

Request to Transportation Committee member to sponsor legislation

Legislative Proposal Request Form

Advanced transit could provide big reductions in CO2 emissions from the transportation sector. Please consider sponsoring this legislation that gives advanced transit a chance to compete for funding.

Contact Information

Please provide your name, title, organization, email, and phone number. List any sponsors or potential sponsors for this proposal (a sponsor would serve the role as the primary supporter for the legislation helping build support for the legislation and providing technical assistance on the policy).

Rob Means, LoopWorks Secretary

Rob@MilpitasPRT.com

408-262-0420 home, 408-262-8975 v-mail

1421 Yellowstone Ave, Milpitas, CA 95035

<https://MilpitasPRT.com> Transit for all of us!

Although no sponsor has been identified, potential sponsors include Senators Aisha Wahab and Dave Cortese along with Assemblymembers Ash Kalra and Buffy Wicks, plus with other members of the Transportation Committees.

PROPOSAL SUMMARY. *Please describe the proposal in one sentence.*

Expand eligibility for the [Transit and Intercity Rail Capital Program](#) (TIRCP) to allow advanced transit projects and non-government agencies to compete for funding – and grant funding for a demonstration project in Milpitas.

PROBLEM. *Describe the problem(s) that the proposal would address.*

Automated Transit Networks (ATN) and Personal Rapid Transit (PRT) are technologies that rarely fit government-defined transportation funding criteria. Another barrier, surprisingly, is transit agencies. Reluctance by transit agencies to include ATN and PRT in their long-term plans after 40 years of successful operation in Morgantown, WV, suggest they are not the organizations to actually implement advanced transit systems. Where PRT is adopted, it will address these problems:

- high CO₂ emissions from the transportation sector
- partial-day service and long travel times of existing public transit systems
- decades of failed attempts to increase public transit ridership
- corridor service by rail transit in sprawl areas that need networked transit

LoopWorks' primary objectives are 1) secure \$6M for final design, engineering, and permitting of the Milpitas PRT system, 2) secure \$60M for construction and safety verification of the PRT demonstration project, and 3) open the [Transit and Intercity Rail Capital Program](#) (TIRCP) to allow advanced transit projects and non-government agencies to compete for funding.

Initially, it appeared the California Energy Commission's [Clean Transportation Program](#) was the appropriate funding channel for PRT projects. However, without mentioning advanced transit, the CTP's [2023–2024 Investment Plan Update](#) focuses on advanced fuel technologies and the vehicles that use them.

During research, we discovered the [Climate Innovation Program](#) (CIP) is empowered to fund this project. LoopWorks submitted [comments about project-selection criteria](#) and [answers to CEC's 5 questions](#). While the CIP may assist the first PRT project, on-going funding from the TIRCP is more appropriate, and the focus of our efforts legislatively.

Now that proof of concept has been shown in [various places](#), proof of market is needed for widespread adoption. If so indicated by the Milpitas PRT demonstration project, the [California Alternative Energy and Advanced Transportation Financing Authority](#) is already in place to provide financial support for spreading the technology to communities across the state.

List All Documented Sources Supporting Your Conclusion That There Is a Problem:

[Background Paper](#) for the Feb. 27, 2023 Senate/Assembly Joint Transportation Committee which states "... the price of public transport comes well after reliability, punctuality, frequency, comfort, security and geographical coverage, in terms of priority criteria."

Ro Khanna did a 1-minute [Facebook video](#) entitled "I took public transportation from Fremont to Cupertino to see what it's like to get around my district. Let me tell you, it's hard!"

Santa Clara County Grand Jury Report entitled "[INQUIRY INTO GOVERNANCE OF THE VALLEY TRANSPORTATION AUTHORITY](#)"

[New Report Draws Roadmap for Bay Area Transit to Survive and Thrive](#)

[Preparing for a 2026 Regional Transportation Measure](#)

SOLUTION. *Describe the proposal and how the proposal would address the problem (please be specific, citing existing law if possible)*

Personal Rapid Transit (PRT) is an elevated, zero-carbon, electric, on-demand, private, non-stop point-to-point, and networked system with many small neighborhood stations. PRT will reduce traffic congestion while increasing energy efficiency, safety, and - most dramatically - ridership of existing public and private transportation options. PRT promotes transportation equity, mobility for handicapped, and safety for elders – simply put, it will improve the lives of people.

Potentially a \$1T industry, advanced transit could become a major factor in reducing CO₂ emissions worldwide, and help California meet its legislative and CARB goals.

After decades of transit agency investments to grow ridership, not much has changed. During those years, a dozen studies concluded that public transit ridership would grow by 100%, 200%, or more when Personal Rapid Transit (PRT) is added to the existing transit mix.

Fundamental to rail transit design is widely-separated stations and long headways (in the absence of high demand). Bus networks provide neighborhood stations, but suffer from slow-speed service, long headways, and vehicle transfers. PRT's on-demand service with non-stop point-to-point trips dramatically reduces overall trip time to below car-driving time in the area served.

COST. *If possible, provide an estimated cost of the proposal and identify the entity that would pay for the proposal.*

Current law funds the Transit and Intercity Rail Capital Program (TIRCP). This legislation would not affect the TIRCP's impact on the budget; it simply opens funding eligibility to allow advanced transit projects and non-government agencies to compete.

While Section 75227 of the proposed legislation adds to the State's budget, the \$66M could be seen as appropriate reparations for past transit agency negligence. LoopWorks and other industry leaders believe that nearly 50 years of safe and reliable PRT operation in Morgantown, WV, demonstrates proof of concept. Because transit agencies have ignored advanced transit technology for so many years – even after our Climate Crisis became obvious – we need to catch up by building a demonstration PRT project immediately. Thus, additional objectives are 1) secure \$6M for final design, engineering, and permitting of the Milpitas PRT system, and 2) secure \$60M for construction and safety verification of the PRT demonstration project.

The proposed addition of Section 75227 to the Public Resources Code (PRC) and its cost provisions may not be necessary. The California Energy Commission (CEC) has 1) ordered that the sole and presiding member of the Policy Committee is Commissioner Patricia Monahan, and 2) vested in her much power to influence projects in, and funding from, the Clean Transportation Program. Her background has prepared her for understanding the value of PRT. A successful meeting of the minds with her followed by project funding could obviate Section 75227.

GOVERNMENTAL IMPACTS. *What State Department(s) or entities would be impacted by this request?*

The California State Transportation Agency (CalSTA) is a cabinet-level agency focused solely on addressing the state's transportation issues. The California Transportation Commission (CTC) is 1 of 8 entities through which CalSTA achieves its goals: Safety, Equity, Climate Action, and Economic Prosperity.

The 13-member [California Transportation Commission](#) (CTC) is responsible for programming and allocating funds for the construction of highway, **passenger rail, transit** and active transportation improvements throughout California. The Commission also advises and assists the Secretary of CalSTA and the Legislature in formulating and evaluating state policies and plans for California's transportation programs. The CTC allocates funding to applicants pursuant to the programs approved by CalSTA.

CTC's [Transit and Intercity Rail Capital Program](#) (TIRCP) funds transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems to significantly reduce emissions of greenhouse gases, vehicle miles traveled, and congestion. According to the [2022 TRANSIT AND INTERCITY RAIL CAPITAL PROGRAM DRAFT GUIDELINES FOR GENERAL FUND AUGMENTATION](#), the TIRCP receives a portion of the Transportation Improvement Fee revenues established by SB 1 and a continuous appropriation of 10 percent from the quarterly Cap-and-Trade auction proceeds deposited in the Greenhouse Gas Reduction Fund (GGRF), plus any annual budget allocations provided by enacted budget bills. In the [2022-23 GOVERNOR'S BUDGET — EP 2 ENVIRONMENTAL PROTECTION](#), Project #3228 (page EP 13) shows that most of the \$1B GGRF comes from Carbon Allowances Auction Proceeds which are estimated at \$2.3B in 2023.

Revenue and Taxation Code (RTC), Chapter 6, Transportation Improvement Fee, [Section 11053](#) directs that of the revenues from the transportation improvement fee, over three hundred fifty million dollars (\$350,000,000) shall annually be deposited into the Public Transportation Account, and that 70 percent of these deposits are to be allocated to the TIRCP.

The TIRCP is implemented under Public Resources Code (PRC) DIVISION 44, Transit, Affordable Housing, and Sustainable Communities Program, specifically PART 2, Transit and Intercity Rail Capital Program.

In summary, CalSTA, CTC, and TIRCP staff may be affected as they learn about and incorporate advanced transit into their thinking and funding.

ORGANIZATIONAL SUPPORT. *List the likely organizations that would support the proposal.*

Support for these proposed legislative changes has not yet been pursued. However, the dual-loop Milpitas PRT demonstration project already has [support from various elected officials](#) including U. S. Representative Ro Khanna, Senator Aisha Wahab, [Assemblyman Alex Lee](#), and Milpitas Council member Anthony Phan. Additionally, [letters of support](#) for the project outline various ways PRT can benefit us all, especially the ones from the [Sunnyhills Neighborhood Association](#), [Advanced Transit Association](#) and [Sierra Club, Loma Prieta Chapter](#).

Support may come from these groups if requested:

- **Environmental groups** – By reducing fossil fuel use and the impact of cars on the environment, other environmental groups will likely follow the lead of the [Sierra Club](#).
- **Interested Cities** – Several cities have transportation problems that could be solved with an ATN: [San Jose](#), [Milpitas](#), Mountain View, Sunnyvale, and [Santa Cruz](#).

- **Real Estate interests** – This group is likely to support PRT because [property values rise](#) when transit infrastructure is built nearby. Also, reduced car use in PRT-served areas makes housing easier to build because 1) housing without garage space becomes viable, and 2) communities experiencing parking issues will more readily accept higher densities that don't increase parking demand.
- **Government agencies supported by property taxes** – As [property values rise](#), so do property taxes.
- **People with disabilities** – easy-to-use, 24/7 transit with neighborhood stations will empower this community.
- **Working Parents** – The secure feeling of putting your child into a PRT cab knowing they will arrive safely at the station near their school will reduce child chauffeuring, free up valuable parental time, and add walking into a child's daily activities.
- **Transit Agencies** – Despite their past reluctance to engage with advanced transit advocates, transit agencies may be swayed by the argument that [public transit ridership will grow](#) by 100%, 200%, or more when Personal Rapid Transit (PRT) is added to existing transit mix.
- **Milpitas Unified School District** – Expansion of the Milpitas ATN to encompass both [Milpitas High School](#) and the new [Innovation Campus](#) will solve the District's problem of connecting the 2 sites so students can easily travel between them.
- **Milpitas Chamber of Commerce** – On top of easing travel by customers and workers, the PRT demonstration project will be an international attraction that boosts tourism and business activity.
- **Influential Individuals** – Among the 130 PRT supporters in the LoopWorks database are elected officials and influential residents of Milpitas.
- **Silicon Valley Bicycle Coalition** – By providing safe passage over barriers and traffic congestion, ATNs will support active transportation efforts in our community.
- **PRT Companies** – Opening up transit funding for ATN projects will garner support from this group which includes [PRT Consulting](#), [Swyft Cities](#) (a Google spin-off) and [Glydways](#) (company that raised \$56M recently, and is driving the Diridon-Airport Connector).

ARGUMENTS IN SUPPORT. *Identify primary arguments in support of the proposal.*

- A \$1T advanced transit industry awaits a proof-of-market demonstration project to kick off a climate solution that reduces CO₂ emissions from the transportation sector.
- A [dozen studies](#) concluded that public transit ridership would grow by 100%, 200%, or more when Personal Rapid Transit (PRT) is added to the existing transit mix.
- At \$20M - \$50M per bi-directional mile, PRT costs far less than rail options to [build](#) and [operate](#), while also providing [far better service](#). For example, which would better serve San José residents, [4 BART stations or 800 PRT stations](#)?
- Unlike all public transit systems in California, advanced transit holds the potential for making a profit (which is why [Glydways](#) and Google spin-off [Swyft Cities](#) are in the business).

ORGANIZATIONAL OPPOSITION. *List the likely organizations that would oppose the proposal.*

While dangers from passage of the proposed legislation are constrained by the existing procedures and guardrails provided under the TIRCP, opposition from special interest groups and their well-funded

lobbyists does pose a likely challenge. Here are groups that might oppose these changes, and some comments about each threat.

Auto Makers - Although auto makers may seem likely opponents, 3 factors suggest they will ignore this legislation and PRT project: 1) the demonstration project is too small to notice or be concerned with; 2) as with Kodak ignoring digital photography until it was too late, the [Semmelweis Reflex](#) will protect PRT for awhile; and 3) Big Auto is busy adapting to marketplace changes including product line electrification and the expected reduced sales of individually-owned cars as fleet ownership of driverless cars and Mobility As A Service (MAAS) take hold in our culture.

Fossil Fuel Industry – Like Big Auto, Big Oil may not notice this effort due to our small size, the [Semmelweis Reflex](#), and other battles they are waging to maintain marketplace dominance.

Driverless Vehicle Companies – While driverless vehicles could compete directly with PRT for ridership, it seems equally likely that they could cooperate. Driverless vehicles could augment their service by feeding suburban riders to/from a PRT system that quickly delivers them to and through congested/denser areas. Reinforcing that future vision are recent studies that indicate driverless vehicles without multiple riders are expected to increase congestion in congested areas - but not in uncongested areas. In both area types, driverless vehicles will be especially valued by non-ambulatory riders who require door-to-door service - a service worth a premium fare. Pairing driverless vehicles with ATNs offers an attractive combination to riders.

Transit Operator Unions – Expect knee-jerk reactions from transit union representatives to the “automated” part of Automated Transit Networks (ATNs). It is true that computers will be driving ATN passengers around rather than human operators. However, more transit operators will be needed if we see the predicted 100% - 500% increase in transit ridership when PRT is added to the existing transit mix.

Transit Agencies – Surprisingly, public transit agencies have generally ignored - or even dismissed - ATNs. While the [Semmelweis Reflex](#) is likely part of their reluctance to seriously consider advanced transit, so might the resistance of bureaucratic systems to change. Likely worse than transit agency reluctance to embrace a new technology could be their response to opening up competition for funding to locally-controlled and democratically-governed non-profit organizations and tribal governments. While transit agencies may argue that they are better prepared to implement ATNs, their behavior to date suggests otherwise. For example, 3 different Santa Clara County Grand Juries (2004, 2009, and 2019) [cited poor governance](#) as a “root cause of VTA’s poor performance”, and that “the VTA Board is in need of structural change to enable it to better protect the interests of the County’s taxpayers”. Decades of transit agency investments to grow ridership have produced disappointing results. During those years, a [dozen transit studies](#) done in cities around the world concluded that public transit ridership would grow by 100%, 200%, or more when Personal Rapid Transit (PRT) is added to existing transit mix. Even now, ATN and PRT are still missing from transit agency long-term plans.

Heavy Rail Companies – While high-speed rail advocates often see the synergistic value of ATNs to move people to and from HSR stations, both commuter and light rail manufacturers may (rightly) see ATNs as competitors. Both urban rail options could be challenged as outlined in the [LoopWorks Business Plan](#). Pointing out ATNs’ potential to provide better service for dramatically lower costs may be enough to quiet them – or at least highlight their narrow self interest.

NIMBYs – Expect complaints about visual intrusion and attracting homeless/criminal outsiders. A response to concerns about visual intrusion is to ask about whether the NIMBY has gotten accustomed to roads which present a bigger and uglier visual (and auditory) intrusion than slim, smooth PRT guideways. Because Milpitas PRT will serve the Transit Center, unhoused people and criminals from outside Milpitas can easily get into town – as can workers, residents, and shoppers. The real measure of community value is the benefit-cost score: do the benefits outweigh the (perceived) costs?

ARGUMENTS IN OPPOSITION. *Identify primary arguments in opposition to the proposal.*

Cost – At \$15M/mile, it could cost billions to build a system of any real use.
[Response: Yes, to provide high-level service to 100 square miles could cost \$7B. Such an ATN system with 800 stations would provide service superior to the \$12B BART Burrow. A service area of as little as 10 square miles is estimated to generate enough ridership to be profitable.]

Visual intrusion – To provide stations in every neighborhood will require lots of elevated infrastructure that's visually intrusive.
[Response: Yes, guideways as small as 3 feet across will run 16 feet above major streets and public rights-of-way. So, let's ensure they are not ugly (and noisy) like the cracked 40-foot wide asphalt street in front of my home. More important than guideway visibility are the benefits to a long list of community groups.]

Driverless cars are better – Why waste money on PRT infrastructure when driverless cars can provide door-to-door service on existing roads?
[Response: While PRT requires a short walk to a neighborhood station (a daily activity recommended by health professionals), the trip time between origin and destination stations is quicker, smoother, and the view is better. While driverless vehicles could compete directly with PRT for ridership, it seems equally likely that they could cooperate. Driverless vehicles could augment their service by feeding suburban riders to/from a PRT system that quickly delivers them to and through congested/denser areas. Reinforcing that future vision are recent studies that indicate driverless vehicles without multiple riders are expected to increase congestion in congested areas - but not in uncongested areas. In both area types, driverless vehicles will be especially valued by non-ambulatory riders who require door-to-door service - a service worth a premium fare. Pairing driverless vehicles with ATNs offers an attractive combination to riders.]

HISTORY – *What are the prior legislative attempts regarding the matter?*

No references to Automated Transit Networks (ATN) and Personal Rapid Transit (PRT) have been found in California codes.

LANGUAGE – *Please draft out bill language for this proposal, if you have any.*

Personal Rapid Transit (PRT) companies, and the public they could serve, would benefit from funding opportunities in the [Transit and Intercity Rail Capital Program](#) (TIRCP). If only! For PRT company

LoopWorks to become eligible to compete for funding, 3 sections of the Public Resources Code (PRC) that pertain to the TIRCP require modification as follows.

Edit Section 75220 (d)

75220 (d) “Transformative capital improvement” means a rail, bus, ~~or ferry~~ ferry, or advanced transit project that will significantly reduce vehicle miles traveled, congestion, and greenhouse gas emissions by creating a new transit system, increasing the capacity of an existing transit system, or otherwise significantly increasing the ridership of a transit system.

Add Sections 75220 (e) through (h)

75220 (e) “Advanced Transit” and “Automated Transit Network (ATN)”, as defined by the ANSI/ASCE/T&DI Automated People Mover Standards, is “Subset of Automated People Mover that has all stations offline, switching that requires no track-based moving parts and train capacity less than 25 passengers.” Typically, ATNs are publicly available transit systems with these 3 characteristics:

- 1) Renewable energy-powered vehicles run on dedicated right-of-way - whether guideways, rails, or roads - that is separate from road traffic;
- 2) off-line stations so vehicles can bypass stations and efficiently maintain rapid speeds;
- 3) fully automatic control to ensure equitable distribution of service along with increased safety and security.

(f) “Personal Rapid Transit (PRT)” means an advanced transit system with cabs that can accommodate up to about 8 riders.

(g) “Group Rapid Transit (GRT)” means an advanced transit system with vehicles that can accommodate 8 or more riders.

(h) “Network system” means one that covers an area rather than a linear corridor of stations; network systems come in two types - those that require rider transfers to another vehicle and those that don’t.

Edit Section 75221 (e)

75221 (e) Eligible applicants under the program shall be ~~public agencies, including joint powers agencies, that operate or have planning responsibility for existing or planned regularly scheduled intercity or commuter passenger rail service, urban rail transit service, or bus or ferry transit service~~ locally-controlled and democratically-governed organizations, tribal governments, and public agencies, including joint powers agencies.

Add Section 75227

75227 In recognition of rapidly worsening Global Warming, its costly consequences, and the potential of advanced transit to reduce CO₂ emissions, it is the intent of the Legislature that funding be allocated by the Transportation Agency for the Milpitas PRT Demonstration Project of \$6M for final design and engineering, and \$60M for construction and safety verification.

While changes to Section 75220 are clearly designed to add advanced transit to the categories of technologies eligible for funding, the change to Section 75221(e) allows organizations less encumbered by large bureaucracies and traditional transit thinking to provide complementary transit options. The urgency of our Climate Crisis demands of us climate solutions that can be quickly and widely implemented. Empowering locally-controlled and democratically-governed non-profit organizations and tribal governments to compete in the transit sector helps ensure quick and wide-spread implementation of advanced transit systems and attendant CO₂ emission reductions.

Please make sure all additional information is attached and submitted together. Thank you for taking the time to consider new legislation for the state of California. Our office will be in touch once your request has been thoroughly reviewed.

- [Details about PRT technology and the Milpitas demonstration project](#)
- [Stations - 4 BART or 800 PRT?](#)
- [Transportation Options Through a PRT Lens](#)
- Presentation slide decks for [State Senator Aisha Wahab](#) and [Milpitas City Council](#) (plus [video version](#))