



 **AUTODESK** Construction Cloud

DFW

How DFW Airport Harnesses Data for Better Capital Planning and Maintenance

As the saying goes, everything's bigger in Texas. And that saying rings true at Dallas Fort-Worth International Airport (DFW Airport). Occupying an area larger than Manhattan, DFW Airport is the world's third-largest land area and third-busiest airport for passengers and operations, with nearly 80 million passengers flying to 257 destinations each year.

Over the next decade, DFW Airport has ambitious growth plans to support an anticipated 20 million more passengers a year, all while creating a more sustainable and transformative experience for travelers.

**40 hours saved
per week**

on data entry using
mobile capabilities

**10 hours saved
per week**

by quickly referencing
updates in photos

**Up to 160
projects**

going on at one time across
27-square-mile property



Customer Snapshot

FIRM SIZE: 1000-5000
FIRM TYPE: OWNER
REVENUE: N/A
FOCUS AREA: INFRASTRUCTURE
HQ: DFW AIRPORT, TX

PHASE:



CAPABILITIES:

- Project Management
- Quality Management
- Document Management
- Cost Management
- Field Collaboration

OUTCOME:



Cost



Quality



Schedule

The Cost of Maintaining Airport Infrastructure Without Data Access

When passengers visit DFW Airport, they'll board their plane through one of the 171 gates, which will then depart from one of the seven active runways.

But what passengers may not notice are the invisible assets that keep the airport operational: 172 million square feet of pavement, 133 landslide bridges, and 474 miles of water, sanitary sewer, and stormwater infrastructure. And that's just scratching the surface.

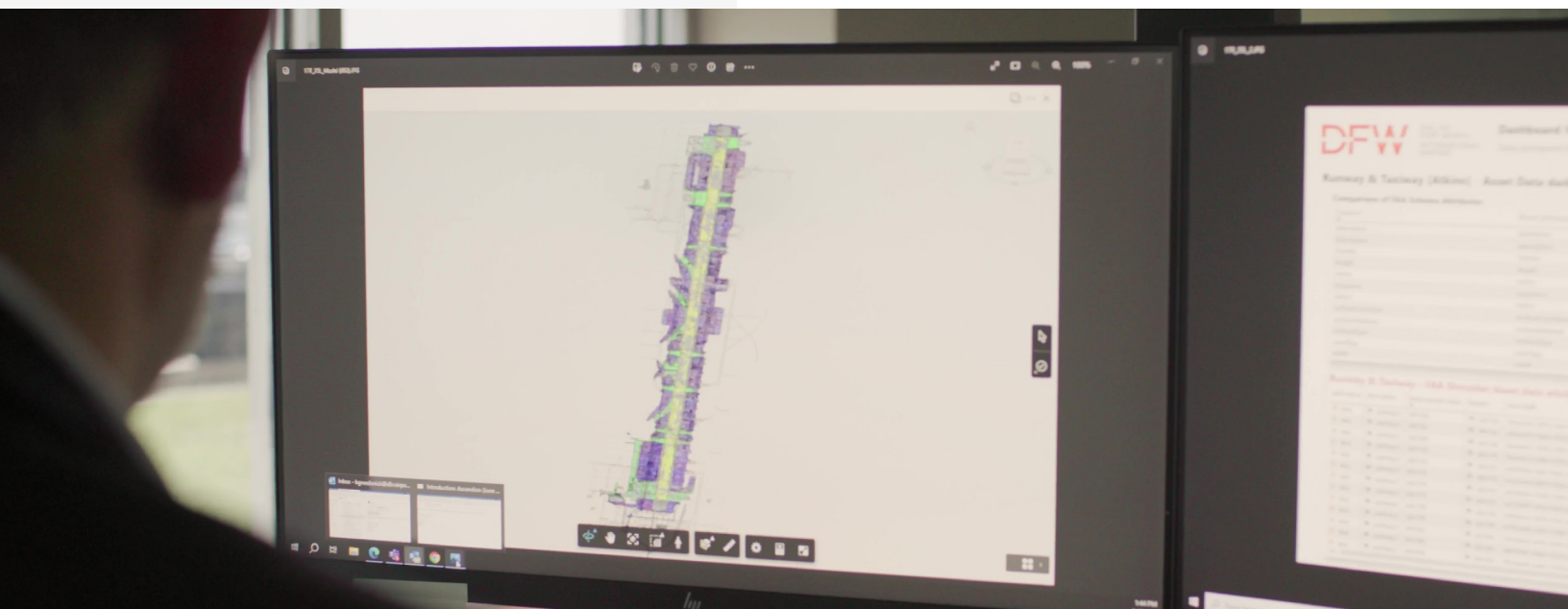
To keep up with the breadth (and busyness) of the growing airport's operations, DFW Airport is investing \$3.7 billion into its infrastructure capital program—and another \$4.8 billion into expansion programs—over the next decade.

With this capital spending on the horizon, the team behind the airport's design and construction needed to understand the state of all their assets to make more informed decisions about how data was being captured, collected, and extracted across all stages of an asset's lifecycle.

The Goal of Digitizing and Collecting Assets

DFW Airport works with multiple contractors on hundreds of projects each year. This used to mean working with multiple systems to get the latest asset information, but not anymore.

"As an owner, we needed to get smarter and ask for one platform to get consistent data and asset information and understand who's doing what and where on a project," says Bill Grozdanich, VP Controls and Analytics, Infrastructure and Development at DFW Airport.



A long-time user of Autodesk Revit, Navisworks, and Civil 3D, DFW Airport added Autodesk Construction Cloud to connect data from design to construction. With data from every stage of the construction lifecycle available in one tech stack, they can understand what data is being shared across the organization, and how.

More importantly, DFW Airport can efficiently operate and maintain its design and built assets to deliver a better customer experience.

Getting Teams on the Same Page

With hundreds of stakeholders collaborating on a project, everyone must be on the same page from day one. With unlimited users in Autodesk Construction Cloud, DFW Airport can provide access and set permissions for any contractor, designer, engineer, or partner working on a project. That way, the right information is routed to the right person at the right time without any bottlenecks.

Keeping everyone connected starts during the design process. DFW Airport trains designers working on any airport project to use its standardized folder structure in Autodesk Docs to organize and save models correctly.

Once a model is submitted and reviewed in Autodesk Docs, it's rated according to DFW Airport's standards. Using the Autodesk Validation Tool, the design team at DFW Airport can automatically review a model against

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-Kendra Jackson

QA/QC Administrator at TQD Group,
DFW Airport

customized criteria to verify the model's fidelity and ensure it's up to the airport's standards. If the rating is below the standard, the model is sent back to the designer to fix and resubmit.

“It's like I'm an air traffic controller with the number of models coming to me for review. But with Autodesk Docs and the Validation Tool, I can sort, filter, and review the models easily and communicate with the designers directly on what needs to be changed,” says Breanna Brown, Unmanned Aerial Systems (UAS) Program Coordinator at VRX. “It saves me time and provides me with peace of mind that buildings are properly built because I've done my job as a coordinator.”

If the model rating is below the standard, it's sent back to the designer to fix and resubmit. Once the model is approved in Autodesk Docs, it's imported into Autodesk Build and added to Autodesk Tandem, DFW Airport's digital twin, to track assets.

A Focus on Improving Quality

DFW Airport is just as committed to model quality as they are to project quality. When DFW Airport first began using Autodesk Build for project management, they saw the opportunity to improve collaboration between teams by getting them the right data at the right time.

With Autodesk Build, teams, regardless of digital prowess, can navigate models and understand what's happening on a project with visibility into issues, RFIs, submittals, and checklists.





“Standardizing our construction reporting in Autodesk Build has quickened our processes and made it more thorough, so we don’t have as many issues, problems, or miscommunications,” says Kendra Jackson, QA/QC Administrator at TQD Group, a DFW Airport contractor. “The root of construction is communication. Autodesk Build provides real-time information for our general and specialty contractors to make real-time reactions. If they see it, they can solve it.”

Since everyone on a project can track—and report on—what’s happening in real time, even the smallest issues are given the attention they deserve. Issues like site cleanliness can be reported and rectified before they snowball into larger issues that can impact the overall health of a project.

Feedback from both general contractors and specialty contractors working on the airport’s projects has been positive.

“The increased collaboration and transparency facilitated through Autodesk Build is providing a better working experience for our contractors,” says Kendra. “When we train teams on using Autodesk Build, I see their eyes light up with all the capabilities of the platform and the ability to share and respond to information in real time.”

According to Kendra, construction and project managers are excited about the photo capabilities in Autodesk Build as it makes it easier for them to understand onsite issues. The photos are also linked to forms, RFIs, or issues to help document progress or communication around site activity. The ability to quickly find and reference an update based on a photo

eliminates emails and phone calls and saves teams at least 10 hours a week searching for updates.

Realizing Time and Cost Savings

DFW Airport has as many as 160 projects going on at one time across its 27-square-mile property. But with Autodesk Build, the DFW Airport construction team is confident that projects will stay on schedule and on budget.

“With the number of people working on our projects, if we didn’t have [a] single source of truth, we’d spend weeks trying to get the new project team up and rolling,” says Robert Brown, Senior Project Control Systems Manager at DFW Airport. “Having that single source of truth keeps teams accountable and on track, regardless of who’s coming on or off a project.”

Within Build, DFW Airport is using the Forms tool to track quantities and feed that data into the Cost Management module to manage payments.

“With everything managed digitally, once our quality administrator verifies the submission, we can pay an invoice within 28 days. That’s our goal,” says Bill.

DFW Airport is also using drones to capture aerial footage and track how they’re progressing against a project’s schedule. In the past, field teams on site would manually survey the jobsite to capture images and then upload the photos back into the project. What used to take days now takes minutes, with the team estimating 85% in time savings.

The mobile capabilities in Autodesk Build save DFW Airport even more time, as field teams can access

models, forms, issues, and RFIs from the jobsite to make updates without having to return to the office or the trailer. With Autodesk Build, the team saves 40 hours a week on data entry.

“Having iPads and mobile devices in the field allows teams to report on what they see in real-time, reducing duplicate data entry,” says Robert. “It also allows our teams to inform people that may not be on site of what’s happening.”

On one occasion, a contractor hit a pipe, causing water to gush across a service roadway. An inspector who was already onsite created an issue in Autodesk Build and automatically assigned it to the construction manager. Because the entire team had access to Autodesk Build, the construction manager, project manager, and assistant project manager were on-site within minutes.

With Autodesk Build, nothing happens in a silo which keeps teams accountable and helps projects stay on track.

Making More Informed Capital Planning and Maintenance Decisions

The goal of DFW Airport owning its data and tracking assets is to provide all stakeholders with insights from any project, past or present, to drive better outcomes. When data is collected and enriched throughout the project lifecycle, it contains valuable insights for operations and maintenance and future planning, design, and construction.

For example, DFW Airport assesses its entire roadway system every 6 months. When pavement is new, the variable maintenance costs are low, but as the pavement ages, the maintenance costs increase.

There is a point in time where replacing the pavement is more cost-effective than maintaining the current surface road.

That’s why DFW Airport needs to know exactly when they need to replace pavement based on how frequently it’s used. By capturing asset information, like the date of when the pavement was poured, in Autodesk Build, DFW Airport can move towards its goal of predictive maintenance, moving from being reactive to proactive when servicing and maintaining roadways using its digital twin.

The storage of vital asset data also enables DFW Airport’s operations team to directly access information for any piece of equipment without having to sort through hundreds of pieces of paper. This saves time and allows its operational teams to get a better idea of what’s being worked on and when.

“Autodesk Construction Cloud breaks down silos and provides full visibility into where our capital projects and programs are at any given time,” says Bill. “With this technology in hand, we can manage design and construction more diligently to make quicker decisions in a safer, more efficient, and sustainable manner. This only brings us closer to achieving our goal of providing an exceptional experience for our passengers.”

As DFW Airport continues to capture as-built data accurately, the plan is to use this information for future capital planning, material use, and getting to that predictive state in maintaining installed assets.

Life at DFW Airport is big, and it’ll only get bigger with how much is being invested in the airport. With a sky-is-the-limit attitude for the team behind design and construction at DFW Airport coupled with its vision to transform travel, they’re on par to do just that.

