

News of Advanced Transit

ATRA is an organization of members who are encouraged to invite friends, neighbors and colleagues to join ATRA and may share a copy of TransitPulse on a one-time basis.

May/June 2014

MOBILITY BY THE DRINK

Driverless, on-road vehicles are already a legal reality in many states, and more will come. Insurance executives are collecting data to be ready for what seems to be inevitable fleets of robocars. Given its cash flow, if the insurance industry puts one-tenth of one percent of its research budget into robocars, this will be much more than is currently being invested in research into guideway-dependent PRT/ATN concepts. The expense and environmental issues of proposals to build elevated guideway networks ("spaghetti-in-the-sky") are significant barriers that PRT must overcome.

What mayor will prefer spending \$100+ million on PRT over a \$1-million street program that calms traffic in densely built up area to create protected paths for robocars? A guideway-less strategy can provide much the same service as PRT at 10% - 20% the cost with the side benefits of taming traffic -- reducing accidents and encouraging walking which brings significant public health benefits.

In the long run, set in the bigger picture, the \$100-million classic exclusive-guideway PRT - whether called that or podcar or ATN or monorail-taxi - may be a superior strategy. But it will take a decade, and we want something NOW. And \$1 million is easier to get into next year's budget than \$100 million.

Robovans in Protected Campuses?

ATRA can act as mediator between those who think fleets of robocars in traffic-tamed settings are the way to go as the obvious next step and those who insist only exclusive-guideway PRT can yield the speed, reliability and safety that is worth pursuing.

PRT designers seldom appreciate the diversity of the options out there for those who are potential customers. Robo-cars and -vans are finding homes on university campuses as more immediately beneficial investments for campuses - whether academic, medical, residential, entertainment or office/research. Facility managers routinely spend significantly to maintain, clean, manage and secure their grounds. They are different from transit and MPO officials.

Campus managers can exclude cars without public hearings. They can impose strong traffic-calming measures, such as speed bumps, deliberately making vehicular access indirect and relegating most parking to the periphery. A modest PRT might



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The Vectus PRT shuttle in the Suncheon nature preserve in South Korea went into official service mode last month. The guideways weathered for several years waiting for start-up.

cost \$50 million: a comparable fleet of robovans would be \$2 million. Trips are short and speed is not as important as for commuter transit.

Toward the Post-Car Era

In the long-run, robo-cars and robo-fleets may have a significant effect on life-styles. Many urban commentators see how widespread mobility services will impact car ownership decisions. Individuals, families and companies will be able to satisfy their mobility needs by the drink (i.e. summoning a car for a specific trip) rather than by the bottle (taking on the yearly cost of ~\$10,000 to own and operate a car). The car-less will be able to easily “rent” robocars, and also walk, bike and use mass transit more.

ATRA can strengthen the interests of those who want to increase public transit subsidies by bringing car-free urbanoids in as new transit customers and supporters. ATRA needs to articulate this message and its many implications.

ATRA BENEFACTORS

By Professor Alain L. Kornhauser, Chair of ATRA's Board of Directors

Dozens of people donate many hours every month to ATRA activities. They are largely unsung heroes. Here I want to sing their praise.

Many ATRA activists are retired, looking for creative outlets. Many hope that ATRA can save the planet and dedicate their karma to transforming urban mobility. Others have sexy PRT visions and want ATRA feedback to move them forward. Most work in related fields and sympathize with ATRA's mission of encouraging advanced forms of urban transport.



ATRA devotees are too many to name. What is new and refreshing is the participation of bright, young professionals. Reuben Juster is one of them - a recent graduate of the University of Maryland now working at the Center for Advanced Transportation Technologies (CATT). In Atlanta, Marcus Sharpe is learning the inner workings of MARTA, the metro operator for the capital of the South, and has his eyes and ears open for PRT opportunities. A third is Kjensmo Walker, a recent graduate of the University of Minnesota. She is ATRA's secretary and has brought new life to CPRT - Citizens for PRT.

Tom Richert and Bob Williams are not quite as young, but have recently contributed financially. Tom was ATRA president and chair for several years, and works in project management in Boston. Bob is retired Lockheed, part of an ATRA network in Silicon Valley. When renewing their ATRA memberships, they both generously made an extra contribution. Many thanks!

If ATRA had resources

We can do so much more.

Jeral Poskey, an ATRA officer in the past who now works for Google, is funding a paper award that may evolve into an annual event with the involvement of the Academic Council.

Tom Richert works with property owners to manage projects in Boston and brings a developer's perspective to ATRA.

With funds, ATRA could participate in many professional and civic forums — such as the June 10-11 Policy Summit on Innovative Options by Mobility Lab in Arlington VA or the July 21-23 TRB conference on Tools of the Trade in Burlington VT. Attendance involves registration fees, time and probably travel expenses.

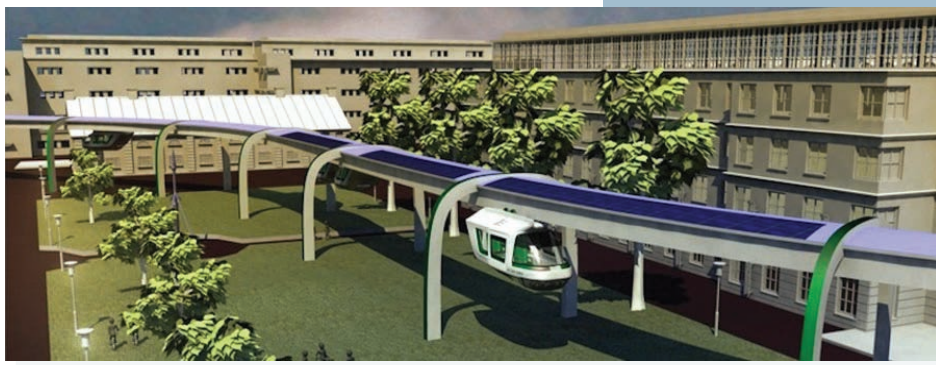
If ATRA had a \$50,000 annual budget, we could create videos, reports in paper and as pdfs, and give out seed money for members to organize local events. And if we had \$500,000

ATRA is clearly on the threshold of operating at a higher level. Consider making an extra donation, or listing ATRA in your will. Contact Treasurer Tony Newkirk at tonynewkirk@yahoo.com.

CARBON REVERSAL

IPCC Report Forebodes Rising Oceans, Disruptions

Among the many agencies and programs of the United Nations is the Intergovernmental Panel on Climate Change. Like the UN, the IPCC is global in scope. It has no power other than to provide to those with power, the best available scientific information on changing weather patterns linked to global warming, which is a direct result of our growing global addiction to burning fossil fuels in larger and larger quantities every day.



Last month, the IPCC warned world leaders that significant alterations to the Earth's weather patterns are real. This has generated vigorous discussions. To skeptics, Tom Friedman put it this way: if we invest in sustainable energy but the alarm over "climate weirding" proves false, we'll still end up with a cleaner, healthier, more sustainable world. What's to lose?

IPCC's international network of scientists and policy makers ominously, for the first time, spelled out some of the identifiable consequences of shifts and jolts yet to come to the peoples of the world, especially low-lying areas and island nations. This will cause migration problems and disrupt food production. According to ecowatch.org, doom and gloom went "off the charts" because of the dire message from IPCC.

Reducing Carbons

The sky isn't falling. It's worse than that!

The bad news is that our massive and chronic burning of coal, oil and natural gas to power modern life is heating up the sky. Glaciers and polar caps are melting at an alarming rate.

Saving civilization as we know it is not a matter of slowing the rise of greenhouse gas (GHG) emissions, or even of stopping it. In light of IPCC findings, we must *reverse* the trends. That can mean many things to many groups. To transportation

*Solar collectors can be building into guideways.
— courtesy of Nurds 'n
Squares Animation Studio,
Delft*

specialists, it means a phase-out of internal combustion engines lies before us. Happily, it is already happening.

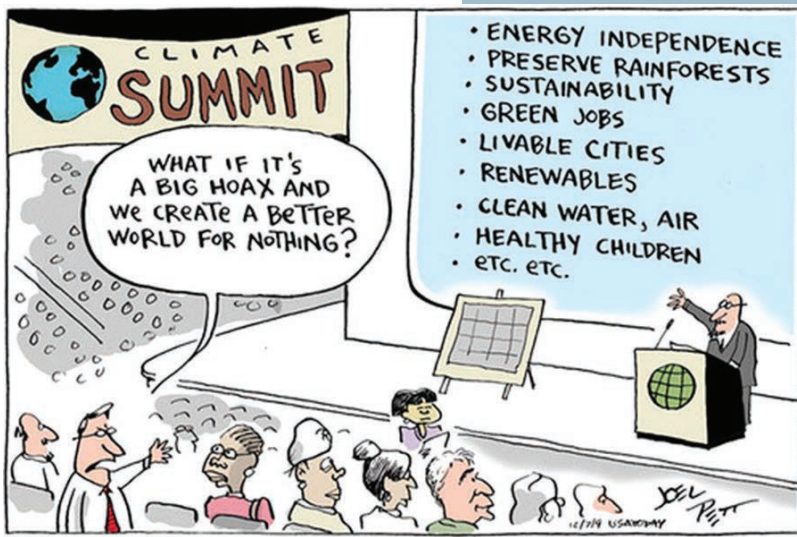
Statistics indicate that total road traffic has peaked in the US (not in the world). USDOT Secretary LaHood under Bush and Obama - left a legacy of encouraging biking. With walking and electric transport, these green modes have inherent benefits and should be encouraged. Federal, state and local policies can aim at reducing the 95% car share in US cities to 50%. Or 25% By when and how? How soon is soon enough?

Modern guideway transit brings higher service levels to the mix. There are scores of driverless metros outside the US, agile mini-metros, and smart in airport and campus links. Moreover, breakthroughs in automated transit networks (ATN ~ PRT) are unfolding.

Solar Synergy

Transit projects require control of extensive interconnected pieces of urban real estate. Integrating solar collection into new (and old) transit rights-of-way creates carbon-free electricity right where it's needed.

Massive conversion from ICE fleets to podcars can quickly reduce GHGs from the transport sector. Alone it won't save our troubled planet, but it will have a positive payback for infrastructure investment over the next decade or two.



— Thanks to the brilliance of Joel Pett

ATRA @ APA

The annual conference of the American Planning Association brings together 5000 or so professional urban and regional planners who deal with zoning, densities and land use issues. They are affected by transportation, but have little control over infrastructure decisions. They can set parking policies and have input into traffic signalization and shared streets. Increasingly they are involved in pedestrian and biking networks, urban agriculture and, if coastal, rising sea levels.

APA met in Atlanta April 26-30. Louis Merlin of the University of North Carolina invited ATRA input in the form of a session on *Planning for Automated Vehicle Technologies*. Tyler Folsom, Alain Kornhauser and Stan Young spoke on April 26. Alain introduced the audience to automated vehicle technologies. Stan's presentation explained how automated vehicles can potentially influence urban congestion in the near and long term. Tyler addressed the potential sustainability and energy benefits that could arise from transportation reconfigured around automated vehicles. Louis closed the session with information on how to plan differently for cities in the era of automated vehicles.

The panel described various outcomes of automation, and admitted that we did not know what the future holds. According to Folsom, the main point is that we need flexibility and technology awareness from planners; otherwise their 20-year plans could quickly become obsolete. Planners are not spectators; they can help direct the future.

Kornhauser upbraided planners for serving the 2% with transit that doesn't work. He presented different estimates for when self-driving cars get widespread acceptance; anywhere from 2050 to a very rapid shift such as with smart phones. Insurance companies could be a driver. If the new technology reduces accident probability by half, they can offer a substantial rebate, and still make money.

There was good attendance at the meeting, and the audience was engaged with eight questions from the microphone, a few other audience observations, and some discussion afterwards.

Merlin thinks it was the first ever session on automated vehicles at APA. The first question from the audience was about charging an electric vehicle. On the whole it was a healthy session. Merlin and Kornhauser fielded a few questions afterward.

One whole day of the conference was themed to transportation. On the last day, a special session explored innovative planning technologies used by the Atlanta Regional Commission working with Georgia Tech.

SOA — SPRING THOUGHTS

By Will Ackel, Northern California

*Western reflections on Stan Young's State of the Association
that appeared in last issue of TransitPulse*

I'm reasonably pleased with how things at ATRA are going. I see a number of ATRA members who are working creatively to identify roadblocks to advanced transit, and chipping away at them:

- Bob Johnson is developing his control system in a scale model that could be easily transplanted into a full-size vehicle.
- Nathan Koren's Podaris will give municipalities a way to explore ATNs without the need to hire an expensive consultant.
- When consultant are needed, Peter Muller continues to assist municipalities with their concerns.
- Rob Means is acting locally to get a micro-system in Milpitas
- Dennis Manning is exploring ways to re-write the guidelines that MPOs must follow in their transit planning.



Fred Payne's interest in bringing advanced transit to Greenville SC is one reason for optimism.

With financial assistance from ATRA, Buff Furman and several San Jose State University colleagues have teams of students developing a homegrown, solar-powered version of ATN, and studying ways to transform a big box retail area into a sustainable urban community.

Naturally ATRA could do more if there were more of us, but I think we're doing reasonably well considering. I'm not alarmed by ATRA's financial situation. We've been keeping our income and expenses more-or-less in balance. ATRA has proven

that it has the staying power that will take us to the time when advanced transit hits the mainstream.

Ackel and ATRA Doings

I see ATRA's role as being something like the rocket scientists who laid the ground work for space travel, but who couldn't get any funding... until Sputnik. All of a sudden they found themselves at the head of a vast R&D enterprise with blank-check funding. At some point, people will start asking the right questions. When that happens, we must be ready with the answers..

PRT'S WALKING POTENTIAL

ATRA has no energy policy. Mike Lester, promoter of Taxi 2000's Skyweb Express that is mostly Ed Anderson's handiwork, can quote the price of a kilowatt-hr in most of the fifty states, and many places overseas. Maybe ATRA should form an Energy Committee to look into the issues.

Shifting from petroleum-based modes to electric is a major selling point of PRT. Shifting from propane and natural gas reduces greenhouse gas emissions if the source of the electricity is green.

So PRT is cool on those fronts. It's electric. If it is green, sustainable power, we are in for a big gain. The guideways and stations can collect sunshine. Voila — solar-powered PRT! Those outside of technical circles get excited. Engineers scratch their heads, saying "Well, we can do solar."

Silicon DC

What the engineers don't get, city officials and community groups do. PRT can be designed as a dense mesh of service that will make public transportation significantly more accessible and therefore usable. Living in walkable, bikeable communities is popular for today's lifestyles. Owning a car is expensive, and many want to do without.

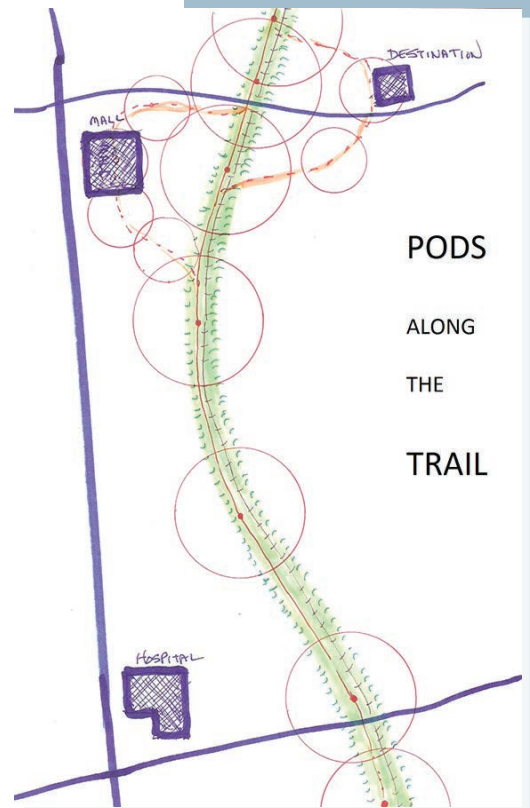
Trends in spending patterns and real estate markets are showing a life-style shift. Living in the sprawl of 20th century suburbs has less appeal. City and town life is popular. Ridesharing options are multiplying. Soon robo-taxis will be cheaply summoned. With a PRT station near most routine destinations, people in droves will shift to walking and transit-oriented lifestyles. Especially for hordes of now-retiring Baby Boomers.

ATRA should take positions on green energy and on the healthy lifestyle activities promoted by public health authorities.

ATRA @ FACEBOOK

Check out [facebook.com/advancedtransit](https://www.facebook.com/advancedtransit). Add a comment. Like it. For those who are into Facebook, this will be a big thing.

For more information, contact kjensmotwalker@gmail.com.



What is the cost of electricity in Greenville, where podcars could get good sun?

WORLD METROS IN LONDON

By Nathan Koren

MetroRail early last April in London was very rail-focused. There was nary a peep about any innovative modes like PRT or ATN from what I saw.

Quite a lot of talk whirled around train automation. Most of the content was rail technology focused in a way that doesn't particularly interest me -- such as energy-recovery strategies in powerfeed systems. However my ears did perk up during the rare mentions of broader planning issues.

Value in the Land

There was a lot talk about capturing real-estate uplift, with Hong Kong's MTR repeatedly mentioned --deservedly, as far as I can tell -- as an example to be emulated. One Crossrail planner of London's \$25B emulation of Paris's decades-old RER noted that over half of recent planning applications in London cite Crossrail: "Rail operators need to capture some of that value".

There was lots of discussion about how coventuring with developers can raise more money than fares. It can be used to cross-subsidize the farebox (as in Hong Kong).

It was noted that in Paris, the capacity of a driverless line is 20% higher than even the most state-of-the-art manual lines, due to the utter predictability of automated operations, and the ability to run at higher average speeds with shorter headways. Unions and politicians typically argue that public transport should be a direct (rather than indirect) jobs-creator.



World Market Tidbits

Lots of frustration was expressed over the slow pace of political decision-making. Infrastructure projects take 10-50 years from conception to realization, There was much admiration for how China does things. Quote: "Democracy is hugely over-rated".

There was an interesting discussion about how the center of Birmingham is being "completely redesigned" to accommodate a high-speed rail line (HS2) and ensure that it is properly linked up with feeder networks of buses, trams, and regional rail. PRT's relatively ephemeral infrastructure would allow a serious layer of transport without completely redesigning a city. It is worthwhile to keep in mind that impact on the public realm can be a benefit.

It was also noted that what constitutes "Peak Hour" is changing due to the changing nature of work. Due to globalization and technology-use, travel demand is becoming increasingly spread throughout the day, and polycentric than CBD-focused. This is a major challenge for rail operator. A technology which can run around the clock at a low cost, and can serve ad-hoc demand over a network -- hmm, I wonder what that could be?

Nary on word on PRT, envisioned for Uppsala here, at MetroRail in London last month.

MORGANTOWN NUMBERS

Paris-based Thales, experienced in metros, driverless and manual, has been selected by West Virginia University to supply new controls for the Morgantown PRT. Ink is not yet on contracts and the numbers are not clear. The total renovation may involve \$108-million, including civil work (tunnel repair?) and new fare collection and station/platform equipment and electronics. The Board of Directors recently approved a \$60-million bond sale, mentioning expectations for \$17.5 million from USDOT.

Several years ago Thales went out of its way to distance itself from PRT. As the numbers clear and work moves forward, this may signal a lifting of conventional transit expectations.

UPCOMING EVENTS

Bolded means ATRA is part of the program

Date	Name	Venue
May 12-15	AUVSI - unmanned systems	Orlando
May 19-21	10th ALK Summit	Princeton Hyatt
June 10-11	Innov in Mobility Pub Pol Summit	DC
June 12-13	Practicum Innov Transit Funding	Montreal
June 23-27	ElevatorU - 2nd APM Talk	Lincoln, ME
July 15-17	TRB/AUVSI Autom. Vehicle 2014	SFO
July 21-23	TRB Tools of the Trade	Burlington, VT
August 2-6	ACT	San Francisco
September 3-5	PCC8 @ Arlanda	Stockholm
September 7-11	ITSA Annual	Detroit
September 23-26	Isocarp Cities/Water	Gdynia, Poland

2015

January 10-11	Technix
January 11-15	TRB Annual Meeting

WORLD, WAKE UP!

The alarm of the world environmental community is bolstered by the IPCC report discussed elsewhere. Protests with civil disobedience are increasing. Reactions to fracking and coal-burning policies have

Many feel that time is short. To all but the those profiting from fossil fuels, the consensus is that Climate Change is real and is already costing us a lot. Oil-wars are real. Obama recognized the stupidity of the Keystone Pipeline by postponing their decision.

De-motorization lies before us. Advanced transit is a key part of that strategy. ATRA is on the cutting edge.



AIRPORTS

Airport application of advanced transit have been at the periphery of ATRA's attention. Through ATRA's many decades of activity, most thinking has aimed at metropolitan markets -- area-wide networks that are an alternative to conventional transit modes, especially LRT and BRT. The brilliance of Tampa Airport landside-airside configuration was that it broke the complexity of PRT, as unfolded with great distress a Dallas-Ft. Worth in the 1970s. Airtrans was an overambitious projects - expected to carry cargo, baggage, mail, retail goods and trash in addition to people. Tampa used pairs of simple back-and-forth shuttles



ATRA organized a well-attended session at an APA (planners) conference in the 1990s. A workshop of *Maximizing Airport Land Values* a few years ago failed to gain serious airport interest despite the successful opening of *Ultra* at Heathrow Airport.

This setback is a reflection of a disconnect of American metropolitan planning. Airports operate and expand largely outside with purview of MPO authorities. Airports gain major revenue flows from parking and don't have to account for the carbon dioxide they generate. They have little incentive for goodtransit access.

Fifty years ago, airports were noisy, smelly land-eaters placed out where few residents had power to block them. Today getting to and from the airport is vital to

Will the sinking heads in Berlin wake up?

— courtesy of Sweden's KFB.

commercial and community life. They have evolved and continue to grow into airfront districts full of hotels, trade show centers, parking, and a dynamic array of aviation-oriented companies. This generates lots of landside greenhouse gas.

Scandinavia to the Rescue

In this poverty of US airfront thinking, we are fortunate to learn from Sweden, Finland and to a lesser extent from Denmark and Norway -- all known for their excellence of design. Studies are underway between Stockholm's Arlanda Airport, two adjoining municipalities and private investors. Next September, the 8th Podcar City conference will take place there.

A PRT-oriented *Aviapolis* was studied as a commercial district at Helsinki's airport in the town of Vantaa in the early 2000s. Nothing much came of it, and R&D on the Bubble Motion ultra-lite PRT is in a suspended state.

The closest comparables in the US are Seattle, where the City of SeaTac led a study of PRT connections that Sea-Tac Airport ignored, and more recently San Jose, where airport officials pretty much ignored \$2 million in analysis of to-transit connections by the City.

As pressure to reduce carbon emissions grows, American planners will need to make up for not envisioning advanced transit in airport landside districts service today.