TRANSITPULSE
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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.

Janary/February 2014

APMS: BREAKDOWN OR SHAKEUP?

Overall the value of the 2014 APM Pipeline has risen eighteen percent over last year. The bulk of that is for driverless metros overseas, with great market potential in the Middle World, India and China and probably Latin America as well. For the very first time, a fully automated metro is underway in the US -- off-shore in Honolulu. Some day soon, it may be called the Obama-Line.

The make-up of APM projects is clearly shifting. In 2004, driverless transit made up 62 percent of the APM Pipeline. Today it is over 92 percent. Metros are bigger and more expensive than airport and campus APMs, so they make up the lion's share of the dollar totals.

Many airport and other "architectural" (within a single property) projects were active in 2004. This has dwindled from 1.3 billion in 2004 to $414 million today. For US airports, the scene is particularly bleak. Three of the five active projects are in the Middle World - Doha, Dubai, and Jeddah. A fourth is in Munich. The only US entries are for Miami to add four MHI vehicles and a new crossover to *MIAmover* and replace the old (1980) Westinghouse shuttle to Terminal E.

Where Are the PPPs?

Projects not undertaken by the local or regional transport authority but passing through several pieces of real estate are called "institutional". Their dollar total has bobbled up and down, but is up just slightly from $1.07 million in 2004 to $1.16 million today. Project planners and APM proponents have not found the successful business model for them to multiply. They are still searching for a workable form of public-private partnership.

Of the ten active institutional projects, only the Oakland Connector linking the airport to BART is on US soil. A similar airport-to-train project is underway in Bologna, Italy. The rest are in Asia, Latin America and Africa. To obtain the full list, contact lfabian21@gmail.com.

Driverless Metro Bonanza!

Just as new US architectural and institutional projects dwindle, the first truly driverless US metro starts up amidst a cultural divide between the US-UK and the rest of the world led by France. There are almost forty active projects. Almost half of them are in Europe - new lines, extensions and metro retros — the potentially huge market in upgrading classic lines to full automation, as Paris did so adroitly to the busiest RATP Line 1. Brussels (Siemens-Bombardier), Helsinki (Siemens) and

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PRT projects, such as this one envisioned by BM Design of Finland, are not yet a significant part of the of $21-billion APM Pipeline.

Stockholm (Ansaldo-Bombardier) are in the forefront. Are Hong Kong and Singapore next in line? Or London?

$18.8 billion may be too low a figure for the true volume of driverless metro projects. For example, Riyadh intends to build six driverless lines which could exceed $10 billion in system costs alone (only $1 billion is in the current Pipeline). Similarly Jeddah has plans near procurement for these lines, not included. India figures big as well -- Delhi Line 8, Hyderabad Line 1+ and Kolkata.

A driverless monorail by Bombardier and Line 4 (Siemens-Rotem) in Sao Paulo are two entries for Latin America. Santiago seems close to finalizing contracts for Lines 3 and 6, but this is not firm enough to include. Chinese projects are in Taipei and Taichung in Taiwan and in Macao. So far mainland China has not embraced full automation among its scores of metro projects.

PRT: Where's the Beef?

Discussion of PRT has become serious on many fronts — Uppsala and Arlanda Airport and adjacent suburbs, Silicon Valley CA, and Greenville SC. The Vectus demo in Incheon, South Korea had VIP service last year, with regular revenue expected sometime soon. So it remains as the only PRT entry in the Pipeline 2014. (Modultram's test facility and *Autotren* demo are not included.)

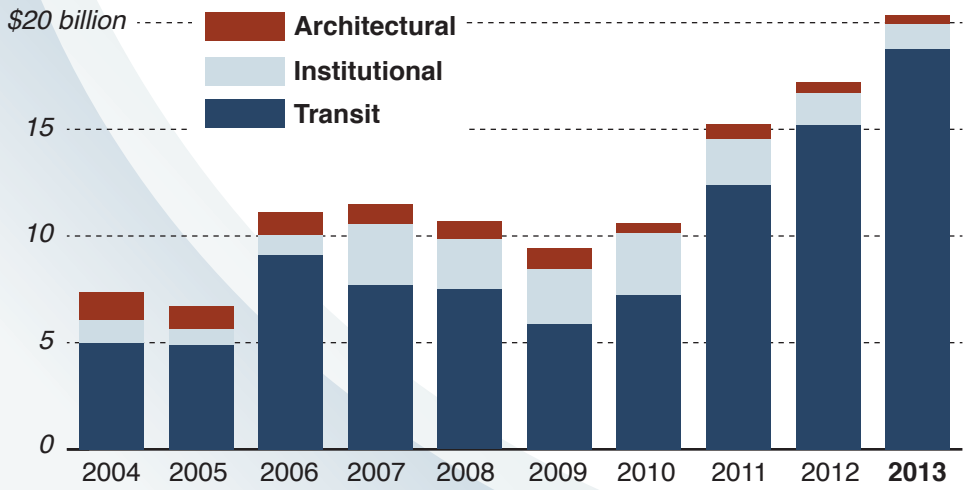
Intent to build another Ultra system at London Heathrow Airport has been announced by airport managers, but no contracts have been signed. 2getthere has no new project despite over two years of operation at Masdar in Abu Dhabi. PRT promoters claim many almost-signed contracts but none that can be disclosed.

Will airport interest intensify resulting in landside APM networks that reduce carbon emissions and congestion? Will the US transit industry and the FTA embrace full automation for safety and cost reasons? Will planners and developers pursue "green villages" served by light-scale PRT or robocars? Will TOD planners extend the reach of existing transit stations with APM feeders?

2014 looks like a whole new ballgame.

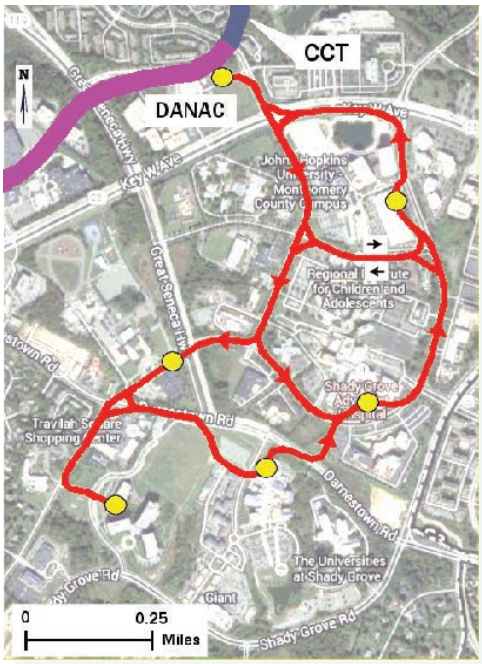
APM PIPETREND

Current APM implantations worldwide (excluding O&M)



TECHNIX 2014 PROGRAM

This year's *Technix* is focused on application studies. It takes place in College Park, Maryland next to the metro station of that same name. It is a short walk from the station to the venue in an industrial area off the main campus of the University of Maryland. The zip code is 20742-3021. Once you get there, you'll be stimulated by the following presentations. Come ready with questions and helpful contributions.



ATN applications such as this one in Montgomery Count MD will be explored at Technix 2014. – courtesy of Bob Johnson

Saturday, January 11, 2014

8:30	Light Breakfast		
	Speaker	**Affiliation**	**Topic**
9:00	Stan Young	ATRA Pres., UMd	Welcome to Technix
9:20	Jeral Poskey		California Applications
9:40	Jeff Ryan		Morgantown GRT
10:00	*Break*		
10:20	Brian O'Looney (Torti Gallas)		
10:40	Shannon McDonald	SIU	Carbondale IL
11:00	Reuben Juster	UMd	BWI Airport
11:20	Larry Fabian	Trans.21	Swedish Research (Goran Tegner)
11:40	OPEN DISCUSSION		
12:00	*Lunch*		
12:40	Bob Johnson	JohsonVisual	Montgomery County Maryland
1:00	TBD		City of Greenville SC
1:20	Stan Young		City of Kirkland
1:40	ACTIVITY		
3:00	DISCUSSIONS		
3:40	ATRA Business / Closing Remarks		

SIU STUDENTS PLAN ATNS

By Shannon S. McDonald

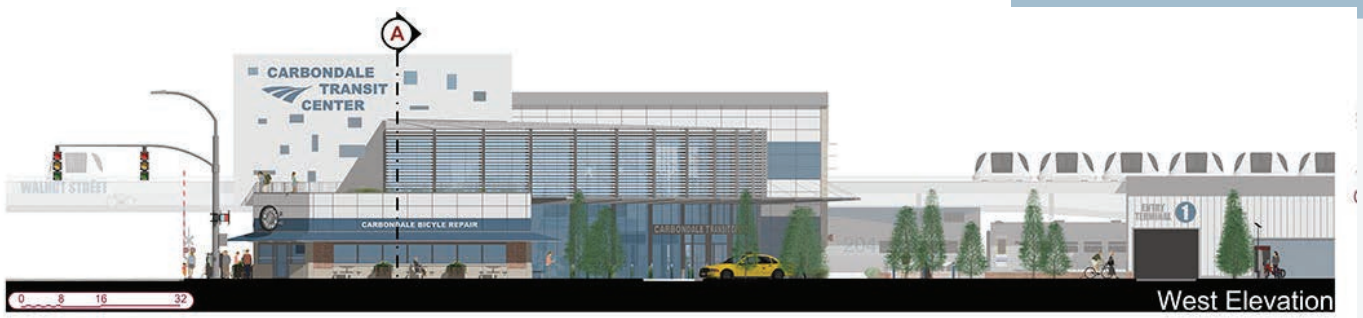
Southern Illinois University architecture students have been thinking and planning for ATNs in many places and in many ways. ATNs were considered by the Comprehensive Masters architecture studio for designs of an urban legacy site for the Rio de Janeiro Olympic planning. This studio received high honors from the recent accreditation!

Architecture graduate thesis student Lucas Shubert completed his master's thesis on the study of a new HSR station with an ATN university/city link for Carbondale, a small town in southern Illinois. Linking the university and existing town greenways, train station and bicycle trails, an ATN network could make Carbondale a car-free town where mobility for all would be a reality! He presented his ideas in a paper at the Transportation Research Forum in Annapolis, MD last March.

During PCC7 in Arlington, VA last October, Magnus Hunhammar and officials from the town of Upplands Vasby, (neary Stockholm's Arlanda Airport) agreed to collaborate with SIU architecture students. Online master architecture students are now creating conceptual designs for an Airport City.

ATNs have a unique place in urban and architectural design. Students will be leading the way!

Architectural students at Southern Illinois University are envisioning APM applications.



GREENVILLE RISING

Imagine finely meshed networks of podcar services accessible by a portal not too far away from you are now, and where you want to go. Embellish this image with nicely landscaped walkways and bikeways. Why not put traffic and its noise in the background? Enrich it further with nice shops and sitting areas where people meet and commune – a necessary ingredient to good community life. This may be the future of Greenville, South Carolina.

The details of PRT-served Green Villages are not yet fully fleshed out, but a strong South Carolina dynamic is in play. In the growing "Upstate" economy, Greenville may have the right ingredients to grow into a sustainable regional fabric with exportable circulation systems. last Thursday, November 6, fifty people shouted YES to this path proposed by county official Fred Payne. A diverse range of community leaders, industrialists and academics were there.

Place-making falls in downtown Greenville are a sign that locals know the importance of good planning and design.

What are Future Green Villages?

What might this futuristic talk today mean to people who live in and around Greenville tomorrow? There is currenlty little public transport to speak of. The MPO in 2001 was mandated to expand beyond highways and embrace other modes, but admits that it still hasn't done so. At best, they have spent time and money studying BRT.

What difference will BRT implementation make to future life styles? Probably none, thinks Payne. Yet if future Greenvillers live within a five- or ten-minute walk of a PRT station offering taxi-like service to most destinations, they will toy with the idea of getting rid of the household's second vehicle.

Nigel Clarke (with flag behind him) represented Ultra at a seminar in Greenville, SC on PRT last November. To his right is Mike Lester of Taxi 2000.

If they live even closer and appreciate the health effects of walking, it may well make sense to give up a car completely -- and save the $5000-$15,000 a year that it takes to own and use a car, pickup, SUV or minicar.

Greenville 2020 is a work in progress. If things go right, it may lead to car-free living for thousands of people in a fast-growing region that today manufactures more cars than the Great Lakes region. Seeing the problems that car-addiction has brought to Atlanta, South Carolina is open to new ways to grow and prosper.

Greenville's enthusiastic, broad-based support for modal reform has not yet been seen in US communities. Not even in California — well, maybe with the exception of Santa Cruz!

Greenville has already decided to be multi-modal.

ATRA FORMALIZES ACADEMIC COUNCIL

Several years ago ATRA formed a Academic Research Committee. For 2014, this effort is moving forward as an Academic Council (AC). Its vision, mission and membership fees and benefits are listed below. Sensing much new interest in advanced transit, AC is asking others to join together to see how far we can move forward!

VISION: An ongoing, active, worldwide forum of researchers interested in the study and development of automated transit networks (ATNs). This will serve as a foundation for research through problem statements, proposals, pursuit of grants, conduct of research, critical review of academic works, experimentation and testing,

and data collection and analysis.

MISSION: To connect researchers to high-level resources, funding, and publication tools while supporting a global, academic foundation for research and development of ATNs. The Council would ultimately establish a research center for experimentation, analysis, testing, and documentation with a library of ATN literature.

ACADEMIC COUNCIL
CHARTER MEMBERS
University of Maryland, United States
Princeton University, United States
University of Bologna, Italy
Mineta Transportation Institute, United States
Southern Illinois University, United States

AC seeks new institutional members. The fee is $500 per year, which includes individual ATRA memberships for five faculty and staff and unlimited undergraduate and graduate students from the institution. There are additional benefits that come with ATRA membership:

- one year of issues of *TransitPulse* — discounted registration fees for ATRA events and sponsored APM and podcar-ATN conferences - discounts on subscriptions to the *J. of Adv Transportation*
- access to ATRA papers, documents, studies, and website
- satisfaction in advancing transit and urban lifeIf you would like to join or already are a member of ATRA and interested in joining this group, please email *smcdonald@siu.edu* or *seyoung@umd.edu*.

Shannon McDonald, in center in beige dress speaking to Christer Lindstom in Oakland, is the main force behind ATRA's Academic Council. Wayne Cottrell, by door holding papers, is another.

RESEARCH PROBLEM STATEMENTS FOR TRB

Shannon McDonald has been busy coordinating the development of Problem Statements for the TRB Committee AP040 on Automated Transit Systems (ATS) to submit for consideration in future rounds of TRB-funded research. Included are:

1. **Bus Collision Avoidance** to reduce accidents (3260 in 2011), injuries (13,000), fatalities (92) and cost ($483 million). Proposed by Jerome Lutin.

2. **Advantages of Guideway for Driverless Vehicles**, by Stan Young, Laura Stuchinsky, *et al*.

3. **Auto-Valet Parking, by Shannon McDonald**, Stan Young *et al*.

4. **Automated Shared Fleets**, by Dan Fagnant (Univ Texas) *et al*.

5. **Automated Fleet Performance Measures**, by Fagnant **et al**.

6. **Hazards Analysis for Automated Road Transit Vehicles**, by Sam Lott, Stan Young *et al*.

CARACAS APM

The total of 166 operating APMs around the world reported in the last issue failed to include the *Cabletren Bolivariano* which opened in Caracas last year. It is a 2.1km, 5-station cable-drawn line supplied by Austria's Doppelmayr/DCC. Since relationships between the US and Venezuela are strained, few Americans are aware of this project.

It fits into the category of local transit, so the subtotal for these in the Count goes up a notch from 19 to twenty. Viva Bolivar! And the APM total for the end of 2013 is 167.

Austrian DCC supplied an APM for a set of Las Vegas fantasy resorts, as well as a new urban installation in Caracas, Venezuela.

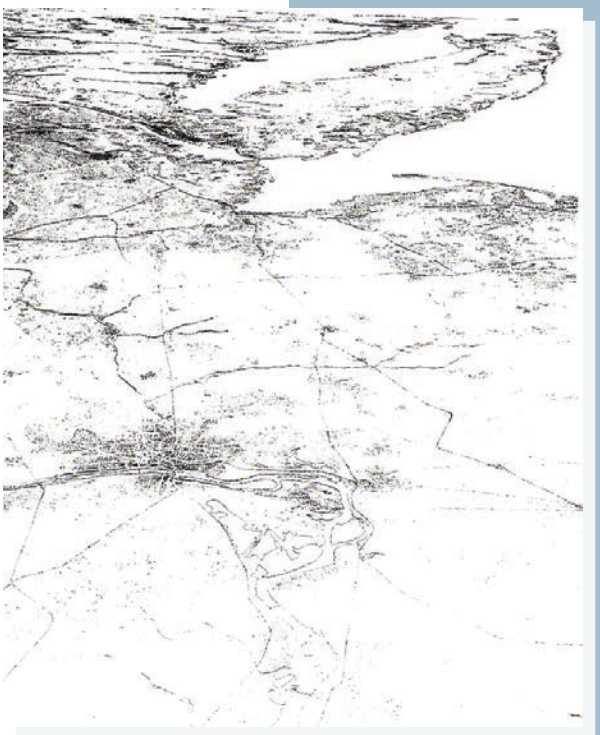
ELEVATOR GUYS GET DOWN

The lively bunch of university and hospital facility managers and elevator specialists who gathered last June in Ames, Iowa showed a "great deal of interest" in APMs according to Bob Caporale, editor of *Elevator World*. Your editor Lawrence Fabian gave an overview of APMs as modern circulators bringing intended and unintended benefits to large campuses.

There were extensive discussions among the *ElevatorU* crowd that gathered at Iowa State University as summer crops were sprouting between the neat towns on the rolling green hills of the Heartland, gently bedecked with wind turbines that give electricity without fossil fuels. There was some hot air at the conference too.

Caporale, a seasoned elevator professional with roots in the Northeast now mellowed by years in the southern ways of the Gulf Coast, is a key player and monitor of this group of facility managers and elevator suppliers and servicers. His is a commercial grouping with well established industry associations of manufacturers, contractors, consultants and safety officials.

The October issue of *Elevator World* had a follow-on article on the intersection of vertical and horizontal in urban design schemes.



If elevator technicians understand APMs, we can better create sustainable regions.

PRT IN PARIS

Because turnout at the 3rd ASCE Conference on Urban Transportation Systems was modest, ATRA's presence was noteworthy and noticed. Ingmar Andreasson of Sweden, Joerg Schweizer of Italy, Alain Kornhauser of Princeton and Colorado-based Peter Muller made PRT a significant part of the dynamics of the gathering of mostly European officials. Speakers engaged well with a lively audience. Details are given on Peter Muller's active website *www.prtconsulting.com*.

This demo of Autotren was quickly assembled at a expo center in Cuernavaca. Mexico late last year.

There were no deliberations. No conclusions or recommendations for follow-up were made. This event was reported to be badly organized, and it doubtful that a follow-up fourth in the series will materialize.

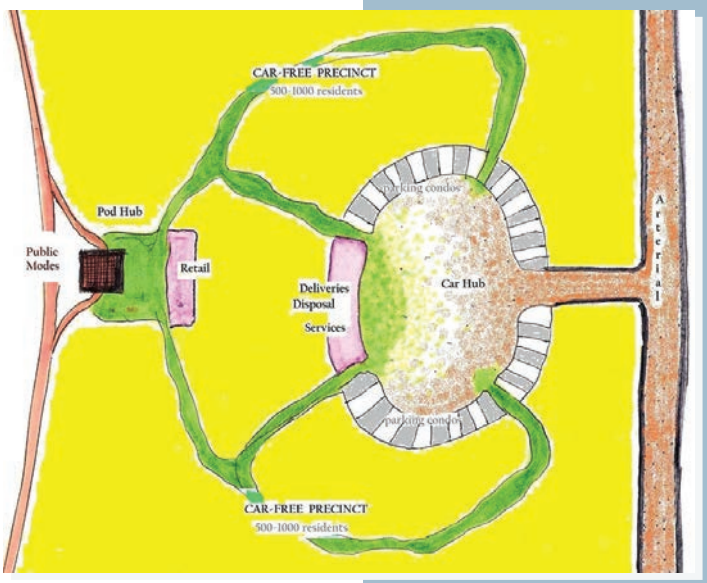
One outcome from ATRA participation in the event was private conversations between Board Chair Alain Kornhauser and stalwart rail engineer and UPenn professor Vukan Vuchic. The chief of Parsons transport programs was also there.

Meanwhile France has become the world leader in integrally automated urban rail (streetcars and bikesharing too) with no interest in ATN. With over $20 million (€15m) from the European Union, Paris will continue to be the world center of driverless metros.

PRT DESIGN CHALLENGES

What if public policies encouraged innovative ways to structure urban mobilty?

To allow the very identifiable benefits of ATN to come to fruition, it is necessary to create something that does not today exist. How can ATRA move legislators and policy-makers, who are not familiar with these possibilities, to action? How can contractors and public safety officials be made comfortable?



There are several challenges for those who try to envision and plan transportation systems:

- prevalent transit thinking is linear, focused on corridors, whereas the advantage of ATN is in its networkability – flexible to solve local circulation and parking problems

- prevalent engineering attention is on the trackway and large stations, whereas the advantage of ATN lies in minimal stations and lighter dimensions for guideway

• prevalent transit operational thinking is on two-way corridors, whereas the advantage of ATN is the viability of one-way configuration.

• expectation of a few regularly spaces stations, whereas ATN stations can be located with great flexibility

• the need for better policies to encourage feeder services into major transit stations

Relative to ATN implementations per se, there are three major challenges:

• environmental impacts of elevated guideway and stations. Visual and aesthetic, but also shadows, drippings and droppings

• control software for real time scheduling, fleet management and response to perturbations so that service is assured to be safe and secure

• a new business model that feeds and reinforces existing transit while sharing revenues and wealth creation equitably

ATN networks be flexibly designed to house conduits for wires, cables and tube delivery systems.

If you have anything to add to this list of challenges, please let your editor know by emailing him at *lfabian21@gmail.com*.