2025/26 Key Data Improvement Plan for Resilience and Climate Change
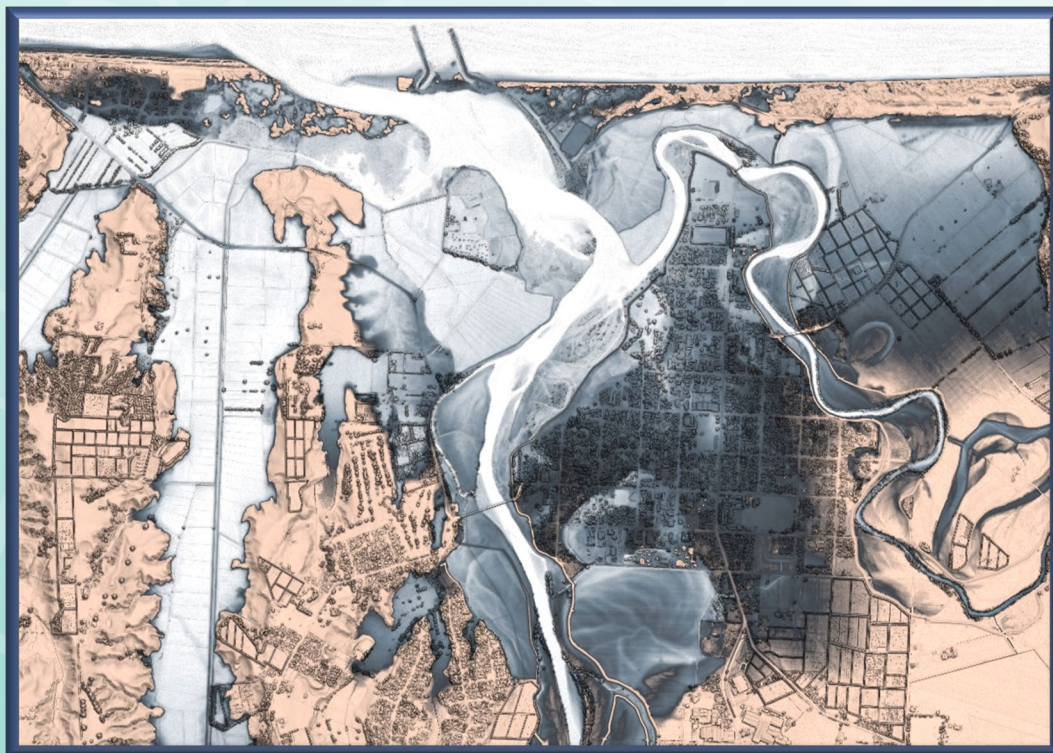
Acceptance

Role	Name	Signed	Date
Head of Location Information	Aaron Jordan	Approved	09/09/2025

Reference documents

Location	Description
Strategic intentions 2023–2027 | Toitū Te Whenua - Land Information New Zealand (linz.govt.nz)	LINZ Strategic Intentions 2023-2027
https://storymaps.arcgis.com/stories/fd06c8aa37e74b6b910cf53e98414a58	Key data improvement programme achievements 2019 - 2023
Key datasets for resilience and climate change | Toitū Te Whenua - Land Information New Zealand	Key Data Improvement Plans 2019 - 2025

Revision history

Date	Version	Author	Description
18/08/25	0.1	Susan Shaw	Draft priority improvements for 2025/26
04/09/25	0.2	Lead agency representatives	Priorities approved by all data lead agencies and partner agencies

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Contents

Summary

In October 2024, the government launched "Strengthening Disaster Resilience and Emergency Management," committing to every recommendation from the North Island Severe Weather Events Inquiry. A key focus was to unlock the full potential of the wider government data ecosystem to support smarter, faster emergency response. Alongside this, consultation began on the new Emergency Management Bill, which acknowledges the systemic gaps and urgent need for informed decision making nationwide.

> "It is increasingly clear large scale weather events should be considered the new normal"
>
> Hon Mark Mitchell, Minister for Emergency Management and Recovery

That "new normal" was evident throughout 2024/25, with emergency declarations for severe weather in Dunedin, Clutha, Westland, Canterbury and most recently across the top of the south. In this evolving climate, trusted data is key to effective emergency management.

In 2025/26 Toitū Te Whenua Land Information New Zealand (LINZ) continues to collaborate with the New Zealand Transport Agency (NZTA), Ministry of Business, Innovation and Employment (MBIE), Earth Sciences NZ (formerly NIWA), Stats NZ, and KiwiRail to ensure our key data is the national source of truth which can be relied on during an emergency. This year our collaboration extends to supporting Herenga ā Nuku Aotearoa to ensure tracks data is fit for purpose for emergency management.

Together, the geospatial emergency management community and key data lead agencies have agreed on the following data improvement priorities for the year ahead:

Key data improvement plan 2025/26

NZTA to

- o   investigate creating a national planned and unplanned road closure view,
- o   publish national road network by October 2025.

LINZ to publish NZ Buildings to link **property** IDs to address, building, height and District Valuation Roll data by June 2026, for government organisations.

Earth Sciences NZ to investigate the creation of a national, easy to use GIS layer for named **rivers** and **catchments** by June 2026.

Stats NZ to publish 2025 **population** estimates on the NZ Suburbs and Localities dataset, and the most up to date population estimates from 2022 – 2025 to be published on Stats NZ population grids by June 2026.

LINZ to support national coverage of **LiDAR** with next steps identified by June 2026, for completing Manawatū-Whanganui, Otago and Southland regions.

LINZ, MBIE and NEMA to investigate options for streamlined funding for **imagery** in an emergency by June 2026.

LINZ to publish NZ **Coastline** – Mean High Water Springs out of pilot by December 2025 and to publish a marine chart basemap by June 2026.

Herenga ā Nuku to ensure **tracks** data is updated, and to gather requirements for data improvements for emergency management by June 2026.

LINZ to publish 10 **building** outline datasets by December 2025 and Auckland and Otago by June 2026.

LINZ to capture new **address** points at the centre of buildings and to investigate moving existing address points by June 2026.

LINZ to promote the **suburbs** and localities change request process with councils by June 2026.

MBIE to work with LINZ to investigate using property information in the online **Rapid Building Assessment** forms by June 2026.

KiwiRail to promote **rail** freight and ferry disruptions and maintenance status and document process for using this data in an emergency by December 2025.

LINZ to include Territorial Authority in Ngā Pou Taunaha o Aotearoa's New Zealand Gazetteer **place names** data by December 2025.

No data improvements planned for **Topo** maps in 2025/26 while LINZ focuses on the future of topo maps and replacing the current technology platform.

Background

The key data improvement programme began in 2017 when Toitū Te Whenua Land Information New Zealand (LINZ) began collaborating with other organisations on resilience and climate change issues to make a real difference for New Zealand.

Applying this resilience and climate change lens to our work enabled us to engage directly with our customers in the emergency management geospatial community, and to get a better understanding of what data improvements could add the most value.

LINZ's Strategic Intentions for 2023-2027 recognise the importance of geospatial and property information, which is trustworthy, reliable, freely available and well used and confirms our continued support for emergency services.

Strategic intentions 2023–2027 | Toitū Te Whenua - Land Information New Zealand

Purpose

The purpose of this document is to

- provide an update of key data improvements since July 2024,
- assess whether the key data are fit for purpose for emergency management,
- collate the latest customer requests for data improvements, and
- confirm the key data lead agency data improvement commitments for 2025/26.

Key Data for Resilience and Climate Change

Why are national key datasets important?

Significant, national emergencies such as Cyclone Gabrielle in 2023 and Kaikōura earthquake in 2016, which affected communities across multiple regions at the same time, demonstrate the need for a coordinated, strategic approach.

Our customers, particularly in local government, have done great work to capture data for their local area. For example, some councils have developed detailed river network and water catchment boundaries. These councils will likely continue to invest in their data for emergency management risk reduction, readiness, response, and recovery.

Accessing and combining data from numerous local sources is difficult and time consuming. National datasets which can provide a single, authoritative source adds real value to support reliable emergency planning and risk reduction, informed emergency response and efficient recovery. Collaboration between councils and the national data lead agencies is vital to ensure key data are accurate, reliable, trustworthy and ready to use for emergency management.

What are the national key datasets?

The 15 key datasets focus on people, property, transport, rivers, place, land and coasts.

Theme	Key Dataset	Lead Agency
Population	NZ Estimated Resident Population Grid 2023 Statistical Area 1 + population information	Stats NZ
Buildings	NZ Building Outlines	LINZ
Address	NZ Addresses	LINZ
Suburbs	NZ Suburbs and Localities	LINZ
Property	NZ Property Boundaries NZ Property Titles including Owners	LINZ
Rapid Building Assessments	Not currently available	MBIE
Roads	National Road Centreline State Highway Road Status	NZTA
Rail	NZ Railway Network Disruptions Dashboard and Railway Resilience	KiwiRail
Rivers & Catchments	River lines and catchments with names River Environment Classification 3	Earth Sciences NZ
Imagery	NZ Imagery Basemap and Index	LINZ
Elevation	NZ DEM 1m / NZ DSM 1m / NZ Hillshade Elevation Aotearoa	LINZ
Topo Maps	NZ Topographic Basemap	LINZ
Coastline	NZ Coastline – Mean High Water Springs (Pilot)	LINZ
Place Names	Ngā Pou Taunaha o Aotearoa New Zealand Geographic Board's Place Names	LINZ
Tracks	Tracks	Herenga ā Nuku

Who is responsible for the national key datasets?

LINZ is collaborating with six lead agencies to improve the key datasets – New Zealand Transport Agency (NZTA), KiwiRail, Ministry of Business Innovation and Employment (MBIE), Earth Sciences NZ (formerly NIWA), Stats NZ and Herenga ā Nuku.

Partner organisations

The key data improvement programme introduced partner organisations in 2023, to work alongside the lead agencies to support the key data improvements.

The National Emergency Management Agency (NEMA) is partnering with MBIE's New Zealand Space Agency and LINZ to look at options for coordinating imagery acquisition during a response. The Ministry for the Environment is working with Earth Sciences NZ and LINZ on named rivers and catchments. Ngā Pou Taunaha o Aotearoa New Zealand Geographic Board, custodian of the NZ Gazetteer, are supporting the work to improve access to place name data. NZ Post is a key stakeholder in the work to improve addressing and suburbs and the Natural Hazards Commission is contributing to improving building data for insurance purposes and making this openly available.

Who are our customers?

The key data improvement programme engages directly with the geospatial emergency management community and has regular contact with individual customers.

There have been two formal customer consultations with the emergency management community which shape this work programme, in 2019 and again in 2023. In 2023 seven workshops, 25 interviews and 89 survey responses were reviewed to hear our customer's stories and learn from their experiences. More information about who shared their feedback is listed in Appendix A.

In addition, the programme has regular engagement with three customer representative organisations – Geospatial Emergency Management Aotearoa (GEMA), Geospatial Special Interest Group (Geospatial SIG) and Fire and Emergency New Zealand.

GEMA represents geospatial practitioners in local and central government, the National Emergency Management Agency, Civil Defence Emergency Management groups, private companies, and academic researchers. GEMA's committee reviewed the 2025/26 key data improvement priorities in June 2025.

Geospatial SIG brings together geospatial experts from Regional Councils to enable geospatial collaboration, capability, and communication. The Geospatial SIG reviewed the key data criteria assessment in 2020 (Appendix B) and have provided an annual review of the key data improvement priorities, most recently in July 2025. The Geospatial SIG also recently contributed to the Te Uru Kahika critical datasets for adaptation to climate related natural hazards, identifying similar data requirements.

Fire and Emergency NZ was previously a key data lead agency for suburbs data and remains part of the key data improvement programme as a representative of a national response agency. Fire and Emergency NZ reviewed the key data improvement priorities in June 2025.

Review of Key Data Improvements 2024/25

In 2024/25 eight of the key datasets improved, with many of these enhancements a direct result of feedback from the emergency management community.

NZTA delivered their first key data improvement by standardising **road** status symbology, with closed roads now in red on NZTA's Journey Planner and State Highway status API. NZTA also released provisional standards for recording road status, laying the foundation for consistent data capture across the road network.

Continuing with the transport theme, KiwiRail delivered one of the final improvement requests by publishing a new dashboard that tracks **rail** freight line and ferry disruptions. This represents a major step forward in supporting emergency logistics and supply chain resilience.

LINZ made it easier to access up to date **elevation** data by publishing merged national elevation datasets for Digital Elevation Model (DEM), Digital Surface Model (DSM) and Hillshade, and added a LiDAR dataset age view to Elevation Aotearoa so users can quickly understand data currency.

Responding to customer feedback, LINZ's **imagery** programme added place name and road name labels to the LINZ Imagery Basemaps and published guidance for adding Basemap layers to Esri's ArcGIS Online. A new **Topo50** basemap was also introduced.

The NZ Geographic Board improved access to official **place names** by publishing the NZ Gazetteer as an ArcGIS REST service, ensuring the data is discoverable through Esri's Living Atlas. A new labelling hierarchy field was added to the NZ Gazetteer to improve data usability and display.

LINZ also released the first pilot of Mean High Water Springs **coastline** and committed to its ongoing maintenance. This reflects growing demand for this data for a range of uses from regulatory documentation to climate change modelling.

Stats NZ released the 2023 Census data at Statistical Area 1 and published a **population** grid layer with all dates in the one layer, rather than publishing a new layer every year. Population count precision was reduced to make the data more practical and user friendly during high pressure emergency situations.

Look for the cup icon in the 2025/26 key data improvement plan section below to identify datasets with new improvements.

Key Data Improvement Partner Organisations

Our partner organisations have also reported good progress in 2024/25.

The **National Emergency Management Agency** (NEMA) is New Zealand's Authorised User for the International Charter Space and Major Disasters (Charter). The Charter provides access to high resolution satellite data during a response and provides support from Charter members to help source, analyse and map the data. NEMA activated the Charter again in 2024/25 on behalf of the Samoan Government after the sinking of the HMNZS Manawanui.   More info: disasterscharter.org

Ministry for Business, Innovation and Employment's (MBIE) NZ Space Agency hosted a remote sensing cross agency workshop in 2024 to gather initial information about agency requirements for imagery. The workshop was well attended indicating a clear endorsement to continue to focus on this work.

MBIE's NZ Space Agency, NEMA and LINZ are committed to working together with a focus on improving funding for imagery in an emergency in 2025/26.

The **Natural Hazards Commission** provided funding for a proof of concept project with LINZ and Datacom, to look at the feasibility of linking data to a building. The aim of the project is to build on the established Property Spine framework and align datasets from NHC, LINZ, Stats NZ, MBIE and Councils. The Building Spine project is due to report back on the value of this work for risk modelling in August 2025.

LINZ continues to collaborate with **NZ Post** in the addressing and suburb space, and it is hoped there will be future opportunities for aligning our two datasets into a single NZ address dataset, given a courier delivery requires a physical address plus a postcode which requires a combination of both LINZ and NZ Post data.

2025/26 Key Data Improvement Plan

Recent reviews with geospatial emergency management community representatives reaffirms the top priority remains improving roads data which is critical for situational awareness and response. Improving building attribution will enable the preparation for Rapid Building Assessments. Rivers, Population, and Elevation round out the top five data improvements which would add the most value.

> Feedback from the emergency management community remains unanimous …
>
> improving roads data provides the opportunity for adding the most value

Summary of key data improvement requests at July 2025

Number of data improvement customer requests:

- 1 or 2 — Very Good
- 3 to 5 — Good
- 6 to 9 — Average
- +10 — Poor
- New data

Each data improvement request provided by our emergency management customers relates to one of the key data assessment criteria (Appendix B).

Population

Agreed data improvement for 2025/26

Stats NZ to publish 2025 population estimates on the NZ Suburbs and Localities dataset, and the most up to date population estimates from 2022 – 2025 to be published on Stats NZ population grids by June 2026.

User story

Eagle Technology prepared population data specifically for emergency management based on Statistical Area 1 2018 Census data and the Index of Multiple Deprivation by Ministry of Health and University of Otago. This layer is well used because it is easy to understand, but as Eagle Technology is not an authoritative data source this introduces doubt and hesitation at a critical time.

The 250-metre statistical grid is a significant achievement, which helps inform the transport required to evacuate an area or how many essential supplies need to be prepared for an isolated community. Adding a daytime population estimate to the grid is critical. For example, the residential population estimate for central Christchurch is approximate 3,000, which increases to closer to 30,000 during business hours. In addition, information about the number of dwellings would enable resourcing estimates, for example how many responders are required to door knock individual homes during an urgent evacuation.

Other data improvements requests

1. Ready to respond - Publish an easy to use GIS layer of census data, with simplified attribution combined with deprivation index.

2. Attributes - Add estimated daytime population and dwelling count to 250m grid.

3. Topology – use hexagons rather than square grids to minimise sampling bias.
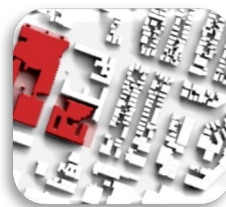
Recent data improvements

2023 Census data published at Statistical Area 1 and Statistical Area 2 geographies in December 2024. Census data is available from Stats NZ Geographic Data Service, ArcGIS Hub site and Living Atlas.

Estimated Resident Population Grid 250 metres published August 2024. Population estimates are reported to two decimal places, down from ten, and field name aliases applied to the ArcGIS REST service. There is now one single grid layer at each scale which holds data from previous years, rather than publishing a new layer each year.

Data improvement status of national population data is **Good**

Buildings

Agreed data improvement for 2025/26

LINZ to publish 10 building outline datasets by December 2025 and Auckland and Otago by June 2026.

User story

More time and resource are required to evacuate a rest home in an emergency. Rest homes are usually evacuated early and need extra resource to support the residents. Temporary accommodation needs to be carefully considered as an overnight stay in a welfare centre would not be appropriate. Being able to identify and prioritise rest homes is therefore critical.

Identifying which buildings are dwellings would save significant time when time is most critical during an emergency evacuation. This would help prioritise deploying Urban Search and Rescue teams for evacuations, assigning building inspectors to carry out Rapid Building Assessments and for Red Cross to collect welfare needs assessments.

Individual datasets about building types are available, but dispersed across multiple agencies in different formats, making it difficult to assess the complete picture and harder to analyse. An example is MBIE's Earthquake Prone Register which is available online as a spreadsheet but is not available as a spatial dataset.

Customer data improvement requests

1. Ready to respond – identify dwellings to inform evaluation planning.

2. Attribution – add building use including rest homes and update schools, hospitals and supermarkets to inform emergency planning and response.

3. Attribution – add an address to enable confirmation of property inspections.

4. Attribution - add building height to inform natural hazard risk modelling

5. Attribution – identify earthquake prone building from MBIE's register.
   Knowing earthquake prone status before entering a property would improve safety.

6. Update – a known update programme to inform users of future updates.

7. Source – enable councils to submit building updates to ensure data is current.

8. Extent – Capture buildings for all of New Zealand including populated islands.

⭐ **Recent data improvements**

Nineteen building datasets have been verified and published since June 2024.

The Property Squad has been working on a proof of concept project funded by Natural Hazards Commission to demonstrate the value of linking together data relating to a building. This proof of concept is due to be completed in August 2025.

Data improvement status of national buildings data is **Good.**

Fire and Emergency New Zealand have conducted a pilot study to combine LiDAR and building outlines data to identify buildings with an area over 1000m^2 or nine metres in height. These buildings typically require a specialised aerial appliance to battle fires. Road network analysis then identified the estimated response times to these buildings.

Address

Agreed data improvement for 2025/26

LINZ to capture new address points at the centre of buildings and to investigate moving existing address points by June 2026.

User story

Councils have requested clear information to help position a new address point to improve data consistency. Most information collected about a property during a response relates to a building. Geocoding information against NZ Addresses means this information is often manually edited and placed over the correct building to be meaningful, as happened during Cyclone Gabrielle. Having address points consistently placed on buildings would resolve this issue, save significant time, and improve data accuracy.

Customer data improvement requests

1. Accuracy – locate address points over buildings.

2. Attributes – add postcode
   A courier requires a physical address plus the postcode to deliver essential services.

3. National source of truth – work with NZ Post to align addresses
   Two addresses for the same property, a physical and postal address, creates confusion and significant time is spent cleaning address data in a response.

4. Update – enable online edits of NZ Addresses to increase data reliability, and confidence of users during a response that new developments are included.

5. Ready to respond - provide additional address for entrances and driveways.

Recent data improvements

Over 75,000 updates have been made to NZ Addresses in the past 12 months, with 14 Councils now sharing address updates direct to LINZ as a webservice.

LINZ published information recommending new address points are positioned at the centre of buildings, and confirming LINZ can receive address updates as webservices link.

LINZ continues to work with NZ Post on addressing, suburbs and opportunities for future collaboration.

Data improvement status of national address data is **Good.**

Suburbs

Agreed data improvement for 2025/26

LINZ to promote the NZ Suburbs and Localities change request process with councils by June 2026.

User story

NZ Suburbs and Localities was published in June 2023, and further work is required to ensure organisations including councils and NZ Post are aware of the online change request process to help improve this dataset.

Customers have requested improved suburb boundary alignment with property boundaries to ensure data accuracy and provide incorrect results when using suburbs are used to filter data for example in an emergency response dashboard.

Customer data improvements requests

1. Accuracy – Align NZ Suburb and Localities boundaries with property boundaries.

2. Attributes – Add an estimate of day time population and dwelling counts to help better understand the resourcing required during an emergency.

3. Attributes – removing the named bays, originally provide by Fire and Emergency NZ would reduce the amount of detail in the suburbs and localities data and ensure a consistent approach is taken to recording water bodies.

4. Attributes – review suburbs data compared to Stats NZ functional urban areas.

5. Ready to respond – Creating a national geocoder, which can be used in ArcGIS Online, would enable efficient data cleaning and consistent geocoding, and reduce the amount of work and time required during a response.

Recent data improvements

The NZ Suburbs and Localities Change Request Review Panel approved six major changes and eight minor changes in the last 12 months.

Stats NZ provided an annual update of population count by suburb.

FENZ have adopted a grid approach to sector boundaries rather than by suburbs.

Data improvement status of national suburbs data is **Good.**

Property

Agreed data improvement for 2025/26

LINZ to publish NZ Buildings to link property IDs to address, building, height and District Valuation Roll data by June 2026, for government organisations.

User story

Rapid Building Assessments (RBAs) are carried out on all buildings impacted by a flood or earthquake. The RBA confirms whether the building is safe to enter and whether an owner can return to their home. Approximately 10,000 RBAs were carried out in 2023, following Cyclone Gabrielle and the Auckland floods. Building Inspectors, often brought in from other regions, are required to manually enter information including address, area, number of storeys, construction age, structure type and cladding type while onsite. This information is already collected by councils in their District Valuation Roll (DVR) and held by LINZ as a national dataset. Publishing DVR data to inform RBA forms will save time and improve data accuracy.

Customer data improvements requests

1. Ready to respond - Publish NZ Buildings (Pilot) to link property IDs to address, building and District Valuation Roll available to all government agencies.

2. Accuracy – Resolve missing parcels in NZ Properties Hybrid (pilot) layer. Create a reliable national source of truth for property boundaries.

3. Attributes – MPI and LINZ to investigate identifying farm boundaries to support rural communities in an emergency.

Recent data improvements

NZ Property Hybrid (Pilot) will resolve missing parcels and to be published out of pilot with a CC-BY licence as NZ Property Boundaries in July 2025.

Natural Hazards Commission is funding a twelve week Building Spine project to look at the value which could be generated be linking datasets across government with buildings, including DVR data, heights, insurance claims and hazards.

The focus for the Property Squad remains on historic property and sales data.

Data improvement status of national property data is **Good**.

Rapid Building Assessments

Agreed data improvement for 2025/26

MBIE to work with LINZ to investigate using property information in the online Rapid Building Assessment forms by June 2026.

User story

Rapid Building Assessments (RBAs) assess buildings impacted by a flood or earthquake and confirms whether the building is safe to enter. Approximately 10,000 RBAs were carried out following Cyclone Gabrielle and Auckland Floods. Building inspectors are often brought in from other regions and they are required to manually enter information including address, building ID, building area, number of storeys, construction age, structure type and cladding type. This information is already collected by councils in the District Valuation Roll (DVR) and collated by LINZ. Publishing DVR data to inform RBA forms will save time and improve data accuracy.

Customer data improvements requests

1. National coverage – response agencies require a centralised source for all RBAs that is regularly updated to help inform wide spread events such as Cyclone Gabrielle.

2. Accuracy – to be assessed once data is published during future responses.

3. Update - to be assessed once data is published during future responses.

4. Licence – will RBA data be published with an open CC-BY licence?

5. Download – enable RBA data to be available for data download.

6. Webservices – publish RBA data as an ArcGIS REST and WFS webservice.

7. Metadata – ensure RBA metadata meets agreed standard for key data .

8. Discoverable – ensure RBA data can be found in Esri's Living Atlas.

9. Ready to respond – customers to confirm if RBA data is ready to respond in future.

10. National source – customers to confirm MBIE is national source of truth for RBAs.

Recent data improvements

Online Rapid Building Assessment forms are now available.

Data improvement status of national Rapid Building Assessments data is **Poor.**

Roads

⊕ **Agreed data improvement for 2025/26**

NZTA to

- o investigate creating a national planned and unplanned road closure view,
- o publish national road network by October 2025.

User story

Creating a national overview of unplanned road closures during an emergency is the most important key data improvement opportunity. A national overview, including both state highways and local roads, is vital to identifying isolated communities, understanding potential evacuation routes and planning detours for essential services and fast moving consumer goods. Multiple datasets with no consistent approach across the 69 Road Controlling Authorities results in poor information to support first responders.

During Cyclone Gabrielle, Road Controlling Authorities, road contractors, CDEM Intelligence Teams and the media spent an extraordinary amount of time and effort attempting to piece together information about road status from texts, emails and marked up screenshots of Google Maps without knowing how current, accurate or reliable the information was. NZ Herald provided the first overview of the whole road network, combining state highways and local roads. This information was published on 23rd February, nine days after the national state of emergency had been declared.

The consequences of road closures to public safety and delivery of essential services across the country should not be underestimated. In one example where the Ashburton Bridge was closed during the Canterbury floods, lorries were detoured off the state highway and along local roads which were already closed, with the lorries stuck for hours without the ability to turn around.

Public officials refer to NZTA's Journey Planner website as providing the latest information on road closures in an emergency. The problem is the public are likely to interpret Journey Planner as identifying all local roads as open. The emergency management community report the status of state highways as being timely and accurately, but the data becomes misleading because it does not include local roads.

Customer data improvement requests

1. Ready to respond - Combine state highway and local road unplanned closures.

2. Source of truth – provide guidance on how to capture unplanned road closures in an emergency to improve data accuracy and reduce the resourcing required for maintaining the data.

3. National coverage – requires both road centrelines and attributes for state highways and local roads to identify alternative and safe road detours.

4. Attribution – knowing road closure information is key during an emergency and heavy vehicle status confirms if detours are appropriate for all vehicles.

5. Accuracy – rural roads are often not accurate which reduces the value of the data.

6. Update – update programme is not known which reduces confidence in the data.

7. Topology – routable network would enable analysis to identify safe evacuation routes

8. Licence – adopt CC-BY licence to enable data sharing with all response agencies.

9. Services – ArcGIS REST and OGC WFS webservices road data would be easier to share.

10. Metadata – publish with agreed metadata for emergency management (Appendix C).

Recent data improvements

NZTA have adopted the traffic light approach to road status symbology, as advocated by GEMA. Closed roads on both NZTA's Journey Planner link and State Highway ArcGIS REST service link are displayed in red with restrictions in orange.

Good progress has been made with the creation of the multi modal transport network, with 65 Road Controlling Authority data now on board.

NZTA published a provisional standard for capturing unplanned road status data link.

Data improvement status of national roads data is **Poor.**

Rail

◎ Agreed data improvement for 2025/26

KiwiRail to promote freight line and ferry disruptions and maintenance status and document process for using this data in an emergency by December 2025.

👥 User story

The rail network datasets published by KiwiRail remains the key dataset considered most fit for purpose by the emergency management community. This is in large part due to the GIS team at KiwiRail being very responsive to customer requirements and using the data within their own organisation.

The remaining improvements focus on providing additional information specific to emergency events. An indication of track status is important for logistics planning to move essential goods between main ports in the North and South Islands to ensure continuity of the supply chain to all regions of New Zealand.

💬 Customer data improvement requests

1. Ready to respond – improve accuracy of rail track disruption information. Document how to use in a response and promote the availability of this service.

✅ Recent data improvements

Published trial version of KiwiRail rail freight network disruption dashboard link.

🏆 Data improvement status of national rail data is **Very Good.**

Rivers & Catchments

Agreed data improvement for 2025/26

Earth Sciences NZ to investigate the creation of a national, easy to use GIS layer for named **rivers** and **catchments** by June 2026.

User story

Rivers and catchments provide important points of reference during most emergency events as they define physical access and help describe where people are and how they are connected. It is one of the first datasets used by Search and Rescue to help identify a missing person.

One of the worst hit areas during Cyclone Gabrielle was flooded by the Esk River. Without river names it is difficult for someone outside the area to search for and locate this priority area.

The May 2021 Canterbury floods impacted the smaller catchments in lowland areas, including Ashburton and Selwyn, where there was heavy, localised rain. The larger catchments including the Rakaia, with headwaters in the Southern Alps were less affected, and so it was important to know catchment names and their extents.

Earth Sciences NZ River Environment Classification data does not have a name, and LINZ River Names Pilot is a cartographic product with gaps in the linework.

Regional councils often hold detailed river and catchment data, but the range of data sources, formats and access means it is difficult and time consuming to collate these into a national picture.

An easy-to-use GIS layer for both rivers and catchments, based on the hydrological modelling from the latest LiDAR data, which including names is one of the most significant opportunities for improvement across the key data improvement programme.

Customer data improvement requests

1. Ready to respond – an easy to use layer of national named rivers and catchments.

2. Attribution – add territorial authority name to filter river and catchment data.

3. Accuracy – national named rivers and catchments based on the latest LiDAR data.

4. Update – a known data maintenance programme.

5. Download – Named river network and catchments are not available for download.

6. National coverage – include all rivers and catchments, including offshore islands

7. Source of truth – Council river and catchments data are used more frequently than Earth Science's data.

⚙ Recent data improvements

Earth Sciences previously published an improved hydrological model (REC3) based on routing of surface flow pathways calculated from the LiDAR data where available, however river and catchment names have not been transferred.

Named rivers remain available for REC2 from the Earth Sciences data portal.

Data improvement status of national river and catchment data is **Average**.
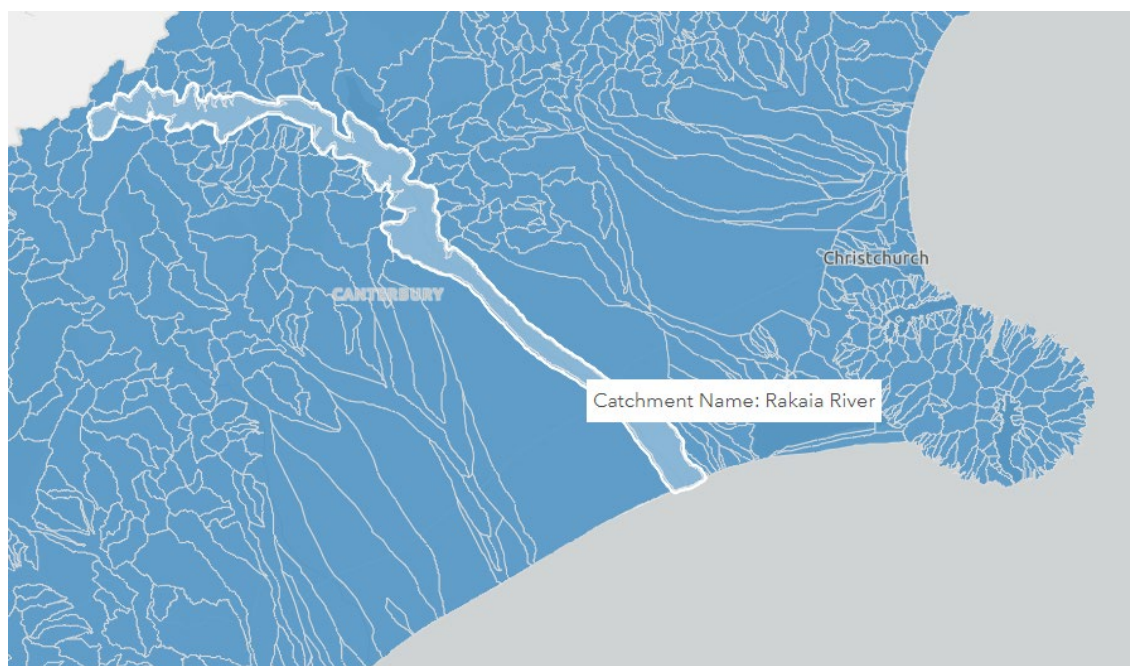
The Rakaia River catchment was less impacted during the Canterbury Floods in May 2021 because the catchment stretched back into the Southern Alps and only had a small area in the lowlands, compared to the neighbouring Selwyn Plains. Named catchments are critical to understanding this picture. Data supplied by Environment Canterbury.

Imagery

Agreed data improvement for 2025/26

LINZ, MBIE and NEMA to investigate options for streamlined funding for imagery in an emergency by June 2026.

User story

Satellite imagery can provide an important source of information in the early stages of a response, particularly when it is used to extract information such as flood extents or silt deposits. Imagery can reveal isolated areas, track the progression of events like floods or wildfires, and support decision-making, ultimately improving response coordination and minimising the impact. It also provides a benchmark of the event for future planning and insurance claims.

The real value lies in capturing the imagery as quickly as possible, close to peak flow of a flood or immediately after an earthquake. To achieve this, funding must be readily available and accessible without delay, enabling rapid deployment and data collection when it matters most.

Customer data improvements requests

1. Ready to respond – centralised, coordinated funding for imagery in an emergency would save a significant amount of time during a response, ensuring data is captured during critical weather windows to support response and recovery.

2. Accuracy – align the LINZ and Eagle imagery basemaps, ordering by date and resolution to ensure consistency and to avoid doubt in an emergency.

3. Attributes – Imagery is collected with infrared band, but LINZ only publish RGB. RGBI would enable analysis of change assessments following an event.

4. Update – a known aerial imagery update programme would improve confidence in decision making if there is certainty that the latest information is being used.

5. Metadata – publishing the LINZ Imagery Basemap index as an ArcGIS REST service would improve understanding of change since the imagery was captured and enable Eagle to align imagery basemaps.

6. Discoverable – add further historical imagery from RetroLens to LINZ Basemap to enable assessments of land change and help inform response and planning.

Recent data improvements

Guidance for requesting imagery during an emergency has been reviewed by response agencies and published out of draft, and a corresponding quick guide poster.

32 aerial imagery datasets and one satellite imagery dataset have been published on the LINZ Data Service and LINZ Basemaps since June 2024. This includes 70 historical imagery datasets that have been orthorectified for Auckland Council and published on LINZ Basemaps.

National imagery data is now publicly accessible via Amazon Registry of Open Data link. This is enabling Eagle Technology to maintain the Esri NZ imagery basemap.

National imagery base specification is now published.

Instructions for adding LINZ Imagery Basemap to ArcGIS Online have been published.

Place name and road name labels have been added to LINZ Basemaps.

Work is underway to publish imagery collected in RGBI and to create Imagery Aotearoa to share planned imagery data updates.

Four Regional Councils set up to share data with LINZ via SFTP in an emergency and LINZ ran an imagery road show to connect with individual Regional Councils.

MBIE's New Zealand Space Agency ran a workshop to understand how agencies are using space enabled data and how this can be improved, with a focus on land use.

Geospatial SIG confirmed LINZ imagery as the national source of truth.

Data improvement status of national imagery data has improved and is now **Good.**

Elevation

Agreed data improvement for 2025/26

LINZ to support national coverage of LiDAR with next steps identified by June 2026, for completing Manawatū-Whanganui, Otago and Southland regions.

User story

In addition to using the DEM and DSM datasets, contours are critical to the emergency management community. Contours remain the universal language to ensure field officers have a clear understanding of terrain. Contours are also used to communicate locations, for example in search and rescue to search between the 200 metre and 250 metre contours, or snowfall is expected down to 1000 metres.

Customer data improvements requests

1. Webservices - Publish a national contours datset from the latest data, for use in ArcGIS Online.

2. National coverage – Create national coverage of LiDAR for New Zealand, by completing Manawatū-Whanganui, Otago and Southland.

3. Update – Identify resourcing for a sustainable maintenance programme, noting that some LiDAR data in the national datasets is over 10 years old.

Recent data improvements

LINZ published national one meter Digital Elevation Model (DEM) link, Digital Surface Model (DSM) link and hillshade link on LINZ Data Service and LINZ Basemaps making it easier to know where to find the latest elevation data.

These national elevation datasets are accessible via Amazon Registry of Open Data link which enables Eagle Technology to maintain the Esri NZ elevation basemap.

Ten LiDAR datasets have been published this year, taking national coverage to 80%.

The latest information on LiDAR availability, case studies, user guides and visualisations are available via Elevation Aotearoa, which is recognised as a valued resource by the emergency management community. Elevation Aotearoa includes a new view of the currency of the elevation data, with some datasets now over 10 years old.

Data improvement status of national elevation data is **Good.**

Topo Maps

Agreed data improvement for 2025/26

No data improvements planned in 2025/26 while LINZ focuses on the future of topo maps and replacing the current technology platform.

User story

Topo50 and Topo250 maps remain highly trusted by the NZ Defence Force as a dataset which is authoritative and consistent across New Zealand, which form the base standard for planning, operations and exercises.

Topo50 maps were widely used at the start of Cyclone Gabrielle to provide an overview of the scale of the event, and to quickly provide important context at a regional level from a single data source. In Tairāwhiti and Hawkes Bay where power and communications were an issue in the first days of the response, paper topo maps were marked up to build a picture of the impact.

Customer data improvements requests

1. Publish greyscale version of the Topographic Basemap to make it easy to display and interpret operational data during an emergency.

Recent data improvements

Topo50 basemap published in WMTS format on LINZ Basemaps and discoverable from ArcGIS in January 2025.

66 NZTopo50 and 14 NZTopo250 map sheets have been updated during 2024/25.

Looking ahead, LINZ is considering the future of topo maps to ensure they remain fit for purpose for emergency response, as the current technology platform is replaced.

Data improvement status of national topo data is **Very Good.**

UNCLASSIFIED

Coastline

Agreed data improvement for 2025/26

LINZ to publish NZ Coastline – Mean High Water Springs out of pilot by December 2025 and publish a marine chart basemap by June 2026.

User story

An accurate and reliable national coastline with a known maintenance programme using the latest available information is critical to improve our understanding of the impacts of climate change and inundation across the country, and to inform modelling and forecasting, for example to plan for managed retreat.

Mean High Water Springs has become the standard coastline definition in regulatory documentation including resource management planning and cadastral surveying.

Attribution to describe the coastline e.g. rocky or sandy shoreline helps inform marine search and rescue deployment options and oil spill responses.

Agencies including Maritime NZ, Earth Sciences NZ, Regional Councils, and the Australian Hydrographic Office, duplicate copies of charts which is confusing.

Customer data improvements requests

1. Accuracy – Publish Mean High Water Springs coastline out of pilot.

2. Ready to respond – Publish nautical charts as an ArcGIS REST service.

3. Attribution – include description of coastline in Mean High Water Springs data.

4. Update – publish maintenance programme for NZ Coastline – Mean High Water.

Recent data improvements

NZ Coastline - Mean High Water Springs (pilot) published in January 2025.

Work has begun on creating a marine chart basemap for LINZ Basemaps.

LINZ is in the process of capturing 40% of the New Zealand coastline in detail as part of the 3D Coastal Mapping programme and with funding confirmed for the next three years. This data will also be used to update the Mean High Water Springs coastline and nautical charts for marine safety.

Data improvement status of national coastline data is **Good.**

Place Names

Agreed data improvement for 2025/26

LINZ to include Territorial Authority in Ngā Pou Taunaha o Aotearoa's New Zealand Gazetteer place names data by December 2025.

User story

Defining an area of interest provides important intelligence during an emergency response, when it is vital to be able to share the location of impacted areas, damaged infrastructure and isolated communities with multiple agencies. Authoritative place names help to quickly and accurately identify a location, and to communicate directions to support deployment from out of town with no local knowledge.

The New Zealand Gazetteer contains official and unofficial place names under the jurisdiction of the New Zealand Geographic Board Ngā Pou Taunaha o Aotearoa (the Board). Official place names are those that have been assigned, altered, adopted, approved, and validated under the Board's Act 2008 or through other statutes that assign official names, for example, Treaty settlement legislation. Unofficial recorded place names are those that have not been processed under the Board's legislation or through other relevant statutes. However unofficial recorded names reflect place names that are in use and well established over many years. Data is extracted from 'New Zealand Gazetteer', which is maintained by the Board's Secretariat, employed by Toitū Te Whenua LINZ.

Adding Territorial Authority will enable customers to filter place names to a specific area increasing the speed of searching, downloading and displaying the data.

Customer data improvements requests

1. Attribution – add Territorial Authority to place names in the New Zealand Gazetteer.

Recent data improvements

NZ Gazetteer place names published as an ArcGIS REST service in September 2024.

Labelling hierarchy added to NZ Gazetteer place names data layers (in LDS and ArcGIS REST service) to improve usability in June 2025.

NZ Gazetteer place names now discoverable in Esri's Living Atlas.

Data improvement status of national place names data is **Very Good.**

Tracks

⊕ Agreed data improvement for 2025/26

Herenga ā Nuku to ensure tracks data is updated, and to gather requirements for data improvements for emergency management by June 2026.

👥 User story

Tracks are a critical infrastructure during an emergency response, providing essential alternative access routes during emergency operations including evacuations. The 2011 Christchurch earthquakes demonstrated how quickly established transport networks can fail, creating isolated communities such as Lyttelton, with some residents using the Bridle Path track to return home. Accurate, up-to-date track data enables emergency services to assess viable access options.

Natural linear features, including rivers and tracks, are used by Search and Rescue to identify initial search areas of likely travel when locating missing trampers.

💬 Customer data improvements requests

1. National coverage – include tracks data for Chatham Islands.

2. Attributes – identify track attributes required for emergency management

3. Update – establish and promote the tracks data maintenance programme

4. Topology – connect tracks lines and remove duplicates and overlaps

5. Webservices – publish tracks data as a WFS webservice.

6. Metadata – ensure tracks metadata meets agreed standard for key data.

7. Discoverable – ensure tracks data can be found in Esri's Living Atlas or data.govt.nz

8. Ready to respond – customers to confirm if tracks data is ready to respond

9. National source – confirm Herenga ā Nuku is national source of truth for tracks.

⟳ Recent data improvements

Tracks is a new addition to the key data improvements plan in 2025/26, and its data improvements will be assessed in June 2026.

Next Steps

Regular updates on the key data improvement priorities outlined in the Summary will be prepared in collaboration with the lead agencies and shared with customer representatives, key data lead agencies, partner organisations, the LINZ Location Information Leadership Team, LINZ Kaihautū Leadership Team and the Minister for Land Information.

An annual report collating the data improvements over the previous 12 months will be prepared in July 2026 and will be available from the LINZ website.

Please share any feedback on the key data improvement programme with the team at linzdataservice@linz.govt.nz

Appendix A: Geospatial Emergency Management Community Engagement

Workshops

- Top of the South flood debrief (Aug 2022) and key data workshop - 10/05/23
- Geospatial Special Interest Group key data update - 12/05/23
- Hawke's Bay Cyclone Gabrielle debrief (Feb 2023) and key data workshop - 08/06/23
- Tairāwhiti Cyclone Gabrielle debrief (Feb 2023) and key data workshop – 01/08/23
- Geospatial Special Interest Group data improvement plan review - 18/09/23
- GEMA data improvement plan review - 21/09/23
- Key data lead agency data improvement plan review - 21/09/23

Interviews and Conversations

Regional

- Northland Regional Council – Anya Duxfield – 21/08/23
- Auckland CDEM - Camilo Roja Sorrego - 12/07/23
- Waikato Regional Council and CDEM – Derek Phyn and Jeff Graham - 05/09/23
- Bay of Plenty Regional Council - Glen Clarkin and Kate Waterhouse - 27/07/23
- Hawke's Bay Regional Council – Tim Farrier – 02/08/23
- Hawke's Bay CDEM – Teira Cowan – 07/08/23
- Gisborne District Council – Orlo Dennison – 23/08/23
- Taranaki CDEM - Val de Feo - 13/07/23
- New Plymouth District Council - Jake Hechter - 13/07/23
- Horizons Regional Council – Nathan Batchelor – 24/08/23
- Marlborough District Council - Malcolm Jacobson and Matt Henderson - 17/07/23
- Tasman District Council – Sam Flewitt – 14/08/23
- Environment Canterbury – Maurice Wills – 14/08/23
- Canterbury CDEM – Steve Ferris – 24/08/23
- Otago Regional Council – Ingrid Darragh and Gareth Andrews – 10/08/23

National

- NEMA – Charlie Blanch and Kate Burns – 04/09/23
- Fire and Emergency NZ – Hamish McEwen and Phil Woods – 08/08/23
- NZ Police – Sarah Hodgson – 08/09/23
- Defence – John Donaldson – 16/05/23
- Ministry of Primary Industries – Phillip Lubeck – 07/08/23
- Toka Tū Ake Earthquake Commission (EQC) – Richard Woods – 21/08/23
- Kainga Ora – Sam Keast – 01/08/23

Stakeholders

- Eagle Technology - Ed Cook - 06/07/23
- Tonkin + Taylor – John Carter – 16/08/23
- Transpower – Blaine Morch and Leo Lui – 21/08/23

Appendix B: Key dataset assessment criteria

Criteria	Definition
complete national coverage	Complete national coverage includes North Island, South Island, Stewart/Rakiura Island, Chatham Islands and populated coastal islands of New Zealand.
relevant data attributes	Information associated with a spatial feature, which is necessary to inform decision making related to emergency management and climate change
adequate level of accuracy	The scale of data capture is known and recorded, which is appropriate to inform decision making related to emergency management and climate change
acceptable update programme	A known and planned update frequency, which is appropriate for emergency management and climate change given the expected frequency of change.
suitable topology	The data is available as point, line or polygon. Lines are contiguous and can form a network, polygons are discrete and do not overlap.
relevant metadata	All metadata fields are recorded to meet the agreed Metadata Content Guidance (Appendix C)
free to access	Cost is not a barrier to accessing the data.
Creative Commons License - CC BY	Licensing is not a barrier to accessing, and reusing the data, including for commercial purposes.
suitable formats for download	Data is available to download in a minimum of two formats. Preferred formats are Esri and an open format.
webservice	Vector data as both OGC WFS and ArcGIS REST service
	Raster data as both OGC WMTS and ArcGIS Imagery Tile Service
discoverable	Data is easily identified and described after a keyword search on data.govt.nz or Esri's Living Atlas
performance	Speed of download or speed of webservice is acceptable.
national source of truth	The authoritative, reference dataset at a national scale. Local versions may be more uptodate, but the best available data for the whole of New Zealand.
ready to respond to an event	Data has been prepared specifically to enable an efficient and effective response to an emergency event

Appendix C: Metadata

Minimum requirements for metadata for resilience and climate change key datasets

Metadata element required	Definition	Example
Dataset name	Name by which the data is known.	NZ Property Titles
Unique identifier	Unique reference ID specific to the metadata record, often automatically assigned.	2d28e0af-c177-628b-d667-22b15b648d55
Source	Name of organisation responsible for the metadata.	LINZ - Land Information New Zealand
Source contact information	Contact details for enquiries relating to the data. Include name, phone number or email.	customersupport@linz.govt.nz
Date created - dataset	Date data was first created.	2018-11-20
Date created – metadata	Date metadata record was created / last updated.	2018-11-20
Last updated - dataset	Date the data was last updated.	2024-08-20
Description	An abstract of additional information about the content of the data used to assess usefulness of the resource.	This dataset provides title information (excluding ownership) where there is a relationship to one or more primary parcels. Refer to full description of this data. https://data.linz.govt.nz/layer/50804-nz-property-titles/

Extent	The geographic location the data applies to, often defined by the coordinates of the 4 corners of the bounding box that covers the extent of the dataset.	166.688755883 -175.833301833 -47.2899925167 -34.12963565
Coordinate (reference) system	Name or identification code for the coordinate reference system to which the data is associated. New Zealand Geodetic Datum (NZGD) 2000 is: 4167	4167
Spatial representation type	The method used to spatially represent the data e.g. point, line, polygon, polyline, raster, vector, TIN (Triangulated Irregular Network).	polygon
Method of collection	Description of the sources and processes used to produce the data.	The function of the Registrar-General of Land is to provide a system, whereby the ownership of land can be legally evidenced, under which dealings with it can be affected and recorded Refer to method of collection example https://data.linz.govt.nz/layer/50804-nz-property-titles
Purpose	Summary of the intended use of the data, including why it was created and the uses it has been designed for.	This layer provides title information (excluding ownership) where there is a data link to one or more primary parcels.
Dataset attribution	Description of each attribute.	This information is provided in the accompanying document: property-and-ownership-simplified-tables-data-dictionary.pdf
License	Access and use constraints applied to the data	Creative Commons Attribution 4.0 International

Appendix D: 2024 Key Data Assessment

Key data improvements 2023/24

Population	Building	Address	Suburbs
Property	Rapid Building Assessments	Roads	Rail	Elevation
Rivers & Catchments	Imagery	Coastline	Topo Maps	Place Names

More information about data improvements introduced since 2019 available from Key Data Improvement **Story Map** 2023

Legend:
- < 3 Very Good
- < 5 Good
- < 9 Average
- 10+ Poor
- New datasets not scored