# TransitPulse

www.advancedtransit.org www.podcar.org

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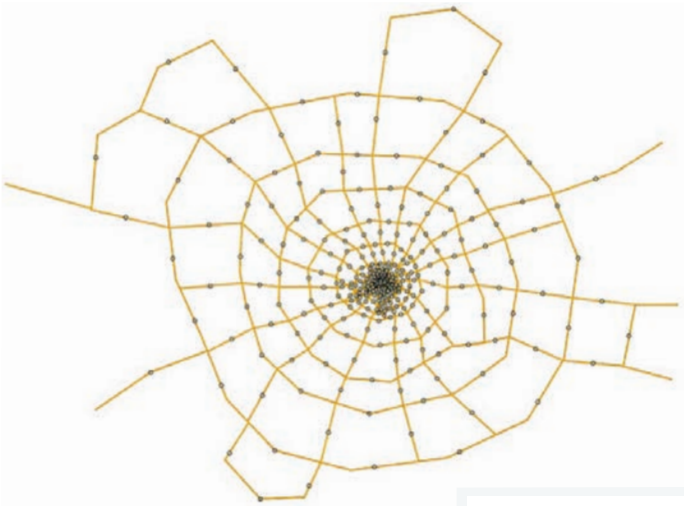
**News of Advanced Transit**

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

**January/February 2013**


## TECHNIX TECHNICALITIES

Start 2013 with a powerful dose of engaged discussions on the challenges, pitfalls and potentials of advanced transit.



*What mode split will be attracted to advanced transit when a large network exists? — courtesy of Nathan Koren*

ATRA's *Technix* on Sunday, January 13 is a lively exchange of non-reviewed presentations by ATRA member speaking about their doings, ideas and challenges. This year an invited keynote speaker from the tolled highway and bridge world will give his thoughts on guideway infrastructure that can not only sell self-navigation on exclusive guideways, but also electricity to power most of the trip and recharge batteries for last-mile on-street driving. Peter Samuels has long published *Tollroads* and was commissioned by Forbes to assess the potential of Raytheon's PRT efforts in the 1990s.

You will find many interesting topics in the main *Technix* program as well. The location is the same as last year – conveniently accessed by both road and rail. It is an easy walk from the WMATA Green Line, College Park station, so named because of the busy presence of the University of Maryland. Look for the CATT facility – the Center for Advanced Transportation Technologies.

Doors will open at 9am for coffee and continental breakfast. The program itself will begin at 10 sharp.

If coming by car, take Route 201, Kenilworth Avenue south from the DC Beltway (I-495), turn west onto Paint Branch Parkway, right on Corporal Frank Scott Drive, and left on College Avenue. The Google link is *http://goo.gl/maps/J5wHG*

### IN THIS ISSUE



## ATRA: TECHNIX 2013

Sunday, January 13, 2013

UMd CATT

| | | |
|---|---|---|
| 9:00 | Doors open — registration and light breakfast | |
| | **Speaker** | **Topic** |
| 10:00 | Stan Young | Welcome to Technix 2013 |
| 10:15 | Ingmar Andreasson | Swedish News and Views |
| 10:35 | In-gathering | O&M at LHR and Masdar |
| | | break |
| 11:10 | Bob Johnson | Vehicle control progress |
| 11:30 | Tyler Folsom | Developments in robocars |
| 11:50 | Peter Samuel | Developments in Tolls and Road Pricing |
| 12:30 | | lunch |
| 1:15 | Kjensmo Walker | Multi-city pod tour |
| 1:30 | Larry Fabian | Mode Splits |
| 1:45 | Wayne Cottrell | ARC - History of Automation |
| 2:00 | Alain Kornhauser | Jersey 2020 |
| 2:30 | Christer Lindstrom | Planning for PCC7 in DC |
| 3:00 | Stan Young | NYSERDA Study |
| 3:30 | | Open Discussion |

Registration is $45 for ATRA members. That includes lunch. For non-members, it is $70. Visit *www.advancedtransit.org* where you can register online with a credit card. You can also send a check arriving no later than January 10 to ATRA at the address given above.

The annual ATRA Board meeting in conjunction with the Transportation Research Board Annual meeting will occur on January 13, at 8 PM in the Washington Hilton, Kalorama meeting room on the lobby level. A keynote presentation will be delivered by Rod Diridon of the Mineta Transportation Institute in San Jose on the challenges of delivering people to high speed rail stations and opportunities with advanced transit.

Membership Renewal continues until the end of January at a special $35 rate. Renewal can be made at *http://www.advancedtransit.org/about-atra/membership/*.

Don't forget special donations for 2013 activities as well. ATRA is planning an Advance Transit System conference in Washington DC in October in cooperation with FTA and InIST. President Stan Young challenges members and Board Directors to help satisfy ATRA's fiscal needs. He starts off the New Year with a $500 challenge: Stan will match small donations up to $500.

### Driverless Metros Dominate

## APMS UP 13% TO $17.4 BILLION

The world total of automated transport projects underway has jumped from $15.2 billion at the end of 2011 to $17.2 billion today – an increase of 13% in a world of economic crises.


*One of the current APM implementations is at Phoenix Airport.*

This figure excludes major civil costs – such as tunneling and heavy civil work. There are three categories – architectural, institutional and transit. Transit in the form of high-performance driverless metros makes up the lion share – 88 percent dollar-wise. Except for the still-wobbly Honolulu metro and Vancouver's Evergreen Line, they are all in Asia, Europe and Latin America.

APMs of architectural scale – mostly on airport property – dropped 23 percent from $679 million to $521 million. There are currently only five projects underway, and three of them are on the oil-rich Arabian Peninsula – Doha, Dubai and Jeddah. The other two are Munich and Phoenix. The airport market boomed in the 1980s and 1990s but became too expensive because of the high performance demanded by airport authorities. Some think that procurement procedures and specifications are unnecessarily demanding.

Institutional APMs are not within a single property but are not public transit. In one way or another they involve public-private partnership (PPP). The volume of current institutional APM projects has contracted even more that the airport sector – 31 percent from $2.1 to $1.5 billion. That is largely due to completion of expansion of London's DLR to service the Olympics. The total includes several airport-serving lines in Bologna and Pisa, Italy; Incheon, Korea; Porto Alegre, Brazil; and Oakland,

California. For details, visit *www.podcar.org or airfront.us*.

**Metros Are Different**

Although China is transforming its cities with dozens of manual ("classic") fast-track metro projects, in the US and Europe decades of study, planning, engineering, construction and training are required to implement a metro. It is a long process – often with setbacks and scandal. Project costs are in the billions of dollars, and political winds shift. Honolulu's metro is a slow, still-wobbling example.
The 2012 APM Pipeline lists over forty driverless metros underway. Projects in Santiago and Singapore are politically solid, but supplier has not been finalized. Others appeared solid but have not advanced over the last year and have been dropped or not added: retrofit of Glasgow's historic circle line, Grand Paris's bold vision, Istanbul, and Manaus, Brazil. India Many more are manual in India and China.

As driverless metros become standard throughout the rest of thre world, interesting combinations of suppliers emerge on some projects. Alstom and Siemens work together in Barcelona. Alstom and Ansaldo cooperate in Milan. Bombardier and Siemens are intertwined in Brussels. Thales integrates with Hyundai-Rotem vehicles in Incheon and with Siemens in Kuala Lumpur. Macao first selected MHI as supplier but switched to Ansaldo. Bombardier started in Thessaloniki, Greece, but now Ansaldo struggles with its archeological and financial delays.

**PRT: The Calm Before the Storm?**

There are no new PRT projects in the APM Pipeline despite the apparent success of service at London Heathrow Airport and Abu Dhabi's Masdar. The Vectus project underway at a nature preserve in South Korea has migrated to larger vehicles that will have PRT functionality but will still be a back-and-forth shuttle.

## APM PIPETREND

Billions of dollars in current APM implementations worldwide (excluding O&M)

Level of Project

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|
| Architectural | 1.31 | 1.12 | 1.10 | 0.97 | 0.83 | 0.99 | 0.51 | 0.68 | 0.52 |
| Institutional | 1.07 | 0.71 | 0.90 | 2.82 | 2.38 | 2.57 | 2.88 | 2.14 | 1.48 |
| Transit | 4.98 | 4.90 | 9.12 | 7.7 | 7.49 | 5.88 | 7.23 | 12.4 | 15.2 |
| **Total** | **8.0** | **7.4** | **11.6** | **—** | **13.0** | **11.5** | **13.0** | **15.2** | **17.2** |

CORRECTION: The 2012 APM Count of 161 reported in the previous issue overlooked a small system opening between a parking garage and office building near Frankfurt Airport, supplied by Leitner-Poma.
The amended 2012 Count is now 162.

# SAUDI INTEREST IN PRT

The trustees of King Abdulaziz University (KAU) are inclined to a PRT solution to their campus expansion needs in Jeddah. The campus is large. KAU is one of the largest if not *the* largest Saudi universities. The numbers are impressive – 108,000 students and over 9400 academics in 160 departments in a city that has grown to three million residents over the last few decades. There are both male and female students at KAU, and this necessitates special precautions in a culture that values both beauty and purity.

***Might the need for more sustainable cities in Saudi Arabia lead to the first large PRT implementation in Jeddah?***

KAU's campus is often congested. Non-auto circulation is limited to golf-carts and walking, which are both challenging in intense Jeddah's heat and humidity. With assistance from consultants IBI, KAU leaders have concluded that a combination of high-quality bus services and PRT is the best solution. A 28-station network is envisioned, with thirteen stations defined as the first segment.

Planning studies looked at BRT, APMs, LRT and metro. KAU officials are "inclined" to PRT, defined by IBI as battery-powered in line with the *2getthere* service in Abu Dhabi and the *Ultra* operation at London Heathrow Airport. Officials are now hiring consultants to examine the concept in greater detail.

**What are the Prospects?**

Will air conditioning – so important in this setting – be economic with batteries? Soon solar-paneled guideways may provide ample energy to power KAU students and staff.

APMs have already come to Saudi Arabia. One went into driverless operation last year at a women's university in Riyadh. Another is underway in the financial district there. Still another already serves the dense flows of pilgrims to Makkah. And yet another opened at Cairo Airport cross the Red Sea in Egypt.

How will PRT grow in the intense Saudi sun?

# THE TIDE HAS TURNED

Chronic congestion and the rising cost of owning and operating a car are calling into question the 50-year love affair with the car. Hurricane Sandy has literally pushed the reality of the obscure link between world weather energies and the decision you make each time you want to go somewhere. It hit Wall Street in a way that the mischief of bankers and Osama Bin Laden never could. It flooded subways and closed down “The City”.

Increasingly strident and informed are calls to reduce greenhouse gas emissions. Many governments have set hard number goals – such as a 20% GHG reduction by 2020 by Californian voters. Sweden has a no-oil imports-by-2020 policy. Aviation aims to reduce their GHG 60% by 2050.

What do those numbers mean? Are they enough to stop the increasingly destructive intensification of world weather patterns? What do we have to do to meet them? Are we willing to reduce our dependencies on cars?

*Hurricane Sandy hit New Jersey and New York City with such force that the Mayor of New York has recognized Climate Change.*

As 2012 comes to an end, it is increasingly clear that we need to **MODE SHIFT** to greener, sustainable mobility. This is a huge task. Are we up to it?

**A New Ball Game!**

Hurricane Sandy punched in the face those with the bucks and ability to fund better ways (and make money doing it). Mayor Bloomberg is looking for better ways. Dozens of inventors and entrepreneurs have enticing ideas for managing increasingly smart vehicles as they evolve into robocars, for feeding them electricity, for selling time to freed-up drivers who can chat or nap or work online, and for storing them when not in use. There should be new sources of venture capital flowing to innovative mobility, some of which is transit.

ATRA has much to offer. In Europe and Asia and fast spreading to Africa and Latin America, driverless metros, mini-metros, and even micro-metros are in demand. Paris’s metro authority RATP with help from the well endowed French metro industry has performed a world-shifting first. They have automated their busiest line 1 – an impressive *metro retro* that raises the ambitions of mass transit. It handles 700,000 passengers a day – as much as Boston’s total transit ridership.

No commitments to new PRT projects have firmed up. PRT enthusiasts and advocates so far have failed to articulate a clear vision of what networked transit can and should mean to John and Jane Doe, who are not interested in a lecture on PRT 101.

Think of the people of New Jersey who sprawled at low densities in the late 20th century, confident that ample highways and cheap gas would last forever.

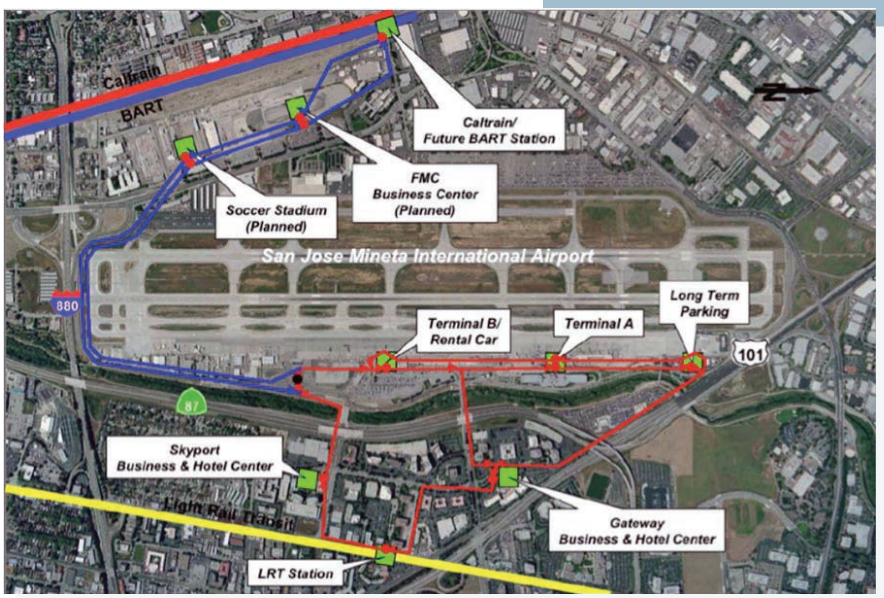
Gas is no longer cheaper, and maintaining aging highways and bridges costs dearly. What lies ahead as the recover from Hurricane Sandy?

Can PRT entice them to ditch their cars and subscribe? Will they see the advantages of avoid high-cost car maintenance and ending parking headaches? There are many reasons for a **life style shift** to more walking and maybe biking. With good planning and smart politics, NJ Transit and PATH stations can be more easily accessed from a nearby mobility portal of a denser PRT network.

## SAN JOSE CONTEMPLATES PRT 2013

San Jose's twin million-dollar studies of PRT have been delivered. Arup concluded that there are no fatal flaws from an engineering and planning perspective. PRT serving San Jose's Airport and connecting it to regional rail can work. The operating cost would be comparable to the bus services it would replace. The airport's certification requires it to provide free transit access.

Technology consultants Aerospace Corporation advised that podcar technology – or ATN for automated transit network, the term preferred by the City — has matured. But they cautioned that programming and logistical challenges remain for a smooth implementation of a ten or twenty-station network. San Jose would do well to proceed with outside funds or in partnership with other cities.




*Will 2013 see movement toward a smart vision for San Jose's airfront?*

Some ATRA members felt that the bottom line of these two studies is that PRT is too risky and too expensive to proceed immediately. San Jose transportation official Hans Larsen claimed that the reports were well received by "the industry" but he did not specifically mention ATRA.

Several ATRA members have been discussing whether formal comments should be submitted to San Jose. They were working on this as December closed.

## ÅKE: DETACHED SWEDISH WORDSMITH

There is a Swedish PRT thinker and innovator who pays careful attention to words. However, he stays largely incommunicado with the active podcar community in Sweden and the Kompass coalition of cities interested in more sustainable transportation.

Åke Aredal ponders the impact of words on people's thinking and has helped lift the level of PRT discourse in Sweden to a high level unmatched anywhere in the world. He was invited to work with Kompass, but refused. He was repeatedly invited to participate in the lively series of Podcar City conferences, but declined.

"What words are used to define contemporary – and utopian – world views regarding man and society, life styles and its (hierarchical) values, and what reality and (needed) reality changes do these words reveal and/or create?" asks Åke. His esoteric doctoral dissertation was on hermeneutics, the science of understanding. He was recently interviewed on prime time national television and has won a string of grants to advance and demonstrate his PRT ideas. Still, Åke refuses to be part of larger PRT professional activities, dismissing the new term *podcars* as a distraction. Some dismiss Åke as a distraction.

**Crafting SkyCab**

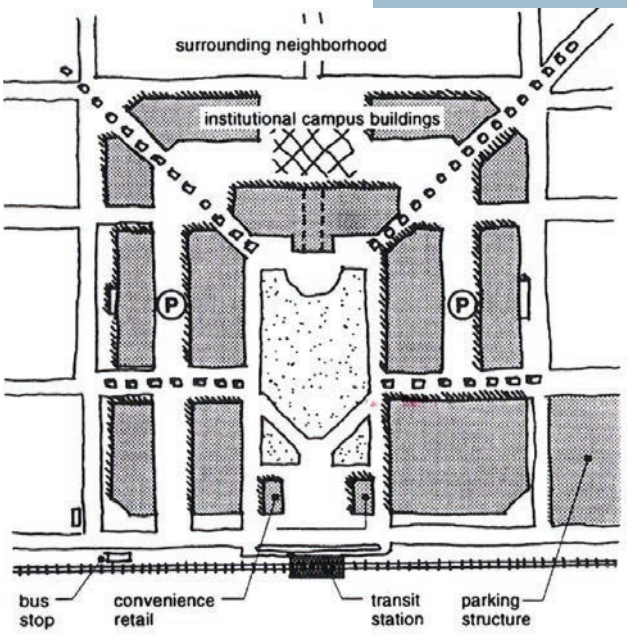
As befits a wordsmith, Åke´s company name, *SkyCab AB*, says a lot. How does it compare to other names — *SkyTran, Taxi 2000, Skyweb Express, Beamways, Jpod, Fastransit, Tubeways* and others? SkyCab is a classic PRT design with no rigorous test track. Taxi-like service throughout a dedicated guideway network is envisioned. For now it is only words. SkyCab tries to start a dialogue, asking people how they want to travel in cities in the future. Out of this long process may come good things.

***SkyCab welcomes all to the new way of traveling.***

## QUASI-SMART TOD IN VANCOUVER

Adding 35,000 new residents every year along magnificent mountains which constrain its growth, Canada's main Pacific port - Vancouver - is adding a 11km branch to its driverless metro network largely based on the Ontario-developed *SkyTrain* technology now owned and supplied by Bombardier. Construction is about to begin, and already high-rise apartments in TOD (transit-oriented development) clusters are sprouting around station areas.

In fact, developer interest is so strong that the owner of a mall along the route has committed funds to pay for an extra station outside the larger Evergreen Line (branch) contract between SNC-Lavalin and Translink (a provincial entity that builds and operates the metro service): The extra station is in the city of Coquitlam, which secured other funds from the federal Canadian government headquartered in Ottawa.




***Transit-Oriented Development is a black-white concept in most of the US, but is a colorful reality in Vancouver.***

This is smart TOD, but it could be smarter. Clustering dense development around a rail station is smart. If that station is blessed with frequent, reliable automated service, the TOD is smarter. It would be smartest if local APMs and PRT networks brought more distance sites within virtual proximity to the station.

Service on the $1.5 billion Evergreen Line is to start in 2016. This figure does *not* include the Lincoln station described above. It does include six new stations and integration into the existing Millennium Line station of Loughheed.

## MILPITAS GETS SMART

ATRA member and activist Rob Means last fall ran a no-budget, issues-based campaign for Milpitas, located just east of San Jose. PRT was a major part of his platform. He received 28 percent of the votes against an incumbent in a city where incumbents are easily re-elected. Many judge this to be a respectable shorting and encourage him to run again. Knowing that it may be the third attempt that it successful. Rob is pondering what to do the year after next. In this affluent community with a large Asian population, the mayor serves a two-year term.

Milpitas's bright, young planning director is about to update their comprehensive plan, as required every five years by California. Expressing openness to PRT, last fall he asked Means to come and speak with staff about modern mobility options. He was joined by ATRA member Ed Porter of Santa Cruz last December 21.

## DPM ARCHITECT BARSONY PASSES


*Barsony's efforts at UMTA (not the FTA) gave us three downtown APMs with elevated guideways such as this one in Jacksonville FL.*

Steven Barsony, whose passion for automated transit was channeled by political shifts in Washington in the 1970s to the DPM program, passed away last October 9, 2012. He was 88 years of age. He was of European birth, but became an ardent US citizen and public service, working most of his career for the USDOT with UMTA, which was later renamed the FTA (Federal Transit Administration).

The DPM – short for Downtown People Mover – program was designed to demonstrate APM technology in an urban setting to assure the transit industry and the larger public that driverless systems were feasible. APMs at that point only operated within airports and a few leisure parks. Many hoped that DPMs would reverse the decline of American downtowns that were centers of retail and community life.

DPMs have clearly not revived downtown Detroit and Jacksonville to be what they were or could be. The Metromover is in Miami plays a more vital role, distributing from the heavier Metrorail and shaping impressive growth of downtown Miami, full of high-rise luxury condo and other tropical, Spanish-accented delights.

# INTRODUCING DAVID HOLDCROFT

David Holdcroft was the British Airports Authority (BAA) project director who brought into service Heathrow's pod, the Ultra PRT system at Terminal 5. The 3-station shuttle connects parking lots near a business car park with the main T5 has been in operation for two years and has safely carried over 500,000 passengers. The LHR pod system has delivered exceptionally high levels of passenger service and reliability.

David as a Project Engineer delivered various elements of airport infrastructure, in particular baggage systems. David also has a MBA from the distance learning and research Open University and has been a director of the ATRA Industry Group for a number of years.

Although David is no longer active with the BAA Pod, he maintains his interest in advanced transit and anticipates joining the ATRA board of directors in 2013. Earlier this year David was a guest speaker at two workshops at the University of Maryland and Princeton, sharing his thorough perspective of the BAA Pod project and the elements that contributed to its success.

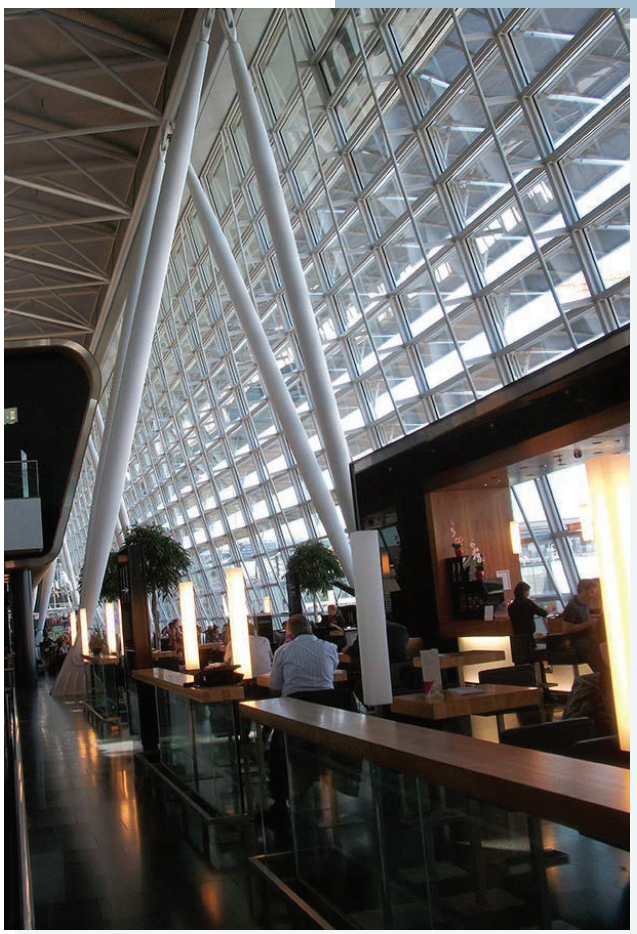
# TURKEY'S AIPORTS

Fed by ample tourism and purchases from the oil-rich regions of the Middle World, Turkey is growing in industrial wealth and reach. This economic development leads to rising air traffic – up 14.2% in 2011 to a total of 117 million passengers. The need for orderly airport expansion is strong. APM needs are apparent in the Turkish Republic. Here is an overview:

**Ankara** is the capital – now a metropolis of almost four million residents and a busy Esenboga Airport. Air traffic rose from 4 million in 1999 to 6.1 million in 2009. A new terminal's capacity was estimated at 10m when announced in 2005, completed in 2006. ThyssenKrupp supplied 33 elevators, 38 escalators and 8 moving walks. The architect was Essa Group; Mott MacDonald Linders, the financial advisor.

**Istanbul** is still the commercial giant of Turkey. Older **Ataturk** Airport is on the European side, 24km west of the city center. It handled 37.3m in 2011 – comparable to Munich and Rome. 2012 was expected to be up 21%! This is remarkable growth for an airport that handled only 15 million in 2000.

In late 2009, a second airport was opened as a major reliever on the Asian side of Istanbul. **Sabiha Gokcen**



***International airports, such as this one serving Zurich, have similar needs all over the world.***

**Airport** (pronounced gűkchen – but called “Sabiha” by locals) had traffic of 13 million last year and is up 9 % this year. Current capacity of 25m is expected to be saturated by 2023. It was built by Limak with Indian and Malaysian participation. Ataturk and many other airports (not Sabiha) are operated by TAV = Tepe Akfen Ventures (partly owned by Aeroports de Paris).

Ankara has proposed public-private development of a **third airport** on the European side closer to the Black Sea. The Turkish aviation administration is about to solicit proposals.

Other Turkish cities have sizeable and growing airports.

**Antalya** handled 8.7m in 2001 but boomed to 25m last year. It has added a second terminal. FRA bought 50% in 1999. The original terminal was built in 1992/3.

**Izmir** built its first terminal by BOT in 1999 and added a second terminal in 2006 with 36 elevators, 25 escalators and 26 moving walks by ThyssenKrupp. It handled about 8.5m last year.

**Kayseri** has only 1.3 million residents, yet supports over a dozen daily flights with a modest but modern and efficient facility. It handled 1.2m last year.

Other major airports include **Dalaman** (3.7m in 2011), **Bodrum** (3.4), **Adana** (3.3), **Trabzon** (2.3), **Diyabakir** (1.7) and **Gaziantep** (1.3m).