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GAINING TRACTION

ATRA presence was evident at the 7th Podcar City conference last month, a series that started in 2007 in Uppsala, Sweden. This one took place in Arlington VA, a cannon shot from the massive national cemetery and the Pentagon. PCC7 was quite international with participants from Mexico, Singapore, Bolivia, Italy, Poland and France. Curiously the three suppliers of “modern” PRT were absent, instead represented through the ATRA Industry Group by Ingmar Andreasson – innovative PRT simulator and ATRA vice president – and Peter Muller, Colorado-based PRT expert and consultant.

After last month’s contraction of US Government services by political debate over spending, debt and healthcare issues, USDOT was back in business. FTA strategist Matt Lesh described “new energy” that autonomous vehicles are bringing to USDOT. Advances in automated vehicle technologies and ATN installations are raising curiosity within FTA circles. Matt offered assistance to Fred Payne, SC visionary who wants to turn a rail-to-train project into greener and smarter infrastructure for the 21st century.

FTA Associate Administrator for Research, Demonstration, and Innovation Vince Valdes said ATN needs a “trailblazer” who can convince the public that it is safe. Congressman Mike Honda, who represents much of Silicon Valley in Washington, was excited: “It’s about time for this to get traction.” He hopes local officials are paying attention to the possibilities.

“Something like podcars is within reach,” proclaimed former Congressman Oberstar, noting the “great and growing interest worldwide. ... We are now in the post-Interstate Era, wasting \$120 billion a year in time and imported liquid sunshine. *Bon Dieu, ce damage est bien insupportable!*”



Silicon Valley luminaries discuss Greenville potentialities with Fred Payne (back to camera) in Arlington at PCC7.

Projects Are Close to Real

Clear, coherent plans for four cities were described –

* **San Jose's** Director of Sustainability Laura Stuchinsky has turned attention away from the airport district to a auto-oriented district of retail to the south of the city known as Almaden/Oakridge. The City wants to reinvent it as a transit-oriented urban village served by a twenty-station ATN.

* **Sigtuna** wants to create a major new employment district near Stockholm's airport and sees ATN as a way to make it work – density without road traffic. The city and airport are speaking with investors who want numbers.

* Bordering Sigtuna is **Upplands Vasby** that established a 27km, 31-station network in 2011. Regional transit officials are not convinced, but investors are interested.

* **Greenville SC** has a forward looking county official impatient with 2030 plans for BRT but sees ATN to realize green villages and expand their car-dominated industrial base.

These and many other project-oriented PCC7 participants were pleased to meet new ATN concepts. Alex Kyllmann impressed many with progress of his *modutram* concept, now re-christened *AutoTren*. Professor Choromanski of Warsaw Technical University described their model of a LIM-powered *EcoMobility* with a full-scale facility being constructed and plans emerging in the city of Rzeszow. BiModal



ABOVE: Swedish ministerial official Hakan Jansson (left) chats with USDOT's Matthew Lesh with IST's Christer Lindstrom in the background.



LEFT: ATRA Chair Alain Kornhauser engages Polish research professor Choromanski.



Greenville entrepreneur Fred Payne caused many smiles at PCC7 with visions of ATN-served urban villages.



Swedish architect-engineer Magnus Hunhammar contemplated Morgantown after PCC7. Might PCC8 take place there?

Glideway and SwiftTram also absorbed the swirl of ATN optimism and described their offers of new ATN-like products.

Professor Buff Furman of San Jose State orchestrated an overview of preliminary findings of research into the status of the ATN industry and its prospects. A report will be out next year. Student work was rewarded to groups from SJSU and also Uppsala University.

Overall PCC7 was a very energetic affair.

PCC8?

Whether or not another conference should follow next year was not a question. Many possibilities for PCC8 were called out – Stockholm-Arlanda, Mexico, Greenville, Singapore, Perugia-Italy, Lyon, Suncheon-Korea, LHR-London and Abu-Dhabi.

Thank you, Christer and Magnus. *Til Sammans!*

FIVE NEW APMS

2013 ends with a total of 166 APMS in regular service around the world. Some in leisure settings are seasonal, but most operate year round and carry on a typical day about 9.1 million passengers with remarkable safety and regularity. That is four percent higher than the 8.8 million figure last year. The number of APMS grew 3.1 percent.

Only one of the five new listings is in the US – connecting the terminals of Phoenix Sky Harbor Airport to transit for a length of 3.5km. With 18 vehicles and several years of O&M service, the Bombardier supply contract was \$186 million. With bulky elevated infrastructure, the civil cost was substantial.



An Aeromovel vehicle in Porto Alegre, Brazil, is lifted into its air-propelling guideway.

Vectus's PRT project in a nature preserve in Suncheon, South Korea provides service for special visitors and should be in regular service by year end. Two small APMS in Europe opened earlier but went lacking in last year's Count. Newly included are a ride at the permanent Titanic exhibit in Belfast supplied by WGH and a small shuttle at a French atomic research center. The robocar service in La Rochelle, France listed last year, was discontinued.

Two New Driverless Metros

There are now thirty-two fully driverless metros in regular service, all outside the US. In addition, there are six designed for driverless operation but which retain on-board conductors – plus scores of modern rail systems such as BART – which reduce manual driving functions to button pushing to close doors.

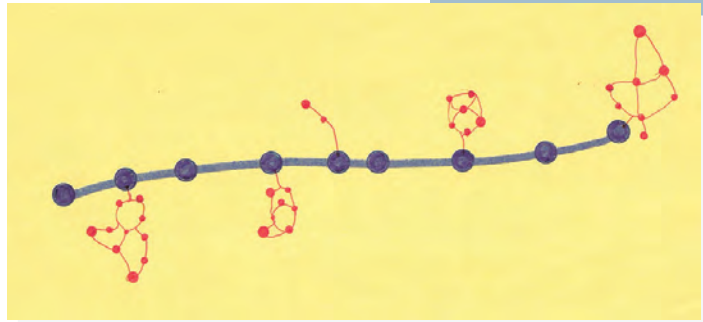
2013's two new lines are in Brescia in northern Italy and the ancient Chinese city of

Xi'an. The Italian project was supplied by Ansaldo on a 14km line, mostly underground with seventeen stations and twenty-one trains. The supply contract was announced at \$310 million. There are a good dozen similar projects in Europe supplied by Siemens and Ansaldo.

The story of Xi'an's Line 1 is very different and curious. Line 2 opened in 2011, not automated, and today carries about 160,000 daily passengers. The supplier of Line 2 is Lichtenstein-based Intamin – creator of many daring (and safe) amusement rides and monorails, many fully automated. Xi'an now has an elevated one-way 10km loop with eleven stations. The population of Xi'an is some eight million. By 2016 it plans to have six lines totaling 252km.

TECHNIX 2014: ROLLING UP OUR ATN SLEEVES

"It takes two logs to make a fire," explains California solar entrepreneur Ron Swenson. US and Swedish PRT interests have languished cold for four decades. After a decade of cooperation, they have now kindled a small flame of ATN interest that is spreading. It is time to get into the details of advanced projects, and that will be the theme of ATRA's next (January 11) *Technix 2014*. "After the heat generated at PCC7, we expect that a few logs will start a real blaze."



"We want to focus on applications that are grounded in real estate; have estimated ridership, revenues and costs; have outlined a basic business model; and have run a reality check by comparing an ATN solution to other modes or other development scenarios," explains ATRA Chair Alain Kornhauser. It is time to get serious about asserting credible advanced transit visions.

The program is still in development. If you have an application study that you would like to present at *Technix 2014*, email lfabian21@gmail.com ASAP. Already on the preliminary program are reports on New Jersey, Maryland, NYS, Silicon Valley and Sweden.

Registration fee for *Technix 2014* is \$35 for ATRA members (\$55 for others). It includes a light breakfast and lunch. To book a seat, visit www.advancedtransit.org.

Will we get serious about metro-feeders?

2014: CHALLENGES & OPPORTUNITIES

By Stan Young, President

2013 has been a very active year for ATRA. 2014 will be better. Last January *Technix* was lively and energetic at the University of Maryland's incubator facility a short walk from a WMATA metro station. We had a major presence at an April gathering in El Segundo near LAX, convened by Aerospace Corporation to assess public sector embrace of local and regional PRT services. ATRA presence was even stronger at the second TRB workshop on robocars hosted by Stanford University in July. Last month at PCC7 we were full partner with INIST and USDOT officials.

To close out our active year, this month we will have a strong presence at an ASCE conference in Paris on innovative urban transportation systems. Thanks to all for your support and contributions!

Membership Renewal

It is that time of year to join (or rejoin) us for next. Help us push forward into civic discussions the very identifiable benefits of ATN. It is time to open conversations with both professional and civic groups who value the walkability of urban neighborhoods or who want to shed the financial burdens of owning and maintaining so many cars, SUVs and trucks. There are bikers in growing numbers, with walkers advocating for *shared* streets. There are campus managers longing for affordable ways to link up parts of their campus and parking and maybe regional transit. With your help, we can reach them. In post-racial America, the revitalization of inner city neighborhoods is a priority.

Rich will be the opportunities before ATRA in 2014, but limited the resources. So many of us devote countless hours to ATRA *pro bono publico*. This is appreciated and gratifying, but it limits our reach. So I ask you to talk about ATRA visions to your neighbors and colleagues. Ask them to join and point out the accelerating benefits. Consider making a tax-deductible donation.

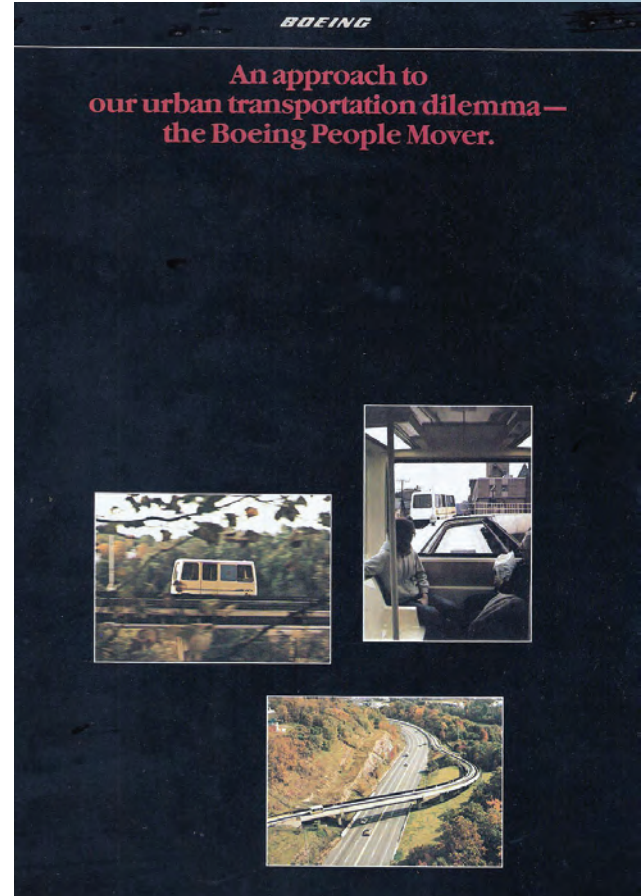
Then we will be able to take on campaigns to update several professional practices that impede progress. Here are a few:

1. TRB guidelines to calculate modal capacities and quality of service do not treat ATN. Needed is \$400,000 to update them.
2. Prevalent transit thinking is on linear corridors, whereas the advantage of ATN is in its networkability.
3. Prevalent engineering attention is on alignment and uniformly large stations, whereas the advantage of ATN lies in minimal, expandable stations.
4. Stations may be minimal mobility “hot spots” where passengers share robo-shuttles on local streets. For speed and recharging, vehicles enter ATN guideways. It’s dual-mode all over again!
5. We need demos and commercial ATN operations. Southeast Missouri University along the Mississippi River dreams about doing something. High above Lake Cayuga waters in New York State, Cornell professors long for a system to base their ideas on. Fresno State in California? Or Boston’s Columbia Point?

Your Ideas Are Important

2014 will be full of expanding ATRA interactions with the Swedish-American networks of IST, Kompass and INIST. We would love to expand with partnerships in other countries too – perhaps Mexico or Singapore. Your ideas and questions about advanced transit are important, so please let me hear from you – seyoung@umd.edu. Come to *Technix* January 11 and attend the Business Meeting the following day as well.

Help ATRA respond to these pivotal times in the advancement of transit aspirations and achievement.



Founded when Boeing pulled out of urban markets in the 1970s, ATRA will be stronger today with your membership.

UWASH STUDENT PROJECT

By Tyler Folsom

At a recent California On-Road Vehicle Association meeting, it was encouraging to see that self-drive is being taken seriously by automobile makers and government. It is also disquieting to see the trend to channel the technology into merely an improved automobile at the expense of a post-automotive transportation system.

My demonstration of the drive-by-wire tricycle was meant to move the discussion into a more creative direction that can break fossil fuel addiction. I will be teaching an Embedded Systems class at University of Washington (Bothell Campus) this fall, with a self-driving tricycle as the student project. My latest paper is available on www.elcanoproject.org. We are in the process of producing a low-cost software and hardware kit that lets students and hobbyists experiment with automated vehicles.

We have been selected by *Popular Science* for a crowd-source campaign to fund production of printed circuit boards (see <http://www.rockethub.com/projects/28761-elcano-open-source-autonomous-vehicles#activity-tab>). All contributions are appreciated. Contact tyler@tfolsom.com.

Road automation offers a whole new transportation mode. It is too important to leave to the big companies. One of the goals of the Elcano Project is to increase public awareness of the technology and generate popular demand.

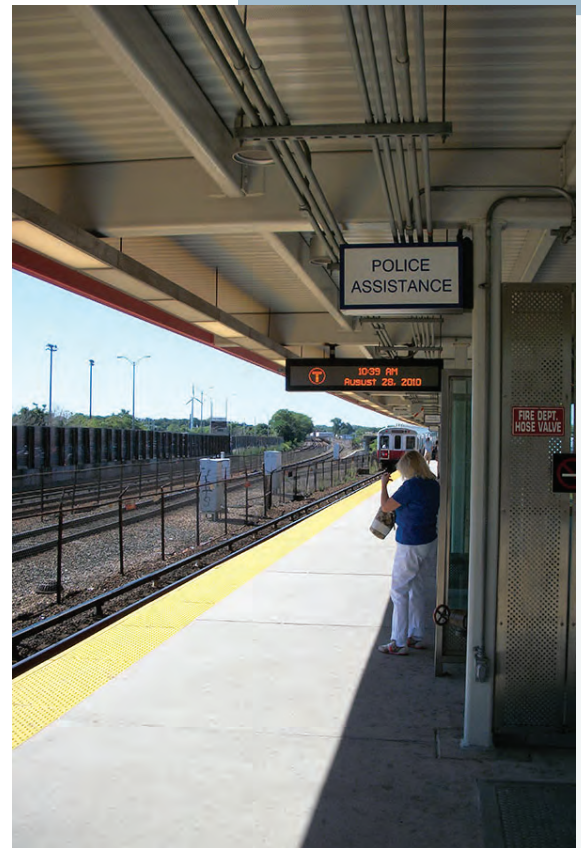
TRANSIT NOT EFFECTIVE TO REDUCE GHG

A new official Swedish report concludes that as a strategy to reduce greenhouse gas (GHG) emissions, even significant expansions of mass transit have little payback. Report #793 was issued last summer by the prestigious VTI agency as an assessment of the potential of public transport to reduce carbon emissions. Sweden is searching for policy mechanisms to end use of fossil fuels by 2030. VTI is the Swedish National Road and Transportation Research Institute, operating as part of the Ministry of Enterprise.

No doubt the transit industry is unhappy with this conclusion and has legions of analysts looking for holes in VTI methodology and numbers. VTI is based in Linköping, where the equivalent of TRB happens in Swedish every year. There have been several PRT studies done of this city of about 150,000 located south of Stockholm on the way to Malmö, Copenhagen and the central heartland of Europe. Linköping is also home to PRT developer Beamways.

“There is no mention of PRT in the entire report,” laments Beamways CEO Bengt Gustafsson. How much more meaningful and potent would the analysis be were it to include a scenario with networks of podcars. Bengt’s focus is on controls and simulations for ATN with suspended vehicles. A similar concept for local, metro, national and even international scales of PRT is GTS as a new level of infrastructure supplanting highways, eventually to become the dominant mode (www.gtsfoundation.org). This was articulated by Kjell Dahlstrom and Jan-Erik Nowacki at PCC7 in Arlington, Virginia last month.

Choo-choo trains do little to reduce carbon emissions.



More quickly implementable are less ambitious PRTs that can feed into existing rail stations and perhaps double or triple transit ridership. Or into airports from the array of airfront activities that surround it. A fine mesh of guideways for area-wide PRT -- or ATN if you prefer — can put most urban residents within a five-minute walk of a mobility portal. This would make easier household decisions to not own a car, strengthening observed trends to car-free lifestyles.

The Scandal of Professional Ignorance

Dahlstrom and Nowacki have articulated this GTS vision for several years. The response has been largely silence. Swedish transit officials have said little. GTS shouted “The emperor is naked,” and no one looked! Not even the auto-addicted, gas-guzzling cities and towns of the US at a time when Federal shutdowns are forcing hard decisions.

Transit systems nationwide face budget shortfalls. They are cutting service and raising fares, and asking for \$80 billion to catch up with deteriorating infrastructure. And in all of this, only a few citizens are looking at ATN possibilities. The MPOs, the mainstream consultants and the planning and zoning departments are oblivious to the rich improvements that are possible with a new layer of mobility infrastructure.

“It is scandalous that officials do not take PRT futures into account,” protests Dennis Manning, former chairman of ATRA’s Board, who engineered many decades for the California Department of Transportation. “They should be sued for professional negligence.” His city of Fresno is building BRT under the well-paid guidance of consultants Kimley-Horn Associates.

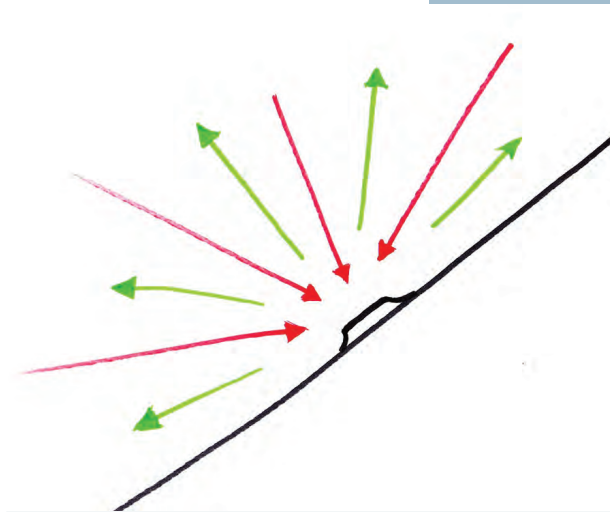
What might VTI recommend to Fresno and cities and towns across Sweden, California and the world?

HOT SPOT CITY

Looking forward to the future of urban mobility, one hears more and more of mobility hotspots across a landscape. It’s definitely a network, not a line or loop. It is far-flung reaching when necessary to special places off the main arteries but which attract many people. The mesh it creates can be fine and full of many stations in densely settled areas, or it can be coarse where densities are low. The network is built up from the places that need mobility. A planner here starts with the station locations, not the corridor.

Each mobility hot spot would have much going on. It is a meet-up place for ride sharing, bike and car rentals, recharging, convenient retail, wifi etc. It would offer the option for slow road vehicles to get onto a guideway that makes higher speeds possible and recharged instead of depleted one's batteries.

What zoning and building codes does a mobility hot spot need? What public policy mechanisms are needed? How can the large volumes of private investment be attracted? What public funds and policies can facilitate this? What regulation and security measures are recommended?



ATRA's activities are rising along with carbon dioxide levels.

(DRIVERLESS) METRO MANIA

Don't judge prospects for rapid transit by the US desert. Around the world railroads are healthy, and scores of urban transit lines are in planning and construction. It's a boom market, and much of it is driverless – more challenging to run than even the most elaborate and complicated airport APM.

Driverless metros in Europe are so common that a new one opened in Brescia (northern Italy) last spring with little comment in transit circles. The \$750m, 14km project was supplied by Ansaldo, and it now carries about 40,000 passengers every day. A 3.5km extension is planned.

Exotic Projects Too

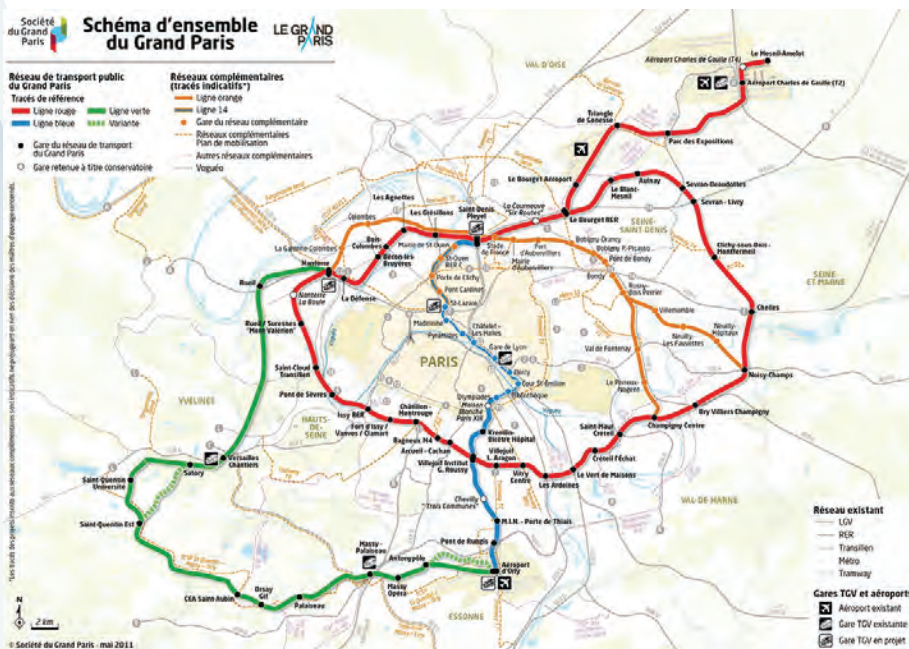
An automated monorail with Swiss Intamin technology opened more recently in Xi'an, China. In a country where metro lines are knocked out by the dozen, this hardly got any attention on world press. It is a significant step-up for a company known for precision engineering of thrill rides and a few expo monorails. Will Intamin try to compete head on internationally with Alstom, Ansaldo, Bombardier and Siemens?

There may well be similar prospects for Aeromovel in Brazil, where the president labeled as "revolutionary" a short shuttle linking the airport to a rail station in Porto Alegre. It is not yet in regular service, but its unique pneumatic propulsion has operated for twenty years in a Jakarta cultural park. The supplier hopes that the city will move forward to 9km and 18km expansions.

The Middle World Is Hot

It isn't just the sun that is hot in Saudi Arabia. Metro markets are too. Riyadh has signed on Siemens and Bechtel to build two of six lines planners, totaling 176km and \$22 billion. The two Siemens lines are to open in 2018 with 74 trains, costing \$2 billion. Networks are planned for Kuwait, Bahrain, Qatar, Abu Dhabi and dozens of other cities from Morocco to Pakistan. How many will be driverless?

In Europe, driverless is the standard. One example is underway in Rome, further delayed, not uncommon for any project in a city self-labeled Eternal.



The driverless metro ring underway around Paris is an APM on a scale très, très grand.

TRB MANUAL OFF-MARK

The new edition of a widely used TRB technical manual for transit practitioners ignores the coming reality of PRT – whether on-street consumer smart-cars or dual-mode. “It is scandalous,” comments ATRA Chair and Princeton Professor Alain Kornhauser. “There are a few paragraphs on AGT (automated guideway transit), but nothing about non-linear-based systems like ATN.”

TC165 is a product of the Transit Cooperative Research Program of the National Academy of Science, administered by TRB. A \$400,000 grant went to Kittleson & Associates, headquartered in Baltimore. Paul Ryus is listed as the principal contact. Completion date was March 15, 2013, Known in TRB circles as KAI, the consultant’s website basks in images of sharp-looking white professionals in an era of multi-cultural realities with an African-American mayor today heading FTA.

First edition in 1999 offered consistent and competent ways to calculate capacities for bus, ferry and rail modes and ways to quantify the quality of transit services. It was updated in 2003. This third version entitled *Transit Capacity and Quality of Service Manual* is currently available on-line as a set of large files. A hard copy can be ordered for \$116.

We Need To Wake Up the Industry!

With the onrush of innovation coming from large corporations and niche designers, the reality of driverless shuttles and trams in campus and with districts across the nation will be upon us. TOD practitioners want to solve the last-minute problem. It is emblematic of the disconnect between the Beltway and the rest of the country.

Transit now has a mere two percent share of the non-walk urban travel market. It actually doesn’t deserve having the general public sector spend \$400,000+ to promote its current declining niche of hopelessly poor service levels. If transit wants to break out of its irrelevance to 98% of the market, then it needs to investigate and promote a new vision that new technology might have a chance to deliver.

What is contained in TRB’s third edition of the capacity/quality manual is hopelessly irrelevant to all except perhaps New Yorkers.

AIRPORTS

The pipeline of APM projects in and at airports in the 1990s was active, and forecasts of accelerating growth were easy to embrace. For the last few years, new projects have grown scarce. They stand at four as 2013 closes – and three of them are in the energy-rich Middle World. The fourth is at Munich Airport. There are no current airport projects in the US except the newly announced contact for Miami – more MHI vehicles for the *MIAmover*.

In 1990 eleven APMs were being manufactured and installed at airports in Chicago, Dallas, Denver, Frankfurt Honolulu, London (Stanstead), Osaka, Pittsburgh, Tampa, and Tokyo (Narita). It was a robust, optimistic international marketplace. By 1995, there were nine plus three extras – a replacement (Tampa) and two rehabs (Atlanta) and Seattle. Standards were being written as an industry evolved with numerous companies providing components, O&M services, trouble-shooting and safety analysis. Regular meetings and get-togethers rounded out the activity into a mature industry.

In 2000, seven airport new starts were in the APM pipeline. Atlanta, Chicago and Denver were expanding fleets, and Seattle-Tacoma was in rehab. Every day a million passengers and airport staff and visitors were carried safely in an industry remarkable in its safety records. In 2005 there were eleven new starts and five others – fleet expansions and control upgrades. In 2010, nine new starts were underway plus six others, including regeneration of Chicago’s VAL vehicles.

The airport APM pipeline has suffered a strong contraction. One of the few bright spots is that the Ultra PRT has now been in service for two years at London Heathrow. Despite good reviews, a follow-on project has not been announced — expect in the long-term vision for Heathrow expansions which the mayor is fighting.



*A successful
landside PRT
at London
Heathrow
has so far
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spark a
revival of the
airport APM
market.*