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Bentley Infrastructure Cloud for Water

# Infrastructure Intelligence Is How You Can **Build a More Sustainable and Resilient Future**

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# Better Outcomes Across the Infrastructure Lifecycle

Behind every infrastructure project and every physical asset is data waiting to be unlocked, unleashed, and illuminated, resulting in insights into infrastructure intelligence.

From connecting critical information and workflows across the infrastructure lifecycle to leveraging artificial intelligence-driven insights, infrastructure intelligence is how you can build a more sustainable and resilient future.

**Whether you need to:**

- Rapidly generate different design concepts based on a range of inputs and constraints,
- Create immersive 3D environments of infrastructure assets where construction progress is captured, current, and actionable,
- Or automatically know when something is wrong with the health or safe operability of your assets,

***Infrastructure intelligence is the key to solving and overcoming some of today's biggest challenges.***

# Infrastructure Lifecycle Challenges

Design and build firms, infrastructure owners, and their supply chain stakeholders must effectively manage infrastructure projects and assets across the lifecycle from design and build into operations.

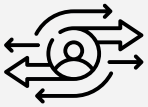
**These teams need to:**

**Increase the efficiency** of designing, building, and operating infrastructure due to the increasing complexities of increased client demands and workforce challenges.

**Manage and govern data** to support collaboration workflows for engineering, construction, and asset performance within and across organizational boundaries.

**Manage the flow of information** in and between organizations for efficient design, construction, and operations, with effective coordination of work between many different teams.

Utilize trustworthy and actionable asset data to **make better-informed decisions**.



**Leverage data** from engineering technology, information technology, and operations technology (ET, IT, and OT) to improve project delivery and asset performance.

**Improve asset performance** and reliability with a single, holistic, and up-to-date view.

# Challenges in the Water Industry

Utilities **face a barrage of issues** when delivering reliable and affordable water and sanitation while increasing energy efficiency and decreasing their carbon footprint.

They must address **aging and decaying infrastructure,** improve water quality, and achieve regulatory compliance.

Growing populations and **water scarcity** exacerbate efforts to meet customer demand for water.

The **strain on assets** caused by climate change and severe weather heightens the need for emergency preparedness and proactive flood and drought resilience measures.

Utilities also face **demanding internal business issues.** They must boost the return on assets, improve capital planning, and reduce operating costs, as well as lessen nonrevenue water losses and increase operational efficiency.

## How Bentley Infrastructure Cloud Can Help

Bentley Infrastructure Cloud brings teams, projects, and asset data together in secure managed environments to execute work, resulting in better outcomes across the infrastructure lifecycle. It offers purpose-built workflows for users across all phases of the asset lifecycle. Bentley Infrastructure Cloud delivers project delivery, construction management and asset performance capabilities through three key applications:

- **ProjectWise®,** which provides a connected data environment to help designers and engineers produce higher quality digital deliverables.
- **SYNCHRO™,** which enables constructors to simulate plans in 4D and capture as-built progress for digital twin handover.
- **AssetWise®,** which empowers owners with asset lifecycle information within evergreen digital twins to help improve the reliability, performance, compliance, and safety of their infrastructure assets.

# Bentley Infrastructure Cloud Benefits

Bentley Infrastructure Cloud is your ultimate destination for managing infrastructure data that can be relied on to make informed decisions, allowing you to better design, build, and operate more sustainable infrastructure.

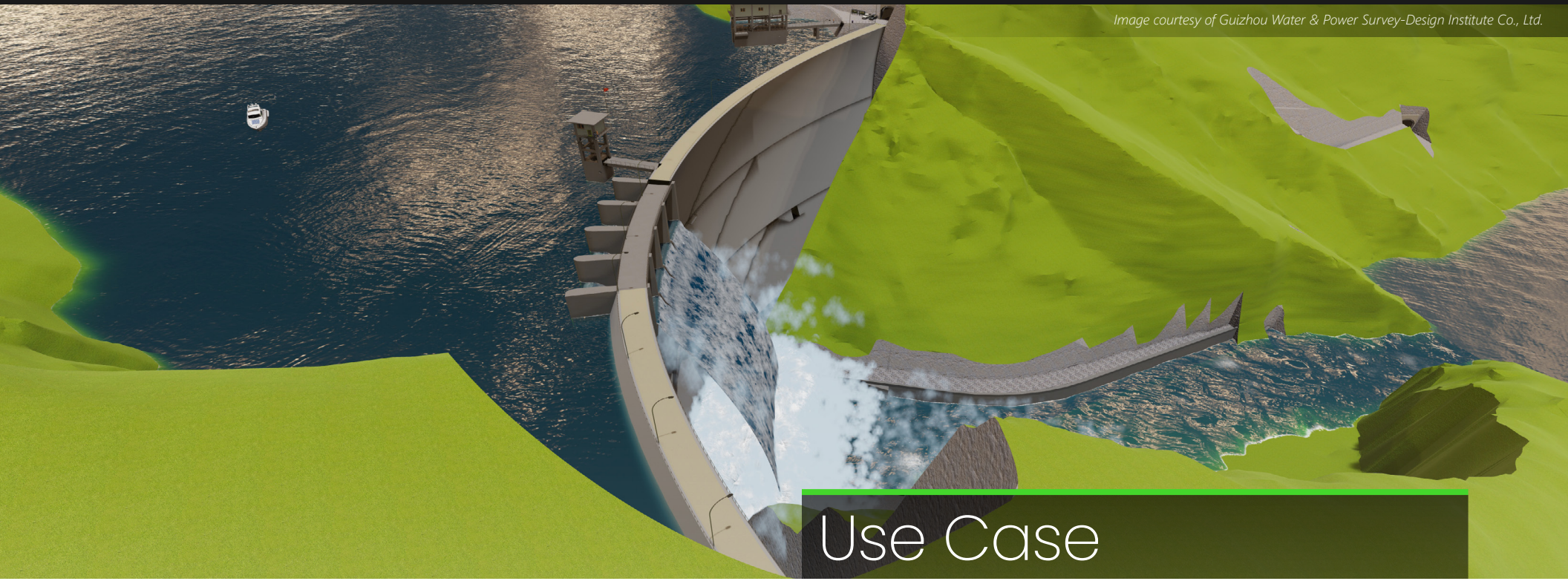
**Bentley Infrastructure Cloud:**

- Manages the flow of information throughout the lifecycle in a trusted environment to efficiently and effectively collaborate across team and organizational boundaries.
- Provides governance through an open, federated environment to ensure that the right people have the right information at the right time, giving users the ability to create, edit, view, search, analyze, manage changes, and share asset and project information according to their function or need.
- Unlocks value with open access to data across the lifecycle by enabling the reuse of best practices and implementation of standards, helping you gain new insights through change management.
- Augments existing file-based workflows with data-centric workflows enabled by the iTwin Platform to streamline change management.

# Use Cases

**Bentley users are working on innovative projects that use data in groundbreaking ways. They see clear strategies for accelerating infrastructure intelligence, including reusing digital components and incorporating operational data from IoT sensors and drones into evergreen digital twins.**

*Image courtesy of Guizhou Water & Power Survey-Design Institute Co., Ltd.*

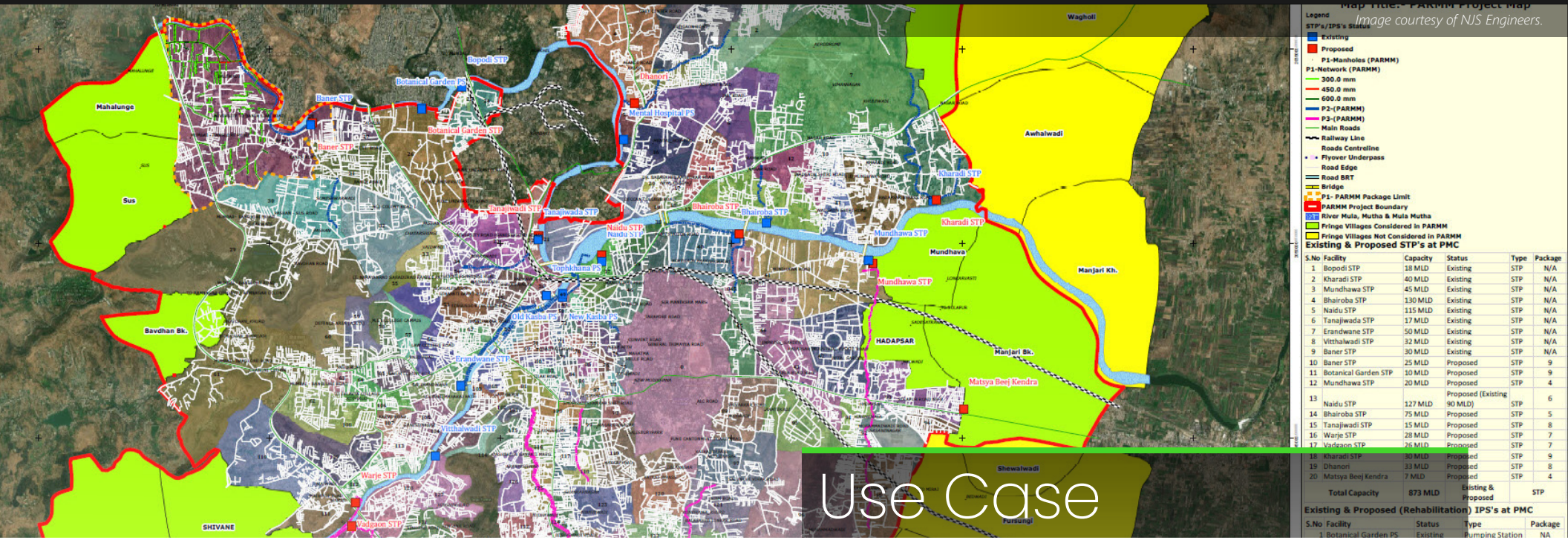



# Use Case

## Dahe Reservoir Engineering

The Dahe Reservoir will resolve water supply issues in the Duyun Economic Development Zone and provide irrigation for rural farmland along the water transmission project area. The project includes the construction of a 100-meter level arch dam, requiring 150-meter-high slope evacuation on a fast-paced schedule. The project management consultants, Guizhou Water and Power Survey-Design Institute, looked to implement collaborative, multidiscipline BIM processes throughout design and construction. Their previous design technology proved insufficient for the task. The organization needed to adopt integrated modeling applications and a connected data environment.

They selected design capabilities from Bentley Infrastructure Cloud (ProjectWise) and MicroStation®, along with Bentley Open applications, to establish 3D collaborative design processes and create a digital twin, avoiding more than 20 design errors and shortening the design time by six months. Integrating build capabilities from Bentley Infrastructure Cloud (SYNCHRO) for construction simulation accelerated the construction process by 23% and saved CNY 42 million. The team plans to use the digital twin model to assist in future operations and maintenance.




# JICA Assisted Pollution Abatement of River Mula at Pune

With rapid growth and population and industrialization, the water pollution of Mula-Mutha River has been a major concern of the city of Pune. To improve the water quality of the river Mula-Mutha traversing Pune, the local government initiated a project to treat 100% of the city's sewage before being dumped into the river. NJS Engineers faced a short time frame to complete the design review, and with multiple organizations to coordinate and interoperability issues among previously used software, they needed open, integrated technology.

Leveraging design capabilities in Bentley Infrastructure Cloud (ProjectWise) along with OpenFlows™ SewerGEMS® and other Bentley applications, NJS Engineers performed real-time analysis and enabled multidiscipline and stakeholder visualization of the sewage network. The software enabled them to streamline workflows and review and provide recommendations in a short, cost-effective manner. Working in a digitally connected, cloud-based environment reduced the number of large-scale drawings by 2.46%, saved a total of 55 resource months, and provided a sewerage solution that facilitates water conservation, reduces operating costs, and ensures better infrastructure services. Bentley Infrastructure Cloud's design, build (SYNCHRO), and operate (AssetWise) capabilities, along with AutoPlant® and iTwin Capture, will help Pune city administrators maintain the infrastructure of the city.


# Use Case

## EchoWater Project

Among Sacramento's largest public works projects, EchoWater will upgrade infrastructure to facilitate treatment of approximately 135 million gallons of wastewater per day, providing a safe and reliable supply of treated water that will be used for recycled water purposes. Consisting of 22 individual projects centered around constructing a sprawling complex for removing 99% of ammonia and 89% of nitrogen, planning and managing the design of these simultaneous components on an active wastewater treatment facility presented significant challenges.

Project Controls Cubed LLC selected Bentley Infrastructure Cloud build capabilities (SYNCHRO) to develop construction solutions and iTwin for a digital twin, anticipating and mitigating potential obstacles and shutdowns while providing optimal and timely situational awareness of cost and schedule performance. Working in a connected digital visual environment, EchoWater was completed USD 400 million under budget, saving ratepayers more than half a billion dollars. The project cost savings will fund California's Harvest Water program, providing recycled clean water to the Central Valley's agricultural industry.

# It All Starts with Data

**What the most advanced firms are already doing today:**

**Lighting up** their dark data

Reusing data through **seamless interoperability** across applications, throughout the infrastructure lifecycle

Enjoying a **consistent** UX

Realizing the **value** of that data beyond handover

Monetizing newly uncovered **digital integration** business opportunities

**Bentley Infrastructure Cloud:**

- **Allows you to manage and leverage all your engineering data,** maximizing its potential for generative artificial intelligence.
- **Unifies digital project deliverables and enhances model-centric workflows** with smart sheets, enabling 2D/3D hybrid workflows and connecting traditional file-based and BIM data-centric workflows to deliver value faster.
- **Embodies Bentley's commitment to openness and interoperability** with industry standards, including IFC, BCF, CFIHOS, Mimosa, DEXPI, and third-party file formats.

## Contact us for Better Outcomes Across the Infrastructure Lifecycle

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