Services | Digital Asset Management

Digital Asset Management (DAM) involves leveraging both the graphical and non-graphical information about a built asset to optimise asset performance and support future capital projects.

We bring some of the best experience in the industry leading Digital Asset Management on projects, and draw on our experience working with both New Zealand and international clients to support the delivery of our clients desired outcomes.

Digital Asset Management services provided

Asset Data Schema

The development of an asset data schema that defines what constitutes an asset, what data is required against each asset, which party is responsible for delivering that data to the client, and what project stage the data is delivered. The schema will act as a controlled set of data requirements that will form part of the project procurement documentation to make sure these requirements are integrated into the scopes of service for each supplier.

As Built Model Requirements

The as built tolerance strategy, verification method and metadata requirements will be defined in an As Built Model requirements specification. This will form part of the project procurement documentation to make sure these requirements are integrated into the scopes of service for each supplier.

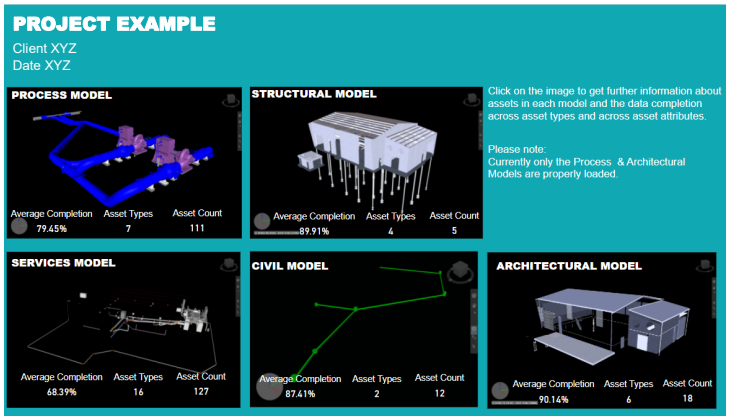
Digital Asset Management Execution Plan

The asset data and as built model requirements will feed into the development of the Digital Asset Management Execution Plan which will set out the detailed methodology and all the associated inputs and outputs to enable an Asset Information Model and / or Structured Asset Data to be delivered at the end of the project.

Construction Tender Documentation

The practical application of DAM processes occurs through the design phase, and then carries over into construction by virtue of how this is described at the construction procurement stage. It is at this stage when the intent for the use and reliability of models and associated non-graphical information is conveyed to the Contractor and their supply chain. We provide input into the aspects of the General Specifications (and with appropriate reference to Technical Specifications) as appropriate to convey the Digital Asset Management requirements of the project.

Asset Data Completeness



Example asset data completion dashboard

On a regular, pre-agreed, basis during construction, Digital Asset Completeness reports will be developed and provided to the client to provide full transparency of the progress and completeness of asset information within the Building Information Models. This reporting will show the types of assets, the number of the types found in the 3D model environment and the percentage data completeness against each asset type.

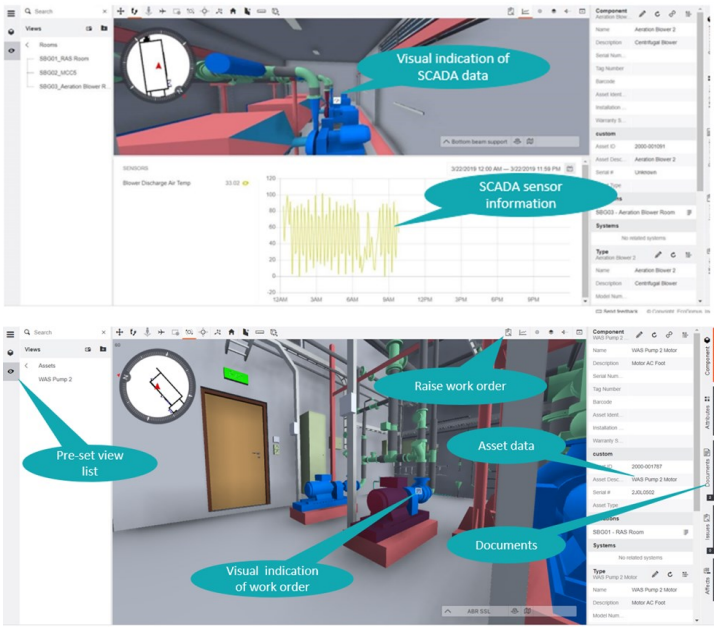
As Built Model Verification

As built models developed in accordance with the As Built Model Specification will be provided by the design and / or construction team depending on the owner of the models. The models, along with appropriate verification documentation, will be provided to the Asset Information Manager for confirmation that the models meet the as built requirements. This review will be undertaken prior to the submission of the final as built models to the client.

Asset Data handover

For static asset data handover (i.e. product manuals and specifications), upon completion of the project we will work with the client asset management team to map the asset data into your existing asset management systems.

Digital Twin Integration



Example of Digital Twin Integration

For dynamic asset data handover, upon completion of the project we will work with the client asset management team to integrate the handover information with operational data that is typically stored in multiple locations, with the as built digital model of the physical asset. A variety of information can be integrated, including static information such as documents, drawings, photographs, maintenance records and asset data. It can also include live information such as data feeds from building and infrastructure-based sensors, this is the beginning of the journey to leveraging the Internet of Things (IoT) and a true Digital Twin.

beca | For further information please contact

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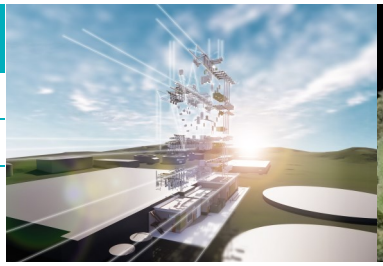
Project Examples | Digital Asset Management

Hamilton City Council – Pukete WWTP Digital Asset Management

Client | Hamilton City Council – City Waters

Project Duration | 2017 - Current

Project Role | Scan to BIM • Asset Information Model Development • Asset Data Schema Development • Asset Data Mapping



Project Description

Beca were engaged by Hamilton City Council (HCC) to implement an integrated BIM to Asset Management solution at their Pukete Waste Water Treatment Plant. Beca were responsible for performing a drone scan of the entire site, performing a laser scan of the exterior and interior of highly serviced buildings and creating a detailed as-built 3D model of the buildings based on the 3D point cloud surveys. The Beca team then integrated the drone site survey information with the 3D models and any associated documentation (manuals, warranties, etc.) and asset data to provide an integrated digital asset management operational environment for HCC.

Approach

The first step in the project was to collate the critical asset and geo -spatial data for the facility. This involved point cloud scanning to capture information on the site services and surrounding areas, to create an as-built 3D model of the facility.

This as-built 3D BIM model then formed the basis of the asset information model. The next step was the integration of the council's various datasets into the model, including a spreadsheet of known asset data, formatted specifically to meet the council's business-as-usual processes. The final step was the provision of a cloud-hosted, integrated interface to the asset information model, utilising the clients Asset Management platform.

Benefits Realised

- Establishment and integration with HCC Asset Management system for centralised asset data, with the ability to link P&ID's, product manuals and warranties to objects within the model
- More efficient workflow for maintaining and updating asset data using desktop and mobile devices
- Improved process for asset team to raise and manage workorders using desktop and mobile devices and links to the 3D models
- Integration with SCADA, GIS, document management systems and existing asset management systems with the Building Information Model.

Awards:

- NZIOB Awards 2019 - *Innovation Award - Highly Commended*
- IPWEA NZ Excellence Awards 2019 - *Excellence in Maximising Asset Performance - Highly Commended*
- ACENZ *(Association of Consulting Engineers New Zealand) Awards 2019 - Merit Award*
- *RICS NZ 2020 Awards - Innovation Award, Highly Commended*

Additional Information: BIMinNZ Case Study | YouTube Video

Lincoln University – Sciences North and Sciences South Projects

Client | Lincoln University

Project Duration | 2020 - 2021

Project Role | Development of Asset Data Schema • Model Review and Reporting • Construction BIM Management

Project Description

Lincoln University have an aspiration to improve the way in which asset related information is delivered during the delivery of new capital projects. As part of the Sciences North Building an asset data schema has been developed to act as a controlled set of data requirements, this sets out the asset data that is required to be delivered progressively throughout construction using Building Information Modelling.

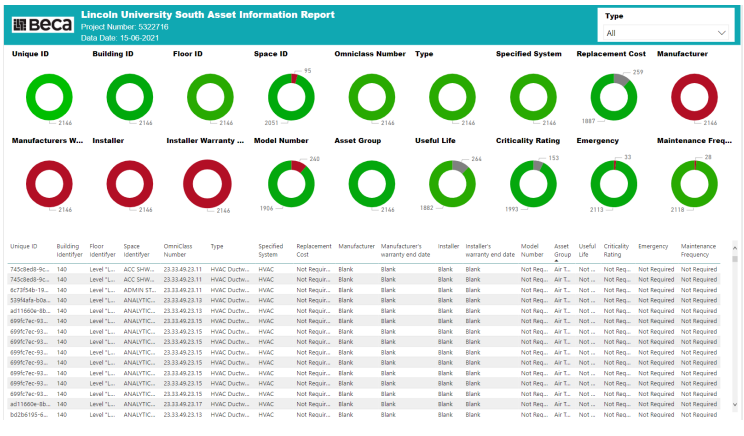
In preparation for the $70m Sciences North Project, Lincoln University commissioned Beca to implement BIM for asset management processes on the $7m Sciences South project. This involves defining the asset data requirements for the construction contractor and implementing a process to progressively track and report on the asset data completeness throughout construction.

Delivering this project included undertaking the following activities:

- Conducting client engagement workshops to clearly understand and define project and BIM requirements
- Using asset data compliance checks (end of design
- Developing an Asset Data Schema, aligned with Omniclass 2012 to communicate asset data requirements and make sure that the 3D models are structured to deliver asset data
- Reviewing and reporting on the construction Building Information Models
- Reviewing and reporting on asset data completeness

Benefits Realised

- This project helped in defining asset data requirements for the construction contractor and implanted a process to track and report asset data completeness throughout the project and help transfer the same into O&M phase. This project also aims to upgrade the model to be used as an "As-Built model".
- The virtual reality models by the team provides an enhanced design visualization experience as the project progresses.



Example Asset Data Completeness Dashboard

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