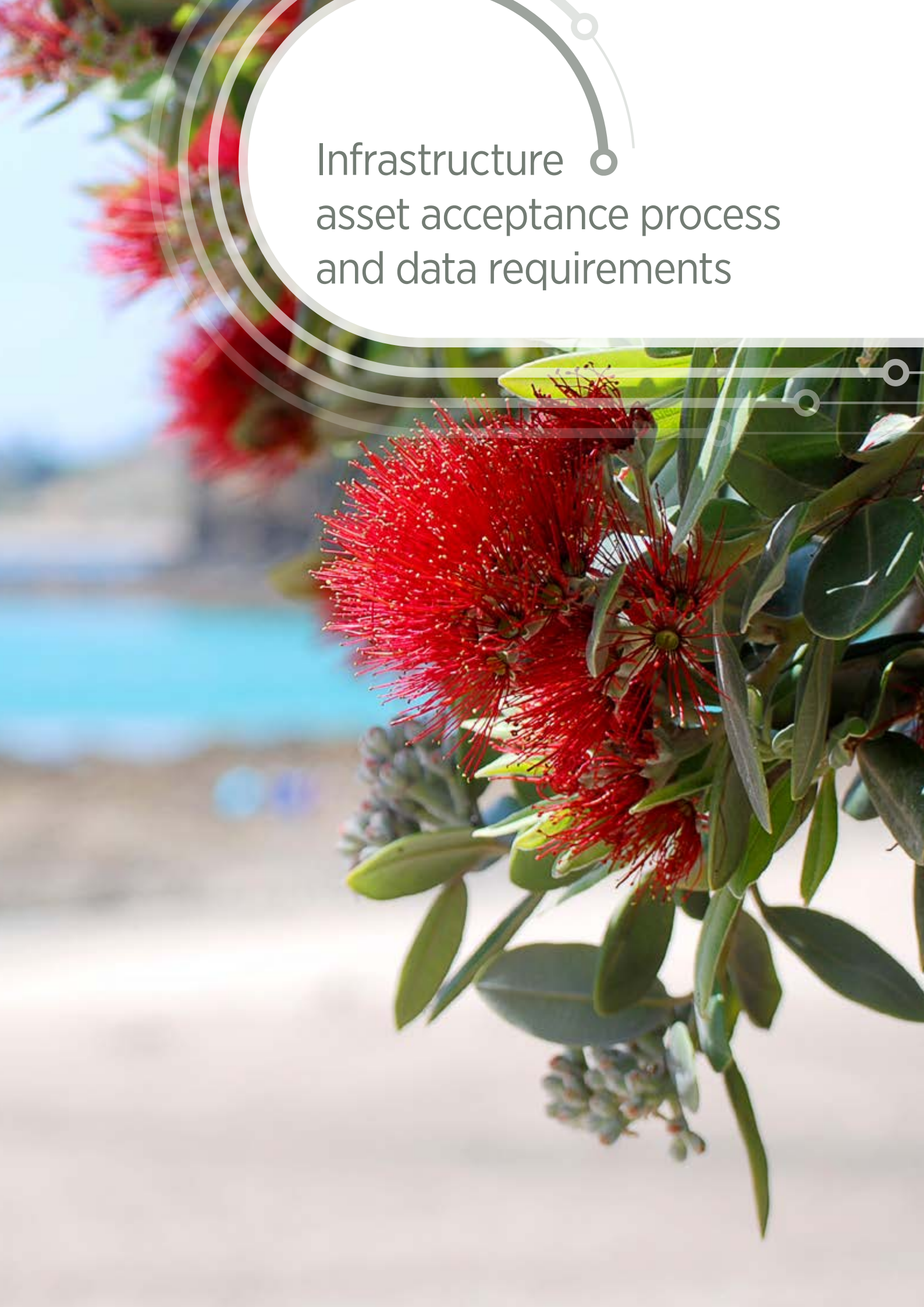
Infrastructure asset acceptance process and data requirements



In this chapter

01 Introduction

IMPORTANCE

Asset data represents a significant investment for Auckland Council and Auckland Transport. It provides vital information so that assets can be managed efficiently and cost effectively.

PURPOSE

This chapter sets out to clarify the management of asset data and asset related information for Auckland Transport. It is a blueprint for the building and management of asset databases that enable comprehensive forward planning and robust decision-making.

The goals of this chapter are to:

- Set out the general principles of asset data specification and requirements surrounding the creation, renewal, validation and disposal of transport infrastructure assets.
- Provide developers, contractors and consultants with clear guidelines, data standards and submission procedures on all transport assets in relation to infrastructure management and development.
- Provide a mechanism for feedback and consultation with developers, contractors and consultants involved with development and management of transport infrastructure.
- Provide worked examples of the submission of as-built plans.
- Provide a mechanism and process to validate existing transport assets.
- Ensure consistency of standards for all developments (vested and Council projects) involving transport assets.
- Begin enabling the adoption of a Digital Engineering Framework (DEF) and associated technologies as part of streamlining and digitising asset handover processes.

SCOPE

This chapter covers the as-built and attribute data needs of Auckland Transport only. Entities such as Water Services, Community Facilities, Parks, Geographic Information Systems (GIS) and various electricity and communication network owners will have their own requirements.

WHEN IT APPLIES

The guidelines in this chapter apply when assets are received from developers, contractors, consultants or any other parties involved in:

- New capital development (creation of new assets as part of

Auckland Transport or Council capital works programmes).

- New land development (vested assets as part of new development works).
- Asset renewals (rehabilitation, refurbishment and replacement).
- Asset validation (validation of existing assets, e.g. asset type, location, condition).
- Asset disposal (decommissioned, deleted and abandoned assets).

The focus is on ensuring that all required asset information and as-built plans related to private developments and 3rd party or Auckland Transport led changes to the public road or transport network, are submitted when required and no delays occur in the Council approvals, i.e. in the issuing of a 224(c) certification for development projects (Auckland Council) or practical completion certificate for Auckland Transport projects.

LATEST VERSIONS

With the constantly evolving nature of asset management processes and the ongoing addition of new assets and asset data to the Auckland Transport network, the provider of the as-built information must obtain the latest version of this Engineering Design Code and forms relating to asset data collection. These will be available from Auckland Transport project managers or Auckland Council regulatory engineers, or by contacting Auckland Transport Asset Acceptance Team (asbuiltinfo@at.govt.nz).

Auckalnd Transport (AT) is undertaking a roadmap to develop a Digital Engineering Framework (DEF) and adopt associated technologies inline with AEC industry trends and emerging digtal technologies. Associated guidleines and requirements will be published and made avaiable in due course.

PUBLIC TRANSPORT SPECIFICATIONS

Because of the diversity in size and complexity of public transport projects, the specifications below for public transport are general and give guidance only to the scope and nature of as-built submission for public transport projects. For all public transport projects, Auckland Transport Asset Acceptance Team should be consulted at an early stage for as-built plan and asset data requirements. Auckland Transport Asset Acceptance Team will confirm that either:

- The specifications in this chapter are suitable for the as-built submission for the project.

OR

- The as-built submission process to Auckland Transport will need to be modified to suit the project size and/or complexity. Auckland Transport Asset Acceptance Team will provide the necessary specification in consultation with project managers.

OTHER GUIDES

Also read:

- Auckland Transport's Asset Ownership Guidelines
- Auckland Transport Database Operation Manual (under review).
- Asset Management Data Standards
- Digital Engineering Framework (under review, to be published)

02 Definitions

PURPOSE

This section clarifies some of the key concepts and references in this chapter.

The asset information for Auckland Transport assets is managed in two databases with with specified as-built plan and asset data requirements.

- **Roading assets.** Road Assessment and Maintenance Management (RAMM) software includes a database, map interface and various routines for managing roading-type assets. In this software, all assets are located spatially according to their distance along a road centreline from the start of the road (displacement), and how far the asset is from the road centreline (offset distance). Spatial data can also be provided directly in NZTM coordinates as Well-Known-Text geometries, and if available, this format is preferred. Associated asset data is stored in tables.
- **Public transport assets.** SPM Assets software provides a database and various routines for managing property-related assets. Asset data is stored and is viewable in a hierarchal system classification.
- **Common Data Environment (CDE).** An operational CDE has been established alongside ATs asset management systems for managing all asset handover artefact's and associated designs including 2D/3D drawings and models.

2.1 Asset classes, components and attributes

ROADING ASSETS

For data collection and storage purposes, roading asset tables are separated into asset classes, e.g. pavement, bridge, street light. Each asset class is associated with asset components, e.g. pavement base, pavement subbase. The components, either single or grouped, have attributes, e.g. length, type, install date.

PUBLIC TRANSPORT ASSETS

Public transport assets are separated into asset classes (e.g. rail station, wharves), asset types (e.g. interior finishes, external fabric), and asset components (e.g. external walls, plumbing).

HOW THEY MUST BE SHOWN

Assets and associated attribute data must be shown spatially, with coordinates and levels, on as-built plans, or they must be listed on standardised asset data sheets, or may be required on both.

Developers' representatives, consultants and Council staff must be aware of the classes of assets required, along with their associated attribute data and as-built plan requirements.

TABLE 1 EXAMPLES OF CLASSIFICATION OF ROADING ASSETS AND THEIR COMPONENTS

Asset Class	Component	Asset Attributes
Pavement layer	Base course Subbase	Road name, start and end displacement, length, width, thickness, material, layer date, activity type
Footpath	Surface	Road name, start and end displacement, type, length, width, material, install date
Bridge	Bridge surface Bridge deck Bridge foundation	Road name, start and end (m), bridge type, length, width, material, install date, activity type
Street light	Light Bracket Pole	Road name, displacement, side, offset, make, model, purpose

TABLE 2 EXAMPLES OF ASSET DATA HIERARCHY: PUBLIC TRANSPORT PROJECTS

Asset Class	Asset Type	Asset Components
Rail stations	Exterior works	Access, fence, sign, paving
	External fabric	External wall, roof, external door, stairs
	Interior finish	Ceiling finish, internal wall, fixture, fitting
	Service	Electrical, mechanical, fire plumbing
	Non-property	Bridge
Wharves	Coastal	Structure, pontoon, gangway

2.2 Defining asset activity type

DEFINITION

Asset activity is the work undertaken on an asset or group of assets to achieve a desired outcome. It is important to understand the role of asset activity to define the asset data and as-built requirements.

CATEGORIES

Asset activity is broken down into the following categories:

- **New** | Creation of new assets through capital works
- **Vested** | New growth or land development from third parties (Private Developers, NZTA, Auckland Council, Kiwirail etc.)
- **Renewal** | Capital replacement/rehabilitation works
- **Disposal or Deletion** | Decommissioned and abandoned assets
- **Validation** | Validation of existing asset and/or attributes, e.g. material, size, location, etc.

2.2.1 New capital works: development activity

DESCRIPTION

This activity is used to cover the creation of new assets, to provide or improve the level of service or provide a commercial return. It applies to one or more of the following works:

- Capital works that create an asset or component that did not exist in any shape or form

OR

- Capital works that upgrade an asset component beyond its original capacity or service potential.

EXAMPLES

Roading

- New road construction additional to the existing roading system, including widening.
- New bridge construction where such a structure did not previously exist.
- New footpath construction, traffic sign, etc.
- Road or bridge reconstruction that increases its capacity or size.
- Seal extension of existing unsealed roads.
- New street furniture such as a bus shelter, litter bin, seat, etc.

Public transport

- New station construction or station upgrade with additional facilities.
- New wharf construction or complete upgrade to facilities.

2.2.2 Vested assets: new growth land development activity

DESCRIPTION

This activity covers the new assets created within a land development undertaken by a developer and vested in Auckland Council on completion. It applies to new development works that create roads and associated assets that did not previously exist in any shape or form.

EXAMPLES

Roading

- Vesting of a new road that has been constructed as part of a new development.
- Installation of new street lights by the developer to be vested with Council.

Public transport

- Installation of bus shelters by a developer.

2.2.3 Asset renewal activity

DESCRIPTION

Asset renewal covers works required to restore an asset component, to ensure that the required level of service can be sustained or delivered.

EXAMPLES

Roading

- **Reseals** | Resurfacing of existing sealed pavement or footpath under one of the following work categories:
  - Maintenance chip seals. Reseal is applied to an established sealed road, including second-coat seals and void-filling seal coats. Generally, these are planned renewal works.
  - Resurfacing of existing footpaths of at least 10m long.
  - Thin asphaltic surfacing. New wearing course on a structural asphaltic pavement, slurry seals on roads at least 20m long.
- **Replacement works** | replacing of existing assets under one of the following work categories:
  - Concrete footpath replacement
  - Drainage replacement (kerb & channel, catchpit)
  - Structure (minor structures included) replacement, etc.
- **Rehabilitation** | The rehabilitation of pavements which does not increase the existing seal width. Generally, rehabilitation works is planned renewal. However, formation widening may be included if it is necessary to give lateral support to the pavement. These works include:
  - Treatments involving ripping and reshaping, including stabilisation of the existing pavements.
  - Pavement smoothing, including replacement of kerb and channel and removal and replacement of the existing pavement material.
  - Thin overlays less than 30mm deep or granular overlays more than 70mm deep.
  - Traffic sign or signal or control system replacement with the same size components.

- **Bridge reconstruction** | This category applies to existing bridges, and major culverts (classified as bridges) having a waterway cross section area greater than 3.4m^2. Work includes bridge renewals such as replacing a structurally inadequate bridge.
- Road reconstruction. Realignment and re-grading of sealed roads.

Public transport

- **Replacement works** | Replacing of existing assets such as seats, lights, etc.
- **Rehabilitation** | The basic rehabilitation of existing assets.

2.2.4 Asset disposal or deletion activity

DESCRIPTION

The disposal of redundant or replaced assets is an ongoing project for Auckland Transport. This may include the abandoning of footpaths or removal of streetlights or, for public transport, the disposal of diesel locomotives after the introduction of electric units. This is applicable to any assets that are being removed or replaced at the end of their useful lives.

2.2.5 Asset validation activity

DESCRIPTION

The validation of existing assets is an ongoing activity of Auckland Transport. In general, this involves the validating of existing or missing asset and/or attributes for items such as signs, seats, pavement surface, and street lighting, and associated asset attribute data such as material, length, type, etc.

2.3 Overview of plan and asset data as-built requirements

The as-built asset data requirements of Auckland Transport, based on asset activity, are shown in Table 3 below.

TABLE 3 PLAN AND ATTRIBUTE REQUIREMENTS

Activity	Construction Plan	As-built Plan (Digital Format)	RAMM Data/ Asset Data	Survey Office or Deposited Plan	Engineer Certification
New capital works	✓*	✓	✓	✗	✓
Renewal works	✓ *	✓ ***	✓	✗	✓
Vested assets (new development projects)	✗ *	✓	✓	✓	✓
Disposal of assets	✗	✓	✓ **	✗	✓
Validation of assets	✓	✓	✓	✗	✓

✓ Asset Information is required (mandatory)

✗ Asset Information is not required

* Approved construction plans, unless these are already held by Auckland Transport or Auckland Council.

** Only asset type and position, date of disposal and reason required.

*** Renewal work is the substantial replacement of the asset or a significant asset component to its original size and capacity, therefore, no as-built plans are required for road reseals, footpath renewal, kerb and channel renewal, unless the renewal work required a specific design. For all assets that don't require specific design, the RAMM forms should be accompanied by a site sketch clearly showing the location and extent of the work.

03 As-built plan specifications and requirements

3.1 Purpose

REQUIREMENTS

For asset vesting, different types of plans are required as follows.

- Construction plans are required only when Auckland Transport does not have access to them as approved plans. Construction plans are used for clarifying the work carried out and shown in as-built plans.
- 2D/3D As-built plans/drawings and models (BIM) are required in digital format to enable the extraction of road centreline information for the RAMM database, or extraction of CAD data for buildings, and for use in data quality assurance. The as-built plans show the engineer's certification and are archived for future use, and made available to Auckland Transport project managers on request.
- Survey office plans are used to provide new boundary information to other parties, and confirm the accuracy of boundaries on as-built plans.

CONSTRUCTION AND AS-BUILT PLANS

For all Auckland Transport generated capital projects, both new and renewal, and new vested assets from developers, construction plans and approved as-built plans together with the asset data and associated BIM models must be submitted.

Construction plans (known as "engineering drawings" in resource consent conditions) must be submitted according to Auckland Transport requirements. Provided that approved construction plans have previously been submitted to and are held by Auckland Transport or Auckland Council, copies are not required with as-built submissions.

Similarly, as-built plans and asset attribute data must be submitted for all validation activities, including BIM models.

SURVEY OFFICE PLANS

Survey office (SO) plans or deposited plans (DP) (whichever is applicable) are required whenever there is a change to property parcel boundary, e.g. land has been acquired for road or reserve. The survey office plans or deposited plans should be submitted in accordance with Land Information New Zealand (LINZ) specifications.

3.2 As-built plan specification – roading projects

All as-built plans for roading projects must contain the information shown in Table 4 below. Assets must be plotted in digital format as points, lines or polylines, or polygons, where any polyline or polygon represents an asset with a single set of attributes. Each asset class should have its own layer.

TABLE 4 INFORMATION REQUIRED ON ROADING AS-BUILT PLANS

Category	Asset Class	Comments
Asset	Barrier	Includes guardrails, fences
	Berm	Berm includes the area between edge of road and road reserve boundary, excluding footpaths, vehicle crossings, surface water channels and other assets
	Bridge	Extents of bridge, pedestrian bridge, culverts larger than 3.4m2 cross sectional area
	Crossing	Vehicle crossings and pedestrian crossings
	Footpath/cycleway	Footpaths, shared footpaths, cycleways
	Islands	Includes side islands, roundabout islands
	Minor structures	Including speed humps, bollards, seats
	Pavement layer	Undercut areas to be shown
	Retaining wall	
	Road marking	All lines and markings
	Signs	
	Surface water channel	Includes kerb and channel
	Street Lights	
	Stormwater	Catchpits, manholes as points, stormwater pipework as polylines. Stormwater (including rain-gardens and/or other stormwater devices) to be as per Auckland Council Healthy Waters Unit as-built specifications.
	Signals	Positions only required – signal asset data to be provided directly to Auckland Transport Operations Centre/Integrated Transport Systems team.
	Road surface	Includes bus stops, parking areas
Locality	Property parcel & road boundaries, road names, house numbers	Show the site relative to property boundaries and existing public and private roads. Show house numbers, or lot numbers for new developments. Show all private roads within a project or development.
Labels	Asset labels	Label each asset, e.g. footpath, street light, sign, island etc., either directly or by using a legend.
	Road Centreline Chainages	Centreline showing chainages at 20m maximum intervals. This must be the centreline that the RAMM data sheets reference for displacement (chainage), side and offset.
References	Drawing title (project or development description) Plan number Contract or development number & details Scale Date of plan North sign	If a draft is prepared, the plan must be clearly labelled as such, and not submitted as an as-built.
Certification	The words “As-built Plan” and chartered professional engineer/registered surveyor’s certification of accuracy of plan	A signed certification statement is required on all as-built plans, and structural drawings.
Index plan	Full work area with as-built sheet boundaries shown	Required when several as-built sheets make up the as-built plan.
Cross sections	New road cross section	Typical road cross sections only.
Levels	Stormwater	Lid levels and invert levels as per Auckland Council Stormwater as-built standards.

DIGITAL FORMAT

For all capital works (new and renewal) and for any assets from a new development, as-built plans must be provided in digital format (BIM IFC, DWG or DXF files on CD or by email).

The following requirements apply to digital formats:

- All dimensions are to be in millimetres, and all levels and lengths in metres.
- All locational data must be plotted in New Zealand Transverse Mercator 2000 (NZTM 2000) coordinates in terms of New Zealand Geodetic Datum 2000 (NZGD 2000) datum as approved by Land Information New Zealand (LINZ).
- All graphical data to be located/plotted to the following accuracy:
  - X & Y coordinates ±50mm
  - Z coordinates ±10mm (e.g. lid level) in terms of the NZ Vertical Datum 2016
  - Invert levels ± 20mm.
  - Digital plans must show all required information. If external reference files, overlay or non-standard font shape files are required for this, then these should also be provided.

"CERTIFICATION"

The as-built plan (generated from the digital format) and structural drawings must include a signed certification statement by the chartered professional engineer or registered surveyor, Licensed Cadastral Surveyors of Registred professional surveyors responsible for the as-built.

The as-built plans must be submitted on standard ISO metric plan sheets, drawn at scales 1:100, 200, 250, 500 or 1:1000 as appropriate or as specified by the Council. The information should fit on one sheet where possible. If this is not possible at A3 size, multiple plan sheets must be submitted with an index sheet. On agreement with Auckland Transport, as-built plans may be saved and submitted in portable document format (pdf) for ease of transmission.

VALIDATING

If a validating process for existing assets for any particular project is required, an accurate as-built plan (sketch or aerial photo with appropriate dimensions or location marked from the existing known assets) and asset information will be acceptable.

ROAD CENTRELINES AND WORK ON EXISTING ROADS

Road layout plans must show road centrelines with displacements marked at maximum 20m intervals. Centrelines should start and end at the centrelines of other roads where possible, and should be referred to in the RAMM data sheets for locality. For all work that takes place on existing roads, contact Auckland Transport (asbuiltinfo@at.govt.nz) to obtain the latest RAMM database carriageway displacements, for plotting correct road centrelines on as-built plans.

SHOW ASSETS AND ROADS

Existing assets and assets to be removed or abandoned must be shown on as-built plans. All private roads affected by the as-built work must also be shown on the plans.

OTHER ASSET CLASSES

If any new asset classes are identified that are not covered by this chapter, contact Auckland Transport (asbuiltinfo@at.govt.nz) for details in regard to as-built plans and attribute requirements. For any assets not covered by this chapter that are to be vested with Council, as-built plans and attribute information should be discussed with Auckland Transport representatives prior to submission (asbuiltinfo@at.govt.nz).

STREET LIGHTING - SPECIFIC REQUIREMENTS

It is a New Zealand Electricity Authority rule that all new street light information is entered into the RAMM database before the street lights are commissioned. This allows for the calculation of electricity usage charges.

Street lights within the greater Auckland area are managed by AT Street Lighting, who will carry out an on-site inspection and approve commissioning of new lights upon receipt of the following:

- The street light design plan showing new street light positions.
- Street light RAMM data.
- The Record of Inspection for the installation.
- The Certificates of Compliance for each street light.

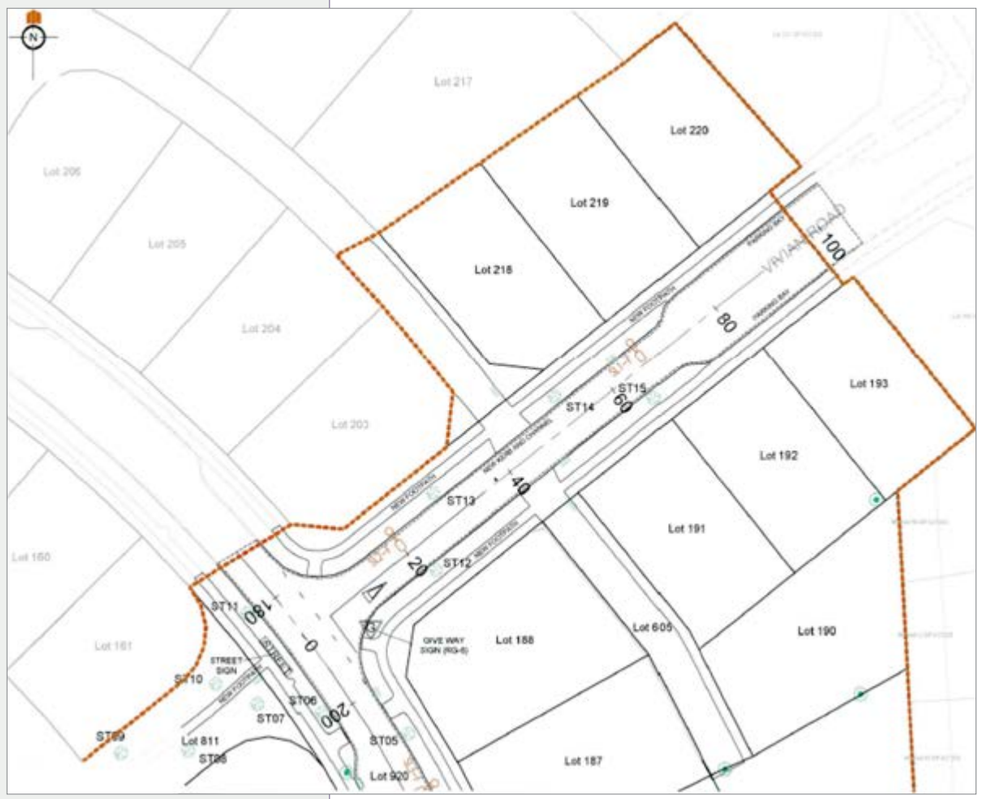


Figure 1 Example of as-built plan for roading assets.

3.3 As-built plan specification – public transport projects

As-built plans provided for building works must be a full set of architectural and/or technical working drawings updated with any changes made during construction.

As-built plans for any roading works associated with a public transport project must be provided as per the roading specification above.

All as-built plans for public transport projects must contain the information shown in Table 5.

3.4 Digital Engineering Framework (DEF)

Auckland Transport (AT) recognizes that Digital Engineering (DE) is transforming the AEC industry in the way assets, infrastructure and facilities are delivered and operated using emerging digital technologies.

For AT Digital Engineering (DE) is defined as a model-driven collaborative way of working usingadvanced digital technologies and processes underpinned by integrated datasets that enable more productive methods for planning, designing, constructing, and operating complex systems, facilities,structures and infrastructure assets.

Auckland Transport is developing and implementing a Digital Engineering Framework (DEF) and associated technologies, standards and work practices to support projects and asset operations as they adopt these new digital ways of working.

Over the next 5 years the AT DEF will embrace and connect these technologies across various project disciplines together with reliable, structured data aligned to industry standards and best practices. This will be based on the ISO 19650 and OpenBIM standards.

Increasingly AT's Asset Handover and Acceptance process will be digitized and, on this basis, requires that all projects adopting a DE approach and producing Building Information Models (BIM), to include the associated 3D models as part handover deliverables.

GENERAL REQUIREMENTS

Terms and Definitions:

- All submissions and information exchanged should include where applicable a glossary of key terms and associated definitions.
- All acronyms used need to be specified and defined in line with the glossary provided.
- Terms & Definitions may be included within document artefact's and/or referenced to an associated document.

Units of Measure:

- All delivered information shall adopt the use of the International System of Units (SI, Système international).
- Units of measure shall be limited to: SI base and derived units; Non-SI units referenced within SI; and Industry specific units
- Units shall be consistent with the respective industry best practices and common terminology.
- All locational data must be plotted in New Zealand Transverse Mercator 2000 (NZTM 2000) coordinates in terms of New Zealand Geodetic Datum 2000 (NZGD 2000) datum as approved by land Information New Zealand (IINZ).

BIM HANDOVER REQUIREMENTS

Model Segregation:

- 3D models must be provided on a per 'solution' and/or location basis depending on the project.
- Where applicable one or more models should be included for each design 'discipline' i.e. Architecture, Structural, MEP etc. must be provided to support 3D model federation.

Model Coordination:

- All 3D models shall adopt the use of a common project standard datum. A local datum may be used to accommodate known limitations within industry standard authoring software. In instances where a local datum is used, a projection must be made back to the standard datum.
- Any information which cannot be consolidated into the project federated model without manual alignment shall not be acceptable for use by AT. It is the responsibility of the supplier to test the coordination prior to submission of any 3D model information.

BIM HANDOVER REQUIREMENTS

Model Exchange and File Submission Formats:

- 3D model geometric information and files provided must include their native, exchange, and federated formats.
- Native Formats: AT require information to be submitted directly from the design authoring software used from which 3D models are produced. AT recognise that the industry uses various modelling software based on discipline and type assets being designed. On this basis details of modelling software should be provided along with native files.
- Exchange Format: AT's 3D Model exchange format is Industry Foundation Classes (IFC) and IFC4. Responsibility of ensuring all the embedded information is carried through translation remains the responsibility of the supplier.

Model File Naming and Classification:

- While projects may follow their own file naming conventions and format's AT expects these to be ISO 19650 compliant with the associated project standard provided as part of any model submissions.
- AT has not yet adopted the use of an industry classification system. Potentially this will include use of the Uniclass 2015 classification system in the future.

Clash Avoidance and Detection:

- AT expects projects and suppliers using BIM to adopt and practice the appropriate level of clash avoidance and detection during design and pre-construction to ensure model quality and compliance.
- AT's minimum clash rules will be made available in the future.

Level of Information:

- AT's information requirements will be based on ISO 19650 and published in the near future.
- As a minimum AT expect BIM models to support Level 1 BIM Coordination at BIM Dimension 3D at LOD400 for handover.
- Long-term AT has the objective of achieving LOD500.

Model Structure & Federation:

- DE teams are required to provide the appropriate level of documentation to facilitate understanding of the modeling approach followed including how models are structures and any specific conventions used.
- AT will federate its own models based on the IFC model exchange format.
- However, where teams are creating Federated models these should be provided to AT in Navisworks (.nwc) format.

TABLE 5 INFORMATION REQUIRED ON PUBLIC TRANSPORT AS-BUILT PLANS

Category	Asset Type	Comments
Asset	Barrier	Includes fences, handrails
	Bridge	Includes pedestrian bridges
	Building	
	Bike racks	
	Canopy	
	Escalators	
	Fire hydrant	
	Furniture	Includes ticket machine, emergency phone, signal control point, seat bench
	Lifts	
	Light poles	
	Masts and portals	
	Road markings	Includes line markings and rrpms
	Signs	Includes train station name sign, electronic timetable
	Stairs	Block with attributes
	Stormwater	Includes rain-gardens and/or other stormwater devices catchpits, manholes, dish channels
	Survey	Includes survey marks
	Tactile pavers	Polyline
	Services	Utility access/service lid, transformer, switch board
References	Drawing title (project or development description); Plan number; Contract or development number & details; Scale; Date of plan; North sign	If a draft is prepared, the plan must be clearly labelled as such, and not submitted as an as-built.
Certification	The words “As-built Plan”; Chartered professional engineer/architect certification of accuracy of plan	A signed certification statement is required on all as-built plans.

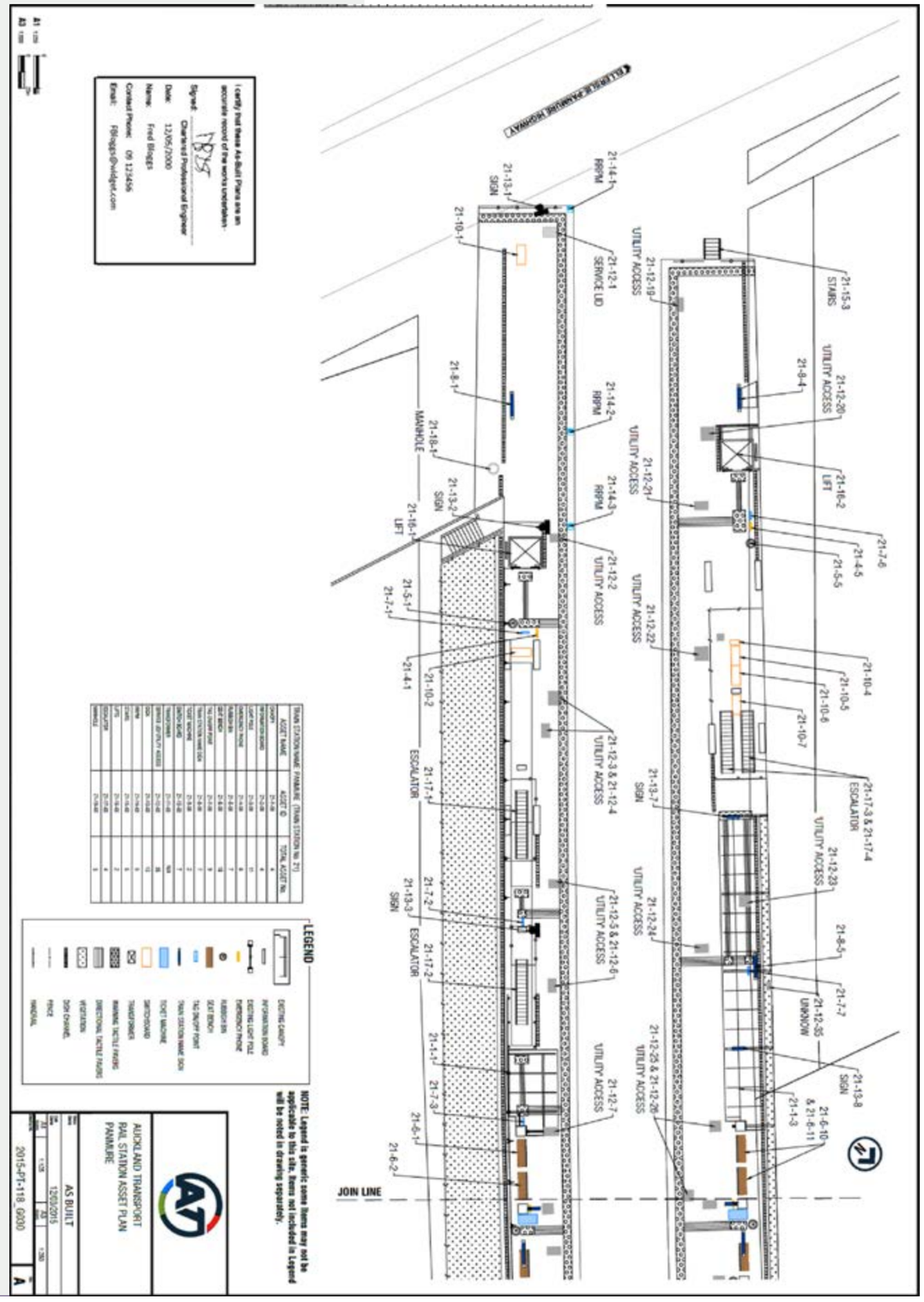
DIGITAL FORMAT

As-built plans/drawings for public transport projects must be provided in digital format (DWG or DXF files on CD or by email).

“CERTIFICATION”

The as-built plan(s) must be provided. All plans must be certified as accurate by a chartered professional engineer/architect /surveyors.

Figure 2 Example of an as-built plan for public transport assets.



04

Asset attribute data specifications

4.1 Attribute data specification

Asset attribute data must be provided together with the as-built plans for all infrastructure capital projects (both new and renewal, replacement and rehabilitation capital activities) and land development activities (vested assets from the developer). Asset attribute information must also be submitted for any validation and disposal activity.

4.2 Asset attribute data – roading projects

A digital (MS Excel) version of the RAMM sheets should be obtained from Auckland Transport project managers or Auckland Council development engineers for each project. The completed RAMM sheets must be returned to Auckland Transport via the project manager or regulatory engineer (after their review) for endorsement.

Asset attribute information (RAMM data) must be provided by completing all RAMM sheets that are relevant to the new or altered assets, utilising the look-ups ('pick-lists') of allowed attributes accompanying each form. If an asset attribute is not in the pick-list provided (i.e. not currently in the database), 'Other' should be entered into the form and a full description provided in the form 'Notes' field. This will allow the new attribute to be added to the database. All as-built plans supplied must be accompanied by asset attribute information (RAMM) sheets.

Project Managers must ensure that the latest RAMM sheets are always used for asset data collection and validation, and these are delivered to Auckland Transport Asset Acceptance Team (asbuiltinfo@at.govt.nz). For the latest RAMM sheets please see **AT RAMM sheets**.

If an asset is replaced with a new one, two sets of information need to be completed, one to delete the existing asset, and one to install or create a new asset. Existing asset information can be obtained from Council, and new attribute information is to be submitted as per this chapter.

Asset attribute information is required for items specified in Table 6.

TABLE 6 EXAMPLES OF ROADING ITEMS REQUIRING ASSET ATTRIBUTE INFORMATION

Asset Class	Asset Description
Railing	All barriers, fences, railings in the road reserve, except privately owned.
Berm	All berms in the road reserve.
Bridges	Road bridges, pedestrian bridges, underpasses and overpasses.
Crossing	Vehicle and pram crossings that are maintained by Auckland Transport.
Drainage	Catchpit leads (pipe connection to manhole), culverts under roads, pipes to local stormwater dispersal points, subsoil pipes. Stormwater pipes that are part of a reticulation are not required but must be shown on as-built plans.
Footpath/Cycleway	Footpaths in the road reserve, and footpaths carrying pedestrian traffic along accessways between roads.
Islands	All raised islands.
Minor structures	All minor structures within road reserve that are maintained by Auckland Transport.
Pavement	All pavement layers including stabilised subgrade and undercuts.
Retaining wall	Retaining walls within road reserve that retain road or property. Retaining walls in private property whose function is to retain road.
Signs	All road signs including those on gantries. Private signs, temporary signs or billboards not required.
Shoulder	Hardened shoulders along sealed roads.
Surface water channel	Surface water channel/kerb and channel within road reserve, channels carrying storm water from road into surrounding areas.
Street Lights	All street lights, including those in access ways, unless privately owned.
Stormwater	Stormwater catchpits/cesspits and stormwater treatment devices and/or rain-gardens within road reserve required. Other stormwater infrastructure is not required in RAMM, but must be shown on as-built plans.
Road surface	All road surface not privately owned, including turning lanes, bus stops, roadside parking areas, crossings and access ways within road reserve.

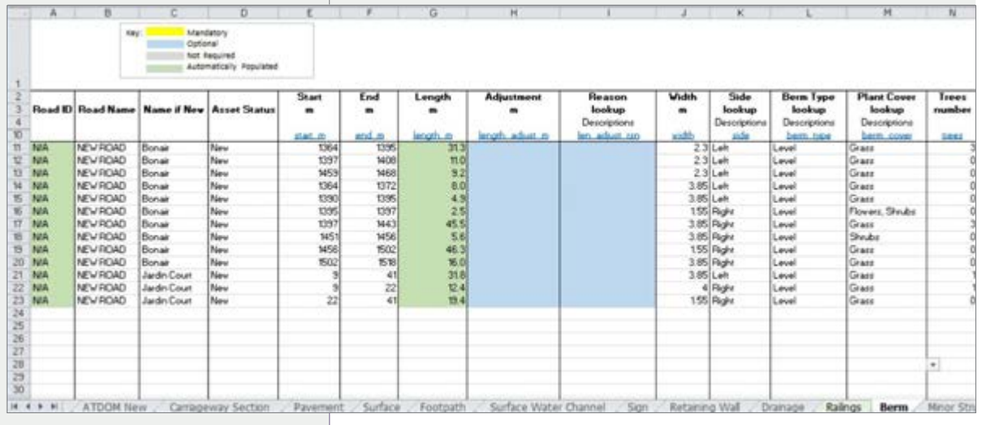


Figure 3 Example of a RAMM sheet for roading assets, from Auckland Transport digital version.

Note: The asset attribute form will be subjected to changes and alignment with improvements & updates as required following AMDS implementation

4.3 Asset attribute data – public transport projects

Following the previously described pre-construction consultation with Auckland Transport Asset Management as per introduction, Public Transport Specification, asset data capture sheets specific to the public transport project may be issued to the as-built provider for completion and submission.

Alternatively, Auckland Transport may arrange for the capture of asset data on site by Auckland Transport asset engineers.

Asset information relevant to public transport projects shall be captured in a (MS Excel) "SPM Form" which can be obtained by Auckland Transport project managers. The completed SPM Form must be returned to Auckland Transport via the project manager or regulatory engineer (after their review) for endorsement.

The SPM Form is used for asset attribute information relevant to the project, this would include asset component information such as, material, quantities, location and where possible the unit rate/ replacement cost. The SPM Form has two parts to it. Part A asset component information, containing a drop down filter that links back to the SPM reference library. The second, Part B, is a free text field for asset groups that cannot be found in the component list in Part A - this information would be minimum in nature.

This will allow the new attribute to be added to the database. All as-built plans supplied must be accompanied by asset attribute information in the SPM Form . Project Managers must ensure that the latest SPM Forms are always used for asset data collection and validation, and these are delivered to Auckland Transport Asset Acceptance Team (asbuiltinfo@at.govt.nz). For the latest SPM Form please see **AT SPM Form**

Asset attribute information is required for items specified in Table 7.

TABLE 7 PUBLIC TRANSPORT ITEMS REQUIRING ASSET ATTRIBUTE INFORMATION

Asset Group	Asset Type	Asset Description
Rail/bus/ wharf facilities/ Carpark buildings	Exterior works	Access, grounds, paving, signs, gates, fences
	External fabric	External walls and stairs, roofs, doors and windows
	Interior	Ceiling finishes, wall finishes, fixtures and fittings, internal doors, stairs and walls
	Service assets	Electrical, fire, mechanical, communication and plumbing assets, ITS
Wharf coastal structure	Structure	Launch ramps, marine structures, e.g. beams, piles
	Whaler	Rubber and timber whalers
	Equipment	Gangways
	Pontoons	Pontoon shell and surfacing
	Barriers	Bollards

Note: Table is indicative only and will be updated based on the National Standard Component Hierarchy for Property Assets and aligned with principles of IIMM and ISO Standards.

The asset attribute form will be subjected to changes and alignment with improvements & updates as required following AMDS implementation

05 Required asset documentation

Copies of the following documents are required with both roading and public transport as-built submissions, where these assets will be maintained by Auckland Transport.

- **Amenity lights or street lights** | Approved lighting design plan, and electrical Certificate of Compliance and record of inspections for each light.
- **Road rehabilitation work.** The rehabilitation design report is required in pdf format for storage in RAMM multimedia.
- **Stormwater treatment devices** | Operation and maintenance manual.
- **Bridges.** Construction drawings modified to as-built status and verified. Compliance certificates/safety audit reports.
- **Large retaining walls or structures** | Construction drawings modified to as-built status and verified. Compliance certificates/safety audit reports.
- **All assets** | Operation and maintenance manuals or asset owner manuals, and any other documentation provided by a supplier for use by an asset owner, e.g. warranty, guarantee.

Additional documentation will be required for project records. These will be specified in project contract documents or Auckland Transport or public transport project management manuals.

06 Handover and submission processes

6.1 Submission process

Auckland Transport requires all asset information (attribute and as-built plans, and required documentation) to be submitted in digital format, along with certified as-built plans, so that processing time can be minimised and errors eliminated.

DEFAULT CONDITION

The owner of the project is responsible for providing the required information to Auckland Transport. Therefore, this can be considered as a default condition for a resource consent approval.

ERRORS

If errors are detected in as-built plans and attribute data submitted as part of the submission process, the originator (contractor/ consultant/developer) will be required to correct these. The re-submitted plans and attribute data must clearly show that they are an amendment of the original information submitted. Similarly, all other as-built plans and attribute data that do not meet the required standards will be returned to the originator (contractor/ consultant/developer) for correction and re-submission.

PROCESS

Auckland Transport requires 10 working days to process and approve asset handover information.

Once the correct and complete as-built plans, attribute data and required documentation are received, reviewed and endorsed by the regulatory engineers (new developments and engineering approval works) or project managers (capital works), then Auckland Transport Asset Management team will be notified to carry out the auditing to ensure that the plans and data comply with the specification and requirements. The documents must be submitted 5 working days prior to any site inspection to ensure that review and validation can be undertaken.

The project manager (owner of the project) and Auckland Transport Maintenance and/or operational team representatives for each area will be invited to attend the validation and auditing site visits. Up to 5 days after the site visits the as-built plans and attribute data will be used to update the asset systems and approval can be granted, unless there are outstanding issues such as incomplete data, work or defects.

Figure 4 Roading as-built data submission process flow chart.

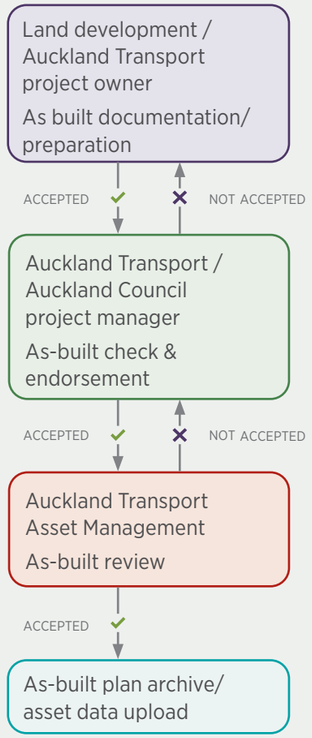
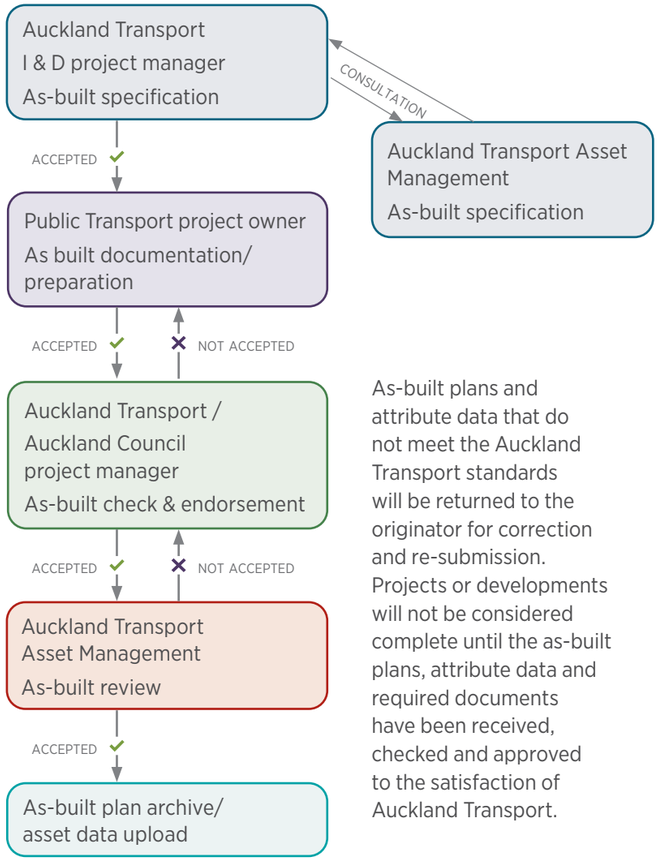


Figure 5 Public transport as-built data submission process flow chart.



As-built plans and attribute data that do not meet the Auckland Transport standards will be returned to the originator for correction and re-submission. Projects or developments will not be considered complete until the as-built plans, attribute data and required documents have been received, checked and approved to the satisfaction of Auckland Transport.

6.2 Works completion

CLOSE OUT AND HAND OVER

At the completion of works, the project managers must follow the Auckland Transport project close-out and hand-over process. Before issuing certificate of practical completion or 224(c) certificate for any project, transport project managers and regulatory engineers must ensure that all the conditions of as-built, asset data and documentation requirements are complied with. Any further changes made during the defect liability period that need to be shown as as-built data, should be submitted before the works completion certificate is issued.

PLANS

These conditions include submission of as built-plans, BIM models & asset data and acceptance by Asset Acceptance and GIS teams, including:

- As-built plans and coordinate information (as per this chapter).
- Asset attribute information and required documentation (as per this chapter).
- Any other conditions as specified in this manual and/or specific project management manual.

EARLY CERTIFICATE OF COMPLETION ISSUE

However, there may be situations where the issuing of a certificate of practical completion or 224(c) certificate is requested before all project or development is completed or an asset is to be made operational or vested without as-built being accepted by Auckland Transport. The certificate of practical completion or 224(c) certificate will be issued or asset made operational at Council's discretion with a cash bond collected and a condition placed on the bond form requiring submission of as-built plans and asset attribute information within the discretionary time allowed.

The condition will allow the submission of as-built plans and asset attribute information to be deferred until:

- any building development on that site is at code compliance certificate stage, or
- the agreed bond period has elapsed after the issue of 224(c) certificate, whichever occurs first.

If as-built plans and asset attribute information are not submitted within the discretionary time allowed, Council will arrange for the creation of as-built plans and collection of asset attribute information at the consent holder's expense.

NOT REQUIRED

If as-built plans and asset attribute information are not required for any particular project or development or stage, the regulatory engineer or project manager must notify the Auckland Transport Asset Management Team before Certificate of Practical Completion or 224 (c) is issued.

CONSENT

For works that are not the subject of resource consent, but require advice and input from Auckland Transport, such as building consent works, the conditions of engineering approval should include the clause that the as-built plans and asset attribute information will be submitted as per this chapter.