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News of ATRA and IST

ATRA and IST members are encouraged to forward this newsletter to friends and colleagues or post it on appropriate websites.

March/April 2012

2012 STARTS WITH AN ACTIVE JANUARY

ATRA traditionally holds its annual business meeting around TRB's Annual Meeting in January in Washington DC. This year several ATRA activities accompanied the meeting:

Saturday, January 21 - TECHNIX
ATRA's annual *Technical Information Exchange* (nicknamed *Technix*) took place at the University of Maryland, Center for Advanced Transportation Technology, located near the DC beltway and very convenient to a Metro station. This friendly and informal show & tell consisted of presentations, technical Q&A and ATRA brainstorming and fellowship. Despite a winter weather threat, about 20 attended. Highlights included an insightful discussion on advanced transit activism by Kjensmo Walker, update on a scale model robocar by Robert Johnson, and discussions concerning the emerging ATRA Industrial Group.

Sunday, January 22 - Workshop: *Ready for Automated Mobility*
Speakers and attendees explored the path and benefits to automated mobility both from transit and automotive viewpoints. The podium was shared by leading automated highway and advanced transit researchers, who found they had more in common in terms of goals and operating concepts than is evident at first glance. Tyler Folsom, Shannon McDonald and Peter Muller opened the workshop with perspectives on the need and anticipated impact of full automation. Tim Gordon, Richard Bishop, and Steve Shladover shared thoughts on the current and anticipated pace of vehicle automation. Steve Raney, Sam Lott, and Alain Kornhauser briefed attendees on recent progress of automated transit and barriers to entry. The final portion proved the most engaging when speakers responded to audience questions.

Sunday, January 22 - Annual ATRA Board Business Meeting
This encompassed official board actions and officer election results, formal adoption of the ATRA IG proposal, and a look forward to, and healthy discussion of 2012 events and

Technixers had many smiles on January 21.

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initiatives. (ATRA attempted to link in ATRA Board members via conference call, but the telecommunications capabilities at the venue were not sufficient to support this.)

Working Together: Multiplying Efficiency by Modal Efficacy
This special session was organized by the TRB Committee on Activity Center Circulation Systems (AP040) with support from ATRA members. The podium was shared by world experts in various transit modes including Bus Rapid Transit, Light Rail, Commuter Rail, and Automated Guideway Transit (AGT). Initially intended to elicit discussion on how the modes worked together as one transportation system, most discussion was on modal interfaces. Sam Lott presented AGT systems and their potential to create paradigm shifts in transit theory. Sharing the stage for traditional transit was VukanVuchic, David Wilcock, Gregory Benz, and Samuel Zimmerman. The need for door-to-door modeling of mobility service was also discussed.

Critical Roles of Automated Guideway Transit in Multimodal Systems
ATRA members Shannon McDonald and Ingmar Andreasson shared research insights. McDonald presented work by the students at Southern Polytechnic University who examined the future (2050) of their campus that included new mobility devices such as AGV. As architecture students, they created many options for guideways both inside and outside buildings, as well as approaches to multi-modal centers. Andreasson made the case for PRT as a feeder/distributor to rail stations. He presented station layouts, signage, ticketing and ridesharing strategies to make rail and PRT a win-win combination.

Innovations in Mobility
ATRA member Peter Muller presented a poster that highlighted a ridesharing methodology for PRT systems with many stations (100 or more). This strategy enables significant increases in vehicle occupancy resulting in fewer required vehicles and station bays and/or increased capacity. This in turn enables reduced operating and capital costs resulting in lower fares but higher per-vehicle trip revenues.

Major Activity Center Circulation Systems Committee
At a spirited committee meeting led by Professor Rachel Liu of the New Jersey Institute of Technology, the need to elevate awareness (and methods for so doing) were discussed. A new title for the committee was also explored to assist with the direction and focus of the committee. Shannon McDonald was appointed research coordinator, focusing on awareness of, and hopefully more research papers on, advanced transit.

AIRPORT LANDSIDE TAKING OFF

Airport traffic grew 5.1 percent in 2011. A logical next step in their evolution includes commercial activities around them served by ATN – advanced network transit, a term coined to encompass fully automated, networked systems such as PRT, GRT, advanced APMs and other concepts still on drawing boards.

Air traffic at airports in the Middle East, where billions of petro-dollars flow, last year grew at an even more startling rate – up 11.9 percent! Recovering from 9/11 and economic woes, North American numbers were up 2.9 percent – much slower but still impressive, pointing to the essential role that airports play in modern life. Airports take up large slices of the metropolitan landscape. They are major

Airport APMs are standard between terminals, whether elevated or underground, such as this one at Dulles Airport. Landside APM networks are the cutting edge.

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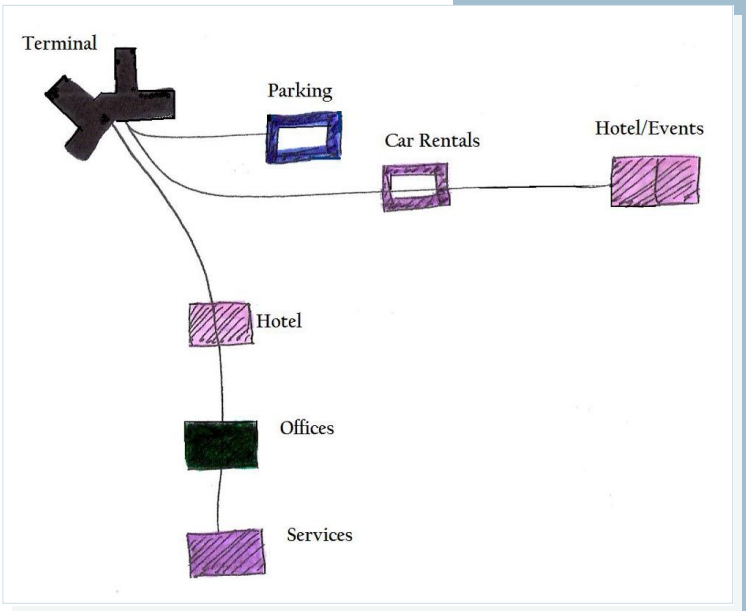
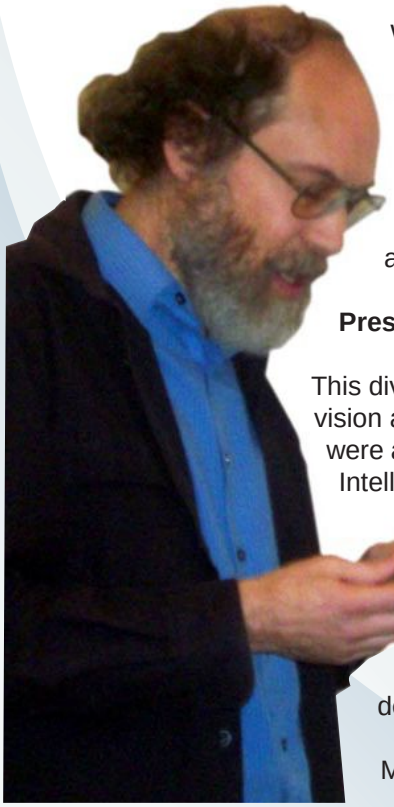


So how should regional planners and real estate investors approach airport developmental issues? Near most airport portals are already scores of hotels, park+ride lots, car rental facilities and other aviation-oriented commercial buildings. Peripheral land preserved as noise buffers lie fallow despite the demand for new construction sites. The contortions of airport roadways often make a location a mile away a long ride away. Here’s where advanced transit can play a lucrative development role. A PRT network can deliver direct-to-airport access to scores of otherwise inaccessible sites.

GETTING FRYED



While many caution not to overpromise PRT, a Massachusetts Institute of Technology (MIT) research scientist recently sketched up a far-ranging scenario of near-term job creation by way of a worldwide PRT solution to climate change. Last fall this MIT researcher convinced a panel of scientists that podcar visions are not only commercially viable, but also grossly beneficial for our overheating planet.

Prestigious, Independent Panel

This diverse panel of US scientists ranked his aggressive vision as the best strategy to fight climate change. They were appointed to judge ideas by the Center for Collective Intelligence, a group of researchers within MIT’s Sloan (business) school. Internet voting and commentary by thousands of people around the world also put PRT among top ideas. UN officials in NYC and Congressional staffers in DC were briefed on these findings last January. What sparks will this set off in a world increasingly desperate to reduce oil dependencies?

MIT’s Climate CoLab’s project to find the best ways

to evolve the US economy was judged by:

- Shoibal Chakavarty of Princeton's Environmental Institute
- David Goldston, NRDC (Nat'l Resource Defense Council)
- Martin Heimann, Planck Institute for Biogeochemistry
- William Moornais, Tuft's Fletcher School of Diplomacy
- Susan Solomon, emerita of NOAA (Nat'l Oceanic & Atmospheric Administration)

Fry Fries Up A Winner

Christopher Fry of MIT's Media Lab master-crafted the proposal. Perhaps to recall the wild-eyed scientist of *Futurama*, he goes by Fry. A native of sunny Los Angeles who came to winter-blessed Boston as a musician, Fry has evolved into a global analyst who has crunched enough numbers to be convinced and convincing of PRT benefits. He thinks California-based Skytran is the best technology to serve urban, regional and inter-regional travel needs. Noting that 50% of the US population lives on 3.6 percent of the land area, he calculates a big market that will provide scores of thousands of jobs over the next decade.

Will people use extensive networks of a whole new mode of mobility? Will auto, oil and highway interests block modal innovation, or will they use their transportation expertise to propel this beneficial innovation? Fry doesn't expect fast results from the UN and Congressional briefings, but he returned to Boston satisfied enough to conclude that it "looks like PRT is finally breaking through".

FRY'S BOLD VISION

Christopher Fry's winning proposal for a climate change solution proposes to install connected PRT grids over the urban and suburban areas that house the densest 50% of the US population.

He sees the national problem as caused by the US's car-based transportation system. It is directly expensive for individuals, second only to housing. It is time-consuming especially due to the slow speeds in congestion. It causes air pollution which result in respiratory disease and global warming. Car accidents cause 35,000 deaths and hundreds of thousands of injuries per year. The demand for foreign oil leads to wars: the US is fighting three oil wars with perhaps more on the way.

We can supplement cars, buses, subways and short-haul airplanes from our urban areas with a grid of 1-mile square cells of maglev guideways, 20 feet above streets, carrying two-person 'pods' with stations at an average distance of just over 1/4 mile (400m) from every point in the grid. These pods use less energy and money per passenger mile than any practical electric car, bus or rail (light or not) and are safer and faster. At a top speed of 150mph (250km/hr), they are faster city-center to city-center than current air travel for cities several hundred miles apart. They beat high speed rail not because their top speed is faster, but because you don't have to wait for them or travel so much to stations.

At a fare of 10 cents per passenger mile (compared to more than 50 cents for cars and even more for existing mass transit), the system can pay for its capital and operating expenses from fares with NO government subsidy, unlike all mass transit in the US today.

TECHNIX TIDBITS

Last January some twenty ATRA members new and old gathered for the annual exchange of news and views known as *Technix*. It was held at the University of Maryland in College Park, just outside Washington DC. There were ten presentations with plenty of energetic questions and comments, much of them focused on the relationship between PRT, ridesharing, and robocars. Wayne Cottrell gave an overview on robocar R&D, and Will Ackel spoke on advanced fare payment. Few left disappointed.

Many of these themes continued at the Automation Workshop the next day that was part of the TRB Annual Meeting. Here are some tidbits:

- Alain Kornhauser predicted that there will soon be device apps to facilitate ridesharing and cited a USDOT mode share figure of only 1.5% for transit.

- Steve Schladover saw "many challenges" for driverless highways given the "loss of vigilance" of drivers, and predicted that dual mode would start with transit before private cars.

- Sam Lott saw "sweet spots" in policy interest in walking and walkability, and in larger vehicles to meet demand surges that small ones cannot satisfy.

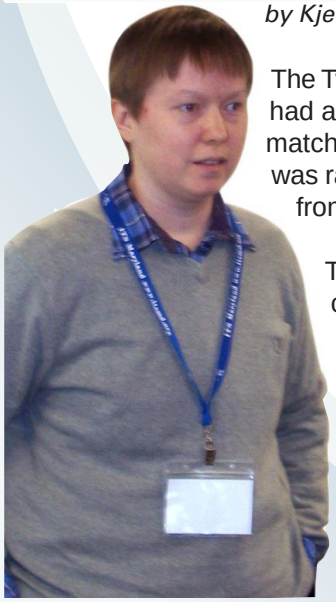
- Stan Young claimed today's young people are less interested in cars, preferring texting to driving.

- Richard Bishop viewed Google's work on driverless cars as positive, a "wild card" for mobility markets. Florida and Nevada already allow them on public streets.

ATRA Chair Alain Kornhauser

FUNDRAISING IN MINNESOTA

by Kjensmo Walker



The Twin Cities-based Citizens for Personal Rapid Transit (CPRT) had a very successful December fundraising effort. Thanks to matching donations from a lifetime CPRT member, $2,900.00 was raised in two short weeks. We received generous donations from 19 people in nine states and also from Sweden.

The fact that people from many states (and countries) contributed to the fundraising effort goes to show that CPRT is not only a Minnesota organization. We strive to educate all people and promote the benefits of PRT, or Automated Transit Networks (ATN), regardless of geographic location.

CPRT is looking forward to the rest of 2012, with many events, publications, and new projects soon to come. Thanks to everyone who participated in our fundraising effort.

Kjensmo Walker, at left, is the new activist leader of CPRT.

TIER-2 (and -3) NEWS

If PRT developers with operating installations have a leg up on a burgeoning market, others are making noteworthy progress as well. Still others more recently excited by their "discovery" of the higher service levels made possible by in-vehicle switches, off-line stations and real-time trip scheduling struggle to garner commercial (and investor) credibility.

Mexico-based **Modutram** recently opened a station portion on its test track. Using asynchronous controls, 6-passenger vehicles are designed to travel at speeds up to 57km/hr.

Sweden-based **Skycab** was one of twelve companies singled out by *Global Focus* as an innovator capable of making significant contributions to a shift to a low-carbon economy.

California-based **Skytran** (aka Unimodal) has made "important gains" including a new patent and renewal of a technical agreement with NASA.

Lower down the supplier pecking order are:

Minnesota-based **Jpods** is talking to New Jersey about attacking oil addiction. "There is zero barriers to the technology."

UK-based **Maglev Mover** hopes that wind power is a key to propelling them into worldwide success.

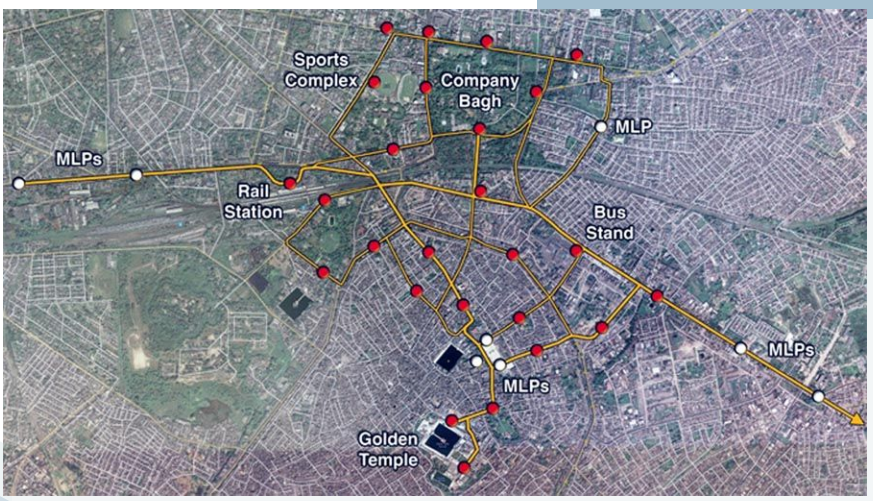
Florida-based **Overland** strives to take on high-speed rail, which is "hot", with dual mode that carries passengers and freight.

Finally, Silicon Valley-based **Mint**, founded in 2006 by Intuit's Aaron Patzer, has concluded that numbers for a 2-pax maglev version of PRT will *not* work. The future is still "cars on the road".

Sweden's Skycab gets attention on the green economy scene.

INDIAN INSPIRATION

India is a hotbed of PRT interest. News of a breakthrough project in Amritsar is bouncing around the world. British supplier Ultra working with local partners Fairwood has a confidential franchise concession to install a 22km, 7-station network linking the rail and bus stations to the Golden Temple, a place of pilgrimage and adoration for Sikhs. Funded privately at a cost some have estimated to be around $57 million, it is to compete with taxis and rickshaws by providing air-conditioned comfort twenty hours a day. The Temple station is to have 24 berths on two levels that



Amrtisar is scheduled to have the world's first urban PRT.

Harvard Business professor Ben Edelman estimates should be able to handle 4300 pax/hour.

Amritsar's breakthrough project aims to start carrying passengers by 2014. Whether or not this tight deadline is met, other Indian cities are inspired to pursue similar paths. In addition to plans in Delhi already reported, projects are being studied for the Rajarhat new town of Kolkata,as a monorail-feeder in the southern city of Thiruvananthapuram, and to serve the dense walled city of Jaipur.

Not all is positive: a PRT proposal for the modern, green Gujurat finance-technical district has been dropped, in part because a metro station will serve the area.

NEW ATRA LEADERSHIP

Last January ATRA elected two new officers to its leadership. Virginia-based Tony Newkirk is the new **treasurer**. Minnesota-based Kjensmo Walker is the new **secretary**.

Former secretary Wayne Cottrell, based in California, will head up a new Committee on **Academics and Research** with Illinois-based Shannon McDonald.

New Jersey-based Alain Kornhauser was re-elected as **chairman** of ATRA's Board of Directors, and Maryland-based Stan Young will continue as **president**. Massachusetts-based Larry Fabian will still be the **Events Coordinator**.

ATRA has up to twenty-five **directors**, each elected to a three-year term. About a third are elected every year. Bob Johnson and Kjensmo Walker are new members. Re-elected to continue serving on the Board are Bill Flanigan, Bob Griebenow, Dick Gronning, Dennis Manning, Martin Lowson,and Jerry Schneider.

ATRA'S MISSION

How does ATRA's mission relate to those who live in dense districts?

According to its bylaws, the Advanced Transit Association is organized exclusively for educational purposes to further the following objectives:

1. To improve the quality of urban life through the judicious application of advanced transit technology and planning concepts to transit service.

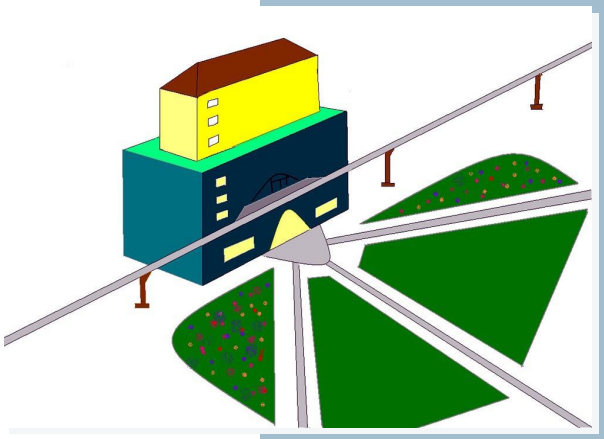
2. To disseminate information on advanced transit to the members, to the interested professions, to the public, and to representatives of all levels of government.

3. To improve the quality of transit-system analysis, planning, design, and implementation.

KIEFFER SUSTAINED ATRA

The Advanced Transit Association began with a flurry of activities when it was formed in 1976. A conference was held in Indianapolis. A newsletter was launched, with current ATRA chair Alain Kornhauser as its editor. However, as USDOT policies focused on conventional modes of bus and rail transit after cost overruns and technology bugs plagued the Morgantown PRT demonstration, sustained interest and energy in ATRA was difficult.

"Had it not been for the adroit leadership and long-term vision of Jerry Kieffer, ATRA probably would not have survived," affirms Dr. Ed Anderson, who was and is in a position to know. Anderson is not alone in recognizing Kieffer's many talents and contributions to advanced transit issues. At last January's business meeting, ATRA's Board of Directors voted to recognize them. A gift of flowers was delivered along with expressions of sincere appreciation.



PRT stations will be focal points in communities, as envisioned by Jerry Kieffer.

2012 CONFERENCES

Two conferences this year are to treat PRT issues with ATRA involvement. One is an outgrowth of the Podcar Cities series launched by Sweden's Christer Lindstrom. Building on successes in Uppsala, Ithaca, Malmo, San Jose, and Stockholm, attention is now focused on an active exhibit accompanied by lectures at the very large rail-oriented *Innotrans* conference and exposition to take place in Berlin September 18-19.

The other is being organized by ATRA member Murthy Bondada, who helped launched the APM conference series in 1985 under the aegis of the American Society of Civil Engineers. This will be the third in a new series dealing more broadly with urban transportation systems – planning, O&M, infrastructure and innovation issues. It will take place in Paris November 11-14. ATRA is organizing a session on PRT.

BY MEANS TO THE MPO

MPOs are low-profile American political agencies that strongly influence the ways citizens live and move around in metropolitan areas. In name, they are key to opening the ways for mobility innovation in US cities. With perhaps the exceptions of Albany and Ithaca (NY), MPOs have done little to encourage or promote advanced transit.

MPOs are largely unknown and mysterious. Few citizens even know that MPO stands for *metropolitan planning organization* – a term created by the Federal government and imposed on all urban areas with more than 50,000 residents to create national uniformity. Historically Washington disperses billions of dollars a year to urban regions to build highways and transit. To rationalize and monitor how these funds are spent, periodically Washington sends out teams to check up on local functionings. If no gross irregularities are found, they "certify" the MPO.

MPO leadership is not elected: it is appointed by elected officials such as mayors and state legislatures along with *ex officio* representatives, such as from the port authority or transit agency. By nature, MPOs tend to be inertial and not innovative.

Sierra Club Sues San Diego MPO

California's Attorney General has joined the Sierra Club's lawsuit against San Diego's MPO for failing to take a long-term view of the impacts of air pollution on public health and neglecting to explore long-term transportation options. This action may have widespread repercusions beyond San Diego. It could dramatically change the way MPOs function. For more information, visit www.ag.ca.gov/globalwarming/cega.php.

Should ATRA join in such a legalistic strategy? There were many email exchanges in late February about the pros and cons of such actions.

Bay Area Initiative

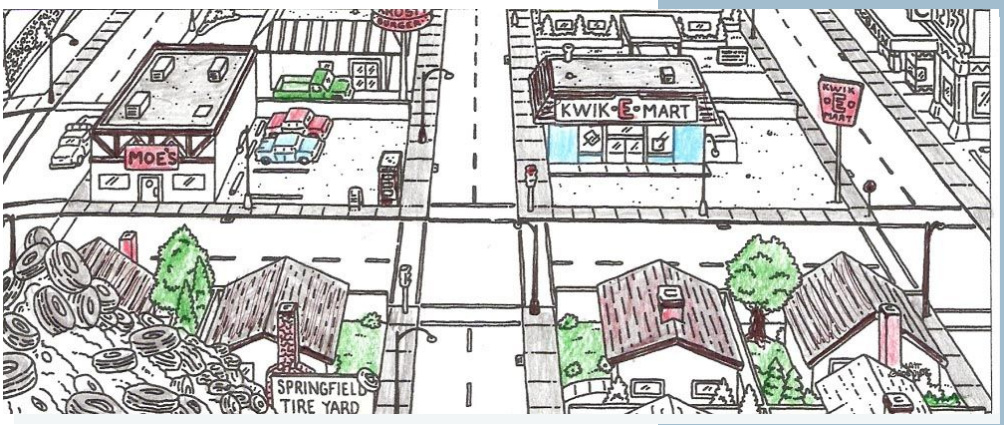
ATRA member, Bay Area activist and electric bike salesman Rob Means is frustrated by this inertia. He has written letters arguing that his MPO – dubbed the Metropolitan Planning Commission – be *de-certified*. Reaching out to others who share concerns about sprawl, air quality and oil addiction, he has established friendly links with influential groups such as the Sierra Club. He has met with the city engineer of Milpitas, where he lives, concerning California's mandate to all its cities to reduce carbon emissions to 1990 levels

Others question this approach and stress a non-confrontational strategies that seek niches for advanced transit that don't conflict with established interests, such as transit agencies. Others feel that only the Big Picture approach will get attention and therefore action. There is a difference between being visionary and obnoxious. Means's efforts may be the beginning of a healthy discussion that leads to advances in urban mobility.

For more information, visit *http://www.electric-bikes.com/mtc.rtf*

ATRA AIMS AT US CONGRESS

As the US Congress drafts legislation to guide and fund ground transportation programs to fill the void by the six-year *SAFETEA-LU* authorization bill that expired in 2010, ATRA has written to Senator Feinstein (D-California) requesting that language include specific consideration of advanced transit. Feinstein is chair of the Senate Committee on Banking, Housing and Urban Affairs.



To avoid the political baggage of the term *PRT*, the letter uses the acronym coined for San Jose's current studies – ATN – which stands for *Automated Transit Networks*. It references an earlier request made by San Jose Congresswoman Anna Eshoo and suggests that ATN can play a significant role in California's (and by extension other) efforts to develop high-speed rail in addition to environmental and job-creation benefits.

The wording would ask the Secretary of Transportation to study the effectives of ATN and report to Congress in 18 months.

Federal policies have given us parking-potted cities and towns. Can they deliver better, modern alternatives?

AIRPORTS

Bangkok, Thailand: Although there are remote parking lots about 1km away from the main terminal, indirect congested roadways and curbsides mean that bus and taxi service between the two sometimes takes an hour. A German consultant has proposed a PRT connection to bring superior connectivity, and the Ministry of Transportation has signed an agreement granting land development rights to a concessionaire.

London, England: Ultra reports that its PRT shuttle between the parking garage of Heathrow's Terminal 5 and two surface lots has boosted the occupancy rate at the latter. This has allowed BAA to raise the charges at the now more accessible remote facilities. Advertising "wraps" for the vehicles will provide another source of income.

APM stations are often integrated into terminals, as at Dulles Airport.

Phoenix, Arizona: Testing of 18 APM vehicles begins this year. The first phase of the 8km APM spine being supplied by Bombardier for a total of $186 million is to open next year between the nearby LRT station, remote parking and Terminal 4 will open next year. It will then be extended to the other terminals, and finally to the car rental facility and another LRT station. Eventually 96,000 passengers a day are expected to use the system.

Seoul, Korea: Plans are underway to extend the existing APM, supplied by MHI, at Incheon Airport and include internal APMs within Terminal 2 now in design. These will be integrated to optimize passenger convenience. Talks are also underway to implement a concession to connect remote parking with a PRT network similar to Heathrow and the Bangkok plan.