

Principles for BIM Implementation



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Introduction

Digital construction of infrastructure is referred to as Building Information Management (BIM), Digital Engineering, Asset Information Modelling or Virtual Design and Construction. The most recognised term is 'BIM', which we use in this document, which aims to improve understanding and adoption of these principles.

BIM offers a digital representation of the physical and functional characteristics of a building, piece of infrastructure or an environment. It serves as a shared knowledge base of information about an asset throughout its lifecycle to inform decision making, from strategic appraisal and planning, through design and construction and on to operation, maintenance and renewal.

BIM facilitates a collaborative way of working, using digital processes so that more productive methods of planning, designing, constructing, operating and maintaining assets are used through their lifecycle.

Several councils in New Zealand have recognised the benefits of BIM in the delivery and management of infrastructure assets for its potential to drive efficiency, value for money, productivity, innovation and safety.

Christchurch City Council recognises the opportunities and benefits of BIM, especially its contribution to delivering on our Strategic Priorities. The principles outlined below support the effective use of BIM across the council. They focus on maximising the benefits of applying BIM to infrastructure projects and in the consenting and compliance area, but also support the development of BIM capability across the Council and in the wider industry.

Audience and application

The Christchurch City Council – Principles for BIM Implementation has been produced for Council officers to use.

The principles apply to those involved at any stage of the lifecycle of new assets, including the planning, procurement, design, contract management, construction, operation or maintenance of the assets.

While we have already used BIM for some major projects (eg Tūranga and the Metro Sports Facility) the principles are a pre-cursor to our future BIM policies and offer industry confidence that we are committed to the staged adoption of BIM over the next three to four years.

Scope

These principles apply to:

- All Council units
- The design, consenting, delivery and asset management of all new major construction projects, including any for which a detailed business case is given from 1 July 2020, and those assets for which significant alterations, extensions, renovations and/or repurposing is planned
- Projects where individual Council units see value in applying BIM to manage existing assets or projects.
- Building consent applications lodged after 1 July 2023 where applicants are able to submit BIM models that meet Council's minimum requirements

Objectives

- To provide a framework that enables the use of BIM for the full lifecycle of infrastructure projects, delivering measurable benefits which include:
 - more efficient and on-time project delivery
 - reduced project risk
 - improved safety
 - improved built outcomes
 - improved asset management
 - improved whole-of-life management of digital information assets/public records and reduced costs.
- To increase capacity and capability within the public sector to maximise value from the use of BIM on Council infrastructure assets.
- To identify ways for BIM to be incorporated into the regulatory and procurement environments.
- To promote consistency in information management and data interoperability for Council infrastructure projects to facilitate a harmonised approach with industry.

Principles

Open

Council will use an Open BIM approach (open data standards that are interoperable and archivable) so that BIM information, systems, standards and processes, enable interoperability and interconnectivity. BIM information will connect with other relevant information (e.g. geographic information systems and asset management systems) and offer easy and efficient accessibility and re-use.

Managed

BIM information will be managed securely at least for the life of the infrastructure asset (from conception to demolition or disposal) in a central repository by the asset owning/maintaining unit.

BIM information will be actively managed as an information asset/public record for as long as it is required to be kept for business, legal, access and other purposes. Active maintenance will include ensuring the records remain current, discoverable (avoiding duplication or recreation) and useable (avoiding data loss or obsolescence).

Effective

Council will use BIM for new infrastructure projects, for existing infrastructure and for building consents, as appropriate.

We will work collaboratively with all New Zealand jurisdictions and the private sector to drive best practice in the use of BIM on Council initiated public infrastructure.

We will utilise industry best practice and recognise asset class-specific standards for infrastructure projects in consultation with Standards New Zealand and relevant international standards, such as ISO 19650.

Council units will continuously improve their BIM capacity and capability. This will include publishing agency-endorsed information and BIM management plans that outline the use of federated models which include scheduling, costing and the use of digital models for building consenting and asset management.

Supported

The Building Consenting and Asset Management Units will assist and facilitate internal capacity and capability building and the development of information requirements in collaboration with other units. The Asset Management Unit will continue to be the lead unit for administering the central repository for built asset information on behalf of Council.

We will work with industry, education, training and research providers to support the development and maintenance of a BIM-skilled workforce including Council officers.

These principles will be incorporated into and align with relevant infrastructure project planning, procurement and assessment frameworks across Council.

Implementation and alignment of principles

- The Council will progressively implement these principles on major infrastructure projects from accelerating the commitment from 1 July 2020 as an integral part of meeting our strategic priorities.
- Unit Teams are encouraged to progressively implement the principles on existing assets and projects where they see value in BIM to manage them.
- Beyond 2023 the application of these principles will be progressively expanded to all built assets and certain building consent applications.
- Relevant Council units will be required to develop a BIM implementation plan and report progress annually.
- To evaluate the outcomes of implementing BIM, the continuous improvement will be measured and reported on, with an initial focus on performance metrics from projects.
- These principles align with the NZ BIM handbook to ensure consistent approaches for industry across jurisdictions. Other industry and Council BIM initiatives will be incorporated where appropriate.
- Council will ensure contractual arrangements provide for the delivery of a project information model of the asset to the requirements of the asset owner/maintainer when the asset is handed over.
- These principles will be reviewed annually by Council to incorporate project learnings and developments in national and international standards.