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The world of business and tourism is inconceivable without air travel. More than 1.6 billion passengers are carried every year by airlines, which also transport 40 percent of the world s exports. Rapidly increasing air traffic determines sustainable development of the airport design and construction industry. According to Olivier Jankovec, director general of ACI Europe, capital expenditure for airports in the period from 2000 to 2015 will amount to US$160 billion. In coming years airports will have to accommodate larger aircraft and handle twice the number of passengers. Major airports are expected to double in size, and small and medium-sized ones may even see triple growth.

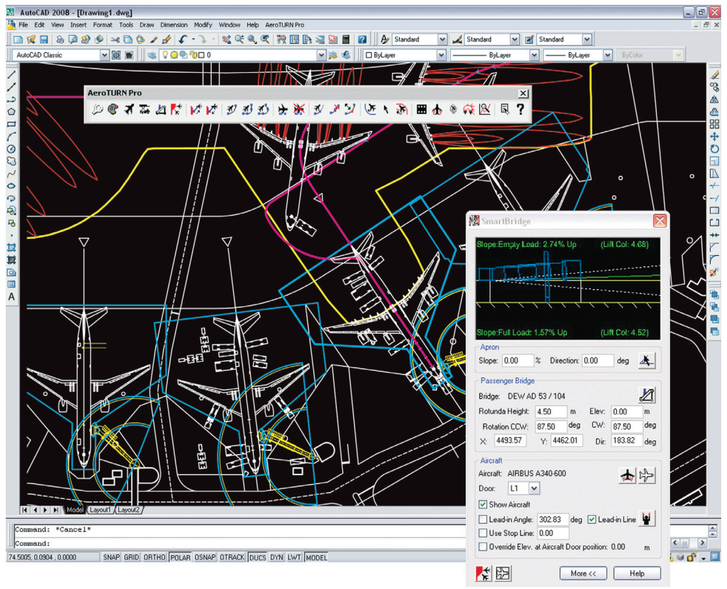
Airport construction, renovation and expansion pose numerous challenges. The space constraint arises because growing outwards is hardly feasible for most airports. What we try to do here is make the most of our space, says Peter Bianconi, an engineer with the Vancouver International Airport Authority. We attempt to pack as many planes as possible, as near to the holdrooms as possible, in the most efficient way. In its turn, trying to make the most of the available space makes the problem of human error even more serious. Still another challenge is delivering huge projects on time and on budget.

It is hard to adequately respond to the time, money and safety challenges using the traditional approach, which involves a tedious trial-and-error process of laying out and checking the slopes and movements of bridges for numerous design con urations. Creating passenger boarding bridge (PBB) facilities, designers normally use a CAD program for basic layout and dimensioning and compile a spreadsheet for calculations and notes. Then they consult hard copies of bridge manufacturers model speci cations, place each aircraft type in a test position to measure the lengths and distances, check the slope calculations within their spreadsheet, and then compare the obtained data with the manufacturers tables.

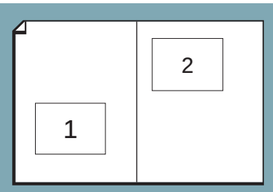
Even though there is no one size ts all high-tech solution for airside facility development and redevelopment projects, the right CAD-based software can streamline the design process, accommodate a range of aircraft in a exible and safe way, and save the time that is usually spent to check each aircraft type in a test position.

AeroTURN Pro, airside design and simulation software developed by Transoft Solutions, replaces time-consuming manual drafting methods with on-the- y testing and makes it possible to scrutinise a number of bridge-aircraft model combinations for each gate within minutes.

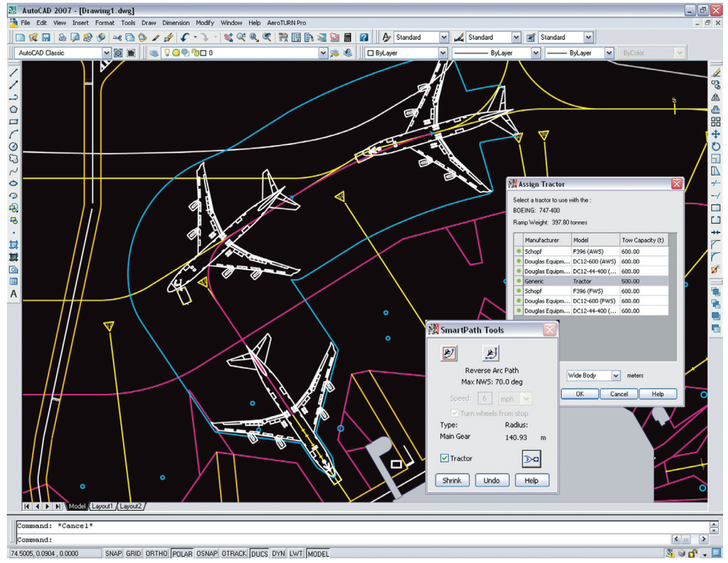
The program has all the design analysis and reporting tools for airside planning and requires no additional modules. It has a comprehensive docking and gate set, a library of two- and three-tunnel apron drive PBB models from a variety of manufacturers including CIMC, DEW, Jetway Systems, TEAM and Thyssen Stearns, and the ability to create custom bridges. With these features, a few mouse clicks and keystrokes are enough to drag-and-drop a PBB rotunda, set the initial angle of the bridge, de ne the limits for the degree of rotation, and start testing the design. AeroTURN Pro calculates the bridge slope in real time, as the rotunda height and elevation values are entered, so instant feedback can be received on changes to the bridges or the apron.



1. Technological breakthrough for CAD software users. AeroTURN Pro delivers a reliable solution for airside planning, designing and operations



2. Airport designers and planners can perform aircraft pushback and towing manoeuvres with a tractor/towbar at different gates



Using the SmartPath Tools supplied with AeroTURN Pro, the designer can eliminate judgmental oversteering and realistically evaluate aircraft movements in tight turning conditions. The advanced aircraft swept-path simulation tests the airside ground movements to prevent incidents between vehicles, aircraft and airport facilities. The jet-blast contours are tested at idle, breakaway and take-off velocities for the design of blast fences as well as for ramp safety needs. Visual warnings alert against designs that compromise program setting parameters.

A combination of compatible tractor and aircraft can be selected from a built-in list for speed-based aircraft pushback and towing (a tractor plus a tow-bar) operations. This functionality includes the ability to mark the nosewheel path of the aircraft for towing and pushback operations with multiple drive modes.

Gate and docking reports are generated directly from the engineering design and used to build an inventory of all aircraft stands with data on assigned aircraft/bridge models, rotunda locations and dimensioned stop lines with parked aircraft positions. This information can be saved with graphics and exported to enterprise reporting programs, and it can also be shared between different departments and used in client demonstrations.

e\f\aZ3gb3g[X3V[T__XaZX3 Airside design has come a long way since tracking characteristics were determined by using clear transparencies to create aircraft templates that were applied on hardcopy drawings. However it is solely through the further development and implementation of advanced technologies that the challenge of the airport design and construction industry s rapid expansion can be met. By choosing innovative software such as AeroTURN Pro to evaluate multiple gate and aircraft combinations, airport designers and planners improve productivity, save time, reduce costs and decrease the probability of human error.

The likes of Boeing, Airbus, the Port Authority of New York and New Jersey, McCarran International Airport and Emirates have chosen AutoTURN Pro for airside design and simulation. AeroTURN Pro is a reliable and cost-effective method for evaluating and assisting in the design of new and existing facilities, said Keith Foglia, project manager at Urban Engineers, after using AeroTURN Pro during the design development phase for a new terminal building of Dulles International Airport in Washington, DC, USA.

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