

Title: Small-Suburb PRT Ballot Initiatives

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Steve Raney, Cities21.org

1487 Pitman Ave., Palo Alto, CA 94301, (650) 329-9200. steve_raney@cities21.org.

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ABSTRACT

Personal Rapid Transit (PRT) has been rapidly eliminated in three recent U.S. major investment studies. PRT is burdened by a past history of un-commercialized government demonstration projects. In the current political climate, a more effective approach uses a ballot initiative to advance a planning study in a city with a small voting population, but many potential transit riders. Two victorious Seattle Monorail initiatives provide examples of successful techniques and avoidable perils. An initiative provides a mandate to advance new transit strategies; however, an initiative cannot advance towards victory or successful implementation without the backing of skilled local politician. The initiative serves as an effective tool for political leadership, not as a substitute.

An Emeryville (California) initiative, with budget, timeline, and initiative text, is provided as a model for similar initiatives. For Emeryville, a San Francisco suburb with 6,900 residents and a daytime population of 27,700, a \$17,000 initiative budget can sway 1,300 votes, affecting 27,700 potential riders. Rather than PRT serving as both trunk and feeder, a smaller feeder-only system is proposed to serve Emeryville's activity centers while complementing existing transit infrastructure.

INTRODUCTION

The initiative process has cluttered California elections with more special interest measures than average citizens care to read about. Most campaigns boil down to sound bites, many of which stretch the truth. However, the initiative is here to stay and offers an effective tool to advance the cause of PRT. For small cities with many potential transit riders, an election can be won on a small budget.

An initiative proposal is provided for the City of Emeryville, California. The ideas also serve as a model for PRT initiatives for other cities, as a possible low-cost outlet for the energies of local grassroots efforts. 24 states currently allow citizen ballot initiatives. (1) Of U.S. cities with current or former PRT grassroots organizations {San Diego, Cincinnati, Austin, Minneapolis, Palo Alto, Santa Cruz (CA), Seattle, Irvine (CA), St. Louis, Portland, and Tucson}, only Minneapolis and Austin are in non-initiative states.

PRT consists of many lightweight, driverless, three or four-person electric vehicles traveling on a monorail 16' above the ground. Transit stops are located by the front entrance of buildings. Frequent stops are situated along the route to minimize walking once the trip ends. Transit stop guideway is separated from the main guideway - vehicles turn off onto a siding to pick up and drop off passengers. Because of these turn-offs, vehicles travel non-stop to the destination at 30 mph, bypassing intermediate stops and speeding at twice the average speed of autos on the congested roads below. Vehicle weight minimization reduces the size of the elevated rail and supporting piers, dramatically reducing construction cost and right of way acquisition. Vehicles flow through the rail almost like data packets on the internet, anticipating demand so that wait time is eliminated.

While proponents often envision complex PRT networks with hundreds of miles of guideway; short, commercially viable suburban systems are more politically practical for early PRT implementations. The airport

people mover market also appears promising for PRT, because of PRT's promised cost advantages over traditional Automated People Movers (APMs). Cincinnati's Skyloop PRT proposal had estimated capital costs of \$5.3 million per mile using Taxi 2000 technology. This estimate excluded initial technology development costs for testing, control system, and safety certification. (2) Costs for planned airport APMs, such as the Oakland Airport Connector, are often more than \$60 million per mile. (3) However, APMs are well established in this market, so beating APMs in an airport major investment study means taking on the well-financed APM industry directly – not advisable for the scrappy, poorly-funded PRT industry. In contrast, for suburban in-fill feeder transit, APMs, because of their large guideway, are not viable and certainly not entrenched.

The challenge for PRT appears to be in getting the first successful implementation built. Should an implementation meet advocate's three main claims of inexpensive construction, profitable operation, and superior service level, then the spread of PRT could match the rapid spread of a technology that met those three claims in the late nineteenth century, the electric trolley:

"The first electronic trolley line opened in Richmond in 1888, was adopted by two dozen other major cities within a year, and by the early 1890's was the dominant mode of intraurban transit. The rapidity of the diffusion of this innovation was enhanced by the immediate recognition of its ability to mitigate the urban transportation problems of the day." (4)

EMERYVILLE, CALIFORNIA

Located on the East side of the San Francisco Bay at the Bay Bridge entrance, Emeryville abuts Oakland and Berkeley, to the North and West, respectively (See Figure 1). Highway 80 runs along the West side of Emeryville, along the Bay. Amtrak's railroad tracks split Emeryville in two, creating transportation challenges as only two bridges and a single at-grade crossing connect the two halves.

Emeryville's weekday population is 27,700, consisting of: 15,000 employees; 6,900 residents; 5,000 shoppers; and 800 hotel visitors. The residents live in 4,000 households, with 55 percent occupying single person households, primarily in high-rise apartments. (5)

Emeryville is the second densest city in the Bay Area, after San Francisco, based on jobs plus residents per acre. Measuring 1.2 square miles, Emeryville has made a marked change in the past 10 years, redeveloping from abandoned shipyard brownfield sites.

Emeryville's Amtrak station is one of the nation's busiest, with 500,000 riders per year. Bay Area Rapid Transit (BART) provides a second rail connection at MacArthur Station, located 0.75 miles from Emeryville in West Oakland. MacArthur is a typical suburban BART station, with 5,600 station exits per weekday, with an unknown percentage ending up in Emeryville.

A regional shopping center and retail superstores attract shoppers from neighboring cities and beyond. A large food court is very popular at lunch. The IKEA furniture superstore generates 16,000 visits per day on the weekends. Travel demand is high during off-peak weekday hours and on weekends, making Emeryville well suited to 24x7 PRT service.

The major employers hire knowledge workers in computer and bioscience fields. A 1992 City of Emeryville commute survey (the most current data available – the City believes this is still accurate) revealed a typical suburban commute mode split as follows: single occupancy vehicle (SOV): 80.5 percent, carpool: 10.0 percent, public transit: 5.8 percent, bike: 1.6 percent, and walk: 1.2 percent. 50 percent of commutes are ten miles or less, 25 percent are five miles or less. (Unpublished data: City of Emeryville 1992 Commute Study. 1333 Park Avenue, Emeryville, CA 94608, Phone: 510-596-4300).

Rail transit, carpooling and express bus service are very competitive with peak commute auto travel time into Emeryville. The 15 mile Southbound morning peak commute on Highway 80 from Pinole to Emeryville takes only 15 minutes via HOV3 (three person high occupancy vehicle) carpool lane, versus 50 minutes by SOV (less than 20 MPH). (6) To the South of Emeryville, the Highway 880 commute from Oakland is also very congested, making BART competitive from that direction.

Within the City of Emeryville, the free Emery-Go-Round (EGR) bus shuttle service connects passengers from transit to more than 20 in-city destinations. EGR, one of the most successful shuttle services in the Bay Area, is a nonprofit organization, funded by both a Transportation Management Association (17 members: major employers, hotels, retailers, and the City) and a property based improvement tax district (PBID). EGR carries more than 615,000 passengers per year.

The computer and bioscience knowledge workers have hard-to-change SOV commuting habits. They are willing to consider switching modes, especially where commute time decreases or where productive time (reading, working on laptop, processing wireless personal digital assistant electronic mail, etc.) increases while commute time

increases only slightly. (from author's interview research) Hine describes attitudes towards productive time on public transit. (7) For many commutes into Emeryville, alternatives meet the challenge compared to SOV. Where things break down is within the city, on the EGR, which provides "milk-run" style service with long waits and frequent stops. This type of service typically attracts transit-dependent riders instead of suburban knowledge workers.

In addition, knowledge workers considering commute alternatives abhor being stranded without high quality transportation during the middle of the day. Knowledge workers value their "free time" during lunchtime more than their work time, which in turn they value more than their commuting time. (8)

HIGH QUALITY SUBURBAN FEEDER TRANSIT

In mixed-use Central Business Districts, jobs, housing, and shops are all within convenient walking distance. In many suburbs only an auto can provide an effective link between these three main real-estate uses. PRT, serving as a feeder, offers the promise of making these uses more rapidly accessible than via auto.

A PRT feeder network can create a very large "transit village," providing the necessary scale for efficient operation. By solving the "last mile" problem, PRT makes commuter rail, carpooling, biking, bus, and commute services more efficient. Many suburban carpools consist of husband/wife pairs working at the same location, or twenty-something males who have chosen to room together. These "easy to operate carpools feature a single origination and a single destination. Because PRT provides such an efficient distribution mechanism and eliminates mid-day stranding, more complex carpools are more readily formed. Instead of forming carpools with the same destination, PRT enables an entire major employment center to become a convenient carpooling destination. Carpoolers travel to the edge of the employment center, park at the most convenient employer lot, and then ride PRT to reach their workplaces. Likewise, most bicycle commuters are currently fearless, hardy souls willing to navigate through busy suburban streets to reach their place of employment. With PRT, the dangerous last mile can be taken in a PRT vehicle, empowering casual bikers who may be only comfortable riding on protected bike routes. With PRT, existing bus service can be redirected to connect cities to cities, using PRT to distribute passengers more rapidly within cities. By rapidly connecting an entire major employment center, PRT can provide sufficient scale for centralized commute services such as "guaranteed ride home", car sharing, and car rental.

EMERYVILLE PRT FEEDER IMPLEMENTATION

One potential alignment serves all of the existing EGR bus stops in a large, one-way loop with four "shortcuts" to reduce trip time (See Figure 1).

In the most extreme example cited by EGR management, PRT beat EGR by 20 minutes (including wait time) for a two-mile trip from the BART station (see the section entitled "Initiative Section Five" below for trip time calculations). PRT, as opposed to EGR, competes effectively as part of a multimodal commute to knowledge jobs within Emeryville, and as a rapid mode to get to the shopping center and food court during lunchtime. Within congested city limits, door to door auto trips average roughly 12 MPH. PRT averages closer to 30 MPH, by traveling non-stop above the roads.

A rough patronage forecast is provided in Table 1. Ridership forecasts require in-depth study, but the overall competitiveness of non-SOV alternatives makes a quick guesstimate of 25 percent commute mode split appear reasonable. Previous studies have estimated mode splits for large Minneapolis, Los Angeles, and Gothenburg (Sweden) PRT configurations at 50, 34, and 40 percent respectively. (9, 10, 11) Likewise, for residents leaving the city during the day, SOV alternatives should achieve a sizable share. While PRT reigns superior over auto trips at lunchtime, the question is more how many employees take trips outside of the workplace at lunch, especially given subsidized corporate cafeterias designed specifically to reduce such trips. For residents living in apartment towers, PRT provides more convenient service for errand running, provided there aren't too many bags to carry back home.

A detailed economic analysis requires an in-depth study, but, at a conservative estimate of 22,800 trips per day, depending on fare and advertising revenue, PRT stands a good chance of operating at a profit. In addition, retail sales should increase sizably.

One additional benefit should be noted: Hourly workers will benefit from improved access to better jobs and from reduced commute time, increasing their family time. PRT runs 24x7 with virtually no waiting, serving swing and graveyard shift jobs. Working in conjunction with other transit modes, PRT enables a lifestyle with less auto dependency, reducing the high cost of buying, maintaining, fueling, and insuring a car.

A MODEST FIRST INITIATIVE

PRT technology recently suffered three early defeats in investment studies: a) Bay Area Rapid Transit (BART) to San Jose Major Investment Study, b) Cincinnati Downtown Loop Alternative Study, and c) Seattle Initiative 53 Elevated Rail Alternative Study. PRT was theoretically the most cost-effective solution for all three, but the lack of a working system assured defeat. Transportation engineering firms conducting such studies rightly reject speculative cost and performance claims, nor are they provided with sufficient budget to undertake an independent PRT costing analysis. (From the author's experience working on BART's Group Rapid Transit Investigative Study, such a costing would require a minimum outlay of \$50,000). Today, unlike 1991 when Chicago's Regional Transportation Authority sponsored the Raytheon PRT demonstration project, no transit authority is willing to select unproven technology. These defeats show the need for development of a demonstration system. In sharp contrast to Europe where the ULtra PRT system has secured \$68M in government funding commitments, the current U.S. transportation establishment is so afraid of high-profile project failures (building a "guideway to nowhere") that forward-thinking ideas cannot advance. Demonstration projects are not being funded, unlike the 1974 Morgantown Group Rapid Transit system and the aforementioned Raytheon system. In addition, basic R&D spending has been dramatically scaled back. In this environment, a citizen initiative can overcome the understandable risk-adversity of elected and appointed officials, providing a mandate to perform beneficial R&D.

The overall initiative strategy will be for a phased approach. The objective of the first initiative will be modest, to prepare a \$200,000 study, creating a demonstration project proposal that the council may wish to advance at the following election. An initiative for a complete \$60M operational passenger system could be presented as a second initiative (preferably built as two \$30M segments). Unlike a typical transportation investment study, the initiative process allows PRT technology to be selected without competition from proven technologies. This initial initiative will nudge Emeryville into cooperating on the study, rather than following the adversarial Seattle Monorail precedent.

Only a small portion of a city's general fund should be taken for an initiative, so as to "run under the radar." Initiative Lawyer Barry Fadem (lead attorney for California Lottery Initiative) believes "no one will spend against this initiative." As a result of limited opposition, only 1 mailer and a small public relations effort will be required to convince voters of the merits of this initiative.

A "silent" political champion, such as a city council member is required. If at least one council member cannot be persuaded to assist the initiative, then political support cannot be obtained and the initiative is doomed. Prudent council members should insist on a convincing demonstration of the technology, such as taking a test ride at ULtra's Cardiff, Wales test track, before backing an initiative. The initiative process allows a council member to avoid early association with the measure, while still being able to assist the cause. The political impact would be too damaging for a council member to directly back futuristic technology. As one Emeryville council member fearfully states, "MTC (Metropolitan Transportation Commission) is a powerful organization that plays rough, and, if crossed, withholds funds from cities." Once signatures are qualified, the council member can claim a citizen mandate and go public with support.

The initiative process allows for a city ordered 30 day study period to investigate almost anything, using city funds. The silent PRT champion should initiate studies that assist in winning the election. A "Visual Impact Study," creating a 3D animation of PRT within the city context, will enable voters to visualize the system.

Assuming 35% of citizens vote in gubernatorial elections, it takes only 400 signatures to qualify and 1,400 votes (simple majority required when there are no new taxes) to pass the initiative. Cities with huge jobs/housing imbalances face a strange voting landscape. Non-resident employees and shoppers have no say in matters that may affect their lives dramatically. Residents can use the initiative process to lash back at perceived problems (such as traffic) caused by employees.

SEATTLE MONORAIL INITIATIVES

By 1997, "Seattle political leadership had invested considerable political capital in efforts to build light rail." (personal communication from Dick Nelson). Fed up with traffic, enamored with exciting monorail, and skeptical of light rail, Seattle citizens passed the Seattle Monorail Initiative 41.

In 2000, in order to address implementation problems with Initiative 41, the \$6M Initiative 53 was passed. The city's efforts to scuttle Initiative 41's implementation further increased citizen backing of this populist movement. (Nelson communication). The main lesson for a PRT ballot initiative is that the Seattle initiatives constrained the type of technologies that could be considered to monorail, elevated light rail, and PRT. Bus rapid transit, ground level light rail, and transportation demand management measures were eliminated from

consideration. The most complete review of the history around the initiatives is provided by the Elevated Transit Company (12). It is worth commenting on some of the language in the initiatives:

Initiative 41

*“Government has failed to provide for rapid mass transit; therefore, a **Public Development Agency** is proposed to build, maintain and operate a system which will control costs while providing the highest return and general good to the area and the people. The purpose of ETC (Elevated Transit Company) shall be to cause a transportation system to be built that will be principally an elevated mass transportation system which will be electrically powered, with rubber tires. ETC will then oversee and operate the system, and all other facilities directly related to it.” (13)*

This wording wouldn't be appropriate for the working relationship envisioned with the City of Emeryville. Seattle created a new autonomous public agency, the Elevated Transit Company, with police power. Measure authors chose not to work with existing transit agencies, who were championing light rail. For Emeryville, it will be best to work with existing departments. For instance, the Emery Go-Round Shuttle Manger, Wendy Silvani, is uniquely competent and should be retained to work on for a PRT system.

“The salaries of the City Council must be withheld if this monetary support is not available within one year of the effective date of this ordinance.” (13)

This incendiary language shouldn't be used for Emeryville.

Initiative 41 even sketched out a rough transit route alignment.

Initiative 41 didn't secure funding for the ETC. The City Council provided \$200,000 in initial funding, enough for one paid staffer. ETC raised \$5,600 in donations and solicited \$10,000 from each potential system bidder, but this failed. Without more funding, ETC struggled to be effective. (12) Not surprisingly, the Council fought ETC at most opportunities. A local newspaper explained, “after months of heated debate last summer, the council refused to give any more money to the advisory body established to study the project's feasibility. Instead, council members asked the city to include a monorail in a (non-ETC) Seattle traffic study.” (14) A judge found the Council had not properly carried out its duties and that slowly killing ETC by inaction was against the law. (12) The text of Initiative 41 required the City was to appoint ETC board members by a given date, but the City delayed.

Initiative backers over promised and under delivered, a problem by no means unique to the Seattle Monorail. The “for” position on the voter pamphlet implied an \$800M cost for a 40 mile monorail system. One analysis shows the ETC's current 53-mile configuration costing \$6.5B, with former bus riders comprising 82% of patronage. (15)

Initiative 53

Initiative 53 provided \$6M from the general fund. There have been no court challenges and the City has not argued that their ability to carry out essential services is impaired.

“The City of Seattle, and its entities and employees shall cooperate and assist the ETC to achieve the goals of this measure and shall include monorail options in any Strategic Transportation Initiative (STI) process or similar study or process. All City information deemed relevant by the ETC shall be made available to ETC in a timely fashion. The city must facilitate this measure in any way needed including but not limited to prioritizing obtaining any permits, or dedication or use of any rights of way, or any waivers to or changes in any state or other superior law that may be needed, such as obtaining a waiver from King County Metro to allow a monorail to operate in the City of Seattle. This measure shall be most liberally and broadly construed or interpreted, by any court or other body or official, in order to effectuate and carry out its purposes.” (16)

For Emeryville, it will be better to specify tasks for City Departments to carry out (such as conducting charrettes, holding status meetings, and providing geographic information services) without mandating cooperation.

The demographics of Seattle reflect those of Emeryville. Voting power is in the hands of 20-40 year old technophiles who disdain the bus. They want high quality transit designed for them, not for transit dependent folks. In both cities, hourly workers are less likely to vote. PRT has many compelling social justice aspects, but politically, the Emeryville appeal should concentrate on the high-rise apartment dwellers.

INITIATIVE TIMELINE

See Table 2.

BUDGET

See Table 3.

***** INITIATIVE TEXT *****

This initiative measure is submitted to the people of Emeryville in accordance with the provisions of Article II, Section 8 of the California Constitution. (17)

This initiative creates a \$200,000 study for a personal rapid transit demonstration system in Emeryville.

Initiative Section One. Title

This Act shall be known as the Personal Rapid Transit Study.

Initiative Section Two. Findings and Declarations

(a) Emeryville council and staff have led an amazing 10 year transformation. Emeryville has the highest percentage of brownfield redevelopment and blight reduction of any U.S. city. The Emery Go-Round public/private partnership is the best shuttle service in California (but we're not satisfied being number 1!). The City Manager, Redevelopment Agency, Planning Department, and City Council deserve specific praise for their transformational role. The Redevelopment Agency has done a commendable job in building affordable housing.

(b) By most measures, Emeryville has become too popular. It stands out too far from other East Bay communities as a work and shopping destination. The Redevelopment Agency's projects have been so popular that the resultant traffic has been much higher than could have been anticipated. For instance, IKEA was projected to generate 9,000 auto trips per weekend day, but is generating 16,000 trips per day. Gridlock reigns in the parking lots of our popular shopping centers. This initiative guides the City in conducting its duty to mitigate the impact of these terrific projects.

(c) In order to address congestion caused by Emeryville's popularity, a next generation transit system must be studied.

Initiative Section Three. Purpose and Intent

Using \$200,000 from the Emeryville General Fund, study and decide the preferred alternative for the first U.S. personal rapid transit (PRT) demonstration system. The council may choose to act on the final study report by placing a subsequent measure on the ballot to build the demonstration system. The demonstration system will pave the way for a complete, self-funding Emeryville transit system operating at more than twice the speed of single occupancy vehicles.

A new vision of Emeryville as the nation's first "advanced transit city" is required. The entire city of Emeryville becomes an extended "transit village." 5,500 cars per day will be removed. 23,000 trips per day will be served. Many single occupancy vehicle (SOV) commuters will change mode to BART, carpool/vanpool, Amtrak, AC Transit bus, and bicycle. A self-funding elevated PRT system will interface to existing travel modes, making them significantly more effective. PRT accommodates the complex travel needs of Emeryville's technology workers, providing a higher level of service and convenience than auto travel. Previously, non-SOV commuters had been stranded at work during the middle of the day. Now these same people will reach retail sites and complete errands faster than via car, without the parking hassles.

Hourly workers will benefit from improved access to better jobs and from reduced commute time, increasing their family time. PRT runs 24x7 with virtually no waiting, serving swing and graveyard shift jobs. Working in conjunction with other transit modes, PRT enables a lifestyle with less auto dependency, reducing the high cost of buying, maintaining, fueling, and insuring a car.

Retail sales will increase dramatically. Unused parking spaces may be reclaimed for more productive use. Citywide particulate and green house gas emissions will be reduced by about 20%. Polluted run-off into

wetlands/bay will be reduced. Corporations will enjoy a competitive advantage in attracting and retaining workers, saving \$11.5M per year for every 1% reduction in employee turnover costs. Emeryville will take a world leadership role in defining the city of the future.

PRT consists of many lightweight, driverless, four-person electric vehicles traveling on a monorail 16' above the ground. Transit stops are located by the front entrance of buildings. Frequent stops are situated along the route to minimize walking once the trip ends. Transit stop tracks are separated from the main track - vehicles turn off onto a siding to pick up and drop off passengers. Because of these turn-offs, vehicles travel non-stop to the destination at 30 mph, bypassing intermediate stops and speeding at twice the average speed of autos on the congested roads below. Vehicle weight minimization reduces the size of the elevated rail and supporting piers, dramatically reducing construction cost and right of way acquisition. Vehicles flow through the rail almost like data packets on the internet, anticipating demand so that wait time is eliminated.

Initiative Section Four. Initiative Implementation

Implementation

- The study will concern itself only with PRT technology as defined below.
- Provide \$200K funding from the General Fund to mitigate traffic impacts from previous redevelopment projects where the resultant traffic was larger than forecast.
- The City shall provide bi-monthly project financial summaries of no more than 2 pages in length from Dec 2003-July 2004.
- To help determine the transit route alignment, the City shall conduct a design charette in February, 2004. A stored webcast version of the charette shall be provided for public viewing.
- Create and maintain a section of the Emeryville City Website for this project.
- Identify a Project Manager.
- Conduct two public status meetings, in April 2004 and July 2004. Provide a stored web version.
- Determine two possible demonstration track alignments within Emeryville by April 2004. Obtain a letter of endorsement from easement providers. Alignment can contain no more than 2,600 feet of guideway and no more than two stations. Possible loops could serve IKEA parking lots or Amtrack station to the Public Market.
- Provide a Geographic Information Systems (GIS) map of underground infrastructure for these alignments by May 15, 2004.
- Define two funding plan alternatives for this demonstration track by April 2004. Evaluate potential for State Transit Village Act funding as well as Metropolitan Transportation Commission (MTC) funding via Transportation Development Act, Transportation Fund for Clean Air, and Transportation for Livable Communities programs.
- Select two PRT vendors with working test tracks for Request for Proposal (RFP) by April 2004. Vendors may include ULtra, Taxi 2000, MegaRail, or other firms meeting the definition below and demonstrating a functioning vehicle on a small engineering track. Provide each vendor with \$30,000 to prepare a bid for the demonstration system.
- Select preferred vendor by June 15, 2004.
- Prepare a final demonstration system proposal by July 15, 2004, that the council could decide to put on the Nov 2004 ballot. Propose any changes required for general plan / zoning to accommodate the demonstration system.
- The City should contribute a minimum total of 20 hours per week (planning department and other personnel) on the project from Nov 2003 – July 2004. Provide bi-monthly project hours worked reports of no more than 2 pages from Dec 2003 to July 2004.

Definition of a high quality PRT feeder system:

A transit system with stations within ¼ mile of all building complexes with 1,000 or more potential riders (the current EGR stops): MacArthur BART, Amtrack, Pixar, Sybase, Chiron, IKEA, Powell Street Station, Courtyard by Marriott, Emery Bay Club and Apartments, Emeryville Public Market, Emery Tech, East BayBridge Shopping Center & BridgeCourt Apartments, Wareham Hotel, Woodfin Hotel, Heritage Square, Watergate, K-Mart/Toys R

Us. For front door to front door trips from any of these building complexes to any other, 80 percent of PRT trips are faster than auto trips!

PRT systems must meet the following criteria:

- fully automated by time of passenger operation (may be manual on test track)
- direct origin to destination non-stop, demand-responsive service
- three or four passenger vehicles
- off-line stations
- empty vehicle weight less than 4000 pounds
- one-way only guideway
- minimum headway for main line operations is 5 seconds or less
- mean wait time at a station is no more than 3 minutes
- system availability should be no less than 99.7% to be achieved within 6 months of the start of demonstration service

Initiative Section Five. Existing Emery-Go-Round Shuttle

More than anything else, Wendy Silvani's hard work and people skills have made the current Emery Go-Round (EGR) shuttle a model for other shuttles to follow. The EGR now provides more than 600,000 rides per year. EGR is organized as a nonprofit organization.

Up to July of '01, the 17 company Transportation Management Association (comprised of Emeryville's largest employers) underwrote the entire \$500,000 annual operating budget. Some companies volunteered to join the TMA, others were mandated through their development approvals. With the passage of the Property-Based Business Improvement District Measure in July, all 400 Emeryville businesses pay for expanded EGR service.

The success of the EGR shows the willingness of Emeryville workers and residents to use transit. PRT addresses the many flaws of shuttle bus operations. Shuttles cannot match auto travel for convenience or flexibility; PRT competes successfully against the auto.

- The time-savings of PRT over a shuttle are substantial, up to 20 minutes in a trip from Macarthur BART to Emery Tech. The 5 minute PRT trip includes wait time and 30 MPH non-stop travel. At Macarthur BART, the average wait time for the appropriate EGR shuttle is 12 minutes. EGR travel time to Emery Tech is 13 minutes, for a total trip time of 25 minutes. As a consequence of traffic, stop signs, and stop lights, an equivalent auto trip to Emery Tech proceeds at an average rush hour speed of 12 MPH, 10 minutes (twice PRT) for the 2 mile trip.
- PRT increases the probability of making BART connections. With a shuttle system, a glitch such as an accident, construction, congestion, bad weather, or a train gate reduces EGR schedule reliability, a very important consideration during BART's hours of reduced service.
- Shuttle bus systems cannot run 24 x 7 because the expense of buses and drivers combined with low patronage make night-time operation uneconomical. In contrast, a fully automated PRT system is very cost-effective running around the clock.
- The EGR route system is divided into four main routes to serve 20 stops without losing too much time. Juggling routes, stops, and schedules to best serve riders is a major undertaking. In contrast, PRT has an infinitely flexible schedule, taking each rider when they want to go, where they want to go, without unnecessary intermediate stops.

***** END INITIATIVE *****

CONCLUSION

Local Grassroots organizations may find ballot initiatives an effective, low-cost tool to use to advocate PRT. Low population, high employment suburbs with high capacity commuter rail connections make ideal candidates for feeder systems. For instance, Tukwila, Washington might be another promising initiative candidate. Tukwila has 17,000 population, 52,000 employees, a Sounder commuter rail station, a proposed LINK LRT station, SeaTac airport next door, and the Southcenter regional shopping center.

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TABLE 1 Rough Weekday Ridership Forecast

Trip Type	People	Percentage	PRT Trips
Employees, shoppers, hotel visitors – daily roundtrip	21,000	25%	11,000
Residents – daily out-of-city roundtrip	6,900	10%	1,380
Employee luncheon roundtrip	15,000	20%	6,000
Residents – daily errands – round trip	6,900	33%	4,600
Total			22,980

TABLE 2 Initiative Timeline

Jan 15	Political champion visits ULtra’s PRT test track in Cardiff, Wales.
Feb 1	Citizen files initiative. City must provide title/summary within 15 days. City can misrepresent title/summary, harming the initiative. Time-wasting court challenge could ensue.
Feb 15	Start 90 day signature collection. Probably only need 2 weekends.
May 15	Start 30 day signature check
June 15	City Council meeting, order 30 day studies. Champion orders Visual Impact Study, a 3D animation of an Emeryville PRT system.
July 15	City Council Meeting. Minimum of 88 days from council meeting to election. Last possible day for council meeting is Aug 9.
Nov 5	Election

If time is running short, signature collection may be reduced by 75 days.

TABLE 3 Budget

Item	Cost	Notes
Legal review of initiative text	\$1,000	
Collect 500 signatures	\$2,000	For small cities, \$4 per signature
Initiative filing fee	\$200	
Publish notice in newspaper	\$500	
Public relations, campaign consulting	\$10,000	
Campaign mailer		
Create mailer	\$2,000	
Print 4,000 mailers	\$1,000	\$0.25 per piece is conservative
Mail 4,000 mailers	\$680	\$0.17 nonprofit, sorted rate
total	\$17,380	

For an initiative in a regular election (where council members are elected), the number of required signatures is 10% of registered voters in the last gubernatorial election. 30% padding is generally suggested to ensure that sufficient valid signatures are collected. For a special election, 15% of registered voters are required. Signature collection is typically only \$0.80 per signature for larger cities.

Figure 1: Emeryville PRT Alignment Map - Sorry, the alignment bitmap was removed from this web version for ease of downloading. Please view: <http://www.cities21.org/EGR/emery150dpi.pdf>