



Project summary

Organization:
Forte and Tablada

Solution:
Water and wastewater

Location:
New Orleans, Louisiana, United States

Project playbook:
iTwin® Capture, iTwin Experience,
iTwin IoT, MicroStation®,
OpenCities® Map, ProjectWise®

Forte and Tablada advance New Orleans' flood protection through a technology pilot project

Digital twin cuts engineering time, improves emergency readiness, and builds long-term infrastructure resilience.

Project overview

Forte and Tablada needed to create a centralized, dynamic digital platform to sustainably manage New Orleans' 17th Street pump station, a cornerstone of the city's flood protection system.

Traditional solutions such as static GIS platforms and conventional BIM viewers failed to provide the necessary interoperability, collaboration, and data richness.

Using Bentley solutions to convert and align engineering files, geospatial positioning, and operational data, F&T created a transformative new model for how critical infrastructure is visualized, understood, and managed.

ROI

The digital twin saves an estimated over 150 hours each year for a three-person engineering team.

F&T are projecting cumulative savings exceeding 2,000 to 4,000 hours of high-value engineering time over a 10-year period of standard operation.

Future projects or repairs are expected to commence 50% faster while collaboration time required is also reduced by 50%.

Keeping the world's most pump-dependent city safe

New Orleans' unique combination of geography, hydrology, and engineered flood protection makes it an infrastructure wonder. Surrounded by the Mississippi River, Lake Pontchartrain, and coastal wetlands and canals, the city is extremely vulnerable to multiple water sources simultaneously. It is also built below sea level—partially a natural feature but largely due to long-term settlement on former swampland—and so must contend with continuous land subsidence and sea levels rising faster than the global average.

Protecting the metropolitan area is the city's famed system of levees, floodgates, and pumps that 635,000 residents depend on to stay dry and safe. It is among the largest and most complex in the world, requiring constant management and maintenance. The 17th Street pump station is a cornerstone of that flood protection system, responsible for discharging stormwater during major events. It is tremendously powerful, taking just seven seconds to pump an Olympic pool's worth of water.

With the area's constantly changing land and water levels, the city requires adaptive infrastructure that can be managed sustainably. Multidiscipline engineering and surveying company Forte and Tablada (F&T) were engaged to create a centralized, dynamic platform for asset visualization, performance analysis, maintenance scheduling, and future planning, all to enhance operational readiness and infrastructure resilience.

Founded in 1961, F&T have a proven history in water infrastructure across the Gulf South. In recent years, they have been leading their field integrating advanced technology with traditional engineering workflows.

Searching for data-richness with spatial intelligence

While trying to find the right solution, the project faced data integration, coordination, and technical challenges, including merging legacy data with modern modeling systems, maintaining geospatial accuracy, managing user access across multiple agencies, and balancing innovation with regulatory requirements.

Traditionally, solutions for managing complex engineering data range from static GIS platforms to conventional BIM viewers. As F&T explored these capabilities, the team were hampered by file type limitations, inability to dynamically link geometry with metadata, or proprietary restrictions. For use in an environment undergoing constant geotechnical change, it was critical that the new platform had the level of spatial intelligence necessary to align diverse datasets in real-world coordinates.

Joey Coco, F&T's CEO, said, "To manage and maintain this asset effectively, we needed a long-term, sustainable solution that could absorb and federate a wide range of technical file formats—regardless of vendor—and spatially constrain them to their actual location."



Bentley's iTwin platform has given us more than just a way to visualize infrastructure—it's a foundation for transforming how we manage and operate it. This project is proof that digital twins are not just about data; they're about decision-making, continuity, and resilience. The real excitement lies ahead, as our industry begins to harness the full power of digital twins to connect people, systems, and performance in ways we've never seen before. We're just scratching the surface of what's possible.

— Joey Coco, CEO, Forte and Tablada

Digitizing infrastructure to stay ahead of the changing climate

The team consolidated and aligned legacy as-built data and historical drawings, 3D models, point clouds, operational records, and telemetry data. Detailed engineering information was gathered through tools such as lidar, along with photogrammetry and autonomous drones that captured every inch of the pump station, even its dark underground chambers. Using iTwin Experience, OpenCities Planner, MicroStation, and iTwin Capture, F&T converted their patchwork of files into a centralized asset model, aligning engineering files, geospatial positioning, and operational data in a way not possible with legacy systems. "We chose Bentley's iTwin Experience because it provided a truly agnostic, cloud-native platform capable of federating engineering data from MicroStation, AutoCAD, Revit, IFC, point cloud formats, GIS layers, and even historical documentation—all within a single, geospatially aware digital twin," explained Coco.

F&T's work broke down data silos, brought standardization across multiple formats, and created a live model environment of the pump station with the flexibility to evolve over time. The digital twin enables real-time walkthroughs, condition reviews, and operational discussions without requiring stakeholders to be physically on site. The new virtual replica allows all stakeholders—from engineers to emergency managers—to securely access, visualize, and analyze system components in one environment, enhancing transparency and facilitating collaboration.

"Owners can get engineering-grade information and use it to make decisions and operate infrastructure," said Coco. "Engineers can move straight into design, executives can look at data specific to a business case, and the public can better understand issues inherent in projects and the impact of proposed solutions." F&T's digital twin of the 17th Street pump

station shows how all stakeholders can derive unique value from this model.

Digitizing this infrastructure equips one of the United States' most vulnerable regions with the forward-looking, sustainable foundation for resilience needed in the face of increasing climate challenges. This project sets a precedent for digital transformation and is already proving how infrastructure digital twins can deliver long-term value.

Achieving a new digital twin standard

Time savings are the immediate tangible impact of the digital twin. For a three-person engineering team needing frequent access, over the course of a year, it's estimated to save more than 150 hours. Another example is that a project evaluation saved 200 hours on traditional field-based methods. Over a projected 10-year lifespan of these regular occurrences, the cumulative savings are expected to exceed 2,000 to 4,000 hours of high-value engineering time.

It is expected that the digital twin will bring efficiencies to future projects or repairs; projections suggest that it will reduce the time to get underway by 50% and reduce collaboration time by 50%.

This project also contributes to environmental and social sustainability goals by preserving institutional knowledge to ensure continuity across generations of operators, reducing reliance on repeat site visits, and minimizing environmental disruption. This is further supported by enhancing the reliability of a system that protects New Orleans and its residents in storm events. The digital twin improves emergency response through faster access to pump capacity data during a storm, remote briefings without site access, and greater certainty when making critical decisions.

Using Bentley solutions, F&T have helped enable better emergency readiness today and tomorrow, while also paving the way for greater public visibility and transparency through a potential future system-wide digital twin.



The digital twin enables real-time walkthroughs and condition reviews remotely.

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