

## Capital Improvement at Tampa International Airport Underway



Rendering of the future APM station at Tampa International Airport's Main Terminal  
Image courtesy of HCAA

The Hillsborough County Aviation Authority (HCAA) is undertaking a three phase Capital Improvement Program (CIP) at Tampa International Airport (TPA). When the CIP is completed the airport will have the capacity to accommodate twice the number of passengers it handles today.

The first phase of the CIP is now underway and is focused on the immediate need to decongest the curbsides, roads and Main Terminal at TPA. It includes a 2.6 million-square-foot Consolidated Rental Center (ConRAC) near the entrance to the airport, an expansion of the Main Terminal via the Main Terminal and Airport Concession Redevelopment Program (MTAC) and 1.4-mile Automated People Mover (APM). HCAA has engaged Skanska as the Design Build (D/B) contractor for the MTAC, Austin Commercial, LP as the D/B contractor for the ConRAC Facility and the APM Fixed Facilities (i.e. APM infrastructure) and Mitsubishi Heavy Industries of America (MHIA) as the Design, Build Operate and Maintain (DBOM)

contractor of the APM Operating System. MHIA is slated to provide, among other things, the APM system vehicles, train control, command and control systems, running surface, guidance equipment and power distribution system and fit out of the off-line Maintenance and Storage Facility. The MTAC project is scheduled to be completed by mid-2017 and the ConRAC and APM are scheduled to be operational by late 2017.

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# Capital Improvement at TPA

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As the APM System Consultant for the Austin team, Lea+Elliott has been involved in the planning and programming of the APM system, the preparation of the procurement documents and supported HCAA during the bid and award of the APM DBOM and is now performing oversight of the design and installation of the APM system by MHIA on behalf of HCAA.

Working with the HCAA and the Austin design team, the APM DBOM was structured to accommodate a three stage development of the APM system. The initial APM system will have stations at the Main Terminal, the ConRAC Facility with an intermediate stop at the Economy Parking Garage and will have line capacity of approximately 2,500 pphpd. Future capacity enhancements are anticipated for the interim system, including additional fleet to accommodate airport passenger growth and further commercial development in the southern portion of TPA. In the long term, the APM system could extend to a future North Terminal. Because of the potential for growth, certain requirements and options were included in the program plan and procurement documents to provide HCAA with the flexibility to implement the development of the APM system in stages over time while minimizing disruption to APM operations.

Some examples are as follows:

- Stations are designed and equipped to accommodate the maximum length train.
- Substations for the initial segment of the system are sized with the capacity to accommodate the projected power load required for the ultimate system.
- The off-line M&SF is laid out to facilitate expansion to accommodate the projected fleet for the interim system with limited disruption to existing operations and with the capability to be expanded to accommodate the ultimate system.
- The Owner has an option to procure additional vehicles and system equipment to accommodate the interim system line capacity which can be exercised up to 10 years after substantial completion.
- The Owner has an option to have the stand-by train put into service during peak hours of peak season activity periods.

The fleet for the initial system will consist of 12 cars operating in married pairs. During standard day peak periods four, two-car trains will be in operation at a frequency of approximately one train every 2.7 minutes and a round trip time of 10.7 minutes. For peak day - peak periods one additional two-car train will be in operation increasing the frequency of service to a train every 2.1 minutes.

## Procurement and Award of the TPA APM System

In the period prior to the bid and award phase, Lea+Elliott reviewed with HCAA a variety of project delivery approaches for the APM DBOM including:

### 1. Competitive One-Step Option

- a. low bid approach
- b. best value approach

### 2. Competitive Two-Step Option

- a. low bid approach
- b. best value approach

### 3. Competitive Negotiated Procurement, also referred to as the Best and Final Offer

A Two-Step approach is similar to the One-Step except that the pricing bid is obtained as a second-step only from those vendors who are found qualified based on an evaluation of their technical proposals submitted in step-one.

Some of the factors considered during the review of the delivery options were: 1) HCAA's expedited timetable for the bid and award phase of the project 2) the need to foster industry interest and competition, 3) a rubber-tired APM system would be most suitable for the project and these systems can be inherently equivalent on a technical performance basis, and 4) the desire to minimize the risk of a protest.

After consultation with HCAA staff, the One-Step, low bid approach was selected as the most appropriate delivery method for the TPA APM DBOM. Under this approach the technical proposals and price bids are submitted in separate packages at the same time. The technical proposals are opened and evaluated first and then the price is opened only for those bidders whose proposals are found to be responsible and responsive per the terms of the Contract. So, in effect, the bidders who are found to be technically qualified are considered equal and the award is made solely on the basis of the lowest price.

The procurement documents were prepared accordingly and the APM DBOM project was advertised June 26, 2014 for two phases of work. Phase 1 involves the design, manufacture, installation, testing and commissioning of the APM system, and Phase 2 involves Operations and Maintenance services for the APM system with Owner options for services for up to 15 years. After a period for bidder questions and Owner clarifications, bids were received Sep. 5, 2014 from two bidders; Mitsubishi Heavy Industries America and Bombardier Transportation (Holdings) USA (BTHUSA)/Granite Construction Company (GCC), a Partnership. The technical/commercial proposals for each were then opened and evaluated to determine if the bidders were responsive to the requirements, specifications and terms of the Contract. During the evaluation process it was essential for the Owner to have the ability to seek clarifications from each of the bidders regarding

## President's Column

### RFPs: There Must be a Better Way

We have been involved in a couple of large Business Development (BD) pursuits lately, and they got me thinking about how much we, as technical consultants, shy away from marketing ourselves. Plus, it is a lot of work! You have to prepare the perfect proposal, where every word is crafted to hit the mark of the RFP. Then you have to prepare the perfect presentation that expresses that your team is truly the winning team. Typically, the client wants to hear how much you know about the work at hand and that you can help them make their vision a reality, which leads us to brain storm ideas and develop solutions. This equates to doing the work before we are paid.

But, it's all worth it. As I like to say, "You can't do the work until you have the work". No matter how much we dislike promoting ourselves, it is what keeps us in business and pays the bills. So, we need to be perfect at it. At Lea+Elliott, we have a tremendous BD staff that can assemble some really spiffy stuff. We try to spare no expense on getting the latest tools to help us generate a striking proposal. A big part of the challenge is knowing what work to pursue, so that we can focus our efforts on emphasizing what is important. We may or may not be perfect at that, but we do know that Automated People Movers is our core market and we try to protect that.

But, then again, most jobs are won far before the RFP is ever written. It is all the good technical work we do for clients that creates our reputation in the industry that really wins the job. This is where I will stack our people up against our competitors every time. I am very proud of our staff and their professional approach to working with our clients. They generate our reputation in the industry, which is our real BD strength.

Oh, and by the way, there's nothing worse than having to go through all this BD effort and finish second. Thankfully, we don't do that very often.



Jack Norton



## Capital Improvement at TPA

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their technical proposal to support the determination that they complied with the technical requirements in the Contract.

Upon the conclusion of the evaluation process, both bidders' proposals were found to be responsible and responsive and their price bids were then opened. MHIA was the low bidder. The Contract was awarded Nov. 4, 2014 and Notice to Proceed (NTP) was issued Nov. 25, 2014.

In terms of project status since NTP, preliminary design reviews were recently concluded and all project schedule milestones have been met to date.

For further information, contact **Lea+Elliott Principal-in-Charge Sanjeev Shah**; **Larry Coleman**, who led the planning and procurement phases; or **Guadalupe Murillo**, who is leading the current ongoing implementation phase of the project, in the Miami Office (305-500-9390).



## New Associate Principals

Lea+Elliott is pleased to announce new **Associate Principals, Paul Trahey, P.E.** and **Scott Kutchins, P.E.**



Paul's 34 years of professional experience in rail transit engineering, design and project management has been spent working for transportation industry suppliers, performing hands-on engineering design, manufacturing, and field service and as Manager of Engineering for a rolling stock manufacturer. He has led Program Management Oversight for complex capital programs for the New York MTA, the FTA and Amtrak. Paul is currently the design compliance lead engineer for the Honolulu Rail Transit Project.



Scott is one of our system integration & construction management specialists with 25 years of experience. He was a project manager for the world's largest airport APM, the DFW Airport Skylink, overseeing facilities design and construction. He is overseeing Lea+Elliott's work on the DFW Airport Terminal Renewal & Improvement Program. He led the design and construction of the DART rail station and will do the same for the TEX Rail commuter rail station at the airport.



# IN PROGRESS

## Houston Airport's ITT Study

HOUSTON – The Inter Terminal Train (ITT) at George Bush Intercontinental Airport in Houston has been providing non-secure passenger service to all airport terminals and the hotel for over 35 years. Given the age of the system, some components have become obsolete, making maintenance of the system more challenging.

Lea+Elliott, as part of the HNTB team, studied various alternatives to assist the Houston Airport System (HAS) in determining the best way to extend the life of the ITT system and defining different options to maintain passenger service.

The team presented five alternatives to HAS: 1) Do nothing, 2) Refurbish existing system, 3) Replace existing system with moving walkways, 4) Replace existing system with a new technology inside the existing ITT tunnel, and 5) Replace existing system with a new elevated system that would run along South Terminal Road, with the option to extend the system to remote parking and the consolidated rental car facility in the future. The alternatives were compared in terms of operations and performance analysis, constructability and impacts to existing service, implementation schedule, and ROM cost analysis. The study is currently ongoing.

## ATS expansion & modernization progresses at O'Hare

CHICAGO – O'Hare's 20-year-old ATS system is undergoing major expansion and modernization. The Airport Transit System (ATS) is a landside automated people mover (APM) that has been serving all four passenger terminals and Economy Parking Lot E at Chicago's O'Hare International Airport since 1993.

The ATS Expansion and Modernization Project coincides with the implementation of the future Joint Use Consolidated Rental



Inter Terminal Train at George Bush Intercontinental Airport  
Image credit: L+E

Car and Public Parking Facility that is beginning construction in the summer of 2015. The Joint Use Facility will accommodate a new ATS station, dedicated levels for consolidated rental car operations, and dedicated levels for public parking. It will also accommodate a bus shuttle center below the ATS station, a Kiss 'n' Fly area, and a cell phone parking lot. Dedicated walk paths to/from Metra's O'Hare Transfer Station will also be provided through the facility. Demonstrating the City of Chicago's strong commitment to sustainability, implementation of the Joint Use Facility will ultimately replace all rental car buses on the airport roadways with transportation of those passengers on the ATS. This sustainable improvement alone will approximately double ridership on the ATS overnight, and require extension of the system from the current terminus at Lot E to Lot F, replacement and expansion of the ATS fleet, and modernization of certain other subsystems, including but not limited to replacement of the

automatic train control (ATC) system and expansion of the maintenance and storage facility (MSF).

Lea+Elliott's experience with the ATS stretches back to the late 1980s and early 1990s when we provided oversight of the ATS contractor for the City of Chicago during the original implementation of the system. Since then, Lea+Elliott has undertaken numerous ATS- and O'Hare APM-related tasks, and proudly continues our role of assisting the City with the current ATS Expansion and Modernization Project.



Joint Use Consolidated Rental Car/Parking Facility and ATS Extension  
Image courtesy of the City of Chicago

Lea+Elliott is excited to support the City of Chicago on this important project, and looks forward to maintaining its longstanding relationship with the City by continuing to assist with ATS and other O'Hare APM-related work.

The ATS operates 24 hours per day, seven days per week throughout Chicago's various weather extremes.

### **Construction for the Honolulu Rail Transit Project moves ahead**

HONOLULU – The first carshell of the 80-rail car fleet is in transit from Reggio Calabria, Italy to Pittsburg, CA for final assembly work. Manufacturing of other major subsystems also continues to progress. These include automated train control, communications, traction electrification subsystems, and vehicle subsystems.

More than 3 miles of guideway has been constructed. The 43-acre Rail Operations Center (maintenance & storage facility) is under construction with most building structures essentially complete and substantial work underway in the yard. Construction and installation of Core Systems (CS) equipment for the Rail Operation Center have also commenced. The Honolulu Authority for Rapid Transportation (HART) has recently awarded 2 construction contracts for 6 stations located in the first 10 miles of the alignment. When completed, the initial Honolulu Rail Transit Project (HRTP) system will include 20 miles of elevated fixed guideway and serve 21 stations between East Kapolei and Ala Moana Center.

Lea+Elliott is assisting HART with overseeing the \$1.4 billion Core Systems Design-Build-Operate-Maintain contract that was awarded to the Ansaldo Honolulu Joint Venture (AHJV). Working with HART, AHJV and project team members, Lea+Elliott's staff continues to perform oversight of design, factory testing, interfaces, equipment installation, construction, on-site testing and commissioning. Lea+Elliott assists HART coordinating with various project groups responsible for infrastructure, facilities, safety, quality assurance, and operations and maintenance, to



A scale model of the HRTP vehicle  
Image courtesy of HART

help ensure that all project elements function as an integrated system. Lea+Elliott is proud to be a part of the HART project team and looks forward to the opening of this first driverless metro rail system in the United States.

### **APM planning at Xi'an Xianyang International Airport**

CHINA – Xi'an Xianyang International Airport, located in Xi'an, the capital of China's Shaanxi Province, is the largest airport in China's northwest. In 2014, Xi'an Airport transported 30 MAP, making it northwest China's busiest airport—8th busiest airport nationwide.

Since opening in 1991, the Airport has undergone expansion, including the recently opened Terminal 3, a second runway, and a new international terminal. Currently, the Airport is undergoing master planning for expansion of the airport from the current 33 MAP to approximately 100 MAP with the implementation of multiple satellite concourses and a new Terminal 5.

As part of its continued expansion, the China West Airport Group is planning for an APM system for passenger conveyance between the various terminals and satellite concourses.

Lea+Elliott is leading the preliminary planning of the APM system under Landrum & Brown Worldwide Services. Earlier this year, Lea+Elliott participated in a master plan workshop in Xi'an and worked with the China West Airport Group, their architects and structural engineers, and Landrum & Brown to better understand passenger connection needs and priorities, and any constraints for alignment development. Lea+Elliott continues to focus on the development of APM alignment concepts and phasing with regard to the anticipated Airport growth.



HRTP's embossed guideway columns near future stations  
Image courtesy of HART



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## About Lea+Elliott

Lea+Elliott is a transportation consulting firm offering a broad range of planning, engineering, program management, and construction management services for clients worldwide. These services are provided to public transit authorities, airports and private sector owners for new transit systems and the refurbishment of existing systems. We have expertise in all modes of transit, including high-speed and intercity rail, rapid transit, commuter rail, light rail, automated guideway transit, personal rapid transit, and conventional and advanced technology buses. The firm is especially well known for its creative structuring of procurements for a wide range of delivery options that include DBOM and P3.

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## Meet Jeff Davis, P.E.



In his 25 years with Lea+Elliott, **Jeff Davis** has seen a lot! A senior associate and group leader in Lea+Elliott's Washington, D.C. office, he is currently working in the United Arab Emirates where he is the testing and commissioning manager. He has provided professional expertise for more than 30 people mover systems, including the AeroTrain system at Washington Dulles International Airport and DFW Airport's Skylink APM, throughout his 27 years as an engineer in the industry.

Jeff finds it rewarding when he can personally witness the opening of a transportation project. "Each opening represents the culmination of years of planning, design, construction, and final testing," he says. "The most interesting project I worked on was a Personal Rapid Transit project where I was able to learn

how the engineering designers solved a myriad of engineering problems. I was intrigued how they arrived at solutions to so many engineering problems."

Jeff cultivates a lifelong interest in technical matters, especially new technologies and design approaches. His work at Lea+Elliott allows him to nurture that passion since the people mover industry is constantly evolving and because every system design has its own unique set of needs. "I like to explore and study various topics related to technology, regardless of the field," he adds. "I often enjoy discussing technical issues and topics with other Lea+Elliott engineers. This helps me improve my knowledge and experience as well as my skill set."

Finding pleasure in learning also compels Jeff to help others grow their skills. He has a passion for mentoring less experienced engineers and helping them progress professionally. He currently mentors three engineers in the company, working with each on a regular basis to help them continually improve.

One thing that defines Jeff is his desire to bring his best to every client. "I hope," he says, "that our current and future clients understand that, as an engineering consultant, we always try to bring our work experience and knowledge to our projects and present as many options as possible—each with its own benefits and costs. In this manner we can select the best option for each transportation problem, rather than imposing a one-size-fits-all strategy."

