

FINAL PROGRAM



INTERNATIONAL CONFERENCE ON AUTOMATED PEOPLE MOVERS & AUTOMATED TRANSIT SYSTEMS

Tampa, Florida | April 29 - May 2, 2018

A Conference of the Transportation & Development Institute (T&DI) of ASCE

Moving to the Future – Building on the Past



PROFESSIONAL
DEVELOPMENT HOURS
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13

Hilton Tampa Downtown

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Schedule-At-A-Glance

(Subject to Change)

Sunday, April 29

- 12:00 – 6:30 p.m. **Registration**
- 1:00 – 5:00 p.m. **Exhibitor Move-In**
- 4:00 – 5:30 p.m. **Pre-Conference Operations & Maintenance Managers' Workshop**
- 6:00 – 7:30 p.m. **Exhibit Hall Open**
- 6:00 – 7:30 p.m. **Ice Breaker Reception in Exhibit Hall, Sponsored by Tampa International Airport**

Monday, April 30

- 7:00 a.m. – 5:00 p.m. **Registration**
- 7:30– 8:15 a.m. **Light Continental Breakfast in Exhibit Hall**
- 7:30 a.m. – 4:00 p.m. **Exhibit Hall Open**
- 8:15 – 9:30 a.m. **Opening Plenary Session**
- 9:30 – 10:30 a.m. **Plenary Session**
- 10:30 – 11:00 a.m. **Networking Break in Exhibit Hall**
- 11:00 a.m. – 12:00 p.m. **Implementation Panel - Balancing the Tensions - Legal, Technical, and Financial**
- 12:00 – 1:30 p.m. **Lunch in Exhibit Hall**
- 1:30 – 3:00 p.m. **Concurrent Technical Sessions 1**
- 3:00 – 3:30 p.m. **Networking Break in Exhibit Hall**
- 3:30 – 5:00 p.m. **Concurrent Technical Sessions 2**
- 6:30 – 9:30 p.m. **Evening Reception and Dinner aboard the Yacht StarShip, Sponsored by Lea+Elliott**

Tuesday, May 1

- 7:00 a.m. – 2:00 p.m. **Registration**
- 7:30 – 8:30 a.m. **Light Continental Breakfast in Exhibit Hall**
- 7:30 a.m. – 1:00 p.m. **Exhibit Hall Open**
- 8:30 – 10:00 a.m. **Concurrent Technical Sessions 3**
- 10:00 – 10:30 a.m. **Networking Break in Exhibit Hall**
- 10:30 a.m. – 12:00 p.m. **Concurrent Technical Sessions 4**
- 12:00 – 1:00 p.m. **Lunch in Exhibit Hall**
- 2:00 – 5:00 p.m. **Technical Tour**
- 1:00 – 4:00 p.m. **Exhibitor Move-Out**

Wednesday, May 2

- 8:00 a.m. – 12:00 p.m. **Registration**
- 8:00 – 8:30 a.m. **Light Continental Breakfast**
- 8:30 – 10:00 a.m. **Concurrent Technical Sessions 5**
- 10:00 – 10:30 a.m. **Networking Break**
- 10:30 a.m. – 12:00 p.m. **Concurrent Technical Sessions 6**
- 12:00 – 12:30 p.m. **Closing Plenary Session**
- 2:00 – 5:00 p.m. **APM Standards Committee Meetings**

Thursday, May 3

- 8:00 a.m. – 5:00 p.m. **APM Standards Committee Meeting**

Welcome to Tampa

On behalf of the Transportation and Development Institute (T&DI) of the American Society of Civil Engineers (ASCE) and the APM-ATS Steering Committee, we would like to thank you for attending the 16th International Conference on Automated People Movers & Automated Transit Systems in Tampa, Florida.

The theme for the conference is “Moving to the Future – Building on the Past.”

Tampa International Airport is a clear example of our theme, “Moving to the Future – Building on the Past.” During the 1960s an innovative terminal design was proposed for the Tampa International Airport and a key component was the need for a reliable transit system that would shuttle passengers between satellite terminals and a central terminal building. When the system went into service in 1971, it was the first airport Automated People Mover and it marked the start of numerous applications and development of these driverless transit systems around the world. A second driverless monorail system was installed in the airport garage and the vehicles on the original shuttles were replaced in the 1990s. A new, third Automated People Mover, the SkyConnect, opened in February 2018 linking the terminal area with a consolidated rental car complex. This will give Tampa International Airport the distinction of having the first airport APM and the newest airport APM. We hope you will join us in experiencing the past while moving to the future on the technical tour of the original airside APM and the new landside APM, SkyConnect, at Tampa International Airport.

Share your opinion and hear what planners, inventors, engineers, APM and transit system operators, designers, suppliers, builders, government officials, owners, and operators of automated transit of all forms have to say as all these technologies are discussed in Tampa. Network with your fellow attendees and talk to exhibitors about the equipment and services they offer. Take advantage of the ASCE-T&DI APM-ATS conference’s international collegial community to share experiences, reveal innovations, look to the future, and discuss lessons learned and the latest developments in automated transit of all forms.

Attending the technical program will make you eligible for professional development hours (PDHs) that can be used to show your commitment to maintaining your competency to licensing boards.

We welcome you to APM-ATS 2018!

Craig Elliott, A.M.ASCE
Conference Chair

Conference Steering Committee



Conference Chair
Craig Elliott, A.M.ASCE
Lea+Elliott, Inc.



Bill Sproule, Ph.D., P.E., F.ASCE
Michigan Tech University



Brian McKeehan, P.E., F.ASCE
Gresham, Smith and Partners



Kari Goetz
Tampa Airport



Lawrence Smith, P.E., F.ASCE
Member, ASCE Standards Committee,
T&DI Standards Council



Murthy V. A. Bondada, Ph.D., P.E., F.ASCE, F.ITE
Epic Engineering & Consulting
Group, LLC

Program Highlights

SUNDAY | APRIL 29

Pre-Conference Operations & Maintenance Managers' Workshop

4:00 – 5:30 p.m., *Palma Ceia I & II*

The Pre-Conference Operations & Maintenance Manager's Workshop provides a peer-to-peer forum to discuss some of the complex operational challenges related to managing APM systems. This forum provides an opportunity to share lessons learned and identify best practices. Suggested topics include initial system startup, system expansion and operational impact mitigation, contingency plans for service interruptions, and contract vs in-house O&M; benchmarking and networking, open forum Q&A.



Moderator: Al Illustrato, Executive Vice President Facilities and Administration, Tampa International Airport

In his position with Tampa International Airport, Illustrato is responsible for planning and development, maintenance, human resources, risk management and administration.

He oversees the largest division at the airport, which includes a staff that is managing the billion dollar master plan project. During his 28 years at the airport he has been involved with numerous projects, which include airside terminals, parking garages, roadways, runways, and baggage handling systems. He has also provided key leadership support during several major organizational transitions. Prior to joining the airport, Illustrato worked for the American Bureau of Shipping and the Long Island Rail Road. He is a graduate of SUNY Maritime College and is originally from Bronx, NY.

Ice Breaker Welcome Reception in Exhibit Hall

6:00 – 7:30 p.m., *Bayshore I-III*

This is a great forum to network, mingle with friends and colleagues, and visit our exciting exhibits. There is no better way to kick off the conference than by attending this reception. This event offers spectacular food & drinks and your first two drink tickets are on us!

Included in Full Registration Packages.

Additional Ticket ONS \$45

Sponsored by



MONDAY | APRIL 30

Registration

7:00 a.m. – 5:00 p.m., *Galleria B*

Light Continental Breakfast in Exhibit Hall

7:30 – 8:15 a.m., *Bayshore I-III*

Opening Plenary Session

8:15 – 9:30 a.m., *Bayshore V-VII*

Welcoming Remarks



Craig Elliott, A.M.ASCE, Chair, Conference Steering Committee, Lea+Elliott, Inc.



Brian McKeenan, Past President, T&DI



Robin Kemper, President-Elect, ASCE

Opening Remarks



The Honorable Dick Greco, Mayor of Tampa



Joe Lopano, Chief Executive Officer, Tampa International Airport

General Plenary Session (1 PDH)

9:30 – 10:30 a.m., *Bayshore V-VII*

Speakers



Robert L. Bertini, Ph.D., P.E., Executive Director, Center for Urban Transportation Research, University of South Florida



Jeffrey Seward, Interim CEO, HART

Networking Coffee Break in Exhibit Hall

10:30 – 11:00 a.m., *Bayshore I-III*

Implementation Panel: Balancing the Tensions - Legal, Technical and Financial (1 PDH)

11:00 a.m. - 12:00 p.m., *Bayshore V-VII*

Panel members will explore the legal, technical, and financial challenges of a project regardless of the selected delivery approach. The traditional, Design-Built-Operate-Maintain, P3, and other approaches will be discussed.

Moderator: Sanjeev Shah, Lea+Elliott, Inc.

Lunch in Exhibit Hall

12:00 – 1:30 p.m., *Bayshore I-III*

Concurrent Technical Sessions 1 (1.5 PDHs)

1:30 – 3:00 p.m.

Networking Break in Exhibit Hall

3:00 – 3:30 p.m., *Bayshore I-III*

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SMITH AND
PARTNERS

Concurrent Technical Sessions 2 (1.5 PDHs)

3:30 – 5:00 p.m.

Evening Reception and Dinner

6:30 – 9:30 p.m.

Reception and Dinner hosted aboard the Yacht StarShip.

Included in Full Registration Packages.

Please see Special Events page for more information

Sponsored by  LEA ELLIOTT

TUESDAY | MAY 1

Registration

7:00 a.m. – 2:00 p.m., *Galleria B*

Light Continental Breakfast in Exhibit Hall

7:30 – 8:30 a.m., *Bayshore I-III*

Concurrent Technical Sessions 3 (1.5 PDHs)

8:30 – 10:00 a.m.

Networking Coffee Break in Exhibit Hall

10:00 – 10:30 a.m., *Bayshore I-III*

Sponsored by **BOMBARDIER**

Concurrent Technical Sessions 4 (1.5 PDHs)

10:30 a.m. – 12:00 p.m.

Lunch in Exhibit Hall

12:00 – 1:00 p.m.

Technical Tour: Tampa International Airport APMs

(2 PDHs)

2:00 p.m. – 5:00 p.m.

Fee: \$25 Member/\$35 Non-Member

Sponsored by  Tampa
International
Airport

WEDNESDAY | MAY 2

Registration

8:00 a.m. – 12:00 p.m., *Galleria B*

Light Continental Breakfast

8:00 – 8:30 a.m., *Galleria B*

Concurrent Technical Sessions 5 (1.5 PDHs)

8:30 – 10:00 a.m.

Networking Break

10:00 – 10:30 a.m., *Galleria B*

Concurrent Technical Sessions 6 (1.5 PDHs)

10:30 a.m. – 12:00 p.m.

Closing Plenary Session

12:00 – 12:30 p.m., *Bayshore V-VII*

Closing Remarks

APM Standards Committee Meeting

2:00 – 5:00 p.m., *Palma Ceia 1&2*

THURSDAY | MAY 3

APM Standards Committee Meeting

8:00 a.m. – 5:00 p.m., *Palma Ceia 1&2*

The APM Standards Committee

The APM Standards Committee is an operating unit within the Transportation and Development Institute (T&DI) of the American Society of Civil Engineers (ASCE). ASCE is an American National Standards Institute (ANSI) accredited Standards Development Organization (SDO).

The purpose of the Automated People Movers Standards Committee is to develop and update standards for Automated People Movers. These standards establish the minimum set of requirements necessary to achieve an acceptable level of safety and performance for an APM system.

The APM Standards Committee developed and maintains the standards following a consensus process and rules administered by the ASCE Codes and Standards Committee (CSC) in conformance with ANSI rules for standards. The consensus process requires balloting by a balanced committee of individuals representing APM consumers, producers, general interest, and regulators.

The committee is led by APM Standard Committee Chair Tedd Snyder. For more information about APM Standards visit our website at www.apmstandards.org.

The APM Standards Committee will meet immediately following the conference on Wednesday, May 2 from 2:00 to 5:00 p.m. and all-day Thursday, May 3 from 8:00 a.m. to 5:00 p.m. The agenda will focus on reaffirmation of the language within the standard and discussion of current issues that face the APM industry. All conference attendees are welcome to attend.

Technical Program

Sunday, April 29

12:00 – 6:30 p.m.	Registration, Galleria B
4:00 – 5:30 p.m.	Pre-Conference Operations & Maintenance Manager's Workshop, Palma Ceia I & II <i>Moderator: Al Illustrato, Executive Vice President, Facilities and Administration, Tampa International Airport</i>
6:00 – 7:30 p.m.	Ice Breaker Reception in Exhibit Hall

Monday, April 30

7:00 a.m. – 5:00 p.m.	Registration, Galleria B		
7:30 – 8:15 a.m.	Light Continental Breakfast in Exhibit Hall		
8:15 – 9:30 a.m.	Opening Plenary Session, Bayshore Ballrooms V - VII Welcome Address: Craig Elliott, Chair, Conference Steering Committee; Brian McKeenan, T&DI Past President ; Robin Kemper, ASCE's President-Elect; Dick Greco, Special Guest; Joseph Lopano, CEO, Tampa International Airport		
9:30 – 10:30 a.m.	General Plenary Session, Bayshore Ballrooms V - VII Moderator: Brian McKeenan, Gresham, Smith and Partners Robert Bertini, Ph.D., P.E., Executive Director, Center for Urban Transportation Research (CUTR), University of South Florida Jeffery Seward, Interim CEO, HART		
10:30 – 11:00 a.m.	Networking Break in Exhibit Hall		
11:00 a.m. – 12:00 p.m.	Implementation Panel: Balancing the Tensions – Legal, Technical and Financial <i>Bayshore Ballrooms V - VII</i> Moderator: Sanjeev Shah, Lea+Elliott, Inc. Panelists: Stan Thornton, Orlando International Airport; Al Illustrato, Tampa International Airport; Robert Alfert, Broad and Cassell Panel members will explore the legal, technical, and financial challenges of a project regardless of the selected delivery approach. The traditional, Design-Built-Operate-Maintain, P3, and other approaches will be discussed.		
12:00 – 1:30 p.m.	Lunch in Exhibit Hall		
1:30 – 3:00 p.m.	Concurrent Technical Sessions 1		
	Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII
	Session 1A : Airports I Moderator: Kari Goetz, Tampa International Airport	Session 1B: History Moderator: Lawrence Smith, T&DI Standards Committee	Session 1C: Urban Systems I Moderator: Steven Castaneda, Jakes Associates, Inc.
	Tampa International Airport's New APM Systems , Brian Rumble, Tampa International Airport Delivering the SkyConnect , Guadalupe G. Murillo, Jr., Lea+Elliott, Inc.; Brian Rumble, Tampa International Airport The SkyConnect APM: Continuing a Legacy of World-Class Customer Service at Tampa International Airport , Darin Friedmann, Mitsubishi Heavy Industries America, Inc.	Florida: The World's Showpiece for Automated People Movers (An Update) , Murthy V.A. Bondada, EPIC Engineering and Consulting Group *History of the Tampa Harbour Island People Mover , William J. Sproule, Michigan Technological University; Lawrence Smith, T&DI Standards Committee Soule SK and Poma 2000 – The History of Cable-Propelled PRT and Lessons for an Age of Autonomous Vehicles , Arnd N. Baetzner, Mobility CarSharing Switzerland	*A Light Rail, Group Rapid Transit, Personal Rapid Transit Comparison , Peter Muller, PRT Consulting, Inc.; Ingmar Andreasson, Logistik Centrum AB Siemens Mobility – APM Expertise and Lessons Learned at Ongoing Rennes B Project , Bertrand Picard and Saïd Zariouhi, Siemens Mobility APM: Technical Innovation for Safety and Easy Life in South Korea , Joseph Kim, Woojin IS America, Inc.
			Expanding Capacity Beyond Original Planning Horizon Limits , Sambit Bhattacharjee, Lea+Elliott, Inc. Viability of APMs for High Capacity Integrated Large Networks - Industry Wide Standardization to Reduce Owner's Risk , Sambit Bhattacharjee and Sanjeev Shah, Lea+Elliott, Inc. *From PRT to Autonomous Taxis – A Modeling Perspective , Ingmar Andreasson, Logistik Centrum AB *Evaluation of Automated Transit Systems – Assessment Criteria, Methodologies, and Case Studies , Samuel Labi, Seyed Ali Ghahari, and Augustine Marfo, Purdue University; Paul Ha, New York University
3:00 – 3:30 p.m.	Networking Break in Exhibit Hall		

Monday, April 30 *(continued)*

3:30 – 5:00 p.m. Concurrent Technical Sessions 2			
Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII	Track D, Palma Ceia I & II
Session 2A: Airports II Subgrade to Guideway – Infrastructure for the Tampa International Airport SkyConnect APM PANEL Moderator: Brian McKeehan, <i>Gresham, Smith and Partners</i>	Session 2B: Major Activity Centers Moderator: Murthy Bondada, <i>EPIC Engineering</i>	Session 2C: Urban Systems II Moderator: Iris Yuan, <i>Lea+Elliott, Inc.</i>	Session 2D: Planning and Policy II Moderator: J. Sam Lott, <i>Texas Southern University</i>
SkyConnect Design Criteria , Sambit Bhattacharjee, <i>Lea+Elliott, Inc.</i> Station Design – Moving Passengers to and from Platforms , Grant Clifford, <i>Gresham, Smith and Partners</i> Energizing the SkyConnect , Greg Kieninger, <i>TECO Energy</i> Up in the Air – Structural Challenges and Solutions , Richard Temple, <i>Walter P. Moore</i>	Innovative Solutions for an At-Grade Tram System in Maui , Lee Larson, <i>Schwager Davis, Inc.</i> ; Dean C. Hurst, <i>Hurst Engineering and Inspection</i> Evaluation of an Automated People Mover in Downtown Indianapolis , Abdullah Nafakh, Sikai Chen, Tariq Usman Saeed, and Samuel Labi, <i>Purdue University</i> Bluewaters APM: the Last Mile , Robert Lohmann, <i>2getthere</i>	*An Innovative Transportation Solution for the City of Canoas, Brazil , Diego Abs, <i>Aeromovel Brazil SA</i> ; Steven Castaneda and David Mori, <i>Jakes Associates, Inc.</i> Hiroshima Astram Gets New Life , Atsuhiko Fukui, <i>Mitsubishi Heavy Industries America, Inc.</i> Singapore Sengkang-Punggol APM Systems Expand , Masahisa Masukawa, <i>Michael Ang, Mitsubishi Heavy Industries America, Inc.</i>	Jacksonville U2C Program – Plan and Challenges , Cheryl Freeman and Tom McVey, <i>RS&H</i> ; Kamel-Eddine Mokhtech and Daniel J. McFadden, <i>Lea+Elliott, Inc.</i> Driverless Automated Solution Versus Autonomous Vehicles for Transit Operation , Marko Kroenke, <i>Bombardier Transportation</i> *The Conceptual Art of Moving People Through Decentralized Mobility Devices , Clement Solomon, <i>West Virginia University</i>
6:30 – 9:30 p.m. Evening Aboard the Yacht StarShip Sponsored by Lea+Elliott			

Tuesday, May 1

7:00 a.m. – 2:00 p.m. Registration Open, <i>Galleria B</i>			
7:30 – 8:30 a.m. Light Continental Breakfast in Exhibit Hall			
8:30 – 10:00 a.m. Concurrent Technical Sessions 3			
Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII	Track D, Palma Ceia I & II
Session 3A: Airports III Moderator: Matt Sturgell, <i>Lea+Elliott, Inc.</i>	Session 3B: Automated Mobility Districts Moderator: Yuche Chen, <i>National Renewable Energy Laboratory</i>	Session 3C: Implementation I Moderator: William Sproule, <i>Michigan Technological University</i>	Session 3D: Train Control Moderator: David Ewing, <i>Lea+Elliott, Inc.</i>
Expansion and Modernization of the Airport Transit System at Chicago O'Hare International Airport , Frank Grimaldi, Jr., <i>Chicago Department of Aviation</i> ; Michael R. Carr, <i>AECOM</i> ; Christopher M. Gambla, <i>Lea+Elliott, Inc.</i> PHX Sky Train – A Critical Upgrade to Ground Transportation at PHX , Darryl Jaquess, <i>Lea+Elliott, Inc.</i> ; Anne Kurtenbach, <i>City of Phoenix Aviation</i> PHX Sky Train Stage 2 – Planning an APM Extension to Support Adjacent Development, Improve Airport Operations and Increase Landside Capacity , Mark Pilwallis, <i>Gannett Fleming</i> Expansion for the Miami MIA Mover , Darin Friedmann, <i>Mitsubishi Heavy Industries America, Inc.</i>	Comprehensive Modeling Architecture to Inter-Intra Mobility and Energy Impacts of University Automated Mobility Districts , Stanley Young, Yuche Chen, Venu Garikapati, Lei Zhu, Joshua Sperling, and Andrew Meintz, <i>National Renewable Energy Laboratory</i> Houston's University District Automated Vehicle Transit Circulator System , James S. Lott, <i>Texas Southern University</i> The Ultimate Urban Circulator Program (U2C) , Brad Thoburn, <i>Jacksonville Transportation Authority</i>	*Computer Security for Automated Transportation Systems , Jefferson H. Davis, <i>Lea+Elliott, Inc.</i> *Straddle Monorail – Implementation Challenges , Mary Sung, Matthew Tsang, and Eddie He, <i>Ove Arup & Partners</i> *Contract Issues in Consultant Contracts , Stephen Grimmer, <i>Law Office of Stephen A. Grimmer</i> Connected Automated Vehicle Implementation , Robert James, <i>HNTB</i>	Hong Kong International Airport Automated People Mover Upgrade to CBTC , David Dimmer and Lily Zhang, <i>Thales Transportation Solutions</i> *CBTC.valid – A New Method to Validate Complex Train Control Systems , Joerg Schuette, <i>University of Technology, Dresden</i> *A COTS High Availability and High Performance Train Control System for a Fully Automated Maglev People Mover , Bernhard Immken, Bert Zamzow, Christian Bardos, and Stefan Boegl, <i>Max Boegl Group</i>
10:00 – 10:30 a.m. Networking Break in Exhibit Hall			

Technical Program *(continued)*

Tuesday, May 1 *(continued)*

10:30 – 12:00 p.m. Concurrent Technical Sessions 4			
Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII	Track D, Palma Ceia I & II
Session 4A: Airports IV Moderator: Guadalupe Murillo, <i>Lea+Elliot, Inc.</i>	Session 4B: Automated Mobility Districts PANEL Moderator: Stan Young, <i>National Renewable Energy Laboratory</i>	Session 4C: Implementation II Moderator: Sambit Bhattacharjee, <i>Lea+Elliot, Inc.</i>	Session 4D: Engineering I Moderator: Michael Riseborough, <i>Greater Toronto Airports Authority</i>
Houston Airport Inter-Terminal Train Replacement , Peter Muller, <i>PRT Consulting, Inc.</i> Needs and Resource Constraints of a Small to Mid-Size Airport , David Edwards, Jr., <i>Greenville-Spartanburg International Airport</i> Autonomous Vehicles on the Airside Apron , Robert Lohmann, <i>2getthere</i> Automated Buses for Airports , Robert James, <i>HNTB</i>	A panel of representatives of city/ governmental entities will discuss the application of fully automated roadway vehicle transit in urban districts and major activity centers. Panelists: Kimberly J. Williams, <i>Houston METRO</i> ; Brad Thoburn, <i>Jacksonville Transportation Authority</i> ; Robbert Lohmann, <i>2getthere</i> ; J. Sam Lott, <i>Texas Southern University, Center for Transportation Training and Research</i> ; Peter Muller, <i>Advanced Transit Association</i>	*In-Service Replacement of APM Systems , Bruno C. Barros, Brian Adams, and John Heath, <i>Heath & Linebeck Engineers, Inc.</i> *Procurement Models for Automated People Mover Systems , Phillip Ravotti and Brian Adams, <i>Heath & Linebeck Engineers, Inc.</i> Honolulu Rail Transit Project – Implementing a Systems DBOM Contract Under a Federal Transit Administration (FTA) New Starts Program , Huy P. Huynh, <i>Lea+Elliot, Inc.</i> ; Jeffrey Siehien, <i>Honolulu Authority for Rapid Transportation</i> Macau APM , Michael Ang, <i>Mitsubishi Heavy Industries America, Inc.</i>	*Control Strategy for Pneumatic Braking of the Aeromovel System , Eduardo Perondi, <i>Universidada Federal do Rio Grande do Sol</i> ; Diego Abs, <i>Aeromovel Brazil SA</i> ; Steven Castaneda, <i>Jake Associates, Inc.</i> Driving the “Vehicule Automatique Leger”: The Development of APM Axle and Bogie Technology, Matthew Kirk and Claude Dussartre, <i>Texelis SA</i> *Automated Condition-Based Monitoring of Automated People Movers , Stanley Fong, Ali Ashasi-Sorkhabi, Guru Prakash, and Sriram Narasimhan, <i>University of Waterloo</i> ; Michael Riseborough, <i>Greater Toronto Airports Authority</i> Evolution of Bombardier’s INNOVIA APM 100 , Kevin Lewis, <i>Bombardier Transportation</i>
12:00 – 1:00 p.m. Lunch in Exhibit Hall			
2:00 – 5:00 p.m. Technical Tour: Tampa International Airport <i>(See Tour information on page 11 for details)</i>			

Wednesday, May 2

8:00 a.m. – 12:00 p.m. Registration, Galleria B			
8:00 – 8:30 a.m. Light Continental Breakfast, Galleria B			
8:30 – 10:00 a.m. Concurrent Technical Sessions 5			
Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII	Track D, Palma Ceia I & II
Session 5A: Airport V Moderator: Brian McKeenan, <i>Gresham, Smith and Partners</i>	Session 5B: New and Emerging Technology I Moderator: Muhammad Amer, <i>ASCE T&DI</i>	Session 5C: The State and Impacts of Transit Automation Moderator: Dennis Hinebaugh, <i>CUTR, University of South Florida</i>	Session 5D: Engineering II Moderator: Kevin Lewis, <i>Bombardier Transportation</i>
Upgrading Critical APM Subsystems at the World’s Busiest Airport , David Ewing, <i>Lea+Elliot, Inc.</i> ; Kenneth Williams, <i>Hartsfield Jackson Atlanta International Airport</i> Replacement of Existing Must-Ride Shuttles in a Must-Ride Environment at Orlando International Airport , Gregory W. Love, <i>Lea+Elliot, Inc.</i> Orlando International Airport APM Replacements and New Link , Darin Friedmann, <i>Mitsubishi Heavy Industries America, Inc.</i>	*The Internet of Things, Big Data, and the Connected Transportation System , Rich Lommock, <i>Bombardier Transportation</i> Rivium 3.0: The First Autonomous Vehicle Project , Robert Lohmann, <i>2getthere</i> *A Novel Automated Urban Maglev Transport System – Actual Design and Operational Data Compared with Legacy Systems , Bert Zamzow, Peter Mnich, Eckert Fritz, and Stefan Boegl, <i>Max Boegl Group</i> Evaluation of Hyperloop Transportation Systems , Samuel Labi, Tariq Usman Saeed, Sikai Chen, and Abdullah Nafakh, <i>Purdue University</i>	Lessons Learned from the City of Las Vegas’s Driverless Shuttle Pilot , Joanna Wadsworth, <i>City of Las Vegas</i> LYNX Autonomous Vehicle Mobility Initiative , Doug Jamison, <i>LYNX</i> The Unintended Consequences of Automation on the Public Transportation Industry , Steve Polzin, <i>Center for Urban Transportation Research</i> Florida’s Babcock Ranch: A Living Lab for Automation 2.0 , Andy Chatham, <i>Transdev</i>	*Increasing Operational Service Levels Using Preventative Maintenance Optimization Strategies – Toronto Pearson International Airport LINK APM System , Sean Best, <i>Doppelmayr Cable Car Ltd.</i> ; Michael Riseborough, <i>Greater Toronto Airports Authority</i> *Fitness-For-Service Assessment of Automated People Movers Cars , Paul J. Murtagh and Robert S. Vecchio, <i>LPI, Inc.</i> ; Daniel J. McFadden, <i>Lea+Elliot, Inc.</i> *Models for Onboard Train Diagnostics Data to Improve Condition-Based Maintenance , Sven Scholz, <i>University of Technology Dresden</i> *Urban Maglev Operation and Maintenance – Increasing Efficiency by Applying Lean Production Principles , Melanie Heinz, Katrin Sommer, Klaus Roerber, Bert Zamzow, and Stefan Boegl, <i>Max Boegl Group</i>

Wednesday, May 2 *(continued)*

10:00 – 10:30 a.m. Networking Break, Galleria B			
10:30 – 12:00 p.m. Concurrent Technical Sessions 6			
Track A, Bayshore V	Track B, Bayshore VI	Track C, Bayshore VII	Track D, Palma Ceia I & II
Session 6A: Airports VI Moderator: Huy Huynh, <i>Lea+Elliott, Inc.</i>	Session 6B: New and Emerging Technology II Moderator: Ingmar Andreasson, <i>Logistik Centrum AB</i>	Session 6C: APM Standard Committee Update - What's New in APM Standards? Moderator: Lawrence Smith, <i>APM Standards Committee</i>	Session 6D: Engineering III Moderator: Chris Gamba, <i>Lea+Elliott, Inc.</i>
<p>Asian Airport APM s – An Active Market, Iris Yuan, <i>Lea+Elliott, Inc.</i></p> <p>Overview of Singapore Changi Airport Terminal 5 APM Planning, Matthew Sturgell, <i>Lea+Elliott, Inc.</i>; Kenneth Wilson, <i>Singapore Changi International Airport</i></p> <p>Changi International Airport, the Jewel, and the APM, Atsuhiko Fukui, <i>Mitsubishi Heavy Industries America, Inc.</i></p> <p>HKIA Three Runway System APM, Alice Chan and Carol Lau, <i>Over Arup & Partners HK Limited</i></p>	<p>*A Next Generation Urban Maglev System – Benefits of Product Lifecycle Management Systems as a Basis for Design and Production Processes, Tim Praeger, Klaus Roeber, Bert Zamzow, and Stefan Boegl, <i>Max Boegl Group</i></p> <p>System for People and Cargo, Karl W. Guenther and Nancy A. Guenther, <i>Sky Train Corporation</i></p> <p>Transit X: Solar-Powered, Featherweight, Personal Mass Transit Network, Mike Stanley, <i>Transit X</i></p> <p>Super AGT: Coming Soon to a City Near You, Michael Ang, <i>Mitsubishi Heavy Industries America, Inc.</i></p>	<p>A brief overview of the history, composition, and operation of the APM Standards Committee – How to participate in future re-affirmation of ASCE 21-13 standard.</p> <p>Panelists: Patrick Casagrande, <i>DCC</i>; Peter Muller, <i>Chair ATRA</i>; Peter DeLeonardis, <i>SBD</i>; Tedd Snyder and Lupe Murillo, <i>Chair & Vice Chair APM Standards Committee</i></p> <p>Interpretation of Standards The recent issue discovered during the BART to Oakland Airport concerning the structural interpretation of ASCE 21-13 and the DCC technology: A classic example of the challenge of re-affirming a standard and recognizing new technology.</p> <p>Brick Wall Stop New proposed changes in ASCE 21-13 that address the BWS and other issues related to PRT systems.</p> <p>Developing International Standards New IEC Standard in development (i.e. prEN-17168 for platform doors): Can we harmonize with ASCE 21-13?</p>	<p>The Pitfalls of Mitigating Safety Hazards with Procedures, Brian Yeschenko and Dennis Hinish, <i>Lea+Elliott, Inc.</i></p> <p>*Implementing an Integral Product Lifecycle Management System in Sheremetyevo International Airport, Johannes Winter and Ignacio Sesma, <i>Doppelmayr Cable Car GmbH & Co. KG</i></p> <p>New Energy Concept for Rope Propelled APM Systems, Patrick Casagrande, <i>Doppelmayr Cable Car GmbH & Co. KG</i></p>
12:00 – 12:30 p.m. Closing Plenary, Bayshore Ballrooms V - VII			

Note: Paper titles with an asterisk before them are included in the conference proceedings.

General Information

Proceedings

All full registrants are able to receive proceedings online. Link will be included in the final program.

Program Changes

ASCE reserves the right to cancel programs and/or sessions because of low registration. In the unlikely event of a cancellation, all registrants will be notified and will receive a full refund, if applicable. Programs and sessions are subject to change and ASCE reserves the right to substitute a program, session, and/or speaker of equal caliber to fulfill educational requirements.

Recording of Sessions

Video or audio recording of any educational session is strictly prohibited without prior written permission from both ASCE and the session presenter(s).

Professional Development Hours (PDHs)

You may earn PDHs, which are nationally recognized units of record, by attending the APM:ATS Conference sessions and workshop. Please note there are differences from state to state in continuing education requirements for professional engineering licensure. ASCE follows NCEES guidelines on continuing professional competency. Because continuing education requirements for P.E. license renewal vary from state to state, ASCE strongly recommends that individuals regularly check with their state requirements that affect P.E. licensure and the ability to renew licensure. For details on your state's requirements, please go to: www.ncees.org/Licensing_boards.php.

Special Events

Yacht StarShip Reception and Dinner Cruise (2 PDHs)

Monday, April 30, 6:30 – 9:30 p.m.

Set sail with fellow APM-ATS 2018 attendees!

Hosted by LEA ELLIOTT

Included in Full Registration Packages.

We will be walking* from the Hilton Hotel to the Yacht StarShip at the Sail Pavilion. It is an easy and beautiful 0.5-0.7 mile walk, which will take approximately 10-13 minutes door-to-dock. Please arrive at The Yacht StarShip dock by 6:30 p.m. We will set sail at 7:00 p.m. sharp! The Yacht StarShip will return to the dock around 9:30 p.m. We will then walk back to the hotel.

The evening will include a reception, dinner, and live music.

Bring your conference badge and guest ticket(s) with you. These will be required to embark on the Yacht StarShip.

Tampa Riverwalk Route (0.7 mile; approximately 13 minutes)

From the Hilton Tampa entrance:

- Head south (left) on N Tampa St. toward E Washington St.
- Head west (right) on E Washington St toward N Ashley Dr.
- Street View
- Make a slight left onto N Ashley Dr. and walk through the MacDill Park on the Riverwalk to the Riverwalk path
- Street View
- Turn left and head south, staying on the Tampa Riverwalk
- Continue on the Tampa Riverwalk approximately 0.5 mile to the Sail Pavilion

Franklin St. Route (0.5 mile; approximately 10 minutes)

From the Hilton Tampa entrance:

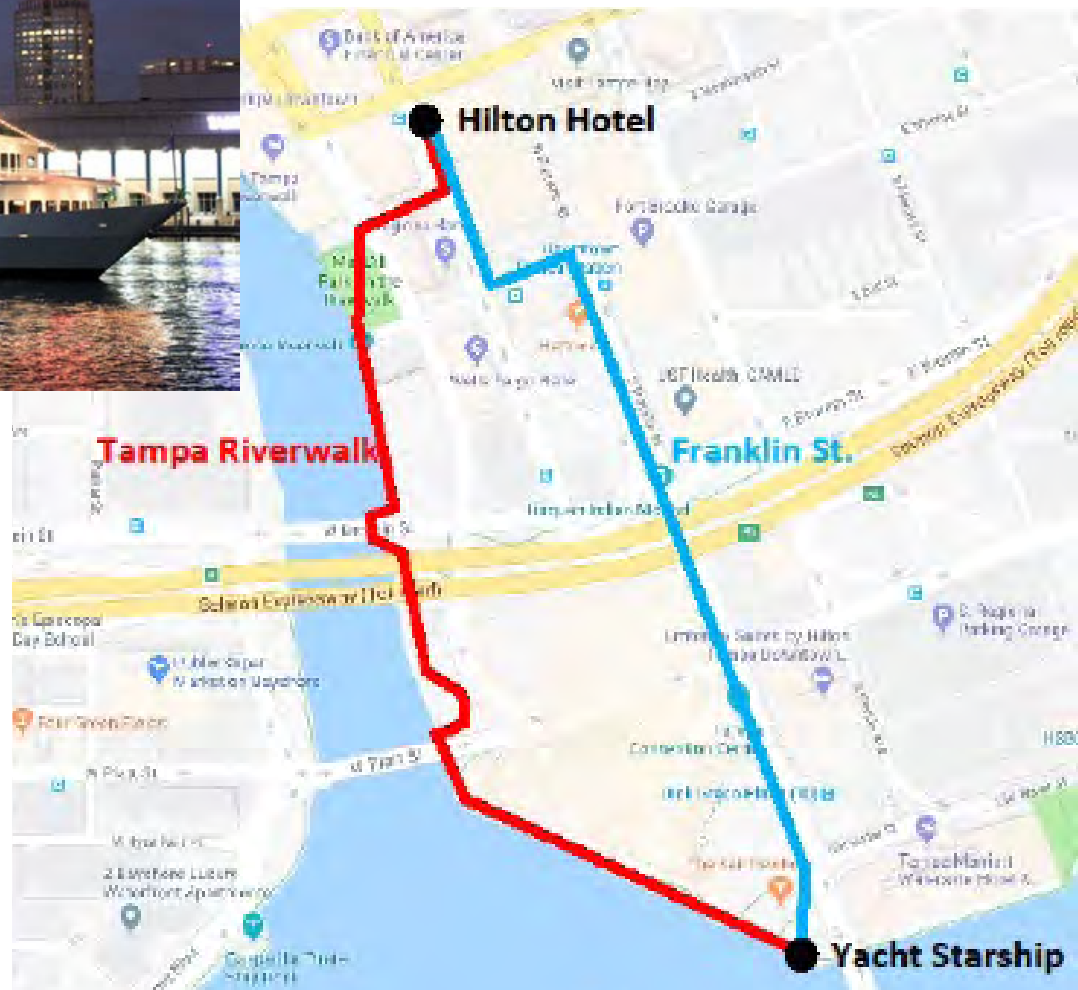
- Head south (left) on N Tampa St. toward E Washington St.
- Turn east (left) onto E Whiting St.
- Turn south (right) onto S Franklin St.
- Continue on S Franklin St to the Sail Pavilion

The Yacht StarShip

At The Sail Pavilion

333 S Franklin St, Tampa, FL 33602

**If you do not wish to walk this distance, it is an approximate 2-minute Uber or taxi ride (less than \$10 each way).*



The Tampa International Airport (2 PDHs)

Tuesday, May 1, 2:00 – 5:00 p.m.

Fee: \$25 Member/\$35 Non-Member

Tampa International Airport was automated before it was cool.

Tampa International Airport led the development of the world's first Automated People Mover with the Bombardier system (then Westinghouse) that is still operated today. Since then, APM systems have become a ubiquitous presence at airports worldwide. Tampa International Airport remains committed to this legacy with SkyConnect – a new 1.4-mile system. SkyConnect will rapidly take passengers between the Main Terminal, Economy Garage, and new state-of-the-art rental car center.

The train features a unique design inspired by the beauty of the Tampa Bay region. In collaboration with the Audubon Society, each of the 12 cars is adorned with an image of one of the many birds that inhabits the Tampa Bay region. Mitsubishi Heavy Industries America, Inc., which is building and operating the automated train system, calls the exterior design one of the most unique in the world. The tour will include a look at the legacy Bombardier system and the new SkyConnect system operated by Mitsubishi.

Tampa International Airport is consistently ranked among the world's top airports, serving more than 19 million passengers annually with routes to more than 80 destinations around the world.

Sponsored by 



Photo credit: Above: Airport panorama. Photo credit: Don Miller from Venice, U.S.

The bus will begin boarding at 1:45 p.m. outside the front of the Hilton Downtown Tampa. Tour ticket is required to board bus. Light snack will be provided. Luggage storage will be available at the airport for tour participants.

General Information

ADA Compliance

The Hilton Tampa Downtown is ADA compliant and meets all regulations. While ASCE will make every effort to meet the needs of the disabled, accommodations cannot be guaranteed without prior notification.

Attire

The dress code for the APM-ATS Conference is business casual (i.e. slacks, casual dresses) to business attire (i.e. neckties, business suits). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes. Please note that certain events may have specific details on attire, and you should refer to the event description for more information.

Badge Policy and Ribbons

Your APM-ATS Conference registration name badge is your admission to all conference sessions. Please wear your badge at all times while at Hilton Tampa Downtown Hotel. Tickets are required for the pre- and post-convention events, meals, and special events. Where tickets are required, please be sure to bring your tickets with you to each event as you will not be admitted without a ticket. Ribbons will be available at the Registration Desk.

Sustainable Conference Policy Statement

ASCE is committed to sustainable meetings in accord with the ASCE policy on The Role of the Civil Engineer in Sustainable Development. ASCE defines sustainability as a set of economic, environmental, and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality, or availability of natural resources and ecosystems.

Sustainable development is the process of converting natural resources into products and services that are more profitable, productive, and useful, while maintaining or enhancing the quantity, quality, availability, and productivity of the remaining natural resource base and the ecological systems on which they depend. To that end, ASCE works with hotels and convention centers that strive to make our events green and include amenities such as reusable pitchers and water coolers rather than plastic bottles.

Meeting Room Overcrowding

ASCE will make every effort to schedule popular events in rooms large enough to accommodate anticipated attendance. Because many events are extremely popular, it is wise to select alternative events as you plan your conference schedule. ASCE and the Hilton Tampa Downtown Hotel are REQUIRED to follow local fire regulations and may ask participants in rooms filled to capacity to choose another event.

No Smoking Policy

ASCE supports a "No Smoking" policy. Smoking is prohibited in the Hilton Tampa Downtown Hotel, and at all indoor venues hosting ASCE events.

Release/Waiver/Special Assistance

Photographs and Video: Photographs and video of the event may be taken by ASCE, its agents, contractors, or representatives, and such photographs and video may be used for any purpose at ASCE discretion.

Liability Waiver: By submitting my registration, I acknowledge and agree that I am undertaking to participate in the conference activities as my own voluntary and intentional act. I agree that I alone am responsible for determining whether I am physically capable of participating in any conference activity, and I understand that there is risk associated with my participation, which may include without limitation, injury or loss caused by my own negligence or the negligence of others. With knowledge and acceptance of the risks involved, I accept full responsibility for my own safety and well-being. In consideration of my participation in conference activities, I hereby waive, release, hold harmless, and discharge ASCE and its officers, directors, and employees from any and all loss or injury that may be suffered by me in connection with conference activities to the fullest extent permitted by law.



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Tampa, Florida, USA | April 29 - May 2, 2018

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