

Chapter 24

**Vesting of
Assets and
Asset Data**

24 Vesting of Assets and Asset Data

24.1 Asset Ownership Guidelines

It is essential that [AT's Asset Ownership Guidelines](#) are read before reading the rest of this chapter.

24.2 Overview

This Chapter has been developed to define the asset data requirements and handover processes for Auckland Transport from developers, contractors, consultants and any other interested parties when involved in the following categories of asset activities:

- 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 or subdivision 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)

Asset Information represents a significant investment for Auckland Council and Auckland Transport. One of the aims of Auckland Transport is to raise the profile of the Auckland Transport business and to increase awareness of its importance among developers, consultants and contractors. This Chapter provides public works professionals with a guide to asset data standards and handover processes for the various assets, to accommodate any changes to the Auckland Transport's assets, which occur as a result of development (creation of new assets), renewal, and disposal activities. It provides vital information to Auckland Council and other CCO staff to assist in managing asset data and information in an efficient and cost effective manner.

The asset data information for the Auckland Transport assets is currently stored in two main databases – RAMM for roading type assets and SPM for public transport type assets.

This Chapter outlines the asset data and as-built plan requirements for developers, contractors and consultants for all assets to be managed by Auckland Transport. Asset category/groups and/or classes covered by this Chapter comprise of:

- Pavements
- Footpaths
- Bridges and Structures
- Drainage (kerb & channels)
- Streetlighting
- Minor structures (retaining walls, railings, crash cushions)
- Traffic Signs

- Traffic Signals
- Street Furniture (Litterbins, Seats, Monuments, Toilets, Pay & Display Machines, CCTV cameras, etc.)
- Public Transport (Bus Shelters, Bus Stations, Rail Stations)
- Wharves
- Pedestrian coastal access (e.g. boardwalk, cycleway, paths & walking ramps) – connecting two roads
- Non-Pedestrian access (road) through a park reserve
- Car parks (park & ride sites included)
- Coastal structures (boat ramp, sea walls)
- Walls and fences (bollards, walls, fences, handrails)

The user should check for updates to this chapter before providing the as-builts in order to see if there are any new asset types required to be entered.

For any other special assets not covered by this Chapter, and subject to vesting to Auckland Transport, the related as-built plans and attributes information (such as asset owner manuals) should be submitted to Auckland Transport, Asset Quality Assurance Team.

The main 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 (samples) of the submission of as-built plans
- Provide a mechanism and process to validate existing transport assets
- Ensure consistency of standards for all development (vested and Council projects) involving all transport assets

Asset data specification includes the following:

- Asset Definition - define the type of asset involved and asset description or definition to clearly understand the as-built plan and asset data requirements
- As-built Plans - Define standards and requirements for as-built plans (drawings)
- Asset Attribute Data - Define what asset attribute data is required for Asset Management Planning and Finance purposes including mandatory data fields
- Define validation or business rules to validate mandatory data fields
- Picklists – define lookup (or pick list) tables to complete asset attribute data

The primary role of this Chapter is to support the management of asset data and asset related information (e.g. as-built plans) for Auckland Transport. It is a “blueprint” for the building and management of a robust asset management database that will assist in eliminating duplication of data, when transport data is integrated with the work processes of other Council departments for combined planning purposes.

The database will form the cornerstone of the Auckland Transport program to raise the profile and knowledge of asset data and information for robust planning and decision-making.

This Chapter does not introduce onerous new requirements on developers, contractors and consultants, as most of the data will be available in their records. The focus is on ensuring that all required asset information and as-built plans related to new subdivisions (land development) and infrastructure projects (capital and validation) are submitted when required and no delays occur in the Council approvals (for example, 224C for land subdivision and practical completion and/or defect liability certificate for Auckland Transport projects).

Project and development engineers are reminded that this chapter covers the as-built and attribute data needs of Auckland Transport only, and other entities such as Water Services, Parks, GIS and various electricity and communication network owners will have their own requirements.

24.3 Definitions

24.3.1 Asset Classes, Components and Attributes

An asset hierarchy illustrates how the asset classes relate to each component and associated asset attributes. Examples of the Transport asset hierarchy are outlined in Table 91 below:

Table 91: Asset Hierarchy

Asset Class	Asset Component	Asset Attributes
Pavement	Pavement Surface Pavement Layer	Asset id, road id, road name, start and end (m), length, width, surface type, layer date, activity type
Footpath	Surface Base	Asset id, road id, road name, start and end (m), side, length, width, depth, material, install date, activity type
Bridge	Bridge Culvert	Asset id, road id, road name, start and end (m), bridge type, length, width, material, install date, activity type
Carpark	Carpark Surface Carpark Base	Asset id, size (length, width, area), material, install date, activity type

For data collection purposes, Transport assets are separated into asset classes (e.g. Pavement, Bridge, Streetlight), each asset class having components (e.g. Pavement Surface, Pavement Layer), and the components, either single or grouped, having attributes (e.g. Length, Type, Install Date). Assets and associated attribute data will be required to be shown spatially (with coordinates and/or levels) on as-built plans, or listed on standardised asset data sheets, or may be required on both. It is vital for a developer, consultant and Council staff to understand the class of assets involved and associated attribute data and as-built plan requirements.

Refer to Table 92 below for examples of asset definition of each asset class and associated components.

Table 92: Asset Attribute Data Link to Asset Class

Asset Class	Unit Type	Definition
Bridges and Structures	Bridge	Bridge structure including beams, deck and railing for traffic crossing.
	Large Culvert	Any culvert with waterway area $\geq 3.4\text{m}^2$ is considered as a bridge which includes single or double or multi pipe and box culvert, Armco.
	Retaining Walls	All types of retaining walls including anchored, concrete, cantilever, keystone, crib, rock/stone, timber etc.
Pavement	Pavement Surface	The top surface of the pavement to provide smooth rising surface including A/C, Chip Seal, etc.
	Pavement Layer	The type and thickness of the each material to be laid under the pavement surface. They can be divided into three categories – base-course, sub-base and sub-grade.
Footpath	Surface	Footpath surface mainly concrete, AC, interlocking or seal material type.
	Base	Footpath base mainly GAP 100mm thick to support various types of surface.
Street-lighting	Pole Bracket Lantern	Street-lighting assets to provide visibility for the traffic or pedestrian during night or poor weather conditions.
Surface Water Channel	Kerb & Channel	A channel at the edge of a street or road for carrying off surface water. This may include kerb only, kerb & channel concrete or stone, mountable kerb & channel, etc.
Catchpit	Standard Catchpit	The standard catchpit with a standard grade at the top (455X660mm) with / without metal backing plate. When a larger flow capacity is required, a double or

Asset Class	Unit Type	Definition
		multiple catchpit (two or more standard grates at the top with longitudinal slots) must be installed.
Traffic Signal	Controller / Detector / Target Board / Poles / Logic Racks / CCTV Camera	Traffic signals to manage the traffic in efficient manner which includes Traffic Controller, Detector, Inductive loops, Target Board, Poles, Logic Racks, CCTV Cameras, Lanterns, Pedestrian Call Boxes, etc.
Pay & Display Machine	Pay & Display Machine	Pay & Display Machines are a subset of ticket machines used for regulating parking in urban areas or in carparks. It relies on customer to purchase a ticket from the machine and to display the ticket on the dashboard / windscreen / window of the vehicle.
Minor Structure	Bollards Speed Humps Round-about	The bollard is a strong post with the purpose of stopping vehicular traffic. A speed hump is a rounded traffic calming device used to reduce the speed of the traffic (it may also be called a road hump or undulation). A round-about is a traffic control device.
Traffic Signs	Traffic Signs Railings	Traffic Signs or road signs are transport assets located at the side of roads to provide information to road users. Railing represents a structure made of rails and it is used as a guard or barrier for support.
Street Furniture	Litterbin Seat Street Monument	Litterbin is a waste container used to temporary store waste and it is usually made out of metal or plastic. A seat is a bench in a public area – there can be a long seat for more than one person. The seats can be located within the bus shelter or stand alone. The street monuments are part of the urban beautification and can be sculptures, monuments etc.
Public Toilet within Road-reserve	Public Toilet	These are public toilets which are located within road reserve.
Car-parks	Surface Layer Lighting	These are the car-parks' related assets including pavement surface, layer and lighting.

Asset Class	Unit Type	Definition
Public Transport Assets	Bus Station	Bus Station assets include all transport assets located in the Bus Station areas.
	Bus Shelters	The Bus Shelter is a covered structure at a bus stop providing protection against the weather.
	Railway related assets	Railway assets are the transport assets located in the Rail Stations.
Wharves	Pavement (surface & layer) Structure	These are transport assets related to wharves and including pavement surface, layer and lighting, as well as the structural components.

More details in regard to any other types of assets can be obtained from Auckland Transport, Asset Management & Programming Team.

24.3.2 Defining Asset Activity Type

Asset activity is defined as 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.

Asset activity is broadly broken down into the following distinct categories:

- **New** - Creation of new assets through capital works programmes
- **Vested** - new growth or land development from subdivision
- **Renewal** - capital replacement/rehabilitation works
- **Validation** - validation of existing asset attributes e.g. material, size, location etc.
- **Disposal or Deletion** - decommissioned and abandoned assets

New Capital Development Activity (New Capital Works only)

This activity is used to cover the creation of new assets, to provide or improve the Level of Service or provide a commercial return.

This activity applies to one or more of the following works:

- Capital works which create an asset or component that did not exist in any shape or form, OR
- Capital works, which upgrade an asset component beyond its original capacity or service potential

Examples of such works include:

- New road construction which is 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 which increases the capacity or size
- Seal extension, which provides for sealing existing unsealed roads
- New street furniture such as bus shelter, litterbin, seat etc.

New Growth Land Development Activity (Vested Assets only)

This activity covers the new assets, created within subdivision undertaken by a developer and vested in the Auckland Transport on completion.

This activity applies to one or more of the following works:

- New subdivision works, which create a road and associated assets that did not previously exist in any shape or form.

Examples of such work include:

- Vesting of a new road with the Council which has been constructed as a part of a new subdivision development.
- Installation of new streetlights by the developer to be vested with Auckland Transport.

Asset Renewals Activity (Replacement and rehabilitation works only)

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

This activity relates to the works on infrastructure assets displaying the following attributes:

- **Reseals:** resurfacing of existing sealed pavement and footpath under one of the following work categories:
 - Maintenance chip seals i.e. reseat is applied to an established sealed road including second coat seals and void filling seal coats. Generally resurfacing is planned renewal works,
 - Resurfacing of existing footpaths (length of footpath ≥ 20 m).
 - Thin asphaltic surfacing- wearing course on a structural asphaltic pavement, slurry seals (length of road ≥ 20 m).
- **Replacement works:** replacing of existing assets under one of the following work categories:
 - Concrete footpath replacement
 - Drainage replacement (kerb & channel, catchpit)
 - Structure (minor structure included) replacement, etc.
- **Rehabilitation:** The basic rehabilitation of pavements, which does not increase the existing seal width. Generally rehabilitation works is planned renewal (for guidelines length of road ≥ 20 m). However, formation widening may be included if it is necessary to give lateral support to the pavement. Examples of such work categories 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 depth \geq 30 mm or granular overlays \geq 70 mm.
- Traffic sign or signal or control system replacement with the same size components.
- **Bridge reconstruction:** This category applies to existing bridges and culverts having a waterway area greater than 3.4 square metres. Such work includes:
 - bridge renewals: replacing a structurally inadequate bridge
- **Road reconstruction:**
 - realignment and re-grading of sealed roads

Asset Validation Activity

The validation of existing assets is an on-going activity for Auckland Transport. In general, this involves the validating of existing or missing asset attributes for items such as signs, seats, pavement surface, and streetlighting, and associated asset attribute data (such as material, length, type etc.)

Asset Disposal or Deletion Activity

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 any other asset components that are being removed or replaced at the end of their useful lives.

24.3.3 Overview of Plan and Asset Data Requirements

Asset data specification and requirements cover the following:

- Plan requirements – spatial
- Attribute data requirements – asset data (e.g. asset id, material, length, install date)
- Data validation – for asset register completeness and accuracy

This Chapter covers asset data specification and requirements (as-built plans, asset attribute and special information-coordinates) for Transport Assets.

Auckland Transport submission requirements for each Asset Activity Type are set out in Table 93.

Table 93: Plan and Attribute Requirements

Activity	Construction Plan	As-built Plan	Attribute Data	Survey Office or Deposited	Gazette Notice	Engineer Certification
New Capital Works	✓	✓	✓	X	X	✓

Activity	Construction Plan	As-built Plan	Attribute Data	Survey Office or Deposited	Gazette Notice	Engineer Certification
Renewal Works*	✓	✓	✓	X	X	✓
Vested assets (new subdivision)	✓	✓	✓	✓	✓	✓
Validation of assets	X	✓	✓	X	X	✓
Disposal of assets	X	✓	✓ (asset id, date of disposal and reason)	X	X	✓

Legend:

X = Asset Information is not required

✓ = Asset Information is required (mandatory)

* 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.

24.4 As-Built Plan Specifications and Requirements

24.4.1 Purpose

This covers the construction plans, as-built plans and survey office or deposited plans requirements for transport assets.

Survey Office and Deposited 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 (SO) Plans and Gazette Notice or Deposited Plans (DP) should be submitted in accordance with the Land Information New Zealand (LINZ) requirements (as per Land Online) to comply with the Auckland Transport or Auckland Council's specifications.

Construction and As-built Plans

For all Auckland Transport generated capital projects (both new and renewal) and new vested assets from the developers, construction plans and approved as-built plans together with the RAMM data information must be submitted before the practical completion certificate is issued.

Construction Plans (known as “Engineering Drawings” in Resource Consent Conditions) shall be submitted according to Auckland Transport requirements. Provided that the construction plans have previously been submitted to and are held by Auckland Transport, copies are not required with as-built submissions.

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

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

- **As-built Information and Standards**

All As-built Plans must contain the information shown in Table 94 below. The following general information for the asset must be shown on all “As-built Plans and Cross Sections”.

Table 94: General Information Required on As-built Plans and Cross Sections

Category	Type	Comments
Asset Code	Asset identification number (FP01)	Temporary unique asset id must be assigned to all new or replaced assets
Work Plan	Property parcel & road boundaries, road kerb lines, road names, house numbers	Show the affected site work in context of public roads Lot numbers for new subdivisions
Labels	Asset ids, primary dimensions and materials of assets	Footpath: FP101 Park Furniture: BBQ20 Pavement Surface: PS10 Show road chainage at every 20m from origin
References	Drawing Title (Project Description or Subdivision Description), Plan Number (for Council owned capital projects and subdivision), Contract or subdivision number & details, Scale, Date of plan, North sign, the words "As-built Plan", Chartered Professional Engineer/ Registered Surveyor's certification and name, and engineers approval	If 'DRAFT' is prepared then must be clearly labelled as such, and <u>Not</u> submitted as an as-built
Locality Plan	Show the work area in relation to Council main roads and area (suburb) including private roads	Show layout plan of all asset types/classes
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	Asset ids, levels (Lid Level & Invert Levels for drainage), chainage, grade, primary dimensions and materials of assets and any specific details required for the assets LL & IL of any existing connecting drainage asset must be provided	Typical cross sections should be shown for all pavements, retaining walls, bridges, culverts, footpaths and traffic controls (roundabout, traffic island, pedestrian refuse)
Blow up plan details	Show extended blow up plan of individual assets for more details	

Note:

- Assets are identified at each node (junction/intersection, footpath, seat, sign etc.). A temporary unique asset id must be assigned to all new assets.
- Separate as-built plans should be drawn for different asset classes (pavements, drainage, street furniture) where conflict of information will occur on a single drawing.
- As-built plans must clearly show details of all new assets and how they are linked to existing assets. Any existing assets that are part of the project or are in any way changed by the work must be shown. If an existing asset is not shown or is incorrectly recorded in GIS or RAMM then, it is to be included on the as-built plan, and RAMM attribute data supplied, to ensure the connectivity between existing and new data.
- Any assets that have been abandoned or removed as part of the project work must also be shown
- As-built plans must be submitted in the format specified below:
 - For all capital works (new and renewal) and new subdivision, as-built plans must be provided in digital format (DWG or DXF files on CD or by email) as well as one hard copy of the as-built plan(s).
 - Hardcopy of the as-built plan must include a signed certification statement by the Chartered Professional Engineer or Registered Surveyor responsible for the as-built.
 - If a validating process for existing assets, for any particular project, is required, then an accurate hardcopy as-built plan (sketch or aerial photo with appropriate dimensions or location marked from the existing known assets) and asset information will be acceptable.
 - The hardcopy plans are to 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, then multiple plan sheets shall be submitted with index sheet.
 - All dimensions are to be in millimetres, and all levels & lengths in metres. All diameters shown must be nominal internal diameters.
- All **point assets** (streetlight, sign, seat, litterbin) shall be represented by a single point for each asset
- All **line assets** (kerb & channel, drainage pipes, irrigation pipes) shall be represented by a single polyline for each asset between nodes
- All **polygon assets** (footpaths, roads) shall be represented by a polygon for each asset between nodal changes (e.g. change in characteristics such as material, size, age e.g. footpath 1 to footpath 2 change in material)
- As-built plans must show all private roads built within any subdivision or development (such as roads within a major complex or forestry roads etc.).

Spatial Location Information (As-built Plan) –

- Spatial information includes location coordinates (X&Y) and levels (Z or lid level or ground level) for Point or Node Coordinates.
- For all point assets (such as sign, seat etc.) and nodes (e.g. change in road/footpath direction or material) - X & Y (referring to location coordinates) and Z (referring to lid

level or ground level but applicable to catchpits and manholes only) coordinates must be submitted.

Datum and Data Accuracy -

- All locational data must be plotted in New Zealand Transverse Mercator 2000 (NZTM 2000) Coordinates in term of New Zealand Geodetic Datum 2000 (NZGD 2000) datum as approved by Land Information New Zealand (LINZ).

- Council will require all graphical data to be located/plotted to the following accuracy:

X & Y coordinates ± 100 mm

Z coordinates ±50 mm (e.g. lid level) in terms of the NZTM 2000 Coordinates

Invert Levels ± 20 mm

In general, as-built plans will be a representation of construction drawings modified to reflect any changes made during construction and plotted to the required geodetic datum, with the addition of Asset Id Numbers that match those provided on attribute data (RAMM) sheets. As-built plans will be stored and made available to planners of future projects on request.

24.4.2 Symbols and Terminology

The symbols used on all as-built plans submitted should be in accordance with Auckland Transport or Auckland Council requirements, including paper plans produced by hand or in drawing packages.

Examples of specific as-built plan requirements for various asset group/type/class are outlined in Table 95 below:

Table 95: Transport As-built Plan Specific Requirements

Feature layers	Type	Principle (Drawing Convention)	Label Attribute
Bridges and Structures- Bridge & Culverts (waterway are ≥3.4m ²) and underpass	Polygon	<ul style="list-style-type: none"> • Record X & Y coordinates • Plot multiple points of bridges in NZTM 2000 Coordinates on NZGD 2000 datum • Show typical cross and longitudinal sections of bridge & underpass • Show the start and end displacement/ chainage • Show road chainage at every 20m from the start 	Asset identification number, Longitudinal sections (including cut/fill, design surface, natural surface and chainage) Cross sections (kerb to kerb width, width between railings, footpath, show all services, top surface-concrete slab for bridge and pavement layer for culvert)
Bridges and Structures- Retaining wall	Polyline	<ul style="list-style-type: none"> • Record X & Y coordinates • Plot multiple points of wall in NZTM 2000 Coordinates on NZGD 2000 datum • Show typical cross sections of wall 	Asset identification number Cross sections (height-average height if not uniform height, distance between poles, type of material and treatment)

Feature layers	Type	Principle (Drawing Convention)	Label Attribute
		<ul style="list-style-type: none"> Show the start and end displacement/ chainage 	type e.g. H4)
Culverts (<3.4m ²) – covered as part of Drainage data requirements	Polyline	<ul style="list-style-type: none"> Record X & Y coordinates Record upstream and downstream invert levels Plot centreline of pipe from centre to centre of other connecting node in NZTM 2000 Coordinates on NZGD 2000 datum 	Asset identification number
Catchpits	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot catchpit as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show road chainage at every 20m from the start Show displacements of all catchpits 	Asset identification number (e.g. CP200)
Footpaths/ Accessway	Polygon	<ul style="list-style-type: none"> Record X & Y coordinates Plot multiple points of paths in NZTM 2000 Coordinates on NZGD 2000 datum Show typical cross sections of footpath (scale 1:50) Show the start and end displacement/ chainage Show road chainage at every 20m from the start 	Asset identification number (e.g. FP100) , material Cross sections (footpath depth, material and thickness of base)
Kerb & Channels	Polyline	<ul style="list-style-type: none"> Record X & Y coordinates Plot multiple points of channel in NZTM 2000 Coordinates on NZGD 2000 datum Show the start and end displacement/ chainage Show road chainage at every 20m from the start 	Asset identification number (e.g. KB10)
Pavement - Surface - Basecourse - Subbase	Polygon	<ul style="list-style-type: none"> Record X & Y coordinates of all points at each change in road direction and width greater than 1.0m Plot multiple points of road in NZTM 2000 Coordinates on NZGD 2000 datum Show typical cross sections of pavement (scale 1:50) and longitudinal sections of carriageway centreline surface (1:500 or 1000) Show the start and end displacement/ chainage 	Layout plan – show all asset identification number, road name, pavement start and end displacements Longitudinal sections (including cut/fill, design surface, natural surface and chainage) Cross sections (carriageway surface, pavement width, pavement layer depth – basecourse and subbase, details of subgrade (e.g.

Feature layers	Type	Principle (Drawing Convention)	Label Attribute
		<ul style="list-style-type: none"> Show road chainage at every 20m from the start 	CBR), parking bays, footpath, berm, show all services)
Street Furniture- Seat, Litterbin and Bus Shelter and P&D Machine	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot asset as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show displacement of all assets Show road chainage at every 20m from the start 	Asset identification number (e.g. BS100)
Safety Furniture- Guard rails, Sight rails	Polyline	<ul style="list-style-type: none"> Record X & Y coordinates Plot centreline of rail from centre to centre of other connecting node in NZTM 2000 Coordinates on NZGD 2000 datum Show the start and end displacement/ chainage Show road chainage at every 20m from the start 	Asset identification number (e.g. GL01)
Safety Furniture- Marker Post	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot node (marker post) as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show displacement of all assets Show road chainage at every 20m from the start 	Asset identification number (e.g. MP10)
Streetlights	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot node (Streetlight) as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show displacement of all assets Show road chainage at every 20m from the start Show typical section of the streetlight (including pole, bracket, lantern, outreach, pole height and offset) 	Asset identification number (e.g. SL02, displacement 1.75)
Traffic Signs	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot node (sign) as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show displacement of all assets Show road chainage at every 20m from the start 	Asset identification number (e.g. RP10)

Feature layers	Type	Principle (Drawing Convention)	Label Attribute
Traffic Signals (for additional guideline / details, please see NZTA requirements or contact JTOC - Joint Transport Operations Centre – for a copy of the as built requirements)	Point	<ul style="list-style-type: none"> Record X & Y coordinates Plot node (signal) as a point in NZTM 2000 Coordinates on NZGD 2000 datum Show typical cross sections of traffic signal (scale 1:50) Show displacement of all assets Show road chainage at every 20m from the start 	Layout plan: Show all asset identification number, cables layout, phase diagram
Traffic Controls (Roundabout, Traffic Island, Pedestrian Refuge)	Polygon	<ul style="list-style-type: none"> Record X & Y coordinates Plot multiple points in NZTM 2000 Coordinates on NZGD 2000 datum Show typical cross sections of traffic control (scale 1:50) 	Asset identification number Show typical cross sections of traffic control, including depth

Note:

- **For all capital projects:** Contact Auckland Transport Database Manager to get the latest road chainage information as per the RAMM database, to evaluate the locations (start and end displacements) for the relevant assets..
- Every new asset is to be linked to an existing asset that is correctly recorded in RAMM and/or GIS. If an existing asset is not shown in RAMM and/or GIS (missing) or it is incorrectly recorded, a correct as-built plan is to be submitted, noting this and showing existing and new assets, to ensure the connectivity.
- Cross sections (roads, bridges, footpaths, traffic controls and retaining walls) are required at the time of as-built plan submission, provided the final construction elevations are within 100mm of the designed elevation construction plans may be used.
- All private roads affected by the as built work must be shown on the plans.
- If any new asset classes are identified, which are not covered by this chapter, contact the Auckland Transport Database Manager for details in regard to as-built plans and attribute requirements.
- Therefore, for any other special assets not covered by this chapter and that are subject to vesting with Auckland Transport, as-built plans and attributes information should be submitted as prior agreed with Auckland Transport.

24.5 Attribute Data Specifications and Requirements

24.5.1 Attribute Data Specification

Asset attribute data must be provided together with the as-built drawings for all infrastructure capital projects (both new and renewal, replacement and rehabilitation capital activities) and land development acquisition activities (vested assets from the developer).

Asset attribute information shall also be submitted for any validation and disposal activity.

Asset attribute information must be provided by completing all forms listed in *ATCOP Section 24.6* 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 'Comments' field. This will allow the new attribute to be added to the database.

All as-built plans must be supplied accompany with asset attribute information.

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. For new assets a "dummy" ID must be entered and this ID must correspond with that on the As-Built Plan.

24.5.2 Attribute Data Required

Transport Asset Attribute information should be submitted on the related attribute forms for each asset class and for each activity type, such as:

- Pavement Surface
- Pavement Structure
- Footpaths
- Bridge and Structures
- Benkelman beam etc.

These asset attribute forms related to road infrastructure projects are available in *ATCOP Section 24.6*.

It is envisaged that Auckland Transport will, in future, use an integrated data capture system which will supersede the attribute data forms.

24.5.3 Maintenance and Operational Requirements for PT Assets

As previously mentioned, SPM is database used by AT for all public transport related assets. The main categories of public transport assets are: rail stations, bus/busway stations, wharves (land/marine based).

The as-built drawings related to PT assets resulted from capital / renewal / upgrade projects will be supplied as required *in ATCOP Section 24.3*.

Example of PT asset data requirements for new, replaced or upgraded PT assets are outlined in Table 96 below.

Table 96: PT Asset Data Requirements for New, Replaced or Upgraded PT Assets

Asset Type – Operational & Maintenance (O&M) required:	O&M / Asset Owner Manual (AOM) type and specifications	
Rail stations	Electrical	
Bus stations	1	Table of contents
Busway stations	2	Description
Land based wharves	3	Producer Statements & Code Of Compliance
Marine based wharves	4	Suppliers details (incl. Contractors and sub-contractors)
	5	Equipment details
	6	Manufacturers specifications
	7	Operating manual/instructions
	8	Building Management System (BMS)
	9	Guarantees and Warranties
	10	All suppliers cleaning recommendations
	11	Planned preventative maintenance
	12	Maintenance schedule
	13	Maintenance log books
	14	Material Certificates/MSDS/Environmental/Electrical Certificates
	15	Inspection Records (incl. Commissioning results)
	16	Factory and site acceptance test sheets
	17	Switchboard schedule
18	Any other site specific records (please specify)	

Asset Type – Operational & Maintenance (O&M) required:	O&M / Asset Owner Manual (AOM) type and specifications	
	19	As-built drawings and asset attribute data as prior agreed with AT
Rail stations	Security, CCTV	
Bus stations	1	Table of contents
Busway stations	2	Description
Land based wharves	3	Producer Statements & COC
Marine based wharves	4	Suppliers details (incl. Contractors and sub-contractors)
	5	Equipment details
	6	Manufacturers specifications
	7	Operating manual/instructions
	8	Building Management System (BMS)
	9	Guarantees and Warranties
	10	All suppliers cleaning recommendations
	11	Planned preventative maintenance
	12	Maintenance schedule
	13	Maintenance log books
	14	Material Certificates/MSDS/Environmental/Electrical Certificates
	15	Inspection Records (incl. Commissioning results)
	16	Factory and site acceptance test sheets
	17	Switchboard schedule
	18	Any other site specific records (please specify)
	19	As-built drawings and asset attribute data as prior agreed with AT

Asset Type – Operational & Maintenance (O&M) required:	O&M / Asset Owner Manual (AOM) type and specifications		
Rail stations	Canopies		
Bus stations	1	Table of contents	
Busway stations	2	Description	
Land based wharves	3	Producer Statements & COC	
Marine based wharves	4	Suppliers details (incl. Contractors and sub-contractors)	
	5	Equipment details	
	6	Manufacturers specifications	
	7	Operating manual/instructions	
	8	Building Management System (BMS)	
	9	Guarantees and Warranties	
	10	All suppliers cleaning recommendations	
	11	Planned preventative maintenance	
	12	Maintenance schedule	
	13	Maintenance log books	
	14	Material Certificates/MSDS/Environmental	
	15	Inspection Records (incl. Commissioning results)	
	16	Factory and site acceptance test sheets	
	17	As-built drawings and asset attribute data as prior agreed with AT	
	18	Any other site specific records (please specify)	

Asset Type – Operational & Maintenance (O&M) required:	O&M / Asset Owner Manual (AOM) type and specifications	
Rail stations	Mechanical (incl. HVAC, Smoke Extraction & Ventilation)	
Bus stations	1	Table of contents
Busway stations	2	Description
Land based wharves	3	Producer Statements & COC
Marine based wharves	4	Suppliers details (incl. Contractors and sub-contractors)
	5	Equipment details
	6	Manufacturers specifications
	7	Operating manual/instructions
	8	Building Management System (BMS)
	9	Guarantees and Warranties
	10	All suppliers cleaning recommendations
	11	Planned preventative maintenance
	12	Maintenance schedule
	13	Maintenance log books
	14	Material Certificates/MSDS/Environmental
	15	Inspection Records (incl. Commissioning results)
	16	Factory and site acceptance test sheets
17	Switchboard schedule	
18	Mechanical services board	
19	Any other site specific records (please specify)	
20	As-built drawings and asset attribute data, as prior agreed	

Asset Type – Operational & Maintenance (O&M) required:	O&M / Asset Owner Manual (AOM) type and specifications	
		with AT

If any new asset categories are identified, which are not covered by this chapter, please contact the Auckland Transport Database Manager for details and prior agreement with regard to as-built plans and asset data attribute submission.

Auckland Transport Database Manager – currently Deepan Kumar, Asset Systems & Monitoring Engineer, Phone: 09 839 3333, Ext: 427133, Mob: 021 223 2154, Email: Deepan.Kumar@aucklandtransport.govt.nz

24.6 Handover and Submission Processes

24.6.1 Submission Process

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

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

If errors are detected in As-built Plans and Attribute Data submitted as part of the submission process, then 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.

Once the correct and complete as-built plans and attribute data are received by the Development Engineers (New subdivision and Engineering Approval works) or Transport Engineers (Capital Works), then Auckland Transport Asset Management team and GIS team will be notified to carry out the validation and auditing to ensure that the plans and data comply with the specifications. 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. On approval, the as-built plans and attribute data will be used to update the systems.

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

24.6.2 Works Completion

At the completion of works, the project managers shall follow the AT project close-out and hand-over process.

Transport Project Engineers and Development Engineers shall ensure that all the conditions of as-built and asset data requirements are complied with, prior to issuing certificate of practical completion or 224(c) certificate for any project. Any further changes made during defect liability period that need to be shown as as-built data, should be submitted before the defect liability certificate is issued.

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

- as-built plans and coordination information (as per this Chapter)
- asset attribute information (as per this Chapter)
- Any other conditions as specified in the ATCOP and/or specific Project Management Manual

However, there may be situations where the issuing of a certificate of practical completion or 224(c) certificate is requested before all project or subdivision 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.

If as-built plans and asset attribute information are not required for any particular project or subdivision or stage then the Development Engineer or Project Engineer must notify the Auckland Transport Asset Management Team before Certificate of Practical Completion or 224 (c) is issued.

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 shall be submitted as per this Chapter.

As-built plan and asset data submission and approval processes for vested assets and capital projects are described in Figure 140 and Figure 141, respectively.

As-built plan and associated data submission and approval process for the validation projects are outlined in Figure 142.

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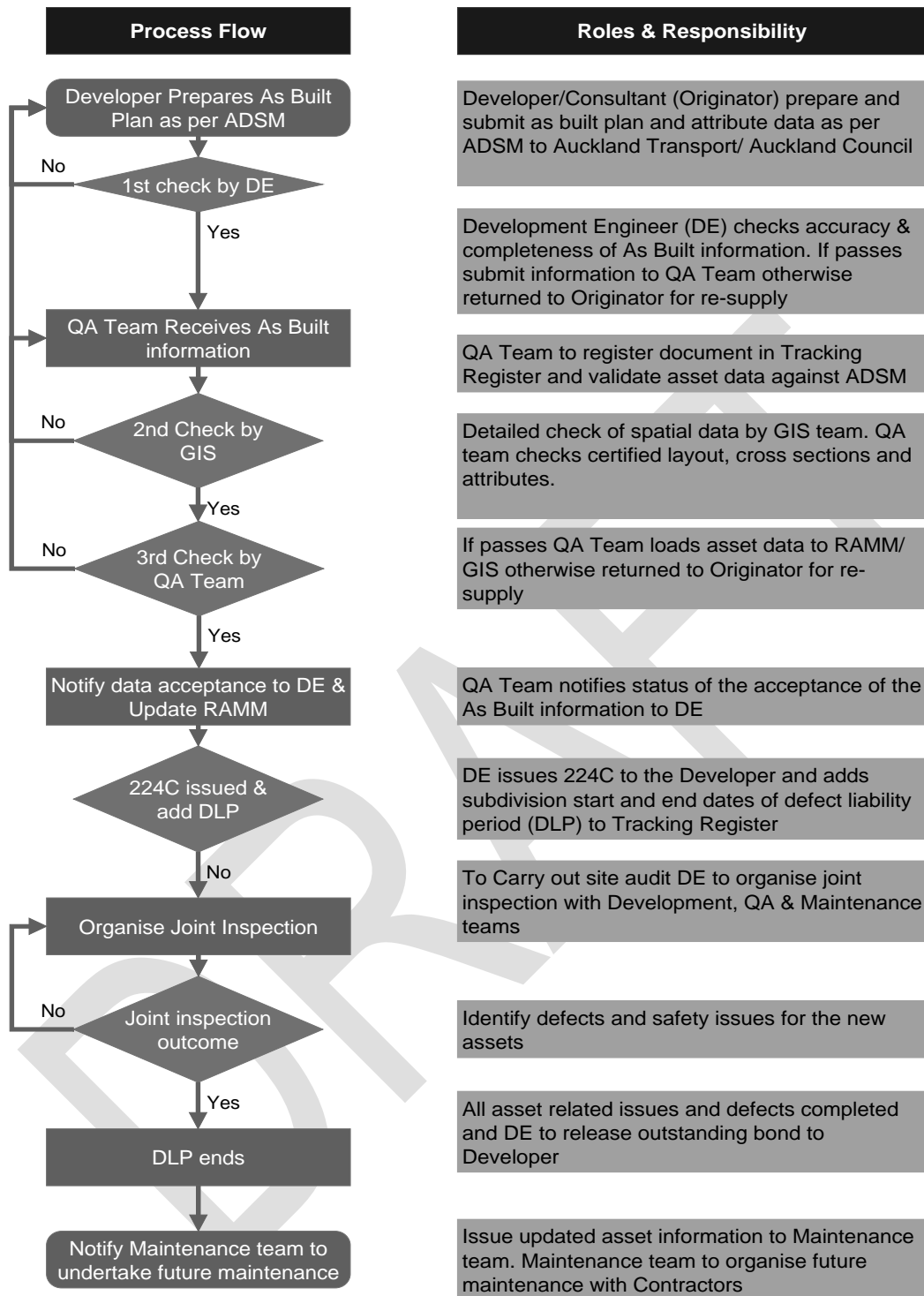


Figure 140: AT As-Built Plan Submission and Handover Process – Vested Assets

(ADSM – Asset Data Standard Manual is superseded by this Chapter 24 – Vesting Assets and Asset Data)

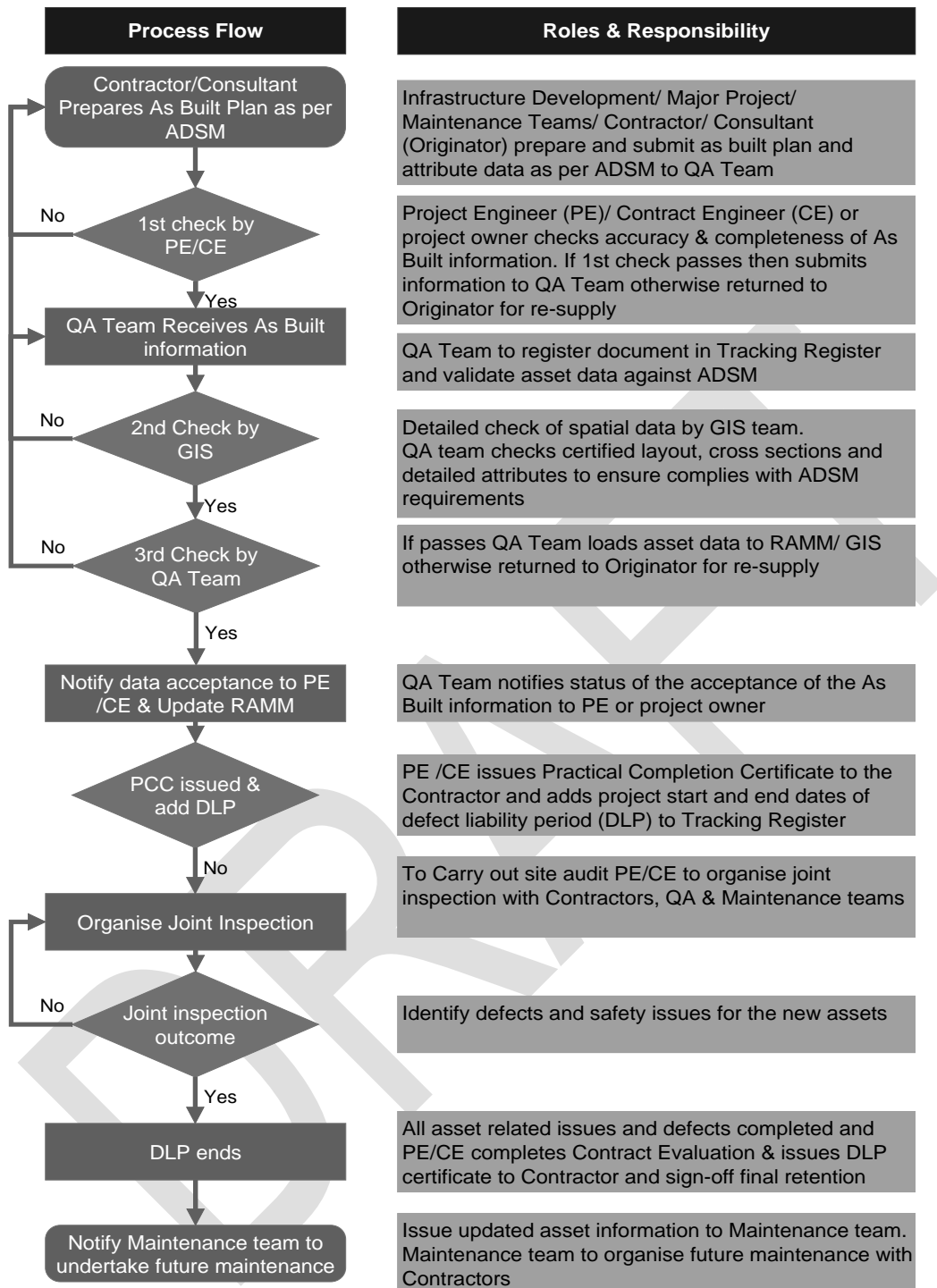


Figure 141: AT As-Built Plan Submission and Handover Process – Capital Projects

(ADSM – Asset Data Standard Manual is superseded by this Chapter 24 – Vesting Assets and Asset Data)

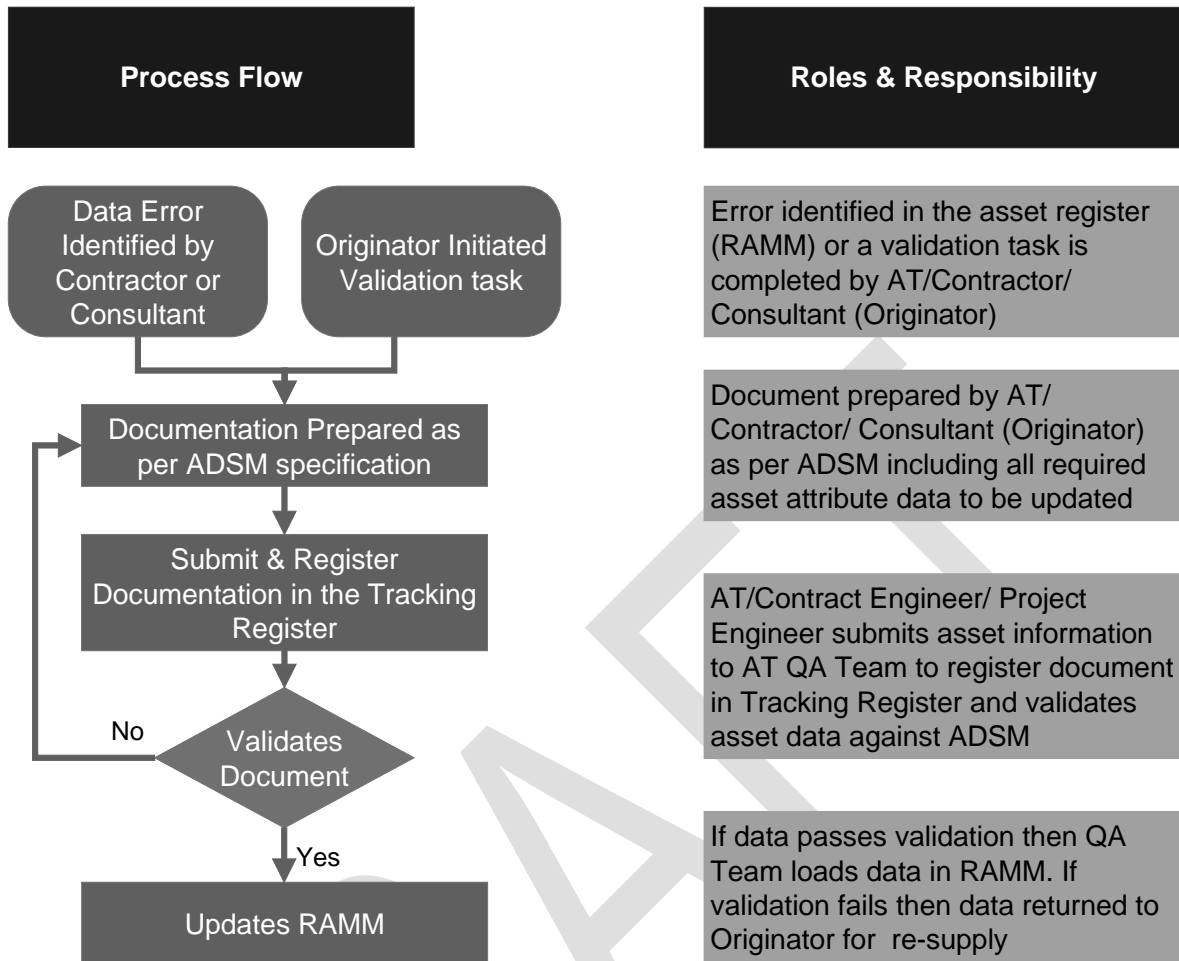


Figure 142: AT As-Built Plan Submission and Handover Process – Validation Projects

(ADSM – Asset Data Standard Manual is superseded by this Chapter 24 – Vesting Assets and Asset Data)



24.7 RAMM Forms and Lookup Tables

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Please Return To: AUCKLAND TRANSPORT Asset Systems and Monitoring		Accepted By: (AT Project/Maintenance Engineer / AC Development Engineer)		Further information about this work is available from:																																																							
		Contractor Name : [- - - - -]		Contractor Phone : [- - - - -]																																																							



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