



# ***APM Express***

The Newsletter from APM Consulting, LLC

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Welcome to the Spring 2007 edition of the ***APM Express***, the newsletter from APM Consulting. In this edition we have information on the current activities of eight different airports that utilize APMs. We will also look at the importance of sharing information between the various APM owners. I hope you enjoy this edition of the ***APM Express***.

## ***Chicago O'Hare International Airport***

The 2006 average system availability for the ATS was 99.94%.

Passenger traffic continues to increase and has surpassed pre-911 levels and airport parking lots are filled to capacity several days per week. The ATS trains are usually full and seven 2-car trains are being utilized at peak times of travel. The peak hours of operation have also been extended to handle the capacity.

The Chicago area experienced a rough winter and the ATS continued to provide service through all of the inclement weather.

The O'Hare Modernization Program is underway and a recent application to the FAA to impose a Passenger Facility Charge, included acquisition of additional ATS vehicles as one of the proposed projects. Six of the fifteen vehicles currently have traveled in excess of 1 million miles and the remainder of the fleet is very close to that milestone.

## ***Detroit International Airport***

For 2006 the average 90-day service availability rate for the Express Tram was 99.70%.

An agreement has been reached with Otis to continue providing Operation & Maintenance (O&M) services on the Express Tram through the end of January 2012.

## ***DFW International Airport***

The average 2006 system availability for the APM at DFW was 99.60%

Although Dallas had a mild winter, the Hydronics system performed as designed.

Bombardier and DFW continue to make progress on closing out the base contract.

## ***Houston Intercontinental Airport***

### **Inter Terminal Train System (ITT)**

For the month of February the ITT system ran at 100% availability. The system traveled 19,200 miles during the month and carried an estimated 220,088 passengers.

## **Above Ground APM (CX-100)**

In January 2007, Johnson Controls Inc. (JCI) completed its first year of providing O&M services on the APM. The average system availability for the first two months of 2007 has been 99.84%. JCI looks forward to another successful year of providing O&M services.

## **San Francisco International Airport**

The average 2006 system availability for the APM was 99.68%.

### **Radiax Cable Replacement**

The Andrews Corporation has replaced all of the original radiax cable. Since the replacement, their availability has steadily improved. However, SFO is still experiencing a few downtime events as a result of signal loss due to condensation in the connectors.

### **Future projects**

#### Terminal One AirTrain Bridge

Construction continues and the scaffolding is in place, the bridge connecting the AirTrain station to Terminal One will be complete this fall.

#### Automated People Counter

SFO will be implementing a first of its kind automated people counter. The device will be installed above the door header and tracks the amount of passengers entering and exiting a vehicle. Construction will commence in early April.

#### Vehicle Carpet Replacement

SFO will be testing two various types of flooring in two separate vehicles. Based on the results, the Airport will make a determination on which sample to proceed with in replacing the rest of the fleet.

#### ORS Base Station software upgrade

SFO is reviewing the possibility of upgrading their ORS software to include some enhancements found at other APM sites.

#### Central Software Mode 8 Revision

SFO revised one of the previously installed train routing modes to increase overall pphpd.

#### Testing of new collector shoes

Bombardier continues to test new collector shoes composed of Morganite. They are seeing some favorable numbers with these shoes (longevity, cost effectiveness, conductivity, etc.). BTS Engineering is reviewing the latest FAR to allow for fleet replacement.

## **Tampa International Airport**

The average 2006 availability for the APM shuttles was 99.7%, while the average availability for the monorail was 99.6%.

Tampa is currently upgrading the operating software for their monorail system and the project is going well.

Four new vehicles will be added to the Airside F shuttle in the near future. By the time the existing vehicles are replaced, they will have traveled approximately 1.4 million miles.

## **Toronto Pearson International Airport**

The following article was written by Iouri Moutine for internal release by the GTAA.

In the summer of the 2006, the Greater Toronto Airports Authority (GTAA) introduced a new type of transportation to Toronto Pearson International Airport – the Airport LINK, an Automated People Mover (APM) that connects Terminal 1, Terminal 3 and the GTAA Reduced Rate Parking Area at Viscount Drive.

### **Picture 1: Link Train 1 on the Terminal 3 Station Approach**



The two Airport LINK trains exist as independent transit systems intended for transporting large crowds of people over short distances around the airport.

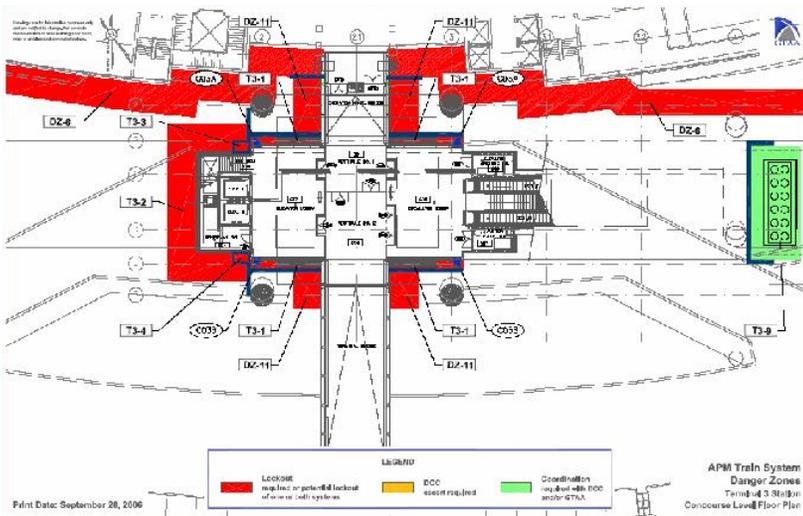
The fully automated APM is a cable propelled system with no actual propulsion units on the trains. The system is 1.47km long and consists of the 2 independent trains of 6 cars each.

The three newly built train stations are part of the overall layout of the system and have become an integral part of the GTAA's building facilities.

As part of GTAA's mission for maintaining the highest standards of safety, a thorough process was established to identify and implement safety measures and to operate and maintain the APM system and associated APM facilities. These measures were implemented to complement the Technical Standards and Safety Authority (TSSA) functional safety certificate issued after the successful testing and commissioning of the APM.

The goal of the process is to give clear and precise instructions to all personnel needing to work in the vicinity of the moving trains or moving system machinery inside the buildings, given its high speed and automatic operation, elevated guide way, quiet operation and 600V power rail.

**Picture 2: APM Zones that Require Additional Work Approval**



The 'Working near the APM' protocol was a result of more than half a year of hard work by the GTAA, Marshall Macklin Monaghan (MGP), and Doppelmayr Cable Car's (DCC) dedicated staff. The document has identified danger zones along the train guideway and the fixed facilities. One of the new implementation of the protocol was a 4 meter danger envelope. The danger envelope is combined from the dynamic envelope of the train plus additional safe distance. The envelope has defined an area where work is not permitted without shutting down one or both APM trains. All danger zones have been clearly depicted on the graphics and listed with the allowed access permissions.

**Picture 3: APM Viscount Station and Arriving Link Train 2 at Night**



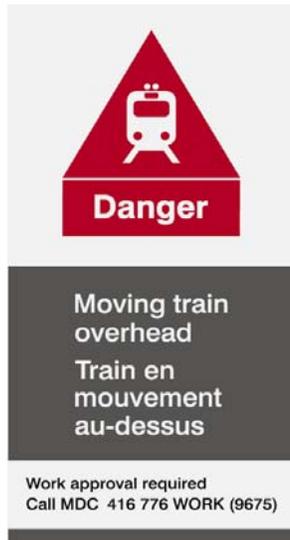
The protocol also introduced and enforced a lock out procedure of the trains during the shut down time. It requires that each worker who is approved for working in the pre-defined danger zones has its own lock to disable the system.

Fundamentally, the 'Working near the APM' document shaped a set of rules prescribing a clear direction for any personnel requiring to do business in the vicinity of the APM system, which could potentially impact the system operation. Even being in doubt, the first recommendation is to submit a request to GTAA facilities maintenance for further investigation and approval.

The TSSA has highly recognized the implementation of the 'Working near the APM' protocol making it part of the formal submission of the APM project O&M manuals and referencing to it in the Functional Safety-Related Certificate.

In addition to the protocol, there were APM warning signs (Figure 1) implemented along the guideway to alert all potential workers to contact the GTAA Maintenance Dispatch Centre for work approval if they plan working in the vicinity of the APM. This also shall help to notify parties working in the areas where GTAA has minimum control, such as Airport road or Sheraton pedestrian bridge.

**Picture 4: APM Warning Signs Installed Along the APM Guideway**



Another sign that has been installed at the entrances of the APM stations is prohibiting transporting of any construction tools and large materials (Figure 2).

**Picture 5: APM Warning sign prohibiting construction tools and large materials on the Link Trains**



It is imperative that the implemented protocol is distributed to all parties and enforced. The protocol is a document based on the current operational conditions and requirements. Should the conditions change, if for example a new facility is built in the vicinity of the APM, the protocol may have to be revised to accommodate new requirements.

**Note:**

Michael Riseborough, General Manager for the GTAA, will be delivering a paper on this critical safety-related topic at the upcoming APM conference in Vienna, Austria, April 22-25, 2007.

## **Washington Dulles International Airport**

Mitsubishi is scheduled to deliver the first 4-Crystal Mover vehicles and the Maintenance Recovery Vehicle in May 2007. More vehicles are scheduled to arrive in September 2007.

The four center platform stations are still under construction. Tunneling for the guideway is almost complete. The vehicles will be delivered to the new AeroTrain Maintenance Facility. Central Control will begin fit out this year.

A process has been started to create operational procedures for Mitsubishi and Metropolitan Washington Airports Authority employees.

## **President's Commentary**

### **The Importance of Sharing Information!**

In the 1987 hit movie Wall Street, the character Gordan Gekko said "I know of no more valuable commodity than information" and I believe he was correct.

Sharing information can be especially useful to the owners of the APM systems. This was one of the founding principles of the International Airports Automated People Movers Association (IAAPMA). For those who may not be familiar with this organization, it is comprised of the owner representatives from airports that utilize APM systems. Membership in the IAAPMA is limited to airport representatives only and no consultants or suppliers are allowed to attend the IAAPMA meetings unless they are specifically invited by the IAAPMA's officers.

Having only airport representatives at the meetings allows the members to speak freely without any vested interests such as a particular supplier's products or services. The members can compare and exchange ideas that are common to all airports using APMS, irrespective of which technology is being employed. Those individuals who do happen to use the same suppliers can compare everything from the level of service they receive, to the prices they pay for their O&M contracts. While this exchange of information may well make some suppliers and consultants a bit uncomfortable, it can help the various airports ensure they are being treated fairly and receiving a good value for their money.

Membership in the IAAPMA is free and open to the airport representatives of any airport that utilizes an APM system. By meeting and working with their colleagues from other airports, members can learn a great deal and be more productive in monitoring their own APM systems. I strongly recommend that everyone eligible for membership in the IAAPMA take full advantage of this opportunity and actively participate in the group meetings, telephone conference calls, and other activities.

As a Past President of the IAAPMA, I know the value of the information that can be obtained from membership in this organization.

For more information about the IAAPMA feel free to contact one of the following officers:

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