

Jacobs

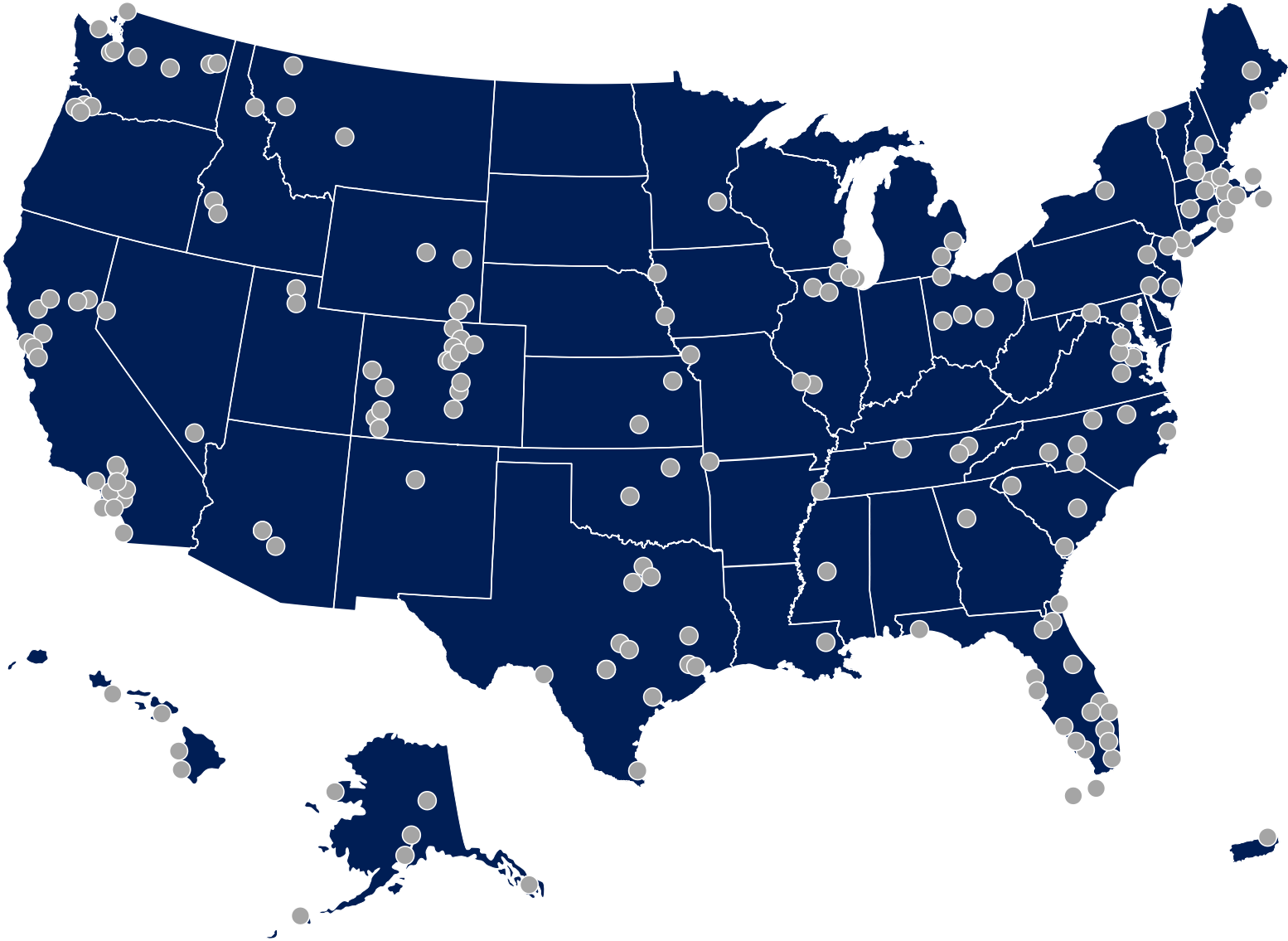
Challenging today. Reinventing tomorrow.

Unlocking the Full Potential
of our Airport Partners





PROVEN NATIONWIDE EXPERIENCE



Jacobs' support to airport operators, airlines, and stakeholder groups is scaled to meet every need—from individual tasks to transformational programs—delivering projects that are cost-effective for owners to build, operate, and maintain.

Program Management/ Construction Management



LANDSIDE ACCESS MODERNIZATION AND CAPITAL IMPROVEMENT PROGRAMS

Los Angeles International Airport, Los Angeles, CA

Jacobs is providing PM/CM support services for Los Angeles World Airports' (LAWA) \$14 billion capital program, which includes two main components – the Landside Access Modernization Program (LAMP) and the Capital Improvement Program (CIP). Projects we support under the \$6.6 billion LAMP include a new automated people mover (APM), consolidated rent-a-car (ConRAC) facility, intermodal transportation facilities, and roadway improvements. The CIP includes approximately \$7.4 billion of airside, landside, terminal, and infrastructure projects.

The \$1.4 billion ConRAC is one of the major elements of the LAMP. Jacobs is providing PM/CM, design management, and technical review services. The project was procured using a public-private-partnership (P3) for the design-build-finance-operate-maintain delivery. Our services included development of the programming, project definition, and procurement documents for the contract.

NORTH SEA-TAC AIRPORT RENOVATION (NORTHSTAR) PROGRAM

Seattle-Tacoma International Airport, Seattle, WA

Jacobs is providing program management services for this \$800 million program to renovate the North Satellite terminal at Sea-Tac International Airport. The project will increase capacity; install modern and energy-efficient machinery; construct a first-class passenger lounge; add elevators, escalators and bridges; improve architectural spaces and finishes; and renovate tenant/retail spaces. To date the modernization has included reconfiguring a new 20-gate alignment with the addition of three new gates; upgraded baggage system, mechanical, electrical, plumbing, heating, and HVAC components; seismic retrofit; exterior gate configuration, aircraft parking, taxi-lane and taxiway improvements; renovation of Satellite Train Systems (STS) lobbies at the North Satellite, Concourse C and main terminal; and provided baggage system and main terminal improvements.

REDEVELOPMENT PROGRAM

LaGuardia Airport, New York, NY

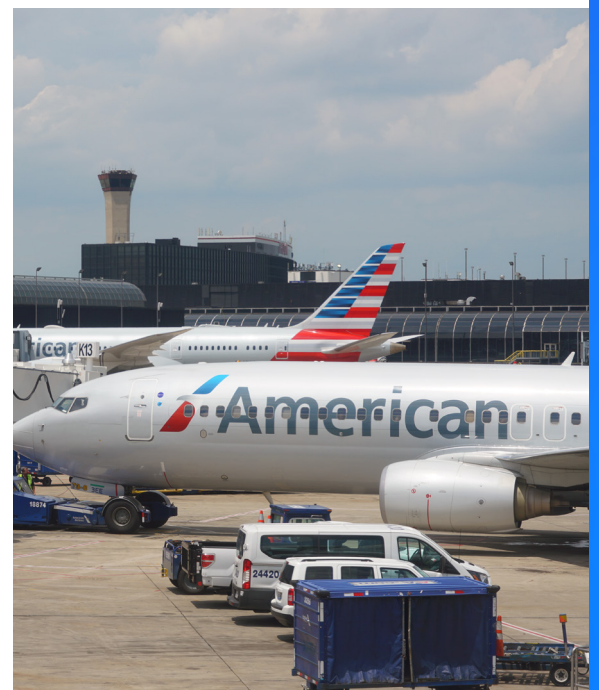
Jacobs is providing the Port Authority of New York & New Jersey (PANYNJ) program management services in support of the \$8 billion LaGuardia Airport Redevelopment Program. This major redevelopment effort includes the demolition of the existing central terminal and construction of a new 1.3 million SF, 35 gate terminal building (Terminal B); a new aeronautical ramp; frontage roads; a new central heating and refrigeration plant; new Delta Airlines terminals; and an AirTrain connecting the NYC subway to LaGuardia.

Jacobs is also the Program Manager for the P3 development of the \$3.6 billion Terminal B facility, as well as airside and landside improvements. This redevelopment will transform the airport, create a unified terminal, alleviate traffic congestion, and improve transportation access to the airport.

O'HARE 21

O'Hare International Airport, Chicago, IL

Jacobs, in coordination with joint-venture partners, serves as the Program Managers and Construction Managers of Chicago's ambitious \$8.5 billion terminal transformation program, known as O'Hare 21. Jacobs is assisting in leading the development and delivery of three new terminal concourses and two terminal expansions, as well as a new global terminal, which together will strengthen Chicago's position as a contemporary and economically strong global aviation leader.





CONSTRUCTION MANAGEMENT SUPPORT SERVICES

Hartsfield-Jackson Atlanta International Airport, Atlanta, GA

Jacobs and its JV partners are delivering construction management support services for the \$6 billion ATLNext Capital Improvement Program. Services cover the full range of construction management requirements as well as oversight of other quality service providers and participation as part of the project delivery team.

ATLNext consists of a series of projects during the next 20 years designed to boost airfield and gate capacities, renew and replace existing facilities, and enhance the airport's aesthetic appeal and customer experience. The program is designed to help secure Hartsfield-Jackson's position as the world's most traveled and efficient airport and further bolster the airport's goal of providing the best customer service while meeting the needs of busy passengers.

PROGRAM MANAGEMENT CONSULTANT SERVICES

Tampa International Airport, Hillsborough County Airport Authority, Tampa, FL

As prime consultant providing program management services as part of an integrated team, Jacobs is augmenting client staff for this \$2.5 billion multiphase master plan program. Our Phase 1 scope of work included terminal reconfiguration and extension to accommodate passenger growth, concessions rearrangement and redevelopment, development of a new consolidated rental car facility (CONRAC) connected to the passenger terminal by an automated people mover (APM), and implementation of the APM. In this capacity, we are helping airport staff enhance and expand their program management tools and practices, extend their reach during the execution of the program, and permanently improve their practices and procedures for PM/CM.

Airfields

Our airfield specialists provide planning, design, construction, and operation and maintenance of facilities aiding in the efficient landing and takeoff, loading and unloading, servicing, maintenance, and storage of aircraft around the globe.

VARIOUS PROJECTS OVER 25 YEARS

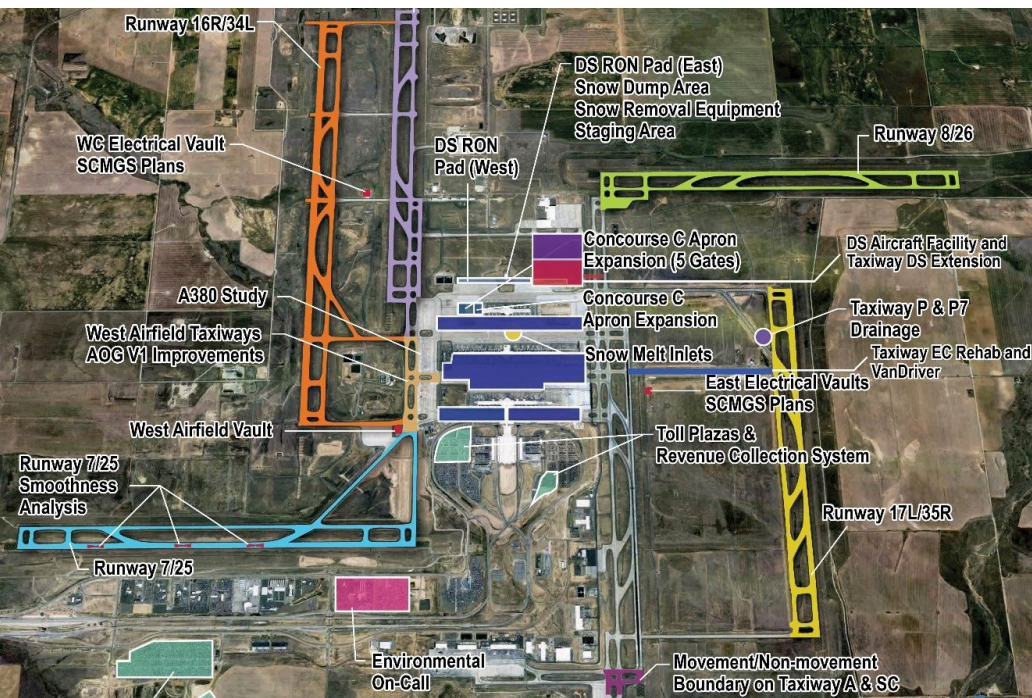
Denver International Airport, Denver, CO

Jacobs has been involved with DEN since the airport's inception, providing airfield design services for the construction of three of the six runways, including Runway 16R-34L, the longest commercial service runway in the U.S. at 16,000 feet and the first ADG VI runway constructed at a 200-foot width. Our team received the ACPA's Award for Excellence in Concrete Pavement Restoration for the Runway 8/26 Reconstruction project in 2018. Jacobs is also delivering the Gate Apron Reconstruction and Drainage Improvement (GARDI) program, a 5-year program to reconstruct and improve drainage for all the gate apron pavements around Concourse B. Our team has completed over \$1 billion worth of airfield project improvements for DEN.

RECONSTRUCT TAXIWAY Z AND TAXIWAY A

Honolulu International Airport, Honolulu, HI

Jacobs has been providing airfield design services for HDOT Airports Division, including two recent major programs. The reconstruction of Taxiway Z, which is located along the edge of the terminal apron and parallel to Taxiway A, included removal of existing asphalt and concrete and replacement with new concrete pavement, and asphalt shoulder removal and replacement adjacent to the concrete panels on Taxiway Z. The Taxiway Z program included paving up to the Taxiway A safety area to limit the number of phases and impact on operations during the Taxiway A program. After completion of the Taxiway Z program, Jacobs was selected to design a complete reconstruction of Taxiway A, the parallel taxiway to Runway 8L/26R. Both programs include complex construction safety and phasing plans.



PAVEMENT REHABILITATION AND GEOMETRIC IMPROVEMENTS

Washington Reagan International Airport, Washington, DC

Jacobs holds an Engineering On-Call Contract with the Metropolitan Washington Airports Authority to provide Pavement Rehabilitation and Geometric Improvements. Current tasks consist of reconfiguration and expansion of Hold Bay 4 to modify the airfield geometry, improve operational efficiency during short-term aircraft holding and deicing events, and provide four overnight parking positions; rehabilitation of aging Terminal A apron pavement and the adjacent south general aviation area; and pavement inspection/updates to the Pavement Management System.

CAT III ILS, ALSF-2, NAVAIDS AND ASSOCIATED TAXIWAY IMPROVEMENTS

Worcester Regional Airport, Worcester, MA

Jacobs provided airport civil, electrical, geotechnical, and airside planning services, as well as developed final design documents to support the construction of the jug handle taxiway and implementation of a CAT III Approach System. As part of the Final Design, Jacobs was responsible for details associated with the construction of the Mechanically Stabilized Earth (MSE) walls for both the jug handle taxiway and the relocation of the glide slope facility. The project also included the installation of a new ALSF-2 approach lighting system, a component of the CAT III Approach that will help ensure the airport's reliability during low visibility operations and improve the region's access to air service.





Photo Courtesy of DFW Airport

RUNWAY 17C/35C RECONSTRUCTION

Dallas Fort Worth International Airport, Dallas, TX

Jacobs provides design and design management services of airfield civil engineering projects as part of DFW's Capital Improvement Program through an on-call contract. To address an increasing number of pavement surface and subsurface distresses in Runway 17C/35C, the DFW Board tasked Jacobs' with designing the reconstruction of the runway in "an expedited manner, utilizing proven cutting-edge engineering technologies and developing optimum construction phasing to minimize operational impacts, while providing the best return on investment for the longest facility service life possible."

Jacobs' scope included pavement condition assessment; airfield geometrics; earthwork and subsurface investigations; drainage analysis; pavement design; utilities; airfield lighting and signage; and NAVAIDS.



REHABILITATE RUNWAY 9-27

Key West International Airport, Monroe County, FL

Key West International Airport's Runway 9-27 is a single runway airport serving commercial aircraft that now includes B737s. The project included the rehabilitation and strengthening of the runway pavement, along with widening the existing paved shoulders. The project also included increasing the departure length of Runway 9 by 270' through the conversion of an existing pavement to full strength pavement. Close coordination with the airlines was imperative, because of the short runway.

Extending the Runway 9 departure length required converting the existing asphalt blast pad pavement to portland cement concrete pavement, installing new runway edge and end lights, modifying existing runway edge lights, relocating runway distance remaining signs, and new pavement markings. Once construction was complete, the conversion to the new runway length was completed in one night/runway closure.

Planning/ Financial

We always act with integrity, taking responsibility for our work, caring for our people and staying focused on safety and sustainability.

ON-CALL AIRPORT PLANNING AND SUPPORT SERVICES

Ontario International Airport, Ontario, CA

Jacobs is providing on-call airport planning and support services to the Ontario International Airport Authority (OIAA). Jacobs has identified critical planning and support needs related to Ontario International Airport and implemented a comprehensive program of services designed to:

- > Provide on site resources related to commercial, rental car program, and financial services
- > Confirm the long-term (i.e., 20-year) outlook for aviation activity
- > Prepare a 10-year strategic assessment for managing their Airport business
- > Critically assess major functional areas and systems including the following:
 - Airfield
 - Landside
 - Passenger terminal
 - Air cargo
 - Jet fuel

ON-CALL PLANNING

Port of Portland (Portland International, Hillsboro, and Troutdale Airports), Portland, OR

Since 2008, Jacobs has led, participated in, or otherwise assisted Port of Portland staff with over 40 on-call studies. Our value to the Port of Portland is based on independent thinking, collaboration with staff, balancing guidance by senior staff with execution by capable midlevel staff, flexibility, strict quality control, and high-quality products.





MASTER PLAN UPDATE AND ON-CALL PLANNING

Detroit Metropolitan Airport, Detroit, MI

Jacobs completed a comprehensive Master Plan Update that included an upfront System Plan to define the roles for Detroit Metro and Willow Run airports and how they will meet the region's long-term aviation needs.

As part of the effort to improve safety and efficiency at the airport, tasks included: (1) analyzing existing airfield/airspace operations; (2) preparing demand forecasts; (3) conducting ground flow and taxiway network analyses; (4) conducting Total Airspace and Airport Modeler (TAAM) modeling to quantify the benefits for delay-reduction alternatives; (5) selecting the preferred alternative; (6) developing a phasing and implementation plan; and (7) preparing a benefit-cost analysis.

FINANCIAL, BUSINESS, MANAGEMENT, AND FACILITY PLANNING SERVICES

Pittsburgh International Airport, Pittsburgh, PA

Jacobs has been Pittsburgh International Airport's only bond feasibility consultant since the first issuance of revenue bonds in 1988. The Jacobs team is currently assisting in the process to defease the old debt and bond indenture to create a new indenture under which the Airport Authority would issue over \$1 billion in new money debt for the Terminal Modernization Program.

MASTER PLAN AND STRATEGIC DEVELOPMENT PLAN

Greenfield Airport, Guayaquil, Ecuador

Jacobs was appointed by the Airport Authority of Guayaquil (AAG) to create a master plan for the development of a new greenfield airport. Subsequently, we were hired by AAG to provide a detailed airport development plan and concession transaction support, including:

- › 40-year aviation activity forecasts
- › Detailed facilities requirements for the new airport to accommodate the forecast demand
- › A preferred facilities development plan for the new airport including an economically viable CapEx and phasing plan
- › Detailed business plan, including aeronautical and non-aeronautical revenue development analysis, cash flow analysis, and concession valuation
- › Project delivery and procurement support

FINANCIAL PLANNING SERVICES

Orlando International Airport, Orlando, FL

Over the last 17 years, Jacobs has assisted the Greater Orlando Aviation Authority (GOAA) in completing a wide range of tasks including:

- › Preparing bond feasibility studies to support bond financings for both general airport revenue bonds and standalone rental car Customer Facility Charge (CFC) debt
- › Assisting GOAA with its annual rating agency surveillance reviews
- › Preparing annual updates to projections of PFC fund balances
- › Assisting in the formulation of the CIP and associated funding sources
- › Assisting GOAA prepare airline negotiations
- › Assisting to develop a rates by resolution framework and rate structure
- › Assisting in the analyses supporting GOAA's Transportation Network Company (TNC) rate



Architectural Design



TERMINAL CAPACITY ENHANCEMENT PROJECT

San Juan Luis Muñoz Marín International Airport, San Juan, Puerto Rico

Jacobs supported the Aerostar Airport Holdings, LLC Capacity Enhancement Project, which involved strategic redevelopment, consolidation, and complete operational reallocation of 2 million square feet of passenger terminal building, consisting of four individual central processors and five separate concourses serving 57 gated positions. This three-phase project was completed while supporting continuous carrier operations and exceeding customer service levels. Jacobs was the prime design firm providing design management, architecture, and engineering services. Building system upgrades encompassed a comprehensive replacement of all mechanical systems and upgrade of electrical systems to achieve reduced operating costs. The project included procurement, infrastructure and structural design for 27 new passenger boarding bridge installations, with interim and final airline specific ramp marking plans.

TERMINAL RENEWAL & IMPROVEMENT PROGRAM (TRIP)

Dallas Fort Worth International Airport, Dallas, TX

Jacobs was the prime consultant responsible for the design and design management of approximately \$1.2 billion in construction over a five-year period in connection with the DFW International Airport Terminal Renewal and Improvement Program (TRIP). The program was delivered using Construction Manager at Risk (CMAR) delivery contracts and included design of more than 2 million square feet of improvements, including renovations of Terminal A; design development and validation for Terminal C; renovation of A-C and A-B connectors; implementation of a new terminal-wide concessions program; new baggage claims renovations; new and renovated restrooms; new exterior window wall system; new IT and fire alarm systems; 55 new passenger boarding bridges; aircraft layout and apron striping; two new parking structures; replacement of the north and south toll plazas and parking collection system; corporate aviation roadway and facility; and rehabilitation of runway and taxiway assets.



CONCOURSE EXPANSION PROGRAM, CONCOURSES B AND C EAST

Denver International Airport, Denver, CO

As the A/E of record, Jacobs is designing and providing construction administration services for this \$1.5 billion program. Comprising roughly 655,000 square feet of new concourse, 28 new gates, and approximately 112,000 square yards of aircraft parking apron, the program includes adding new hold rooms as well as "right-sizing" four existing hold rooms. Our scope includes conducting constructability and value engineering reviews for preparation of guaranteed maximum prices for each construction package developed during design. We are crafting design packages to maximize the benefits of CMAR delivery in an operating airport environment.

UPGRADE CHECKED BAGGAGE INSPECTION SYSTEM (CBIS)

Long Beach Airport, Long Beach, CA

Jacobs designed a new \$15 million medium volume in-line CBIS that was installed in a new building outside of the historic Terminal. Two high throughput devices and a new Checked Baggage Resolution Area (CBRA) room are provided. The new layout includes a new terminal building ticketing check-in system that connects to a common use mainline that feeds bags through an ATR/BMA to the available Explosive Detection System (EDS) devices to facilitate proper bag spacing and staging, thus maximizing EDS device throughput and efficiency in the screening process.

BAGGAGE CLAIM EXPANSION

Buffalo Niagara International Airport,
Buffalo, NY

Jacobs designed the expansion of the Baggage Claim Hall, provided a circulation corridor from the Customs and Border Protection Facility to the main terminal building, and provided additional exit paths from the Concourse to Baggage Claim. The project includes 58,000 square feet of new construction and 37,000 square feet of remodeled space on two levels of the terminal building. Combining the character of Buffalo's existing terminal with a sustainable expansion solution that will ease passenger circulation provides a state-of-the-art facility for the bi-national Buffalo-Niagara Region while setting the stage for the airport's growth.

CONCOURSE A/B CONNECTOR & BAGGAGE HANDLING SYSTEM REPLACEMENT

Baltimore/Washington International
Thurgood Marshall Airport, Baltimore, MD

Jacobs was selected to design the Concourse A/B Connector & Baggage Handling System Replacement project. The \$500 million program will expand the footprint of Gates A1-A5, replace and expand the baggage handling space and systems, create a more efficient connector between Concourses A and B, and add new restrooms and concession opportunities to enhance the passenger experience. Jacobs' concept developed innovative solutions that maximize valuable apron space for airport and tenant operations; right-size support functions, like ample holdroom space that considers future growth; and provide a dedicated level for the baggage handling system layout that maximizes efficiency. The expansion is on track for completion in 2023.







PLANNING

A strong aviation hub is fundamental to a community's vitality, providing wider access to the region, and stimulating the local economy. Through our aviation planning capabilities, we assist our clients in identifying opportunities to right-size their facilities, enhance revenues, and reduce ownership costs.

AIRSIDE

Our airside infrastructure team works with clients and operational stakeholders to identify opportunities to increase capacity, apply new technologies, future-proof infrastructure, and maximize airside operational outcomes while minimizing impacts to airport operations during construction.

TERMINALS

Terminals are highly complex buildings comprising large retail areas, sophisticated baggage handling facilities, and state-of-the-art IT and security functions. At the forefront is the balance of airline operations, revenue generation, and passenger experience. We provide both design and management to address all facets of terminal development.

LANDSIDE

Airports are more than a gateway to air travel—they are hubs for multimodal transportation. Efficient landside development is critical to moving passengers and cargo efficiently and cost-effectively. Our specialized services in roadways, rail and transit, parking, and landside facilities allow us to deliver both multidiscipline and single-service projects.

PM/CM

Exceptional Program and Construction Management (PM/CM) is fundamental to the successful completion of aviation projects. We deliver a wide suite of PM/CM services, from project inception to operation and maintenance, encompassing program and project delivery, commercial and contract services, and business performance.

ORAT

Operational Readiness and Transition (ORAT) is a collection of tools, techniques, and activities to start the "heartbeat" of an airport facility. Our team of seasoned ORAT professionals are helping airports across the U.S. and globally help airport and airline personnel ensure their diverse collections of equipment, systems, and operating procedures are tried, tested, and fully capable of smooth and efficient operation on Day One.

CAPITAL IMPROVEMENT PROGRAMS

We support airport capital improvement programs through framework and on-call contracts throughout the world. Our bench of specialists, within aviation and beyond, gives us the ability to quickly respond to any project need on an airport property.

ENVIRONMENTAL

Jacobs offers a diverse set of aviation environmental services ranging from Environmental Impact Statements to compliance to master plans, to resiliency and carbon management. Our service bundles include environmental permitting and planning, environmental stewardship and resiliency, waste management and planning, environmental assessments and remediation, and per- and polyfluorinated substances (PFAS) management strategies.



1,000

Aviation professionals worldwide



End-to-End Services

#2 Airports

ENR 2020

#1 Terminals

Building Design + Construction Magazine



BEST

Transactional Advisor

P3 Bulletin Awards





Our Jacobs

At Jacobs, we're challenging today to reinvent tomorrow by solving the world's most critical problems—for thriving cities, resilient environments, mission-critical outcomes, operational advancement, scientific discovery, and cutting-edge manufacturing—turning abstract ideas into realities that transform the world for good. With \$13 billion in revenue and a talent force of more than 55,000, Jacobs provides a full spectrum of professional services, including consulting, technical, scientific, and project delivery for the government and private sector.

Jacobs leads the global professional services sector, providing solutions for a more connected, sustainable world.

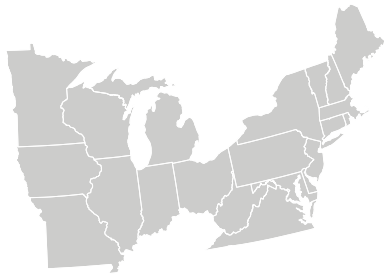
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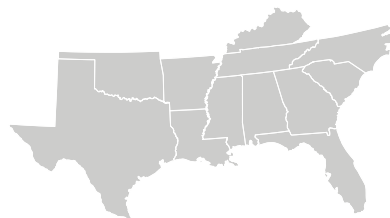
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