other state DOT's a public-sector-only, free license and they could follow the same procedure in their state. The intellectual property is owned by Caltrans and protected by patent.

Alternative	Description
Exclusive License, Royalty- Based	Grant a unique licensee with the right to manufacture and sell the Balsi Beam in exchange for royalty payments. License Balsi Beam to one manufacturing organization via contracting and procurement agreement in Exclusive License. Fair market value must be determined.
Exclusive License Agreement (Limited Sole Source)	Grant a unique license with a manufacturer for 7 year procurement. Include requirement that 3 separate distributors be used which will allow the Non-Competitive Bid (NCB) process to be circumvented.
Non-Exclusive, Royalty-Based License	Variation on open license schema with standard terms and conditions, attaching a royalty rate to it rather than allowing free usage.
Free Open License	To stimulate investment with free licensing allowing as many manufactures as possible to get involved mitigating risk associated with a new design and market.

For a complete analysis of these alternatives, including pros-and-cons, procurement approach, estimated timeframe, benefits, and costs, please see the Appendix II.

6. Best Practices Research

The department has devoted significant effort and resources to addressing all the issues that have arisen during the Balsi Beam procurement project. This has involved discussions with departmental stakeholders from the Division of Maintenance, the Division of Equipment, and the Division of Research and Innovation. In addition, vendors from related industries have been interviewed to gain the perspective of those in the private market to the possible courses of action related to the Balsi Beam procurement. Also, the department has sought out the expertise of various state Offices of Technology Transfer to learn about the opportunities and risks associated with state-owned IP issues and technology transfer processes. Lastly, a review of relevant literature has provided some information about how issues impacting the Balsi Beam procurement have been addressed by others.

Interviews with Potential Vendors

To gain the perspective of the private sector in relation, the department conducted Interviews with two vendors. Below are summaries of these two interviews.

1. Vendor A: Vendor A has been in the transportation industry for at least 20 years and their products are in use internationally. Vendor A has patented designs

which they have licensed. Vendor A has the following characteristics which are relevant to the department's needs for Balsi Beam:

- A history of redesigning existing products to increase marketability.
- In-house engineering staff
- Access to two crash test shops via subsidiary
- An in-house marketing and sales group.
- Uses third-party production contractors.
- Approaches licensing on a case-by-case basis.
- National and international licensing experience.
- Market-value determination methodologies.

2. Vendor B: Vendor B has also been in the transportation industry for at least 20 years and their products are in use internationally. Vendor B has patented designs which they have licensed. Vendor B has the following characteristics which are relevant to the department's needs for Balsi Beam:

   - Ability to manufacture between 5 and 7 units in about 3 months
   - National and international licensing experience
   - Sales manager and team overseeing a marketing approach that employs advertising in industry magazines, training seminars and trade shows.
   - Distribution channels that include road and safety suppliers
   - Expectation that an exclusive license would be granted in order to cover capital investment.
   - Noted that would be difficult for a licensing agreement to contain distribution targets or guidelines and distributors are generally provided a specific territory.
   - Generally conduct own market research and product development. Occasionally purchase IP.
   - Most licensing agreements are based upon a percentage of sales, generally less than 10%, with an assumed minimal sales amount.

The general rule elicited from these companies is that there is normally an exclusive license agreement so commercial sales can yield a profit. Companies that have equipment that is patented will estimate the licensing price and duration, and then negotiate a fair distribution of revenues that take into account the manufacturers' time and resource costs.

Interviews with State Staff

Interviews were also conducted with key state staffs who have been involved with various aspects of the Balsi Beam project. The following are summaries of the interviews with these state staff.

- The department has always used IFBs for earlier procurements;
- It will take 3-4 months for DGS to issue Purchase Order;
- DGS manages department's "rolling stock." The department needs an approved BCP to increase department's total rolling stock. Otherwise, the department must give up an equal number of fleet units or equal value of fleet if it wants to add fleet outside the BCP process.
- Manufacturing time to produce Balsi Beams or other new fleet items is reduced as vendors gain experience.
- Departmental inspections: One major in-process inspection before manufacture is completed; One final inspection after unit is built, but before delivery.
- Difficult to quantify certain "quality" aspects of vendor evaluation in RFP process (i.e. How would you define and quantify company's ability to be a good marketer?)
- "Painful" prior experiences using the RFP with best value process. Came back to DGS numerous times.

Interviews with Offices of Technology Transfer

Various state Offices of Technology Transfer (OTT) were contacted to gain their perspective on state-owned IP and technology transfer issues. The following is a summary of those interviews:

- General information:

- License fees and royalties are determined by “arms-length” negotiations between licensor and licensee;

- Marketing process determines value of the technology;

- Typical goals of universities in technology transfer process include: performance milestones to assure technology enters the market, reimbursement of ongoing university expenses, minimum annual royalties regardless of sales.

- University licensing decisions most influenced by need to achieve rapid commercialization and public interest;

- Universities have found that it is often difficult to conduct competitive bidding processes because it is difficult to find several potential vendors whose interest peaks at the same time to allow for a meaningful competitive bidding process.

- University of Washington OTT:

  - Manages most Material Transfer Agreements (MTA) with private companies through OTT Agreement Groups;

  - Office of Sponsored Programs – administers agreements if there is a sponsored program or Research Agreement;

  - A “Royalty Research Fund” exists to provide incentives for new research;

  - Process for managing intellectual property:

    1. Contact OTT for disclosure and consultation;

    2. Assessment: Identify goals, determine markets and potential commercialization;
    3. Commercialization Plan: Develop IP management and licensing strategies;

    4. Business Development: Marketing and Start-up formation;

    5. Commercialization/Licensing: Involve existing businesses and end users – startup business.

- University of California:

- Contacted Berkeley and Davis OTTs;

- UC has six –step technology transfer process;

    1. Publication: Publication/notification to UC system prior to public notification of patent;

    2. Reporting Inventions: Disclosure of invention, provide information necessary for evaluation (inventorship, patent obligations, etc.)

    3. Evaluation of Inventions: University makes preliminary evaluations and examines patentability, public benefit, commercial potential, patent rights of other parties, and cost of patent prosecution.

    4. Filing Patent Application: University License Office authorizes and coordinates patent process;

    5. Licensing: Threefold purpose – 1) transfer results to the public; 2) meet obligations of research sponsor, and; 3) generate royalty income.

    6. Royalties: Royalty rates are negotiated as part of license agreement. Rates depend of a variety of factors.

- Currently, the department has completed steps 1 through 4 of the above process for the Balsi Beam.

- Departmental emphasis currently on determining market value and licensing options.

In addition to the reports on intellectual property in the State of California that have been outlined above, one of the most comprehensive reports on state-owned intellectual property has been conducted for New York State. The "NYSTAR State Intellectual Property Policies" Interim Report dated June 1, 2007, (researched and written by the New York State Science and Technology Law Center at the Syracuse University College of Law) provided a review of state IP policy in general and a comprehensive review of state and university IP policies in all fifty states.

As stated in the report's introduction, its purpose was to discuss "the role of state government in creating an atmosphere where University R&D can flourish and where the state can benefit from its investment in research." (NYSTAR report, page 1)
Similar to what the Bureau of State Audits and others have found to be the case in California, the New York study discovered "Many states do not have statewide

intellectual property policies." Although there were some exceptions (such as Alaska, which has embraced a comprehensive intellectual property policy that focuses on strengthening the ties between corporate and university research by encouraging spin-off and start-up companies." (NYSTAR report, page 83) most state IP policies are developed by and/or for their state university systems.

> *"These policies tend to focus on compliance with federal regulations, protecting the rights of students and faculty who conduct research within the university system, securing intellectual property rights, and outlining regulations dealing with misconduct and conflicts of interest. The policies also tend to have provisions that discuss royalty distribution and assignment of intellectual property rights." (*NYSTAR report, page 83)

The New York report contains information on California, including the January 2006 report by CCST cited above. It also discusses the past legislative efforts to create a state Office of Intellectual Property. As the report notes, California's IP policies consist mainly of the policies of the University of California.

> *"The University of California has a patent policy, under the auspices of the Office of the President, applicable to all UC institutions."* (NYSTAR report, page)

Similar to the recent California legislation, the NYSTAR report states that recent New York State legislative initiatives aim to establish a coordinating body that would create state IP policy for the benefit of the State and the general public.

7. Preferred Approach to Balsi Beam Tech Transfer

The information developed and analyzed to date has led to the establishment of a detailed approach to the Balsi Beam procurement and technology transfer. This approach was formalized in a Decision Document approved by the project sponsors in November 2007. This Decision Document forms the foundation of the current efforts to develop the Balsi Beam RFP involving the procurement of Balsi Beams currently in the FY 2008-2009 Governor's Budget, and the licensing of the Balsi Beam IP. Below is a summary of the Decision Document and an overview of the current Balsi Beam project approach.

The department's vision for the Balsi Beam is to make the Balsi Beam available to as wide a market as possible so as to achieve the greatest possible increase in highway worker safety possible. Because of concerns that not all potential vendors will share this vision, the department will keep ownership of the Balsi Beam patent rather than sell

it and risk that the purchaser will not market and sell the Balsi Beam to the extent possible. Instead, the department has decided to sell a license allowing a vendor to manufacture and sell Balsi Beams. The "Recommendation" of the Decision Document states:

> *"Caltrans should sell a Balsi Beam license to a vendor capable of marketing and distributing Balsi Beams to interested parties. Granting a Balsi Beam license will shift the production, marketing, distribution, and indemnity responsibilities to the vendor. Caltrans will receive an annual licensing fee and/or royalties based upon percentage of sales. In addition, Caltrans retains ownership of the license and the right to use the patented design to procure Balsi Beams from any vendor for Caltrans' use."* (Balsi Beam Decision Document, November 2007)

The document goes on to state the "primary risk" is determining the value of the Balsi Beam license. The intention is to mitigate this risk through a competitive bidding process that will identify the vendor offering the most advantageous licensing terms while at the same time demonstrating the desire and capability to manufacture, deliver, market, distribute, and improve the design of the Balsi Beam.

From the beginning, the department's approach to the Balsi Beam project has focused not only on acquiring the Balsi Beam for the department's use and the benefit of department employees, but also in making the technology available far and wide to other public and private entities around the United States and internationally. The department is confident in the effectiveness of the Balsi Beam as an innovative, state-of-the-art work zone protection device. The department is likewise confident in the marketability of the Balsi Beam to a wide customer base. As such, the following have been and will continue to be the basis of the "best value" determination in the RFP and essential capabilities of the selected vendor:

- Ability to manufacture and deliver Balsi Beams according to the customers' needs for quantity, quality, and timeliness;

- Ability to market the Balsi Beam so as to continually expand the customer base and achieve the greatest possible increase in highway worker safety possible;
- Ability to distribute the Balsi Beam in accordance with the expanding market;

- Ability to achieve design improvements that both increase the effectiveness of the Balsi Beam's safety characteristics and improve the efficiency (and lower the cost) of the manufacturing process.

- Train and support customers following the delivery and deployment of Balsi Beams.

The RFP to be developed will include all of these services and capabilities, along with cost, licensing, and other technical and administrative criteria, when evaluating vendor responses to the RFP.

Appendix A:

Market Survey Questions and Information Requested

1. How many years has your company been in the manufacturing business? _____

2. Approximately how many employees does your company employ? _____

3. Please indicate your company's annual revenue (Circle).

   Revenue less than $1 million

   Revenue greater than $1 million and less than or equal to $5 million

   Revenue greater than $5 million and less than or equal to $10million

   Revenue greater than $10 million

4. What is your manufacturing and deployment approach?

   Manufacturing – description of facilities and process

   Deployment and Training – description of deployment support and training usually provided

   Supporting Documentation – description of manuals, technical specifications and training materials normally provided

Cost Estimate

The mobile work zone protection device under discussion must satisfy the Warranty, Inspection and Delivery Requirements for both options listed in the table below:

Trailer (mobile work zone protection device only) as defined according to the Trailer Specifications and

Trailer with Options (Generator, Compressor, Electrical Equipment) as defined by Trailer Options Specifications.

Please note that Trailer Schematics should be referenced for the detailed bill of materials and DO NOT Include Tractor Cost. Please note that your cost estimates must be based upon meeting or exceeding the requirements and specifications. Based upon the requirements, please provide cost estimates for the two options and the number of units as mentioned below:

# of Units	1-5	6 - 10	11 - 20	21 - 50	> 50
Trailer	$ /unit	$ /unit	$ /unit	$ /unit	$ /unit
Trailer with Options (Generator, Compressor, Electrical Equipment)	$ /unit	$ /unit	$ /unit	$ /unit	$ /unit

Is your company unable to provide cost estimates due to particular 'trailer' or 'trailer with options' specifications? If so, please identify the requirement(s).

Are there any warranty, inspection or delivery requirements that would bar your company from manufacturing the mobile zone protection device? If so, please identify the requirement(s).

Production Schedule Estimate

In addition to cost estimates, Caltrans is seeking production schedule estimates to determine the timeline for differing production levels. Caltrans wishes to understand the vendor community's ability to produce an order of 5, 10, 20, 35 or 50 mobile work zone protection devices. Please note that the timeline is measured in weeks.

# of Units	# Weeks to Fulfill Order
5	
10	
20	
35	
50	

Market Size Estimate

Please provide your estimate of the potential market for mobile work zone protection devices for the markets listed below in Table 1. Your estimates will likely be based upon the costs and production schedules listed above, experience with your manufacturing industry, and a sense of market trends for safety devices.

Table 1: Revenue

Market	2008	2009	2010	2011	2012
California	$	$	$	$	$
Western States (including California)	$	$	$	$	$
Continental U.S.	$	$	$	$	$
North America	$	$	$	$	$
International	$	$	$	$	$

Please note: the market categories are inclusive. For example, the California estimate is included in the Western States estimate and the Western States estimate is included in the Continental States estimate, etc.

Please circle the largest market in Table 1 that you've provided revenue estimates for:

California Western States Continental U.S. North AmericaInternational

In Table 2 below, please provide the costs associated with the revenue generated from the largest market in Table 1. Table 2 costs are broken into the following categories:

S&GA – sales, general, and administrative costs. These costs are attributable to producing and selling a unit(s) and exclude costs and overhead attributable to other projects, interest on loans or taxes, etc.

R&D Costs – research and development cost for any design improvement

Marketing – costs associated with marketing the mobile work zone protection device

Table 2: Costs

Year Ending	S & GA	R & D	Marketing
12/31/2008	$	$	$
12/31/2009	$	$	$
12/31/2010	$	$	$
12/31/2011	$	$	$
12/31/2012	$	$	$

Understanding that there are numerous marketing, sales and distribution models, please indicate the key assumptions you employed to develop the above estimates for

market revenue and costs. For example, you may have assumed one or more of the following: marketing campaigns, additional research and development to refine the current specifications, or offering lease/purchase agreements to enhance distribution.

_____
_____
_____
_____

Licensing and Royalty Options

In order to better understand the licensing and royalty structure commonly used in your industry, we would appreciate you first indicating whether your company is open to both exclusive and non-exclusive license agreements as defined below:

Exclusive License: Your company receives an exclusive license providing the right to manufacture and sell the mobile work zone protection device.

Non-Exclusive License: Your company receives a non-exclusive license to manufacture and sell the mobile work zone protection device and other companies may be granted the same right through a similar non-exclusive license.

Are you amenable to an exclusive license? YES / NO
(If yes, proceed to Table 1)

Are you amenable to a non-exclusive license? YES / NO
(If yes, proceed to Table 2)

NOTE: if your company is amenable to both licensing options, please complete both tables.

Table 1: Exclusive License

If your company was granted an exclusive license for mobile work zone protection devices, what licensing and/or royalty structure would be amenable? Please review the table below and select the Licensing / Royalty components that you would consider agreeing to. You will likely choose more than one. The Licensing / Royalty components include:

License Issue Fee – Fee equivalent to the steady state sales of the product in today's dollars

Annual License Fee – Annual fee that is set with no regard to per/unit sales. Yearly royalty payment would be paid to Caltrans and exclusive commercial licensed granted to said company for sale of the device.

Per/Unit Royalty Fee – Royalty fee structure attached to number of units sold
Based upon the information you provided in the Cost and Market Size Estimate tables, select the licensing / royalty components you would agree to and provide an estimate of acceptable fees for each component.

Licensing / Royalty	Acceptable	Dollar Value
License Issue Fee	YES / NO	$
Annual License Fee	YES / NO	$
Per/Unit Royalty Fee	YES / NO	$

Table 2: Non-Exclusive License

If your company was granted a non-exclusive license for mobile work zone protection devices, what licensing and/or royalty structure would be amenable? Please review the table below and select the Licensing / Royalty components that you would consider agreeing to. You will likely choose more than one. The Licensing / Royalty components include:

License Issue Fee – Fee equivalent to the steady state sales of the product in today's dollars

Annual License Fee – Annual fee that is set with no regard to per/unit sales. Yearly royalty payment would be paid to Caltrans and non-exclusive commercial licensed granted to said company for sale of the device.

Per/Unit Royalty Fee – Royalty fee structure attached to number of units sold
Based upon the information you provided in the Cost and Market Size Estimate tables, select the licensing / royalty components you would agree to and provide an estimate of acceptable fees for each component.

Licensing / Royalty	Acceptable	Dollar Value
License Issue Fee	YES / NO	$
Annual License Fee	YES / NO	$
Per/Unit Royalty Fee	YES / NO	$

Approach to Licensing and Royalty Modeling

What methods or models do you currently use to assess the license and royalty amount that is both fair and equitable to all parties? Please identify the tools or approaches you commonly use and provide a brief description.

Tool or Approach	Standard Approach	Description
Past experience and negotiations with patent holder	YES / NO	
Monte Carlo simulation	YES / NO	
University of California 'Valuate' tool	YES / NO	
Proprietary tool	YES / NO	
Other	YES / NO	

Appendix II:

Program Procurement for the Balsi Beam Mobile Work Zone Protection Device

Program Procurement Plan for the Balsi Beam Mobile Work Zone Protection Device

Submitted by:

California Center for Innovative Transportation (CCIT) /
Cambria Solutions, Inc. (Cambria)

Originally published March 10, 2008

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1. Description of Project

1.1 Project Overview

The "Balsi Beam" Mobile Work Zone Protection Device is an innovative addition to the equipment available to highway workers to provide for the increased safety of highway workers and the increased mobility of the traveling public. As the picture below shows, the Balsi Beam is a towed device that protects workers from vehicles in adjacent travel lanes by using a metal beam that acts as a mobile wall between vehicles and the work zone.

Figure 1: Balsi Beam deployed at work site

The Balsi Beam was jointly developed by the California Department of Transportation (Department) and the University of California at Davis Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center as part of the ongoing effort to increase the safety of the Department's workforce and increase the efficiency of the state highway system.

To date, the Department has purchased two prototypes of the Balsi Beam for use in an ongoing pilot project. This project is providing valuable information regarding the effectiveness of the Balsi Beam, the variety of highway work zone scenarios in which it can be deployed, costs of operation and maintenance, and potential for improved design. The first Balsi Beam purchased by the Department was deployed with a bridge maintenance crew in the Sacramento region. The second prototype will also be deployed with a bridge maintenance crew upon deployment.

This "Program Procurement Plan" combines the procurement of vendor services, the evaluation of vendor capabilities, the licensing of state-owned intellectual property ("technology transfer"), and the purchase of three new Balsi Beams. The "technology transfer" element of this plan involves the licensing of the Balsi Beam patent. The department has chosen to license the right to manufacture and sell Balsi Beams rather than sell the patent of the Balsi Beam. The intellectual property components of this plan are discussed in more detail later in this document.

The procurement element of this plan involves the purchase of three additional Balsi Beams for the Department. Funding for these three Balsi Beams is provided in a Budget Change Proposal (BCP) for FY 2008-2009 that has been included in the Governor's Budget and is currently under review in the Legislature. Assuming Legislative approval of the purchase of these three Balsi Beams, the total amount budgeted for the purchase will be $1.6 million ($534,000 per Balsi Beam – this cost excludes the tractor, which will be purchased separately). The Department's Division of Procurement and Contracts (DPAC) will be conducting this process as a non-IT services procurement. The amount of the purchase is within the delegated authority of the Department for the purchase of services.

In addition to the licensing of state-owned intellectual property, there are many other aspects which require a unique approach to this procurement. Because of the unique capabilities of the Balsi Beam and the opportunity for greatly improving the safety of highway workers, the Department has included a variety of additional requirements to ensure that the Balsi Beam will be made available not just to the department, but to the widest possible marketplace, both nationally and internationally. These requirements will be part of the vendor evaluation process, along with the cost of the Balsi Beams. These non-standard elements are listed below and described in detail in Section 1.2 –

Procurement Objectives:

- Manufacturing
- Delivery
- Marketing

- Distribution
- Design and Safety improvements
- Training
- Post-Deployment support

1.2 Procurement Objectives and Issues

These elements make this equipment procurement very unique and require a procurement process that allows the state to fully achieve the "best value" components of this procurement. As such, the Department is pursuing a Request for Proposal (RFP) to achieve all of the unique elements of the Balsi Beam procurement and technology transfer because the flexible nature of the RFP process is well-suited for complex procurements.

Procurement of Balsi Beams is a vital element of the Department's efforts to achieve two of the Department's most important Strategic Goals: Providing for the ***safety*** of the Department's workforce, and; Increasing the ***mobility*** of the traveling public.

- Safety – The Balsi Beam promotes safety by protecting the Department's highway workers from errant vehicles entering highway work zones. The Balsi Beam will save lives, prevent injuries, and reduce costs associated with lost productivity and workers' compensation claims. In addition, the expedited deployment (by 2010) of the Balsi Beam is an objective of both the Caltrans Strategic Plan and the California Strategic Highway Safety Plan;

- Mobility – The Balsi Beam reduces the need for lane closures around highway work zones, reducing both traffic delays and costs to motorists associated with time spent in traffic congestion.

In addition to these over-arching departmental goals, the Department has additional goals and objectives related to the development of the Balsi Beam. In particular, the Department wants to broaden the impact of the Balsi Beam by making it available, and promoting its use beyond the borders of California. To accomplish this, the Department must find a vendor who is also a motivated partner in achieving this goal and which has the capability to make these goals a reality.

The Balsi Beam RFP will be a complex document that will be used to identify a vendor who will not only manufacture and deliver three Balsi Beams to the Department at a competitive price, but will also agree to licensing terms that provide Fair Market Value to the state, and demonstrate the capability to meet the department's goal of establishing an expanding market for the Balsi Beam.

Throughout the procurement process, the procurement support team will follow the guidelines set forth by Caltrans' Division of Procurement and Contracts (DPAC) as well as those spelled out by the Department of General Services (DGS). This document will be updated on an as-needed basis should any requirements from DPAC or DGS dictate.

Below are more detailed descriptions of key Balsi Beam procurement objectives and the key issues faced by the Department in achieving these objectives. There is overlap between the procurement objectives, services to be procured and the evaluation criteria. Note that the services to be procured are presented Section 1.3 and the evaluation criteria are listed in Section 3.6.

1.3 Selling the Balsi Beam Intellectual Property License and the Services to be Procured

Objective 1: Meet State Procurement and Intellectual Property (IP) Requirements

Although the Balsi Beam RFP will be a very complex document, the Department is committed to conducting a fair and open procurement that clearly abides by the letter and intent of all relevant rules, statutes, and guidelines. The Department ensure that the innovative and non-traditional elements of this process are made as clear as possible to all of the vendors who are interested in responding, thereby encouraging the largest possible response to the RFP.

Statute and Policy Requirements: This Program Procurement Plan and all aspects of the procurement of Balsi Beams are being developed in accordance with all relevant statutes and policy requirements. The advice and consent of the Department of General Services Procurement Division, Caltrans' Division of Procurement and Contracts, and Caltrans' Legal Division has been sought to ensure that all necessary elements and considerations have been taken into account in the development of the Program Procurement Plan. This includes the inclusion of appropriate Terms & Conditions in the contract to protect the Department from undue liability.

Competitive Bidding: The state is required to conduct a competitive bid based on either the lowest cost to the state or the "best value" to the state. The Balsi Beam RFP will be a multi-faceted document designed to take into account many factors other than simply cost. Many non-cost factors will be taken into account in the Evaluation Plan and will contribute to the determination of overall "best value" to the state in the selection of a vendor. One of the key considerations in the determination of "best value" will be the establishment of a Fair Market Value for the state-owned IP that is favorable to the Department.

Fair Market Value of state-owned IP: State law requires that state agencies receive Fair Market Value (FMV) for any state-owned intellectual property that is sold or licensed. The Department will be required to determine the best method for determining the Fair Market Value of the Balsi Beam license, and whether or not this must be determined independent of the RFP or based on the response of potential vendors to the RFP. The Department is considering three options for determining the Fair Market Value of the Balsi Beam IP:

- **Option 1: Determine FMV through Vendor Responses to RFP without requiring the vendors to conduct a formal market study:** The Department will establish the FMV based on the responses received through the RFP process. The vendors' responses will show what the manufacturing community has determined the market to be with the assumption that the manufacturing vendors will conduct some form of market analysis in order to determine the value.

- **Option 2: Determine FMV through Vendor Responses to RFP *requiring* the vendors to conduct a formal market study:** The Department will establish the FMV based on the responses received through the RFP process. The vendors' responses will show what the manufacturing community has determined the market to be through a formal market analysis required by the Department.

- **Option 3: Determine FMV through Third Party Market Survey:** Through a separate contract, identify the FMV through the development of a market survey aimed specifically at determining the value of the Balsi Beam IP. The results of the market survey will be used when evaluating vendor proposals.

The RFP will include whichever option is determined to be in the best interests of the Department and the Balsi Beam procurement process.

Objective 2: Meet Project and Funding Timelines

The available funding for this procurement is limited in terms of the amount of funding and the timeline for its use. To meet the requirements of a legislative appropriation, the Department will need to have selected a vendor and entered into an agreement to procure the three Balsi Beams associated with the appropriated funds by the end of FY 2008-2009. As such, it is vital that the Department not only meet all of the legal and policy requirements of this procurement, but also ensure that the process is completed in such a manner that funding appropriated for this procurement is utilized.

The Department has received funding in the FY 2008-2009 Governor's Budget for the purchase of three Balsi Beams. Assuming the funding is approved by the Legislature, the Department plans to release an RFP in the first quarter of FY 2008-2009, with vendor

selection occurring before the end of the fiscal year. It is anticipated that the three Balsi Beams will be ordered in the first quarter of FY 2009-2010, with delivery by the end of FY 2009-2010.

Beyond the manufacture and delivery of the initial three Balsi Beams included in the FY 2008-2009 Governor's Budget, the Department requires that the selected vendor begin manufacturing, marketing, selling, and distributing Balsi Beams to the wider audience envisioned in this proposal. Although a specific timeline for the ongoing availability of the Balsi Beam has not been predetermined, it will be an element of vendor evaluation and selection.

Objective 3: Sell the Balsi Beam License

The Department will be breaking new ground in its efforts to license the right to use the Balsi Beam intellectual property (IP) to a private vendor. The vendor will pay the state the Fair Market Value for the use of the license. In return, the vendor will then be able to manufacture and sell the Balsi Beam to achieve a return on its investment and further the goals of the Department in making Balsi Beam technology available to as wide a market as possible.

The state owns the patent and therefore the IP of the Balsi Beam. The Department has decided to not sell the patent for the Balsi Beam because of the desire to ensure that the patent is used for the manufacture and distribution of the Balsi Beam to as wide a market as possible. If the patent was sold, there would be no guarantee that the purchaser would have the desire, motivation, or capability to manufacture, market, and distribute the Balsi Beam so that it achieved the greatest possible improvement in worker safety. The issuance of an IP license to a manufacturing vendor meets the needs of the Department and the vendor to market and sell Balsi Beams to an expanding marketplace.

Non-gift of State Funds: The state is not allowed to provide a gift of state funds. This includes anything of value that is owned by the state, including intellectual property and patents. Because of these regulations prohibiting the "gift of state funds," the state cannot simply give a vendor the permission to manufacture Balsi Beams. As such, the Department has chosen to sell the right to manufacture the Balsi Beam to a qualified vendor to provide Balsi Beams for the Department and to promote the widest possible deployment of Balsi Beams by other public and private agencies. The Department must receive "Fair Market Value" (FMV) for the Balsi Beam license. To accomplish this, the Department will develop an RFP as the procurement methodology to select a vendor who has the desired attributes for expanding the market for the Balsi Beam, and establish a license agreement based on Fair Market Value of the Balsi Beam intellectual property.

Exclusive License: The Department recognizes that exclusive licensing to a vendor is a necessary incentive for the vendor to invest the resources into the manufacturing, design, and marketing efforts desired by the Department. As such, the Department will grant an exclusive license to the selected vendor for term of the patent which is typically 7 years.

Licensing the Balsi Beam IP is the first step in the process of maximizing the beneficial impact of the Balsi Beam. To more completely satisfy the Department's goal of making the Balsi Beam available to the widest market possible, additional initiatives will be undertaken, as described in the following objectives.

Objective 4: Commercialize and Distribute the Balsi Beam

To reach the widest market possible, it is necessary that the Department ensure that both marketing and distribution goals are included in the development of the RFP and in the responses to the RFP from vendors. The following describes these goals in more detail.

Marketing: Because of the Department's goal to make the Balsi Beam available far beyond just the needs of the Department's workforce, one of the primary responsibilities of the selected vendor will be the aggressive marketing of the Balsi Beam to the widest possible marketplace. This includes other state departments of transportation, local agencies around California and the nation, private companies, and international markets. To satisfy this requirement, the evaluation of potential vendors will include a determination of their ability and desire to perform the required marketing activities, along with their history of proven marketing capabilities.

Distribution Network: In addition to the need for marketing capabilities, the selected vendor will also need to demonstrate an ability to distribute Balsi Beams reliably and in a timely fashion. To ensure that the vendor can capitalize on successful marketing of the Balsi Beam, the selected vendor's distribution network must correspond to the range of the marketing campaign so that any potential customers will be confident of receiving the Balsi Beam units they desire. This combination of marketing and distribution capabilities will form the basis of a vendor's ability to sell Balsi Beams to the widest possible audience.

Training and Post-Deployment Support: Following delivery and deployment, the selected vendor will be expected to provide necessary training and other post deployment support to allow the customers to operate and maintain the Balsi Beam units to their greatest benefit. It is essential that customers that receive new Balsi Beam units are prepared and confident in the use of the Balsi Beams to ensure that the

deployment of each Balsi Beam results in the greatest possible benefit in terms of worker safety and traffic mobility.

Objective 5: Allow for Balsi Beam Design and Safety Improvements

In addition to possessing the capability to marketing and distributing the Balsi Beam, the market for the Balsi Beam can be increased by improving the design of the Balsi Beam so that it enhances the safety of work zones (thereby making it even more attractive to potential customers), and reducing the cost of manufacturing Balsi Beams (thereby making it affordable for a larger number of customers).

The Department and AHMCT have spent considerable effort in developing a state-of-the-art design for the Balsi Beam, and it is the intention of the Department that the Balsi Beam design be continually improved by any vendor chosen to receive the Balsi Beam license. It is anticipated that a motivated vendor will possess the capability and desire to pursue design improvements relative to increasing the safety and decreasing the cost of the Balsi Beam. Safety design improvement will increase the effectiveness of the Balsi Beam in protecting highway workers. Design improvements that increase the efficiency of the manufacturing process will have the impact of reducing the cost of the Balsi Beam and making it more attractive to a wider market of potential customers. The selection of a vendor with design improvement capabilities and a motivation to continually improve the design of the Balsi Beam is important to the Department's overall goal of promoting the availability of the Balsi Beam to the widest possible number of customers and gaining the largest possible increase in worker safety. To ensure that the vendor's proposed design improvements meets the Department's requirements, any improvements to the Balsi Beam design must follow a strict quality assurance / quality control (QA/QC) process which includes providing complete documentation on all improvement recommendations and gaining the Department's approval prior to implementation of the design changes.

Objective 6: Meet Manufacturing and Delivery Timeline

The Department requires not only the timely manufacture and delivery of the initial three Balsi Beams, but the continuing confidence that the selected vendor will be able to meet the ongoing needs of the Department and the wider marketplace to keep up with the desired expanding demand for Balsi Beams. As such, it is important that the manufacturing and delivery capabilities of the vendor be well established and that these capabilities include the continuing ability to meet all customer expectations for quality and timeliness.

The Department requires that the selected vendor highly qualified to manufacture the Balsi Beam. The vendor must have the existing manufacturing capabilities to construct the initial three Balsi Beams and to deliver these Balsi Beams within the Department's

required timelines. The delivery timeline must include adequate time for the state to inspect and approve each of the three Balsi Beams initially ordered. Also, the ongoing production of Balsi Beams must continuously meet the quality standards originally prescribed by the Department.

In addition, vendors must demonstrate the ongoing commitment and capability to manufacture and deliver Balsi Beams to the expanded marketplace in accordance with the needs of future customers. It is important that the selected vendor be able to meet not only the Department's immediate short-term goals of providing the initial three Balsi Beams, but also be capable of fulfilling the ongoing delivery requirements of future customers. The selected vendor must have a stable business history and have the resources to reliably meet the manufacturing and delivery needs of an expanding marketplace. All vendors must be willing to allow the Department to conduct a pre-award audit of its financial records and company background.

The Balsi Beam RFP will contain a variety of components that include selling the Balsi Beam IP license (to enable a vendor to manufacture and sell Balsi Beams), purchasing services for training and post-deployment support, evaluating the capability of potential vendors to market, distribute, manufacture, deliver, and improve the design of the Balsi Beam, and finally the cost to the Department to purchase Balsi Beams. Below is a description of the essential components of the RFP

Selling the Balsi Beam IP License: The Department owns the patent for the Balsi Beam and therefore cannot give the patent or license to a private vendor without violating state laws and regulations restricting the gift of state funds. As such, the Department will use an RFP approach to sell an exclusive license to a qualified vendor with the Department receiving Fair Market Value for its state-owned intellectual property in the form of a licensing fee (or other some other appropriate form of compensation).

Procuring Services for Training and Post-Deployment Support: The Department will use the RFP to purchase services for training and post-deployment support. It will be the vendor's responsibility to develop and provide training regarding use and maintenance of the Balsi Beam itself. The Department will develop training on the purpose, use and operation of Balsi Beams in field conditions for all staff with whom the Balsi Beams will be deployed. The Department will also procure post-deployment support services from the vendor to ensure that all necessary skill and knowledge transfer to the Department occur. In addition, the RFP process will be used to determine the vendor's capability to manufacture, sell, market and distribute the Balsi Beams, Although the RFP will not include the purchase of marketing, distribution, and design services, each vendor's proposal will be evaluated to determine the vendor's capability to provide these services in support of expanding the marketplace for the Balsi Beam.

- **Three Balsi Beams:** The BCP calls for the initial purchase of three Balsi Beams. The Department may purchase additional Balsi Beams in the future. In addition, other public and private entities will be encouraged to purchase Balsi Beams from the selected vendor under the terms of the licensing agreement.

- **Warranty:** The Department will include warranty provisions for the purchase of Balsi Beams consistent with standard warranty provisions included with the purchase of other state-owned fleet equipment.

- Although the Department is procuring Balsi Beams and the associated warranty, training and other services as described above, the Department will provide the ongoing maintenance and replacement of the Balsi Beams. This is consistent with the Department's practice of providing maintenance and replacement for state-owned fleet equipment.

- The Department will consult with Departmental legal and procurement staff, and appropriate staff at the Department of General Services, to ensure that all appropriate provisions are made within the RFP relative to state-owned patents, intellectual property rights, and licensing requirements

2. Market Research

2.1 Goal of Market Survey

To assist in determining vendor capabilities and potential costs, an informal market survey was conducted in the summer of 2007. The *Mobile Work Zone Protection Device Market Survey* had the following objectives

1. Elicit responses from potential manufacturers, dealers, or distributors who could produce the Balsi Beam.

2. Gather information from qualified vendors on their capabilities as it related to the following departmental objectives:

    - Balsi Beam manufacturing and deployment timeline.

    - Marketing and distribution capabilities to potential private and public sector clients;

    - Design improvement for greater marketability and safety capabilities;

- Vendor stability in regard to mitigating deployment risks and legal risks if a vendor should become insolvent.

3. Assemble information on common industry intellectual property and licensing practices and fees

4. Collect cost and materials estimates to allow for greater accuracy when budgeting for manufacturing and deployment of equipment.

5. Gather data to establish an accurate estimate of the potential market demand for safety equipment similar to the mobile work zone protection device.

2.2 Methodology

The market survey was developed for distribution to equipment manufacturers in the safety products and trucking industry. The survey requested information on potential licensing scenarios for the Balsi Beam, vendor manufacturing capabilities, potential market estimates, and cost information. The intention of the market survey was to solicit estimates that would assist the department in determining a viable approach to licensing and procurement of the Balsi Beam and determine an estimate of potential market value.

Several key resources were identified for intellectual property rights and best practices for licensing and distributing new technology. Among these resources, the Office of Technology Transfer (OTT) at three universities were interviewed (these were the University of California at Berkeley, the University of California at Davis, and the University of Washington OTT). Supplemental resources were also reviewed for information and included the California Center for Innovative Transportation (CCIT) report “Intellectual Property Valuation and Licensing of the Balsi Beam” and a Bureau of State Audits report titled “State-Owned Intellectual Property: Opportunities Exist for the State to Improve Administration of Its Copyrights, Trademarks, Patents, and Trade Secrets.” Past proposed legislation for the establishment of a California State Office of Intellectual Property under AB1456 (2007) was also reviewed for clarity on future trends and policy. Although this legislation was not adopted, similar legislation may be submitted in the current year to establish this office.

In addition to reviewing various resources for licensing and royalty best practices, private sector manufacturers and dealers were contacted for informal interviews. These interviews revealed insights to the negotiation and valuation of intellectual property to which the private sector adheres for safety equipment. The general rule elicited from these companies is that there is normally an exclusive license agreement so commercial sales can yield a profit. Companies that have equipment that is patented will estimate

the licensing price and duration, and then negotiate a fair distribution of revenues that take into account the manufacturers' time and resource costs.

Initially, potential vendor information was collected from the Division of Research and Innovation, the Division of Maintenance, work zone safety experts contributing to the California Strategic Highway Safety Implementation Plan, and the New York Department of Transportation. A final pool of 37 vendors was selected to receive the market survey. The vendors contacted for the market survey encompassed a broad spectrum of manufacturers. The vendors included large companies providing capital equipment focused on the transportation industry, as well as smaller manufacturers and dealers focused on truck trailers. Dealers were contacted as well to gain a better understanding of the marketing and distribution capabilities that would often not apply to a truck manufacturer. Listed below are the various types of vendors that were contacted with a brief description of their business focus:

- Safety Manufacturers – This category includes firms focused on roadway safety products and equipment. This includes large firms that have a variety of products ranging from crash cushions to truck-mounted attenuators.

- Truck Trailer Manufacturers – This category includes firms focused on truck trailer design, distribution, and manufacturing. The range of companies included small firms with regional distribution networks to large companies with global distribution networks.

- Freight and Equipment Manufacturers – This category includes firms that develop and manufacture large freight trailers, custom highway marking equipment, and other large equipment types.

- Dealers – These companies are not manufacturers but often times have design, testing, and small manufacturing facilities for equipment improvement and commercialization efforts. They deal mainly with the distribution, marketing, and redesign of the equipment and will sub-contract a manufacturer for the actual units.

The market survey included a section on proposed cost and schedule for the manufacturing of the Balsi Beam. The initial cost and schedule information provided for the prototype of the Balsi Beam was utilized as a baseline for the market survey.

2.3 Survey Results

The survey results showed that 14 vendors claimed to have the capability to manufacture the Balsi Beam, and eight vendors stated that they had the capability to

market the Balsi Beam. The eight vendors claiming marketing capabilities also were amongst those claiming manufacturing capabilities.

Responses to the Market Survey provided the additional following information:

- Cost per unit: $370,000 to $490,000;
- Cost per unit (with added options): $420,000 to $540,000;
- Total Market Value (Continental US 2002-2112): $212.5 million for 443 units;
- Production timeline: 9 months to 30 months for ten units.

Respondents primarily were interested in exclusive licenses, with an acceptance of providing royalties. There was a mixed response regarding whether or not license fees were acceptable and none of the survey respondents indicated they would agree to an annual license fee.

2.4 Prospective Sources

The following eight vendors responded affirmatively to both the capability to manufacture and market the Balsi Beam:

- Barrier Systems
- Edward R. Bacon
- Energy Absorption (Quixote)
- Interstate Trailers Inc.
- Kassbohrer All Terrain Vehicles, Inc.
- Big Tex Trailers
- Kiefer Industrial
- Terex-Load King

The following six vendors responded affirmatively to the capability to manufacture the Balsi Beam, but responded negatively (or were not responsive) relative to marketing capability:

- Harley Murray Inc.
- SBIW

- Cozad Trailer Sales Inc.
- Wabash Trailers
- Nixon Egall Equipment
- Southwest Enterprises Inc.

3. Acquisition Methodology

The Department has determined that a Request for Proposal (RFP) is the best approach to licensing and procuring the three Balsi Beams while considering the Balsi Beam intellectual property (IP) value, vendor capabilities of delivering and marketing the Balsi Beam, funding availability and timelines, and timelines for procurement and manufacturing. This procurement is more complex than standard Invitation for Bid (IFB) procurements due to the non-traditional components of marketing, licensing, and design improvements.

3.1 Proposed Acquisition Strategy

The selected vendor for the Balsi Beam will be procured through the RFP process. The table below provides a summary of the Acquisition Strategy:

Table 1: Summary of Acquisition Strategy

Types of Goods or Services	Estimated Term	Justification
Purchase three Balsi Beams	September 1, 2009 to June 30, 2010	RFP is sufficiently broad in scope to incorporate not only the goods purchase but also to include the various licensing and other elements necessary to the success of this process.
Training	September 1, 2009 to June 30, 2010	The vendor will be required to train Department staff on the proper operation and maintenance of the Balsi Beam as part of the knowledge transfer from vendor staff to state staff.

Types of Goods or Services	Estimated Term	Justification
Licensing	September 1, 2009 to June 30, 2015	Because the Department owns the Balsi Beam patent, a license must be granted to the selected vendor for manufacturing. The Fair Market Value of the license fee will be determined either before the release of the RFP or as a component of the RFP. Assumes a 7 year license term.
Post-Deployment Support	September 1, 2009 to June 30, 2015	The vendor will be required to provide Post-Deployment support to Departmental staff on issues and problems that arise during the operation of Balsi Beams.

3.2 Evaluation Approach for Vendor Selection

The Balsi Beam procurement will be based on the "best value" to the State. The determination of best value will take into account the following factors:

- Amount of vendor proposed payment for licensing rights;
- Stability of vendor operation;
- Vendor adherence to past delivery schedules and requirements;
- Vendor marketing capabilities;
- Vendor distribution capabilities;
- Training experience and capabilities;
- Vendor engineering and design improvement capabilities;
- Cost of purchasing Balsi Beam units;

A Vendor Evaluation Plan will be developed as part of the Balsi Beam RFP and contain a complete description of the approach and criteria used to evaluate bidding vendors.

3.3 Adherence to DPAC and DGS Policies and Guidelines

In accordance with recent changes to the acquisition guidelines for State agencies, this acquisition will be compliant with these directives and the following DGS Management Memos:

- MM 03-05 – Guidelines for Procurement Plans (although this Management Memo is related to Information Technology Procurement Plans, many of these same concepts are incorporated into this Non-Information Technology Procurement Plan);

- MM 03-09 – State Contract and Procurement Registration System;

- MM 03-10 – Requirements for use of California Multiple Award Schedules (CMAS), Master Services Agreement (MSA), and Non-Competitively Bid contracts;
- MM 05-11 – Requirements for the use of strategically sourced statewide contracts;

- MM 03-18 – Acquisition of State Vehicles;

- MM 05-08 – Requirements for the New Acquisition or Replacement of Motor Vehicles and General Use Mobile Equipment;

- MM 06-07 – Revised Vehicle Acquisition Request Form – OFA160.

- MM 07-02 - Uniform Standards for Information Technology Procurement

- MM 07-10 - Increases to the Dollar Thresholds For Conducting Informal Competitive Solicitations For Non-IT Goods and IT Goods and Services and For Specific Leveraged Procurement Agreements

- Public Contact Code (PCC) Section 6611 (regarding the negotiation of procurement and/or contract provisions in order to provide the best value to the department).

3.4 Benefits of Proposed Acquisition Strategy

The proposed acquisition strategy capitalizes on the vendor pre-qualification and market research activities already conducted. The following is a list of the benefits of the proposed acquisition strategy:

- Competitive purchase price for the Balsi Beam units;

- Granting of exclusive license to a qualified vendor;

- Receipt of revenues from negotiated license fees;
- Avoidance of limitations prohibiting the gift of state funds;
- Design improvements facilitating increased effectiveness of Balsi Beam units and increased efficiency/reduced cost of production;
- Marketing capabilities that will allow for advertising benefits of the Balsi Beam nationally and internationally;
- Distribution capabilities that will allow for sale and delivery of Balsi Beam units to public and private entities nationally and internationally;
- Use of the Request for Proposal process allows the incorporation of all of the above-mentioned benefits.

The primary purpose and benefit of the Balsi Beam is to dramatically improve the safety and protection of workers in highway work zones. This procurement not only addresses the needs of the Department to purchase and deliver Balsi Beams to its employees, but also allows for a greatly expanded market reaching other interested entities both nationally and internationally, greatly increasing the potential increase in worker safety as a result of this proposal.

3.5 Proposed Procurement Steps and Estimated Key Dates

The table below provides the key action dates for this Program Procurement Plan. These dates may be updated if factors outside of the Department's control impact this timeline. The estimated dates will depend upon the timely completion of preceding steps and are subject to change.

Table 2: Procurement Key Action Dates

Action	Action Date
Develop RFP	February to August 2008
Release RFP	August 2008
Evaluate vendors and select manufacturing vendor	August 2008 to March 2009
Negotiate best value and finalize contract	April to July 2009
Place order for three Balsi Beams	September 2009

Contract Term and Budget

The Department intends to grant an exclusive license to the selected vendor for a period of seven years for the manufacture and sale of Balsi Beams.

Pending final approval by the Legislature of the funding for the Balsi Beam contained in the proposed FY 2008-2009 Governor's Budget, the Department will select a manufacturing vendor by the end of FY 2008-2009. The total purchase amount for the three Balsi Beams is estimated to be $1.6 million. The potential IP licensing fee will be received from the select vendor. To date, the amount of the IP license is currently unknown and will be part of the final contract negotiations.

Project Life Cycle

The Department's current procurement schedule anticipates purchasing three new Balsi Beams before the end of 2009. It is anticipated that the Balsi Beams will be delivered to Caltrans in FY 2009-2010.

3.6 Vendor Evaluation Categories and Criteria

The Vendor Evaluation Criteria are based on the specific needs of this procurement and the ongoing desire of the Department to achieve best value relative to licensing, design improvements, marketing, and distribution. The diagram below outlines the various categories and criteria involved in the evaluation:

The Evaluation will consist of three phases:

1. *Minimum requirements* – The vendor must meet all minimum requirements in order for its proposal to continue to the technical scoring round.

2. *Technical Proposal* – An evaluation committee will evaluate those Technical Proposals that meet the proposal submission requirements. The evaluation will be based on the criteria shown on Criteria for Evaluation of Consultant Technical Proposals. Only those Proposers whose Technical Proposals receive a minimum score or above will move on to Phase II, Cost Opening. Those Technical Proposals receiving less than the above minimum score will not receive further consideration.

3. *Cost Proposal* – Cost Proposals will be opened for Proposers who met the required minimum Technical Proposal Standards.

The figure below shows the evaluation categories that each proposal will be measured against for those that meet the minimum requirements.

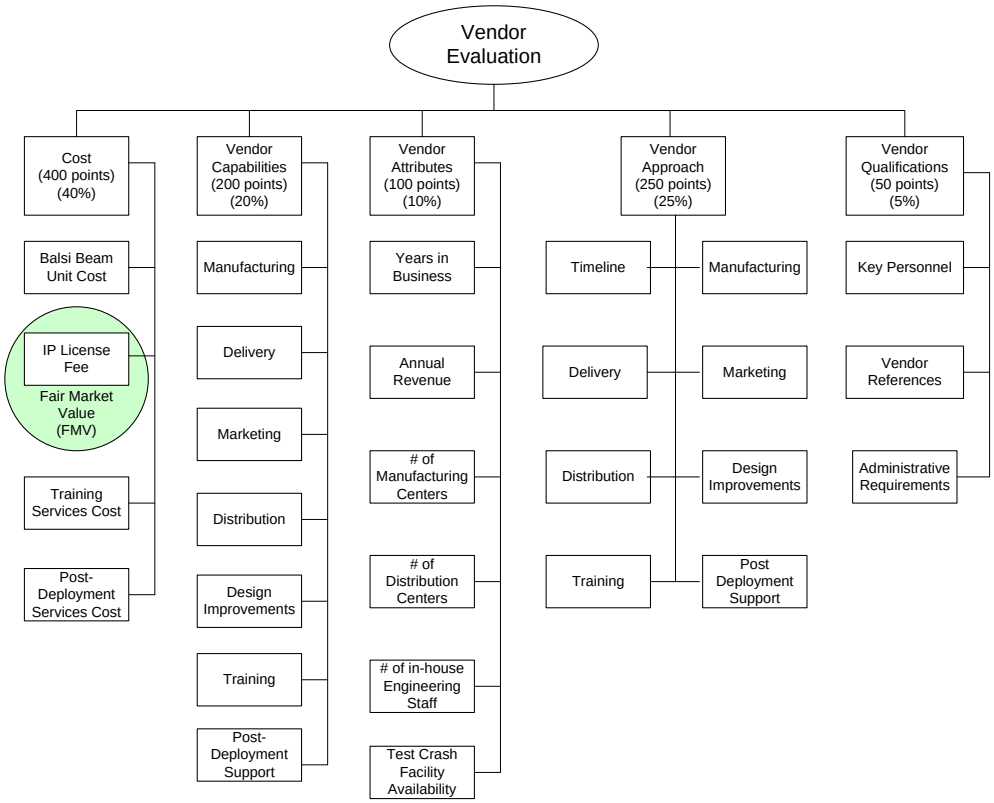

Figure 1: Vendor Evaluation Categories and Criteria

A detailed Evaluation Plan will be developed for the RFP describing each Evaluation Category and related criteria shown above, and including a list of evaluation factors for evaluating the criteria.

4. Risk Management

4.1 Protecting the State's Investment – Managing Risk

The scope of risks to be considered for the Balsi Beam implementation includes schedule, manufacturing, management, budget and implementation. Risks cannot always be eliminated, but mitigation and contingency plans can be developed to lessen their impact if they occur.

Effective risk management requires early risk identification, and development of preventive and contingency measures that lessen potential problems while monitoring

real risks to mitigate their impact on the project as a whole. This risk management approach consists of three steps:

- Proactively identifying risks that may impact the project's success;
- Developing strategies (preventive and contingency measures) to mitigate those risks; and

- Reviewing risks to facilitate effective mitigation with appropriate communication to the project team and project sponsor.

The implementation of the Balsi Beams will utilize a formal issue resolution process to identify, track and resolve issues on a monthly basis. Because an actual project risk introduces an "issue" that threatens to impede project progress, project risks will be introduced through the issue resolution process. As dictated by the project's issue resolution process, team leaders and project managers will introduce issues at status meetings throughout all phases of the project, where issues will be discussed, assigned and resolved. Risk management procedures will work in conjunction with the issue resolution process to address, track, mitigate, and communicate all risks to the greatest extent possible.

The project team will take the following steps to identify, mitigate, track, and communicate potential risks:

- Identify a team member as risk manager for Balsi Beam deployment. This may or may not be the project manager.

- Create a risk management tracking worksheet. This worksheet will be used to track all risks and potential issues related to the deployment of the Balsi Beam, and subsequent field use.

- Review each issue raised at the project status meeting. This is to determine whether it is a new issue or, in fact, an actual "risk".

- Upon identification, document the risk in the risk management worksheet. Attendees of the project status meetings will identify risks and the risk manager will document each new risk identified.

- Identify and document the probability (high, medium, low) of the risk affecting the project. The attendees of the status meetings will identify the probability of each risk affecting the project, and the risk manager will document the probability.

- Determine and document the mitigation measures for each risk. The attendees of the project status meeting will discuss how to mitigate the identified risk. If necessary, the risk manager will assign an individual the responsibility of implementing the mitigation procedures. The risk manager will document the contingency measures.

- At the scheduled status meetings, each risk will be reviewed and the risk rating updated as needed, or the risk will be removed (if it is no longer a risk). Project management will ensure that those responsible for mitigation activities have completed those activities. Any action items to be taken will be identified by the project management team, and assigned to a specific individual to complete. The preventive and contingency measures will be communicated to all the project team leads and stakeholders and included in a lessons learned report.

4.2 Potential Project Risks

Table 4 includes a description of the Balsi Beam implementation's identified potential risks and the project's affected area. In addition, listed is the probability level of the risk occurring and the impact level, should it occur. "Preventive Measures" are those steps taken to minimize the effect of the risk event.

Table 4: Potential Risks

ID	Risk Event	Affected Area	Probability Level	Impact Level	Preventive Measures
1.	**Funding for the Balsi Beam is not approved by Department of Finance (DOF) or other approval agencies**	Implementation	Low	High	• Develop solid, timely BCP with quantifiable data • Provide additional supporting information in BCP appendices
2.	**Project sponsorship inadequate / not visible**	Project management	Low	Low	• Engage project sponsor and executive management via periodic status reports

3.	**Companies may not want to pay asking amount for IP**	Procurement	Medium	Medium	• Market value of Balsi Beam is being determined
4.	**Cost overrun**	Budget	Low	High	• Review financial reports listing amount encumbered versus amount expended to verify allocated dollars are being spent on time
5.	**Failed on-time delivery of Balsi Beams**	Schedule, Manufacturing	Medium	High	• Secure qualified manufacturers through procurement process • Set deliverable contract in place with qualified vendor(s) • Include penalties in contract for deadline misses • Require vendor(s) to supply quarterly status reports to Caltrans Project Manager • Provide Caltrans key point-of-contact
6.	**Device not working as designed**	Implementation	Low	Medium	• Blueprints and prototype have been developed • Review blueprints and technical specifications with manufacturer • Secure qualified manufacturers through procurement process

7.	**Lack of end-user acceptance**	Implementation	Medium	Medium	• Establish change management approach including appropriate communication to end-users and end-user training • Communicate device benefits to end-users • Provide hands-on training • Provide on-site demonstrations • Hold implementation preparation workshops

While potential risks have been identified, there is no indication that any of these may become actual risks. Furthermore, in the instance of a risk occurring, corresponding preventive measures have been identified to curtail the potential impact.

5. Contract Management Approach

The following approach will be used to procure and manage the contracted services required for this project:

- All applicable DGS guidelines and state laws will be followed in procuring the needed services.

- A thorough and complete statement of work (SOW) will be developed for the RFP to clearly define the specific services and deliverables that each vendor must produce.

- The selected vendors will be required to collaborate on a work plan and schedule for the work to be performed, to be delivered shortly after the project start date, and updated as needed.

- Management of the work plan will be facilitated by bi-monthly status reports that will indicate current work by deliverable, including ongoing percentage of

completion expectations for the following week, and identification of any potential issues.

By August 2008, procurement activities will be conducted to select the vendor most capable of meeting the Balsi Beam production requirements. Contract negotiations will take place in which a production schedule will be agreed upon. Payment will be made upon delivery of the Balsi Beams in accordance with the schedule and once they are evaluated and found to meet specifications. Penalties may be assessed if the vendor does not meet agreed upon deadlines, however, this will be determined during contract negotiations.

Throughout the manufacturing phase, the vendor will be held accountable for the production schedule and for meeting agreed upon requirements. A Project Manager from Department's Division of Equipment will be identified to manage the project through this critical phase.

The team will monitor the manufacturing vendor to verify that the Balsi Beams are being developed to match the specifications given to them by the Department. This will help to increase the quality levels and decrease the risk of a Balsi Beam not meeting the requirements and needs of the Department. Specific activities include:

- Conduct monthly status meetings with the vendor as well as require formal status reports to be delivered to the Department's Project Manager stating the production status, percent complete towards the next deliverable, and identification of any issues or risks;

- Conduct a pre-production inspection on initial Balsi Beam to verify the manufacturer has developed the model to specifications before production of the remaining Balsi Beams;

- Conduct a formal inspection of each Balsi Beam once manufacturing is complete and prior to delivery to the Department.

Appendix III:

Vendor List for the Balsi Beam Mobile Work Zone Protection Device

Vendor List for the Balsi Beam Mobile Work Zone Protection Device

Submitted by:

California Center for Innovative Transportation (CCIT) /
Cambria Solutions, Inc. (Cambria)

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Table of Contents

1. Project Description

The "Balsi Beam" Mobile Work Zone Protection Device is a recent, innovative piece of equipment designed to increase the safety of highway workers and increase the mobility of the traveling public. The Balsi Beam is a towed device that protects workers from vehicles in adjacent travel lanes by using a metal beam that acts as a mobile wall between vehicles and the work zone.

A U.S. patent application for the Balsi Beam mobile work zone protection device was filed in April, 2004. US patent #7,125,198 was granted for the device on October 24, 2006.

The Balsi Beam was developed by the California Department of Transportation (Department) as part of the ongoing effort to increase the safety of the Department's workforce and increase the efficiency of the state highway system.

To date, the Department has purchased two prototypes of the Balsi Beam for use in an ongoing pilot project. This project is providing valuable information regarding the effectiveness of the Balsi Beam, the variety of highway work zone scenarios in which it can be deployed, costs of operation and maintenance, and potential for improved design. The first Balsi Beam purchased by the Department was deployed with a bridge maintenance crew in the Sacramento region. The second prototype will also be deployed with a bridge maintenance crew upon deployment.

The Department's primary goal is to create a comprehensive program that increases the overall usage of the Balsi Beam in work zones across the nation. For this, the Department is looking to partner with a select group of qualified vendors who share the Department's vision of improving worker safety through the sale of Balsi Beams to the widest possible market. The mechanism through which this partnership will be created is the granting of non-exclusive licenses for the right to manufacture and sell Balsi Beams. In addition, the Department will select vendors who can bring a variety of post-license services to the effort to expand the Balsi Beam market. This includes the capability to market and distribute the Balsi Beam both nationally and potentially internationally, and the capability to develop design improvements that both increase the safety provided by the Balsi Beam and decrease the cost of manufacturing the Balsi Beam.

In addition to the primary goals of licensing the Balsi Beam to vendors capable of providing market development services, the Department is also conducting a limited purchase of three additional Balsi Beams from a single vendor. These three Balsi Beams will allow the Department to expand the number of crews that have experience with the Balsi Beam and prepare for any future expansion of the Department's Balsi Beam fleet

made possible by the selection of a vendor partner through the license agreement described above.

Lastly, the Department will purchase services directly from the single vendor for providing training and post-deployment support of the three Balsi Beams purchased by the Department. Training services and materials provided by the selected vendor will include both maintenance and basic operational characteristics of the Balsi Beams (the Department will develop training regarding field applications of the Balsi Beams separate from the vendor-provided training). The post-deployment support services provided by the selected vendor will assist in knowledge and skill transfer to Departmental staff and to assist in trouble-shooting unanticipated problems that may arise.

2. Prior Market Survey

In 2007, Cambria Solutions worked with the Division of Research and Innovation to develop a Market Survey and gather information needed to assist the development of the Balsi Beam services acquisition project.

The Market Survey was performed to elicit responses from potential manufacturers, dealers, or distributors who could produce the Balsi Beam and to gather information from qualified vendors on their capabilities as it related to the following Caltrans Objectives:

- Balsi Beam manufacturing and deployment timeline
- Distribution capabilities to both the private and public sector
- Design Improvement for greater marketability, improved safety, and increased cost efficiencies
- Vendor Stability in regard to mitigating deployment risks and legal risks if a vendor should become insolvent.
- Marketing of the Balsi Beam or similar modified equipment in coordination with public institutions and private vendors.

3. Identifying and Preparing Vendors for the Market Survey

Cambria Solutions initially collected potential vendor's information from the Division of Research and Innovation (DRI), work zone safety experts contributing to the California Strategic Highway Safety Implementation Plan, Department of Transportation for New York, the Division of Maintenance, and the Division of Equipment. A final pool of 37 vendors was selected to receive the market survey in a fax or email distribution. Prior to sending out the market survey, Cambria Solutions contacted each of the vendors, identified the vendor contact, and gave a brief summary of the survey focus. The delivery and due dates were also communicated to the vendors to ensure adequate time would be made available to answer questions.

The vendors contacted for the market survey encompassed a broad spectrum of manufacturers. The vendors included large companies providing capital equipment focused on the transportation industry, as well as, smaller manufacturers and dealers focused on truck trailers. Dealers were contacted as well to gain a better understanding of the marketing and distribution capabilities that would often not apply to a truck manufacturer. Listed below are the various types of vendors we contacted with a brief description of their business focus.

- Safety Manufacturers – Firms focused on roadway safety products and equipment. Large firms that have a variety of products ranging from crash cushions to truck-mounted attenuators

- Truck Trailer Manufacturers – Firms focused on truck trailer design, distribution, and manufacturing. The range of companies included small firms with regional distribution networks to large companies with global distribution networks.

- Freight and Equipment Manufacturers – These firms included companies that develop and manufacture large freight trailers, custom highway marking equipment, and other large equipment types.

- Dealers – These companies are not manufacturers but often times have design, testing, and small manufacturing facilities for equipment improvement and commercialization efforts. They deal mainly with the distribution, marketing, and redesign of the equipment and will sub contract a manufacturer for the actual units.

4. Vendor List from Market Survey

The following table is a listing of the 37 vendors contacted for the Market Survey, including whether or not the vendor responded to the survey, whether or not the vendor had manufacturing and/or marketing capabilities, and the market reach of the vendor.

#	Vendor	Respond to Survey	Manufacture Capability	Marketing Capability	Market Availability		
					CA	North Am	Intern'l
1.	Barrier Systems	Yes	Yes	Yes	X	X	X
2.	Harley Murray Inc	Yes	Yes		X		
3.	Edward R. Bacon	Partial	Yes	Yes	X	X	
4.	Energy Absorption (Quixote)	Partial	Yes	Yes	X	X	X
5.	SBIW	No	Yes	No	X	X	
6.	Cozad Trailer Sales Inc	No	Yes		X	X	
7.	Interstate Trailers Inc	No	Yes	Yes		X	
8.	Kassbohrer All Terrain Vehicles, Inc	No	Yes	Yes		X	X
9.	Big Tex Trailers	No	Yes	Yes		X	X
10.	Kiefer Industrial	No	Yes	Yes		X	
11.	Terex-Load King	No	Yes	Yes		X	X
12.	Wabash Trailers	No	Yes	No		X	
13.	Nixon Egall Equipment	No	Yes	No	X	X	
14.	Southwest Enterprises Inc	No	Yes		X	X	
15.	Sebastopol Tractor Co Inc	No	No	No	X		
16.	Global Trailers	No	No	No		X	X
17.	Jacobsen Trailer	No	No	No	X		
18.	Mobile Safety Ag and Industrial Supply	No	No	No	X	X	
19.	Trail Eze Manufacturing	No	No	No		X	
20.	Wilkinson International	No	No	No	X	X	
21.	American Truck and Trailer	No	No	No	X		
22.	Overbuilt Trailer Company	No	No	No		X	
23.	Wesco Trailer Sales	No	No	No	X		
24.	West Coast Pneumatics, Inc	No	No	No	X	X	
25.	Gates Machinery	No	No	No			
26.	Kurit International Trucks	No	No	No	X	X	X
27.	Rogers Brothers Corp	No	No	No		X	
28.	Morgan Corporation	No				X	X

#	Vendor	Respond to Survey	Manufacture Capability	Marketing Capability	Market Availability		
					CA	North Am	Intern'l
29.	Trail King Industries	No				X	
30.	Fluid Tech Hydraulics, Inc	No			X	X	
31.	TrailBoss Trailers, Inc	No				X	
32.	E.D. Entrye & Company	No				X	
33.	Reliance Mfg	No			X	X	
34.	Talbert Manufacturing, Inc	No				X	
35.	TrafFix Devices	No			X	X	
36.	N & S Tractor	No			X		
37.	Kodiak Northwest	No				X	
	37 vendors – <u>All</u> contacted pre survey and during survey period	**Yes – 2 Partial – 2 No – 33**	**Yes – 14 No – 13 Unknown – 10**	**Yes – 8 No – 16 Unknown – 13**	**19**	**30**	**8**

5. Additional Sources of Potential Vendors

The following websites are for organizations whose membership lists are potentially valuable sources of additional vendors to be included in the Balsi Beam RFP vendor list. These organizations are:

The National Association of Trailer Manufacturers:
http://www.natm.com/ComplianceTechnical/CompliantMembers/default.aspx

The American Traffic Safety Services Association (specializing in traffic safety issues):
http://www.atssa.com/cs/atssa-member-websites

In addition, the following website lists the top 30 trailer manufacturers (in terms of numbers of trailers produced):
http://trailer-bodybuilders.com/trailer-output/output/

6. Recommended Vendor List for RFP

In addition to the 37 vendors contacted for the market survey, an additional five vendors have been added to the recommended list below. These five were added based on Caltrans suggestions.

Ref.	Vendor	State
1.	Barrier Systems	California
2.	Harley Murray Inc	California
3.	Edward R. Bacon	California
4.	Energy Absorption (Quixote)	Illinois
5.	SBIW	California
6.	Cozad Trailer Sales Inc	California
7.	Interstate Trailers Inc	Texas
8.	Kassbohrer All Terrain Vehicles, Inc	Nevada
9.	Big Tex Trailers	Texas
10.	Kiefer Industrial	Iowa
11.	Terex-Load King	South Dakota
12.	Wabash Trailers	Indiana
13.	Nixon Egall Equipment	California
14.	Southwest Enterprises Inc	Texas
15.	Sebastopol Tractor Co Inc	California
16.	Global Trailers	Kansas
17.	Jacobsen Trailer	California
18.	Mobile Safety Ag and Industrial Supply	California
19.	Trail Eze Manufacturing	South Dakota
20.	Wilkinson International	California
21.	American Truck and Trailer	Tennessee
22.	Overbuilt Trailer Company	Oklahoma
23.	Wesco Trailer Sales	California
24.	West Coast Pneumatics, Inc	California
25.	Gates Machinery	California
26.	Kurit International Trucks	unknown
27.	Rogers Brothers Corp	Pennsylvania
28.	Morgan Corporation	Pennsylvania
29.	Trail King Industries	South Dakota
30.		
31.	Fluid Tech Hydraulics, Inc	California
32.	TrailBoss Trailers, Inc	Mississippi
33.	E.D. Entrye & Company	Illinois
34.	Reliance Mfg	Washington
35.	Talbert Manufacturing, Inc	Indiana
36.	TrafFix Devices	California
37.	N & S Tractor	California
38.	Kodiak Northwest	Idaho
39.	Fruehauf Trailers	Indiana
40.	Fontaine Trailer	Alabama

Ref.	Vendor	State
41.	Peerless	British Columbia
42.	Applied Research Associates, Inc.	New Mexico
43.	Mobile Barriers, LLC	Colorado

Appendix IV:

Balsi Beam – Intellectual Property, Licensing and Procurement Options

Balsi Beam – Intellectual Property, Licensing & Procurement Options

The table below identifies Intellectual Property and Procurement relationships for proposed Balsi Beam manufacturing. This table is intended as a tool to facilitate discussions, identify procurement alternatives and assist defining licensing parameters.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
1.	**No License / Patent Protected** **Caltrans as sole customer**	Caltrans would offer a competitive bid for the manufacture and delivery of the Balsi Beam device. No intellectual property, licensing, or royalty information would be submitted to the manufacturer. Manufacturers would work under contract and would not be granted a license nor could they sell the Balsi Beam commercially. **Pros** • Quick, straight forward • No additional authorization • No overhead of IP administration (identify, manage, and protect IP[1]) • No need for market survey **Cons** • Balsi Beams available solely to Caltrans • No revenue from License • No recoup of investment by State to design and deploy Balsi Beam • Likely higher costs as no additional units would be	• **IFB** - non IT goods over 50,000 must use a formal solicitation. IFB offers specific requirements to potential vendors[2]	• 41 days (average) • High Duration • Low Duration	• Lower cost • Competitive bidding • Specific requirements can be listed and contract language to specify delivery time	• Timeline – additional legal review may be needed by DPAC or DGS • Formal solicitation is time consuming and is necessary for dollar amount suggested by cost estimates.
			• **Cooperative Multi-State Contract** - WSCA agreements are available to all State of California governmental entities (state agencies, cities, counties, school districts, universities, etc.) that expends public funds for the acquisition of both goods and services[3]	• Unknown	• Availability of Balsi Beam to other States • Competitive Bid process is still done • Local agencies can utilize contract.	• Additional time to coordinate the inclusion of mobile equipment into the WSCA catalog of goods • Additional Authorizations and coordination with WSCA and out of state agencies • Additional work prior to procurement cycle coordinating with WSCA • Likely hood of success with compressed timeline is low

[1] Formal registration of intellectual property, ownership disputes resolution, update of invention assignment agreements, tracking of revenue from sale or licensing, update of terms-of-use agreements.

[2] **PAM 4.B1.0** Solicitations are documents used to request quotes or bids from suppliers and are characterized as either informal or formal. A department's competitive purchasing authority is granted for the dollar value of the solicitation. A department's type of approved purchasing authority, non-IT or IT, and its respective authorized dollar threshold will determine the solicitation format to be prepared and additional related requirements.

[3] WSCA uses a "Lead State" model in issuing cooperative solicitations. One of the WSCA states leads the procurement, issues the solicitation and awards the contracts based on that states statutory requirements and processes. The Lead State owns and manages the contract(s).

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
		sold by manufacturer • Safety benefits limited to CT and not realized by other states, private companies or local agencies • Likely limited vendor response	• **RFP** - Request for Proposal is a solicitation format that is structured like the IFB but allows suppliers to present solutions and improvements.[4]	• 151 days	• Process allows iteration of contract language • Additional improvements could be added to design (generator, water pump) • May allow inclusion of IP language for specifics on licensing and resale of Balsi Beam	• Lengthy process • Does not enforce specifications or time constraints in manufacturing Balsi Beam

[4] An RFP allows buyers to phase their procurement effort by establishing dates for suppliers to provide specified required documents, such as Intent to Bid letter, Conceptual Proposal, Detailed Technical Proposal, Draft Bid, and Final Bid. The RFP requires cost to be submitted in a separately sealed envelope and requires technical and administrative evaluation to occur prior to opening the cost envelope. Cost envelopes will not be opened for bid responses containing material deviations.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
2.	**Public Sector Only License** **Caltrans and other State DOT's as customers**	Caltrans would solicit competitive bids and the selected manufacturer would work under contract and not be granted a license. Caltrans would grant other state DOT's a public-sector-only, free license and they could follow the same procedure in their state. The intellectual property is owned by Caltrans and protected by patent. **Pros** • Quick straight forward • No additional authorization • No overhead of IP administration • Out of state DOT's can purchase the equipment. • Likely larger response than ID#1, larger market and more attractive to vendors **Cons** • Increased costs as no additional units would be sold by manufacturer • No revenue from License	• **IFB** - non IT goods over 50,000 must use a formal solicitation. IFB offers specific requirements to potential vendors[5]	• 41 days (average) • High Duration Low Duration	• Lower cost • Competitive • Specific requirements can be listed and contract language to specify delivery time	• Timeline – additional legal review may be needed by DPAC or DGS • Formal solicitation is time consuming and is necessary for dollar amount suggested by cost estimates.
			• **RFP** - Request for Proposal is a solicitation format that is structured like the IFB but allows suppliers to present solutions and improvements.[6]	• 151 days	• Process allows iteration of contract language • Additional improvements could be added to design (generator, water pump) • May allow inclusion of IP language for specifics on licensing and resale of Balsi Beam	• Lengthy process • Does not enforce specifications or time constraints in manufacturing Balsi Beam

[5] **PAM 4.B1.0** Solicitations are documents used to request quotes or bids from suppliers and are characterized as either informal or formal. A department's competitive purchasing authority is granted for the dollar value of the solicitation. A department's type of approved purchasing authority, non-IT or IT, and its respective authorized dollar threshold will determine the solicitation format to be prepared and additional related requirements.

[6] An RFP allows buyers to phase their procurement effort by establishing dates for suppliers to provide specified required documents, such as Intent to Bid letter, Conceptual Proposal, Detailed Technical Proposal, Draft Bid, and Final Bid. The RFP requires cost to be submitted in a separately sealed envelope and requires technical and administrative evaluation to occur prior to opening the cost envelope. Cost envelopes will not be opened for bid responses containing material deviations.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
		• No recoup of investment by State to design and deploy Balsi Beam	• **Cooperative Multi-State Contract** - WSCA agreements are available to all State of California governmental entities (state agencies, cities, counties, school districts, universities, etc.) that expends public funds for the acquisition of both goods and services	• Unknown	• Availability of Balsi Beam to other States • Competitive Bid process is still done • Local agencies can utilize contract.	• Additional time to coordinate the inclusion of mobile equipment into the WSCA catalog of goods • Additional Authorizations and coordination with WSCA and out of state agencies • Additional work prior to procurement cycle coordinating with WSCA • Likely hood of success with compressed timeline is low

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
4.	**Exclusive License Agreement** (Limited Sole Source)	Grant a unique license with a manufacturer for 7 year procurement. Include requirement that 3 separate distributors be used which will allow NCB process to be circumvented. **Pros** • Allows one party for license negotiation and legal agreements • revenue from License • Potential recoup of investment by State to design and deploy Balsi Beam **Cons** • Locked in to one manufacturer • Limits other states with NCB rule	• **Non-Competitive Bid** (Sole Source) – are limited solicitation devices where proposed acquisition of goods can only be provided by a sole supplier.[11]	• TBD	• One supplier limits legal and licensing scope	• Locked in to one manufacturer • Limits other states with NCB rules • More complicated then setting price for multiple parties to manufacture • NCB contract justification needed to contract
			• **NCB: SCR (Special Category NCB Contract Request** – A special Category NCB Contract Request (SCR) represents categories of contracts for the purchase of goods that has specific time constraints and is critical to departments program objectives.[12]	• TBD	•	• Locked in to one manufacturer • Limits other states with NCB rules • More complicated then setting price for multiple parties to manufacture • NCB contract justification needed to contract • Contract Advertising Exception STD.821) for non-IT or IT Goods

[7] Department Determines a need to acquire a product from a supplier who is the only known source. Completes an NCB contract justification, securing approval signatures from the Agency Secretary and Department Director or next highest-ranking official for each level

[8] **PAM 4.B1.0** Solicitations are documents used to request quotes or bids from suppliers and are characterized as either informal or formal. A department's competitive purchasing authority is granted for the dollar value of the solicitation. A department's type of approved purchasing authority, non-IT or IT, and its respective authorized dollar threshold will determine the solicitation format to be prepared and additional related requirements.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
			• **RFP** - Request for Proposal is a solicitation format that is structured like the IFB but less structured allowing suppliers to present solutions.[9]	• 151 days	• More manufactures are allowed in the process • Lower Cost from bidders • Process allows iteration of contract language • Additional improvements could be added to design (generator, water pump)	• Lengthy process • Does not enforce specifications or time constraints in manufacturing Balsi Beam
			• **NCB: SCR (Special Category NCB Contract Request** – A special Category NCB Contract Request (SCR) represents categories of contracts for the purchase of goods that has specific time constraints and is critical to departments program objectives. [10]	• TBD	• Allows quality of service and not lowest bidder to dictate vendor • Meets statutory requirement of non-gift of State monies	• Timeline is impacted – 6 months to 1 year for justification • Justification of only one manufacture highly unlikely. • Locked in to one manufacturer • Limits other states with NCB rules

[9] An RFP allows buyers to phase their procurement effort by establishing dates for suppliers to provide specified required documents, such as Intent to Bid letter, Conceptual Proposal, Detailed Technical Proposal, Draft Bid, and Final Bid. The RFP requires cost to be submitted in a separately sealed envelope and requires technical and administrative evaluation to occur prior to opening the cost envelope. Cost envelopes will not be opened for bid responses containing material deviations.

[10] **PAM 5.4.0** A special Category NCB Contract Request (SCR) represents categories of contracts for the purchase of goods or services necessary to achieve a department's program objectives in a timely manner, where DGS has determined in advance and in writing , that for a specific type of category of goods or services there is no viable completion, or that due to critical time requirements such competition cannot be completed by the exercise of reasonable efforts prior to the time such goods or services are required.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
4.	**Exclusive License Agreement** (Limited Sole Source)	Grant a unique license with a manufacturer for 7 year procurement. Include requirement that 3 separate distributors be used which will allow NCB process to be circumvented. **Pros** • Allows one party for license negotiation and legal agreements • revenue from License • Potential recoup of investment by State to design and deploy Balsi Beam **Cons** • Locked in to one manufacturer • Limits other states with NCB rule	• **Non-Competitive Bid** (Sole Source) – are limited solicitation devices where proposed acquisition of goods can only be provided by a sole supplier.[11]	• TBD	• One supplier limits legal and licensing scope	• Locked in to one manufacturer • Limits other states with NCB rules • More complicated then setting price for multiple parties to manufacture • NCB contract justification needed to contract
			• **NCB: SCR (Special Category NCB Contract Request** – A special Category NCB Contract Request (SCR) represents categories of contracts for the purchase of goods that has specific time constraints and is critical to departments program objectives.[12]	• TBD	•	• Locked in to one manufacturer • Limits other states with NCB rules • More complicated then setting price for multiple parties to manufacture • NCB contract justification needed to contract • Contract Advertising Exception STD.821) for non-IT or IT Goods

[11] Department Determines a need to acquire a product from a supplier who is the only known source. Completes an NCB contract justification, securing approval signatures from the Agency Secretary and Department Director or next highest-ranking official for each level.

[12] **PAM 5.4.0** A special Category NCB Contract Request (SCR) represents categories of contracts for the purchase of goods or services necessary to achieve a department's program objectives in a timely manner, where DGS has determined in advance and in writing , that for a specific type of category of goods or services there is no viable completion, or that due to critical time requirements such competition cannot be completed by the exercise of reasonable efforts prior to the time such goods or services are required.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
5.	**Non-Exclusive, Royalty-Based License**	Variation on open license schema with standard terms and conditions, attaching a royalty rate to it rather then allowing free usage. **Pros** • Increase likelihood of several suppliers and greater quantity of units being built • Recuperation of money to the stat through royalties **Cons** • No revenue from License	• **IFB** - non IT goods over 50,000 must use a formal solicitation. IFB offers specific requirements to potential vendors[13]	• 41 days (average) • High Duration • Low Duration	• Specific requirements can be listed and contract language to specify delivery time. • Competitive Bid non-sole source • Lower cost via competitive process.	• Formal solicitation is time consuming and is necessary for dollar amount suggested by cost estimates. • Quality of vendor may be less
			• **RFP** - Request for Proposal is a solicitation format that is structured like the IFB but allows suppliers to present solutions and improvements.[14]	• 151 days	• Process allows iteration of contract language • Additional improvements could be added to design (generator, water pump) • May allow inclusion of IP language for specifics on licensing and resale of Balsi Beam	• Lengthy process • Does not enforce specifications or time constraints in manufacturing Balsi Beam

[13] **PAM 4.B1.0** Solicitations are documents used to request quotes or bids from suppliers and are characterized as either informal or formal. A department's competitive purchasing authority is granted for the dollar value of the solicitation. A department's type of approved purchasing authority, non-IT or IT, and its respective authorized dollar threshold will determine the solicitation format to be prepared and additional related requirements.

[14] An RFP allows buyers to phase their procurement effort by establishing dates for suppliers to provide specified required documents, such as Intent to Bid letter, Conceptual Proposal, Detailed Technical Proposal, Draft Bid, and Final Bid. The RFP requires cost to be submitted in a separately sealed envelope and requires technical and administrative evaluation to occur prior to opening the cost envelope. Cost envelopes will not be opened for bid responses containing material deviations.

ID	Intellectual Property and Licensing		Procurement Approach			
	Category	Description	Procurement Approach	Estimated Time	Benefits	Cons
6	Free Open License	To stimulate investment with free licensing allowing as many manufactures as possible to get involved mitigating risk associated with a new design and market: **Pros** • Increase likelihood of several suppliers responding • Lower price • Greater quantity of units being built and shorter production schedule **Cons** • Considered "gift of state funds" • No recoup of investment by State to design and deploy Balsi Beam	• **IFB** - non IT goods over 50,000 must use a formal solicitation. IFB offers specific requirements to potential vendors[15]	• 41 days (average) • High Duration • Low Duration	• Lower cost • Competitive • Specific requirements can be listed and contract language to specify delivery time	• Timeline – additional legal review may be needed by DPAC or DGS • Formal solicitation is time consuming and is necessary for dollar amount suggested by cost estimates.
			• **RFP** - Request for Proposal is a solicitation format that is structured like the IFB but allows suppliers to present solutions and improvements.[16]	• 151 days	• Process allows iteration of contract language • Additional improvements could be added to design (generator, water pump) • May allow inclusion of IP language for specifics on licensing and resale of Balsi Beam	• Lengthy process • Does not enforce specifications or time constraints in manufacturing Balsi Beam

[15] **PAM 4.B1.0** Solicitations are documents used to request quotes or bids from suppliers and are characterized as either informal or formal. A department's competitive purchasing authority is granted for the dollar value of the solicitation. A department's type of approved purchasing authority, non-IT or IT, and its respective authorized dollar threshold will determine the solicitation format to be prepared and additional related requirements.

[16] An RFP allows buyers to phase their procurement effort by establishing dates for suppliers to provide specified required documents, such as Intent to Bid letter, Conceptual Proposal, Detailed Technical Proposal, Draft Bid, and Final Bid. The RFP requires cost to be submitted in a separately sealed envelope and requires technical and administrative evaluation to occur prior to opening the cost envelope. Cost envelopes will not be opened for bid responses containing material deviations.

			• **Cooperative Multi-State Contract** - WSCA agreements are available to all State of California governmental entities (state agencies, cities, counties, school districts, universities, etc.) that expends public funds for the acquisition of both goods and services[17]	• Unknown	• Availability of Balsi Beam to other States • Competitive Bid process is still done • Local agencies can utilize contract.	• Additional time to coordinate the inclusion of mobile equipment into the WSCA catalog of goods • Additional Authorizations and coordination with WSCA and out of state agencies

[17] WSCA uses a "Lead State" model in issuing cooperative solicitations. One of the WSCA states leads the procurement, issues the solicitation and awards the contracts based on that states statutory requirements and processes. The Lead State owns and manages the contract(s)

Appendix V:

Scope of Work (SOW) and Evaluation Plan for the Balsi Beam Mobile Work Zone Protection Device

Scope of Work (SOW) and Evaluation Plan for the Balsi Beam Mobile Work Zone Protection Device

Submitted by:
California Center for Innovative Transportation (CCIT) /
Cambria Solutions, Inc. (Cambria)

Originally published June 16, 2008

Table of Contents

1. Project Description

The "Balsi Beam" Mobile Work Zone Protection Device is a recent, innovative piece of equipment designed to increase the safety of highway workers and increase the mobility of the traveling public. The Balsi Beam is a towed device that protects workers from vehicles in adjacent travel lanes by using a metal beam that acts as a mobile wall between vehicles and the work zone.

A U.S. patent application for the Balsi Beam mobile work zone protection device was filed in April, 2004. US patent #7,125,198 was granted for the device on October 24, 2006.

The Balsi Beam was jointly developed by the California Department of Transportation (Department) and the University of California at Davis Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center as part of the ongoing effort to increase the safety of the Department's workforce and increase the efficiency of the state highway system.

To date, the Department has purchased two prototypes of the Balsi Beam for use in an ongoing pilot project. This project is providing valuable information regarding the effectiveness of the Balsi Beam, the variety of highway work zone scenarios in which it can be deployed, costs of operation and maintenance, and potential for improved design. The first Balsi Beam purchased by the Department was deployed with a bridge maintenance crew in the Sacramento region. The second prototype will also be deployed with a bridge maintenance crew upon deployment.

Currently, the Department's primary goal is to partner with a vendor who shares the Department's vision of improving worker safety through the sale of Balsi Beams to the widest possible market. The mechanism through which this partnership will be created is the granting of an exclusive license of the right to manufacture and sell Balsi Beams. This RFP is designed to achieve this partnership and licensing agreement. In addition, the Department will select a vendor who can bring a variety of post-license services to the effort to expand the Balsi Beam market. This includes the capability to market and distribute the Balsi Beam both nationally and potentially internationally, and the capability to develop design improvements that both increase the safety provided by the Balsi Beam and decrease the cost of manufacturing the Balsi Beam.

Additionally, the Department will purchase services directly from the selected vendor for providing training and post-deployment support of Balsi Beams purchased by the Department. Training services and materials provided by the selected vendor will include both maintenance and basic operational characteristics of the Balsi Beam (the Department will develop training regarding field applications of the Balsi Beam separate

from the vendor-provided training). The post-deployment support services provided by the selected vendor will assist in knowledge and skill transfer to Departmental staff and to assist in trouble-shooting unanticipated problems that may arise.

Lastly, in addition to the primary goals of licensing the Balsi Beam to a vendor capable of providing market development services, and purchasing training and support services directly from the vendor, this RFP also includes a limited purchase of three additional Balsi Beams. These three Balsi Beams will allow the Department to expand the number of crews that have experience with the Balsi Beam and prepare for any future expansion of the Department's Balsi Beam fleet made possible by the selection of a vendor partner through the license agreement described above.

2. Vendor Tasks and Responsibilities

The Balsi Beam was developed with by the Department and AHMCT with the goal of having the greatest possible beneficial impact to highway worker safety. To achieve this, a market beyond the Department's work force must be reached through a comprehensive marketing and distribution effort. As such, the primary aim of the Department through this RFP is to partner with a vendor who provides services necessary to reach the widest possible market for the Balsi Beam. The partnership will be formalized in the licensing agreement between the Department and the selected vendor. The Balsi Beam license will describe the required services that the selected vendor must be able to provide to ensure the widest possible beneficial impact of the Balsi Beam.

Services to be Provided by Vendor

The following services are essential to achieving the Department's goals, but will not be purchased by the Department as part of this RFP. Instead, they are seen as inherent capabilities of a qualified vendor that will pursue an increasing market for the Balsi Beam through an effective marketing campaign, extensive distribution capabilities, and the desire to develop design improvements to the Balsi Beam. Through this RFP, the Department is offering a vendor the opportunity to benefit from increasing sales of the Balsi Beam while at the same time meeting the Department's goal of achieving the greatest possible beneficial impact for highway worker safety. As such, they will be part of the license agreement and should be an inherent part of the selected vendor's action plan.

- Marketing – The selected vendor must meet the state's goals of creating an increasing customer base both nationally and internationally through a consistent and comprehensive effort to market the Balsi Beam to achieve the following results:

- Increase the demand for the Balsi Beam;
- Identify potential users outside of the Department.

- Distribution – The selected vendor must distribute Balsi Beams to any market in which the vendor establishes a customer base.

- Design Improvements – The vendor must actively seek to improve the design of the Balsi Beam. In particular, the selected vendor will identify and incorporate improvements to the current Balsi Beam design that:
  - Improve the design of the Balsi Beam's safety features to provide for increased highway worker safety;
  - Create production efficiencies in the manufacturing process and therefore lowers costs of the Balsi Beam.

- Manufacturing and Delivery – The vendor must meet the Department's and other customers' needs for quality, quantity, and timeliness in both manufacturing and delivery of the Balsi Beam. For Balsi Beams purchased by the Department, this must include the following:
  - Warranty: The unit and any optional accessory shall be free from defects in workmanship and materials and be covered (parts and labor) under warranty for one (1) year following the date the Department of Transportation (Caltrans) puts the unit into service.

- In-Process Review: The unit(s) may require an in-process review to verify timely progress of construction of the unit(s) and to ascertain compliance with the intent of the specifications and drawings

- Inspection: This order will require a two (2) phase inspection process.
  - **First Phase** (pre-delivery inspection): Each unit will be inspected prior to shipment to the destination.
  - **Second Phase** (final inspection): Each unit will have a final inspection at its delivery destination.

- Delivery: Inspection, delivery, and final acceptance of all units on the Purchase Order shall be within 150 calendar days after the Purchase Order date.

The Department will be purchasing the following services as part of the RFP:

- Build and deliver three Balsi Beams to the Department – The vendor will manufacture and deliver three Balsi Beams in accordance with timelines established in this RFP. This includes allowances for the Department's pre-delivery inspections. Delivery will not be considered complete until the Department formally accepts the Balsi Beams.

- Training – Vendors must provide training services to train Department staff on the proper operation and maintenance of the Balsi Beam. This includes the development of training materials such as operations and maintenance manuals, and coordination with the Department's change management efforts. Training will be provided immediately following delivery and acceptance of each BB to the assigned Department bridge maintenance field crews and responsible Division of Equipment staff. Training will be "hands-on" and "on-site" using the Balsi Beam unit delivered for the field crew's use.

- Post-deployment support – The vendor must provide post-deployment services to customer staff to respond to unanticipated issues and user questions not addressed by the training and document proposed changes to the design and use of the Balsi Beam. Post-deployment support must be provided for six months following completion of training on each Balsi Beam.

During the term of the license agreement, the vendor will be required to meet the following work standards:

- Ensure that all subcontractors (for marketing, distribution, design improvements, training, and any other subcontractors working with the vendor) comply by terms and conditions of the contract and licensing agreement;

- Maintain consistent and timely communication with the state's Balsi Beam project manager, including the timely submission of project status reports as required by the Department.

- Ensure that all agreements with other customers regarding manufacturing quality standards, pre-delivery inspection, and delivery acceptance are satisfied as per agreements between the vendor and other customers.

Timeline:

The vendor is required to produce a project timeline which describes in detail when important project milestones will be completed. The following table describes the proposed timeline for the Balsi Beam project described in this RFP:

Item	Timeline	Description
Establishment and term of Exclusive Licensing Agreement	September 1, 2009 to August 31, 2016	Establishment of licensing agreement and partnership between the Department and selected vendor.
Post-License Services Implementation	September 1, 2009 to August 31, 2016	Vendor implementation of plans to deliver marketing, distribution, and design improvement services to establish expanded market for Balsi Beams.
Balsi Beam Manufacturing and Delivery services	September 1, 2009 to June 30, 2010	Vendor manufacture and delivery of first three Department Balsi Beams. Vendor begins manufacturing and delivery services for additional Department orders and any other customers who have ordered Balsi Beams.
Training Services	Training to be provided immediately following the delivery of each of the three Balsi Beams.	The vendor provides training services to Department staff on the proper operation and maintenance of the Balsi Beam as part of the knowledge transfer from vendor staff to state staff.
Post-Deployment Support Services	Support to be provided for six months following the completion of training for each Balsi Beam.	The vendor provides Post-Deployment support services to Departmental staff on issues and problems that arise following deployment.

3. Deliverables

The vendor will be responsible for the following deliverables:

Deliverable	Deliverable Description	Due Date
Project Work Plan	The vendor will propose a timeline to meet required schedule for: • delivery of three Balsi Beams to the Department, • providing training and post-deployment support, • implementing marketing and distribution plan • implementing design improvement plan	X weeks following commencement of contract
Marketing and Distribution Plan	A marketing and distribution plan describing how and when the vendor will accomplish the Department's goals of marketing and selling the Balsi Beam as widely as possible.	X weeks following commencement of contract
Design Improvement Plan	A design improvement plan outlining the potential for improving the Balsi Beam design to improve safety and achieve manufacturing efficiencies	X weeks following commencement of contract
Training and Support Plan	Training and support plans to provide training and support services to Department staff.	X weeks following

		commencement of contract
Training and Support Materials	Training and Support materials related to the Training and Support services to be delivered.	May 1, 2010
Training and Support	Delivery of Training and support;	Immediately following delivery of each Balsi Beam
Three Balsi Beams	Delivery of first three Balsi Beams, including preliminary and final inspections by Department staff;	June 30, 2010
Annual Progress Report	Annual report of progress on meeting timeline and plans mentioned above.	January 1 of each year of License Agreement
Annual Disclosure of Sales	Annual disclosure of sales;	January 1 of each year of License Agreement
IP License Fee Payment	Timely delivery of annual IP license fee payment to the Department as outlined in licensing agreement.	As per Licensing Agreement

4. Vendor Evaluation Plan

The Balsi Beam Vendor Evaluation Plan will use a variety of scoring methodologies applied to numerous Evaluation Categories, Criteria and Factors. Below is a chart displaying the various Categories and Criteria to be used in the Evaluation Plan. Below the chart is a general description of the scoring methodologies employed in the Evaluation Plan.

Vendor Evaluation Categories and Criteria:

The following table shows all of the Vendor Evaluation Categories (in gray) and the related Criteria that will be part of the evaluation scoring process. The Scoring Methodology for each Criterion is indicated by the color shading, which is explained in the following Scoring Methodology Key:

Scoring Methodology Key:

Benchmark Scoring	Threshold Scoring	**Qualitative Assessment**	**Pass/Fail**

Evaluation Plan Categories and Criteria

PHASE I Admin	PHASE II – TECHNICAL PROPOSAL				PHASE III IP	PHASE IV COST
Administrative Requirements (Pass/Fail)	**Vendor Capabilities 15%**	**Vendor Attributes 10%**	**Vendor Approach 20%**	**Vendor Qualifications 5%**	**License Agreement 20%**	**Cost 30%**
Comply with DGS Procurement Requirements	Manufacturing	Years in Business	Manufacturing	Key Personnel	IP License Fee (in context of FMV)	Unit Cost
Completeness of Proposal	Delivery – Initial	Annual Revenue	Delivery	References		Training Cost
Bondability	Delivery - Ongoing	Test Crash Facility Availability	Marketing			Post Deployment Support Cost
Warranties	Training	# of existing potential customers	Distribution			
Confidentiality Statement	Post-Development Support		Design Improvements			
Allow Pre-Award Audit	Marketing		Timeline			
	Distribution					
	Design Improvements					

Scoring Methodologies

Benchmark Scoring: This methodology compares the "Benchmark" or most favorable bid (from the state's point of view) with the bid under consideration and awards points based on the % of most favorable bid. For example, in bids related to increased cost to the state (e.g. purchase of Balsi Beams):

Possible points: 100

Benchmark/Most Favorable Bid (lowest cost to state): $1000
Alternative Bid: $1500

Formula: $\frac{\text{Possible Points} * \text{Most Favorable Bid}}{\text{Alternative Bid}} = \text{Points Scored}$

$\frac{100 * 1000}{1500} = 67$ *Points Scored for Alternate Bid*

Alternatively, when the criteria is related to increased revenue to the state (e.g. selling IP licenses):

Possible points: 100
Benchmark/Most Favorable Bid (highest revenue to state): $1000
Alternative Bid: $500

Formula: $\frac{\text{Possible Points} * \text{Alternative Bid}}{\text{Most Favorable Bid}} = \text{Points Scored}$

$\frac{100 * 500}{1000} = 50$ *Points Scored for Alternate Bid*

Threshold Scoring: This methodology is used when a scale with identified thresholds is used to determine scores associated with each threshold. The following example for marketing uses geographic thresholds to determine points awarded:
Marketing Thresholds Levels Table

Threshold – Geographic	Points Awarded
International (beyond North America)	50
North America (US + Canada or Mexico)	40
= or > 20 states	30
< 20 states	20
California	10
None	0

Qualitative Determination: This scoring methodology is dependent upon the quality of the vendor response to evaluation criteria requesting a description of a vendor characteristic, service, proposal, or plan. Scoring will be based upon a variety of predetermined factors that will be combined into a total score for each criterion. An example of a Qualitative Determination scoring scale is:

Criteria A (Total Possible Points = 25)

Factor	Vendor Factor Rating[1]	Weight of Factor[2]	Total Vendor Rating[3]	Total Possible Rating[4]	Vendor %[5]	Possible Criteria Points[6]	Vendor Criteria Points[7]
Factor 1	5	1.00	5	5		N/A	N/A
Factor 2	4	0.50	2	2.50		N/A	N/A
Factor 3	3	0.25	0.75	1.25		N/A	N/A
Factor 4	2	0.75	1.50	3.75		N/A	N/A
Factor 5	1	1.00	1	5		N/A	N/A
Total	N/A	N/A	10.25	17.50	59%	25	14.6

Notes:

1) Factor Rating is on a scale of 0 to 5 (with 5 representing the best rating);
2) Weight of each factor is on a scale of 0 to 1;
3) Total Vendor Rating = Rating * Weight;
4) Total Possible Rating = Weight * 5;
5) Vendor % = ratio of Vendor Rating to Possible rating;
6) Possible Criteria Points is shown above with the Criteria description;
7) Vendor Criteria Points equals Vendor % * Possible Criteria Points

- Vendor scores 10.25 out of 17.5 on rating, or 59%.
- 59% of 25 total possible points for “Criteria A” is 14.6 points
- Vendor scores 14.6 points for “Criteria A”

Pass/Fail Scoring: This scoring methodology is used for those criteria where there is no scale or threshold. Vendors’ responses will be judged to either meet the criteria or not. Depending on the criticality of the criteria, a “Fail” score may be grounds for disqualification.

Appendix VI:

Vendor Evaluation Plan

Vendor Evaluation Plan

The Balsi Beam Vendor Evaluation Plan will use a variety of scoring methodologies applied to numerous Evaluation Criteria and sub-criteria. Below is a general description of the scoring methodologies employed in the Evaluation Plan, and a listing of the various criteria and sub-criteria that will be used to evaluate vendors (along with the criteria description and related scoring methodology).

Scoring Methodologies

Benchmark Scoring: This methodology compares the "Benchmark" or most favorable bid (from the state's point of view) with the bid under consideration and awards points based on the % of most favorable bid. For example, in bids related to increased cost to the state (e.g. purchase of Balsi Beams):

Possible points: 100
Benchmark/Most Favorable Bid (lowest cost to state): $1000
Alternative Bid: $1500

Formula: $\frac{\text{Possible Points} * \text{Benchmark Bid}}{\text{Vendor's Bid}} = \text{Points Scored}$

$$\frac{100 * 1000}{1500} = 67 \text{ Points Scored for Alternate Bid}$$

Threshold Scoring: This methodology is used when a scale with identified thresholds is used to determine scores associated with each threshold. The following example for marketing uses geographic thresholds to determine points awarded:

Marketing Thresholds Levels Table

Threshold – Geographic	Points Awarded
International (beyond North America)	50
North America (US + Canada or Mexico)	40
= or > 20 states	30
< 20 states	20
California	10
None	0

Qualitative Determination: This scoring methodology is dependent upon the quality of the vendor response to evaluation criteria requesting a description of a vendor characteristic, service, proposal, or plan. Scoring will be based upon a variety of

predetermined factors that will be combined into a total score for each criterion. An example of a Qualitative Determination scoring scale is:

Criteria A (Total Possible Points = 20)

Factor	Vendor Factor Rating[1]	Weight of Factor[2]	Total Vendor Rating[3]	Total Possible Rating[4]
Factor 1	4	1.00	4	5
Factor 2	4	0.25	1	1.25
Factor 3	2	1.00	2	5
Factor 4	4	0.75	.75	3.75
Factor 5	5	1.00	5	5
Total	N/A	N/A	12.75	20.00

Notes:

8) Factor Rating is on a scale of 0 to 5 (with 5 representing the best rating);
9) Weight of each factor is on a scale of 0 to 1;
10) Total Vendor Rating = Rating * Weight;
4) Total Possible Rating = Weight * 5;

Vendor scores 12.75 out of 20

Pass/Fail Scoring: This scoring methodology is used for those criteria where there is no scale or threshold. Vendors' responses will be judged to either meet the criteria or not. Depending on the criticality of the criteria, a "Fail" score may be grounds for disqualification.

Vendor Evaluation Categories and Criteria:

The following table shows all of the Vendor Evaluation Categories and the related Criteria that will be part of the evaluation scoring process. Each criterion will be assigned a point value as explained in the narrative below the chart. The Scoring Methodology for each Criterion is indicated by the color shading, which is explained in the following Scoring Methodology Key:

Benchmark Scoring	Threshold Scoring	Qualitative Assessment	Pass/Fail

Administrative Requirements	Vendor Capabilities	Vendor Attributes	Vendor Approach	Vendor Qualifications	Cost
Comply with DGS Procurement Requirements	Marketing	Years in Business	Timeline	Key Personnel	Unit Cost
Completeness of Proposal	Distribution	Annual Revenue	Marketing	References	Training and Support Cost
Bondability	Design Improvements	Test Crash Facility Availability	Distribution		
Warranties	Manufacturing	# of Existing Potential Customers	Design Improvements		
Confidentiality Statement	Delivery - Ongoing		Manufacturing		
Indemnification	Training and Support		Delivery – Initial		
IP License Fee $19,000			Delivery - Ongoing		
			Opportunities and Risks		

There are 1,000 total points possible in the Vendor Evaluation. These points will be spread across the following categories (bold/underline items) and criteria (bulleted items) in the amounts shown for each. Below each criterion is the Scoring Methodology used for the criterion, and the various Factors that are included in the Scoring Methodology.

Administrative Requirements (0 points)

These criteria evaluate the ability of the vendor to fulfill certain administrative requirements.

Requirement	Description	Pass or Fail
Comply with all DGS Procurement Requirements	This item measures the degree to which the vendor proposal complies with all relevant DGS procurement requirements.	
Completeness of proposal	This item measures the degree to which the vendor proposal contains all required elements as stated in the RFP.	

Bondability	This item measures the degree to which the vendor is bondable as required by the RFP.	
Warranties	This item measures the degree to which the vendor proposal contains warranties as required in the RFP.	
Confidentiality Statement	This item measures the degree to which the vendor proposal contains required confidentiality statements.	
Indemnification	This item identifies whether or not the vendor will indemnify the state.	
IP License Fee	This item confirms that the vendor accepts the state's predetermined IP license fee.	

Vendor Capabilities (225 points)

These criteria evaluate the ability of the vendor to provide the essential, non-cost elements of the Balsi Beam procurement. Determining these capabilities is vital to selecting a vendor that can ensure that the Balsi Beam has the widest possible impact.

- Marketing (50 points) – This item measures the ability of the vendor to expand the market for the Balsi Beam to the greatest extent possible. Vendors will provide the current geographical coverage of their marketing capabilities in terms of the states and countries (if applicable) in which the vendor currently markets their products.

    - The "*Threshold Scoring*" methodology will be used to evaluate vendors for this item based on the states and/or countries in which the vendor currently markets its products.

        - *Factor 1*: List of states currently covered by vendor's marketing capabilities.

        - *Factor 2*: List of countries, other than the United States, currently covered by vendor's marketing capabilities.

        - *Factor 3*: Threshold Levels Table.

Marketing Thresholds Levels Table

Threshold – Geographic	Points Awarded
International (beyond North America)	50
North America (US + Canada or Mexico)	40
= or > 20 states	30
< 20 states	20
California	10
None	0

- Distribution (50 points) - This item measures the ability of the vendor to distribute the Balsi Beam to the greatest extent possible. Vendors will provide the current geographical coverage of their distribution capabilities in terms of the states and countries (if applicable) in which the vendor currently distributes their products.

    - The "*Threshold Scoring*" methodology will be used to evaluate vendors for this item based on the states and/or countries in which the vendor currently distributes its products.

        - *Factor 1*: List of states currently covered by vendor's distribution capabilities.

        - *Factor 2*: List of countries, other than the United States, currently covered by vendor's distribution capabilities.

        - *Factor 3*: Threshold Levels Table.

Distribution Thresholds Levels Table

Threshold – Geographic	Points Awarded
International (beyond North America)	50
North America (US + Canada or Mexico)	40
= or > 20 states	30
< 20 states	20
California	10
None	0

- Design Improvements (50 points) – This item measures the ability of the vendor to develop, design, and implement improvements to the current design of the Balsi Beam. It is anticipated that over time, design improvements will lead to improvements in the safety characteristics of the Balsi Beam and also create manufacturing efficiencies that will reduce costs.

- The "*Qualitative Determination*" scoring methodology will be used evaluate vendors for this item based on the vendor's current design improvement capabilities and past experience.

    - *Factor 1*: Will the vendor follow Caltrans design standards when proposing and implementing changes to the Balsi Beam design?

    - *Factor 2*: Will the vendor seek Caltrans approval before implementing any design changes to the Balsi Beam?

    - *Factor 3*: Does the vendor demonstrate a thorough knowledge of safety equipment design principles?

    - *Factor 4*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	3		15
Factor 2	0 to 5	3		15
Factor 3	0 to 5	4		20
Total	N/A	N/A		50

- Manufacturing (25 points) – This item measures the manufacturing capacity of the vendor in # of units completed annually. Only those units categorized as "trailers" or "xxxxx" will be included in the annual production unit total.

    - The "*Benchmark Scoring*" methodology will be used to evaluate vendors for this item based on the vendors stated annual production unit total. The Benchmark Scoring formula is:

      $$\frac{\textit{Possible Points} * \textit{Vendor Bid}}{\textit{Benchmark Bid}} = \textit{Points Scored}$$

        - *Factor 1*: Vendor's annual production

        - *Factor 2*: "Benchmark" annual production – the most favorable (highest) annual production of all vendors evaluated.

        - *Factor 3*: Total points possible.

- Delivery - Ongoing (25 points) – This item measures the timeliness of the vendor to deliver ordered Balsi Beam units to customers on an ongoing basis. Vendors

will provide a time period that will be required to deliver a Balsi Beam after receiving an order from a customer. This includes the period necessary for a customer to inspect and approve each of the units.

- The "*Threshold Scoring*" methodology will be used to evaluate vendors for this item based on the amount of time proposed by the vendor.
    - *Factor 1*: Length of time estimated by vendor to deliver Balsi Beams to customers.
    - *Factor 2*: Threshold Levels Table.

Delivery-Ongoing Thresholds Levels Table

Length of Time	Points Awarded
Less than six months	25
Six months to nine months	20
Nine months to one year	15
One year to 15 months	10
15 months to 18 months	5
More than 18 months	0

- Training and Support (25 points) – This item measures the capabilities of the vendor to complete required maintenance and operation training and support following the delivery of a Balsi Beam.
    - The "*Qualitative Determination*" scoring methodology will be used evaluate vendors for this item based on the vendor's current training and support capabilities and past experience.
        - *Factor 1*: Does the vendor have current capabilities to provide customer training and support for maintenance and operation of its equipment?
        - *Factor 2*: How many customers have received training and support from the vendor in the past year?
        - *Factor 3*: How many years of experience does the vendor have in providing training and support for equipment maintenance and operations?
        - *Factor 4*: Will the vendor offer training and support on-site at the customer's place of business?

- *Factor 5*: What modes of training does the vendor offer? (i.e. hands-on field training, classroom training with manuals, simulators, etc).

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	2		10
Factor 2	0 to 5	1		5
Factor 3	0 to 5	0.5		2.5
Factor 4	0 to 5	1		5
Factor 5	0 to 5	0.5		2.5
Total	N/A	N/A		25

Vendor Attributes (100 points)

These criteria evaluate various vendor characteristics vital to establishing the ability of the vendor to successfully implement the Balsi Beam project.

- Years in Business (25 points) – This item is one measure of the vendor's stability and likelihood to be in business for the length of time needed to develop extensive markets for the Balsi Beam and manufacture and deliver Balsi Beams for the length of the licensing agreement (seven years).

  - The "Benchmark Scoring" methodology will be used to evaluate vendors for this item based on the length of time that the vendor has existed. The Benchmark Scoring formula is:

    $$\frac{\textit{Possible Points} * \textit{Vendor Bid}}{\textit{Benchmark Bid}} = \textit{Points Scored}$$

    - *Factor 1*: Vendor's number of years in business (rounded to the nearest whole number – to be confirmed by pre-award audit mentioned above);

    - *Factor 2*: "Benchmark" number of years in business – the most favorable (highest) number of years in business of all vendors evaluated.

    - *Factor 3*: Total points possible.

- Annual Revenue (25 points) - This item is one measure of the vendor's stability and financial capability to produce the Balsi Beams for the state and to market, distribute, and produce Balsi Beams for other customers.

    - The "*Benchmark Scoring*" methodology will be used to evaluate vendors for this item based on the vendor's annual revenue. The Benchmark Scoring formula is:

        $$\frac{\textit{Possible Points} * \textit{Vendor Bid}}{\textit{Benchmark Bid}} = \textit{Points Scored}$$

        - *Factor 1*: Vendor's annual revenue (to be confirmed by pre-award audit mentioned above);

        - *Factor 2*: "Benchmark" annual revenue – the most favorable (highest) annual revenue of all vendors evaluated.

        - *Factor 3*: Total points possible.

- Test Crash Facility Availability (25 points) - This item measures the vendor's capability to test any design improvements to the Balsi Beam at an available test crash facility.

    - The "*Threshold Scoring*" methodology will be used to evaluate vendors for this item based on whether or not the vendor has access to a qualified test crash facility.

        - *Factor 1*: Does the vendor have access to a test crash facility? If yes, then the vendor receives 25 points. If no, then the vendor receives zero points.

- # of Existing Potential Customers in Vendor's Client Base (25 points) - This item is a measure of the vendor's potential to quickly increase the market for Balsi Beams by selling to existing clients. Vendors must submit a list of current clients who are potential purchasers of Balsi Beams and the number of Balsi Beams each client may purchase. The list and estimated number of Balsi Beams purchased will be subject to analysis and verification during scoring.

    - The "*Benchmark Scoring*" methodology will be used to evaluate vendors for this item based on the number of Balsi Beams the vendor estimates may be purchased by the vendor's existing clientele. The Benchmark Scoring formula is:

$$\frac{\text{Possible Points} * \text{Vendor estimate}}{\text{Benchmark estimate}} = \text{Points Scored}$$

- *Factor 1*: Number of Balsi Beams that may be purchased by clients in the vendor's existing clientele;

- *Factor 2*: "Benchmark" number of Balsi Beams that may be purchased by clients in the vendor's existing clientele – the most favorable (highest) number of all vendors evaluated.

- *Factor 3*: Total points possible.

Vendor Approach (275 points)

These criteria evaluate the vendor's approach to all of the essential aspects of the Balsi Beam project. The vendor will provide a narrative description of the approach to be incorporated for each item below.

- Timeline (25 points) – This item measures the degree to which the vendor's proposed timeline meets the state's needs.

    - The "Qualitative Determination" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed timeline fulfills the requirements of the state.

        - *Factor 1*: Does the vendor's proposed approach account for the time-criticality of the state's desire to receive and deploy the first three Balsi Beams before available funding is reappropriated for other uses?

        - *Factor 2*: Does the vendor's proposed approach account for the time required by the state to adequately inspect and approve the delivery of the first three Balsi Beams?

        - *Factor 3*: Does the vendor's proposed approach display the state's sense of urgency in that the sooner Balsi Beams are available and in use, the greater the protection of highway worker's lives and well-being?

        - *Factor 4*: Does the vendor's approach specifically state a target date for the vendor to implement a formal marketing plan?

- *Factor 5*: Does the vendor's approach specifically state a target date for the vendor to make Balsi Beams available to other customers throughout its distribution network?

- *Factor 6*: Does the vendor's approach specifically state a target date for expanding its distribution network into new markets?

- *Factor 7*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	1		5
Factor 2	0 to 5	1		5
Factor 3	0 to 5	0.75		3.75
Factor 4	0 to 5	0.75		3.75
Factor 5	0 to 5	0.75		3.75
Factor 6	0 to 5	0.75		3.75
Total	N/A	N/A		25

- Marketing (50 points) – This item measures the degree to which the vendor's marketing approach meets the state's needs.

  - The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed marketing approach fulfills the requirements of the state.

    - *Factor 1*: Does the vendor's approach clearly demonstrate its abilities to market the Balsi Beam in the states and countries listed above?

    - *Factor 2*: Does the vendor's approach include establishing or expanding capabilities to facilitate the marketing of the Balsi Beam?

    - *Factor 3*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	5		25
Factor 2	0 to 5	5		25
Total	N/A	N/A		50

- Distribution (50 points) – This item measures the degree to which the vendor's manufacturing approach meets the state's needs.

    - The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed distribution approach fulfills the requirements of the state.

        - *Factor 1*: Does the vendor's approach clearly demonstrate its abilities to distribute the Balsi Beam in the states and countries listed by vendor?

        - *Factor 2*: Does the vendor's approach include establishing or expanding distribution centers to facilitate the distribution of the Balsi Beam?

        - *Factor 3*: Other

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	5		25
Factor 2	0 to 5	5		25
Total	N/A	N/A		50

- Design Improvements (50 points) – This item measures the degree to which the vendor's design improvement approach meets the state's needs.

    - The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed design improvement approach fulfills the requirements of the state.

        - *Factor 1*: Does the vendor's approach clearly demonstrate its abilities to design and implement engineering improvements to the Balsi Beam that improve the safety of highway workers?

        - *Factor 2*: Does the vendor's approach clearly demonstrate its abilities to design and implement engineering improvements to the Balsi Beam that improve the efficiency of the manufacturing process and reduce costs?

- *Factor 3*: Does the vendor's approach include expanding engineering capabilities to facilitate the design improvements of the Balsi Beam?

- *Factor 4*: Other

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	4		20
Factor 2	0 to 5	4		20
Factor 3	0 to 5	2		10
Total	N/A	N/A		50

- Manufacturing (25 points) – This item measures the degree to which the vendor's manufacturing approach meets the state's needs.

  - The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed manufacturing approach fulfills the requirements of the state.

    - *Factor 1*: Does the vendor's approach include a plan for modifying existing manufacturing facilities to accommodate the manufacture of the Balsi Beam?

    - *Factor 2*: Does the vendor's approach include proposed future expansion of Balsi Beam manufacturing capacity?

    - *Factor 3*: Does the vendor's approach include specific QA/QC components incorporated into its Balsi Beam manufacturing processes?

    - *Factor 4*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	2		10
Factor 2	0 to 5	2		10
Factor 3	0 to 5	1		5
Total	N/A	N/A		25

- Delivery - Initial (25 points) – This item measures the ability of the vendor to manufacture and deliver the three requested units to the state by the date required in the RFP. Vendors will provide a schedule of the time that will be required to manufacture and deliver all three Balsi Beams to the state. This includes the period necessary for the state to inspect and approve each of the units.

    - The "*Threshold Scoring*" methodology will be used to evaluate vendors for this item based on whether or not the vendor proposed timeline meets the Department's schedule requirements for accepting the delivery of the three Balsi Beams.

        - *Factor 1*: Does the vendor's proposed timeline meet the Department's schedule requirements? If yes, then the vendor receives 25 points. If no, then the vendor receives zero points.

- Delivery - Ongoing (25 points) – This item measures the degree to which the vendor's delivery approach meets the ongoing customer needs.

    - The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed delivery approach fulfills the requirements of the state.

        - *Factor 1*: Does the vendor's approach include a clear presentation of the steps involved from manufacturing through inspection to delivery of Balsi Beams to customers?

        - *Factor 2*: Does the vendor's approach provide adequate assurances that customer's will be given the opportunity to inspect and approve Balsi Beams at all critical decision points throughout the manufacturing and delivery processes?

        - *Factor 3*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	3		15
Factor 2	0 to 5	2		10
Total	N/A	N/A		25

- Opportunities and Risks (25 points) – This item measures the degree to which the vendor's approach identifies opportunities and risks relative to marketing, distributing, and improving the design of the Balsi Beam.

    - The "Qualitative Determination" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed approach considers opportunities and risks.

        - *Factor 1*: Does the vendor's approach include specific opportunities for marketing, distributing, and design improvement of the Balsi Beam?

        - *Factor 2*: Does the vendor's approach include specific risks for marketing, distributing, and design improvement of the Balsi Beam?

        - *Factor 3*: Does the vendor's approach provide mitigating factors associated with the risks mentioned above?

        - *Factor 4*: Other

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	2		10
Factor 2	0 to 5	2		10
Factor 3	0 to 5	1		5
Total	N/A	N/A		25

Vendor Qualifications (50 points)

These criteria evaluate vendor quality through analysis of vendor personnel and references from past business partners.

- Key Personnel (25 points) – This item measures the degree to which the personnel proposed by the vendor have the skills necessary to successfully implement the project to manufacture, deliver, market, distribute, and improve the design of the Balsi Beam.

- The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's proposed key personnel fulfill the requirements of the state.

    - *Factor 1*: Does the vendor's proposed key personnel include a project manager with at least three years experience in the design, manufacturing, marketing, distribution, and delivery of new types of equipment such as the Balsi Beam?

    - *Factor 2*: Does the vendor's proposed key personnel include engineering staff with at least three years experience in the design and modification of new types of equipment such as the Balsi Beam?

    - *Factor 3:* Does the vendor's proposed key personnel include marketing staff with at least three years experience in the marketing of new types of equipment such as the Balsi Beam?

    - *Factor 4*: Does the vendor's proposed key personnel include staff with at least three years experience in the distribution of new types of equipment such as the Balsi Beam?

    - *Factor 5:* Does the vendor's proposed key personnel include manufacturing staff with at least three years experience in the manufacture of new types of equipment such as the Balsi Beam?

    - *Factor 6*: Other?

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	1		5
Factor 2	0 to 5	1		5
Factor 3	0 to 5	1		5
Factor 4	0 to 5	1		5
Factor 5	0 to 5	1		5
Total	N/A	N/A		25

- Vendor References (25 points) – This item measures the degree to which the vendor references validate the vendor attributes and indicate a record of success in implementations relevant to the Balsi Beam.

- The "*Qualitative Determination*" scoring methodology will be used to evaluate vendors for this item based on the degree to which the vendor's references meet the expectations of the state. Vendor references will be contacted and interviewed to compile the information listed below.

    - *Factor 1:* Does the vendor's list of references verify that the vendor has a project manager with prior experience in the design, manufacturing, marketing, distribution, and delivery of new types of equipment such as the Balsi Beam?

    - *Factor 2*: Does the vendor's list of references verify that the vendor has engineering staff with experience in the design and modification of new types of equipment such as the Balsi Beam?

    - *Factor 3*: Does the vendor's list of references verify that the vendor has marketing staff with experience in the marketing of new types of equipment such as the Balsi Beam?

    - *Factor 4*: Does the vendor's list of references verify that the vendor has staff with experience in the distribution of new types of equipment such as the Balsi Beam?

    - *Factor 5:* Does the vendor's list of references verify that the vendor has manufacturing staff with experience in the manufacture of new types of equipment such as the Balsi Beam?

    - *Factor 6:* Other?

NOTE: The following table will be completed for each of the references contacted. Total Vendor Criteria Points will be based on the combination of the scores from the all references contacted.

Factor	Vendor Factor Rating	Weight of Factor	Total Vendor Rating	Total Possible Rating
Factor 1	0 to 5	1		5
Factor 2	0 to 5	1		5
Factor 3	0 to 5	1		5
Factor 4	0 to 5	1		5
Factor 5	0 to 5	1		5
Total	N/A	N/A		25

Cost (350 points)

These criteria constitute the cost elements of the Evaluation Plan. The purchase price of the Balsi Beam units will be added to the cost of training and post-deployment support to constitute the total cost elements of the RFP. The total cost (purchase price + training and support) will be used in this category. Because of the unique nature of this procurement, and the variety of important elements in addition to cost, this evaluation plan is allocating less than the standard 50% of total points to cost.

- Total Cost – This item is the vendors proposed cost for purchasing the three initial Balsi Beams plus the cost for training and support.

    - The "Benchmark Scoring" methodology will be used to evaluate vendors for this item based on the sum of the vendors' bid price for the purchase of the three initial Balsi Beams, plus the cost of training and support associated with the three initial Balsi Beams. The Benchmark Scoring formula is:

      $$\frac{\text{Possible Points} * \text{Benchmark Bid}}{\text{Vendor Bid}} = \text{Points Scored}$$

        - *Factor 1*: Vendor's bid price

        - *Factor 2:* "Benchmark" bid price – the most favorable (lowest) bid price of all vendors selected to have their cost proposals evaluated.

        - *Factor 3:* Total points possible.