

MOBILITY RIGHTS

To be a fully functional citizen in the US is to have a car to drive or be driven for you.

The addicted quality of American life to cars and hundreds of thousands of trucks, SUVs, vans and other wheeled and motorized devices is so deep and pervasive that most Americans don't recognize it. It is the water we swim in.

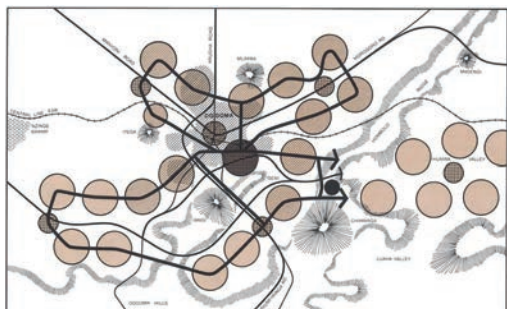
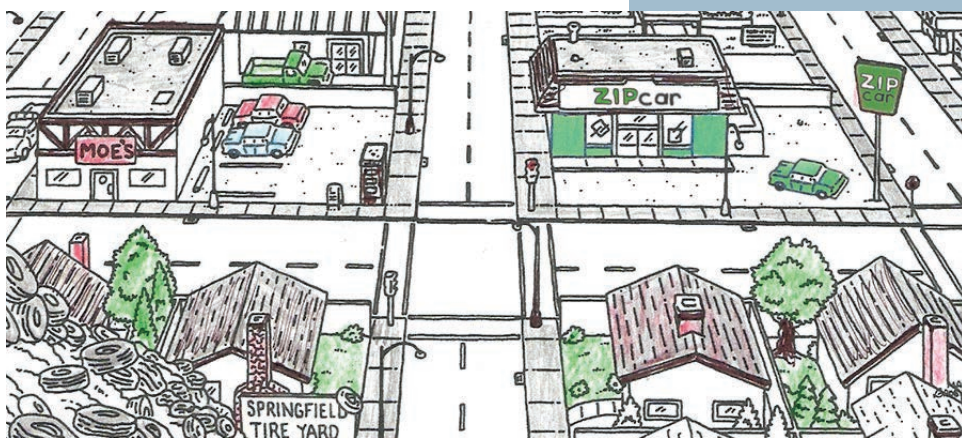
Those who cannot drive - too young, too old, too challenged, too poor, or too ardent in their love of neighborhood are at a severe disadvantage in life. This inequity may be the opening to modal reform. Just as the US Constitution does not say that English is the official language of the land or that marriage must be one male and one female, it does not say that government policies should disadvantage a broad swath of people into second class.

The US Constitution instead talks much about being a perfect union and about the equality of all peoples. Is that the legal opening to mobility reform that might lead to advanced transit?

Car-Free Living

Car-free California ATRA member Will Ackel has a website dedicated to car-free development. He has experience in real estate investment. He travels far and wide without a car and puts related thoughts on his website.

He recently discovered the new VISION sustainability rating system emanating from the Institute for Sustainable



Infrastructure -- a Beltway entity spawned by professional associations that often flex muscle in the national media and over Capitol Hill -- ASCE and APWA. Its goal is to provide ways to assess the sustainability of all kinds of infrastructure work.

Read more at
<https://shanta-bonsall.com/?p=132>.

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Most US cities and towns are built 95% car-oriented. ATRA wants to change that to 50%.

Mobility rights can be assured by organizing cities well, such as the planned capital of Tanzania shown here.

ENVIRONMENTAL DRIVERS

According to the Geneva-based Intergovernmental Panel on Climate Change (IPCC), the costs of increasingly violent weather patterns are already here. Over the horizon are catastrophic threats to urban infrastructure. Greenhouse gases (GHGs) are the main culprit. Business as Usual (BAU) is not an option. IPCC warns that we need fundamentally new energy paradigms for life in the 21st century, and the UK House of Commons recently commended IPCC as the best source of scientific option on climate matters.

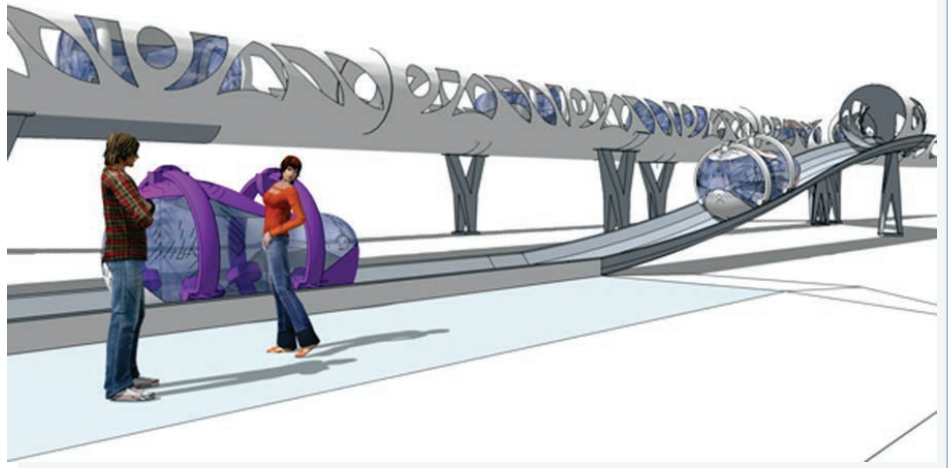
Fundamental Departure from BAU

Noting record high temperatures, melting polar ice and severe weather patterns, IPCC and others are raising strident alarms about the unsustainability of the world's economy. Much of the problem is a growing need for power. We need clean electricity - without GHGs - from solar, wind, hydro, and geo-thermal sources. A significant generator of GHG is urban highway traffic.

As ATRA charts forward a roadmap for sustainable urban transportation, we see ATN networks feeding into mass transit in a kind of mega-TOD context. We see airport and other districts more sustainable. We welcome walking and biking as complementary ways to accommodate car-free life styles. We speculate that 20-30% of GHG-spewing highway traffic can be shifted to greenways that collect solar or wind power.

If wisely planned, ATNs will share rights-of-way with walkers, joggers, bikers, and bike-sharers. These multi-modal greenways will have place-creating stations that Fred Payne dubs Mobility Hubs. Such networks will improve urban life in many ways, making it significantly more sustainable for future generations

ATRA has a role to play in advancing these matters.



Advanced transit as conceived by Suyzer is not Business As Usual (BAU).

MULTI-MODAL SWEDEN

ATRA folks who have attended any of the Podcar City conferences know more than most Americans about Sweden. More any other country in the world, this nation of some nine million people has analyzed podcar applications in its cities and towns, comparing them to other modes. Sadly none has yet been built. These visions has stayed at the thought level -- something to keep balanced during the short days of long dark winters.

Sweden has a long list of small towns where multi-modal PRT analysis has taken place. Umea, Eskilstuna, Varmdo, Flemingsburg, Upplands Vasby, Kiruna, Bolanderna, Gavle, V, Froelunda, and Sodertalje. They have also been done for Stockholm's academic district and as a rail station distributor in Uppsala. Much of

this work has been performed by ATRA VP Ingmar Andreasson and Goran Tegner, but many others have contributed to these impressive efforts. This multi-modal analysis goes well beyond the study of whether PRT is feasible.

When Will Ikea Commit?

Tegner and Andreasson presented a paper on one of the most advanced of these multi-modal studies for a Greater Stockholm big box retail district known as King's Curve. Site of the original and the largest Ikea store, most of the 42,000 people who travel there to shop and work come by car. Bus ridership was estimated to be 5% - which would be impressive in the US, but low for transit-friendly Stockholm.

Forecasts of 50% growth in shopping and traffic were in place when the study was done. Local officials from the city of Huddinge had sustainable ambitions. A dense PRT network was proposed to connect residential and shopping areas to a metro station with 12 km of guideway and 12 stations, two of which were inside parking structures to the north and south.

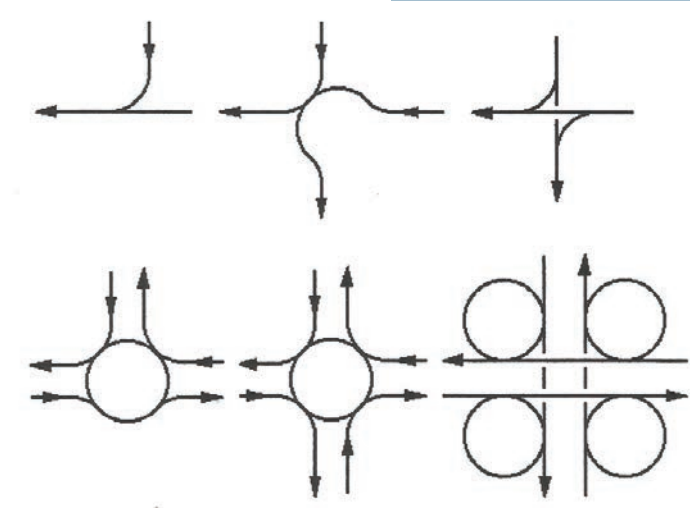
With PRT in place, Ingmar and Goran calculated that King's Curve transit share would more than triple to almost twenty percent (seventeen percent using PRT). They concluded that PRT would provide an environmentally friendly and attractive complement to the private car and increase metropolitan metro and bus travel.

Quantifying PRT Benefits

Simulations showed a 8 percent reduction in car traffic in 2015 with PRT. Without PRT the growth in car traffic might be 40 percent. The social analysis identified that the following benefits:

- Travel time Savings for car users and for public transport users
- Reduced road congestion, both on regional roads and inside King's Curve
- PRT vehicle & station comfort & convenience gains
- Reduced air pollution emissions
- Traffic safety gains
- Increased land values due to reduced surfacecar parking

No USDOT study has approached the detail of this multi-modal study for King's Curve -- not the Seatac study in the 1980s, nor the Rosemont concepts developed by Raytheon and the Chicago RTA in the 1990s. Perhaps studies done for Masdar and other districts in the UAE, Saudi or Kuwait can match the sophistication of Sweden's experience, but they are behind veils..



Swedish studies have explored how PRT intersections can be configured.
— LogistikCentrum



Will something like this get built in Sweden?

SHINING LIGHT ON ADVANCED TRANSIT

New York thinks it's the Queen of Sophistication. Washington exerts a Kingly role as holder of the Big Hammer. But is it not Silicon Valley that is leading the charge into the future? With Google and its rivals and friends — HP, eBay, Apple, etc. transforming just about every aspect of human life, many conclude that the Bay Area is *creating* the 21st Century. It seems that only a — God forbid! — much dreaded big earthquake can derail SV's technology-based surge.

San Jose claims to be the Heart of Silicon Valley, with a neat, clean and efficient downtown and major airport nearby. Snuggled next to the CBD is the generous campus of San Jose State University. Oh, by the way, the locals, reflecting their deep Spanish heritage, insist that it's San José, if you please.

Student Work for a Sustainable Future

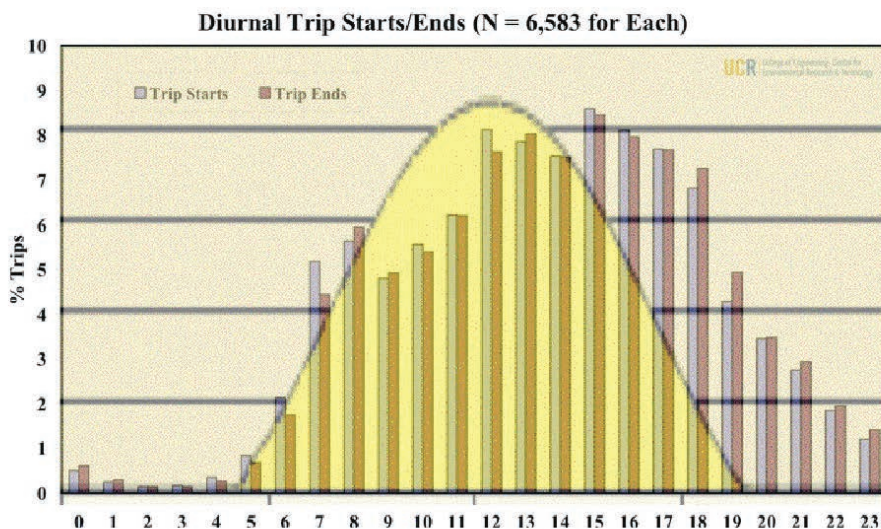
Most but not all SJSU's students are from the hills and plains of the southern end of the San Francisco Bay. About twenty proto-engineers are designing their vision of PRT. They label it ATN -- Automated Transit Networks -- ever since Laura Stuchinsky, the City's Director of Sustainability, coined the phrase when Arup and Aerospace Corporation were examining the feasibility of PRT to link the airport to regional transit a few years ago.

The SJSU workshop takes place under the auspices of the Department of Mechanical and Electronics Engineering. From the start, emphasis was given to designing into ATN guideways and stations with arrays of solar panels to cleanly and efficiently power the vehicles. This gives a significant advantage to suspended vehicle. The tops of guideways are freed up to collect juice from the sun!



The SJSU design puts solar panels atop guideways, from which vehicles are suspended

Typical trip patterns closely match the pattern of sunshine, with evening extension



Solar energy mimics urban travel patterns with a 3-hour differential which minimizes storage needs. — courtesy of Ron Swenson

Mid-July many of these students, Professor Burford Furman and advisor Ron Swenson showed off their evolving ATN concepts. They hauled up a scaled test track and vehicle and station mock-ups to the Moscone Convention Center in downtown San Francisco. Over several days the 2014 Intersolar show drew about 30,000 professionals and enthusiasts. That included twenty-three high school students taking summer courses at SJSU and eight chaperones. Many ideas, thoughts and business cards were exchanged.

ATRA Support

The Advanced Transit Association (ATRA) recently donated \$3000 to support the SJSU Solar Superway project by helping to pay for materials not supplied by the University. \$1000 of that total actually came from the Minnesota-based Citizens for PRT. ATRA recently established an Academic Council. Princeton, Southern Illinois University, University of Maryland, and SJSU's Mineta Transportation Institute are already members. To learn more about this, contact smcdonald@siu.edu.

This does not mean that ATRA has taken a position that suspended vehicle designs of PRT are preferable. ATRA's mission since 1976 has been to promote a wide variety of advanced forms of transit. For decades Silicon Valley members have promoted PRT thinking. Given the level of interest in ATN thinking at Intersolar, it seems like those long, patient years are paying off.

ATRA TIDBITS

The Industry Group's **webinar** last May attracted 32 attendees, with good participation despite some time zone problems.

ATRA's \$3000 donation (of which \$1000 was from CPRT) has been conveyed to the students of San Jose State Universities for use on the **Spartan Superway** project, which started last year.

Ingmar Andreasson is the Industry Group's liaison to the Mother ATRA's Executive Committee.

ATRA will soon select a recipient of the first **award** for best paper on ATN.

The Industry Group plans to launch soon an award for **contributions** to ATN every other year, to be named in honor of Martin Lowson.

ATRA wants to expand **Technix** next January to draw more people and bring in revenue. Another mini-charrette is likely.

Peter Muller has drafted a **Case for Automation** aiming at USDOT officials. He is creating a committee to help develop it.

ATRA's Industry Group has published a well illustrated, 16-page **booklet** on what ATN can mean to urban planners and visionaries.



Some of the students who appreciate sun-powered ATN.



A scale model was part of the SJSU display now supported by ATRA.

NEW JERSEY TRANSIT AUTOMATION CENTER

ATRA chair Alain Kornhauser formally announced last July the establishment of an automated vehicle research center in New Jersey that will focus on collision avoidance. The aim will be on the certification and commercialization of safer bus and other forms of public transport.

Called for now the Automated Vehicle Research Center, it will be located on the grounds of a former military facility known as Fort Monmouth along the coast of New Jersey. Jerome Lutin will lead the first project which is to develop standards for passenger buses. Insurance companies, investment firms, China, BMW and the City College of New York have already expressed interest.

This comes at a time of surging interest in robocars - known variously as driveless or automated or autonomous vehicles. For example, trials will soon be running at Milton Keynes in the UK with support from the Low-carbon Urban Transport Zone (LUTZ) program which has funding from the UK Transport Catapult program and the Department of Business, Innovation and Skills. The program calls for a fleet of one driverless hundred vehicles.



Professor Alain Kornhauser is based in the Garden of the Bos-Wash Corridor.

The venerable Morgantown PRT has weathered well almost four decades, but needs a bit of updating.

MORGANTOWN PRT IMPROVEMENTS

As the Morgantown PRT nears its 40th year of service, major repairs and improvements are underway. The 5km, 5 off-line -station system with full "PRT functionality" is closed this summer to facilitate this work. New controls by Thales are to be ready for use next year. Extensions at both ends contemplated a few years ago are not part of these improvements. West Virginia University owns and operates the PRT. WVU developed costs estimates of several hundred million dollars for those extensions.



Growing Population and Ridership

The Morgantown area currently has a population of around 75,000. This is expected to rise as enrollment and research activities grow. A recent update of the long-range transportation plan predicts that 40,000 more residents will be added by 2040. Despite the relatively small size of this region, it suffers from severe congestion because the hilly terrain creates restrictions on highway development.

These growth forecasts have attracted interests from national real estate developments interested in profiting from strong demand for student housing. Some of this may be in the vibrant downtown area which has one of the PRT stations. City planning officials are interested in offering developers a way to avoid lots of parking by contributing funds to the public parking authority. This opens the possibility that developers could contribute to expansion of the PRT.



A forty year old station of the Morgantown PRT give reason to pause to Magnus Hunhammar, PCC8 chair.

Sparks in the Past and Future

Jpods developer Bill James in 2011 requested that the City grant permission for a demonstration of his technology. When met with questions from local officials, he quickly accused them of treason and blamed them for oil wars in the confrontational style for which he is well known. Morgantown quickly cut off discussions.

City officials expressed interest in Morgantown as the venue for the 9th Podcar City conference but pointed out that the University would need to be the lead agency for such an undertaking.

ARVs & PUBLIC TRANSIT

The 3rd Automated Road Vehicle Symposium (ARV-3) was held in San Francisco the week of July 14, or more precisely at SFO, the main airport south of the city. Several TRB committees organized the program in conjunction with ATRA and the Association for Unmanned Vehicle Systems International (AUVSI). ARV-1 was held in Irvine in 2012. Last year it took place at Stanford University. With attendance and interest growing, this year it was at the Hyatt at SFO.

The ARV-3 program consisted of plenary sessions with speakers from the auto industry, major systems suppliers, Google, and related research and thought leaders. While much of the conference focused on vehicle automation for personally owned automobiles, one breakout session concentrated on the impact of vehicle automation on public transit and shared mobility. This was proposed at ARV-2 last year. ATRA VP Shannon McDonald worked closely with ATRA leadership to develop the session. The Symposium Committee included several ATRA members.

This ARV-3 session explored evolutionary and revolutionary pathways to leverage automation in public transportation. Eleven speakers shared perspectives and thoughts over a wide range of issues, including the influence of the mobility revolution taking place with web- and app-enabled ride- and vehicle-sharing. How do automated vehicles intersect with public transport? Sam Lott noted that full automation was introduced to mass transit about 50 years ago. He stressed that there are many lessons from this transit experience for the ARV world. He pointed to opportunities of using transit operations as excellent testing grounds for automation concepts.

International Perspectives

Christer Lindstrom described Stockholm's interest in ATN as a way to prevent more 'rubber on the roadways' in their complicated, island-speckled metropolitan area. ATNs were mentioned in the USDOT's research agenda by Vincent Valdez of the FTA. He organized a breakout session on 'Mobility on Demand' -- transit that puts a premium on passengers.

ARV-3 elicited much thought provoking comments and insights from Adriano Alessandrini, Rod Diridon, Neil Hoose, Joseph Kopser, Jerry Lutin, Brian O'Looney,



As attention focuses on robocars, another APM in Brazil by Aeromovel opens to service. It does not entail PRT functionality but uniquely is pneumatically propelled.

Louis Sanders, and Susan Shaheen. Presentations will be available on the ARV conference web site. Proceedings are being compiled. Breakout session organizers included Dan Fagnant, Reuben Juster, Alain Kornhauser, Walt Kulyk, Scott LeVine, Rachel Liu, Shannon Sanders McDonald, Nazy Sobhi, and Stanley Young.

ATRA Workshop

The week ended with an ancillary workshop entitled 'Envisioning Automated Vehicles within the Built Environment: 2020, 2035, 2050'. It was targeted to staff from MPOs, county and regional agencies. It had a strong planning contingency, designed as a charrette examining various aspects of the built environment. How would ATN impact, and hopefully improve communities by the anticipated proliferation of ARV in various forms. The mini-charrette held at Technix-2014 provided inspiration for hosting this Silicon Valley event.

The ATRA Workshop was attended by over 85 professionals from the Bay Area and many from the ARV symposium. Participants broke into smaller groups, each addressing a specific concern or aspect. One was dedicated to ATN.

The bulk of the session was a design charrette. Hopefully it opened minds. Many problem and design scenarios described came to inevitable conclusions that point to ATN with some or total public ownership. SJSU Professor Burford Furman noted that autonomous vehicles alone will not cut it. Central management and control are needed; otherwise ARVs will mean more congestion, more sprawl, and perhaps greater social inequity and interference with walkers and bikers as well as street traffic. He brought up important energy issues that figure big into policy-making for future transportation. Many ATN 'enthusiasts' pay little attention to the bigger energy picture, GHG and climate violence. Onward to 2015



The mayor of San Jose spoke boldly about modern transit in 2009. Will he call for full multi-modal mobility rights at 2014 closes?

The workshop was organized by a team consisting of Shannon Sanders McDonald, Caroline Rodier, Kati Rubinyi, Ramses Madou, Marco Anderson, Reuben M. Juster, Dimitris Milakis, Susan Shaheen, Ray Traynor and sponsored by a number of organization, among which were ATRA and University of Maryland Center for Advance Transportation Technology (an ATRA Academic Council member).

Plans are in place for ARV-4 next year, rumored to be at a venue near DC to include easy access by members and staff of Congress and other branches of the US Government.

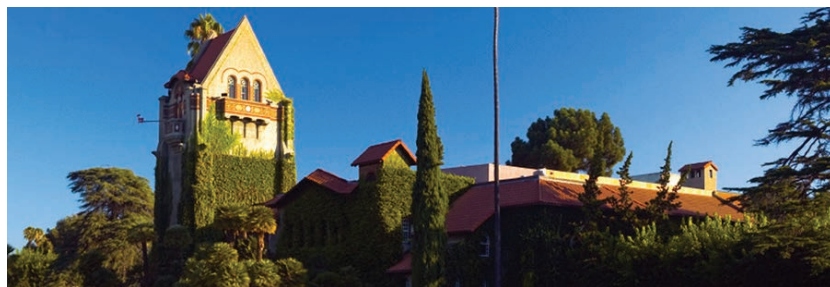
ATN INDUSTRY REPORT

A report by the Mineta Transportation Institute will soon be delivered to the USDOT for widespread dissemination. The report is an informative tool for planners, urban designers, and those involved in public policy, especially for urban transit. It describes the history and background on ATN and how to use for policy development and research. The principal investigator was Burford Furman, PhD, PE, Professor, Department of Mechanical Engineering at San Jose State University. Contributors were Sam Ellis (SJSU), Lawrence Fabian (Trans.21), Grant Kleinman (SJSU), Peter Muller (PRT Consulting), and Ron Swenson (INSIST).

The study defines Automated Transit Network (ATN) as fully automated vehicles on

exclusive, grade-separated guideways that provides on-demand, non-stop, origin-to-destination service over a service area as opposed to a corridor, as with LRT and metros. ATN is not 'on the radar' of, or to be taken seriously by urban planners, transit professionals, or policy makers

The report looks at the status of ATN suppliers, and the prospects of a U.S.-based ATN industry. It summarizes and organizes proceedings from the seven Pod Car City conferences that have been held since 2006 and documents the U.S./Sweden Memorandum of Understanding on Sustainable Transport. It then discusses how ATN could expand the coverage of existing transit systems. It identifies the opportunities and challenges in planning and funding ATN systems.



*Swedishly
Spartan in
the Silicon
Valley Sun.*

PHILBRICK LEADS SAN JOSE'S MINETA TRANSPORTATION INSTITUTE



Karen Philbrick was appointed executive director of MNTRC and MTI in 2014, after five years as MTI research director, with two years as deputy executive director and research director for both MTI and MNTRC. As research director, she led the three MTI research subcenters, directed more than 200 principal investigators for both agencies, oversaw the competitive selection of 122 research projects, and the production of more than 150 peer-reviewed research reports. Dr. Philbrick continues to serve as research director for both agencies.

The Mineta Transportation Institute enjoys a well-documented reputation for providing practical, relevant surface mobility research for legislators, public agencies, and others who can benefit from peer-reviewed data. The Institute will continue on this path into the future while also retaining its dedication to astute financial management, transportation workforce development, and public information resources. Benefiting the nation's mobility, economy, environment, safety, and security will always remain a priority

Prior to joining the MTI team, Dr. Philbrick was assistant director of the National Center for Intermodal Transportation at the University of Denver working on operator fatigue issues. She has extensive contacts in the Asian Pacific region. Recently she was reappointed to the USDOT's Transit Rail Advisory Committee for Safety (TRACS). She is active with the national Council of University Transportation Centers (CUTC).

Dr. Philbrick did undergraduate studies at CalState-Fresno, earned two masters degrees at Columbia, and a PhD from the University of Denver.

AIRPORTS

Chicago, Illinois: Last winter it was a Blue Line “E” train heading to the airport, not the VAL at the airport itself, that jumped tracks causing 32 injuries among the passengers. Meanwhile, vehicle replacements and system improvements to the aging French-supplied technology are in the works and, in the long term, extension to another terminal complex is to be undertaken

Orlando, Florida: MHI has been selected to replace two of the four pairs of Bombardier shuttles that link the main terminal to airside concourse and to install a new 2km APM to an intermodal ground transport South center that will eventually serve a new terminal to accommodate future growth in air travel. The long-term hope is to have high-speed rail service from Miami, Fort Lauderdale and West Palm Beach to connect to ORL.

Phoenix, Arizona: Last year when the Bombardier-supplied APM spine opened, annual ridership was expected to be 2.5 million. This translates into about 8000 per day. According to Lea+Elliott, it is now about 10,000 per day, with 12,000 on the busiest days.

Salt Lake City, Utah: In the 1990s officials contemplated expansion by means of a new airside concourse linked to the existing terminal with an underground APM. Recently plans for a new replacement complex were announced as part of a \$1.8 billion project without an APM. The HOK plan includes moving walks and escalators to assist passenger movements.



Orlando Airport integrated its APM with architectural beauty.