

America's Seed Fund

National Science Foundation

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<https://seedfund.nsf.gov/project-pitch/>

Project Pitch

<https://nsfiip.force.com/sbir/apex/SBIRExecutiveSummary>

Submit Your Project Pitch

Are you interested in applying for funding from the National Science Foundation? We recently changed our process to include a required first step - the Project Pitch. The goal of the Project Pitch is to get startups and small businesses (formed and unformed) quick feedback, and to save time and effort, when applying for Phase I funding from America's Seed Fund powered by NSF – the NSF's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program.

Rather than spending days to prepare a full proposal and waiting up to one month to obtain the required registrations, startups or entrepreneurs who submit a Project Pitch will know within approximately one month if they meet the program's minimum requirements. They will also get additional guidance and feedback from NSF staff.

If your Project Pitch is a good fit for the program, you will receive an official invitation from NSF to submit a full proposal. If you're not invited to submit, you'll be told why your project is not appropriate for the program. We hope this process provides you with timely, useful feedback and saves your small business time and effort.

More details about the NSF's process and eligibility requirements can be found our program [website](#). We encourage you to review this information before submitting your Project Pitch.

Contact Information of submitting Company Officer and/or prospective project Technical Lead:

***1. Email:**

Rob@MilpitasPRT.com

***Please re-type email:**

Rob@MilpitasPRT.com

***3. Last Name:**

Means

***4. Phone Number (10 digits, no special characters):**

4082620420

***5. Company Name:**

LoopWorks

***6. Company zip code:**

95035

***7. Company State:**

CA

8. Corporate website: (if applicable)

<https://milpitasprt.com/>

***9. Please pick the SBIR/STTR topic that best fits your project's technology area:**

Mobility (MO)

This is a National Science Foundation (NSF) Federal Government computer system. Any system activity may be monitored and any information stored within the system may be retrieved and used by authorized personnel for law enforcement, management, routine system operations, or other purposes. By using this computer system, you are consenting to such monitoring and information retrieval and use. Unauthorized use of the system, including disclosure of information covered by the Privacy Act or other sensitive information, or attempts to defeat or circumvent security features, is prohibited and could result in disciplinary action, civil and/or criminal penalties. Users should be aware that they have no expectation of privacy when using the NSF-provided computer system (including any removable media used in conjunction with the system), accessing the Internet, or using electronic mail systems. All information maintained within or retrievable through the NSF computer system, including electronic mail files, may be reviewed and retrieved by the Department of Homeland Security; NSF officials who have a legitimate reason to do so when authorized by the Director or Deputy Director; or by the Inspector General.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-XXXX. Public reporting burden for this collection of information is estimated to average 2 hours (120 minutes) per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne H. Plimpton, Reports Clearance Officer Office of the General Counsel, National Science Foundation, Alexandria, VA 22314

Project Pitch Form Continued:

Please complete the required fields. Please be aware that there are word limitations. Information beyond what is solicited in the fields below will not be reviewed.

Please note: Any small business with a pending Project Pitch must wait for a response from NSF before submitting another Project Pitch.

***10. Is this Project Pitch for a technology or project concept that was previously submitted as a full proposal by your company to the NSF SBIR/STTR Phase I Program – and was not awarded?**

No

***11. Has your company received a prior NSF SBIR or STTR award?**

No

***12. Does your company currently have a full Phase I SBIR or STTR proposal under review at NSF?**

No

13. Briefly Describe the Technology Innovation? *Up to 500 words describing the technical innovation that would be the focus of a Phase I project, including a brief discussion of the origins of the innovation as well as an explanation as to why it meets the program's mandate to focus on supporting [research and development \(R&D\)](#) of unproven, high-impact innovations.*

Personal Rapid Transit (PRT) is an unproven, high impact innovation. After decades of being technically feasible, PRT remains unproven in its potential to knit together a fragmented area or to connect metropolitan destinations quickly. Yet, LoopWorks pursues this innovation specifically because of its high-impact potential to initiate a \$1T industry that serves every major metropolitan area on the planet. As our [Vision](#) sees it: *The LoopWorks PRT project inspires rapid adoption of advanced transit that dramatically reduces transportation sector emissions.*

PRT is an elevated, zero-carbon, electric, on-demand, private, non-stop point-to-point, and networked Personal Rapid Transit system with many small neighborhood stations. It will reduce traffic congestion while increasing energy efficiency, safety, and - most dramatically - ridership of existing public and private transportation options.

Using 3 innovative strategies, LoopWorks will provide the Milpitas Metro Area a high level of transit service while being locally owned and controlled. The dual-loop system will demonstrate a new transit mode that could be replicated in most major cities to dramatically reduce CO₂ emissions.

PRT utilizes 2 fundamental innovations in public transit that lead to extraordinary service. 1) PRT uses small, automated cabs, so it can provide 24/7 service with low O&M costs. 2) PRT guideways are elevated and stations are off-line, so riders travel non-stop from origin to destination – arriving quicker than driving.

In terms of R&D, a list of research opportunities and development reports is part of the [LoopWorks Business Plan](#). Specifically, the section entitled *Performance Reports – The Big Payoff* (pages 65-69) addresses Data to Collect and Share, Vehicle Performance and Efficiency, 3rd Party Data, along with other valuable data and metrics.

One specific metric important to monitor is public transit ridership. Based on many studies, PRT will spark a dramatic increase. As shown in this [chart](#) (<https://milpitasprt.com/technology/service-levels/#share>), PRT service is expected to increase transit ridership by factors 2X to 10X. Far higher use of existing public transit resources would create ripple effects to observe.

PRT origins date back to the Nixon administration which sought an urban transportation solution. The investment in the PRT-like Group Rapid Transit system at the University of West Virginia in Morgantown still operates today. (Data from there shows 80 million passenger miles without a serious injury, far safer than automobiles.) Since then, a half dozen, one-off PRT projects have been built around the world. The most [comprehensive web site](#) devoted to Innovative Transportation Technologies is complemented by a growing number of other web pages devoted to new transit technology, the most prominent of which are supported by the [Advanced Transit Association](#) and [Get on Board! PRT](#).

14. Briefly Describe the Technical Objectives and Challenges? *Up to 500 words describing the R&D or technical work to be done in a Phase I project, including a discussion of how and why the proposed work will help prove that the product or service is technically feasible and/or significantly reduce technical risk. Discuss how, ultimately, this work could contribute to making the new product, service, or process commercially viable and impactful. This section should also convey that the proposed work meets definition of R&D, rather than straightforward engineering or incremental product development tasks. [R&D is defined as: ... A systematic application of knowledge toward the production of ... systems... including design, development, and improvement of prototypes ...]*

Unlike basic or high-tech research, what LoopWorks proposes is a systematic application of knowledge toward the production of a functioning system including design, development, and improvement of a prototype. The functioning system is the proposed Personal Rapid Transit (PRT) system for which the basic design must be developed.

The prototype ITNS design that LoopWorks will employ in the Milpitas PRT project won competitions in Chicago, SeaTac, and Cincinnati. In 2003, the prototype materialized with the construction of a fully automatic vehicle for a budget of only \$600,000 and 6 months from the initial order-to-proceed until operation. The vehicle operated as designed on a 60-ft section of covered-steel-truss guideway at the 2003 Minnesota State Fair 12 hours per day for 12 days with no failures. Thus, the prototype design is clear and detailed at <https://milpitasprt.com/wp-content/uploads/technical-specifications.pdf>

Based on that 2003 demonstration, the technology readiness level is “system prototype demonstration in an operational environment.” The ITNS design awaits a specific project employing it, such as the Milpitas PRT project estimated to cost \$6M for all pre-construction engineering and planning. As a Phase 1 project, initial contacts with all stakeholders will accompany the review by a trustworthy construction company of the basic design and implementation plan to ensure both are technically feasible.

Knowledge gained from Phase 1 efforts will influence stakeholders to support the project, a must for it to proceed. Once the system is proven, and relative costs are determined, commercial viability will be known. If current estimates prove true, this project could ignite a wave of PRT systems across the country resembling the early spread of electric street cars.

The target markets are metropolitan areas needing improved transit due to congestion, pollution, or legal requirements to reduce CO₂ emissions. PRT can provide 24/7 service to an area of 100 square miles for \$7B – and that includes 8 stations per square mile. By achieving door-to-door times within the service area comparable to or less than driving, PRT can replace many or most conventional single-occupant vehicles currently congesting roads and compounding our Climate Crisis. Such a service level could dramatically impact the area and reset what people can imagine for moving themselves and their stuff.

While PRT has been designed to serve many square miles of metropolitan area, sections of the [LoopWorks Business Plan](#) raise the possibility of 1) using PRT ferries to safely convey people over barriers instead of building traditional, more expensive pedestrian/bicycle overcrossings, and 2) using 80-mph PRT for inter-city transit instead of commuter rail that averages 40 mph and costs 10 times as much. The minimal land requirements of PRT give it a major advantage over both commuter and high-speed rail technologies, especially in rough terrain. One visionary sees high-speed PRT as the glue to create 400-mile-wide regions that share physical, cultural, employment, and residential resources ([SmartRegions.US](#), <http://SmartRegions.US/>). Such applications of PRT technology would extend its impact.

***15. Briefly Describe the Market Opportunity?** *Up to 250 words describing the customer profile and pain point(s) that will be the near-term commercial focus related to this technical project. Describe the customer profile and pain point(s) that will be the near-term commercial focus related to this technical project.*

Unlike traditional transit systems, PRT systems can be profitable due to various factors. For example, construction costs for small-scale PRT are far less than “big box” mass transit. Also, O&M costs will run about half what public transit systems currently pay. An in-depth [study of PRT economics](#) indicates that PRT systems of sufficient size can pay for themselves by charging moderately-priced fares.

Customers for this competitive technology range from single property owners (ski resort, large real estate development, amusement park, airport, corporate/university campus) and individual cities with severe traffic congestion and/or walking/cycling barriers, up to transit agencies serving entire metropolitan areas. For those 1 in 3 people who cannot drive, both the cost and convenience of PRT beat out traditional transit options.

Metropolitan areas will especially find PRT attractive. Successful completion of this \$60M R&D project could ignite a \$1T advanced transit industry that employs replication, scaling, and network effects to rapidly wean us off carbon-based fuels. A total addressable market of \$1T is estimated from a need for 150 PRT systems that each serve a 100-square-mile area and cost \$7B. A single such area is [proposed for San José](#).

In the words of the [Sierra Club](#), “While this project would serve Milpitas and its residents, resulting data that confirms cost estimates in the LoopWorks Business Plan could impact most metropolitan areas of this country and the world. We see high-leverage projects like this as necessary in order to reverse Global Warming before it is too late.”

***16. Briefly Describe the Company and Team?** *Up to 250 words describing the background and current status of the submitting small business, including team members related to the technical and/or commercial efforts discussed in this Project Pitch.*

LoopWorks is incorporated as a [non-profit, mutual benefit corporation](#) controlled by and for the Milpitas community. Find legal, business, and presentation documents on our [website](#).

LoopWorks will employ the capabilities of other companies in creating the PRT system. The engineering and construction will be done by a design/build company like [Devcon Construction](#). Safety and security will be largely handled by the California Public Utilities Commission and City of Milpitas Planning Department. Our team has the business experience, local connections, and governance

structure to ensure this community-based business operates well once service begins and full-time employees are hired.

Robert Means, after a 20-year career in computer communications helping lay the foundation for the Internet, operated an electric bike and scooter business for 17 years. Since 2000, he has studied and promoted PRT.

Tiffany Vuong, a community organizer who worked for affordable housing before running for Milpitas City Council, led the [PRT Station Design & Art Contest](#).

Tam Overacker, specializes in small business monthly accounting. She has provided knowledgeable bookkeeping services for over 15 years with over 35 years of accounting experience.

J. Edward Anderson PhD. P.E. is arguably the most knowledgeable and renown PRT expert in the world. Find both his resumé and values in the [ITNS Business Plan](#), pages 2 and 92-94.

Eugene Nishinaga, President and CEO of Transit Control Solutions – the company likely to supply the control software – has been a technologist in the field of public transportation for 45 years, including 25 at SF BART.

***17. How did you first hear about our program?**

General web search or social media advertisement

NSF SBIR/STTR Phase I Eligibility Information:

In addition to receiving an invitation to submit a full proposal from the NSF SBIR/STTR Phase I Program based upon the review of their submitted Project Pitch, potential proposers to the program must also qualify as a small business concern to participate in the program (see SBIR/STTR [Eligibility Guide](#) for more information). The firm must be in compliance with the SBIR/STTR Policy Directive(s) and the Code of Federal Regulations ([13 CFR 121](#)).

- Your company must be a small business (fewer than 500 employees) located in the United States. Please note that the size limit of 500 employees includes affiliates.
- At least 50% of your company's equity must be owned by U.S. citizens or permanent residents, and all funded work needs to take place in the United States (including work done by consultants and contractors).
- Primary employment is defined as at least 51 percent employed by the small business. NSF normally considers a full-time work week to be 40 hours and considers employment elsewhere of greater than 19.6 hours per week to be in conflict with this requirement.
- The project's Principal Investigator (PI) is required to be primarily employed by the awardee small business at the start of the project and throughout the project and needs to commit to at least one month (173 hours) of effort to the funded project, per six months of project duration.

For more detailed information, please refer to the SBIR/STTR Eligibility Guide. Please note that these requirements need to be satisfied at the time an SBIR/STTR award is made, and not necessarily when the proposal is submitted.

[After the above was submitted, the following page came up.]

<https://nsfiip.force.com/sbir/SBIRExecutiveSummaryThankyou?esid=MmNmMmFjODM4MzU4MmU0ZjI2MDQ1YzNhYTFkZDZlNmU%3D>

Thank you for submitting your company's Project Pitch to America's Seed Fund powered by the National Science Foundation - the NSF's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program. One of our program directors will review your submission and send you feedback via email within approximately one month.

For your reference, your Project Pitch submission number is **00055214** and was submitted to the **Mobility (MO)** SBIR/STTR topic area. Please be aware that your Project Pitch may be re-assigned and reviewed under a different topic area if determined to be better aligned with that topic.

Please make sure to check your inbox and spam folder frequently. You may also view and revise your submitted Project Pitch at: <https://nsfiip.force.com/sbir/SBIRExecutiveSummary?esid=MmNmMmFjODM4MzU4MmU0ZjI2MDQ1YzNhYTFkZDZlNmU=>. Please note that this link will only be available until your Project Pitch enters the review process.

Please visit our program website for more information about the Project Pitch process, review criteria, current SBIR/STTR Phase I solicitations, and upcoming informational webinars.

Please also note:

- If the proposed project is determined to be a good fit for the program's objectives of supporting innovative technologies that show promise of commercial and/or societal impact and involve a level of technical risk, the small business representative who submitted the Project Pitch will receive an invitation via email from the cognizant NSF SBIR/STTR Program Director or staff member responsible for reviewing your Project Pitch to submit a full proposal.
- If the proposed project is determined to be not responsive to the SBIR/STTR Phase I Program solicitation (please refer to the "Objectives Not Responsive to the Solicitation" section of the SBIR/STTR Phase I solicitation document), the potential proposer will receive a notice stating that the small business is not invited to submit a proposal.
- Project Pitches that are not invited for a full proposal may be resubmitted (with revisions to address any deficiencies) in the next submission window.
- Any small business with a pending Project Pitch must wait for a response before submitting another Project Pitch.
- Any small business that has received an invitation to submit a full proposal must wait for a resolution of the full proposal before submitting a new (or revised) Project Pitch.
- A given small business is permitted to submit one Project Pitch per submission window (please refer to submission window dates listed at the beginning of the solicitation document). Having an invitation to submit a full proposal, or a full proposal under review, prohibits the submission of a new Project Pitch by a given small business, even in a subsequent submission window.

Should you not receive a response from NSF within approximately one month, please contact us at *sbir@nsf.gov*. Please include your Project Pitch submission number in the subject line of any correspondence.

Thank You,

The NSF SBIR/STTR Team

We'd love to get your feedback on our pilot Project Pitch process! If you have a few minutes, please take our anonymous survey. The survey asks a few questions about your familiarity with our program and satisfaction with the process. Your responses will help us to improve the process, quality of our services, and user experience going forward. Thank you in advance for your time!

Link to the survey: https://www.surveymonkey.com/r/SBIR_ProjectPitch_Proposers