Wellington City Council

Transport

Asset Information Requirements

Absolutely Positively **Wellington** City Council
Me Heke Ki Pōneke

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Version	Date	Author	Approver
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Wellington City Council Transport Asset Information Requirements

This Asset Information Requirements (AIR) document defines the information requirements for transport assets being built for or vested in Wellington City Council (WCC). It covers delivery and handover, of information about physical assets on the land transport network and urban environment. We are legally required to have procedures in place to ensure our information and data assets are well-managed.

Introduction

Purpose

The purpose of the AIR is to define what asset information is required at the completion of a subdivision or capital project. Capturing and sharing the essential asset information will allow efficient operation, maintenance and management planning for the assets.

Outcomes

The production and delivery of required asset information will lead to the following outcomes:

- All parties have a clear understanding of the asset information required, reducing the risk of misaligned expectations.
- Efficient maintenance and operation of the asset, by ensuring the right information about the asset is captured, stored and accessible.
- Improved decision-making, by knowing how reliable, accurate and up to date the asset information is, those responsible for planning, maintaining, and operating the asset can make the best decisions, leading to potential cost savings, less disruption and extension of the operational life of the asset.
- Applying a consistent and aligned description of the assets in the urban environment means information can be easily shared across the industry

Audience

The intended audience of this document are all teams responsible for the planning, delivery, maintenance, and operation of a transport asset, and includes among others, the asset owner - WCC, Mana Whenua, appointed parties such as suppliers, consultants, contractors, subcontractors, procurement, maintenance, and operation teams.

Future Updates

This document will evolve over time to reflect changes in standards, corrections, omissions and continuous improvement as the industry, its assets and technology continue to evolve. This document will be updated accordingly and republished as needed.

If you have any feedback, please email: transportassetsdata@wcc.govt.nz

References

The references below were used in the production of this document:

Asset Management Data Standard | NZ Transport Agency Waka Kotahi

Wellington Water Asset Information Requirements (2025)

Let's Get Wellington Moving Asset Information Requirements (2023)

KiwiRail Digital Engineering - Asset Information Requirements (2022)

Centre for Digital Built Britain – Cambridge University – AIR Guidance (2020)

UK BIM Framework – BIM Standards, Guides & Resources

Uniclass - Wikipedia

What is uniclass? by NBS

Information Systems

Asset Management System (AMS) for Transport assets

Wellington City Council (WCC) uses Thinkproject ASSET & WORK MANAGER (formerly known as RAMM) as the Asset Management System (AMS) for Transport assets. WCC have aligned transport asset data within the AMS to the AMDS.

ASSET & WORK MANAGER | Simple management & maintenance

Information Standards

Asset Management Data Standard (AMDS)

New Zealand's transport sector has implemented the AMDS which is a data structure standard. Development of the standard and implementation approach is a collaboration between the New Zealand Transport Agency (NZTA) Waka Kotahi, Road Controlling Authorities (RCAs), maintenance contractors and service consultants. The AMDS provides us the minimum data requirements for data sharing, including asbuilt data.

Detail of the AMDS is available on the Waka Kotahi website, link below.

https://www.nzta.govt.nz/roads-and-rail/asset-management-data-standard/

Uniclass 2015

Uniclass 2015 delivered by the UK-based National Building Specification (NBS) is a unified classification structure for the built environment, covering all sectors and roles, through any stage of the asset lifecycle. Structured to be in accordance with ISO 12006-2 (Building construction – Organization of information about construction works – Part 2: Framework for classification) means that is suited to use in an international context and can be mapped to other schemes.

Uniclass provides a classification system for the construction industry, structuring project and asset information that is essential for the adoption of Building Information Modelling (BIM). It uses a hierarchical set of tables to group similar things together, arrange them consistently, and make searching easy. It allows assets to be considered at a high level, and progressively classified and coded with more detail to the most appropriate level of asset information needed.

AMDS Mapping to Uniclass

AMDS Version 1.4 includes supporting documentation for AMDS Uniclass Guidance which provides a framework to enable the recording of Uniclass classifications against the AMDS standard inventory items to ensure consistency across the NZ transport sector. See the documentation here, look for the AMDS Supporting Documentation Section for the AMDS Uniclass Guidance.

Data standard release - Version 1.4 | NZ Transport Agency Waka Kotahi

The Asset Groupings map can be seen here AMDS-Asset-Groupings-Diagram-RV-1.4

The way NZTA currently intends us to use the information for Asset Management is as a single asset. Using the example of a bridge, the assets are categorised into three levels

1. AMDS Class: The highest AMDS asset group which holds multiple Asset Classes (i.e., Structure). Data at this level is generalised and can easily be added to the asset attribute data with a bulk update.
2. Asset Type: An asset which constitutes multiple model components within a subgroup (i.e., Bridge). This is the level at which the asset data should be captured and aligns to the AMDS schema.
3. Asset Element: A single element within a subgroup of components (i.e., Pier). There are many instances of single element assets and generally the AMDS schema provides an asset schema for them

Industry Foundation Classes (IFC)

The Industry Foundation Classes (IFC) is a CAD data exchange schema file, an open file format used by BIM. A model file may be created in the IFC formats, with an element for each AMDS asset, and each described by Uniclass codes. There is a mapping between the Uniclass classification structure and the IFC classification structure, should this be needed refer to the mapping scenarios.

The uniclass codes can be mapped to the AMDS attributes, lookup values and additional attribute detail added as necessary. Such data could be shared at different stages through the build and as built stages.

Asset Information Overview

This section describes the asset information models and types, how information is used by WCC and its partners, and the core asset information systems.

Information Models

There are two types of information models (data models) that are used to receive, manage, and maintain over the course of the project that link to the Asset Information Management Systems of the Asset Owners and partner organizations. These two data models are the Project Information Model (PIM) and the Asset Information Model (AIM) and reside in a Common Data Environment or shared file structure.

Project Information Model (PIM)

This includes all the information produced during the capital delivery design and construction phases.

- At the start of a project the existing asset data, condition and maintenance history data can be provided from the Asset Management System.
- As the project progresses the Design Intent Model and Issue for Construction Models are included.
- During the project many types of information are added including contract schedules, cost estimates, specifications and reports.
- It is a requirement that the final construction model be digitally updated with the spatial and attribute asbuilt changes to create a fully digital asbuilt drawing.

Asset Information Model (AIM)

The AIM is based on the asbuilt information and includes the completed PIM, and the other asset documentation required for the ongoing management, maintenance, and operation of the asset during the service lifecycle of the asset. This information will be used to update the Asset Management system. The below items should be included

- The PIM
- The fully digital asbuilt. It is a requirement that the final construction model be digitally updated with the spatial and attribute asbuilt changes to create a fully digital asbuilt model / drawing files. See the Information Delivery section for data file formats.
- The asbuilt asset data provided needs to include detail for new assets built and define any asset removals.
- A PDF of the final asbuilt for archiving

- Asset handover document
- Asset documentation

Asset Information Types

The three main types of asset information that contribute to the Asset Information Model (AIM) are:

Asset Attribute Data

The asset data is 'What is it' data. It is the non-spatial, descriptive attributes for an instance of an asset, e.g. a Barrier may have a BarrierType of 'W-Beam'. All the asset attribute data should be provided as described in the AMDS Asset Tables.

For as built purposes, the attribute data must be updated to reflect any changes after the Issue For Construction.

See the AMDS Common xlsx for detailed guidance on

- Attributes which apply to all asset classes

See the AMDS Asset – Asset Type xlsx for detailed guidance on

- Attributes which apply to individual asset classes in addition to the Common attributes
- The Code Lists applicable to the attributes
- The required formats and precision for input data and numeric fields.

If the design model has the assets classified by the uniclass Asset Type and Asset Location

- The elements can be easily separated into the Asset Type groupings needed for the AMDS data by querying the uniclass codes within the model database and using spatial verification tools.
- The AMDS attributes can be added and as far as possible using bulk updates made for the required asset attribute data to each element for the AIM handover.
- There may still be a small proportion of assets that require manual input however this approach intends to minimise these scenarios.

Asset Geospatial Data

Geospatial information is the 'Where is it' data. Provided in CAD, GIS or other spatial formats, it contains the location of assets within the network. In brief location is needed in three dimensions (3D) and this is mandatory for AMDS, this recognises that the future demand is for 3D, for Smart Cities, Digital Twins, BIM or City Modelling.

For as built purposes, the spatial data must be updated to reflect any changes after the Issue For Construction.

See the AMDS Geometry Guidance for detail on

- Horizontal Datum: New Zealand Geodectic Datum (NZGD2000)
- Vertical Datum: New Zealand Vertical Datum 2016 (NZVD2016)
- Projection: New Zealand Transverse Mercator 2000 (NZTM2000)
- Positional data collection method / accuracy
- Survey metadata

See the AMDS Common .xlsx for detailed guidance on

- Allowable geometry types for each asset class; Polygon, Linestring or Point, these are ranked 1 (preferred) to 3 (acceptable)

Asset Documentation

The asset documentation is the 'How does it work' data. It includes design and construction documentation, information from the construction needed to operate and maintain an asset through its lifecycle. Some examples of what it may include the below, there could be additional items too:

- Environmental considerations
- Resource consents or any other consents
- Engineering data and design parameters
- Construction testing records
- Risk assessments and controls
- Safety in design reports
- Asset life, condition and performance targets
- Operating costs
- Service and maintenance requirements and schedules
- Replacement parts supplier contact details
- Warranties
- Code of compliance certificates
- Producer Statements

Linking the Information Types

Depending on the data supply format, if the asset information types are to be supplied separately, we need to be able to link up the Attribute data, Geospatial data and Documentation on its import to the AMS (thinkproject Asset and Work Manager / RAMM).

See the document Asset Management Data Standard (AMDS) & Uniclass Coding Guidance Asset Management data Standard AMDS & Uniclass Coding Guidance AMDS Structure section for detail of how to do this.

An asset unique number/asset ID should be generated for each element post Issue for Construction (IFC) from the design models. It is acknowledged that there will be numerous design changes and iterations prior to the IFC gate, hence it will be logical to generate asset IDs at the end of IFC model production. This is the unique identifier that should be included in the Asset Attribute Data, Asset Geospatial Data and the Asset Documentation. This step is crucial in managing the data correctly.

Assets generated at this stage will be recorded and changes will be monitored for modifications. If assets are removed, added, changed, or remodelled in construction a new asset ID may be generated. The intention is to carry the asset ID over from design into construction wherever possible.

Information Delivery and Timing

The main project milestones for asset information sharing are the Design, Issue for Construction and Substantial Completion stages. At these three milestones, there is data that needs to be shared. Refer to the Data File Formats section below and files or file links should be emailed to TransportAssetsData@wcc.govt.nz

Design

At the start of the design phase, submission of a Project Area is required and will enable Existing Asset data to be extracted from the Asset Information System and provided to the designer.

As the design progresses, several stages of design occur, 30%, 70% and 100% Issue For Construction (IFC) designs are typical.

Issue For Construction (IFC)

Once finalised the IFC / design drawings are shared.

Substantial Completion

On substantial completion the fully digital asbuilt model / drawing files are shared.

Note the AsBuilt must provide detail of all assets Removed, Decommissioned or that have changed to Not in Service. This data can be provided via update of the Existing Asset vlAssetStatus attribute as provided at the start of the design phase. Update options for vlAssetStatus is as the specified in the AMDS Common.xlxs.

Data File Formats

To facilitate standardised asset data delivery all asset data provided is to be using formats in the table below. The following file formats are accepted:

Type	File Formats	Notes
Planned Project Work Area	Planned Project Work Area Data Spec	Polygon geometry with planned dates, as best available at the time
Design Models	.ifc, .dwg, .rvt	Preferred, both the design model and a PDF version for archiving must be provided
Attribute data	.xlsx, xml, .csv	Must include ID that matches spatial data
Spatial data	.json, .gdb, .dwg	Must include ID that matches attribute data if it is not included within the file
Documents	.docx, .pdf	
Drawings	.dwg, .pdf	Both the drawing file and a PDF version for archiving must be provided
Media	.jpg, .png, .mp4	Images should have EXIF location and metadata enabled

Other formats may be considered, contact WCC by email transportassetsdata@wcc.govt.nz

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