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# OTS MARKET DEVELOPMENT – RESEARCH&DEVELOPMENT PROGRAM APPLICATION FORM

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## BACKGROUND

Ontario Tire Stewardship (OTS) is a not for profit corporation established under the Ontario Waste Diversion Act to implement and operate the Used Tires Program. The primary goal of OTS is to divert scrap tires away from burning and landfills and towards processing and higher value uses. In support of this objective OTS is implementing a Research & Development (R&D) program as part of its overall Market Development strategy to support projects that have the potential to support the growth of the markets for tire-derived products (TDPs).

For questions relating to this application, contact the OTS R&D Secretariat at [Research@ontariots.ca](mailto:Research@ontariots.ca).

For more information on OTS, please visit [www.ontariots.ca](http://www.ontariots.ca) or email [info@ontariots.ca](mailto:info@ontariots.ca).

## PROGRAM GUIDELINES

- ✓ Maximum OTS Funding Contribution per Project: \$250,000
- ✓ Project Duration: up to 24 months
- ✓ Any intentional contact by the applicant with the Technical and/or Financial Experts for the program will result in immediate rejection of the application.
- ✓ Expected Applicant/Industry/Partner Contribution (combined) : Minimum of 100% of requested OTS Funding
  - Can be an in-kind contribution (i.e. staff time, facilities, equipment, materials, etc.)
  - Can be a pooling of both Industry applicant AND other project partners
- ✓ Project Expense Area Limits:
  - Salary/Benefits\*: 50% of requested OTS funding, to a limit of \$100,000
  - Supplies/Materials: 50% of requested OTS funding, to a limit of \$100,000
    - *This refers to those supplies and/or materials utilized and/or consumed during the course of the project (i.e. raw materials, testing supplies, chemicals, gases, etc.)*
  - Services: 50% of requested OTS funding, to a limit of \$100,000
    - *This refers to services specific to, and required to complete the project (i.e. lab testing, installation, design, etc.)*
  - Capital Equipment: 50% of requested OTS funding, to a limit of \$100,000
    - Expenses must be limited to a pro-rated valuation based on the depreciation value over the duration of the project, and the % utilization of the capital equipment in this period (i.e. 18 month project with a \$20,000 depreciation over this period. Equipment was used one day out of five days, therefore can claim a capital equipment expense of:  $0.2 \times \$20,000 = \$4,000$ )
  - Fees\* (i.e. equipment and/or facility rental): 50% of requested OTS funding, to a limit of \$100,000
  - Major Subcontractors and Consultant Fees\*: 50% of requested OTS funding, to a limit of \$100,000
  - Other\* (please specify): 25% of requested OTS funding, to a limit of \$50,000

\* Note: OTS funding can only be applied to that portion directly associated with the execution of the project, and must be prorated as appropriate to reflect this. (i.e. equipment that is rented for 24 weeks, but only to be used for 6 weeks of work during the project must be presented as 25% of the actual rental cost)

# APPLICATION FORM

Please fill out all sections of the application and email the completed document, along with the CV of key project personnel, to [Research@ontariots.ca](mailto:Research@ontariots.ca). If you have any questions, please contact [Research@ontariots.ca](mailto:Research@ontariots.ca).

## PROJECT APPLICANT

|                         |  |
|-------------------------|--|
| Applicant Organization: | Tire Weights Inc.  |
| Contact First Name:     | John   |
| Contact Last Name:      | Sample   |
| Contact Title:          | President  |
| Phone:                  | 555-555-5555   |
| Fax:                    | 444-444-4444   |
| E-mail:                 | <a href="mailto:js@tireweights.com">js@tireweights.com</a> |
| Address:                | 123 Road St.   |
| City:                   | Toronto  |
| Province/State:         | Ontario  |
| Postal Code:            | L1L 2L3  |

## PROJECT LOCATION

Where will the project take place? If the project site is not yet owned or leased by the applicant, please include supporting documentation regarding the planned site with the application (i.e. MOU with property owner)

|                  |   |           |         |
|------------------|---|-----------|---------|
| Address:         | 123 Industry St.  |           |         |
| City:            | Brampton  | Province: | Ontario |
| Provide Details: | Excess manufacturing capacity has been identified and secured in an automotive factory in Brampton. |           |         |

## PROJECT CONTRIBUTIONS

In addition to the project applicant, what organizations are involved in the project as partners? Partners organizations may include universities, industry partners, end users, funding organizations, or any other organization participating or contributing to the proposed project.

|                            | Partner 1  | Partner 2  | Partner 3  | Partner 4 |
|----------------------------|--|--|--|-----------|
| <b>Organization:</b>       | Tire Haulage Inc.  | Total Fitness Corp.                              | Rhinestone College   |           |
| <b>Contact First Name:</b> | Jane   | Joe  | Margaret   |           |
| <b>Contact Last Name:</b>  | Doe  | Deer   | Fletcher   |           |
| <b>Contact Title:</b>      | Manager, Crumb Production                                      | Director, Equipment Procurement                  | Professor, Materials and Polymer Science                             |           |
| <b>Phone:</b>              | 541-548-5574   | 154-458-5548                                     | 415-487-5548   |           |
| <b>Fax:</b>                | 547-845-5515   | 547-845-8875                                     | 415-458-4565   |           |
| <b>E-mail:</b>             | <a href="mailto:jdoe@tirehaulage.com">jdoe@tirehaulage.com</a> | <a href="mailto:jdeer@tfc.com">jdeer@tfc.com</a> | <a href="mailto:mfletcher@rhinestone.ca">mfletcher@rhinestone.ca</a> |           |
| <b>Address:</b>            | 154 Industry Ave.  | 45 Runner Drive                                  | 15 Learning Cres.  |           |
| <b>City:</b>               | Brampton   | Mississauga                                      | Toronto  |           |
| <b>Province/State:</b>     | Ontario  | Ontario  | Ontario  |           |
| <b>Postal Code:</b>        | L1L 3H5  | H7Y 2T5  | H7F 8J7  |           |

|  |                    |                        |                   |  |
|--|--------------------|------------------------|-------------------|--|
| <b>Description of Role as Partner:</b> | Provider of crumb. | Buyer of end products. | Material testing. |  |
|--|--------------------|------------------------|-------------------|--|

Provide complete project investment contribution (cash or in-kind) from all partners including government funding organizations (specify if the funding has been applied for, approved, or received). Include all partners listed above.

| <b>Project Contributions</b> | <b>CASH</b> | <b>IN-KIND</b> |
|------------------------------|-------------|----------------|
| <b>OTS (REQUESTED)</b>       | \$200,000   |                |
| <b>APPLICANT</b>             | \$150,000   | \$100,000      |
| <b>PARTNER 1</b>             |             | \$75,000       |
| <b>PARTNER 2</b>             | \$50,000    |                |
| <b>PARTNER 3</b>             |             | \$25,000       |
| <b>PARTNER 4</b>             |             |                |
| <b>TOTAL</b>                 | \$350,000   | \$225,000      |

### PROJECT OPPORTUNITY DESCRIPTION

#### Type of Application

1.1) Under what type of application category does this product or technology fall? Select one.

| <b>Type of Application</b>  | <b>Applicable? (Yes/No)</b> | <b>Description</b>                               |
|-----------------------------|-----------------------------|--|
| Processing                  |                             |  |
| Manufacturing - Extrusion   |                             |  |
| Manufacturing - Calendaring |                             |  |
| Manufacturing - Moulding    | Yes                         | A new moulding process to produce barbell plates |
| Other                       |                             |  |

#### Need for New Solution

1.2) Describe the technical problem, deficiency, opportunity, market or industry need that the proposed solution will address. (max. 500 words)

Current professional barbell plates (round weights placed on barbells) are either made from virgin rubber or crumb to prevent damage to gym flooring and barbells. Plates currently made from crumb suffer from decreased durability and tend to fail prematurely. Crumb plates are not as strong structurally and the thinner plates tend to collapse sideways when weakened. Plates made from crumb also tend to be inaccurate with variations of up to 10%.

1.3) What is the current approach or accepted alternative(s) available on the market for dealing with the issue described above? Why is this approach considered inadequate? (max. 500 words)

The current alternative is to either use virgin rubber plates that are more durable and structurally stable or accept the increased failure rate of plates made from crumb. Quality plates made from virgin rubber are more durable and accurate, have a higher quality finish, and obtain a higher price point than those currently made from crumb. However, they have a greater environmental impact since they are using virgin material. Cast iron plates can also be used, but they are more likely to damage equipment and flooring and can be more dangerous to users.

**Proposed Solution to be Investigated**

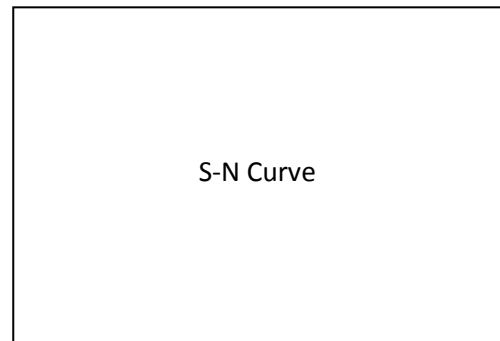
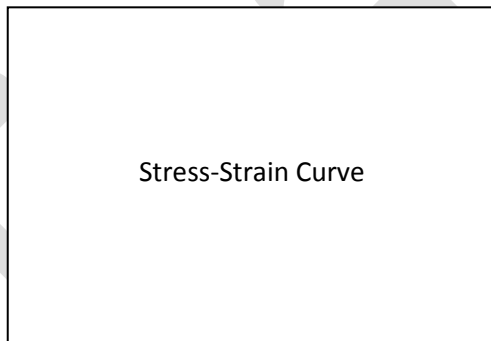
1.4) Outline the proposed project and describe how it will directly provide or contribute to providing a solution to the issue outlined above. This should include:

- a detailed technical description of the technology, process, or product under development;
- how it functions; and
- development work conducted so far, including results of any tests, trials, or demonstrations.

(max. 1000 words)

Supplementary documentation such as test results, technical specifications, or other information, may be submitted along with the application.

Tire Weights Inc. has developed a new method of manufacturing barbell plates that better bonds the crumb to the metal ring and produces more accurate and consistent weights. The process uses finer crumb and a specially designed binding resin to produce a plate that is stronger, has a smoother finish, and is more accurate than existing plates on the market. A polyurethane binding agent is typically used in the moulding process of plates made from crumb rubber. Tire Weights uses a new two-component resinous binding agent that offers improved tear strength and durability. A comparison of tensile strength and fatigue between rubber moulded using the traditional polyurethane binding agent and our new resinous binding agent is shown below in the stress-strain and stress-failure (S-N) curves below.



In addition, a new steel insert has been designed. The interface between the rubber and metal insert ring is the most common point of failure on barbell plates. The new ring design spreads out within the rubber plate and has specially designed gaps to create a stronger and more integrated metal-rubber interface without sacrificing the strength of the metal ring. This insert design is patent pending. Technical details of the insert are included as a supplementary file.

A small number of prototype plates have been developed at the bench scale using custom moulding equipment and have undergone stress testing. Test results show superior performance compared to existing plates made from crumb, with Tire Weights showing 50-60% increased durability. Comparison with plates made from virgin

rubber show comparable or slightly improved performance. Total Fitness Corp. has begun testing a small number of the plates in real-world applications and results have so far been promising.

1.5) Describe in detail the work that will be conducted as part of this proposed project. (max. 1000 words)

A pilot molding plant must be developed to produce large quantities of plates. This will involve working with an engineering firm (PressPara Inc.) that has significant experience developing automatic molding machinery, manufacturing lines, and control systems (a summary of this firm's experience is included in the Appendices). A suitable building has been identified and an MOU has been signed with the property owner (attached in Appendix).

The pilot plant will be designed to process 0.5 ton/day of crumb and will represent 10% full commercial scale. It will require a CofA for air and noise and discussions are already taking place with MOE to prevent delays. The pilot plant development will focus on the mixing hopper where the two-part resin is introduced to the crumb and the molding machinery that will form the crumb mixture around the steel insert ring. Other manufacturing line processes will either be handled with off-the-shelf equipment or manual labour.

The mixing hopper must be able to uniformly mix the resin and hardening agent with the incoming crumb rubber according to a specific weight ratio and then inject a precise quantity of the mixture into the mold. This must be done continuously in order to prevent the resin from setting before it has entered the mold. The molding machinery must position the metal insert ring precisely in the center of the mold and ensure that the mixture entering the mold fills all cavities completely and uniformly. The molding machinery must also be able to handle and switch out different molds for 5, 10, 15, 20, and 25 kg plates.

The ongoing demonstration of the plates with Total Fitness Corp. is expected to be completed in 8 months. Once the results of this trial have been assessed, the plates being produced by the pilot plant will be tested in house to ensure they have the at least the same characteristics as the demonstration plates. Total Fitness Corp. will begin purchases once these tests have been complete.

The Rhinestone College will be developing accelerated testing protocols to be used in quality assurance once the system is fully commercialized. They will also be experimenting on how to test for durability and bond strength to the metal rings.

1.6) Describe the competitive advantage this proposed solution will have in the marketplace. Include specific information and details on the advantages that this product or technology will have over competitors. Include details regarding how the operation or performance differs from current alternatives. (max. 500 words)

This new process for manufacturing of plates from crumb will produce a product that is comparable, and in some cases superior, to high quality plates made from virgin rubber. Current cost projections indicate that the product will have a cost advantage over high-quality virgin rubber plates in the order of 5-10%. While this new product will have a higher cost than current plates made from crumb using current methods, there will be a significant competitive advantage with respect to product durability equivalent to virgin (150% improvement over current crumb plates). Visually, the new crumb plates will be more attractive than current crumb products. In addition, Tire Weights Inc. plans to market the product as a sustainable alternative which has significant resonance in the health and fitness market.

### **Commercialization**

1.7) What is the expected commercialization path for the proposed solution? For instance, commercialization could be achieved through direct commercialization via a participating partner company, licensing to third parties, establishment of a new start-up company, or by other means. (max. 250 words)

Tire Weights Inc. plans to directly commercialize the product through strategic relationships. Tire Weights will own and operate a manufacturing facility that will produce the plates. Commercialization and marketing will concentrate on key companies and organizations that operate or coordinate multiple locations around North America. Total Fitness Corp. has partnered with Tire Weights Inc. to demonstrate the plates in three of their gyms in Ontario. If the demonstration meets their expectations and performance requirements, they plan to phase the product into their other gyms (they have 500 across North America). Tire Weights Inc. has identified 10 other corporations or organizations that together are affiliated with or operate over 5000 gyms across North America that utilize similar barbells and weights. Tire Weights Inc. will develop a strong online presence and e-commerce capabilities to facilitate sales anywhere in North America. While marketing will focus on larger corporate customers, these capabilities will also facilitate sales to individuals or independent gyms.

1.8) Describe what further steps are required to take the proposed process or solution to full commercialization. Include details regarding:

- further technical development;
- proof of performance;
- management team development
- development of relationships with strategic partners;
- supply chain development for materials and equipment;
- customer or end-user requirements and relationships;
- required permits or certificates of approval;
- development of internal capacity to meet demand; and
- any other steps that must be addressed to ensure successful commercialization.

(max. 1000 words)

This proposed project will include the development and commissioning of the pilot plant and testing of the resulting plates. Once the proposed project is complete, production of plates for sale to Total Fitness Corp. will begin using the pilot plant. Additional sales representatives will be hired to engage other national customers and a website with e-commerce capabilities will be developed. Continual process and product optimization will take place at the pilot plant.

At this point, the product will be proven in the market place with at least one major confirmed customer. At this point, Tire Weights will begin raising money through either investors, debt financing, or other funding

sources to develop and commission a commercial scale production facility. A suitable location for the commercial scale plant will be identified and a CofA (Air, Noise) will have to be obtained.

Tire Weights will continue to work with Tire Haulage Inc. to ensure a constant supply of crumb that meets the required quality and consistency requirements for both the pilot and commercial plants.

1.9) What is the time required for the proposed solution to be market-ready after this proposed project is completed? Please note any additional activities that might still be required following the completion of this project and if additional support from OTS will be sought for those activities. (max. 500 words)

The plates are expected to be market-ready at the conclusion of this proposed project though only in one colour (black). Scaling up production levels to commercial levels is expected to take place within 18 months of the completion of this proposed project. Support from OTS may be sought to assist with integration of colour options as part of scale-up.

#### **Effect on the Market for Tire-Derived Products**

1.10) Describe the benefits of the proposed solution to **the applicant and end-user**. Provide details regarding:

- economic and cost benefits; and/or
- environmental benefits; and/or
- operational benefits; and/or
- other benefits.

(max. 500 words)

The applicant will be able to provide a product that is visually and performance equivalent to virgin rubber, but at a 5-10% cost advantage. This will allow them to target a 20% market expansion. The end-user will obtain high-quality plates made from recycled material for cheaper than plates made from virgin rubber.

1.11) Describe how this proposed solution will increase the size of the market for tire-derived products and the use of Ontario crumb in higher-value applications. (max. 250 words)

The introduction of Tire Weights to the market will provide a high-value product made almost entirely from crumb. The superior performance will expand the market for plates made from recycled material thereby driving demand for additional crumb rubber from scrap tires. Tire Weights Inc. expects an initial expansion of 150 tonnes/year in demand for Ontario crumb in the manufacture of barbell plates, with annual growth of 10% based on a market growth target of 10%/year for 5 years in North America and target expansion into Europe in 2015. Beyond this product, the improvements to the visual and performance characteristics will open the door to future product opportunities targeted to compete with virgin rubber.

**Uncertainties and/or Risks to be Addressed by the Proposed Project**

1.12) In the table below, list and provide details on the primary uncertainties or issues that must be addressed to ensure the success of the proposed project and subsequent commercialization. Include information on:

- technical issues that have not been fully resolved; and
- logistical, financial, market, regulatory, or other uncertainties.

Describe the potential impact that each of these uncertainties or issues may have on the project or subsequent commercialization and the steps that will be taken to minimize the risks from these uncertainties.

| Description of Uncertainty or Risk to be Addressed  | Potential Impact on Project or Subsequent Commercialization   | Steps to Mitigate Uncertainty Risk  |
|---|---|---|
| Ability to accurately and thoroughly mix compound components (crumb, resin, hardener)                                 | If the proportions of the three components are not fully mixed in exact proportion it could affect quality, durability, and accurateness of weight. | In addition to internal expertise, Tire Weights has engaged an engineering firm with significant experience in the design and development of automated processing technologies including material preparation and linear mixing systems.  |
| Ability to fill the mold without leaving any gaps and using an accurate mass of material.                             | If the mold is not completely filled with the exact quantity of material, it could lead to reduced durability and accurateness of plate mass.       | In addition to internal expertise, Tire Weights has engaged an engineering firm with significant experience in the design and development of automated processing technologies including material preparation and linear mixing systems. There are also plans to develop a feedback control system to maintain accuracy of mass.                                |
| Plates do not perform to Total Fitness Corp.'s standards.   | Product commercialization may be delayed while formulation and process is optimized. May put future sales at risk.                                  | Extensive testing and in-field demonstration of the plates have been undertaken. Once the pilot plant is completed, plates will be subjected to toughness, durability, and other tests to ensure they meet specifications prior to entering the market. Accelerated QA tests will be used to assist in commercialization.                                       |
| Customers may be reluctant to purchase product due to the poor reputation that plates made from crumb currently have. | Sales growth may be slow and put further expansion at risk.   | Plates will be tested by a third party (Rhinestone College) to ensure superior performance. Experienced sales staff will be hired and trained and Total Fitness Corp. will be used as a reference customer. Ensuring that there is no visual indication that the finished plates are made from crumb will help address the issue of negative market perception. |



## PROJECT TEAM

Provide a breakdown of key project team members from all project partners. **Include biographies (including relevant experience) for all personnel in key positions as an appendix to this application.**

| FULL NAME  | ORGANIZATION                    | POSITION                                 |
|--|---------------------------------|--|
| <b>Team</b>  |                                 |  |
| <b>Project Leader</b>  |                                 |  |
| John Sample  | Tire Weights Inc.               | President                                |
| <b>Key Personnel from Applicant and Partner Organizations (Public and Private)</b> |                                 |  |
| Robin Testcase   | Tire Weights Inc.               | Chief Technology Officer                 |
| Jim Flagpole   | Tire Weights Inc.               | Materials Engineer                       |
| Arlene Concept   | Tire Weights Inc. (to be hired) | Process Engineer                         |
| Various  | Tire Weights Inc. (to be hired) | Production line staff                    |
| Joe Deer   | Total Fitness Corp.             | Director, Equipment Procurement          |
| Jane Doe   | Tire Haulage Inc.               | Manager, Crumb Production                |
| Professor Margaret Fletcher  | Rhinestone College              | Professor, Materials and Polymer Science |

### PROJECT EXPENDITURE BUDGET

Provide a detailed budget for the proposed project.

| Salary/Benefits       | Portion of Employee Time<br>Attributable to Project (%) | Total Project-Related Cost | Applicant Contribution |           | Partner Contribution |         | OTS<br>Contribution<br><sup>1</sup> |
|-----------------------|---|----------------------------|------------------------|-----------|----------------------|---------|-------------------------------------|
|                       |   |                            | Cash                   | In-Kind   | Cash                 | In-Kind |                                     |
| <b>Employee</b>       |   |                            |                        |           |                      |         |                                     |
| John Sample           | 25%   | \$25,000                   |                        | \$25,000  |                      |         | \$0                                 |
| Robin Testcase        | 50%   | \$30,000                   |                        | \$30,000  |                      |         | \$0                                 |
| Jim Flagpole          | 30%   | \$20,000                   |                        | \$20,000  |                      |         | \$0                                 |
| Arlene Concept        | 100%  | \$80,000                   |                        | \$40,000  |                      |         | \$40,000                            |
| Production Line Staff | 100%  | \$120,000                  |                        | \$60,000  |                      |         | \$60,000                            |
| <b>Subtotal</b>       |   | \$275,000                  |                        | \$175,000 |                      |         | \$100,000                           |

| Supplies/Materials    | Total Cost | Portion of Attributable<br>to Project (%) | Total<br>Project-<br>Related<br>Cost | Applicant Contribution |         | Partner Contribution |          | OTS<br>Contribution<br><sup>2</sup> |
|-----------------------|------------|---|--------------------------------------|------------------------|---------|----------------------|----------|-------------------------------------|
|                       |            |   |                                      | Cash                   | In-Kind | Cash                 | In-Kind  |                                     |
| <b>Description</b>    |            |   |                                      |                        |         |                      |          |                                     |
| Crumb                 | \$50,000   | 100%                                      | \$75,000                             |                        |         |                      | \$75,000 | \$0                                 |
| Two-part Resin        | \$10,000   | 100%                                      | \$10,000                             | \$10,000               |         |                      |          | \$0                                 |
| Machined Insert Rings | \$100,000  | 100%                                      | \$50,000                             |                        |         | \$50,000             |          | \$0                                 |
| <b>Subtotal</b>       | \$160,000  |   | \$135,000                            | \$10,000               |         | \$50,000             | \$75,000 | \$0                                 |

<sup>1</sup> Salary/Benefits may account for up to 50% of OTS funding to a limit of \$100,000

<sup>2</sup> Supplies/Materials may account for up to 50% of OTS funding to a limit of \$100,000

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| Capital Expenses Total Cost        |           | Total Cost | Portion of Cost Attributable to Project <sup>3</sup> (%) | Total Project-Related Cost | Applicant Contribution |      | Partner Contribution |          | OTS Contribution <sup>4</sup> |
|------------------------------------|-----------|------------|--|----------------------------|------------------------|------|----------------------|----------|-------------------------------|
| Description (including total cost) | Cash      |            |  |                            | In-Kind                | Cash | In-Kind              |          |                               |
| Mixing Hopper                      | \$250,000 | 10%        | \$25,000   | \$13,000                   |                        |      |                      | \$12,000 |                               |
| Molding Machinery                  | \$280,000 | 10%        | \$28,000   | \$14,000                   |                        |      |                      | \$14,000 |                               |
| Balance of Assembly Line           | \$80,000  | 10%        | \$8,000  | \$4,000                    |                        |      |                      | \$4,000  |                               |
|                                    |           |            |  |                            |                        |      |                      |          |                               |
| <b>Subtotal</b>                    | \$610,000 |            | \$61,000   | \$31,000                   |                        |      |                      | \$30,000 |                               |

| Fees            |      | Total Cost | Portion Attributable to Project (%) | Total Project-Related Cost | Applicant Contribution |      | Partner Contribution |  | OTS Contribution <sup>5</sup> |
|-----------------|------|------------|-------------------------------------|----------------------------|------------------------|------|----------------------|--|-------------------------------|
| Description     | Cash |            |                                     |                            | In-Kind                | Cash | In-Kind              |  |                               |
|                 |      |            |                                     |                            |                        |      |                      |  |                               |
|                 |      |            |                                     |                            |                        |      |                      |  |                               |
|                 |      |            |                                     |                            |                        |      |                      |  |                               |
| <b>Subtotal</b> |      |            |                                     |                            |                        |      |                      |  |                               |

| Major Subcontractors and Consultant Fees |           | Total Cost | Portion Attributable to Project (%) | Total Project-Related Cost | Applicant Contribution |      | Partner Contribution |           | OTS Contribution <sup>6</sup> |
|--|-----------|------------|-------------------------------------|----------------------------|------------------------|------|----------------------|-----------|-------------------------------|
| Description                              | Cash      |            |                                     |                            | In-Kind                | Cash | In-Kind              |           |                               |
| Engineering Fees (PressPara)             | \$200,000 | 100%       | \$200,000                           | \$100,000                  |                        |      |                      | \$100,000 |                               |
| Product testing and QA                   | \$25,000  | 100%       | \$25,000                            |                            |                        |      | \$25,000             |           |                               |
|  |           |            |                                     |                            |                        |      |                      |           |                               |
| <b>Subtotal</b>                          | \$225,000 |            | \$225,000                           | \$100,000                  |                        |      | \$25,000             | \$100,000 |                               |

<sup>3</sup> Capital Expenses must be pro-rated based on the depreciation value over the duration of the project and the % utilization of the equipment during the project period.

<sup>4</sup> Capital Expenses may account for up to 50% of OTS funding to a limit of \$100,000.

<sup>5</sup> Salary/Benefits may account for up to 50% of OTS funding to a limit of \$100,000

<sup>6</sup> Salary/Benefits may account for up to 50% of OTS funding to a limit of \$100,000

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| Other Expenses<br>Description | Total Cost | Portion Attributable to<br>Project (%) | Total<br>Project-<br>Related<br>Cost | Applicant Contribution |           | Partner Contribution |           | OTS<br>Contribution<br><sup>7</sup> |
|-------------------------------|------------|--|--------------------------------------|------------------------|-----------|----------------------|-----------|-------------------------------------|
|                               |            |  |                                      | Cash                   | In-Kind   | Cash                 | In-Kind   |                                     |
|                               |            |  |                                      |                        |           |                      |           |                                     |
|                               |            |  |                                      |                        |           |                      |           |                                     |
|                               |            |  |                                      |                        |           |                      |           |                                     |
|                               |            |  |                                      |                        |           |                      |           |                                     |
| <b>Subtotal</b>               |            |  |                                      |                        |           |                      |           |                                     |
| <b>TOTAL</b>                  |            |  | \$561,000                            | \$141,000              | \$175,000 | \$50,000             | \$100,000 | \$230,000                           |

\* **NOTE: OTS FUNDING CAN ONLY BE APPLIED TO THAT PORTION OF EXPENSES DIRECTLY ASSOCIATED WITH THE EXECUTION OF THE PROJECT, AND MUST BE PRORATED AS APPROPRIATE TO REFLECT THIS. (I.E. EQUIPMENT THAT IS RENTED FOR 24 WEEKS, BUT ONLY TO BE USED FOR 6 WEEKS OF WORK DURING THE PROJECT MUST BE PRESENTED AS 25% OF THE ACTUAL RENTAL COST)**

<sup>7</sup> Salary/Benefits may account for up to 25% of OTS funding to a limit of \$50,000

EXAMPLE

## PROJECT TIMELINE AND SCHEDULE

Provide a detailed project timeline that describes all of the steps required to proceed from project initiation to successful conclusion of the project. It should include key tasks and project milestones (as well as funding milestones) throughout the project and address all technical and non-technical challenges addressed above. When setting the dates for the project, please consider that approval of OTS funding may take 3 to 6 months from the application submission deadline.

| Task/Milestone Description                              | Expected Outcomes   | Start Date                                      | End Date                    | Resources Required (i.e. staff, consultants, materials, equipment)                   |
|---|---|---|-----------------------------|--|
| Finalize design of pilot production line.               | A detailed design of the pilot processing that will be able to produce the required product characteristics.  | Upon approval (3-6 months from submission date) | 1 month (from approval)     | Staff and engineering consultants  |
| Obtain pilot production line components                 | Machinery based on the finalized designs will be manufactured and delivered.  | 1 month (from approval)                         | 9 months (from approval)    | Staff, capital resources, manufacturer   |
| Install pilot production line                           | The pilot production line will be installed and begin operation.  | 9 months (from approval)                        | 9.5 months (from approval)  | Staff, production line equipment, engineering consultants                            |
| Review results from Total Fitness Demonstration Project | Demonstration results will provide support for further product marketing and production.  | Ongoing   | 9 months (from approval)    | Staff  |
| Run initial batches and test plate characteristics      | Results will indicate if plates from the production line will meet expected performance requirements or if further optimization of the production line is required. | 9.5 months (from approval)                      | 10 months (from approval)   | Staff, production line equipment, crumb, two-part resin, college testing facilities. |
| Modify/optimize pilot production line                   | This optimization will result in improved quality, consistency, and performance of the plates.  | 10 months (from approval)                       | 11 months (from approval)   | Staff, production line equipment, engineering consultants                            |
| Run second batches and test plate characteristics       | Results will indicate that plates are ready for production for customers.   | 11 months (from approval)                       | 11.5 months (from approval) | Staff, production line equipment, crumb, two-part resin, college testing facilities. |

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|                  |   |                   |                           |  |
|------------------|---|-------------------|---------------------------|--|
| Begin production | First sales and revenue from produced plates. | 11.5 months (from | 12 months (from approval) | Staff, production line equipment, crumb, two-part resin. |
|------------------|---|-------------------|---------------------------|--|

Example

### PROPOSED FUNDING SCHEDULE

Provide an outline of the requested funding schedule, tied to key project milestone points. Please ensure milestone descriptions match those presented in "Project Timeline and Duration".

| Milestone Description                            | % Funding Request | Funding Request |
|--|-------------------|-----------------|
| Project approval                                 | 40%               | \$92,000        |
| Successful installation of pilot production line | 60%               | \$138,000       |
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