

History of the Advanced Transit Association (ATRA) Year by Year

by J. Edward Anderson, first ATRA President.

1999 – The Twenty-Fourth Year.

ATRA's Annual Meeting was held on January 11, 1999, at the Washington Hilton Hotel in Washington, D. C. Tom Richert was reelected President and Jerry Kieffer was reelected Chairman.

In President Richert's Message he made the following comments: Improvements in the website were one of 1998's accomplishments. Another was ATRA's conduct of a New Transit Alternatives Forum in Boston. For the coming year, Tom mentioned the need to reach transit professionals, planners, policy shapers, and the public with our message about advanced transit. He urged ATRA to pursue a Communications Plan that was being developed by Jeral Poskey. He urged focus on more workshops and on ways to contact the media, and he urged ATRA to find better ways to fund these activities.

Larry Fabian gave a report on the above-mentioned New Transit Alternatives Forum, in which the speakers were all members of the ATRA Board of Directors. The Forum drew about 25 participants from around the US and some from other nations including one from Australia. Larry spoke of linking activities with shuttle systems, Tom centered on economic benefits of automated transit, and Roxanne on how they could be used to develop compact communities.

Chris Robling, RTA's Director of Communications, reported on the status of the Raytheon/RTA PRT project, beginning with a handout of a Chicago Tribune editorial that was very favorable to the PRT 2000 project. He cited the need for innovation and experimentation in the transit field. He said that in the previous November RTA Chairman McCracken found that there were enough votes to go forward, but he thought it best to gain unanimous support to help fund the Rosemont demonstration. For the City of Rosemont, RTA's commitment would be \$70M against a total estimated cost of \$125M. With long-term financing added the total bond would be for \$195M. To minimize RTA's commitment, the burden was shifted to Raytheon and Rosemont. Sprawl was a big issue, and Robling said the Chairman McCracken had figured on PRT to aid in containing sprawl. The RTA had presented the local anti-sprawl forces with a video of PRT 2000. It was felt that once Rosemont was up and running, other cities, such as Schaumburg, will have renewed interest. Robling stressed that the RTA was adamant about avoiding the red tape that would ensue of federal funds were involved. Chairman Kieffer lauded the RTA for its courage and vision for pursuing advanced technology, and said that a successful demonstration of PRT would attract worldwide notice.

Chairman Kieffer presented to the Board the draft of a paper on the issue of sprawl. This issue was much in the news, particularly because the Sierra Club had come out in opposition to PRT because they believed that it would encourage sprawl. On the other hand, ATRA members

were strongly of the opinion that PRT, because of its much smaller use of land would encourage and enable realistic higher-density development and thus would discourage sprawl.

A basic problem for PRT is that it is not yet proven in public service, which means that for most public officials it doesn't exist as a transit option. From information I have obtained, an optimally designed PRT system will cost less than 10% of the cost per passenger-mile of an average light-rail system, the energy use per passenger-mile will be less than 25%, and the land use along a given line will be no more than 3.5% of LRT. Moreover, by using linear induction motors for propulsion and braking, PRT will be able to carry at least four times as many people per hour as light rail, and because travel time is the most important indicator of ridership, PRT is likely to be able to carry roughly 10 times as many people per hour in a given area as any conventional transit system including light rail. If these characteristics were proven in daily operation, the arguments about sprawl would be very different. To gain the greatest return, builders of PRT will seek applications in the higher density areas of a city, not the outer edges where ridership would be much less. Because of the very small land area required for PRT and its attractiveness to many auto drivers, it will reduce congestion significantly enough to markedly improve the inner-city environment, and thus will reduce, not increase, pressure for sprawl.

Chairman Kieffer's draft was debated strenuously, Murthy Bondada suggested that ATRA could host a national conference on sprawl. Donn Fichter, on the other hand, thought that PRT might encourage sprawl by extending service further and further out, but then he thought that PRT could generate walk-around zones and thus stem the tide of more sprawl. Dan Brand suggested that the sprawl issue is better left to the multitudes of people already wrestling with it. As the time available for discussion closed, Kieffer said he would seek further member input on the sprawl subject in order to refine the draft.

The next subject taken up at the Board Meeting was a communications plan proposed by new board member Jeral Poskey. He wanted the Board's concurrence that he could represent ATRA in various communications media and would work on the lack of knowledge transportation professionals and the public had on PRT. He wanted to test the waters to see which communications methods would be the most productive, to test the workability of using as outlets mass-distribution magazines, websites, and op-ed articles, and to prepare a plan for the year 2000. He wanted to build a stock response file to enable ATRA members to have a ready response when needed. He was aware of the need to not propose more than ATRA's budget could handle. It was agreed that Jeral should proceed with his communications plan.

Larry Fabian announced the 7th International Conference on Automated People Movers, to be held in Copenhagen on May 5-8, 1999, and Murthy Bondada announced the first ASCE Conference on Urban Transportation Systems, to be held in Miami on March 21-25, 1999.

Dr. Wirasinghe, Editor of the Journal of Advanced Transportation, discussed the forthcoming special Millennium issue of the Journal. Preeminent experts in all aspects of transportation had been identified by the Editorial Board of the Journal for special review articles on the status

of all aspects of transportation. He said that the Journal is among the top half dozen publications in the transportation field in terms of circulation.

Dr. Byron Johnson was elevated to the status of ATRA President Member Emeritus, with a life-time membership. Byron was one of the original ATRA members and has devoted long and valuable service to ATRA.

In a Memorandum date March 5, 1999, Chairman Kieffer issued a draft of revised ATRA Bylaws for consideration and revision.

On December 13, 1999, Chairman Kieffer issued a proposal for a project, with these words: “Proposal: That ATRA sponsor a project for objectively assessing the current developmental status and the marketing priorities of PRT. During 2000, a technical committee [up to ten members] appointed by the chairman and officers would assess costs, capacity, reliability & safety, powering and braking systems, potential, energy requirements, environmental impacts, design potential, human factors, timetables, subsidy requirements, and comparisons. The technical committee was to prepare findings and conclusions by no later than August 31, 2000 and produce a report no later than November 30, 2000 for ATRA Board consideration at its January 2001 meeting.”

My work on PRT during 1999.

In Spring 1999 we, under Shef’s leadership and with the help of Jack Hoeshler, a lawyer friend of his, initiated discussions with Raytheon to get our license back. In a phone conversation I had with Steve Gluck he commented: “**Ed, taking my Raytheon hat off, it would be a crime if you can’t build your system.**” I remember that comment as if it were yesterday. They clearly knew they had erred, having suffered from the not too uncommon problem large engineering companies have in managing projects that differed from the usual. Wise management at Lockheed-Martin understood the problem by establishing their “Skunk works,” which produced remarkable new and markedly different airplanes. Similarly, IBM got into personal computers by establishing a separate group far away from headquarters and devoted to making the Personal Computer a new line of business at a time when their mainline engineers considered PCs to be toys of no interest to them. Previously I learned that Walter Stowell had recommended a similar approach in preparing a response to Chicago, but the new General Manager did not follow through.

Activity for PRT was strong in the Minnesota Legislature during the 1999 Session. My appointment book shows meetings with 28 members of the House and Senate between January and April. Senator John Marty told us that he planned to introduce a bill that would require that PRT be considered before the Hiawatha LRT project could proceed. Some of these meetings were arranged by members of Citizens for PRT and some by my company. Likely because of the two November 1998 articles, the rate at which I was invited to give presentations increased markedly during 1999. Up to the end of April, I gave presentations to the following groups:

- January 23rd: Sustainability Class at the University of Minnesota
- February 4th: Honeywell High-Technology Center

February 19th: Minneapolis Rotary Club
February 25th: SRF Consulting Group
April 14th: Rochester Department of Public Works
April 16th: Minneapolis Engineers Club
April 21st: Metro Transit Manager
April 22nd: St. Paul Chamber Transportation Committee

Of these presentations, the one at the Rochester Department of Public Works was the most important because it led to a series of meetings over several years. We were invited to Rochester by Tony Knauer, Transit Manager at Public Works. I developed a simulation of PRT connecting the main Mayo Clinic building with St. Mary's Hospital. The Mayo Clinic representative at the meetings wanted the system to be used to transport doctors in their frequent trips back and forth for two reasons: 1) As they talked to each other while riding a bus, they were frequently overheard by patients sometimes with unfortunate results, and 2) to reduce their travel time from around 20 minutes to about 5 minutes. That Mayo Clinic representative was so enthusiastic that at one point he threw a dollar bill on the table saying he wanted to be the first to invest. Unfortunately, he retired and his replacement didn't want to talk to us until we had a running full-scale demonstration, which was again and again the hang up. Many organizations wanted to be second, but finding the first one, even with Shef's contacts with wealthy individuals was daunting.

During those first months of 1999 I spent 87 hours working on a simulation of an airport baggage handler for the airport serving Dubai, United Arab Emirates, for Roy Moore's company, The Jefferson Group, and we were paid well for the work. Then on April 8-9 Shef and I flew out to Boston to discuss with Steve Gluck and others how to get our license back. It turned out that Chuck Harris's wife was a high-school chum of Shef's wife so we both stayed at the Harris's home in Watertown. As I have already mentioned, Gluck was cooperative and with the assistance of a lawyer friend of Shef's, Jack Hoeshler, serious negotiations were initiated.

On May 19-20 Shef and I flew to Cincinnati to meet with the Sky Loop Committee. The subject, as always was how to find funding to build a demonstration. As part of their promotional efforts, Bob Brodbeck developed the rendering shown here indicating what Taxi 2000 could look like on a downtown Cincinnati street. We were told that Jim Duane, whom I have mentioned, was now cooperative and willing to consider a PRT circulator in Downtown Cincinnati. This was critical because a hostile Metropolitan Planning Organization, OKI, in this case, would scare away any investor. The question of



crossing rivers on existing bridges came up, so SLC hired a consulting firm that wrote a report saying that our system could use existing bridges.

We discussed potential PRT projects with a great many people during the spring and summer of 1999.

During the month of August 1999, I learned that

- Steve Gluck was trying to push our agreement through the Raytheon legal system and was leaning on the lawyers to reestablish their priorities in our favor.
- Stan Bissinger, an instructor in computer graphs, was interested in using his talents to develop a visual simulation of our system. He began working on such a simulation and soon had one that we used many times.
- Chip Tappan, Chair of the Cincinnati Area SkyLoop Committee, said that interest in PRT was increasing and Bill Butler was expected to be the key investor. Jim Bunting, U.S. Senator from Kentucky, assured the SkyLoop Committee that he was working to obtain \$500,000 from the federal government towards a study of PRT in the Cincinnati Area. It needed a 20% local match that Chip believed was coming. He expected the study to start on about 15 November.
- Ray MacDonald said that Kim In Key was back in action and was working with Postech University. Ray was back in Korea and talked to a Dr. Nam at Postech. He was leading a group designing a PRT system and said that Kim In Key understood the reasons for the three-seat vehicle.
- Scott Stevens, a planner at Oak Ridge National Laboratory, began discussions with me about their need for a PRT system to take tourists into and through Great Smoky Mountains National Park. I worked with him on a layout of a PRT system that would meet their needs, and he talked of funding a trip for me to visit his group. These discussions continued for many months and until he retired.
- Shef Lang had been suffering from prostate cancer that had gone into his bones. I learned of this when noticing that he would occasionally grimace in pain. Dick Gronning, a retired 747 pilot for Northwest Airlines had become acquainted with alternative cures for cancer and tried to talk with Shef about them, but Shef insisted that he had to the best oncologist in St. Paul and didn't need Gronning's advice. Shef was a grandson of Theodore Hamm, the founder of the Hamm Brewing Company, and thus was from a wealthy family. Because of this, Shef had been leading our efforts to raise money while I concentrated on the engineering. Losing him would be a very serious blow to Taxi 2000 Corporation.

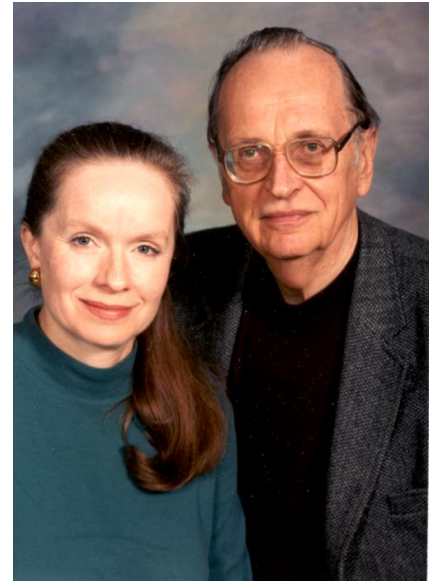
Between May and August of 1999, I gave presentations on PRT to the following groups:

May 13th: The Grafil Club, Minneapolis
May 21th: Transportation Management Organization, St. Paul

June 28th: Minnesota State Chamber of Commerce, St. Paul
 June 29th: The Rochester Department of Public Works
 July 15th: Fridley Kiwanis Club, Fridley Community Center
 July 29th: Minnehaha Lodge No. 165, Minneapolis
 August 10th: Minneapolis Downtown Exchange Club
 August 29th: Minnehaha Masonic Lodge, Bloomington, Minnesota

By mid-October we learned that Raytheon stock had dropped 46% and that they issued a news release saying that Raytheon was “exiting the personal rapid transit business.” So here finally was the official conclusion of the Raytheon PRT fiasco. At about the same time, we were informed that the Raytheon lawyer involved in negotiating with us had emailed us a draft agreement.

On November 1st, Farrol Robinson, a consultant with SRF who had been supportive of my PRT system since the late 1970s and had submitted a proposal with us for a study of PRT in Rochester, talked to a woman from Parsons Brinkerhoff, a well-known conventional-rail engineering firm, who told him that PRT is a dead issue and made fun of the fact that PRT was being considered in Rochester. Farrol also told me that he had gotten a call from a woman who worked for Ramsey County who was worried that the Rochester project was aimed at undercutting LRT, i.e. the modern version of the streetcar. He was further warned that we must be very careful – don’t underestimate the strength of the LRT lobby. We clearly were threatening an established industry and folks that dreamed that the return of the streetcar was the answer to urban transportation. We were going to be trashed by these people at every turn. This is a universal response to any attempt to introduce a new technology that could undermine the money stream achieved or expected by an established industry.



Me and Wife Cindy

The conventional rail people had been fighting PRT since it first gained prominence in the late 1960s and were still succeeding in keeping real PRT suppressed. A common accusation they frequently made was that we were in league with the highway lobby to prevent “real” transit from being accepted. If we had been, we would have had the funds needed to build our test system long before. As to the Raytheon project, I learned that the project manager assigned to represent the RTA had insisted that all components in the vehicle had to be standard transit components. The vehicle that had come out of the Stone & Webster Phase I study needed wheels only ten inches in diameter, but the smallest conventional transit wheel was 30 inches in diameter, so the Raytheon team dutifully used 30-in wheels, which increased the scale and weight of every component. The RTA project manager insisted that a standard 1000-lb bus air conditioner be used, and be mounted on the roof of the vehicle, taking no account of the fact that the centrifugal force generated as the vehicle rounded turns would be multiplied by the distance from the top of the vehicle to the wheels

in determining the added force on the wheels, which then required heavier components. We placed the air conditioner as low in the vehicle as possible and used one sized for a small automobile. At one point the RTA project manager insisted that the vehicle be designed so that a motorman could stand at either end. Amazingly, this idea was beaten down. The result, though, was that the vehicle weight went from 1500 lb out of Phase I to almost 5000 lb, and the cost went up in proportion. In this way, the design was sabotaged bit by bit, likely to the satisfaction of the conventional-transit community. The designers of a new and much improved system must have a deep understanding of the need for the new system and the means to achieve the needed breakthrough. This can come only through years of involvement and only by people not beholden to the old ways. I am convinced that Gayle Franzen, first RTA chairman, and many leaders in the Chicago community really wanted the system as we had designed it. Their fatal mistake, however, was to let their staffs think that the way to proceed had to be to place a large company, even with no prior experience in PRT, in charge. In contrast, when the U. S. Government's 300-mph maglev design program started in 1990, the U. S. DOT had the wisdom to make the small companies that had been working on maglev to be the prime contractors with large companies supporting them as subs. If the RTA had adopted that strategy, real PRT would have been operational by the mid-1990s.

On December 3rd, Tony Knauer of the Rochester Public Works Department told me that Mayo Clinic did not want to take the lead in introducing PRT and that their biggest concern was that our system was still on paper. I was invited to give a presentation on December 9th to the Mayo Clinic Transit Committee and he urged me to stress in my presentation that the technology for PRT is available, and that it is not "pie in the sky." As to warrantees, he urged that we team with a design-build-operate firm. He urged me to stress that no other system has the kind of operating characteristics needed, that the system has potential for expansion, that the technology is here, that the track and cars are not obtrusive, and that the University of Minnesota owned the technology and had it exclusively licensed to us.

At the December 9th meeting one question asked after presentations by me and Ferrol Robinson was "Since PRT seems to be such a good idea, why has it taken so long to be realized?" Another was "Since the University of Minnesota owns the technology and has ample traffic problems of its own, why are they not investigating Taxi 2000?" A third was "Who are our suppliers?" It seemed clear, particularly in view of the comment Ferrol had received on November 1st that the Mayo Committee had been "reached" by the light rail lobby in the Twin Cities. The questions implied that the Mayo Committee was in no hurry to commit to a planning study. We caucused later with Tony Knauer, who stressed that he was very high on the PRT project. We agreed to send a letter to Dr. Doug Houlton, Chair of the Transit Committee, in which we would outline the implementation steps. But as time went on, it was clear that that was a futile effort. Nothing would happen at Mayo Clinic until we could build and operate a successful full-scale demonstration. We knew that we needed to expand our supplier team and we needed to attract more business strength on our Board.

Don Katagiri proposed to us that he in concert with several Japanese firms be given the exclusive right to pursue the Japanese market for Taxi 2000 for a specified time. The Board, however, concluded that the company had to get its funding in place before it could support the

kind of activities that would be planned in Japan, otherwise the marketing activity could go beyond the company's ability to support it. This was the proverbial "chicken and egg" problem all over again. I would have signed the agreement and would have done what we could until it was clear that we didn't have resources to proceed further and then asked the Japanese group for the needed resources, which Katagiri had previously said would be forthcoming. Obviously, I was not sufficiently persuasive. An opportunity was thus lost.

I signed our agreement with Raytheon in mid-December, and in early January Raytheon signed: WE WERE FREE!

Following is a list of the presentations that I gave during the last third of the year 1999.

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| September 14 th : | Rochester Department of Public Works |
| September 15 th : | Optimist Club of Golden Valley, Golden Valley Country Club |
| October 6 th : | Mechanical Engineering Department Seminar This presentation called "The Design of the Taxi 2000 PRT System" was taped and made available to me as a handout, and was used for several years. |
| October 19 th : | Women's Club of Minneapolis |
| October 21 st : | Minneapolis Southwest Lion's Club |
| November 11 th : | St. Louis Park Golden "K" Kiwanis, Golden Valley, MN |
| November 23 rd : | Riverview Economic Development Association, St. Paul |
| December 9 th : | Mayo Clinic Transit Committee, Rochester, Minnesota |
| December 14 th : | Jim Nyland, member of Minneapolis City Council expressed great interest and offered to assist. |
| December 17 th : | Ted Mondale, Metropolitan Council Chairman |
| December 18 th : | Kiwanis Club of Downtown Minneapolis |

In my presentation to Ted Mondale, I showed a copy of a page of the Denver newspaper which showed a picture of a stopped LRT train, a crushed van and a person entirely covered, with the headline "A Wreck a Week," i.e. 52 accidents in 52 weeks of operation of the Denver LRT system. As I showed that slide, Nacho Diaz, Director of Transportation Planning for the Metropolitan Council, commented angrily: "That's nasty." Why was it nasty to warn of one of the consequences of installing LRT? The Hiawatha Line in Minneapolis has done better than the Denver LRT system because the Hiawatha Line runs mostly on its own right of way, but the new University line between Minneapolis and St. Paul is similar in many respects to the Denver system and the Houston LRT, both of which experience about a wreck a week. But we are warned not to criticize LRT in any way. Perhaps that is alright – its own characteristics criticize it enough.