

**LoopWorks sought funding through the CLIMA program of the National Science Foundation.
Civil Infrastructure research for climate change Mitigation and Adaptation (CLIMA)**

Prospective principal investigators (PIs) are instructed to send an email inquiry to clima@nsf.gov prior to submission to ascertain whether the proposal is suitable for the [CLIMA DCL](#), and to identify suitable programs. LoopWorks submitted the following, but was stopped by the [eligibility requirements](#).

TO: clima@nsf.gov

SUBJECT: CLIMA: Prospective principal investigators (PIs) must send an email inquiry to clima@nsf.gov prior to submission

Hi Folks,

Personal Rapid Transit (PRT) technology could make a huge difference in reducing CO₂ emissions. A small-area demonstration project using PRT will provide the data needed to properly evaluate the social, economic, and environmental potential of this advanced transit technology.

PRT appears to fit into 2 of the 4 topics of interest: Sustainable and integrated civil infrastructure systems, and Climate change-informed design and systems science methods. Specifically,

- PRT infrastructure serves the primary function of transit while also addressing climate change with substantial reductions in CO₂ emissions.
- PRT networks bring a new concept to transit that enables more distributed infrastructure systems than traditional corridor transit systems.
- The PRT design to be used in the Milpitas project was created to operate under extreme Minnesota weather conditions.

While extensive in-depth information about the [technology](#), [project](#), and [company](#) is on our [website](#), here are points to consider when evaluating whether this project deserves your attention and funding. An [Automated Transit Network](#) (ATN) is an on-demand non-stop point-to-point, and networked system with many small neighborhood stations. Personal Rapid Transit (PRT) is the small, light-weight variety that is generally elevated, electric, and private. PRT will reduce traffic congestion while increasing energy efficiency, safety, and - most dramatically - ridership of existing personal and public mobility options. PRT promotes transportation equity, mobility for handicapped, and safety for elders – simply put, it will improve the lives of people.

PRT can be a solution for struggling transit agencies looking to increase ridership. According to a [dozen studies](#), the synergy created by PRT with existing transit boosts total ridership by factors ranging from 2 to 5, aka 200% - 500%! The likely reason: [far better service levels](#). PRT's 24/7 automated service will be quicker and safer than driving, cycling, or walking.

A financial metric to consider is operation and maintenance (O&M) costs. Annual O&M for traditional/mass transit runs 3% - 5% of capital costs. Estimates put [PRT O&M costs](#) in the range of 1% - 3% of capital costs. And [PRT capital costs are far less](#) than light and commuter rail.

Another financial metric is the return on investment, specifically what level of service is returned for a given investment level? Here is an admittedly extreme example. The planned extension of our local commuter rail (BART – Bay Area Rapid Transit) will offer 4 stations along a 6-mile corridor and cost

over \$7B. For that same \$7B, [PRT could serve 100 square miles](#) with 800 stations operating 24/7 with non-stop access to both the BART Berryessa and Caltrain Diridon Stations. Which ROI sounds better to you?

This project will demonstrate 1) the effect of PRT upon BART and LRT ridership, 2) actual capital and O&M costs, and 3) patronage data. In fact, this project is designed to deliver – as the [LoopWorks Business Plan](#) says – ***The Big Payoff – Data!***

Let's assume that [\\$15M/guideway mile](#) and [\\$7B/100 square miles](#) are close to correct. What is the projected market size, and what levels of CO₂ reductions are possible? Briefly, the [world-wide market is \\$1T](#) (\$1000B) and CO₂ reductions are in the [gigaton range](#). Like the cell phone, PRT technology could be adopted rapidly as networks across the country and world emerge and expand. During that initial 10 years of expansion, lots of manufacturing and construction jobs will be created.

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 cabs 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!

LoopWorks will use PRT technology in the Milpitas Metro Area which is badly congested, densely populated, and rife with barriers that challenge pedestrians and cyclists. A PRT system will mitigate congestion and accessibility issues, while demonstrating a new transit mode that could be replicated in most major cities. Using small electric vehicles on elevated guideways, residents from 7 separate housing areas could easily access the new BART Transit Center (BART, LRT and bus terminal), 2 elementary schools, the Great Mall shopping complex, and three city parks. With small neighborhood stations within walking distance of residents, PRT will increase energy efficiency, public safety, and - most dramatically - public transit ridership.

Admittedly, LoopWorks is late to investigating this opportunity that requires CLIMA research proposals to be submitted by May 31, 2023 for full consideration for FY 2023 funding. So, please respond as soon as you can to provide us time to meet the deadline. Thank you.