In the World of Airports, Upgauging and NextGen Are Trending

The 30,000-Foot View: What You Need to Know about the Evolving Airport Master Planning Process

Message from Our CEO

In Case You Missed It

Technically Speaking

We’ll See You Around

New Faces
We depend on our airports. They get us where we want to go—for business and pleasure. They move goods and services in and out of our region. They are “mini cities,” playing a significant role in the economy at the local, national, and global levels. The U.S. Department of Transportation reported that U.S. airlines and foreign airlines serving the United States carried an all-time high of 965 million systemwide (domestic and international) scheduled service passengers in 2017.

ESA’s Airport Practice Leader Mike Arnold recounts that critical master planning at airports across the country is happening at a fast pace now. This burst of activity comes after a stall during the recession, when airports held steady in an “extend life and maintenance” cycle. Now, airports are increasingly engaged in strategic planning and expansion to prepare for a future with larger aircraft, advanced navigation technologies improving flight safety and efficiency, more sustainable operations that continue to reduce energy and fuel use along with emissions, and simply an increased demand. The article on current airport master planning efforts describes a shift from the traditional planning of the past that focused primarily on airfield expansion, to a process that is more holistic and nimble—looking at terminal capacity, passenger experience, airport operations, and the needs of the surrounding community.

At the same time, ESA continues its long-standing work with airports to ensure that they remain “good neighbors” within their communities. Steve Alverson, ESA’s Senior Airport Planner and Noise Specialist, describes emerging NextGen navigation technology and how it plays into noise management around airports. Steve is currently leading ESA’s team on noise studies for New York’s JFK and La Guardia Airports—the largest noise studies ever undertaken at any U.S. airport. Based on our team’s experience assessing and managing noise at airports across the country, ESA has just submitted a problem statement to the Transportation Research Board’s Airport Cooperative Research Program (ACRP) titled, “Identifying Viable Techniques for Modifying NextGen Flight Track Design to Reduce Community Noise Exposure and Annoyance” in the interest of advancing noise management in the future.

And finally, ESA is flying too—via our recently expanded drone fleet! We have a growing team of FAA-certified pilots who are using drone capabilities to enhance our services and literally gain better insight for our planning, design, and environmental assessment work. Drone services are valuable in many settings. Jump to the new “Technically Speaking” section of this edition to learn about the FAA’s latest guidance for drone flights.

Onward and upward.

Leslie Moulton-Post
In the World of Airports, Upgauging and NextGen Are Trending

Steve Alverson

As airport planners and environmental specialists, ESA’s airport specialists are always keeping an eye on new trends that affect airport operations. Two trends that we have been tracking are upgauging and NextGen.

Upgauging is a trend in the airline industry that has had a profound effect on the growth in passenger traffic at airports throughout the world. Upgauging occurs when an airline replaces an aircraft with a different aircraft of a similar type, but with a higher seat capacity. This enables the airline to carry more passengers on the same number of scheduled flights. As a result, over the past three to four years, many airports have experienced a record number of passengers while aircraft operations have seen only modest growth. This has several effects on the airports themselves, and the communities they serve.

In some cases, airports must plan for new gates or concourses that can accommodate the larger aircraft, while terminals may need to be reconfigured or expanded to accommodate the record number of passengers. Often, this growth drives the need for state and/or federal environmental documentation to assess the potential impacts of these changes. ESA is assisting several of our airport clients with these studies.

To the benefit of neighboring communities, the newer, larger aircraft are typically quieter and more fuel efficient than their predecessors, resulting in a reduction of noise and air emissions on an aircraft-by-aircraft basis. However, from the community’s perspective, because these aircraft are much larger, they appear to be flying lower even though they are flying at the same altitudes as their smaller counterparts (as demonstrated by the image above).
As this trend in upgauging is occurring, the Federal Aviation Administration (FAA) has also been implementing its Next Generation Air Transportation System (or NextGen) air traffic and airspace modernization program in several major metropolitan areas throughout the United States. The purpose of NextGen is to take advantage of satellite navigation systems (aka Global Positioning System, or GPS) and other technologies to allow aircraft to fly more safely and efficiently from airport to airport.

In some locations, the precision of the satellite-guided flight tracks has led to a concentration of aircraft over a relatively narrow corridor. This NextGen change, combined with the upgauging of airline fleets, has resulted in some residents under these new flight paths pressuring the FAA to return the flight paths to their previous locations.

NextGen capabilities also provide opportunities to concentrate aircraft operations over non-residential land uses, such as bodies of water and commercial land uses, and/or to use approach profiles that require minimal thrust, known as Optimized Profile Descents, or OPDs. ESA has been working with its airport clients to identify these opportunities through federally funded airport noise and land-use compatibility studies known as 14 CFR Part 150 Studies. The Part 150 Studies typically have extensive stakeholder outreach programs involving the FAA air traffic controllers, the airlines, local land-use planning agencies, elected officials, and the affected residents. The goal is to develop a noise compatibility program through a collaborative process that results in FAA approval.

In an effort to address the noise issue on a national level, ESA has submitted a problem statement to the Transportation Research Board’s Airport Cooperative Research Program (ACRP) titled, “Identifying Viable Techniques for Modifying NextGen Flight Track Design to Reduce Community Noise Exposure and Annoyance.” ACRP selects problem statements for research, and the results often lead to widespread benefits to the nation’s airports, their users, and the surrounding communities.

Our hope is that, as a result of ESA’s work at airports throughout the United States, the next time you look up and see an aircraft, it will be on a flight path designed to have the least amount of impact in your community. To learn more about airport trends and the changes we see from the advances in technology and aircraft design, please contact Steve Alverson.
In Case You Missed It on Your Feed

Two Sonoma County archaeologists – ESA’s Mike Newland and fellow volunteer Alex DeGeorgey from Alta Archaeological Consulting – and a team of canine partners from Institute for Canine Forensics made national news for reuniting families with lost cremated remains in the wake of the Northern California Tubb’s Fire. MORE

Photo courtesy of Thomas Nash Photographs at nashpix.com

Three cheers for ESA’s herd at The Enormous Elephant Run in LA’s Griffith Park! The 5k fun run supports orphaned elephants (and other wildlife) in Africa. Thanks to The Enormous Elephant Run for a great event and The David Sheldrick Wildlife Trust for their incredible work.

In the News

We have a growing team of FAA-certified drone operators providing real-time access to aerial monitoring, orthomosaic imagery, and high-definition video for our clients in all regions!

Congratulations to all of our pilots! MORE

Click the icons below to connect with us!
The 30,000-Foot View: What You Need to Know about the Evolving Airport Master Planning Process

Commercial airports all over the country share the same mission: to provide high-quality, safe air travel services. Their success often drives regional economic development as business travelers, tourists, and the transport of goods rely heavily on these “mini cities.”

Airports are not immune, however, to a turbulent economy and must contend with restricted budgets in conjunction with robust regulatory compliance, all while maintaining safe operations. It is a delicate balance.

To navigate these considerations—and maintain a positive public image and encourage economic growth along the way—airports are increasingly focusing on a holistic master planning process.

A Break in the Rhythm

The master plan process provides a systematic approach for airports to address issues, recognize potential, and secure stakeholder and community support. A successful master plan outlines an attainable, phased development program that meets the airport’s growth and operational needs in a safe, efficient, economical, and environmentally sound manner. Traditionally, an airport would update their master plan every five to seven years; however, many of the airport master plans in place today were originally published in the early to mid-2000s.
The Great Recession (2007–2009) was a key factor in the stagnation of master planning efforts across the country and had one of the most significant impacts on the aviation industry since the Airline Deregulation Act of 1978. As the economy has picked up, there has been a flurry of activity as airports move from an “extend life and maintenance” cycle mentality that kept them going during the recession to a period of high demand for useful and adaptable short- and long-term planning.

An Evolving Industry and New Regulations Creates Urgency for Updates

Just as the economy has shifted over the past decade, so have the business models of most major airlines, leading to a change in facility needs and necessitating an evolution in the approach to master planning. The consolidation of the industry’s largest airlines, migration to more efficient fleets and larger planes (read Steve Alverson’s story about upgauging in this issue), and the rise of the ultra-low-cost carriers has airports of all sizes struggling to transition away from older, traditionally focused master plans. Where plans had once focused on airfield expansions to accommodate projected demand, these industry changes mean those planned projects are now unrealized and often unnecessary. Consolidation has created issues such as aircraft parking delays, insufficient landside capacity, and passenger movement and experience problems while at the same time driving reconfiguration of terminals and the shuttering of unused facilities.

There are also a number of other triggers related to FAA regulations that have added to the urgency of updating older master plans, including:

- More Rigorous Environmental Review: The FAA has placed particular focus on improving environmental review in airport master plans to ensure that the preferred alternatives can make it through the National Environmental Policy Act (NEPA) process.
- Enhanced Airfield Safety: The FAA has revised many of its guidance documents to focus on reducing the potential for runway accidents.
- Need for Updated Data: Airports Geographic Information System (AGIS) data collection and mapping efforts are required to support the FAA’s transition to the Next Generation Air Transportation System (NextGen).
- New Priorities: Multi-year capital improvement programs that made sense a few years ago now need to be updated to keep up with rising construction costs, and the FAA is reprioritizing many projects, shelving others, and setting a high bar for project justification.

Looking Ahead to Sustainable, Strategic Growth

The value in a master plan is realized when an airport can look back on the plan and see that it guided, or at least is reasonably consistent with, the evolution of the facility. The plans that are the most valuable to airports increasingly employ a holistic approach, integrating resiliency and sustainability, engaging stakeholders, and maximizing revenue enhancement opportunities. In short, they foster fully integrated, sustainable planning practices.

The plans that are the most valuable to airports increasingly employ a holistic approach, integrating resiliency and sustainability, engaging stakeholders, and maximizing revenue enhancement opportunities. In short, they foster fully integrated, sustainable planning practices.

In keeping with this, airport operators of all sizes are taking a page out of the worldwide airport privatization playbook. In an effort to diversify revenue streams and become less reliant on aircraft landing and passenger throughput based fees, airports are increasingly leveraging their overall land holdings and implementing strategies for enhancing both aeronautical and non-aeronautical revenue. The master planning process provides a unique opportunity to incorporate comprehensive asset evaluation, commercial development, and redevelopment strategies to allow airports to maximize their property return and secure long-term financial stability.

Holistic Master Planning at Work

ESA has recently applied this approach to the master plan update for the Orlando Melbourne International Airport, which integrates passenger service improvements, aircraft manufacturing facilities, maintenance, repair, overhaul (MRO) facilities, and research facilities, representing nearly a billion dollars of public and private investment. Our airport planners worked closely with all stakeholders to develop an adaptable, multi-faceted master plan that will enable users’ overall experience and improve on-site safety, revenue and economic development efforts, land use strategies, and environmental sustainability. The facility, which was one of the fastest growing airports in the United States even during the economic downturn, has been expanding operations and aircraft activity with incredible economic growth and demand from major tenants.

ESA is also currently leading groundbreaking master plans at St. Pete-Clearwater International and Naples Airports. St. Pete is the fastest growing Allegiant Air hub in the United States with more than 50 non-stop destinations, and Naples is one of the busiest corporate aviation facilities in the United States. Customer service, revenue diversification, and infrastructure resiliency are primary focal points of the master plans for these rapidly expanding coastal airports.

If you would like more information regarding our holistic planning approach, integrating resilience and sustainability, engaging stakeholders, and maximizing revenue enhancement opportunities, please contact Mike Arnold, Airports Practice Director or Doug DiCarlo, Airport Planning Director.
With the FAA’s implementation of the Low Altitude Authorization and Notification Capability (LAANC) system, the FAA will be able to grant faster authorizations while maintaining the safety of the National Airspace System. ESA is eagerly awaiting the rollout of LAANC authorizations for each operating region in line with the FAA schedule, which will help us to more quickly get automated access to fly our drones in controlled airspace to support clients’ needs.

Since the summer of 2016, the Federal Aviation Administration’s (FAA’s) Part 107 of the Federal Aviation Regulations has outlined specific rules for non-hobby Unmanned Aerial Vehicles (UAVs, also known as drones). Essentially, once the drone is registered and the operator is FAA-certified, drones are permitted to fly very near to the ground, up to 400 feet. This is designated as Class G airspace. A pilot cannot, however, fly in controlled airspace without special authorization. Controlled airspace applies to Class A, B, C, D, and E—where air traffic control service is provided to ensure maximum air travel safety. These include areas higher than 400 feet in altitude, airspace around airports, their control towers, and other delineations the FAA has outlined.

The current authorization process to fly in controlled airspace involves 19 steps and takes up to 90 days to process. While inherently important to maintaining public safety on and above the ground, this lengthy approval process can be an impediment to near-term client and project needs for drone services. That’s why we are pleased to report that the FAA has officially announced the nationwide expansion of the LAANC. According to the FAA, LAANC “enables drone pilots access to controlled airspace near airports through near real-time processing of airspace authorizations below approved altitudes.”

Beginning in April 2018, LAANC authorization will be rolled out to nearly 300 air traffic control facilities representing approximately 500 airports across the United States, opening up to 78,000 square miles of airspace for commercial drone operations.

Aside from LAANC in controlled airspace, there are also areas classified as special-use airspace, such as Military Operation Areas (MOAs), that blanket vast areas of airspace across the nation. Currently, flight in special-use airspace requires coordination and approval of the controlling agency, not the FAA.

Such is the case for most of the Florida panhandle in our Southeast region, where ESA has obtained “acknowledgement” (approval by not disapproving) from Eglin Air Force Base near Destin, Florida, for a six-month period under their Unmanned Aircraft Systems (UASs) Airspace Authorization Request process. This acknowledgement within the MOA allows ESA to provide authorized client services across most of the Florida panhandle at any time.

For more information on the ESA drone program, please contact us or visit the Geospatial Services page on ESA’s website.
### April

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6</td>
<td>Salish Sea Conference 30th Annual Conference</td>
<td>Seattle, WA</td>
</tr>
<tr>
<td></td>
<td>Ilon Logan (in collaboration with the Suquamish Tribe): &quot;Using a watershed approach to identify protection and restoration actions in the Blackjack Creek watershed, Kitsap County, Washington” and in collaboration with the Pierce Conservation District: &quot;Tackling nebulous ideas: building a shared monitoring plan for tracking outcomes of integrated floodplain management in the Puyallup River watershed&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spencer Easton: Listening to farmers: the farming in the floodplain project</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>North Bay Watershed Association Conference 2018 Extreme Future: Fire, Floods, a Rising Bay</td>
<td>Napa, CA</td>
</tr>
<tr>
<td>10</td>
<td>ASFPFM Foundation and the Association of State Wetland Managers Invite-Only Symposium</td>
<td>Silver Springs, MD</td>
</tr>
<tr>
<td>10-11</td>
<td>Columbia River Estuary Conference 2018 Promoting Resiliency Under Shifting Environmental Conditions</td>
<td>Silver Springs, MD</td>
</tr>
<tr>
<td></td>
<td>Hunter White: Co-author of The Nature Conservancy Presentation regarding the Kilchis River Tidal Wetland Restoration Design project</td>
<td></td>
</tr>
<tr>
<td>10-11</td>
<td>Airport Cooperative Research Program Insight Event Challenges to Implementing Successful Land Use Strategies at Airports</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>11-14</td>
<td>Salmonid Restoration Conference 36th Annual Conference</td>
<td>Fortuna, CA</td>
</tr>
<tr>
<td></td>
<td>Jason Q. White: Design and Implementation of Secondary Channels in Dry Creek, Sonoma County, California; and Design and Implementation of Width Expansions to Address Incision on the Napa River (poster session)</td>
<td></td>
</tr>
<tr>
<td>17-19</td>
<td>Bodega Marine Laboratory Coastal Conditions – Strategies for the Present and Future Bodega Bay, CA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bob Battalio: Coastal Policy: Making Strategies, Taking Action – A Practitioner’s View</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dane Behrens: Estuaries and Lagoons - Devereux Slough</td>
<td></td>
</tr>
</tbody>
</table>

### May

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-11</td>
<td>ACWA - Spring (Association of California Water Agencies) Spring Conference</td>
<td>Sacramento, CA</td>
</tr>
<tr>
<td>9-11</td>
<td>Society for Ecological Restoration of California (SERCAL) 25th Annual Conference</td>
<td>San Diego, CA</td>
</tr>
<tr>
<td></td>
<td>Jim Prine and Andy Collison: Resilient Design Considerations and Post-Installation Adaptive Management Actions for Riverine Restoration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Michelle Orr and Gerrit Platenkamp: Resilient Designs for Tidal Marsh Restoration</td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>Society for American Archaeology 83rd Annual Meeting</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>15-18</td>
<td>AAAE/ACI-NA 90th Annual Noise Conference</td>
<td>San Diego, CA</td>
</tr>
<tr>
<td>15-18</td>
<td>American Council of Engineering Companies Annual Convention</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>17-20</td>
<td>California Preservation Foundation Deep Roots in Dynamic Times</td>
<td>Palo Alto, CA</td>
</tr>
<tr>
<td></td>
<td>Michael Newland: Pre-Conference Workshop – Keeping History Above Water: West</td>
<td></td>
</tr>
<tr>
<td>23-24</td>
<td>The Leadership Series Cultural Resources Protection Summit Annual Conference Suquamish, WA</td>
<td></td>
</tr>
</tbody>
</table>

### June

<table>
<thead>
<tr>
<th>Date(s)</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-7</td>
<td>World Environmental &amp; Water Resources Congress Protecting and Securing Water and the Environment for Future Generations</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>17-21</td>
<td>Association of Floodplain Managers Annual Conference</td>
<td>Phoenix, AZ</td>
</tr>
<tr>
<td></td>
<td>Jessica Ludy: The Case for Tolerable Risk Guidelines to Manage Flood Risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alex Trahan: Relating Future-Conditions Coastal Flood Hazards to Existing-Conditions FEMA Maps</td>
<td></td>
</tr>
<tr>
<td>24-27</td>
<td>Institute of Transportation Engineers (ITE) Western District Annual Meeting</td>
<td>San Diego, CA</td>
</tr>
</tbody>
</table>
ESA continues to strategically add expertise and resources to better meet our clients’ needs. Join us in welcoming the latest additions to our growing team!

**New Faces**

**Yancey Cashell**  
CEQA Analyst  
Water | Los Angeles, CA  
ycashell@esassoc.com

**Ben Curry**  
Archaeologist  
Cultural Resources | Sacramento, CA  
bcurry@esassoc.com

**Donna Gorman**  
Regional Project Accountant  
Accounting | Tampa, FL  
dgorman@esassoc.com

**Hansel Hernandez, MS**  
Senior Architectural Historian  
Cultural Resources | Santa Monica, CA  
hhernandez@esassoc.com

**Pamela Xander**  
Senior Environmental Planner  
Seattle, WA | pxander@esassoc.com  
Pam brings more than 30 years of experience in planning, conducting, and preparing environmental studies. She specializes in airport and seaport work and has worked with public agencies and private developers on more than 200 small- and large-scale projects requiring State Environmental Policy Act (SEPA) and National Environmental Policy Act (NEPA) processes.

**David Carlson, ENV-SP, CSR-P**  
Northern California Transportation Director  
Oakland, CA | dcarlson@esassoc.com  
A nationally recognized expert in all aspects of NEPA and environmental assessment review compliance, sustainable transportation, and climate change, David has been involved in more than 150 projects comprising light-rail train systems, highways, bridges, freight rails, and ports.

**CJ January**  
Fisheries Biologist  
Biological Resources | Sacramento, CA  
cjanuary@esassoc.com

**Bryce Kozak**  
Fisheries Biologist  
Biological Resources | Sacramento, CA  
bkozak@esassoc.com

**Joel Levanetz**  
Managing Architectural Historian  
Cultural Resources | San Diego, CA  
jlevanetz@esassoc.com

**Maxwell Markley**  
Biologist  
Biological Resources | Sacramento, CA  
mmarkley@esassoc.com
Chris Easter, LEED AP, CARB Accredited Lead GHG Verifier
Northern California Air Quality, Noise, and Sustainability Director
Oakland, CA | ceaster@esassoc.com

Chris is our new Director for Air Quality, Noise, and Sustainability in Northern California, addressing air quality and sustainability challenges in communities throughout the region. Chris brings more than 25 years of experience advising and consulting with organizations in both the private and public sector so they can function more efficiently by reducing air pollution, water, energy, and waste in their daily operations.

Adrienne Centano
Director of Communications
Seattle, WA | acentano@esassoc.com

Adrienne is ESA’s new Director of Communications. She will be overseeing internal and external messaging, and helping to promote the firm’s technical experts and thought leaders from all regions, practices, and offices. With more than 15 years of experience, Adrienne is well-versed in storytelling across all channels, from digital and print campaigns to social media and video strategy.

Marissa Mathias
Associate II
Community Development | Santa Monica
mmathias@esassoc.com

Toni Pennington
Aquatic Biologist
Biological Resources | Bend, OR
tpennington@esassoc.com

Cameron Reyes
Fisheries Biologist
Biological Resources | Sacramento, CA
creyes@esassoc.com

James Santos
Senior Managing Associate
Community Development | Irvine, CA
jsantos@esassoc.com

Taylor Spaulding
Fisheries Biologist
Biological Resources | Sacramento, CA
tspaulding@esassoc.com

Laura Zajac
NEPA and CEQA Analyst
Biological Resources | Sacramento, CA
lzajac@esassoc.com