



Photo courtesy of Wayne County Airport Authority.

When Detroit Metropolitan Airport, and its owner, Wayne County Airport Authority (WCAA), sought to reconstruct busy Runway 4L/22R and associated taxiways, they chose to go beyond just a traditional paving project, committing instead to a new framework for integrating sustainability into infrastructure projects. The \$84 million project, completed in November 2016, received an Envision Silver Award from the Institute for Sustainable Infrastructure (ISI), becoming just the second airport pavement project in the country to achieve an Envision award (the first is C&S's ongoing T.F. Green Airport Runway 5 extension in Providence, RI).

Working as a design teammate to prime consultant RS&H, C&S led the integration of sustainability into the project, including facilitating a charrette at the onset of design to establish priorities, determine potential challenges and identify opportunities. C&S applied the Envision guidance and supported the pursuit of an award. "Envision is a verification process specifically designed to rate the sustainability of infrastructure," said Airport Authority Senior Project Manager Theresa Samosiuk. "By using ISI's standards for the Runway 4L/22R reconstruction, we

## DTW'S ENVISION COMES TRUE

### Runway 4L project receives Envision Silver Award

by Robert Koller, P.E.

were confident the final result would be something of which we could be proud."

The 10,000-by-150-foot runway is a critical approach runway, accommodating operations in low-visibility conditions at this busy hub. In addition to reconstructing the full runway, the project also included reconstruction of the associated taxiway system, ensuring a safe connection for aircraft from the

runway to the passenger terminals. In total, 6.5 miles of airfield pavement were rebuilt—all in a single construction season through a fast-tracked process.

"It's an honor to earn ISI's Envision Silver Award," said former WCAA CEO Thomas Naughton. "Our Airport Authority departments worked together with RS&H and C&S to achieve this goal. Now, we will have another state-of-the-art runway and the distinction of being only the second airfield project to receive an Envision Award. Their work will guarantee that Detroit Metro Airport can continue providing world-class service to our customers and remain an important contributor to our region's economy."

The ISI Envision system measures sustainability in five categories: Quality





>>> An on-site batch plant and concrete crusher efficiently crushed materials for use on other projects. <<<

Photo courtesy of Wayne County Airport Authority.



ENVISION™

"Our team values and appreciates the importance of sustainable design in our projects."

-Bryan Wagoner, WCAA  
Director of Environment & Sustainability

## Envision Category Achievements



### Leadership

The WCAA showed leadership in a number of ways throughout the project, including asking contractors in the bid packages for ideas on sustainability initiatives or lessons learned from other projects.



### Quality of Life

In addition to creating more than 350 jobs, the Airport Authority and project team invested in the quality and diversity of the local workforce. As a federally funded project, the Airport Authority established goals for disadvantaged business participation during design and construction.



### Resource Allocation

Resource consumption was reduced through initiatives such as LED fixtures, stormwater re-use for dust control (more than ten million gallons of recycled water), and re-use of excavated materials for this project and locations west of the runway to balance the site and minimize maintenance needs. The contractor brought a concrete crusher on site for pulverizing materials for use on other projects.



### Natural World

The project went beyond compliance with environmental regulations during construction by reducing existing impervious surfaces, resulting in long-term benefits to ecological conditions. By minimizing pavement area, stormwater runoff and its associated water quality impacts are decreased.



### Climate and Risk

Since Runway 4L is such a critical asset, the project team developed a durable end product that will be resilient to future conditions. For example, the pavement design is resistant to freeze-thaw impacts to limit water permeating the pavement, reducing issues during storm events.

of Life, Leadership, Natural World, Resource Allocation, and Climate and Risk. These key areas contribute to the positive social, economic, and environmental impacts on a community. See details of the achievements in the table to the right.

In addition to sustainability, C&S was also responsible for base mapping and design of the construction safety phasing plan, demolition plans, grading, sustainable construction measures, utility improvements, grooving, fencing, and technical specifications. C&S assisted with review and investigation of pavement rehabilitation options and alternatives and led the development of construction phasing alternatives. The project was divided into three separate bid packages to accommodate complex phasing and construction seasonal requirements.

As part of the demolition design, C&S developed and evaluated several alternatives, considering cost, constructability and ease of means and methods, and sustainability. We investigated grading concepts to improve the drainage of the runway and taxiway pavements and turf areas. The existing runways and taxiways had drainage issues and did not meet FAA safety area standards. The final grading design improved the surface drainage and FAA standards issues. All excavated soils—in excess of 500,000 cubic yards—were spread and graded immediately adjacent to the project site to reduce hauling. C&S was responsible for daily construction inspection of pavements, drainage, electrical, and fencing components.



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Bob leads C&S's Great Lakes aviation practice and was C&S's project manager for the runway reconstruction project. With 18 years of experience, he manages some of C&S's most complex hub airport infrastructure improvements. His projects have won awards from ISI, the American Council of Engineering Companies of Michigan, Michigan Concrete Association, and Asphalt Pavement Association of Michigan.



# DOES YOUR CM PASS THE TEST?

Our top ten list for getting the right construction management team

by Ben Johnson, P.E., ENV SP

## Do you have the right team managing your construction project?

Airport construction, especially on active airfields, is demanding, complicated, and mission-critical. An experienced construction management team can mean the difference between a good product versus an exceptional product.

**1 Proactive:** The lead site representative must take initiative and guide the team in the proper course of action. Do they recognize the responsibility to make things happen? Do they take ownership? Do they influence the project in a positive way?

**2 They Listen:** You can tell pretty quickly if field personnel have a full understanding of your concerns and hot buttons, stakeholder issues, and tenant happiness. In essence, do they know what keeps you up at night about the project?

**3 Safety is a Priority:** Are they keenly aware of the construction safety and phasing plan and its implementation? Do they understand the airport layout? Hot spots? Past issues with the contractor? Past excursions? Does the CM staff wear their personal protection equipment?

**4 Knowledge:** Did they submit a construction management plan with resumes? Does the CM team have a working knowledge of current FAA and state standards, advisory circulars, grant assurances, and best practices? Do they understand the front end of the specification? Having a competent CM making key field decisions and anticipating problems will avoid change orders and claims.

**5 Communication:** Is their style of written and verbal communication effective and understandable? Are meetings well documented and distributed in a timely manner? How about FAA reports? Are they completed weekly? Does the owner know about possible issues and change orders?

**6 Materials Testing:** Do they fully understand the quality assurance testing required by the FAA for each type of material? The wrong testing or amount of testing can create an issue with reimbursement and future maintenance and longevity issues for owners.

**7 Thinks Win-Win:** Does the CM staff foster a cooperative working environment while still advocating for the owner's best interests? Do they seek active collaboration in all project relationships? How well do they negotiate? Can they stand their ground and still work toward a win-win or no-deal solution?

**8 Problem Solving Skills:** Little things can often turn into big things. Can they anticipate problems, change orders or claims and either prevent or stay upstream of them? Do they know when to properly elevate issues? Do they tackle the tough issues?

**9 Paperwork:** How organized are they? Is the daily reporting up to date? Are they using a proven system for record keeping and document control? How well a construction team documents a project is a fairly solid indicator of the level of service you are getting.

**10 Project Closeout:** Does the closeout process seem painless or do multiple issues arise? Arguments over quantities? Is the contractor receiving final payment in a timely manner? The timeliness of how a CM staff closes out a project is usually a good indicator of how effective they were as a team.



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Ben is a leader in C&S's aviation construction practice and has 18 years of experience managing and inspecting more than \$80 million of aviation construction projects. His expertise includes day-to-day management of both small and complex aviation projects, including overseeing records, payment applications and change orders, enforcement of contract drawings and specifications, scheduling and coordination of work.

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# GREEN PLANNING

Kent State University Airport's master plan  
receives award for sustainability components

Kent State University Airport was awarded an Honorable Mention in October at the Airports Going Green Conference in Chicago for incorporating sustainability into its master plan, which C&S completed in 2016. The awards recognize people, programs, and projects that are leading the industry toward a greener future. The conference provides a forum for industry leaders in sustainability in aviation to come together to learn and exchange information.

“Kent State University receiving this certificate is important because it recognizes the value of our Sustainable Master Plan.” says David Poluga, Kent State Airport manager, “as well as the University’s leadership in the pursuit of sustainability within the aviation industry.”

The airport, located in Stow, OH, received a grant through the FAA’s sustainable master plan pilot program to incorporate sustainability into the planning process. The inclusion of sustainability ensures the long-term viability of the airport, the community, and the natural environment in a way that supports the economic development and prosperity of the region. The incorporation of sustainability builds on the university’s commitment to the implementation of sustainable practices. C&S worked closely with the airport, stakeholders, and the public, developing a series of public fact sheets and a website, ksuaairportplan.com.



>>> C&S developed a project website, ksuaairportplan.com, to keep the public informed about the process. <<<

Learn more >>>  
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