

Grant Request to [At One Ventures](#) - As an early stage company seeking investment, LoopWorks will complete the company overview form at: <https://forms.gle/8o96LC7HpJsFSXiE6>

***Are you an early stage company seeking investment?
If so, please complete the fields below so we can get to know you***

COMPANY DETAILS

Company name - LoopWorks

Company website (if you are in stealth mode, please note) – MilpitasPRT.com

Email address – Rob@MilpitasPRT.com

Company founded date – Dec. 21, 2020

Company location – 1421 Yellowstone Ave, Milpitas, CA 95035

Company Description (1-2 sentences) - Using 3 innovative strategies, LoopWorks will offer the Milpitas Metro Area an on-demand, point-to-point, all-electric Personal Rapid Transit (PRT) system that is owned and controlled locally. A PRT system will mitigate congestion and accessibility issues, while demonstrating a new transit mode that could be replicated in most major cities to dramatically reduce CO2 emissions.

Industry/Sector – transportation

Founders' names – Robert Means

Number of employees – 1

Operating Stage of Company – Prototype/POC/Pilot

PRODUCT, TECHNOLOGY, OPERATIONS

What environmental problem are you trying to solve, and how does your product/technology provide a solution?

Our Climate Crisis is the problem; Personal Rapid Transit (PRT) is a solution. While transportation accounts for a large percentage of CO₂ emissions globally, it hits 59% here in Milpitas. Electrified PRT is a catalyst technology that can substantially reduce those emissions. Rather than electrify privately-owned cars that sit idle most of the time, PRT electrifies a high-use, community-shared transit system that offers low-cost, convenient, and quick trips around its service area.

Using electric-motive force rather than fossil fuel combustion to move vehicles allows use of carbon-free, renewable energy sources. The highly efficient, non-stop trips provided by PRT use about 90% less energy than cars. That efficiency, combined with a [dramatic increase in public transit ridership](#), will substantially reduce greenhouse gas emissions in the area served. As noted below, PRT can provide 24/7 service to an area of 100 square miles for \$7B – and that includes 8 stations per square mile. Such

a service level could dramatically impact the area and reset what people can imagine for moving themselves and their stuff.

Paul Hawken's *Drawdown* emphasizes that we must draw CO₂ from our atmosphere. While PRT technology doesn't do that, the Milpitas project can be the catalyst that kick-starts a \$1T advanced transit industry. That potential to drive rapid transformation may make this project the 1 in a 100 that earns your investment.

Please describe your technology in detail, including how it provides your company with a competitive advantage.

Technology

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

Many people, when they hear about Personal Rapid Transit (PRT) and its elevated guideways, think of the monorails in Seattle or Disneyland. PRT is like a "personal monorail" because 1) it is electric and elevated, and 2) it uses small cars that carry up to 4 people to their selected exit station -- without stopping! Thus, "personal". In some ways, PRT is more like a "horizontal elevator" that awaits you at a local station. Have a bicycle or a wheelchair? No problem! Roll in and get whisked away to your destination! This [3-minute video](#) shows the high-level view of the technology.

Using light-weight vehicles (1000 lbs.) on light-weight, elevated guideways, a transportation network can be built above most existing obstacles. Moderate speeds of 25 – 40 mph are expected in dense areas, and the Intelligent Transportation Network System (ITNS) design allows for higher speeds of 80+ mph where appropriate. Learn more about the hardware on our [website](#) and in [Technical Specifications for ITNS Technology](#). The innovative ITNS design resulted from thousands of engineering hours and hundreds of peer-reviewed [articles and papers](#). Briefly, it is light-weight, simple, and robust. The software was specified similarly, and can be purchased today.

Competitive Advantage

PRT systems can reduce dependence on oil, reduce greenhouse gas emissions, and reduce congestion. These three benefits are the primary societal advantages over most public transit. Additionally, another 10 advantages benefiting people and their community are noted on page 24 of the [LoopWorks Business Plan](#). Following that list, the Plan delves into CO₂ Reductions, Ridership, Energy Consumption, Level of Service, and Resilience. In each of these areas, PRT offers a strong competitive advantage.

For example, by eliminating intermediate stops, PRT produces a dramatic increase in energy efficiency and decrease in trip time. That reduction in trip time provides value directly to the rider. And unlike most public transit agencies that lose money, PRT's low operating costs can be recovered from modest fares.

Who are your customers?

Traditional advice in identifying customer segments is "Be specific when you name your target market. Your business won't be for everybody, so it's important to have a clear sense of who your business will serve." PRT is not a traditional technology. By choosing to serve the most vulnerable members of our

society – whether special needs, aged or children – LoopWorks is able to provide outstanding service to all segments of our population.

Details of how people use the PRT system is outlined in Human Interface Ergonomics of the [LoopWorks Business Plan](#) (page 55-57). Those details make clear that most anyone, regardless of abilities, will be able to use the ITNS-designed vehicles and user interface to travel between any of the PRT system stations.

The issue of how seniors in their seventies, eighties, and nineties travel to their many activities will continue to grow. Trends predict longer life expectancy, a core desire for active lifestyles, and a growing senior population. All 3 trends will increase demand for PRT service among seniors who no longer drive.



In the case of children, they can be accompanied by a parent, or allowed on their own, to ride to their destination station. Either way, PRT could save time now used to chauffeur students each day. As they become older, PRT will support their growing independence within their community – without needing a car.

In a time of historic financial inequality, providing “safety net” transportation for our most vulnerable residents is required to help balance our society. Low-cost PRT service does that. Wide-area, high-quality, low-cost transit could shift how people think about mobility – and about the need for personal cars and parking.

What is the Total Addressable Market for your product/technology? Please provide the logic used in arriving at this number.

The Milpitas PRT can be the catalyst that kick-starts a \$1T advanced transit industry.

PRT is a bold, transformative idea with massive market potential. As such, PRT can make a major impact on the way the world deploys capital into transportation infrastructure projects. As designed, PRT can start by serving a small area (like the dual-loop Milpitas PRT), yet can be expanded to serve a large metropolitan area of 100 square miles or more.

PRT can be replicated in most major cities and many others with congestion problems. We estimate that [coverage of a 25 square-mile area](#) with 8 neighborhood stations per sq-mi costs \$1.65B. Thus, PRT could cover 100 square miles of San Jose for the price of the planned 4-station, 6-mile BART Burrow (\$7B). Existing market forces to reduce both CO₂ emissions and resource consumption will accelerate adoption of this environmentally positive technology and its profit potential.

The paper “[Economics of ITNS Networks](#)” provides a methodology for estimating the return on investment when an ITNS-designed system expands over a metropolitan area. Network Value is at the core of PRT’s potential to disrupt current transport paradigms. Realizing that potential with 100 sq-mi networks in 150 metropolitan areas makes a \$1T industry possible.

Additionally, if the speed potential of PRT is realized, it could displace part of the high-speed rail (HSR) industry. Even the light-weight version designed by ITNS that LoopWorks will deploy in the

semi-urban area of Milpitas is capable of speeds up to 80 – 100 mph. A reinforced design could attain higher speeds. The minimal land requirements of PRT give it a major advantage over HSR technology, 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.

Please describe the quantified impact of your business on nature.

CO₂ Emission Reductions

The dual-loop PRT system will serve an area of 1.4 sq-miles, which is 10% of the entire 14.2 square-miles encompassed by Milpitas City limits. Although population density is higher in the PRT area, we will use 10% of the entire city to represent the area to be served. 26,306,367 gallons of gasoline were [sold in Milpitas during 2019](#), so roughly 2,630,636 gallons were bought and used by Metro Area residents. If just 10% of gas-powered trips are switched to PRT and other alternatives, then PRT will prevent the burning of 263,063 gallons per year – or 2465 tons of CO₂ emissions each year (18.74 lbs/gallon X 263,063 gal. X ton/2000 lbs). Similar factors applied to a 100 sq-mi area would be 71 times as much, or 176,000 tons of CO₂ emissions each year.

Most trips in Milpitas currently utilize a car. Studies show that the synergy of PRT with other transportation options will [dramatically increase transit ridership](#). These trips that are not taken with a car can be counted toward PRT's reduction in CO₂ emissions. A PRT system also opens up possibilities for moving freight, recyclable materials, and garbage – leading to more reductions in CO₂ emissions.

Other Benefits to Nature

- PRT technology dramatically reduces other automobile-generated pollutants (toxic fossil-fuel fumes, brake lining dust, lubrication leaks, tire particles, etc.).
- PRT conserves resources because 1) fewer construction and fabrication materials are needed compared with other options, and 2) daily utilization of cabs can rise from 4% to 40%.
- High-pressure, pneumatic tires rolling on smooth steel plates virtually eliminates noise.
- Higher-density communities become possible with PRT transit as the need for roads and parking become less, thus reducing pressure to develop green spaces.
- PRT requires only very small, widely-separated land plots instead of wide, continuous strips of land. Thus, the percentage of land required for PRT is about 0.02% vs. 30-70% for the automobile system. Page 37 of the [LoopWorks Business Plan](#) (and below) shows how much space becomes available when PRT is substituted for a freeway. Imagine that space being converted to parkland.



Figure 17.1. A Freeway Running at Capacity.



Figure 17.2. The People Riding.

Figure 17.3 shows all of the people moved to the center and Figure 17.4 shows the vehicles in which they could be riding. This pair of guideways can also carry 6000 vehicles per hour – the throughput of the entire three-lane freeway. We would normally put these guideways along the fence lines so that the stations would be near people’s destinations, but the figure illustrates the land savings. A typical freeway width from fence line to fence line is about 300 feet.



What are the unit economics of your business?

Unit economics describes a specific business model's revenues and costs in relation to an individual unit. A unit refers to any basic, quantifiable item that creates value for a business. Uber would define a unit as one ride in their vehicle. Can you make more profit from a customer than the total cost of acquiring them?

Like Uber, a unit is one ride or trip in a PRT cab from any station in the system to any other station. Until LoopWorks begins operations and starts collecting real-world data, we rely upon the work of others that indicate fare box recovery is adequate to pay for both capital costs and Operations and Maintenance (O&M) of a PRT system.

For example, Intelligent Transportation Network System (ITNS) shows what is possible in the Economics section (pages 35 – 37) of the [ITNS Business Plan](#). By charging a mere \$1.10 fare, the company expects to break even on a PRT system with 30 miles of guideway and 60 stations serving 9 square miles. Reasonable underlying assumptions include capturing 20% of trips taken in the service area, and transporting 1.35 occupants per trip over an average distance of 1.6 miles. An offer of off-

peak light-freight trips is expected to attract half as much use as passenger trips. By combining fares of \$2.50 per trip and \$1.00 per mile for freight with advertising revenue of \$0.40/trip, annual revenue can pay for both O&M and retiring a capital debt of \$390M that costs 4.5% annually to service.

Due to automation and a low-maintenance design, Operations and Maintenance (O&M) is expected to run 1% - 3% of capital costs rather than the 3% - 5% common in the transit industry. Through both reduced costs and higher service levels, PRT will disrupt the transit industry while dramatically reducing the sector's planetary footprint. PRT's scalability will extend those benefits easily and rapidly.

Any for-profit company looking to enter the PRT field is advised to read sections 13 - 19 of the Plan for Commercialization ([Contributions to the Development of Personal Rapid Transit by J. Edward Anderson, Volume I](#), pages 322 – 325) which addresses:

- The Potential Market for ITNS
- The Gross Profit from Building and Operating PRT Systems
- The Size of the Market
- Strategy for Market Entry
- The Business
- How the Enterprise will make Money

The *Alternative Revenue Streams* section of the [LoopWorks Business Plan](#) (pages 80 – 83) offers 27 potential income streams grouped into these categories: Advertising, Donations, Community Support, Data Sales, and Add-On Services. LoopWorks anticipates that these added revenue streams will cover O&M for the initial dual-loop system.

Please describe any pilots or customer contracts you have now.

[Research and development](#) of PRT technology has been extensive. Of the many attempts to develop and implement a PRT system, few have succeeded. The [LoopWorks Business Plan](#) (pages 32 and 33) outlines 2 tested systems, and why the ITNS design used by LoopWorks is superior. The dual-loop Milpitas PRT system will act as the pilot for the ITNS design.

In his most publicly acclaimed work, ITNS's Dr. Anderson designed and supervised the construction of the fully automatic PRT vehicle for a budget of only \$600,000 and 6 months from the initial order-to-proceed until operation. The vehicle operated 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. The system (shown below) operated exactly as designed.



INVESTMENT DETAILS

Investment Stage of Company

Angel

Are you actively raising capital currently? If so, what size is the raise, and what are the economics?

Since July of 2021, capital-seeking activity has included contacting 6 foundations and 16 investment groups focused on climate solutions. Additionally, we have reached out to 3 consulting groups that identify and share best practices and innovative ideas. Till now, none have reached back to us.

What are the intended uses of proceeds?

The first round of funding for \$600,000 will fund a CEO (at a total cost up to \$300,000 including benefits) for one year along with start-up costs. The CEO will be tasked with accomplishing these goals:

1. Secure a Memorandum of Understanding (MOU) from the City of Milpitas.

2. Identify the prime contractors for design and construction, and secure an MOU agreement with them.
3. Secure MOUs from all property owners required for the PRT Project starting with those required for the Mini-Loop.
4. Determine whether each publicly-owned property requires a franchise agreement.
5. ~~Develop Bylaws in conjunction with [Sustainable Economics Law Center \(SELC\)](#).~~
6. ~~Secure legal counsel to review incorporation documents and other matters.~~
7. Incorporate LoopWorks with the [Secretary of State](#).
8. ~~Establish a website using the URL [MilpitasPRT.com](#).~~
9. Obtain a federal employer identification number (EIN) by completing an [online application](#) on the IRS website. There is no filing fee.
10. File a Statement of Information with the Secretary of State within 90 days after filing the Articles of Incorporation using [Form SI-550](#) which can be completed and [filed online](#). The filing fee is \$25.
11. Check on other corporate responsibilities outlined in parts 8 thru 10 of [this brochure](#) from the Secretary of State (or hire a firm to do it).
12. Enroll community members starting with Milpitas PRT supporters.
13. Determine the amount of insurance required for the construction phase, which will likely include bond money and tear-down insurance.
14. Identify an independent accounting firm that will provide reviews and audits of LoopWorks financial statements.
15. Confirm that the control system offered by [Transit Control Solutions, Inc. \(TCS\)](#) meets the requirements specified on page 58 of ITNS Business Plan (The Design and Assembly of the ITNS Control System).
16. Contact ADM Associates about Evaluation, Measurement and Verification services.
17. ~~Further develop and refine the foundation grants list of foundations and organizations within the San Francisco Bay Area that will be offered the opportunity to invest early in PRT.~~
18. ~~Select a company logo.~~
19. Seek legal counsel regarding trade-marking or otherwise protecting the name of LoopWorks even though it is somewhat protected due to official recognition by the California secretary of State and the company has not intention of expanding beyond Milpitas City limits.
20. Inform the [California Public Utilities Commission \(CPUC\)](#) of the project and explore how to work together smoothly.
21. Work with a construction company to conduct preliminary engineering which 1) answers remaining questions, 2) develops a more detailed design of the system, and 3) more closely calculates costs.
22. Contact other developers with an interest in PRT service such as the [proposed mega-project](#) just outside Milpitas (north of Montague along Coyote Creek).
23. Secure \$6M in funding for design work and project management.

Additional Tasks are outlined in the Start-up Costs and Activities section of the [LoopWorks Business Plan](#) (pages 94 to 96).

Please provide details of any previous raises you have completed (stage, amount, valuation)
None.

Thank you! We will review and be in touch.