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

by J. Edward Anderson, first ATRA President.

1996 – The Twenty-First Year.

ATRA's Annual Meeting was planned to be held on January 9, 1996, in Washington, D. C. However, a heavy snow fall caused its cancelation. Planned reports were given later by mail on 1) progress of the Chicago RTA PRT Development Program, 2) Raytheon PRT 2000 prototype system characteristics, 3) the San Diego Intermodal Program (Privately Financed PRT Development), 4) the Video Project, and 5) the ATRA Project: Minimum Essential Requirements of PRT. Key points about PRT 2000 were the vehicle weight of 4500 lbs and the guideway dimensions 78" W 76" H.

In ATRA NEWS UPDATE

1) University of Minnesota International Conference on PRT and Other Emerging Transportation Systems Call for Papers announced,
2) PRT Videotape Project to help people visualize what PRT would look like and how it would operate.
3) Raytheon progress on development of PRT 2000.
4) Progress on ATRA Project on Minimum Essential Requirements of PRT.

On the "Minimum Essentials" Project, Project Chairman Kieffer said: "ATRA can encourage thinking/action that will help PRT designers to understand the minimum essential needs of a PRT system and avoid overdesigned vehicles, unnecessarily large and heavy guideways, extra-large power systems, fault-prone braking systems, and other choices that increase capital and operating costs and require more space. ATRA can help by defining the basic needs of PRT systems and promoting understanding of how such needs can be reflected in PRT design." ATRA officers appointed a working group charged to develop preliminary materials on minimum essentials by summer 1996. Areas of interest were in Physical Characteristics, Performance Characteristics, Accessibility to Disabled, System Management/Control, Station-Use Arrangements, and Costs.

ATRA Leadership published a two-page document entitled "ATRA's Reasons for Existence" containing the points:

- ✓ The Citizens and Businesses of many cities, suburbs, and towns are increasingly disadvantaged by the lack of adequate transit service.
- ✓ The economic characteristics and productivity of conventional transit systems are disappointing.
- ✓ A clear need exists for the development and demonstration of new advanced transit systems.
- ✓ The gap between a serious unmet public need and currently inadequate efforts to respond to it represents the challenge that is the focus of the activities of ATRA.

ATRA NEWS UPDATE for May 1996 announced

- The International Conference on PRT & Emerging Technologies is to be held on November 18-20, 1996 in Minneapolis. Several ATRA members were scheduled to speak at the Conference.
- The International APM Conference in Paris, France, June 10-14, 1996. Sessions were planned on technology, systems, planning and economics.
- ATRA on the Internet. Thanks to ATRA members Jerry Schneider and Dennis Manning ATRA has a presence on the World Wide Web at http://weber.u.washington.edu/~jbs/atra.htm
- Schaumberg and San Diego Projects. Both move forward. Schaumberg Trustees confirmed their support for a proposed PRT network near Woodfield Shopping Center. The University Community of San Diego continues to gather support from businesses and elected leaders. These projects rely on private financing.
- Regional Meetings. ATRA plans a southern California meeting of ATRA members for May 25, 1996 to discuss the Minimum-Essentials project.

ATRA NEWS UPDATE for November 1996 announced a gathering of ATRA members on the eve of the International Conference on PRT and Emerging Systems. Several ATRA members were scheduled to speak at the conference. A reminder of ATRA on the Internet was given. Raytheon Company provided an update of PRT 2000 capabilities, performance and component features.

The Minneapolis Conference led off with the statement:

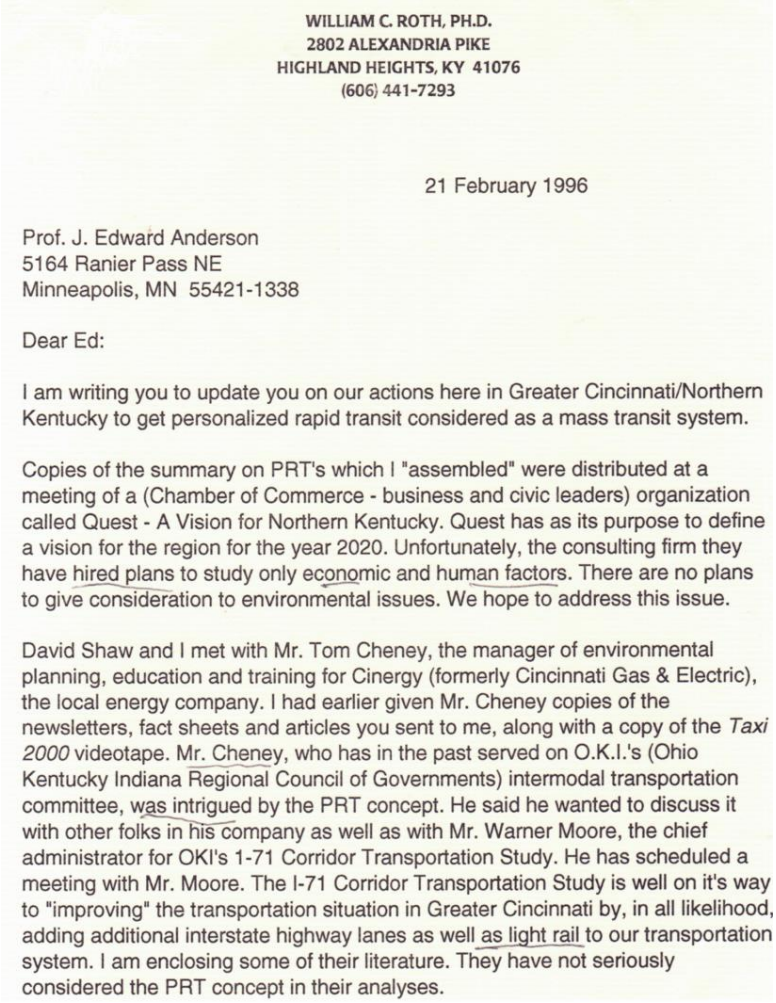
> "Those concerned with problems of urban transportation face a dilemma: The auto is currently the most attractive mode, but it produces congestion and considerable pollution. It has enabled such a degree of expansion of urban areas that conventional transit, even at very high cost, attracts relatively few trips. Thus, we confront a seemingly intractable dilemma."

My work on PRT during 1996.

Dr. Chuck Roth called from Cincinnati to ask for more information about Taxi 2000. I obliged, and received the first page of the response shown on the next page. This has led to a growing relationship and to the most significant activity I had underway regarding PRT during the next few years.

As mentioned, Raytheon had the exclusive license to our system, but they had received many criticisms of it. As I have mentioned, one of their senior managers, Gene Stockton worked with me on a second-generation design. Moreover, we discussed with Raytheon their attitude if a

city would want a system along the lines of the technology we had brought to them. Raytheon executives agreed that they would cooperate with such a city based on a sublicense. So, we had at least the sliver of an opportunity to realize our system, and we proceeded with Chuck Roth and later with Quest, the Cincinnati organization that he mentions in his letter.



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21 February 1996

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Dear Ed:

I am writing you to update you on our actions here in Greater Cincinnati/Northern Kentucky to get personalized rapid transit considered as a mass transit system.

Copies of the summary on PRT's which I "assembled" were distributed at a meeting of a (Chamber of Commerce - business and civic leaders) organization called Quest - A Vision for Northern Kentucky. Quest has as its purpose to define a vision for the region for the year 2020. Unfortunately, the consulting firm they have hired plans to study only economic and human factors. There are no plans to give consideration to environmental issues. We hope to address this issue.

David Shaw and I met with Mr. Tom Cheney, the manager of environmental planning, education and training for Cinergy (formerly Cincinnati Gas & Electric), the local energy company. I had earlier given Mr. Cheney copies of the newsletters, fact sheets and articles you sent to me, along with a copy of the *Taxi 2000* videotape. Mr. Cheney, who has in the past served on O.K.I.'s (Ohio Kentucky Indiana Regional Council of Governments) intermodal transportation committee, was intrigued by the PRT concept. He said he wanted to discuss it with other folks in his company as well as with Mr. Warner Moore, the chief administrator for OKI's 1-71 Corridor Transportation Study. He has scheduled a meeting with Mr. Moore. The I-71 Corridor Transportation Study is well on it's way to "improving" the transportation situation in Greater Cincinnati by, in all likelihood, adding additional interstate highway lanes as well as light rail to our transportation system. I am enclosing some of their literature. They have not seriously considered the PRT concept in their analyses.

Roy Moore called me very often during this period and invited me to Seattle to meet on Monday February 19, 1996 with his Jefferson Group. He was searching for ways and funds to build my type of PRT at the SeaTac Airport. But he realized that we would have difficulties because we had given Raytheon the exclusive license to our system. On reading the agreement carefully, we noted that it concerned only people movement. A light went on in Roy's mind: why not consider the same technology for airport baggage handling. Thus, began a series of activities that consumed a good share of my time for several years.

From early March into June I spent most of my time working on vehicle and network control for the Woo Bo PRT project including about 170 hours on the idea of tilting the vehicles during curves, an idea that Ray MacDonald thought would be needed to achieve higher speeds through curves. Later I realized, from experience in Swedish railroads that it was not a good idea: Swedish engineers had worked out the concept of tilting bogies on their passenger trains, but when they tried it, many people got motion sickness, which required them to slow the trains down to almost the speeds at which they operated without tilting bogies. The same experience can be expected with PRT, which has caused me to reduce the tilting via twisting of the guideway much more than I had done previously.

During this same period my time was also consumed with other activities. Since the Taxi 2000 contract with Raytheon was still active, I had to deal with the Raytheon contract officer. Raytheon had teamed with the State of Rhode Island for a study of their PRT system in Providence. Chuck Roth called frequently for information to support his campaign to get Taxi 2000 selected as the preferred alternative in Cincinnati. Roy Moore was trying to organize his Jefferson Group

and I would be involved with that. Byron Johnson kept me informed of his attempts to get PRT going in Colorado. I had many meetings about the forthcoming PRT conference.

PRT Update

Regional Transportation Authority

February 1996

A Progress Report Issued by the Regional Transportation Authority on its Personal Rapid Transit Project

PRT Test Track Preparing for Inaugural Run

Construction of a two-stage test track facility is currently underway at Raytheon's Marlborough, Massachusetts, complex. The EM (stage one) will accommodate the engineering model, and the PM (stage two) will accommodate three prototype models. The EM stage, which is scheduled for completion in May, will be comprised of a section of test track approximately 400 feet long with an off-line station. The objective in the EM stage is to build a single engineering model PRT vehicle to demonstrate the basic principles of vehicle operation and control on a short section of test track, or guideway. The PM stage, targeted for completion this fall, will build on the EM stage and demonstrate three vehicle operation on an expanded, approximately one-half mile-long oval test track. The PM stage will more closely represent a "real" PRT system in operation.

The facility will be used to test PRT technology under a variety of real world factors, including heat, snow, rain and ice.

Completion of the test track will afford the RTA and Raytheon the opportunity to more fully evaluate the operational capabilities of a PRT system and understand its benefits. PRT will provide non-stop, origin-to-destination travel in vehicles which seat four or fewer passengers.

Since PRT is the first public transportation system designed under the Americans with Disabilities Act, it will offer unprecedented ease of travel for people with disabilities.

A section of guideway is hoisted into place as the PRT test track takes shape.

On July 30th I was invited to the University of Minnesota Department of Parking and Transportation to meet with a group of about half a dozen of their people to discuss their interest in my PRT system as a solution to their growing problem of providing adequate service for students moving back and forth across the Washington Avenue Bridge over the Mississippi. Their master plan called for removal of the upper deck of the bridge, which was a walkway used by many students. This meeting initiated a 14-month series of meetings and became a major activity of the Taxi 2000 Board of Directors. Based on flow data they gave me, I developed a simulation of traffic on PRT from the West Bank Campus to the northwest portion of the East Bank Campus, where most of the Liberal Arts courses were held.

On October 2nd, some of our Board members and close friends visited the Raytheon test track in Marlborough to witness the operation of the first vehicle. In the picture on the left stand Chuck Harris, Tony Strauss, me, Ed Rydell and Bert Press. In the picture on the right we see Jerry Kieffer, Chuck Harris and Byron Johnson.

After many meetings, telephone calls, letters, and e-mails, the dates of November 18-20, 1996, for our "International Conference on PRT & Other Emerging Transportation Systems" finally came. There were 104 attendees from Sweden, The Netherlands, United Kingdom, Australia, Denmark, South Korea, Canada, France, and of course mostly from the United States. The conference was divided into 10 sessions with a total of 44 papers given plus two special evening sessions, one on PRT Requirements and the other on PRT Planning. I gave two papers, the first entitled "Some Lessons from the History of PRT" and the second on PRT control, which was later published in the *Journal of Advanced Transportation* 32.1(1998). The conference produced an income of $42,672 with $27,200 in expenses, so it was happily a financial success.

Thanks to the efforts of Washington University Professor Lonnie Haefner, the John Wiley journal *Infrastructure* published as its Spring 1997 issue, a Special Issue entitled "Personal Rapid Transit Systems" with me as guest editor. Also for this journal I wrote a paper called "Essentials of Personal Rapid Transit," which I used as a handout for many years. The issue contained a selection of eight leading papers from the conference. On the two days after the conference I gave

a short course entitled “Network Automated Guideway Transit Systems,” which also turned a profit. Chuck Harris, Byron Johnson, Jerry Kieffer, and Ray MacDonald all berthed at our home, so there was much time for informal exchange. The long-term benefit of such conferences is difficult to assess, but this one provided many opportunities for informal interaction, which we regarded as helpful to our cause, and it raised considerable interest in PRT in the Twin Cities Area, particularly since the University Parking and Transportation Department had initiated discussions about acquiring a PRT system only a few months before.