Technical Summary

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North West Rapid Transit Corridor
Addendum Alternatives Assessment Summary

Document Status

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NZ TRANSPORT AGENCY WAKA KOTAHI

TE TUPU NGĀTAHI SUPPORTING GROWTH

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1 Introduction

In 2022, New Zealand Transport Agency Waka Kotahi (NZTA) and Auckland Transport (AT) (through Te Tupu Ngātahi) lodged 19 Notices of Requirement (NoRs) with Auckland Council (Council) to identify and secure (by designation) the local and strategic transport network required to support the planned long-term growth of North West Auckland.

The North West Strategic Network was developed to support the growth of Kumeū-Huapai and includes a Rapid Transit Corridor, which is a dedicated busway connecting Kumeū-Huapai with the Auckland Region via Auckland's Rapid Transit Network. Two rapid transit stations are provided, one at Huapai town centre and one west of Huapai with park-and-ride facilities. This busway will be an extension to the North West Busway, which will soon connect Brigham Creek with Auckland's city centre.

Council notified the NZTA and AT decisions for these NoRs on 20 June 2024, with the appeal period closing on 12 July 2024.

As an addendum to the comprehensive Detailed Business Case and Assessment of Effects on the Environment developed in support of the NoR application, this report has been produced:

a) In response to updated rainfall data and a flood mitigation investigation released in February 2025 by Auckland Council Healthy Waters (Healthy Waters) for the Kumeū-Huapai township; and

b) To support the NZTA response to appeals from Future-Kumeu Incorporated (Future-Kumeu), Steve and Sofia Nuich Trustee Limited (Nuich) and FBL Properties Limited (FBL) who have appealed one, or all, of the following NoRs:

    i. Alteration to designation 6766 State Highway 16 Main Road Upgrade (S2);

    ii. Rapid Transit Corridor (S3);

    iii. Huapai Rapid Transit Station (HS); and

    iv. Kumeū Rapid Transit Station (KS).

Te Tupu Ngātahi (on behalf of NZTA) has undertaken additional analysis to understand the implications of this updated information provided by Healthy Waters and to test whether previous recommendations remain valid. This process has involved:

a) Undertaking technical analysis of the updated rainfall data;

b) Anticipating likely implications of this for urban growth of Kumeū-Huapai; and

c) Undertaking further assessment of the Rapid Transit Corridor alignment and station locations.

2 The North West Growth Area

The North West Growth Area is located approximately 20-25km to the west of Auckland's city centre and includes the live-zoned growth area of Redhills as well as the future growth areas of Whenuapai, Riverhead and Kumeū-Huapai, identified in Figure 1.

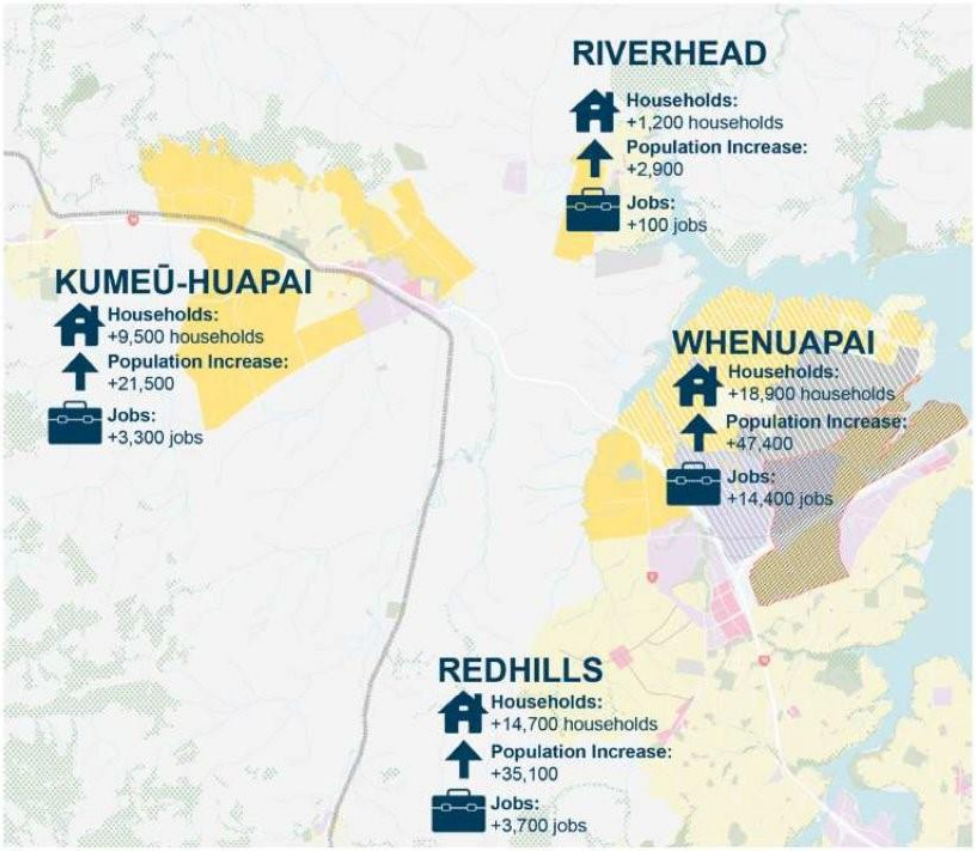


Figure 1 North West Growth Areas

The settlements of Kumeū and Huapai emerged through the presence of a historically important transport corridor connecting the Waitematā and Kaipara Harbours. For much of the 19th and 20th centuries, the settlement of Kumeū consisted of little more than a hotel, station and store. Figure 3 indicates historical growth has followed the strategic alignment of State Highway 16 (SH16) and the North Auckland Rail Line (NAL), with recent growth remaining closely connected to this linear spine.

2.1 Previous Growth Assumptions and Recent Growth

The anticipated future receiving environment for the development of the North West Strategic Network at the time the NoRs were lodged, was based on:

a) Growth forecasts from the Future Urban Land Supply Strategy 2017 and the Auckland Future Development Strategy 2023 – 2053 (FDS);

b) Future Urban Zone (FUZ) spatial extents defined in the Auckland Unitary Plan (AUP);

c) Existing and progressing development at Matua Road, Oraha Road, Huapai Triangle and Kumeū Central (as described below);

d) Centre expansion and connectivity defined in the Kumeū-Huapai Centre Plan 2017 (Kumeū-Huapai Centre Plan) and reinforced by the Spatial Land Use Strategy – North West 2017 (Spatial Land Use Strategy);

e) Further investment and growth in commercial, community and public realm facilities in Huapai;

f) Expansion of industrial land transition south along Access Road, following existing patterns;

g) Intensification around the proposed new stations as enabled by the National Policy Statement on Urban Development (NPS-UD); and

h) The establishment of an additional local centre within FUZ. The Spatial Land Use Strategy recommends a location west of Huapai, to the south of SH16.

Figure 2 illustrates the land use zoning at the time when the previous Rapid Transit Corridor alternatives assessment was undertaken to support the NoRs in 2022. The existing business and community centres of Kumeū and Huapai are linked along SH16 with various community-facing functions and businesses.

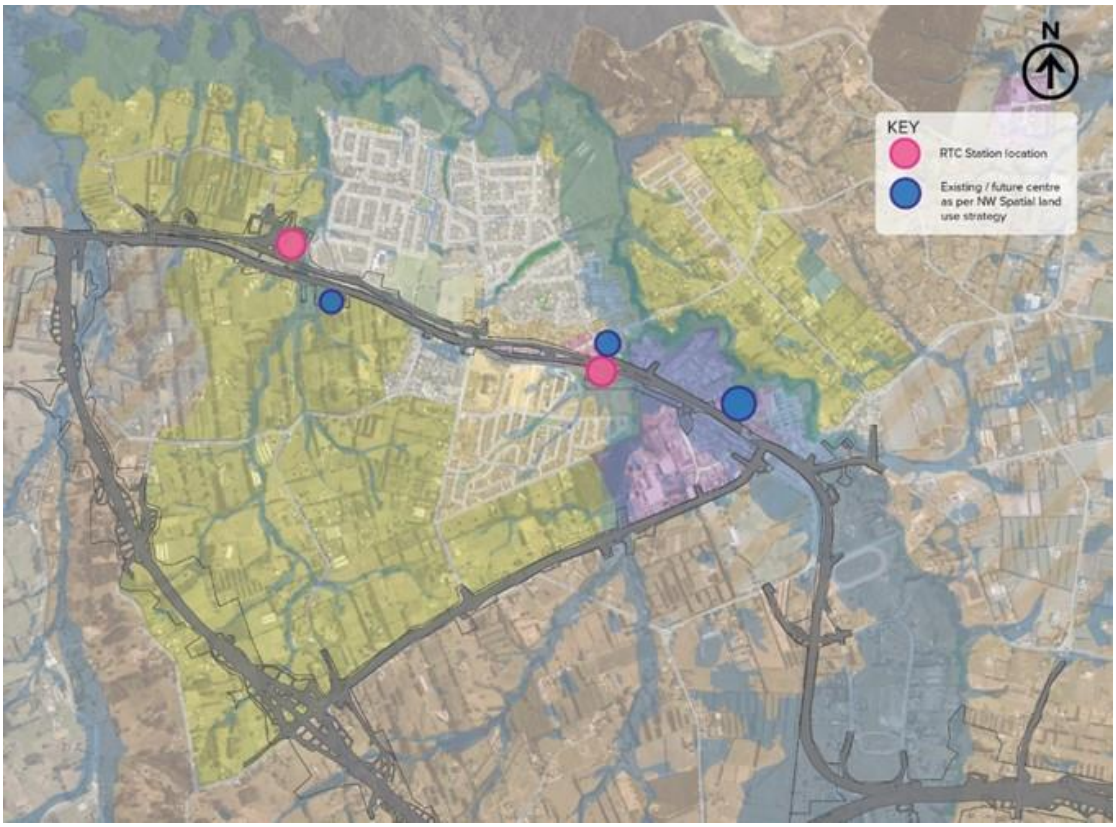


Figure 2 Previous assumption for land use zoning and centres

The current population of Kumeū-Huapai (6,945) has doubled since 2018 and nearly quadrupled since 2013[1]. Several large-scale residential developments have been completed over the last decade, including the Huapai Triangle, Huapai 2 (Oraha Road Special Housing Area), Kumeū

[1] Stats NZ – Tatauranga Aotearoa 2023 Census

Central, and Matua Road development. As of 2023, approximately 87ha of land has been live zoned in Kumeū-Huapai[2].

This demonstrates that, despite timeframes for planned growth in the area being described as 'longer-term'[3], significant land use change has already occurred and is likely to continue to occur through:

a) Out-of-sequence private plan changes. The NPS-UD requires local authorities to be responsive to unanticipated or out-of-sequence developments, such as private plan changes.

b) Central government initiatives such as Special Housing Areas and the more recent Fast-track Approvals Act.

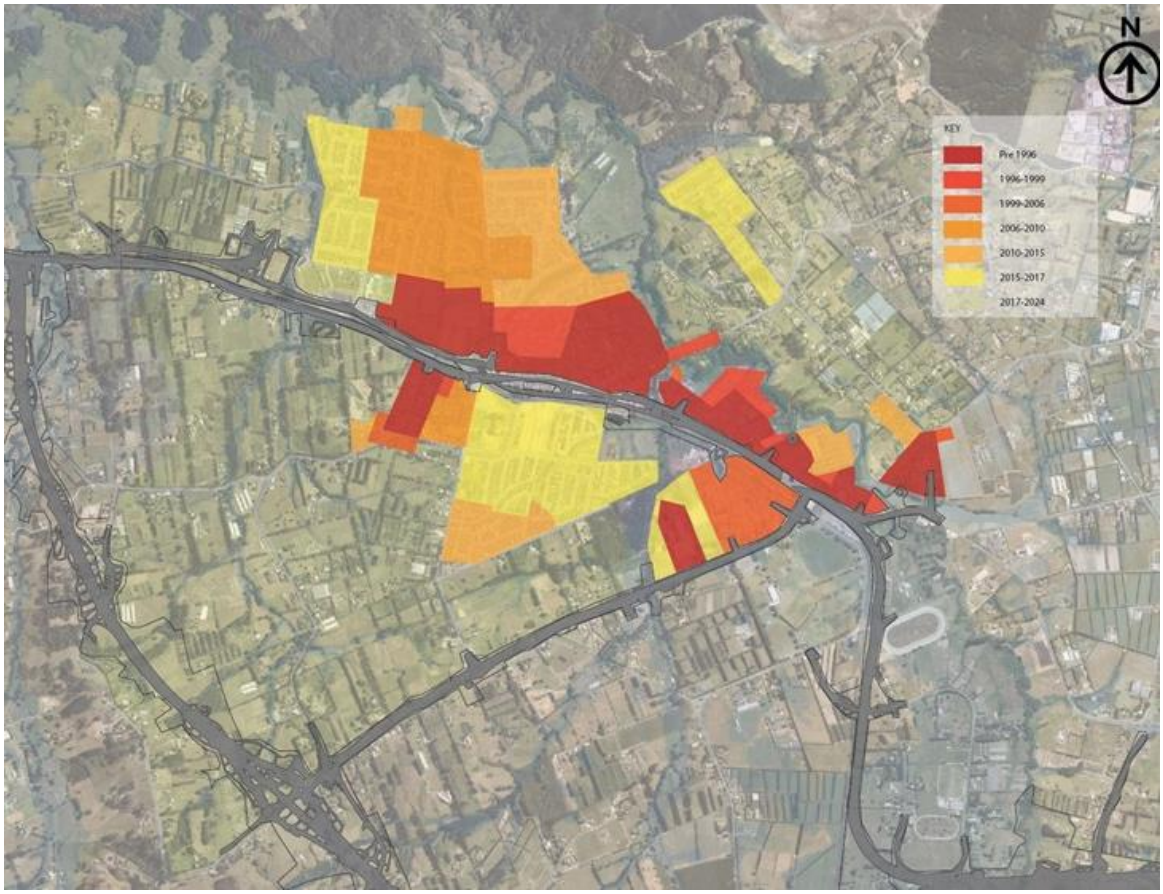


Figure 3 Historical growth of Kumeū-Huapai

Over the next 30 years, an additional 100,000 people are forecasted to live in Northwest Auckland sub-region. In Kumeū-Huapai, this means the population is expected to increase by about 21,500 people, including about 9,500 new dwellings and 3,300 new jobs.[4]

[2] Auckland Future Development Strategy, Future urban areas evidence report, Auckland Council, November 2023

[3] Auckland Future Development Strategy 2023-2053 revised the timing development to 2050+

[4] Auckland Plan 2050 Development Strategy

2.2 National Policy Statement on Urban Development

The NPS-UD seeks to ensure well-functioning urban environments and to enable all people and communities to provide for their social, economic, and cultural well-being and health and safety. The NPS-UD directs that urban development is integrated with infrastructure planning and funding decisions and is strategic over the medium to long term. Within the NPS-UD, Auckland is recognised as a Tier 1 urban environment, therefore it is subject to a greater policy direction in terms of intensification and density of urban form.

2.2.1 Development capacity

The NPS-UD[5] requires that Council, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business over the short term, medium term and long term (out to 30 years). This is planned through the preparation of the FDS, which spatially identifies:

a) the broad locations in which development capacity will be provided over the long term; and
b) the development infrastructure and additional infrastructure required to support or service that development capacity, along with the general location of the corridors and other sites required to provide it; and
c) any constraints on development.

When preparing or making any changes to the AUP, the Council must have regard to the FDS.

The NPS-UD[6] requires that local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is unanticipated by Resource Management Act (RMA) planning documents, or out-of-sequence with planned land release. Therefore, despite planned growth in Kumeū-Huapai not being anticipated in the FDS until 2050+, significant development can be proposed, and Council must be responsive to ensure development capacity.

Two recent examples of private plan change proposals for FUZ land that are out-of-sequence to the FDS are:

Table 1 Private Plan Change out of sequence with FDS

Plan change	Location	Status	FDS timing
Private Plan Change 93	Warkworth South	Approved	2045+
Private Plan Change 100	Riverhead	At Council hearing (currently adjourned for conferencing)	2050+

[5] National Policy Statement on Urban Development 2020, Policy 2
[6] National Policy Statement on Urban Development 2020, Policy 8

2.2.2 Qualifying matters

In conjunction with the confirmed implementation of the proposed rapid transit stations, Council is required to initiate a process that enables building heights of at least six storeys in accordance with the NPS-UD[7] within a walkable catchment of the station. Future-Kumeu, in their appeal, note that:

"*The location of the transport infrastructure will form a framework for future residential and commercial development that will be located on a flood plain in order to efficiently access that transport infrastructure.*"

The NPS-UD requires the Council to modify the relevant building height or density requirements only to the extent necessary (as specified in subpart 6) to accommodate a qualifying matter in that area. If Council considers that it is necessary to modify the building height or densities to provide for a qualifying matter, it must identify the location and specify the alternate building heights and densities proposed for those areas.[8]

A qualifying matter refers to a specific matter in which the directive to enable higher density and taller buildings may justifiably be modified or limited. Council must thoroughly assess and clearly justify why those matters make the higher-density outcomes inappropriate in those areas, such as protecting areas of cultural or historic significance, or avoiding places at risk from natural hazards. As an example, within proposed Plan Change 78, the Council has identified the management of significant risks from natural hazards as a matter of national importance under section 6 of the RMA and, therefore, a qualifying matter under clause 3.32(1)(a) of the NPS-UD. It is considered likely that, at the time of the confirmed implementation of the proposed rapid transit stations, the Council will apply this same consideration in the application of qualifying matters for land that is subject to the 1% AEP floodplain.

"Planned" in relation to transport means planned in a regional land transport plan prepared and approved under the Land Transport Management Act 2003. Subsequently, when the designation is confirmed, it is not considered "planned" in relation to the NPS-UD, and Policy 3 would not apply until funding has been allocated for implementation under the Regional Land Transport Plan.

When the project meets the definition of planned rapid transit, there will be a future process that gives consideration to the appropriateness of intensification of land that is subject to the 1% Annual Exceedance Probability (AEP) floodplain of the Kumeū River. This is particularly relevant to the proposed Kumeū Station and land east of the station site affected by the floodplain and means that alternate building heights and densities may be proposed in those areas. Therefore, confirmation of the designations for rapid transit stations will not "*form a framework for future residential and commercial development that will be located on a flood plain in order to efficiently access that transport infrastructure."*

[7] Policy 3(c)(i) requires building heights of at least 6 storeys within at least a walkable catchment of existing and planned rapid transit stops.

[8] Subpart 6 Clause 3.31(2).

2.3 Auckland Future Development Strategy 2023-2053

In 2023, Auckland Council released the Future Development Strategy 2023-2053 (FDS). The FDS sets out the Council's plan to manage growth across the Auckland region for the next 30 years. It seeks to integrate long-term land use and infrastructure planning while meeting future environmental, population, housing and employment needs. The FDS sets the temporal priority for planned short, medium and long-term growth and identifies the appropriate requirements that need to be considered from the start of the development process.

The FDS identifies the northwestern extent of the Kumeū-Huapai future urban area is to be downzoned due to property located within the 1% AEP floodplain and associated risk to life (black extent in Figure 4). The remainder of the Kumeū-Huapai growth area has been 'red-flagged' in the FDS, which introduces specific considerations associated with land use integration, stormwater and flood mitigation prior to upzoning for urbanisation. Reduction of the FUZ extent, and any subsequent changes to FUZ areas that have been 'red flagged' following further investigation, will be progressed through statutory processes, including updating the AUP.

The FDS revises the planned timing of FUZ development in Kumeū-Huapai to 2050+ based on the above considerations and introduces 'infrastructure prerequisites' as a tool to guide the timing of development. All of the NoRs associated with the North West Strategic Network are listed as infrastructure prerequisites to support the development readiness of the North West Growth Area.

The implications of the FDS on the North West Strategic Network were assessed during the NoR Council Hearing as part of expert evidence.[9] This assessment concluded that the release of the FDS had no notable effect on the need for the dedicated busway to Kumeū-Huapai or catchment patronage analysis that had already been undertaken.

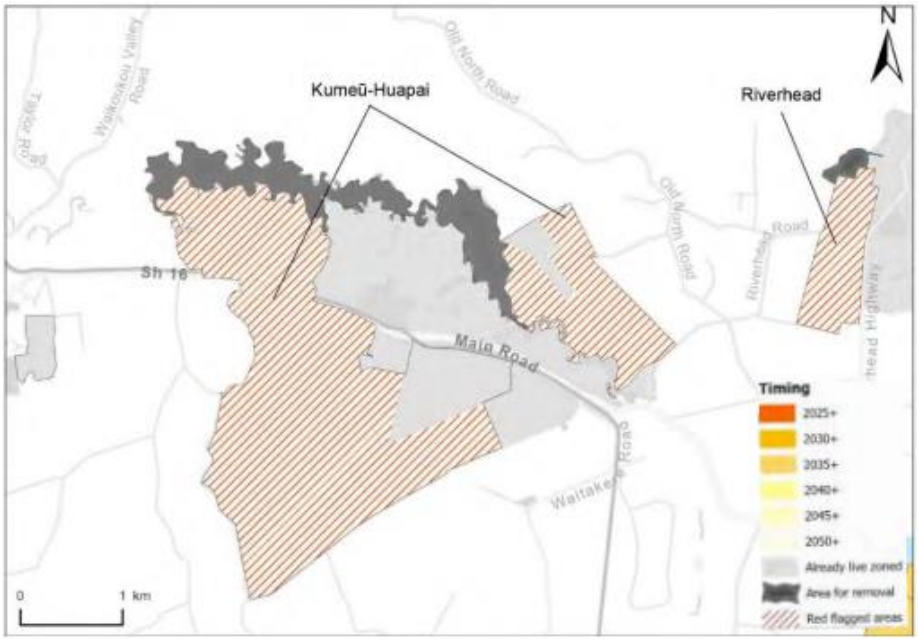


Figure 4 Kumeū-Huapai-Riverhead Future Urban Area, FDS 2023-2053

[9] Statement of Rebuttal Evidence of Regan Elley, 8.09.2023, Paragraph 3.73 – 3.79

2.4 Kumeū-Huapai Centre Plan and Spatial Land Use Strategy

As an outcome of planning and engagement undertaken in the development of the Kumeū-Huapai Centre Plan, Council identified the expansion (joining-up) of the existing Kumeū and Huapai town centres to accommodate forecasted growth and to provide an attractive town centre that focuses on the Kumeū River, has improved connections, and celebrates its heritage and rural hinterland. This town centre plan was reinforced through the Spatial Land Use Strategy, which was developed by Council in parallel with the development of the North West Strategic Network. The Spatial Land Use Strategy identified the location of future centres, including a future local centre and neighbourhood centres, along with an expansion of industrial land along Access Road.

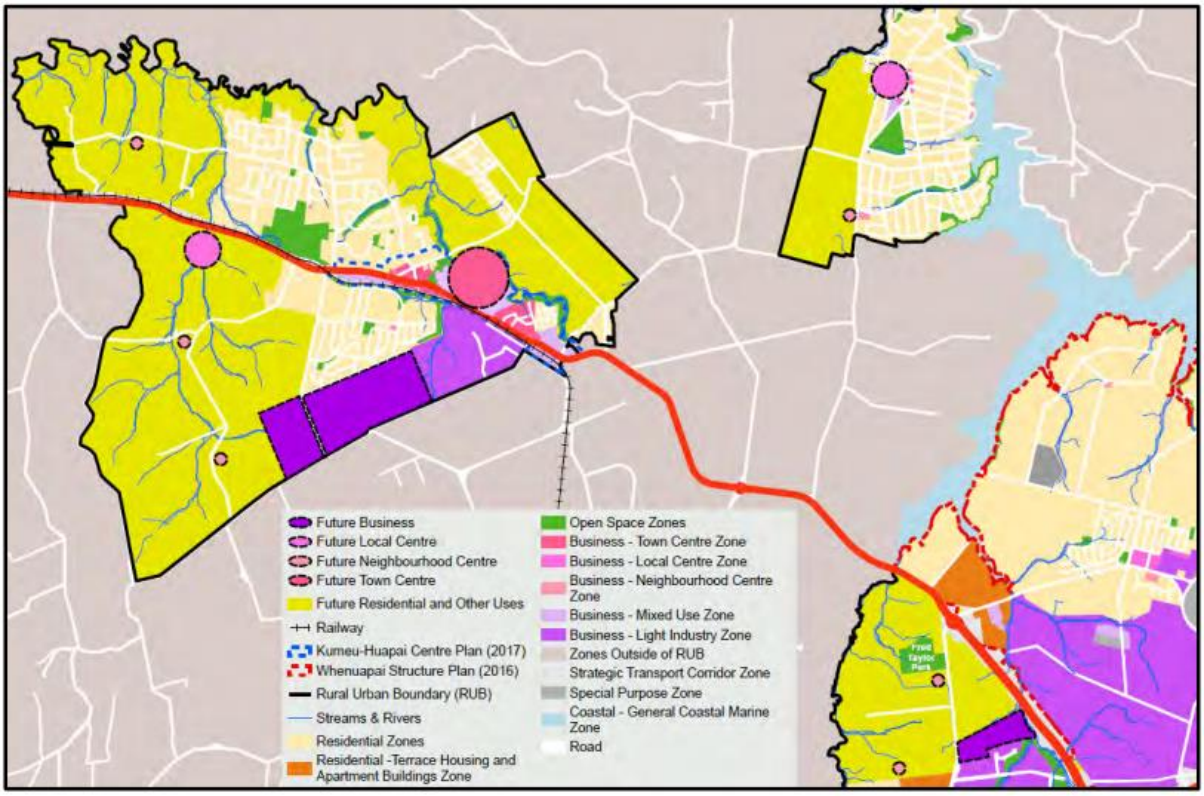


Figure 5 Spatial Land Use Strategy

Key points:

a) Kumeū-Huapai is identified in the FDS as an area where development capacity will be provided over the next 30 years
b) Council is required to respond to unplanned or out-of-sequence development proposals, therefore growth is occurring (and can continue to occur) in Kumeū-Huapai ahead of FDS timeframes
c) Land use intensification around busway stations will need to consider the management of significant risk from flood hazard

3 Demand for Rapid Transit in North West Auckland

NZTA and AT, together with Council, Ministry of Transport and KiwiRail, have developed an aligned system view of Auckland's long-term Rapid Transit Network – the Auckland Rapid Transit Pathway 2025 (ARTP), which includes the heavy rail network and dedicated busways. The ARTP outlines a 30-year plan to develop Auckland's Rapid Transit Network. The Northwest Busway is an important component of the network and is prioritised in Phase 1 of the ARTP due to existing significant corridor deficiencies. The Northwest Busway will connect to the City Rail Link (CRL) stations in Auckland's city centre to maximise CRL investment.

Figure 6 Auckland Rapid Transit Network

3.1 Northwest Busway – Brigham Creek to City Centre Section

The Investment Case for the Northwest Busway (Brigham Creek to Auckland's city centre section) was endorsed by the NZTA board in April 2025. NZTA is currently developing documentation for consenting purposes under the Fast-track Approvals Act, under which it is a listed project. The Minister of Transport announced his support for this project in May 2025, indicating that construction could start as soon as 2027. As part of this project, a bus station at Westgate is currently under construction and is anticipated to open in mid-2026.

3.2 Western Express Bus Services

NZTA and AT delivered the Northwest Bus Improvements Project in 2023 to establish an early rapid transit service (the Western Express or WX1) on the Northwest motorway, with regular buses currently operating every 10 minutes between Westgate and the city centre.

The service is very popular, and passenger numbers are already exceeding the capacity of the temporary stops built at Te Atatū and Lincoln Road motorway interchanges. The WX1 service currently uses interim facilities to build travel patterns ahead of the busway. Launched in November 2023, the WX1 reached 800,000 boardings in its first year, 45% higher patronage than forecast. This fast patronage growth confirms the strong need for a rapid transit service in the Northwest.

Figure 7 indicates latent demand for reliable public transport in the Northwest. Ridership of the new WX1 service on SH16 is growing significantly faster than Auckland's popular Northern Express (NX) service was at the equivalent time.

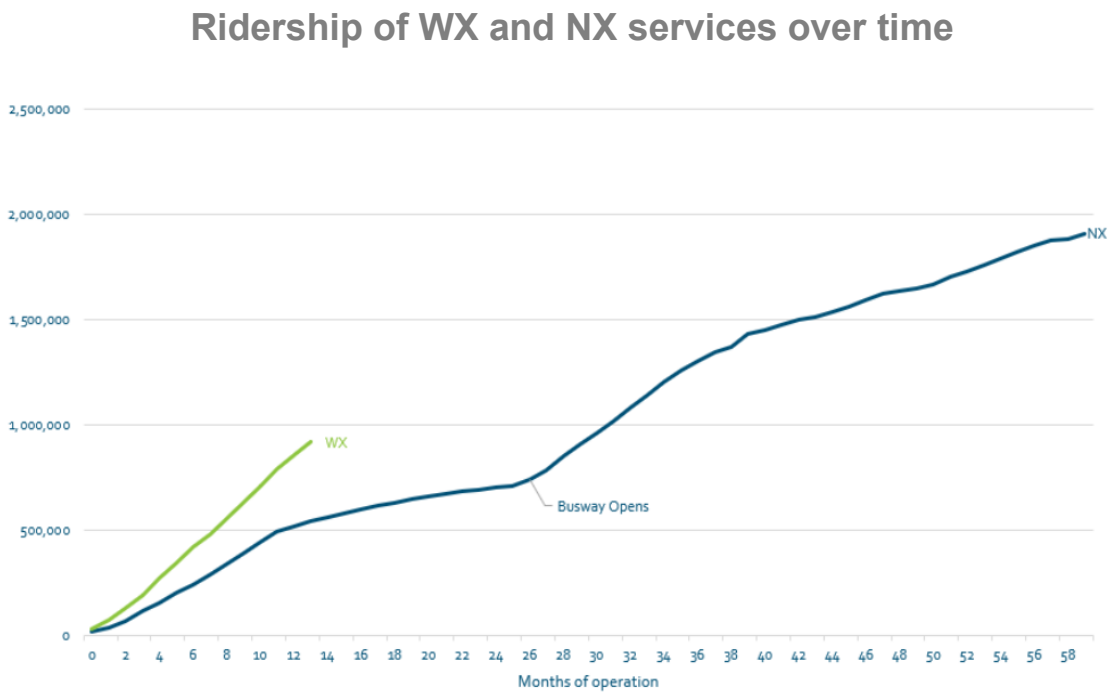


Figure 7 Ridership of WX and NX Services

Key Points:

a) Northwest Busway (Brigham Creek to City Centre) is progressing toward implementation
b) Kumeū-Huapai is the end-of-line for the Northwest Busway component of the ARTP
c) Success of the WX1 bus service indicates demand for reliable public transport in the Northwest

4 The need for the North West Rapid Transit Corridor

The growth within the North West Growth Area and the lack of significant investment in strategic transport infrastructure to support it have led to a significantly strained transport network with very few options for users. Current travel times by private vehicle and public transport accessibility in Kumeū-Huapai are poor. A number of submitters raised these as significant concerns through the Council hearing on the North West Strategic Network NoRs.

In addition to the existing poor performance of the network, demand for travel by all modes is expected to increase markedly in the future as a result of the continuing and planned growth within the North West Growth Area. While a number of upgrade initiatives are in progress to improve the performance of SH16, the provision of an appropriate level of public transport service is a key component of the suite of transport network solutions provided through the North West Strategic Network. All of which are needed to respond to current transport constraints, support anticipated growth, and enable improved access to employment and social opportunities.

Currently, the SH16 corridor is the only strategic corridor connecting Kumeū, Huapai, Riverhead and the broader Northwest rural area to the metropolitan centres at Westgate, Albany and the wider Auckland region.

The North West Growth Area is currently served by a transport network consisting of rural and urban roads intersected by SH16 and State Highway 18 (SH18) highways. However, this current network is not capable of supporting the significant growth anticipated. Despite proximity to both SH16 and SH18 for these regional connections, the Northwest currently has limited transport choice and transport connections to key employment locations, and most people living in the Northwest do not have reliable public transport options. For example:

a) SH16 regularly suffers from heavy congestion and delays due to its limited capacity and the very high reliance on private vehicle travel, at most locations between Huapai and Auckland's city centre, during weekday commuter peaks, at weekends and over the summer period. Journey times vary significantly day to day.

b) 60% of people living in the Northwest commute out of the area.[10]

c) Commuters in the Northwest travel 12-16 km longer to work than those in similar city outskirts like North Shore, Howick, and Manukau. Longer travel distances limit the number of convenient and viable travel options, favouring the use of private vehicles.[11]

[10] https://www.stats.govt.nz/tools/commuter-waka/

[11] Richard Paling Consulting (October 2020) *Analysis of the 2018 Census Results – Travel to work and travel to education in Auckland.* Accessed from: https://www.transport.govt.nz/assets/Uploads/census-report-analysis-of-the-2018-census-results.pdf

Figure 8 Northwest Auckland Commuter Destinations

d) More people travel to work by car from the Northwest than from any other area of Auckland.[12]

e) Kumeū-Huapai bus services only operate during weekday peak hours and with limited frequency at weekends. There are no rapid bus services available, and the Western rail line does not serve this area.[13]

If a dedicated public transport facility to Kumeū-Huapai, is not delivered:

a) Traffic congestion and travel times on both local and strategic roads will get worse as more people need to drive, impacting freight efficiency, increasing stress factors for travellers, reducing economic productivity, and further increasing severance in Kumeū-Huapai.

b) Up to 60,000 vehicles per day are forecast to use the Alternative State Highway (NoR S1) (if constructed without a rapid transit connection, such as a busway, in place, more than 10,000 more vehicles than otherwise would).[14] Without a rapid transit connection, all these vehicles would join the queues on the Northwestern Motorway and continue to cause (and experience) significant congestion all the way to the city centre.

c) Growth potential and demand for land development and private investment will be constrained due to lack of access for people and freight, which will reduce economic productivity and compromise the ability to meet the Going for Housing Growth 2024 targets.[15]

[12] Richard Paling Consulting (October 2020) *Analysis of the 2018 Census Results – Travel to work and travel to education in Auckland.* https://www.transport.govt.nz/assets/Uploads/census-report-analysis-of-the-2018-census-results.pdf

[13] AT Western Bus Timetable: https://at.govt.nz/media/1979443/wn01_westgate_feb-2019-web.pdf

[14] Te Tupu Ngātahi NW Strategic Assessment of Transport Effects, December 2022

[15] Te Tūāpapa Kura Kāinga – Ministry for Housing and Urban Development, Going for Housing Growth programme: https://www.hud.govt.nz/our-work/going-for-housing-growth-programme

d) Bus services will be delayed due to congestion and will be much less reliable. This poor reliability and long travel times will reduce public transport attractiveness and reinforce high car use, further exacerbating traffic congestion.

e) Poor network resilience will be worsened by the constrained capacity of the single road to Kumeū-Huapai, which must be used by all modes.

f) Poorly integrated land use will reduce access to social and economic opportunities and compromise liveability. Rapid transit stations encourage higher density development in proximity because of the walkable distances to access public transport. In the absence of this catalyst, particularly in peripheral urban settlements such as Kumeū-Huapai, sprawling, lower-density residential development will likely result. In lower-density areas, the ability for people to walk or cycle to stations is reduced, reducing the number of people who catch the bus and reducing the opportunity for transit-oriented development.

g) Safety risk on rural roads, including for pedestrians, cyclists and horse riders, will increase because of high speeds and high volumes of vehicles rat-running, on lower quality, narrow rural roads, to avoid congestion.

h) Continued high volumes of car traffic, because poor infrastructure provision means that bus services are unattractive, slow and unreliable, generate ongoing and increased vehicle emissions, contributing to climate change effects such as flooding, a hazard to which the Kumeū-Huapai area remains highly susceptible.

Key point:

Investment in public transport service is urgently needed to address current transport constraints, support anticipated growth, and enable improved access to employment and social opportunities.

5 The recommended North West Transport Network

As the North West Growth Area continues to develop and grow, good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport, is needed to enable well-functioning urban environments.

NZTA and AT have identified transport infrastructure that is required to support the growth of Kumeū-Huapai, including dedicated public transport, strategic highway connections, walking and cycling networks and improved roads. Implementation of this transport infrastructure, aligned with staged growth, will give communities a range of options to move around safely and easily via a sustainable transport network.

The recommended North West Transport Network, lodged as NoRs, is identified in Figure 9. A comprehensive transport solution has been developed that provides a safe, reliable transport system that supports the growth and urbanisation of Northwest Auckland. This will be achieved by targeted investment in:

a) A high quality, fast and reliable busway extension to connect Kumeū-Huapai to Westgate and Auckland's city centre.

b) An extension to the Northwestern Motorway, the Alternative State Highway, will remove a large volume of vehicle traffic from the centre of Kumeū-Huapai. This will improve amenity and access to Kumeū-Huapai centres, support the implementation of the busway and provide heavy vehicles with direct access from the State Highway to the future industrial area.

c) A reliable bus infrastructure network that connects both existing and new urban areas to key destinations and busway stations. In addition to the busway, the network includes 17.5km of new bus lanes and provision for intersection bus priority at key locations in the network.

d) 21 corridors that include upgraded walking and cycling facilities to improve safety, attractiveness and connectivity within and between areas.

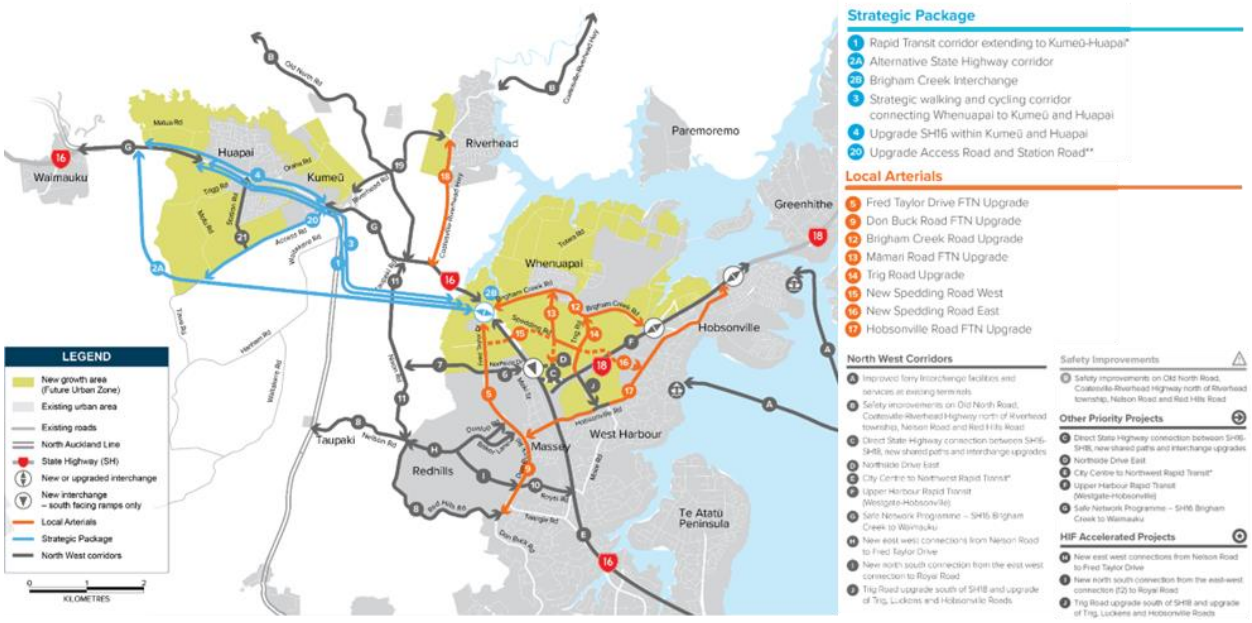


Figure 9 North West Transport Network

5.1 The Northwest Rapid Transit Corridor

A key component of the recommended North West Transport Network is an extension of Auckland's Rapid Transit Network by way of a high-quality, fast and reliable busway extending from the Northwest Busway, connecting Kumeū-Huapai with Westgate, Auckland city centre and North Shore. The Rapid Transit Corridor, as proposed, includes:

a) A dedicated bidirectional busway approximately 9.5km long and 14m in width, designed to operate in an uninterrupted free-flowing manner, operating at 80km/h (design speed of 90km/h). The concept design for the busway passes over or under arterial roads (Fred Taylor Drive, Taupaki Road, new Waitakere-Boord Crescent Link Road, Access Road and Station Road). The busway passes under the SH16 Main Road and Tapu Road intersection to shift to the north side of SH16, as it continues alongside the NAL. The busway abuts the NAL and SH16 Main Road, which will be shifted north of its existing alignment. Figure 10 and Figure 11 identify this cross-section
b) A shared path between Fred Taylor Drive and SH16 Main Road, enabling connection to the heavily used shared path along SH16 towards the city centre
c) Within Kumeū-Huapai township, upgrades of SH16 Main Road between Access Road and John MacDonald Lane
d) Vegetation removal, and revegetation and enhancement via ecological mitigation areas
e) Land for integration and tie-ins, including re-grade of driveways, stormwater infrastructure and retaining walls
f) Other construction activities, such as areas for traffic manoeuvring and laydown areas.

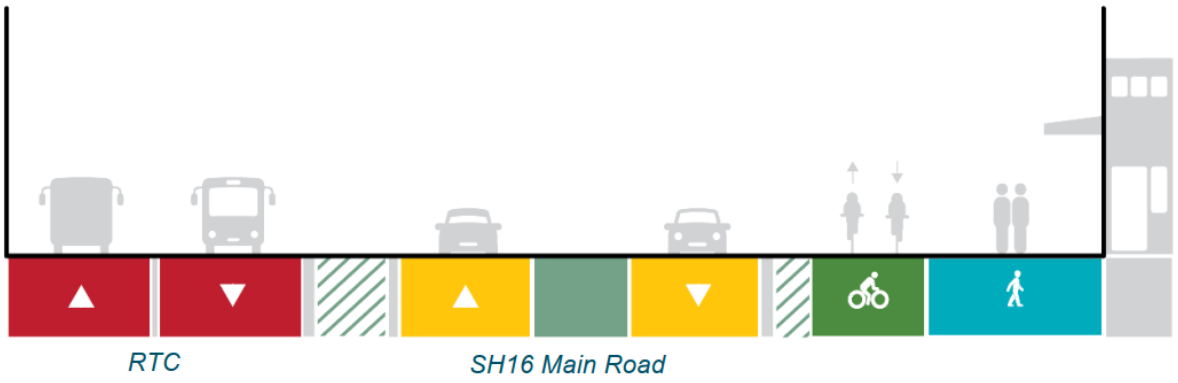


Figure 10 Typical Cross Section – Urban Rapid Transit Corridor at SH16 Main Road

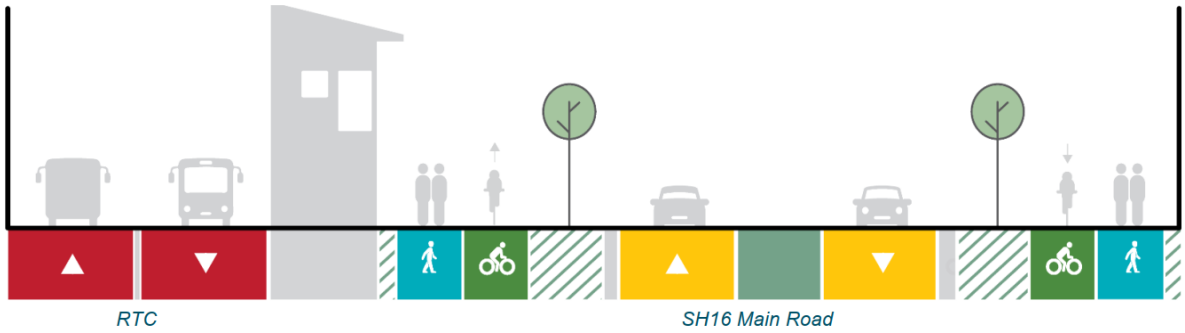


Figure 11 Typical Cross section – Rapid Transit Corridor at rear of urban block, SH16 Main Road on northern side and NAL on southern side (not shown)

The busway will:[16]

a) Have capacity to move up to 3,150 passengers in one direction per hour – the equivalent of two motorway lanes. The busway frees up space on the road network for freight, trades and people who need to drive.

b) Improve bus travel time to the city centre from Huapai, with trips being 17 minutes faster on average.

c) Include new stations that will anchor new housing areas, support infill housing and enable more intense housing and jobs. This will significantly improve connectivity, with high frequency, reliable, and quick travel times to the metropolitan centre at Westgate – a primary employment location for the Northwest, unlocking access to economic and social opportunities.

d) Complete a key gap in Auckland's Rapid Transit Network, connecting Northwest Auckland to the wider Auckland region, making cross-town public transport journeys more direct and attractive, easing pressure on the region's road network, and maximising public transport investments, including the CRL. It will also integrate with the Northern Busway, with potential for services to the North Shore in the future.

e) Complement the Alternative State Highway – to support growth in Kumeū-Huapai, by freeing up capacity on SH16.

f) Connect at Westgate to the future SH18 Busway corridor, providing a direct connection to the metropolitan centre at Albany, via Constellation Station.

The Rapid Transit Corridor provides a significant opportunity to influence mode shift and place-shaping within Kumeū-Huapai along SH16 Main Road, reducing the number of vehicles on the road and freeing up road space for those who need to drive, particularly at peak times.

Kumeū Station is proposed to be within the Huapai town centre and will be accessible by local bus services, walking and cycling and on-demand travel (pick up / drop off). An overbridge and path for pedestrians and cyclists will connect station users to Wookey Lane and Huapai Triangle. Huapai Station is proposed to be on the northern side of the NAL, south of Meryl Avenue and be an 'end-of-the-line' station.

[16] Te Tupu Ngātahi NW Strategic Assessment of Transport Effects, December 2022

Huapai Station provides park-and-ride, pick-up and drop-off spaces and enables safe, walking and cycling access. An overbridge for pedestrians and cyclists will connect station users to the southern FUZ.

5.2 The Options Assessment Process

To identify the preferred North West Transport Network, a comprehensive options assessment process was undertaken prior to the lodgement of the NoRs in 2022. This process identified and evaluated a range of transport interventions (options) through multi-criteria analysis (MCA) in consultation with AT, NZTA, and Manawhenua to progress from a long list to a short list and then to a preferred network.

A multidisciplinary team used the MCA framework to score options at each stage. Constraints mapping and existing evidence from desktop research were the main sources of information to assist with the assessment. The policy direction of the AUP (e.g., overlays) provided guidance in assessing the criteria that could place constraints on the options identified.

Assessment of the options against the criteria was not the sole means of assessing options, but it was a tool that informed and was complementary to the decision-making process for the preferred option. The decision-making process was also informed by input from Manawhenua and Council, feedback from the consultation and engagement process and input from technical experts.

5.2.1 Alignment

The following conclusions informed the recommended Rapid Transit Corridor alignment:

a) The preferred alignment for the busway was alongside the existing SH16 Main Road corridor through Kumeū-Huapai as this route had the highest catchment and ridership potential, provided access to the existing town centres and areas to the west, while also having sufficient flexibility to serve a future local centre to the south of SH16. It was also considered to maximise development opportunities.

b) A Brigham Creek Road connection was preferred over Taupaki Road as this increased the resilience of the network through the provision of two movement corridors to Kumeū-Huapai, avoided the wide corridor between Brigham Creek Road and Taupaki Road that would be necessary to accommodate multiple modes and did not restrict access to existing properties between Brigham Creek Road and Kumeū-Huapai.

c) The options following the existing heavy rail line (NAL) were preferred, as they did not introduce further severance to the surrounding rural area or the future urban area.

d) All options are likely to have some environmental impacts. However, critical environmental features such as pockets of threatened forest are relatively discrete, and impacts can be avoided or mitigated.

In summary, the Rapid Transit Corridor alignment proposed through the NoR departs from the existing road corridor at Brigham Creek Road, follows the NAL and then runs alongside SH16 Main Road through Kumeū-Huapai (RTL-K-03-C1). On balance, this option was previously assessed as having the greatest transport benefit with manageable social and environmental effects.

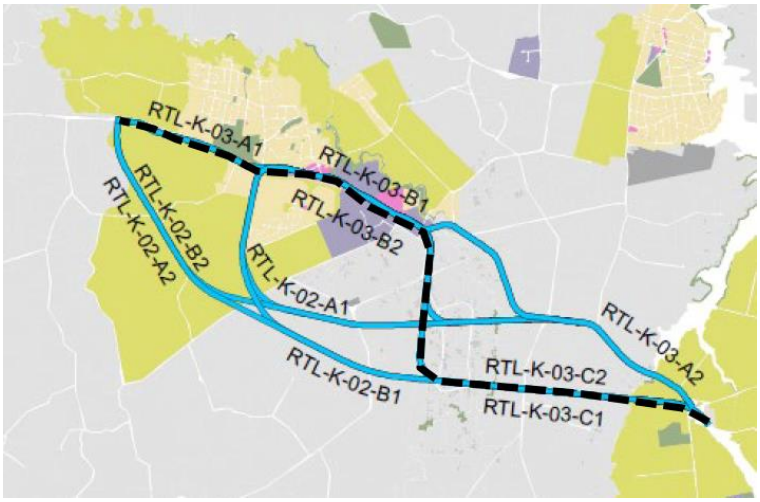


Figure 12 Recommended Rapid Transit Corridor Alignment

5.2.2 Station Locations

Catchment analysis undertaken as part of the alternatives assessment process concluded that busway alignments that followed SH16 Main Road, traversing the existing Kumeū-Huapai centres have the highest ridership potential by providing access to existing development north of SH16, existing centres (and associated employment) and future development south of SH16 in the FUZ.

Station locations outside the existing urban area were considered but ultimately discounted, as their rural catchment could encourage urbanisation outside the rural-urban boundary (RUB). This resulted in a station study area along the busway corridor within the Kumeū-Huapai RUB.

Station locations seek to maximise access to key destinations as well as promote good land use integration and urban development. This may include direct access to a new local centre west of Station Road. Park-and-ride facilities are required to complement the Rapid Transit Network and new facilities should typically be located at the public transport network periphery, to avoid additional car travel congestion. Park-and-ride is most effective on the urban periphery in areas with few access alternatives. Further catchment analysis undertaken identified that two stations should be located on the alignment:

a) A station located in proximity to the Kumeū-Huapai town centres, which will provide the opportunity to support northeast Kumeū-Huapai, including current and future employment at Access Road, and residential areas to the south of SH16 such as the Huapai Triangle development area;

b) A station, with supporting park-and-ride function, located at the western extent of the Kumeū-Huapai FUZ, at a sufficient distance within the RUB to maximise patronage without encouraging urban expansion beyond the RUB.

This analysis is explored in more detail in Section 7.2 of the Assessment of Alternatives[17] lodged in support of the NoRs.

[17] Te Tupu Ngātahi NW Strategic Assessment of Alternatives, December 2022

The proposed Kumeū Station was located as the station in proximity to the Kumeū-Huapai town centres because:

a) It integrated best with the existing town centres and supports quality urban design outcomes;

b) It avoids locating a station in an industrial area exempt from the intensification under the NPS-UD, as although the Spatial Land Use Strategy indicated a desire to shift industrial use to Access Road, the timing and form of this shift was uncertain; and

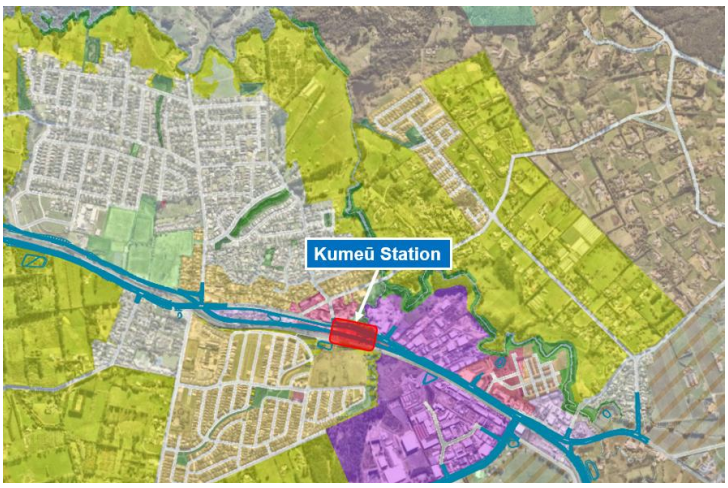


Figure 13 Kumeū Station location lodged as NoR KS

c) Although this location impacts the historic Huapai Tavern, it is already affected by the Rapid Transit Corridor alignment, and there are opportunities to relocate and enhance this asset as part of implementation. A process for relocation and restoration of the tavern is required under the Historic Heritage Management Plan condition of the NoR.

The proposed Huapai Station was located as the station at the western extent of Kumeū-Huapai FUZ because:

a) The option supported intensification within the RUB;

b) A consolidated station with park-and-ride offers better functionality, flexibility and convenience, supporting the wider rural catchment (Waimauku and Helensville); and

c) The location supports good urban design and placemaking outcomes, with the opportunity to connect to a future local centre via an overbridge.

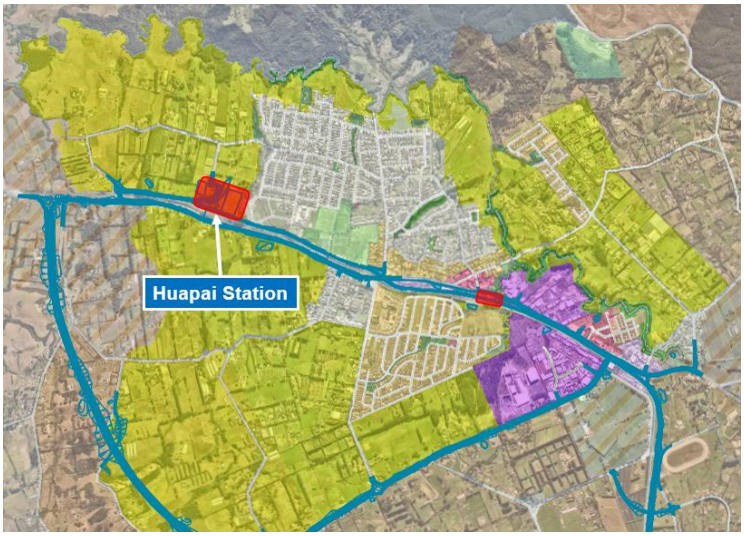


Figure 14 Huapai Station location lodged as NoR HS

6 Appeals to the North West Rapid Transit Corridor and associated stations

Future-Kumeu, Nuich and FBL have all lodged appeals to the Environment Court challenging various aspects of the North West Rapid Transit Corridor and associated stations NoRs. The following section provides a summary of those appeals.

6.1 Future-Kumeu Incorporated

Future-Kumeu lodged a Notice of Appeal to the Environment Court against NZTA's decision to confirm the following NoRs:

a) Huapai Rapid Transit Station (HS);

b) Kumeū Rapid Transit Station (KS);

c) Alteration to designation 6766 State Highway 16 Main Road Upgrade (S2); and

d) Rapid Transit Corridor (S3).

To summarise the Future-Kumeu appeal, the Designations:

a) Introduce routes that will direct traffic into areas of Kumeū and Huapai that are subject to flooding. The location of the transport infrastructure will form a framework for future residential and commercial development that will be located on a flood plain in order to efficiently access that transport infrastructure;

b) Incorrectly conclude that adequate consideration and investigation was given to alternative sites, routes, or methods for the Designations; and

c) Include conditions relating to flooding that do not mitigate the effects of flooding, and there is an increased risk of flooding to surrounding properties as a result of the Designations.

Future-Kumeu seeks the following relief:

a) That the designations for S2, S3, KS and HS should be cancelled until master-planning for the Kumeū/Huapai townships has been undertaken, in consultation with all stakeholders;

b) That adequate assessment of alternative sites, routes, or methods is undertaken;

c) The lapse periods for the Designations be for no more than the standard five (5) years provided for under the RMA; and

d) That flooding is fully mitigated.

Future-Kumeu has put forward an alternative concept plan identifying their proposed future land uses and transport network, shown in Figure 15.

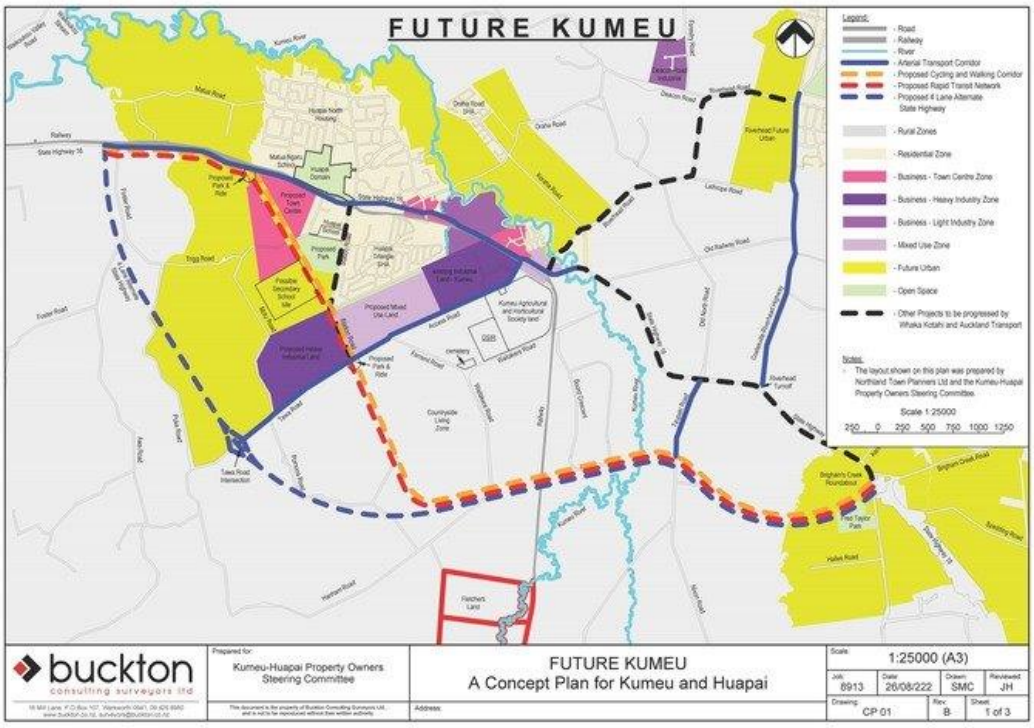


Figure 15 Future-Kumeu Incorporated Concept Plan

6.2 FBL Properties Limited

FBL lodged a Notice of Appeal to the Environment Court in relation to NZTA's decision to confirm the Kumeū Rapid Transit Station (KS) NoR. The reasons for the FBL Appeal and relief sought are broadly the same as those raised by Future-Kumeu.

6.3 Steve and Sofia Nuich Trustee Limited

Nuich lodged a Notice of Appeal to the Environment Court in relation to NZTA's decision to confirm the following NoRs:

a) Huapai Rapid Transit Station (HS); and

b) Rapid Transit Corridor (S3).

The appellant owns a site located at 29 Meryl Avenue, Kumeū, which is entirely designated by both NoR HS and NoR S3. The reasons for the Nuich appeal include that the NoR decision fails to adequately address alternatives for future public transport in particular the alternative of rail transport.

The appellant seeks that NoRs HS and S3 be declined unless the matters raised in its appeal are addressed to its satisfaction and/or the following amendments to the NoRs are made:

a) That NZTA removes NoRs HS and S3 and the Huapai Rapid Transit Station from its site, or modifies the NoRs to address the essence of the issues raised in its appeal;

b) NZTA select an alternative location for the Huapai Rapid Transit Station; and

c) Reduce the 20 year lapse period for the NoRs HS and S3.

7 Auckland Council Response to recent flooding events in Kumeū

Kumeū has a long history of flooding, most recently in the three significant storm events in 2021 and 2023, which flooded numerous homes and businesses.

7.1 Auckland Council Healthy Waters Investigation

In 2024, Healthy Waters completed a flood hazard investigation to consider the present and future impacts of heavy rainfall events in the Kumeū-Huapai area. As part of this investigation, updated flood modelling for Kumeū-Huapai was developed to enable an assessment of flood risk reduction options, with the aim of enhancing flood resilience in Kumeū-Huapai. In January 2025, Healthy Waters released a report summarising the investigation.

The report summarises the history of flooding in Kumeū-Huapai, the modelling developed to assess the flood risk to property, and the evaluation of three infrastructure options short-listed to address this risk. Options included river widening (floodway), upstream diversion to Brigham Creek, and upstream detention.

The report notes that the assumption of the depth of flooding in Kumeū, in a 1 in 100-year event, has increased from 0.5 to 1.4m as a result of the increased base rainfall. The flood hazard classification[18] (illustrated in Appendix 2) increases on average by two classes—that is, the 1% AEP flood hazard in the commercial centre area was previously H2 to H3 (passable by some large vehicles, adult pedestrians generally stable) and is now H4 to H5 (unsafe for all vehicles, damage to some buildings expected).

The report concludes that there is not currently a viable and cost-effective solution available to satisfactorily reduce flood risk (to areas currently affected) in Kumeū-Huapai township. Healthy Waters, at this stage, will not invest further in assessing, planning or constructing large-scale flood-risk reduction infrastructure projects in Kumeū-Huapai. A number of community resilience and flood preparedness measures are set out, such as improved monitoring, river maintenance and land use planning.

7.2 Auckland Council Land Use Response

With the flood hazard investigation findings and updated rainfall data released by Healthy Waters, the expansion of the existing centres as envisaged through the Kumeū-Huapai Centre Plan and the Spatial Land Use Strategy, which formed part of the likely future receiving environment detailed in Section 3, is no longer supported by Council.

> *"Under the Town Centre Plan for Kumeū-Huapai it was proposed to expand the existing town centre – as long as there was a viable flood management solution. As the Healthy Waters*

[18] Smith, G.P., Davey, E.K. and Cox, R.J. (2014), Flood Hazard UNSW Australia Water Research Laboratory Technical Report 2014/07 30 September 2014.

investigation work could not identify a viable solution, this expansion is no longer supported."[19]

Council has identified that there will be no Council-led land use zoning changes, spatial or structure planning exercises undertaken in the near future in Kumeū-Huapai.

Key Points:

a) No near-term investment in large-scale flood-risk reduction infrastructure will be investigated by Council for Kumeū-Huapai
b) The expansion (joining up) of the existing Kumeū-Huapai centres is no longer supported by Council

It is therefore appropriate to consider the impacts of updated rainfall data and Council direction on the:

a) Overall scale of anticipated development within existing and future urban areas in Kumeū-Huapai
b) Service reliability of the transport network and the ability of the transport corridors to achieve flood hazard design outcomes
c) Location of the proposed Rapid Transit Corridor and stations, confirming that current and future population of Kumeū-Huapai are served.

[19] Auckland Council Plans and Places, February 2025, ourauckland.aucklandcouncil.govt.nz/news/2025/02/understanding-flood-risk-challenges-in-kumeu-huapai

8 NZTA Response to flood investigation and updated land use position

In response to the Healthy Waters Kumeū flood investigation and updated land use position from Council, Te Tupu Ngātahi (on behalf of NZTA) has worked through a process to assess the implications for the North West Growth Area and to test whether previous recommendations for the Rapid Transit Corridor remain valid. This process has involved:

a) Undertaking technical analysis of the updated rainfall data;

b) Anticipating likely implications of this for urban growth; and

c) Undertaking an MCA process with updated information.

A Policy Assessment was undertaken to inform the above, and is summarised in Appendix 1.

8.1 Changes to future flooding characteristics

Council provided NZTA with the updated 24-hour base rainfall depths for the 10-year and 100-year events. In addition, updated guidance on the allowance to be used for climate change was released in March 2024 in version 4 of the Council's Stormwater Code of Practice. Table 2 below summarises the changes:

Table 2 Changes to hydrological parameters used in modelling

Scenario	Base Rainfall	Base Rainfall	100-year ARI Climate change allowance	100-year rainfall depth including climate change	Rainfall source	Climate Change Source
	10-year ARI, 24-hour depth	100-year ARI, 24-hour depth	100-year ARI Climate change allowance			
Lodged design flood modelling	120 mm	180 mm	2.1 degrees	209 mm	AC Technical Publication 108, 1999	AC SWCOP, 2022
Updated flood modelling	150 mm	250 mm	3.8 degrees	330 mm	AC, unpublished data, 2025	AC SWCOP, 2024

A comparison of the increased base rainfall and climate change on flooding depth and flood hazard without any terrain changes (arising from the Rapid Transit Corridor physical works) has been undertaken for both the 10-year and 100-year Average Recurrence Interval (ARI) rainfall events.

With regard to the Kumeū urban area, Figure 16 and Figure 17 identify the extent of the flood hazard areas before and after updates to the base rainfall data. As illustrated, the flood hazard areas in the 'after' scenario have an impact on the existing Kumeū centre and on land between the Kumeū and Huapai centres along SH16 Main Road. There are also some additional impacts on the employment area on Access Road, as well as around the northern edges of the existing and future urban areas in the northern and north-western area of Huapai. See Appendix 2 for enlarged figures from this section.

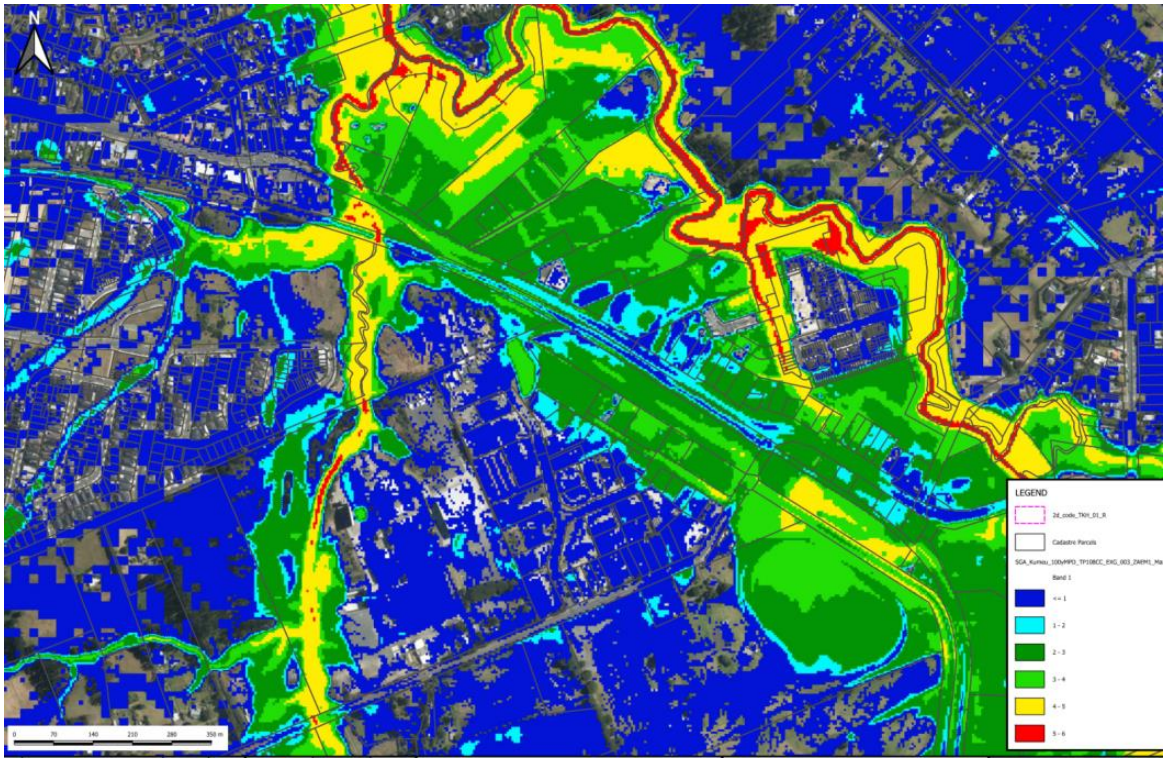


Figure 16 Flood hazard in 2120 – before (base rainfall of 180mm with 2.1 degrees of climate change)

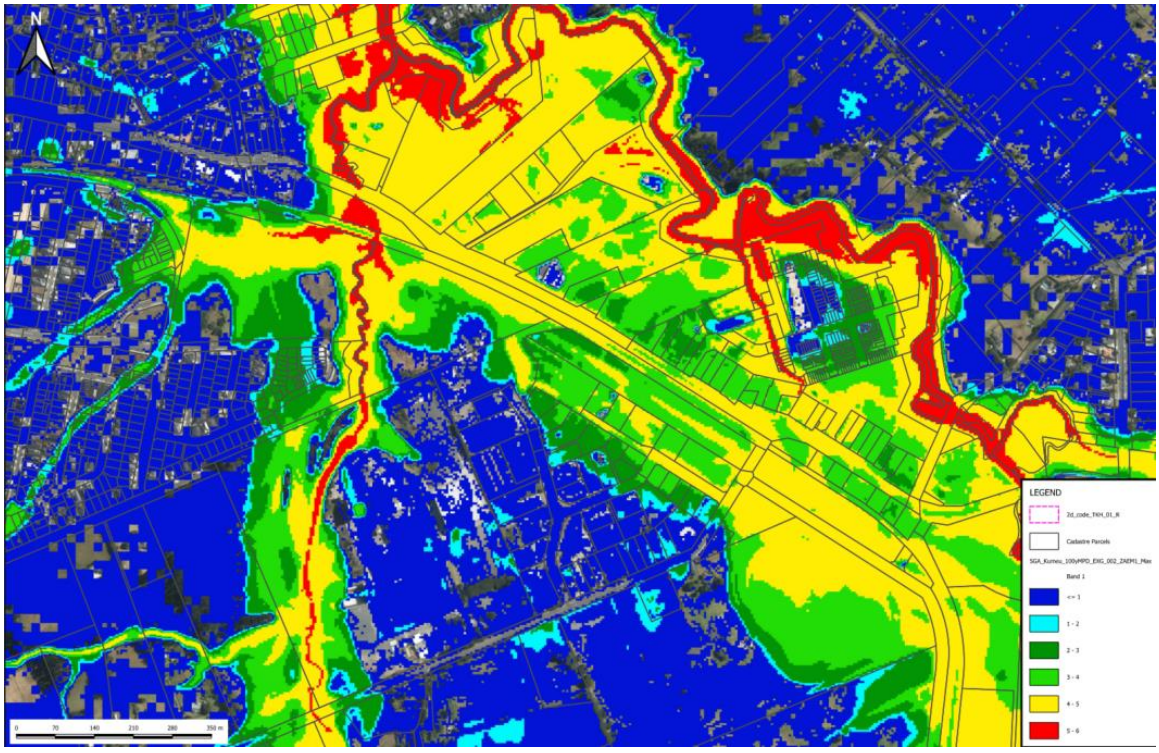


Figure 17 Flood hazard in 2120 – after (base rainfall of 250mm with 3.8 degrees of climate change)

Flood hazard is a measure of the depth and velocity of floodwaters, with classifications using those criteria to represent low hazard (H1) to very high hazard (H6). The hazard along SH16 Main Road through Kumeū increases from H1/H2/H3 with the previous rainfall data to H4/H5 by 2120 with the updated rainfall data. This means that SH16 Main Road will become impassable by all vehicles during very high rainfall events in the future.

Figure 18 identifies the change in flood hazard classification due to the change in rainfall used for the 1% AEP plus climate change event. Note that the hazard along SH16 Main Road has increased by two or three hazard classes between Access Road and Huapai Stream.

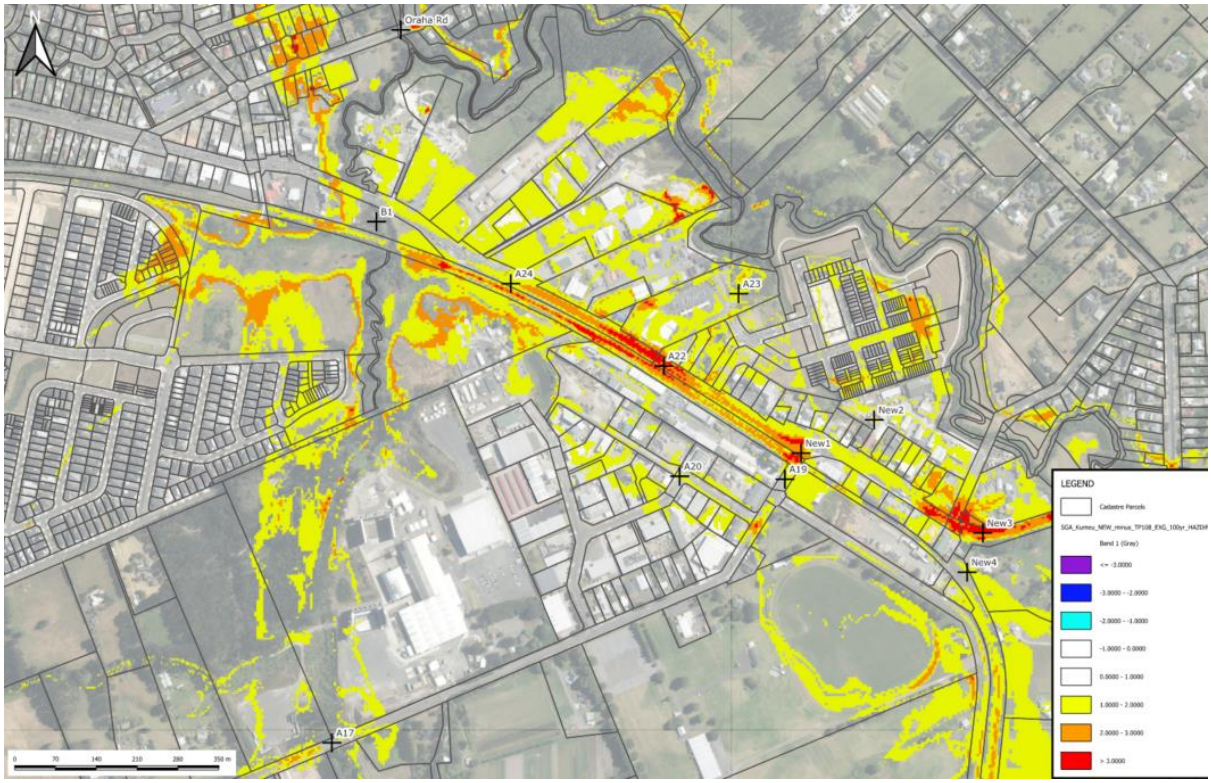


Figure 18 Increase in flood hazard classification

Due to the changes in predicted base rainfall and climate change effects, the depth of flooding increases by between 0.7m and 1.5m along the Rapid Transit Corridor alignment through the Kumeū urban area. The spot heights and colour within Figure 19 indicate the increased depth. To demonstrate, the depth of flooding in the 1% AEP future event at the Access Road and SH16 Main Road intersection increases by 0.84m (from 0.36m deep to 1.20m deep).

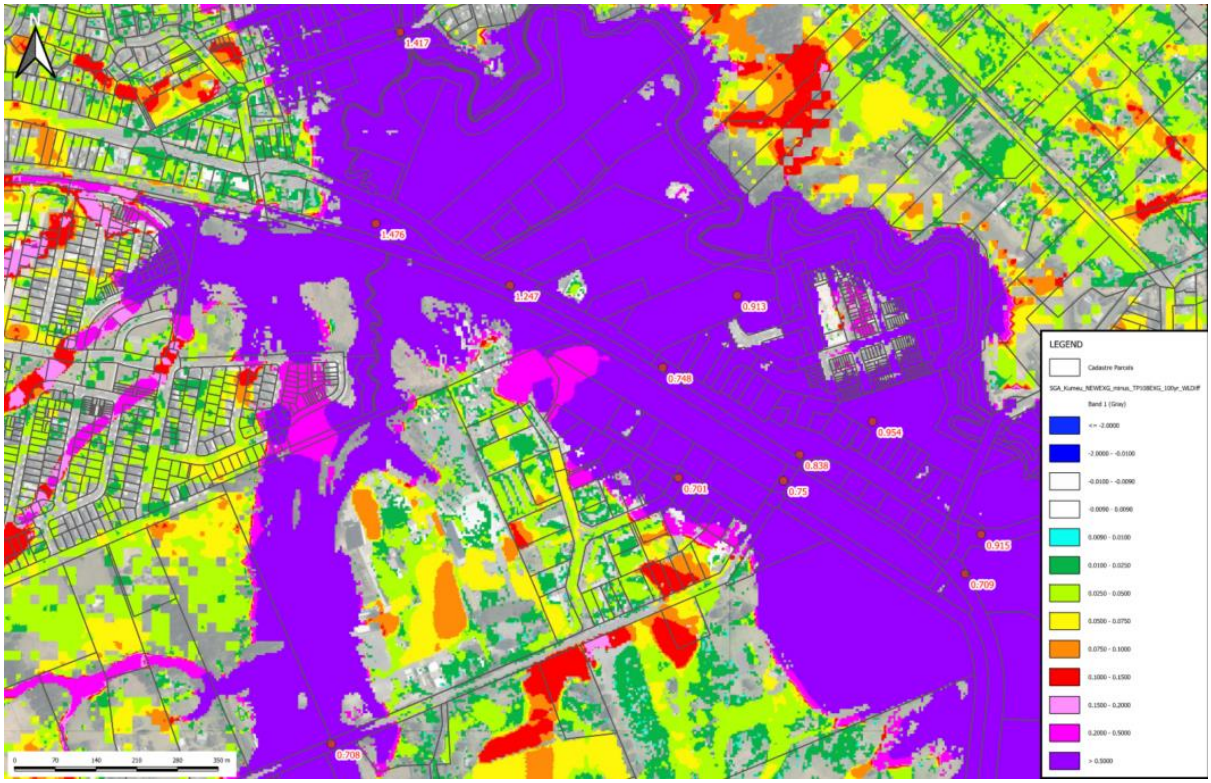


Figure 19 Flood depth increases (due to base rainfall increases)

8.2 Implications of updated flood modelling on the design of the Rapid Transit Corridor

Considering the updated 24-hour base rainfall depths and the updated guidance on the climate change allowances, three design options have been assessed to understand the potential impacts for the implementation of the Rapid Transit Corridor through the Kumeū urban area.

A comparison of the effect (e.g. water level change, hazard classification change) of the base terrain (environment if no Rapid Transit Corridor physical work) against the following design options for both the 10- and 100-year ARI with updated rainfall/climate change has been assessed:

a) An “at grade” physical works option, in which the Rapid Transit Corridor is at existing ground level through the Kumeū urban area, except for a bridge across the Huapai Stream. Note that “at grade” in this context is assumed to be at grade at the intersection with Access Road.

b) A “hybrid” physical works option, in which there is a bridge over the Huapai Stream and a bridge over Access Road. Rows of culverts are placed in the bridge abutments to allow flow balancing. Note the hybrid option is similar to the lodged indicative design.

c) A “fully elevated” physical works option, in which the Rapid Transit Corridor vertical alignment has the required freeboard above the updated flood levels through the Kumeū urban area.

Each of the design options was analysed in the flood model to understand the implications of the updated rainfall depths on the exposure of the infrastructure to natural hazards associated with flooding and the ability for an eventual detailed design of the infrastructure to achieve the outcomes required under the Flood Hazard condition of the NoR.

In terms of exposure to flooding and associated resilience effects on the transport network, each design option is able to achieve the following:

a) The “at grade” option would be affected by flooding in the year 2120 for approximately 6 days per year. Long stretches of the route through the Kumeū urban area would be a high hazard (H5) and would not be passable during floods.

b) The hybrid option would be affected by flooding in the year 2120 for approximately 6 days per year. A relatively short stretch at about chainage 6800 east of the Huapai Stream would be a high hazard (H5) and would not be passable during floods.

c) The “fully elevated” option is resilient to 1% AEP flooding within Kumeū urban area in the year 2120 and would not cause the Rapid Transit Corridor route to be closed due to flooding. There is some further minor to moderate flooding of the route near Boord Crescent, but it is expected that buses will be able to pass through that flooding.

In terms of the ability to achieve the flood hazard outcomes required as a condition of the NoR, each design option is able to achieve the following:

a) The “at grade” option, while affected by flooding, is able to meet the outcomes of the Flood Hazard Condition.

b) The hybrid option may cause minor flooding effects (changes in water levels of up to 10-20mm at the NoR boundary) at the centre of the Kumeū urban area west of Access Road and at the southern abutment near the Kumeū Showgrounds at Waitakere Road. There are also some minor effects at adjacent properties at the eastern abutment of the bridge over the Huapai Stream. While this conceptual design is unable to meet the Flood Hazard condition, there will be opportunity to optimise the detailed design and/or assess alternative measures outside of the designation through agreement with the relevant landowner, in accordance with Clause (c) of the condition.

c) The “fully elevated” option is able to meet the outcomes of the Flood Hazard Condition.

Key Points:

a) The analysis of the three potential design options for the Rapid Transit Corridor through the Kumeū urban area and the implications of the updated flood modelling have confirmed that there is an appropriate range of options available for consideration at the time of detailed design.
b) The cost and resilience of the corridor and the ability to achieve the outcomes required by the Flood Hazard condition, along with other design requirements, will be key considerations at the time of detailed design

8.3 Implications of updated flood modelling on the urban growth of Kumeū and Huapai

Notwithstanding the adjustments to the North West Growth Areas (set out in Section 2.3) identified in the FDS and the release of updated flood modelling, Council has not directed a reduction in existing or planned population growth in Kumeū-Huapai, and large extents of FUZ land, located outside of the floodplain, have been retained within the FDS.

In terms of the extent of land that remains developable, Figure 16 to Figure 19 illustrate the extent of flood hazard areas modelled before and after the updated base rainfall and climate change information. As discussed above, the flood hazard areas modelled in the 'after' scenario demonstrate a greater impact on the Kumeū town centre and the area between the Kumeū and Huapai town centres along SH16 Main Road. There are also some additional impacts on the employment area on Access Road, as well as around the northern edges of the existing and future urban areas in the northern and northwestern area of Huapai.

Based on these flood hazard extents, a comparison of the potential residential development areas within the existing and future urban areas has been undertaken. This comparison indicates that:

a) Before updated flood information – A residential development area of approximately 857 hectares could potentially result in around 9,150 residential dwellings across the Kumeū-Huapai future urban area.

b) After updated flood information – A residential development area of approximately 805 hectares could potentially result in around 8,590 residential dwellings across the Kumeū-Huapai future urban area.

All housing density calculations in this section assume:[20]

a) Future average housing density assuming 525m^2 residential lots (a range of 450 to 600m^2);

b) 70% of the total catchment area is assumed to be residential; and

c) 70% of residential land area is assumed to be for housing, with the balance providing associated roads, stormwater, reserve infrastructure, etc.

On this basis, the reduction in developable residential urban area would be in the order of 52 hectares, which is about 6% of the previously identified developable future urban residential area. This analysis does not account for the potential for more intensive residential development densities that could eventuate from the busway, which may offset this reduction in developable area.

Key Point:

The overall capacity for future residential growth remains similar to, albeit slightly less than previous analysis undertaken, and continues to support the need for the busway to extend to Kumeū-Huapai

[20] Reflects commonly accepted practice in urban planning and development, informed by professional experience and sector guidance.

8.3.1 Kumeū Station Catchment

The indicative walkable catchment for the Kumeū Station is illustrated in Figure 20. This illustrates approximately 63 hectares[21] of developable residential and business zoned land within a 10-minute walkable catchment, based on previous flood modelling.

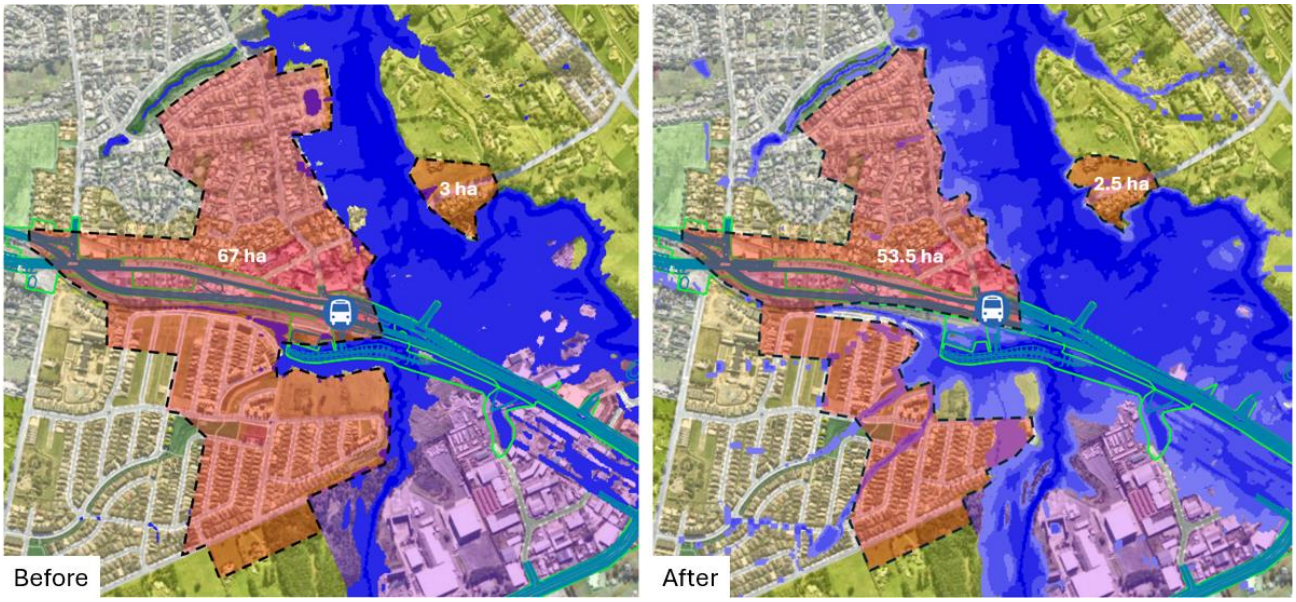


Figure 20 Kumeū Station Walkable Catchment – Before and After

With the updated flood hazard modelling, the potential for growth and intensification to the east of the station is likely to be more limited than previously assumed, but there remains growth potential to the west within the walkable catchment.

In terms of the impacts of the revised flood hazard extents on the future developable residential area within the walkable catchment:

a) Before updated flood information – A development area of approximately 63 hectares was considered to have the potential for around 515 to 686 residential dwellings.
b) After updated flood information – A development area of approximately 50 hectares is considered to have the potential for around 412 to 549 residential dwellings.
c) This is a reduction of between 103 to 137 residential dwellings, or approximately 20%.

Previously, a total of 1,300 passengers were predicted to be boarding and alighting in 2048+ during the weekday AM peak hour at the Kumeū Station. This is similar to the predicted future patronage for the Lincoln Road station, on the future Northwest Busway to which the proposed Rapid Transit Corridor will connect, see Figure 21 below.

[21] Assumes around 90% of the total walkable catchment of 70 hectares

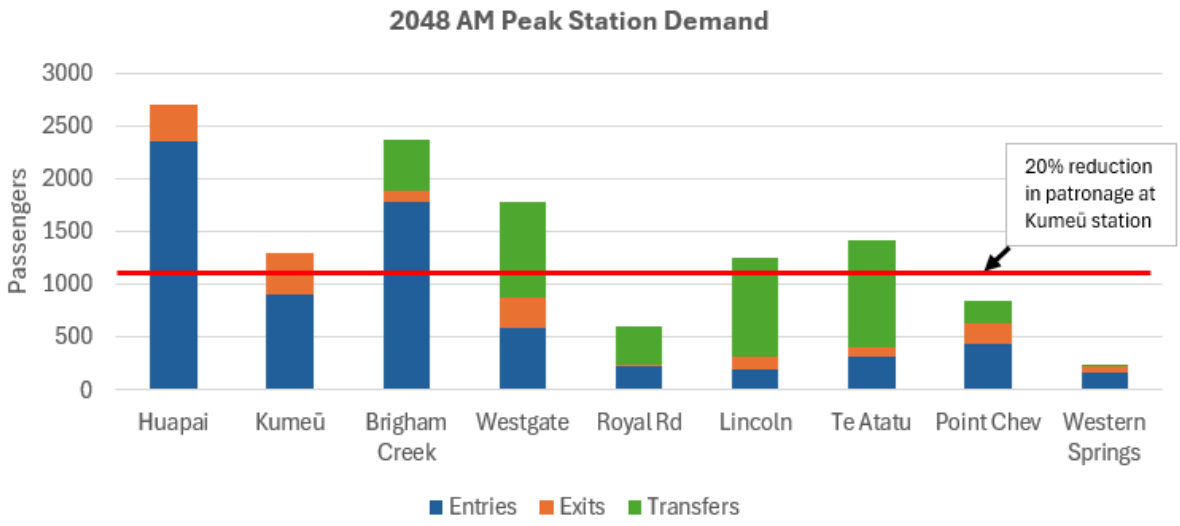


Figure 21 Kumeū Station Boarding and Alighting – Patronage Comparison

A potential 20% reduction in the residential catchment around the Kumeū Station could therefore mean a reduction to 1,040 passengers boarding and alighting. Even with this reduction, there remain more predicted passengers using the Kumeū Station, than the Royal Road and Point Chevalier stations on the future Northwest Busway. This comparison is relevant because it indicates levels of demand in Kumeū and Huapai are of a very similar, or greater level, than other locations where busway stations have been confirmed as being required. This potential change in patronage is relatively conservative and may be less, as it does not account for:

a) People using the Rapid Transit Corridor, who live beyond the 10-minute walkable catchment, but who can get to the station by walking, cycling, using local bus services or private vehicle; and
b) The change in the size of the immediate walkable catchment being offset by higher residential housing densities than those assumed. Increased density will be enabled under the NPS-UD.

Key Point:

Demand remains sufficiently strong to require a station in proximity to Huapai town centre, even when revised flood effects are considered

8.3.2 Huapai Station Catchment

The indicative walkable catchment for the Huapai Station is illustrated in Figure 22. This illustrates approximately 57 hectares[22] of developable residential and business zoned land within a 10-minute walkable catchment, based on previous flood modelling.

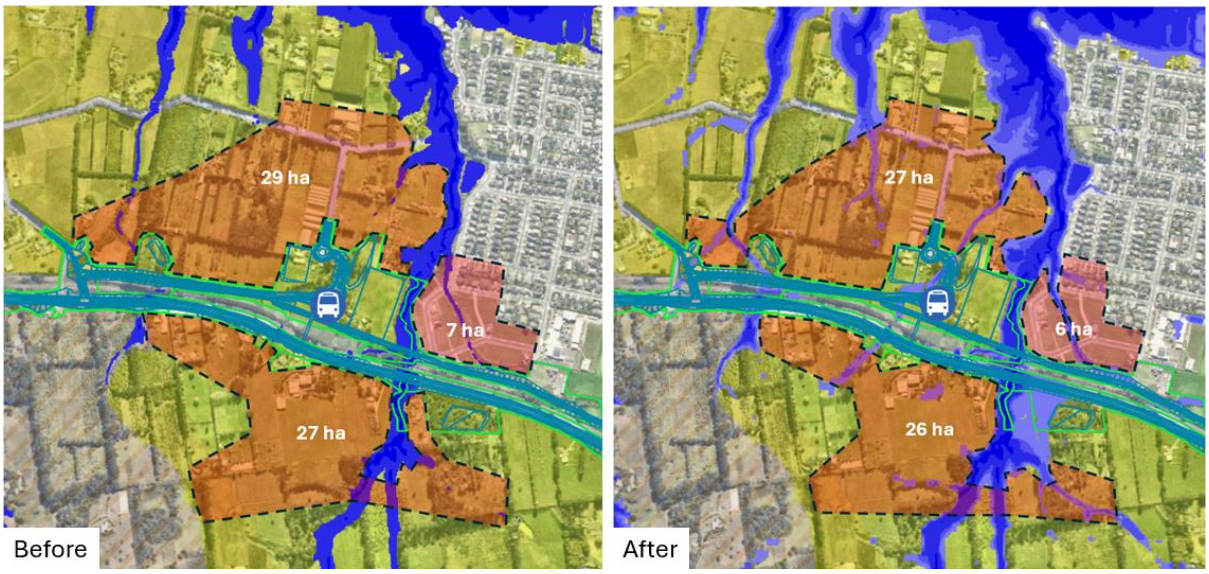


Figure 22 Huapai Station Walkable Catchment – Before and After

With the updated flood hazard modelling, the revised walkable catchment for the Huapai Station is around 53 hectares.[23] Therefore, the change in walkable catchment is a reduction of approximately 4 hectares.

In terms of the impacts of the revised flood modelling on the future developable residential area within the walkable catchment:

a) Before updated flood information – A development area of approximately 57 hectares was considered to have the potential for around 463 to 617 residential dwellings.
b) After updated flood information – A development area of approximately 53 hectares is considered to have the potential for around 434 to 578 residential dwellings.
c) This is a reduction of between 29 to 39 residential dwellings, or approximately 6%.

Previously, a total of 2,750 passengers were predicted to be boarding and alighting in 2048+ during the weekday AM peak hour at the Huapai station. This is similar to the predicted future patronage for the Brigham Creek station on the future Northwest Busway to which the proposed Rapid Transit Corridor will connect, see Figure 23 below.

[22] Assumes around 90% of the total walkable catchment of 63 hectares
[23] Assumes around 90% of the total walkable catchment of 59 hectares

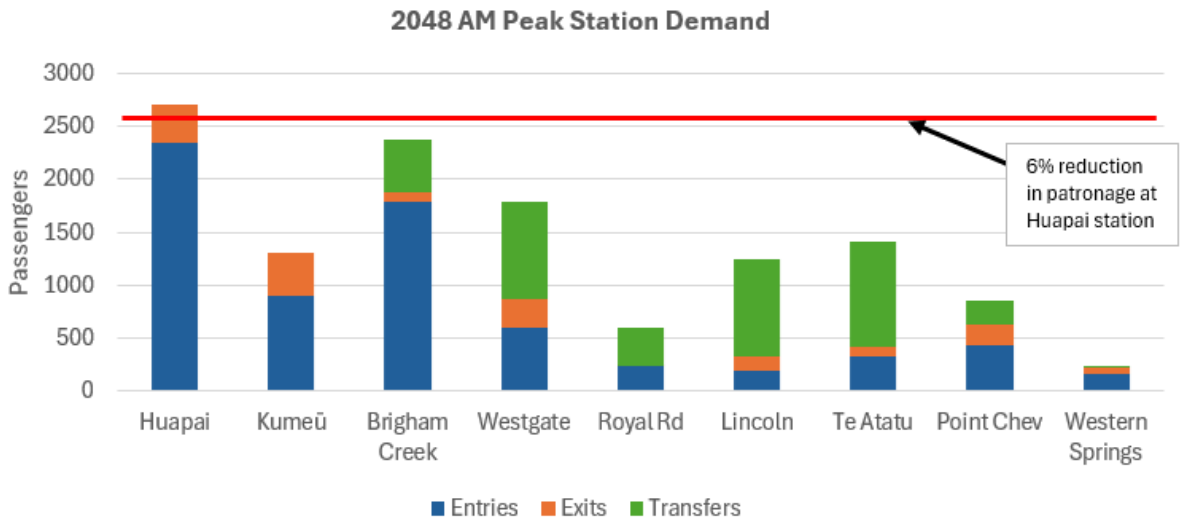


Figure 23 Huapai Station Boarding and Alighting – Patronage Comparison

A potential 6% reduction in the residential catchment around the Huapai Station could therefore mean a reduction from 2,700 to 2,538 passengers boarding and alighting at the Huapai Station. Even with this reduction, there remain more predicted passengers using the Huapai Station (with the park-and-ride) than the Brigham Creek Station on the future Northwest Busway. This potential change in patronage is relatively conservative and may be less, as it does not account for:

a) People using the Rapid Transit Corridor, who live beyond the 10-minute walkable catchment, who can get to the station by walking, cycling, using local bus services or private vehicles; and

b) The change in the size of the immediate walkable catchment being offset by higher residential housing densities than those assumed. Increased density will be enabled under the NPS-UD.

Key Point:

Demand remains sufficiently strong to require a station in in the western extent of the Kumeū-Huapai future urban area, even when revised flood effects are considered

8.4 Revised short-term urban growth assumptions

In response to the changes to future flooding characteristics and impacts on developable land, Te Tupu Ngātahi has assessed the anticipated implications for urban growth in Kumeū-Huapai. This is summarised in the following section.

Short-term growth in Kumeū-Huapai is expected to be influenced by a range of factors, but it can be assumed to be underpinned by the Auckland Regional Policy Statement (RPS)[24] and FDS principles for growth and change.[25] In the short term, existing business activities are expected to remain in their current locations**.** New developments are expected to gradually shift west of the existing Huapai town centre. Figure 24 illustrates the locational rationale for change and growth in the area, including:

a) The existing community facing business activities in Kumeū town centre will continue to support the existing community for the short term and into the medium term.

b) The updated flood hazard modelling is likely to constrain further intensification of the Kumeū town centre and the area along SH16 Main Road to the immediate west of the Kumeū centre, which has been impacted by recent flood events. Council previously identified this area for the expansion of the town centre in its Kumeū-Huapai Centre Plan and the Spatial Land Use Strategy. This expansion is no longer supported by Council.

c) Future business centre activity and investment will likely gradually shift west of the existing Huapai town centre along SH16 (above the Kumeū River floodplain), as evidenced by recent development patterns.[26]

d) The established business / industrial land use activity along Access Road will continue to expand to the west.

e) Residential growth and intensification will continue along SH16 and adjacent to established development where land is above the Kumeū River floodplain, as evidenced by residential intensification on SH16 Main Road[27] and large-scale developments at Matua Road and Huapai Triangle.

f) Reinforcement of existing connectivity will occur between SH16 and urban development to the north and south via Oraha Road, Matua Road and Tapu Road.

g) Efficient and equitable infrastructure investment as directed by the RPS (for both Council and private development) will continue to drive growth and intensification closer to the SH16 corridor.

[24] Auckland Regional Policy Statement Chapter B2 and B3

[25] Auckland Future Development Strategy 2023-2053, Section 2.5

[26] McDonalds Restaurant, Oma Rāpeti ELC, Huapai Vet Clinic, The Vines (1A Tapu Rd)

[27] 368 to 372 Main Road, Huapai

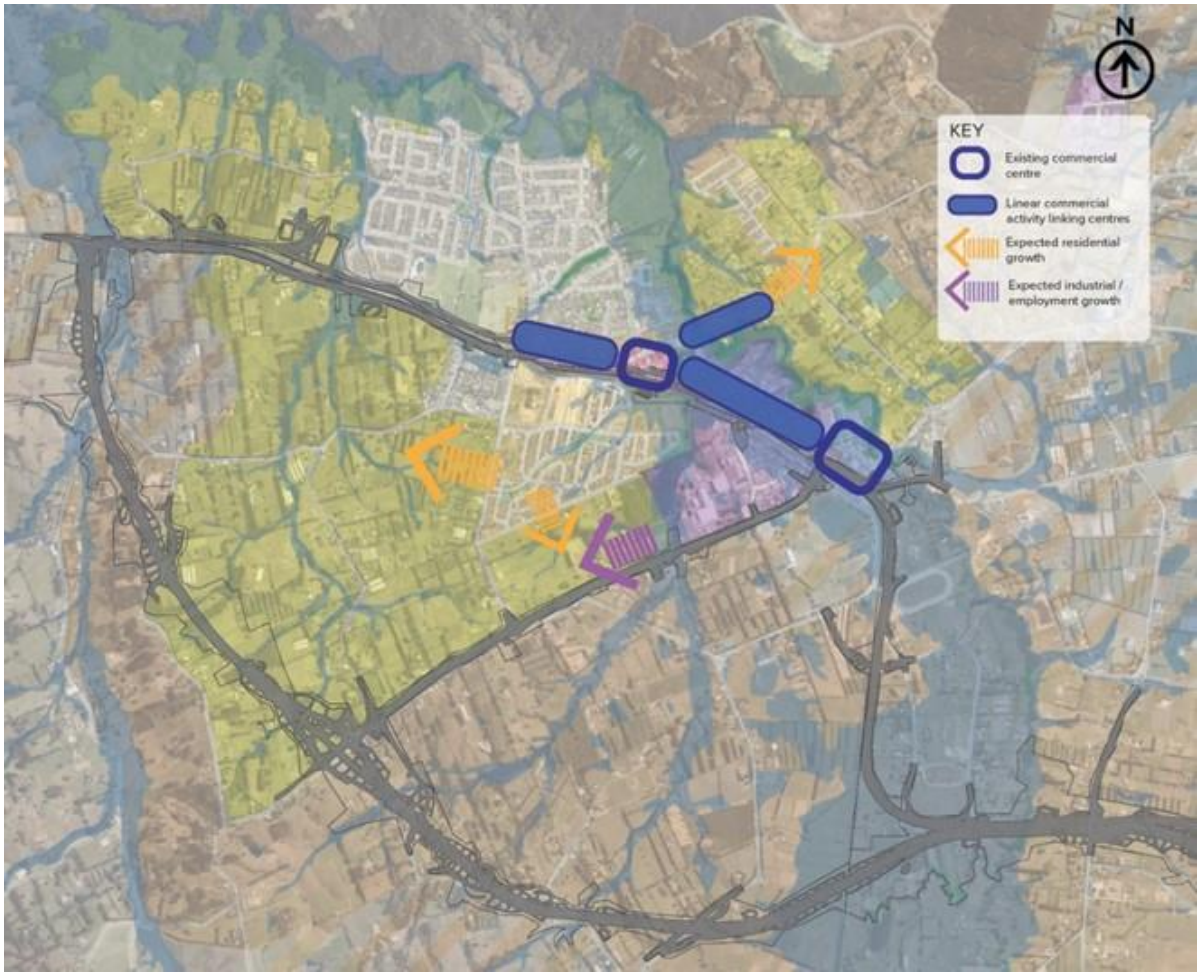


Figure 24 Indicative future development of Kumeū-Huapai

8.5 Revised medium-term urban growth assumptions

Medium-term growth in the Kumeū-Huapai area is expected to be influenced by a range of factors and can also be assumed to be underpinned by the FDS principles for growth and change.[28] Future growth and development beyond the short term is expected to be centred on the Huapai town centre, supported by the existing business zoning. This is reflective of the historical linear growth pattern, extending along the strategic corridor (SH16 Main Road) as identified in Figure 3. This follows similar trends across the Auckland region, as well as national and regional growth patterns, where growth focuses on or is enabled by strategic corridors.

Figure 25 illustrates the expected medium-term growth and intensification rationale, including:

a) Future business centre activity and investment is expected around the Huapai town centre and will likely continue to extend along SH16 Main Road to the west, above the Kumeū River floodplain.

[28] Auckland Future Development Strategy 2023-2053, Section 2.5

b) Acceleration of the renewal and intensification of established residential areas to the north of SH16 Main Road, supported by proximity to Huapai town centre;[29]

c) Incremental expansion of existing development areas to the southwest including areas adjacent to new roads, e.g. Nobilo Road, Station Road, Trigg Road. Land adjacent to existing infrastructure and utility corridors, and community facilities, is more economically feasible than land that is not adjacent. This is due to higher costs associated with utility and infrastructure connections, such as roads and three waters infrastructure.

d) Some expansion of existing development areas in the northeastern FUZ via Oraha Road and Koraha Road, where they are above the Kumeū River floodplain, given its proximity to the existing Kumeū town centre and connection to Riverhead; and

e) Establishment of a new centre west of the established Huapai urban area. The Spatial Land Use Strategy identifies this as immediately south of SH16, and the FDS Future urban areas evidence report identifies it as near the Trigg Road/Motu Road intersection.[30]

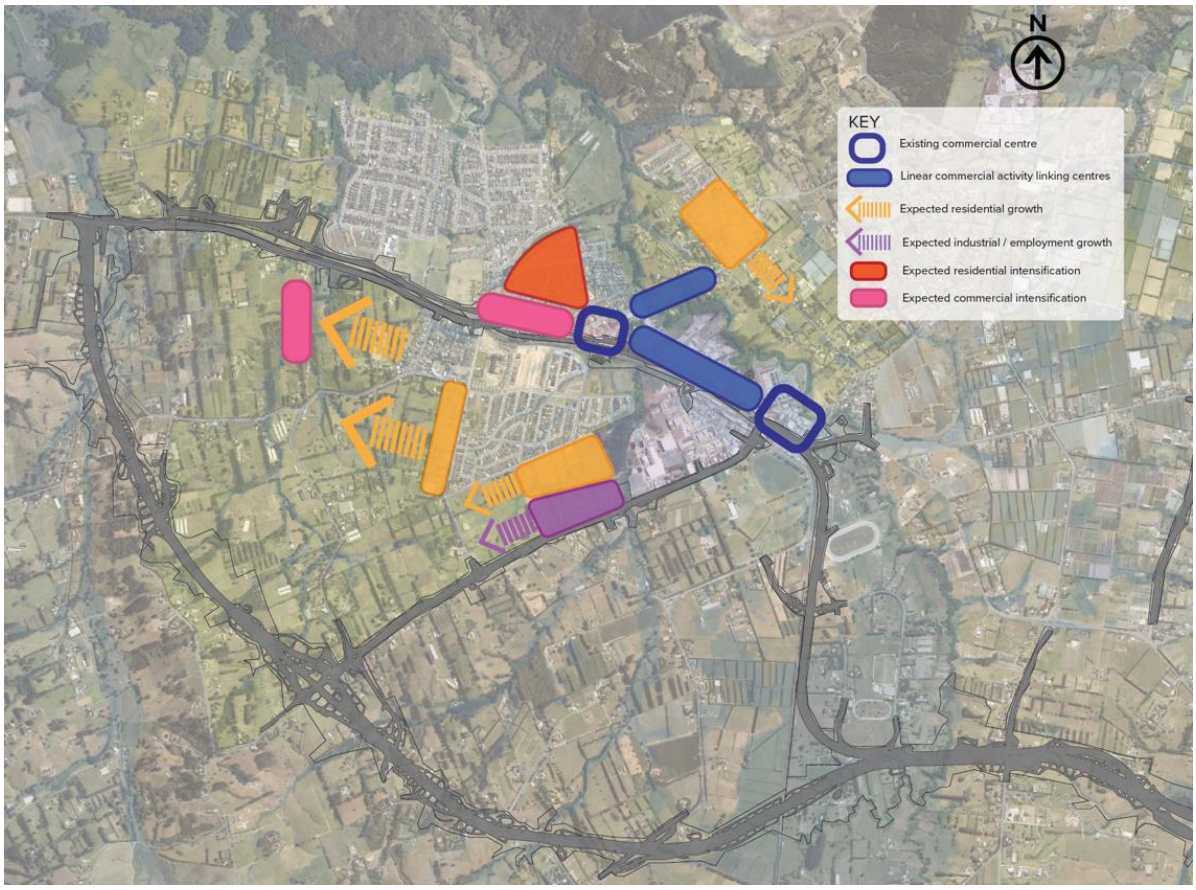


Figure 25 Indicative future development of Kumeū-Huapai

[29] National Policy Statement on Urban Development 2020, Policy 3(d)

[30] Auckland Future Development Strategy, Future urban areas evidence report, Auckland Council, November 2023

Key Point:

a) Existing business activity is anticipated to remain in place in the short to medium term, with investment gradually shifting west of the existing Huapai centre (away from floodplain)
b) Residential growth, while potentially delayed, will continue to follow existing infrastructure – west along SH16 and northeast off Oraha Road
c) Opportunity for long term renewal and intensification of established residential area at the northwest edge of Huapai town centre

8.6 Alternative alignment and station locations assessment

Te Tupu Ngātahi has undertaken a review of the Rapid Transit Corridor alignment and station option assessment process, given all the information summarised above.

The review was carried out to assess whether the updated information has the potential to challenge the earlier assessments that identified the preferred options for the Rapid Transit Corridor alignment and station locations. It also examined whether there was sufficient understanding of the potential adverse effects associated with the implementation of the related infrastructure.

A review of the objectives and criteria applied to the long-list and short-list MCA processes completed prior to lodgment of the NoRs was undertaken to determine the key criteria on which the assessment is focused. The criteria for the review of the MCA have been selected based on the updated information analysed, including base rainfall data, urban growth assumptions, and government policy direction. Table 3 identifies those criteria and the rationale for the focused assessment.

Table 3 Focused MCA Framework

	Criteria	Rationale for focused assessment
Alignment Assessment	IO1: Integrated System	• Revised future urban growth and land use assumptions • Government Policy Statement on Land Transport 2024/25-2033/34 (GPS) and other policy direction (Appendix 1)
	IO2: Strategic Connections	
	IO3: Choices	
	IO4: Safety	
Station Location Assessment	Access	• Revised future urban growth and land use assumptions • GPS and other policy direction (Appendix 1)
	Integration	
	Land use futures	• Revised future urban growth and land use assumptions

	Urban design	Revised future urban growth and land use assumptions
	Land requirement	• Comparative analysis for the scale of land requirement
	Social cohesion	• Revised future urban growth and land use assumptions
	Stormwater	• Revised rainfall data and climate change guidelines change the understanding of the flood hazard constraint
	Transport system integration	• GPS and other policy direction (Appendix 1)
	Construction costs and risks	• Potential change in complexity and cost due to flood mitigation associated with updated flood hazard • 'Value for money' strategic priority in GPS

The MCA scoring scale remained consistent with the scoring scale used through previous assessments, as shown in Table 4.

Table 4 MCA Scoring Scale

Effects criteria	Scoring
Very high adverse impact	-5
High adverse impact	-4
Moderate adverse impact	-3
Low adverse impact	-2
Very low adverse impact	-1
Neutral impact	0
Very low positive impact	1
Low positive impact	2
Moderate positive impact	3
High positive impact	4
Very high positive impact	5
-	Not scored

Technical specialists scored the alignments against the MCA criteria relating to their respective expertise.

Investment objectives and transport systems integration were assessed to provide a comparative analysis between alignments and station locations and to understand any potential shift in scoring associated with the anticipated future land use scenario and land transport policy direction. Transport planners assessed the objectives and transport systems integration using quantitative and qualitative evaluation based on transport modelling, GIS analysis and professional assessment.

Criteria, including land use futures, urban design and social cohesion, were assessed to understand any potential shift in scoring given the anticipated future growth and land use scenario. Planners and urban design specialists assessed these aspects, incorporating a broad policy analysis and professional assessment.

The stormwater criterion was assessed in response to the updated rainfall data released by Healthy Waters. Related to the flood hazard constraint, the construction costs and risks criterion was assessed to understand whether flood hazard mitigation and a potential increase in construction

complexity would have affected scoring. These criteria were assessed by stormwater and civil engineers using flood modelling and professional assessment. The land requirement criterion was assessed to provide a comparative analysis of the scale of land requirement for each corridor assessed.

As has been the case throughout the refinement of the North West Transport Network, the MCA is not the sole means of assessing options but a tool that informs and complements decision-making.

A range of alternative alignments were developed. These are described in Table 5 and identified in Figure 26. The alignments were selected to represent an appropriate range of potential connections. They included previously assessed alignments, the proposed alignment presented by Future-Kumeu (Option 2) and a new alignment investigated to the south of SH16 to explore the potential for a reduced footprint crossing the Kumeū River floodplain (Option 6).

Given the environmental context change, a reassessment of the station locations on the preferred alignment was undertaken to assess appropriateness and for completeness. This analysis is summarised in Section **0.**

Table 5 Alternative Rapid Transit Corridor Alignment Options

Alignment	Description
1. Lodged alignment	West from Brigham Creek Roundabout (BCR) diverting north near Boord Crescent, follows NAL through Kumeū-Huapai, terminates north SH16 at western FUZ
2. Future-Kumeu Incorporated	West from BCR diverting northwest near Waitakere Road, through centre of FUZ, terminate south SH16 at western FUZ
3. Station Road	West from BCR diverting northwest near Waitakere Road, follows Station Road, terminate south SH16 at western FUZ
4. Southern alignment	West from BCR continues around southern FUZ aligned with Alternative State Highway
5. SH16 alignment	West from BCR diverts north toward Coatesville Riverhead Highway, follows SH16 from BCR, following NAL through Kumeū-Huapai, terminates north SH16 at western FUZ
6. Southern centre alignment	West from BCR diverting north near Boord Crescent, through industrial area (avoiding showgrounds and film studios), terminate south SH16 at western FUZ

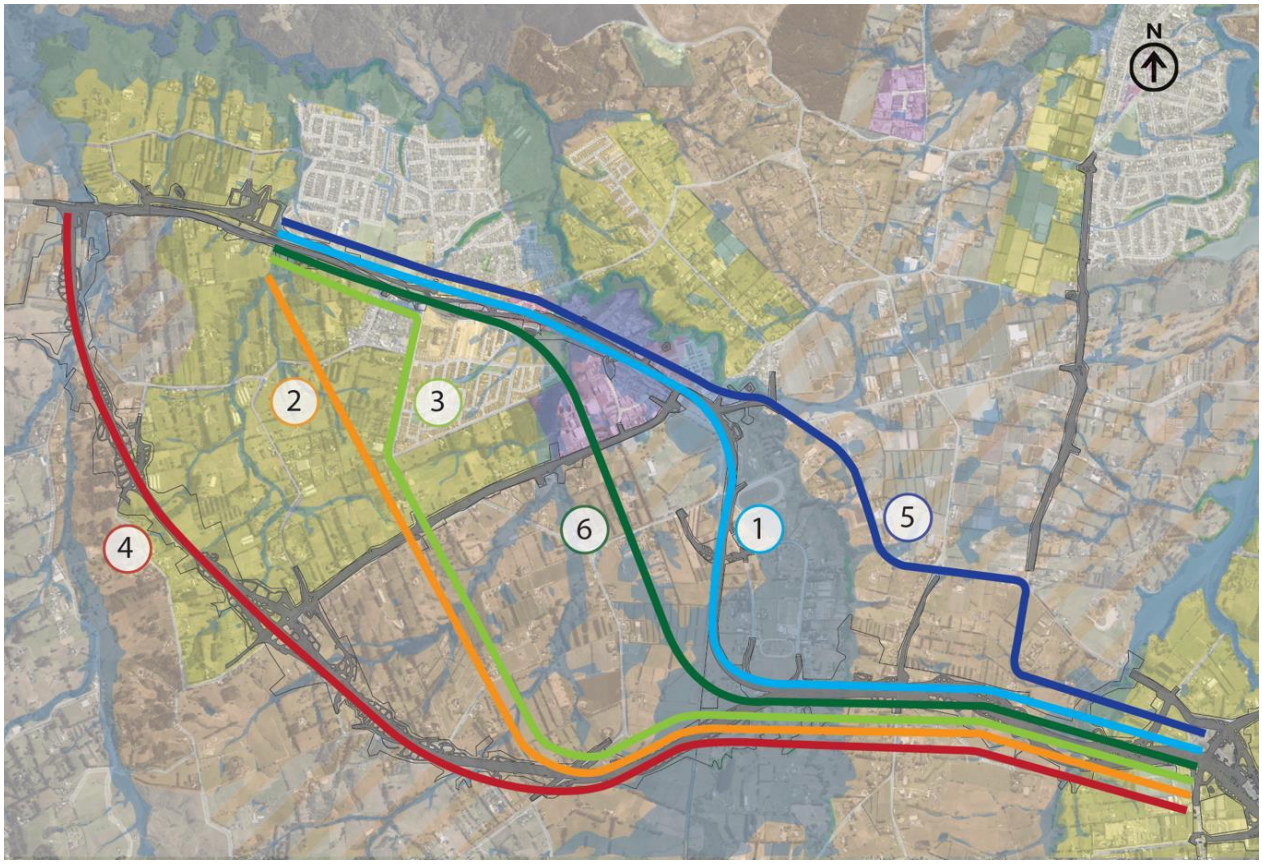


Figure 26 Alternative Rapid Transit Corridor Alignment Options

To access the Kumeū-Huapai urban and future urban areas, the Rapid Transit Corridor must cross the Kumeū River and the associated floodplain somewhere. Therefore, as set out in Section 8.2 (for the lodged alignment), a range of design options will be considered as part of detailed design, particularly for alignments that traverse the floodplain at the Kumeū urban area. Option 1 and Option 5 both traverse this urban area, and therefore a comparative assessment is included within the MCA by scoring a “fully-elevated” design option and an “at-grade” design option through the Kumeū urban area. For these two alignments, the following are scored:

A. The “at-grade” design option would be designed at surface level through urban sections of Kumeū within the floodplain, which will therefore occasionally be flooded to the extent that it is impassable.
B. The “fully elevated” option would effectively bridge the extent of the Kumeū River floodplain where it traverses the Kumeū urban area.

The flood hazard outcomes required by the Flood Hazard Condition of the NoRs will need to be achieved as part of the future detailed design process, as discussed earlier.

All alternative alignments, excluding Option 6, were similar to those previously assessed. Previous alignment assessments and scores were reviewed to provide a baseline of scores. This enabled a comparison of changes in scoring due to the change in context set out in the assessment. Where alignments assessed had a direct comparator to an alignment previously assessed, this was recorded with scoring pulled through to the assessments for comparison as set out in the tables for each alignment. Some previous alignments were similar, albeit not identical to the alignments assessed through this process. These are noted as indirect comparators for which scoring has also been pulled

through to the assessments for comparison. All previous scoring is noted in the MCA tables for each alignment.

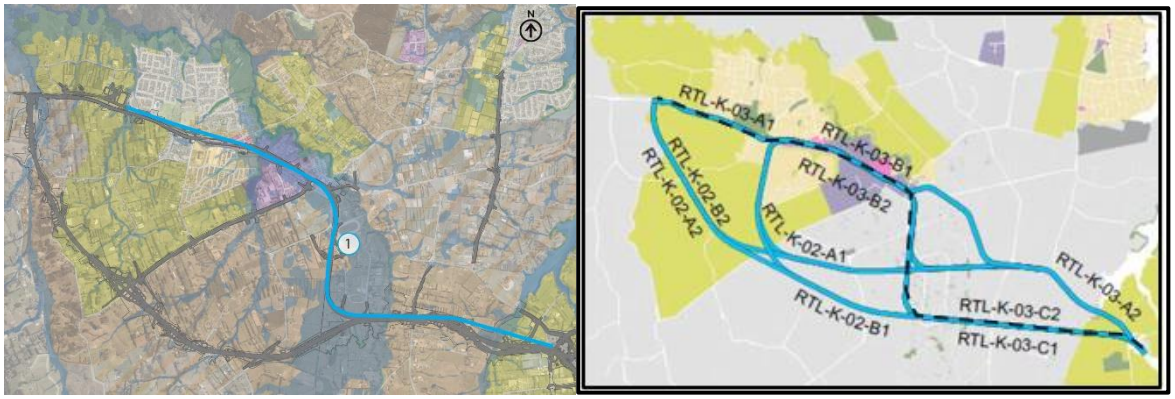
Technical specialists were provided with the alignments for assessment, including a conceptual design developed within an interactive GIS system that enabled interface with relevant Council data (e.g. AUP zoning and overlays, catchments and hydrology), to assist with the analysis. They were asked to review the previous scoring and commentary and assess each of the alignments relative to their technical expertise, in light of the updated flood hazard information and future growth and land use scenarios. Technical specialists then scored the alignment against the relevant criteria and provided commentary justifying that scoring.

A workshop was held on the 1st of May, where technical specialists presented their analysis and recommendations, which were respectfully challenged in a group setting. Specialists then considered the issues raised at the workshop in relation to their area of expertise and finalised their assessment and recommendations.

The following sections identify the outcomes of that analysis. Differences in scoring for each option (where applicable) are discussed in the sections following each table.

8.6.1 Option 1. Lodged alignment

This is the lodged alignment. It moves west from BCR, diverting north near Boord Crescent, following the NAL through to Kumeū-Huapai and terminating north of SH16 at the western FUZ (below left).



This option had a direct comparator to an option assessed through the previous longlist and shortlist assessment, identified as RTL-K-03-C1 (above right).

MCA Criteria	Previous scoring		A	B
IO1: Integrated System				
IO2: Strategic Connections				
IO3: Choices				
IO4: Safety				
Land use futures				
Urban design				
Land requirement				
Social cohesion				
Stormwater				

Transport system integration				
Construction costs / risk / value capture				

Investment objectives

Integration with land use to improve economic and social opportunities for the existing and future communities remains positive, given that the option supports the expected short, medium and long-term growth and centres as set out in Section 8.5.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network and transformational mode shift opportunities, providing alternatives to car travel. The “at-grade” design option will occasionally be impacted by flooding and associated road closures (approx. 6 days per year) in the long term (post-2050). While the “fully elevated” option will not be impacted by flood events, the improved resilience and reliability are not sufficient to warrant a change in the scoring associated with network resilience and mode shift. The opportunity for improved network resilience and mode shift through both design options remains high when compared to a scenario where there is no investment in the busway connection.

Land use futures, urban design, social cohesion

This alignment supports the growth of existing centres, although it is noted that business land south of SH16 Main Road is directly impacted. This alignment provides for integration with the anticipated future land use pattern of investment in town centres and residential intensification that is expected to shift west along SH16 Main Road. Direct connections to existing urban structure and associated social and economic activities are also provided. Land use efficiencies exist in co-locating with existing transport corridors (NAL and SH16), reducing impacts on developable land.

Social cohesion remains positive due to improved access provided by a dedicated busway between Kumeū-Huapai and metropolitan centres and the city centre. The option strongly supports improved access to Huapai town centre, including key community facilities/shops/services and employment areas.

Stormwater

This alignment traverses the urban section of Kumeū that is subject to increased flood hazard, as discussed in Section 8.1. The “fully elevated” design option allows for retention of the previous scoring through mitigation of any significant effects on the operation of the busway and other properties. The “at grade” design option scores worse than the previous assessment due to the updated flood hazard. However, potential effects on adjacent property can be appropriately managed.

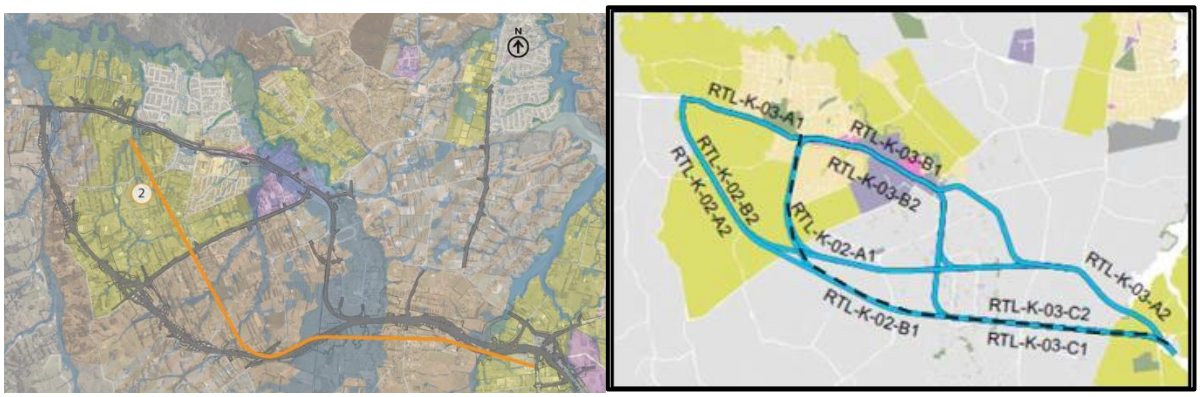
Construction costs, land requirement

All alignments score negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections. There are urban constraints associated with the construction of this option, and an upgrade to SH16 Main Road (over a length of approx. 600m west of Access Road) is needed before or during construction. The remaining section through Kumeū can generally be completed offline. Consideration of transport network resilience in response to flooding, i.e. raising or lowering the elevation of the infrastructure to manage flooding through Kumeū, will impact the cost. However,

this is not considered significant enough to change the score, as this only represents a part of the full 9.5km corridor. There is no change in the previous assessment for land requirement.

8.6.1.1 Option 2. Future-Kumeu Incorporated alignment

This is the alignment identified by Future-Kumeu in its Concept Plan (Figure 15). It moves west from BCR, diverting northwest near Waitakere Road, through the centre of the FUZ, and terminates south of SH16 at the western FUZ (below left).



This alignment had an indirect comparator to an option assessed through the previous longlist and shortlist assessment, identified as RTL-K-02-B1 (above right).

MCA Criteria	Previous scoring		New Scoring
IO1: Integrated System			
IO2: Strategic Connections			
IO3: Choices			
IO4: Safety			
Land use futures			
Urban design			
Land requirement			
Social cohesion			
Stormwater			
Transport system integration			
Construction costs / risk / value capture			

Investment objectives

This option does not provide the opportunity for integration with the established Huapai and Kumeū town centres and northeastern FUZ land. It primarily supports medium to long term integration with potential development centres.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network and transformational mode shift opportunities, providing alternatives to car travel. Avoiding the floodplain through the urban Kumeū centre provides improved resilience compared to Option 1. The opportunity for improved network resilience and mode shift remains high compared to a scenario where there is no investment in the busway connection.

Land use futures, urban design, social cohesion

This alignment provides less support for integration with established town centres, however there is a reduced direct impact on the existing business land in Huapai town centre, and an increased impact on FUZ land. It supports integration with the western extent of the anticipated future land use scenario. While connecting to some nodal functions (Huapai District School), the alignment is disconnected from the existing urban structure and associated social and economic activities. It does not align with the delivery of urban density sought by the RPS and NPS-UD, as it avoids the opportunity to contribute to a well-functioning urban environment with a quality compact urban form that enables good accessibility for all people, including by improved and more efficient public or active transport.

This alignment provides a poor level of support for access to employment, with no direct connection to the existing Kumeū and Huapai central business areas or employment land at Access Road. Social cohesion remains positive due to improved access provided by a new busway between Kumeū-Huapai and metropolitan centres and the city centre.

Stormwater

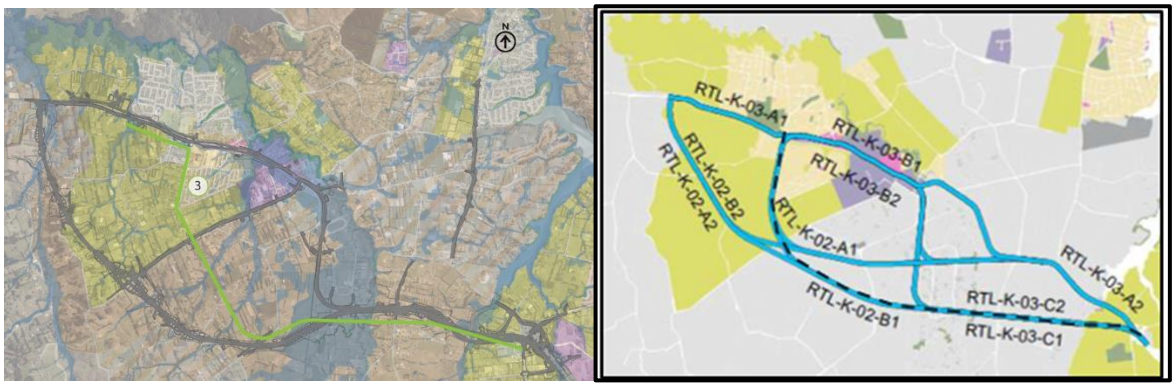
This alignment avoids the urban section of the Kumeū River floodplain. Therefore, it is an improved option for stormwater management and flood hazard considerations when compared to Option 1.

Construction costs, land requirement

All alignments scored negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections. Due to the topography and road crossings at Tawa Road and Trigg Road, heavy earthworks and/or structures would be required. The cost of this option is expected to be higher than Option 1 due to the increased volume of earthworks required. This option predominantly passes through private land, and the reduced co-location with existing transport infrastructure means the land requirement is 55% higher than Option 1.

8.6.1.2 Option 3. Station Road

This alignment moves west from BCR, diverting northwest near Waitakere Road, following Station Road, and terminating south of SH16 at the western FUZ (below left).



This alignment had a direct comparator to an option assessed through the previous longlist and shortlist assessment, identified as RTL-K-02-B1 (above right).

MCA Criteria	Previous scoring		New Scoring
IO1: Integrated System			
IO2: Strategic Connections			
IO3: Choices			
IO4: Safety			
Land use futures			
Urban design			
Land requirement			
Social cohesion			
Stormwater			
Transport system integration			
Construction costs / risk / value capture			

Investment objectives

This alignment does not provide the opportunity for integration with the established Huapai and Kumeū town centres and northeastern FUZ land. It primarily supports medium to long-term integration with potential development centres.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network and transformational mode shift opportunities, providing alternatives to car travel. Improved resilience is provided when compared to Option 1 by avoiding the Kumeū River floodplain. The opportunity for improved network resilience and mode shift remains high when compared to a scenario where there is no investment in the busway connection.

Land use futures, urban design, social cohesion

This alignment provides less support for integration with established town centres, however there is a reduced direct impact on existing business land in Huapai town centre, and an increased impact on FUZ land. It supports integration with the western extent of the anticipated future land use scenario. While connecting to some nodal functions (e.g. Huapai District School), the alignment is disconnected from the existing urban structure and associated social and economic activities. It does not align with the delivery of urban density sought by the RPS and NPS-UD, as it avoids the opportunity to contribute to a well-functioning urban environment with a quality compact urban form that enables good accessibility for all people, including by improved and more efficient public or active transport.

This alignment provides a poor level of support for access to employment, with no direct connection to the existing Kumeū and Huapai central business areas or employment land at Access Road. Social cohesion remains positive due to improved access provided by rapid transit between Kumeū-Huapai and metropolitan centres and the city centre. Potential direct impacts on Huapai District School were noted in the reduced scoring.

Stormwater

This alignment avoids the urban section of the Kumeū River floodplain. Therefore, it is an improved option for stormwater management and flood hazard considerations when compared to Option 1.

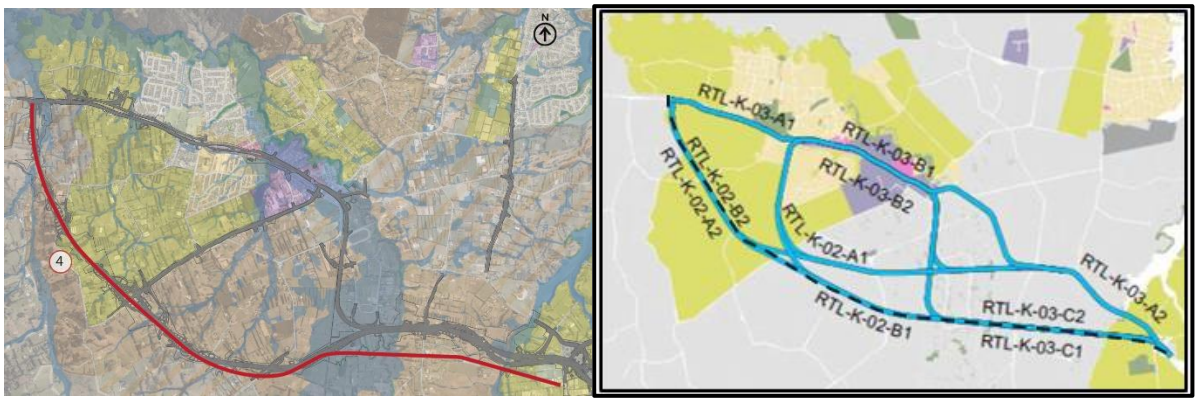
Construction costs, land requirement

All alignments scored negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections. Due to the topography and road crossings at Tawa Road, heavy earthworks and/or structures would be required.

The section along Station Road impacts access to a number of properties. The cost of this option is expected to be higher than Option 1. This option predominantly passes through private land, and the reduced co-location with existing transport infrastructure means the private land requirement is 55% higher than Option 1.

8.6.1.3 Option 4. Southern alignment

This alignment moves west from BCR and continues around the southern FUZ aligned with the Alternative State Highway (left below).



This alignment had an indirect comparator to an option assessed through the previous longlist and shortlist assessment, identified as RTL-K-02-B2 (right above).

MCA Criteria	Previous scoring		New Scoring
IO1: Integrated System			
IO2: Strategic Connections			
IO3: Choices			
IO4: Safety			
Land use futures			
Urban design			
Land requirement			
Social cohesion			
Stormwater			
Transport system integration			
Construction costs / risk / value capture			

Investment objectives

This alignment does not provide the opportunity for integration with the established town centres or anticipated future centres. It is poorly located to serve northeast and north central FUZ land.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network. However, there is less opportunity for mode shift due to the ineffective access provided by the expected station locations. Avoiding the floodplain will provide improved resilience.

Land use futures, urban design, social cohesion

This alignment does not provide for integration with established town centres or medium to long-term anticipated growth patterns. It does not connect to any established community nodal functions and is completely disconnected from the existing urban structure and associated social and economic activities. It does not align with the delivery of urban density sought by the RPS and NPS-UD.

This alignment provides a poor level of support for access to employment, with no direct connection to the existing Kumeū and Huapai central business areas or employment land at Access Road. Social cohesion remains positive due to improved access provided by rapid transit between Kumeū-Huapai and metropolitan centres and the city centre.

Stormwater

This alignment avoids the urban section of the Kumeū River floodplain, making it an improved option for stormwater management and flood hazard considerations compared to Option 1. However, the alignment traverses more undulating land, so it will be more challenging to form treatment wetlands.

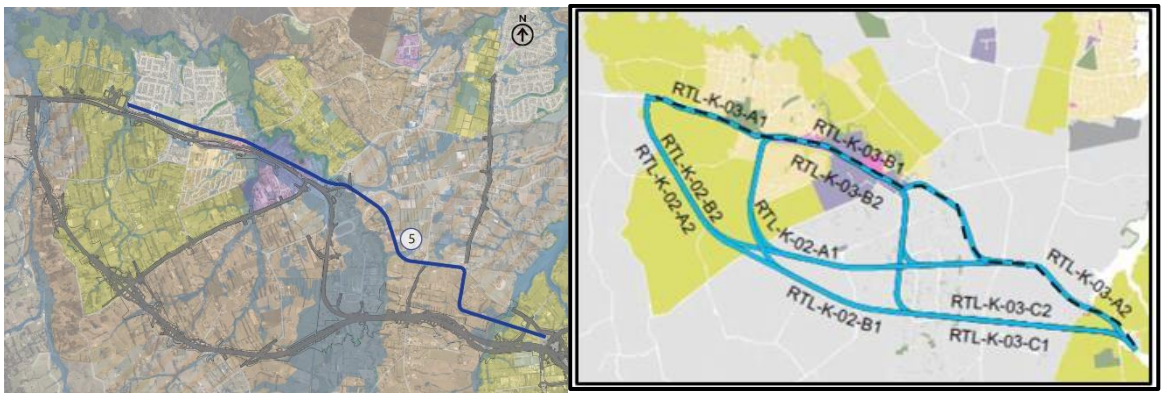
Construction costs, land requirement

All alignments scored negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections.

This alignment is approximately 1 – 1.5km longer than other alignments. The extension across a large rural area presents challenging topography, however there are opportunities for cost efficiencies if this alignment is constructed at the same time as the Alternative State Highway. This option is likely to have the highest cost due to the additional length of the corridor and increased earthworks through challenging topography. However, if built in conjunction with the Alternative State Highway, it is likely that this would be cheaper than Option 1 due to the overlap in construction area. This option predominantly passes through private land, and the reduced co-location with existing transport infrastructure means the land requirement for this option is 73% higher than Option 1.

8.6.1.4 Option 5. SH16 alignment

This alignment moves west from BCR and diverts north toward Coatesville-Riverhead Highway, following SH16 from BCR, following the NAL through Kumeū-Huapai, and terminating north of SH16 at the western FUZ (left below).



This alignment had a direct comparator to an option assessed through the previous longlist and shortlist assessment, identified as RTL-K-03-A1 (right above).

MCA Criteria	Previous scoring		A	B
IO1: Integrated System				
IO2: Strategic Connections				
IO3: Choices				
IO4: Safety				
Land use futures				
Urban design				
Land requirement				
Social cohesion				
Stormwater				
Transport system integration				
Construction costs / risk / value capture				

Investment objectives

Integration with land use to improve economic and social opportunities for the existing and future communities remains positive, given that this option supports short, medium and long-term growth and centres.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network and transformational mode shift opportunities, providing alternatives to car travel. The “at-grade” design option will occasionally be impacted by flooding and associated road closures (approx. 6 days per year) in the long term (post-2050). While the “fully elevated” option will not be impacted by flood events, the improved resilience is not sufficient to warrant a change in the scoring associated with resilience and mode shift. The opportunity for improved network resilience and mode shift remains high when compared to a scenario where there is no investment in the busway connection.

Land use futures, urban design, social cohesion

This alignment supports growth of established centres although it is noted that business land south of SH16 Main Road is directly impacted. The alignment provides for integration with the anticipated future land use pattern of investment in centres and residential intensification that is expected to shift

west along SH16 Main Road. Direct connections to existing urban structure and associated social and economic activities are also provided. Land use efficiencies exist in co-locating with existing transport corridors (NAL and SH16), reducing impacts on developable land.

Social cohesion remains positive due to improved access provided by a dedicated busway between Kumeū-Huapai and metropolitan centres. The option supports improved access to Huapai town centre, including key community facilities/shops/services and employment areas.

Stormwater

This alignment traverses the urban section of Kumeū that is subject to increased flood hazard, as discussed in Section 8.1. The “fully elevated” design option allows for retention of the previous scoring through the mitigation of any significant effects on the operation of the busway and other properties. The “at grade” design option scores worse than the previous assessment due to the updated flood hazard. However, potential effects on other properties can be appropriately managed. This option has comparable challenges to Option 1, due to the section of urban Kumeū it traverses.

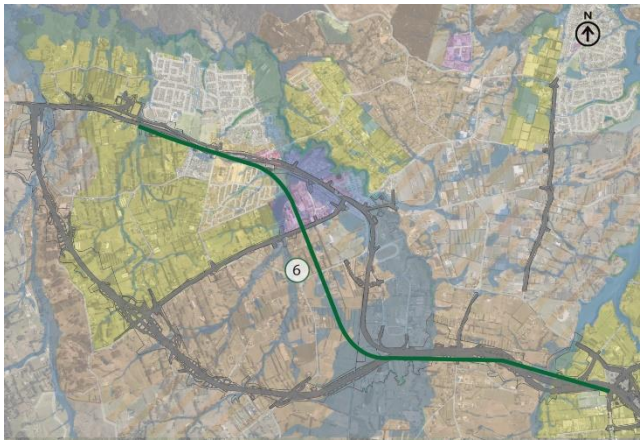
Construction costs, land requirement

All alignments scored negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections. For this option, construction of access roads where property access is impacted along SH16 and new bridges required over Taupaki Road and the Kumeū River floodplain add to construction complexity and associated costs.

As with Option 1, there are urban constraints associated with this option, and an upgrade to part of SH16 Main Road is needed before or during construction. The remaining section through Kumeū can generally be completed offline. Consideration of transport network resilience in response to flooding, i.e. raising or lowering the elevation of the alignment to manage flooding, will impact on cost. However, this is not considered significant enough to change the score as this only represents a part of the full 9.5km corridor. The cost of this alignment is expected to be higher than Option 1. The land requirement is generally consistent with Option 1.

8.6.1.5 Option 6. Southern centre alignment

This alignment moves west from BCR diverting north near Boord Crescent through the industrial area (avoiding showgrounds and film studios) and terminating south of SH16 at the western FUZ.



This is a newly developed alignment with no direct comparator to an option assessed through the previous longlist and shortlist assessment.

MCA Criteria	New Scoring
IO1: Integrated System	
IO2: Strategic Connections	
IO3: Choices	
IO4: Safety	
Land use futures	
Urban design	
Land requirement	
Social cohesion	
Stormwater	
Transport system integration	
Construction costs / risk / value capture	

Investment objectives

Integration with land use to improve economic and social opportunities for the existing and future communities remains positive, given that the option supports short, medium and long-term growth and centres.

The provision of a fast, frequent, high-capacity and reliable public transport service within a dedicated corridor will enable a more resilient transport network and transformational mode shift opportunities, providing alternatives to car travel. Improved resilience is provided when compared to Option 1 by avoiding the Kumeū River floodplain. The opportunity for improved network resilience and mode shift remains high when compared to a scenario where there is no investment in the busway connection.

Land use futures, urban design, social cohesion

This alignment supports growth of established centres, however there are significant impacts on industrial land along Access Road and a large extent of residential land within the recently developed Huapai Triangle. It provides for integration with the anticipated future land use pattern of investment in centres and residential intensification that is expected to shift west along SH16 Main Road. Direct connections to existing urban structure and associated social and economic activities are also provided.

Social cohesion remains positive due to improved access provided by a dedicated busway between Kumeū-Huapai and metropolitan centres. The option strongly supports improved access to Huapai town centre, including key community facilities/shops/services and employment areas.

Stormwater

This alignment avoids the urban section of the Kumeū River floodplain. Therefore, it is an improved option for stormwater management and flood hazard considerations when compared to Option 1.

Construction costs, land requirement

All alignments score negatively against the construction cost and risk criterion as they are high-cost projects involving the construction of numerous bridge structures, retaining walls, and realignment of local road connections. Where the alignment runs on the south side of the NAL a number of business and residential properties are impacted. It is assumed these will be acquired resulting in offline construction. Cost and land requirement are generally consistent with Option 1.

Table 6 Combined New Scoring for Each Option Assessed

MCA Criteria	Option 1A	Option 1B	Option 2	Option 3	Option 4	Option 5A	Option 5B	Option 6
IO1: Integrated System								
IO2: Strategic Connections								
IO3: Choices								
IO4: Safety								
Land use futures								
Urban design								
Land requirement								
Social cohesion								
Stormwater								
Transport system integration								
Construction costs / risk / value capture								

8.6.2 Conclusions

The analysis undertaken and summarised above has reaffirmed the importance of integration and connectivity of the Rapid Transit Corridor with existing town centres in Kumeū-Huapai. As detailed in Section 0, short to medium term growth in Kumeū-Huapai is expected to continue to focus on the existing town centres and, in response to flood hazard, gradually shift west over time (above the Kumeū River floodplain), along the strategic SH16 corridor. While Options 2 and 3 support land use integration with the western extent of the anticipated future land use scenario, the alignments are disconnected from the existing Kumeū-Huapai urban structure and associated social and economic activity. Accordingly, Options 2 (the alignment put forward by Future-Kumeu) and 3 will not provide as effective and attractive public transport access to economic and social opportunities or support high-quality integrated communities.

Option 4, which traverses the southern extent of the FUZ, does not integrate with existing town centres or medium to long term anticipated growth patterns. It does not align with the delivery of urban density sought by the RPS and NPS-UD. The provision of a dedicated public transport corridor that accesses Kumeū-Huapai will enable a more resilient transport network, and there are construction and land requirement efficiencies in co-locating the Rapid Transit Corridor for the full length of the Alternative State Highway. However, Option 4 has not been advanced due to its poor scoring against criteria associated with transport and land use integration.

Option 1, 5 and 6, all provide good connectivity to the existing centres in Kumeū-Huapai, recent residential growth north and south of SH16 Main Rd and anticipated future growth west of Huapai. However, Option 6 was not preferred due to the significant impacts on industrial land on Access Road and a large extent of the recently developed Huapai Triangle residential area, notwithstanding its reduced exposure to stormwater and flood hazard.

The opportunity to co-locate the Rapid Transit Corridor with existing transport infrastructure for Option 1 (NAL and SH16 Main Road) and Option 5 (SH16), as well as efficiencies associated with land use, integration and constructability, meant these were better performing options compared to all other alignments assessed. Coupled with good urban land use integration, Options 1 and 5 enable improved access to economic and social opportunities for existing and future communities of Kumeū-Huapai. It is noted that the “at-grade” alignments of the Rapid Transit Corridor through the Kumeū urban area are anticipated to be impacted by flooding and associated road closures in the long term (approx. 6 days per year); however, this is not considered to outweigh the positive outcomes identified.

Concluding Points:

Option 1 remains the preferred alignment for the busway to Kumeū-Huapai, because it:

a) Enables improved access to economic and social opportunities given integration with existing and future communities
b) Supports the overall efficiency of the rapid transport network by aligning with the NAL, providing a dedicated corridor enabling a fast, frequent, high-capacity and reliable service
c) Has fewer impacts on private property, and less associated severance effects and land acquisition requirements

8.7 Alternative Station Locations Assessed

As set out in 5.2.2, catchment analysis undertaken identified that two stations should be located on the alignment of the Rapid Transit Corridor within the Kumeū-Huapai RUB to maximise ridership potential. Therefore, three station locations were assessed in proximity to each of the lodged Kumeū and Huapai station locations to be representative of an appropriate range of potential access points; these are described in Table 7 and Table 8, and identified in Figure 27 and Figure 28.

8.7.1 Kumeū Station

Table 7 Kumeū Station Options

Alignment	Description
A. Lodged station	Located at the foot of Matua Road
B. Oraha Road	Located at the foot of Oraha Road
C. Tapu/Station Road	Located east of Tapu/Station Road intersection with SH16

Figure 27 Alternative Kumeū Station locations

MCA Criteria	Option A	Option B	Option C
Access			
Integration			
Land use futures			
Urban design			
Land requirement			
Social cohesion			
Stormwater			
Construction costs / risk / value capture			

Assessment Summary

Both Options A and B achieve the access outcomes sought. The station platforms are oriented to local bus services, north-south road connections, and active mode facilities on Main Road, supporting a high-quality public realm. Access is convenient and attractive to users in the Huapai town centre, where growth is expected to continue, with Option C being further from this centre. The station locations enable and support the expected intensification in the immediate vicinity of Huapai town centre, Option B provides improved integration with the anticipated gradual shift in investment west, compared to the limited opportunity for intensification of land use immediately east of Option A, and less direct connection to south compared with Option C.

Option A, being in closer proximity to the Kumeū town centre provides short, medium and long term support to the established community centre including direct access to community facilities. The immediacy of the Huapai Stream as a natural feature could enhance the future station's character and support a quality urban realm. Both options have the ability to integrate with Huapai Triangle to the south of the NAL via the overbridge.

Given the distance between the station and town centres with associated employment and community facilities, Option C does not perform as well in terms of land use and transport integration and urban design outcomes.

All options have been assessed to have the ability to manage stormwater and flood hazards, achieving the outcomes required under the Flood Hazard condition. All options would have a similar footprint and construction considerations and therefore score equally on land requirement and construction costs and risks.

Overall, while it is expected that some community and commercial centre functions will gradually shift west in response to the increased flood hazard, Kumeū Station being located at Option A will promote good land use integration with this evolving destination while maximising access to the catchment in established urban areas in eastern parts of Kumeū-Huapai.

8.7.2 Huapai Station

Table 8 Huapai Station Options

Alignment	Description
a. Lodged station	North of NAL and SH16, at foot of Meryl Avenue
b. Southern SH16	South of NAL and SH16, west of Coopers Creek
c. Future-Kumeu Location	South of NAL, east of Coopers Creek

Figure 28 Alternative Huapai Station Locations

MCA Criteria	Option A	Option B	Option C
Access			
Integration			
Land use futures			
Urban design			
Land requirement			
Social cohesion			
Stormwater			
Construction costs / risk / value capture			

Assessment Summary

As growth continues west along SH16, it is anticipated that in the long term a new centre will develop to serve the western catchment of Kumeū-Huapai, as envisioned by the Spatial Land Use Strategy and FDS. An end-of-line busway station will enable and support this growth, with park-and-ride facilities providing access for the wider regional catchment (Waimauku and Helensville). This centre is anticipated to be located on the south side of SH16. Therefore, park-and-ride facilities located at Options B and C have the potential to constrain development and reduce placemaking opportunities for the centre west of Huapai, which could develop at either of the site locations. Access to Option A, while not direct, remains convenient and attractive to users of a future centre west of Huapai and south of SH16. The ability to consolidate facilities (platform and park-and-ride) within one site on the northern side of SH16 and the NAL provides flexibility in the design of future interchange elements.

All options have been assessed to have the ability to manage stormwater and flood hazards, achieving the outcomes required under the Flood Hazard condition. It is noted that the topography for Option A is generally level, while Options B and C are located on steeper terrain, requiring greater earthworks and retaining walls to accommodate a level station platform. All options would have a similar footprint and therefore scored equally on land requirement

Therefore, the MCA confirmed that the proposed Huapai Station location, Option A, is the most appropriate location for the end-of-line busway station.

Key Points:

At Huapai town centre, Option A remains the recommended location for a station, because:

a) Its closer proximity to Kumeū town centre supports the ability to integrate with existing community facilities and urban infrastructure over the short to medium term, while also maximising accessibility for established urban areas to the east.
b) This location ensures a balanced approach that supports both the intensification of Huapai town centre and the ongoing needs of the broader Kumeū-Huapai community

West of Huapai, Option A remains the recommended location for the end-of-line busway station, because:

a) Its strategic positioning to the north of SH16 and the NAL means it can support the long-term development of the future Huapai West centre without constraining its placemaking potential.
b) Its ability to consolidate interchange facilities in a single, flexible site underscores its suitability as the optimal location to enable and support the anticipated growth in the western catchment of Kumeū-Huapai

9 Conclusion

This report has been produced:

a) In response to updated rainfall data and a flood mitigation options assessment released in February 2025 by Healthy Waters for the Kumeū-Huapai township; and

b) To support the NZTA response to appeals from Future-Kumeu, Nuich and FBL who have appealed one, or all, of the following NoRs:

   i. Alteration to designation 6766 State Highway 16 Main Road Upgrade (S2);

   ii. Rapid Transit Corridor (S3);

   iii. Huapai Rapid Transit Station (HS); and

   iv. Kumeū Rapid Transit Station (KS).

Te Tupu Ngātahi (on behalf of NZTA) has undertaken additional analysis to understand the implications of this updated information provided by Healthy Waters and to test whether previous recommendations remain valid. This technical analysis has included:

a) A comparison of the increased base rainfall and climate change with previous assumptions on flooding depth and flood hazard in Kumeū-Huapai;

b) Analysis of the implications of the updated flood hazard for the growth of the existing and future urban areas in Kumeū-Huapai, including catchment analysis and future urban form; and

c) A review of the Rapid Transit Corridor alignment and station option assessment process, including an MCA focused on the updated information.

The technical analysis has identified that:

a) Despite the recent flooding and updated flood modelling, Kumeū-Huapai is still anticipated to grow as forecasted

b) Investment in an extension of the Northwest Busway to Kumeū-Huapai is needed to address current transport constraints, support anticipated growth and transport demand, and provide improved access to employment and social opportunities

c) A range of design options are available for the Rapid Transit Corridor to respond to the potential for increased flood hazard through Kumeū town centre. Cost, resilience and flood hazard outcomes will be key considerations at the time of detailed design.

d) The lodged alignment of the Rapid Transit Corridor and associated station locations remain the preference as they:

   a. Enable integration with existing and future communities providing the highest ridership potential

   b. Supports the overall efficiency of the transport network by providing for a separated busway with reduced private property and land use severance impacts when compared to other alignments.

Appendix 1. Policy Assessment Addendum

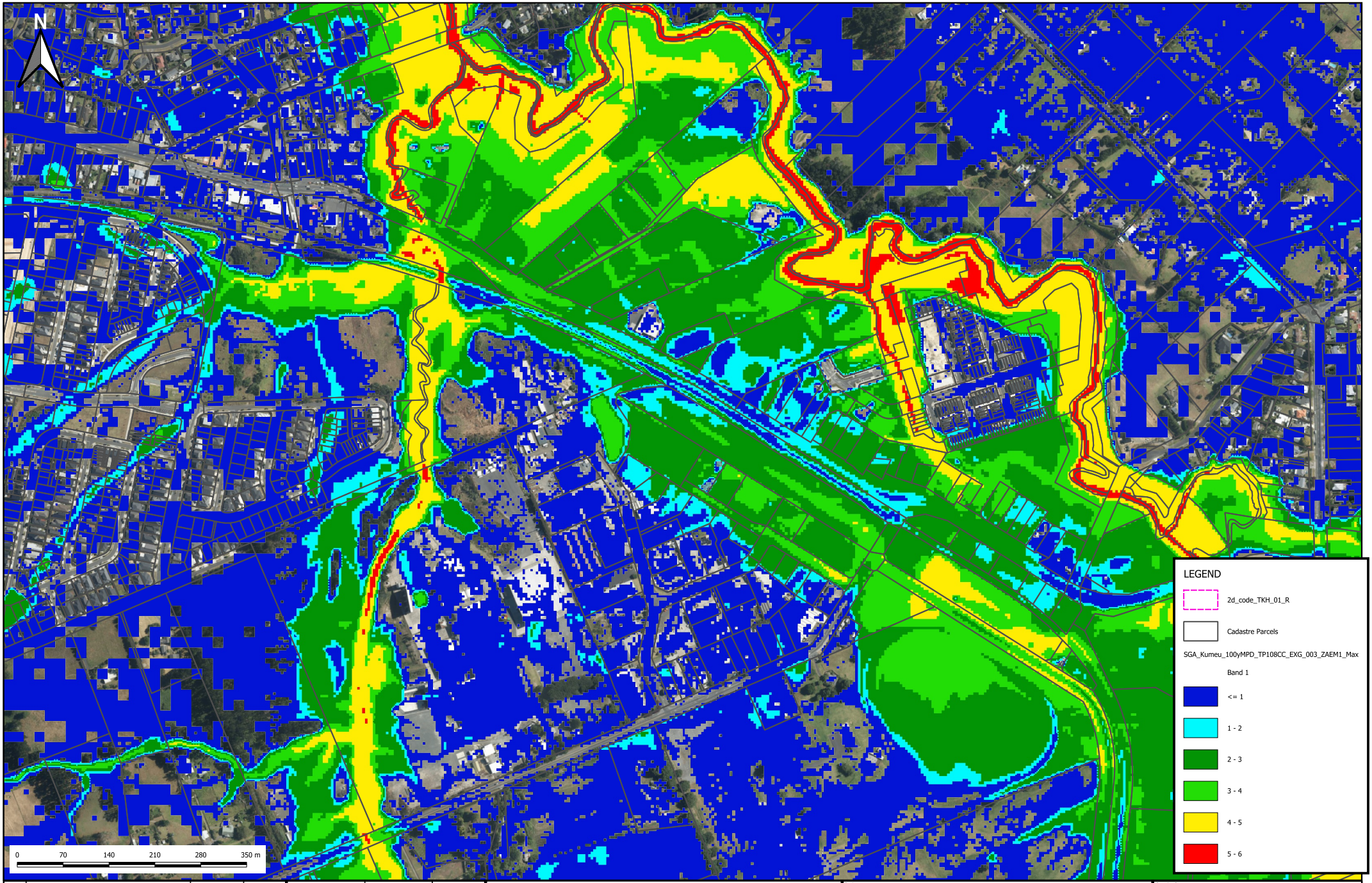
Policy document	Description	Implications for growth and supporting infrastructure in Kumeū-Huapai
Central Government Policy		
Government Policy Statement on land transport 2024/25-2033/34 (GPS)	The GPS, sets the strategic priorities for how investment in transport will be delivered over the next 10 years, influencing decisions on how funding from the National Land Transport Fund will be invested across activity classes, such as state highways and public transport. The four strategic priorities are Economic Growth and Productivity, Increased Maintenance and Resilience, Safety, and Value for Money.	The GPS, released in 2024, revises the strategic priorities set within the previous GPS under which the transport network was previously assessed. Overall, the long-term objectives of the North West Strategic Network continue to positively contribute towards the strategic priorities of the GPS by: • Facilitating the economic growth and productivity of Kumeū-Huapai (and the wider region) as the population grows by providing a connected transport network that will ensure reduced congestion, increased public transport patronage, and improved access to economic and social opportunities. • Providing a transport system that will be resilient to the impacts of weather events and other natural disasters. Enabling the effective management of risk and adaptation to such challenges. • Providing a safe transport network that addresses existing safety concerns, significantly reducing the risk of Deaths and Serious Injuries and improving road safety for all users. • Achieving value for money through the protection of the network and through the optimisation of the alignment of the network with existing transport corridors and land use patterns. As a key interface to the Rapid Transit Corridor, the North West Alternative State Highway is one of the Roads of National Significance identified in the GPS for NZTA to investigate as a priority. Implementation of the Rapid Transit Corridor is critical and necessary to support the Alternative State Highway project and unlock significant growth in the Northwest.
Going for Housing Growth 2024 (GfHG)	The GfHG programme seeks to address the underlying causes of the housing supply shortage by “Freeing up land for urban development, including removing unnecessary planning barriers; improving infrastructure funding and financing to support urban growth; and providing incentives for	The GfHG programme has the potential to expedite the supply of land for development in areas identified as appropriate for growth, such as Kumeū-Huapai, earlier than anticipated. This highlights the uncertainty around the timing of further growth in Kumeū-Huapai and reinforces the need for integrated land use and transport planning to ensure the sustainability of future urban growth.

	communities and councils to support growth." These changes will be implemented through amendments to the RMA and the NPS-UD. GfHG aims to improve housing affordability by significantly increasing the supply of developable land for housing, both inside and at the edge of our urban areas therefore enabling greenfield growth and requiring councils to be more responsive to private plan changes.	
Draft National Infrastructure Plan 2025	At the government's direction, the New Zealand Infrastructure Commission Te Waihanga has released a draft 30-year National Infrastructure Plan to ensure greater stability of infrastructure priorities and help New Zealand plan for, fund and deliver important projects.	The North West Strategic Network supports this work by providing a pipeline of transport interventions to support the growth of Northwest Auckland over the next 30 years. The North West Strategic Network provides an integrated multi-modal transport network that includes rapid public transport, walking and cycling networks, new and improved roads and strategic highway connections. Designating the network provides increased certainty for communities and authorities that the transport infrastructure essential to support growth can be implemented at the right time, integrated with urban development, consistent with the desired transport and land use outcomes and policy and investment direction of the time.
National Policy Statement on Urban Development 2020 (NPS-UD)	The NPS-UD seeks to ensure well-functioning urban environments and enable all people and communities to provide for their social, economic, and cultural well-being and health and safety. The NPS-UD directs that urban development is integrated with infrastructure planning and funding decisions and is strategic over the medium to long term. The NPS-UD requires that Council, at all times, provides at least sufficient development capacity to meet expected demand for housing and for business over the short term, medium term and long term. This is planned through the preparation of an FDS. The NPS-UD requires that local authority decisions affecting urban environments are	The NPS-UD was assessed as part of the AEE lodged for the NoRs and there has been no change in policy direction. The Auckland FDS was released in 2023 (draft released prior to Council hearing) and is assessed below. Despite planned growth in Kumeū-Huapai not being anticipated in the FDS until 2050+, significant development can be proposed, and in accordance with the NPS-UD Policy 8 Council must be responsive to ensure development capacity.

	responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is unanticipated by RMA planning documents, or out-of-sequence with planned land release	
Auckland Policy Direction		
Auckland Regional Policy Statement 2016 (RPS)	Auckland's growing population increases demand for housing, employment, business, infrastructure, social facilities and services. The overarching objective of the RPS is to achieve a well-functioning urban environment with a quality compact urban form that enables, among other matters, good accessibility for all people, including by improved and more efficient public or active transport. In addressing the effects of growth, and contributing to a well-functioning urban environment, a key factor is enabling sufficient development capacity in the urban area and sufficient land for new housing and businesses over the next 30 years. It is also important to ensure that urban environments have improved resilience to the effects of climate change.	The RPS was assessed as part of the AEE lodged for the NoRs and there has been no change in policy direction. The objectives and policies of the RPS have guided the location of urban growth areas such as Kumeū-Huapai and identify how greenfield land which is suitable for urbanisation will be managed until it is re-zoned for urban development. They also set out the process to be followed to ensure that urban development is supported by infrastructure on a timely and efficient basis. The North West Strategic Network supports the growth of Kumeū-Huapai by providing an effective, efficient and safe transport network that: a) supports the movement of people, goods and services; b) integrates with and supports a quality compact urban form; c) enables growth; d) avoids, remedies or mitigates adverse effects on the quality of the environment and amenity values and the health and safety of people and communities; and e) facilitates transport choices, recognises different trip characteristics and enables accessibility and mobility for all sectors of the community.
Auckland Future Development Strategy 2023-2053 (2023)	In 2023, Council released the FDS. The FDS sets out the Council's plan to manage growth across the Auckland region for the next 30 years. It seeks to integrate long-term land use and infrastructure planning while meeting future environmental, population, housing and employment needs. The FDS sets the temporal priority for planned short, medium and long-term growth and identifies the appropriate requirements that need to be considered from the start of the development process.	The implications of the FDS on the North West Strategic Network were assessed during the NoR Council Hearing as part of expert evidence. This assessment concluded that the release of the FDS had no notable effect on the analysis of the need for the busway to Kumeū-Huapai or catchment patronage analysis that had already been undertaken. The FDS identifies the northwestern extent of the Kumeū-Huapai future urban area is to be downzoned due to property located within the 1% AEP floodplain and associated risk to life. The remainder of the Kumeū-Huapai growth area has been 'red-flagged' in the FDS, which introduces specific considerations associated with land use integration, stormwater and flood mitigation prior to upzoning for urbanisation. Reduction of the FUZ extent, and any subsequent changes to FUZ areas that have been 'red flagged' following further investigation will be progressed through statutory processes, including to update the AUP.

		The FDS revises the planned timing of FUZ development in Kumeū-Huapai to 2050+ based on the above considerations and introduces 'infrastructure prerequisites' as a tool to guide the timing of development. All of the NoRs associated with the North West Strategic Network are listed as infrastructure prerequisites to support the development readiness of the North West Growth Area.
Kumeū-Huapai Centre Plan 2017 (Kumeu-Huapai Centre Plan) and Spatial Land Use Strategy – North West 2021 (Spatial Land Use Strategy)	As an outcome of planning and engagement undertaken in the development of the Kumeū-Huapai Centre Plan, Council identified the expansion (joining-up) of the existing Kumeū and Huapai town centres to accommodate forecasted growth and to provide an attractive town centre that focuses on the Kumeū River, has improved connections, and celebrates its heritage and rural hinterland. This centre plan was reinforced through the Spatial Land Use Strategy, which was developed by Council in parallel with the development of the North West Strategic Network. The Spatial Land Use Strategy identified the location of future centres and employment areas.	With the investigation report findings and updated rainfall data released by Healthy Waters, Council no longer supports the expansion of the existing centres as envisaged through the Kumeū-Huapai Centre Plan and the Spatial Land Use Strategy. Council has identified that no Council-led land use zoning changes or spatial or structure planning exercises will be undertaken in the near future in Kumeū-Huapai.
Auckland Rapid Transit Pathway 2025 (ARTP)	NZTA and AT, together with Council, Ministry of Transport and KiwiRail, have developed an aligned system view of Auckland's long-term Rapid Transit Network—the ARTP. The ARTP includes the heavy rail network and dedicated busways and outlines a 30-year plan to develop Auckland's Rapid Transit Network.	The Rapid Transit Corridor to Kumeū-Huapai is an extension of the Northwest Busway. The Northwest Busway is an important component of the network and is prioritised in Phase 1 of the ARTP due to existing significant corridor deficiencies. The Northwest Busway connects to the CRL stations in Auckland's city centre to maximise CRL investment.

Appendix 2. Changes to Future Flooding Characteristics



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SURVEYED	N/A	N/A
DRAWN	J.KIRKMAN	14.04.25
DRAWING CHECK	R.SEYB	14.04.25
DESIGN		
DESIGN REVIEW		
APPROVED		

TE TUPU NGĀTAHI Supporting Growth

WAKA KOTAHI NZ TRANSPORT AGENCY

Project:
SUPPORTING GROWTH PROGRAMME
NORTH WEST BUSWAY

Drawing Title:
1% AEP VxD FLOOD HAZARD
EXISTING TP108 180mm+CC

Drawing Status:	PRELIMINARY DESIGN
Drawing Date:	17.04.25
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Discipline	CIVIL
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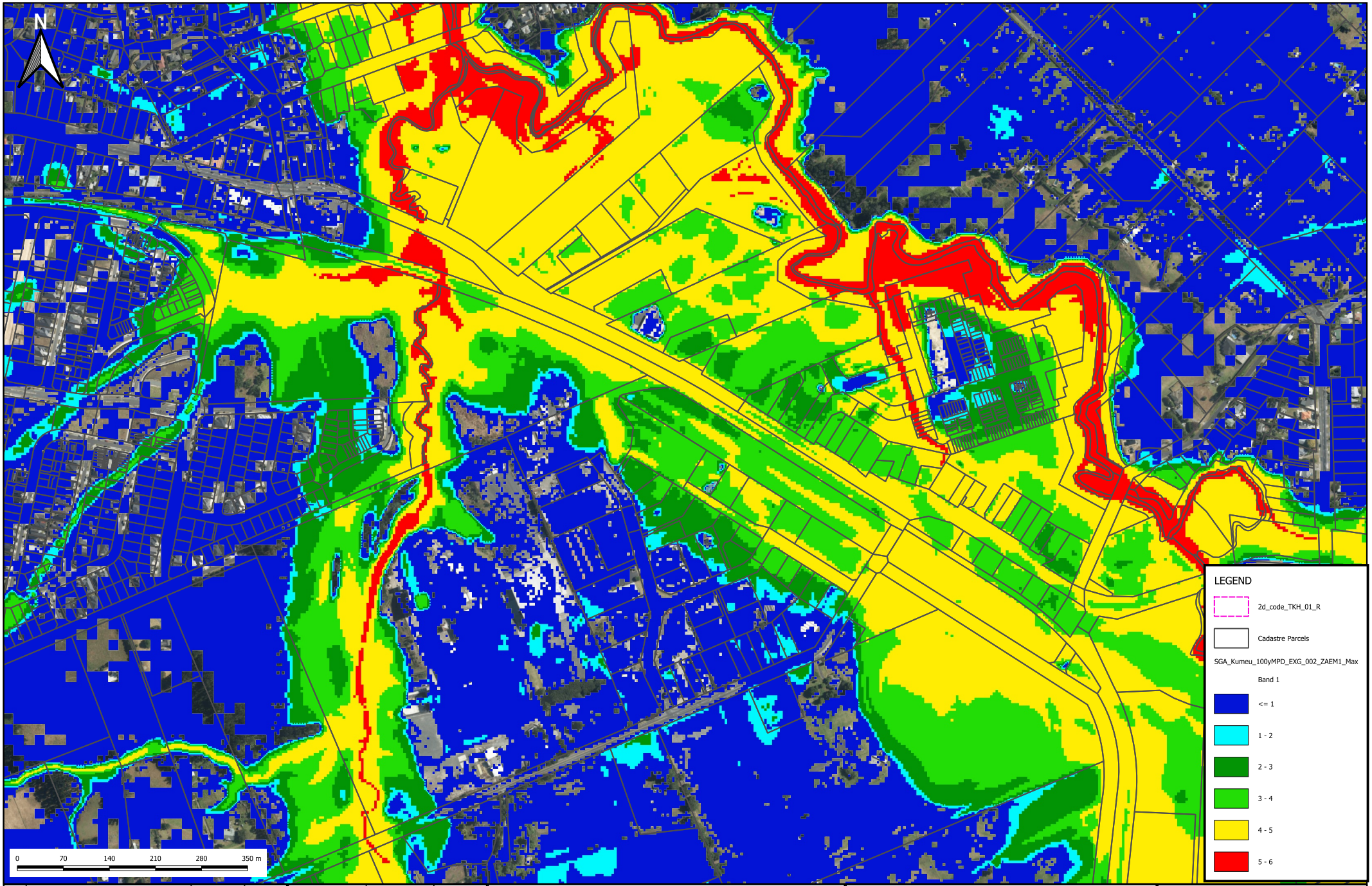
Revision	A



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DRAWING CHECK	R.SEYB	14.04.25
DESIGN		
DESIGN REVIEW		
APPROVED		

TE TUPU NGĀTAHI Supporting Growth

WAKA KOTAHI NZ TRANSPORT AGENCY

Project:
SUPPORTING GROWTH PROGRAMME
NORTH WEST BUSWAY

Drawing Title:
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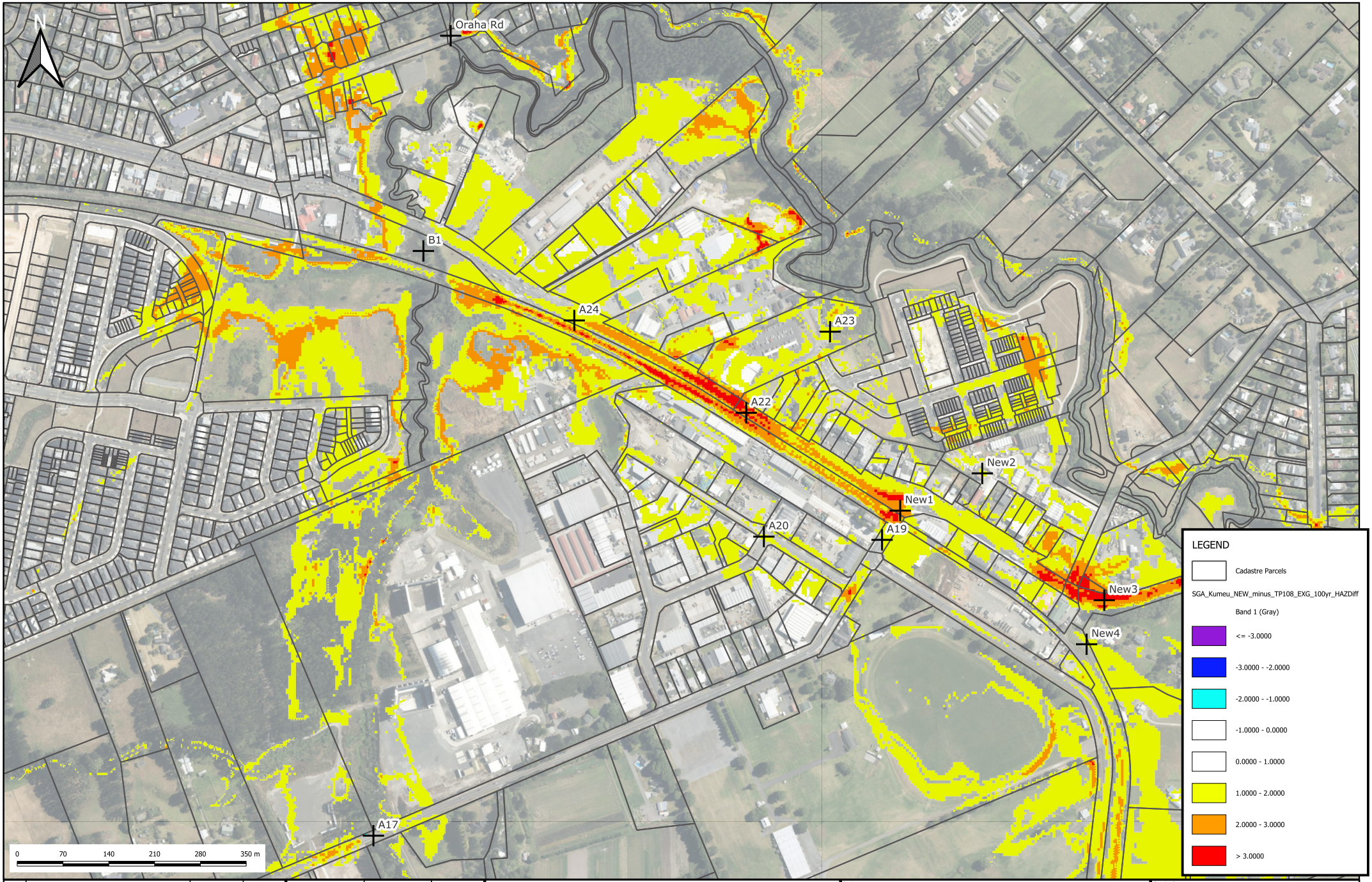

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DRAWING CHECK	R.SEYB	01.05.25
DESIGN		
DESIGN REVIEW		
APPROVED		

TE TUPU NGĀTAHI Supporting Growth

WAKA KOTAHI NZ TRANSPORT AGENCY

Project: **SUPPORTING GROWTH PROGRAMME**
NORTH WEST BUSWAY

Drawing Title:
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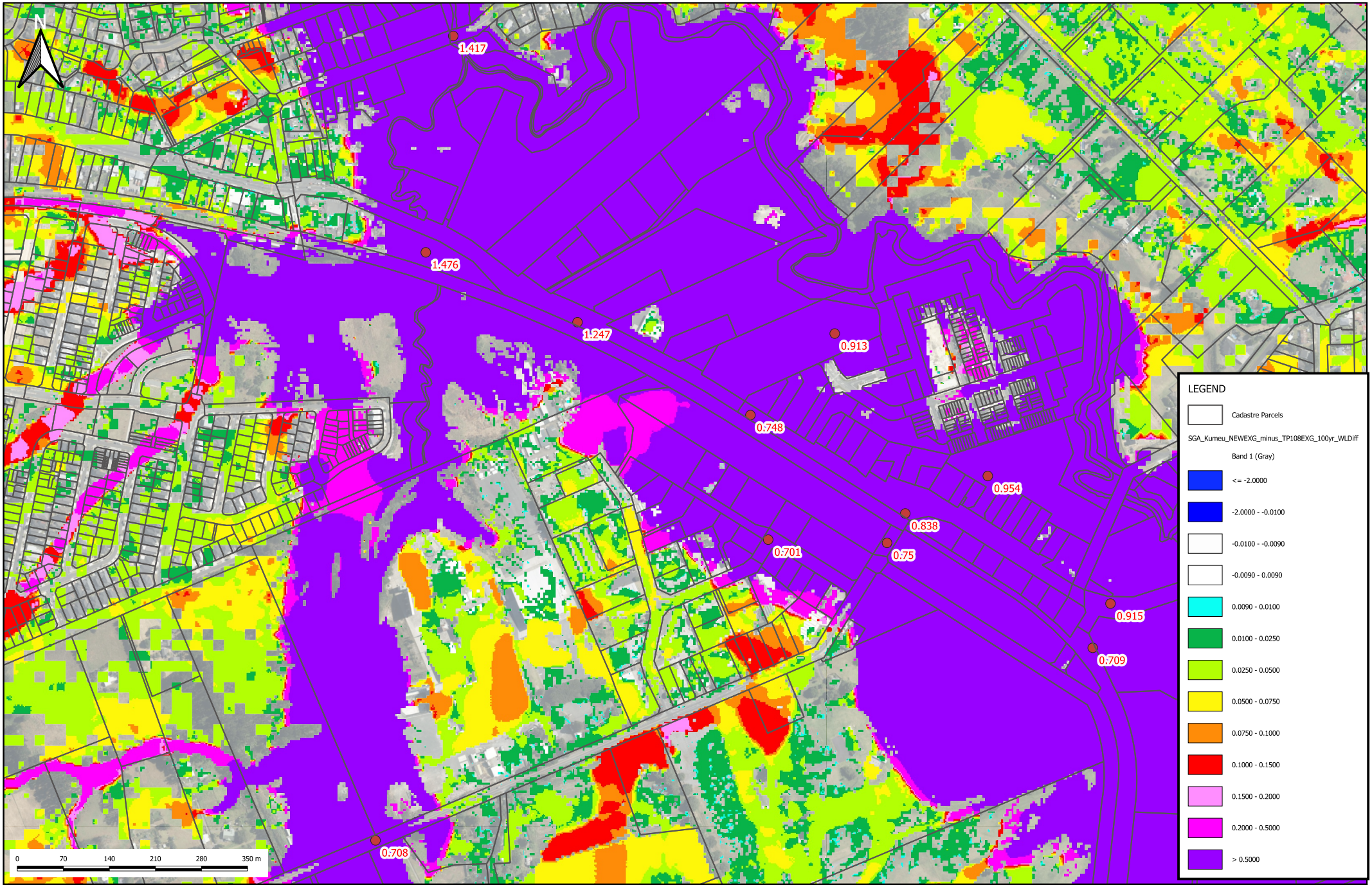

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DRAWING CHECK	R.SEYB	29.04.25
DESIGN		
DESIGN REVIEW		
APPROVED		

TE TUPU NGĀTAHI Supporting Growth

WAKA KOTAHI NZ TRANSPORT AGENCY

Project:
SUPPORTING GROWTH PROGRAMME
NORTH WEST BUSWAY

Drawing Title:
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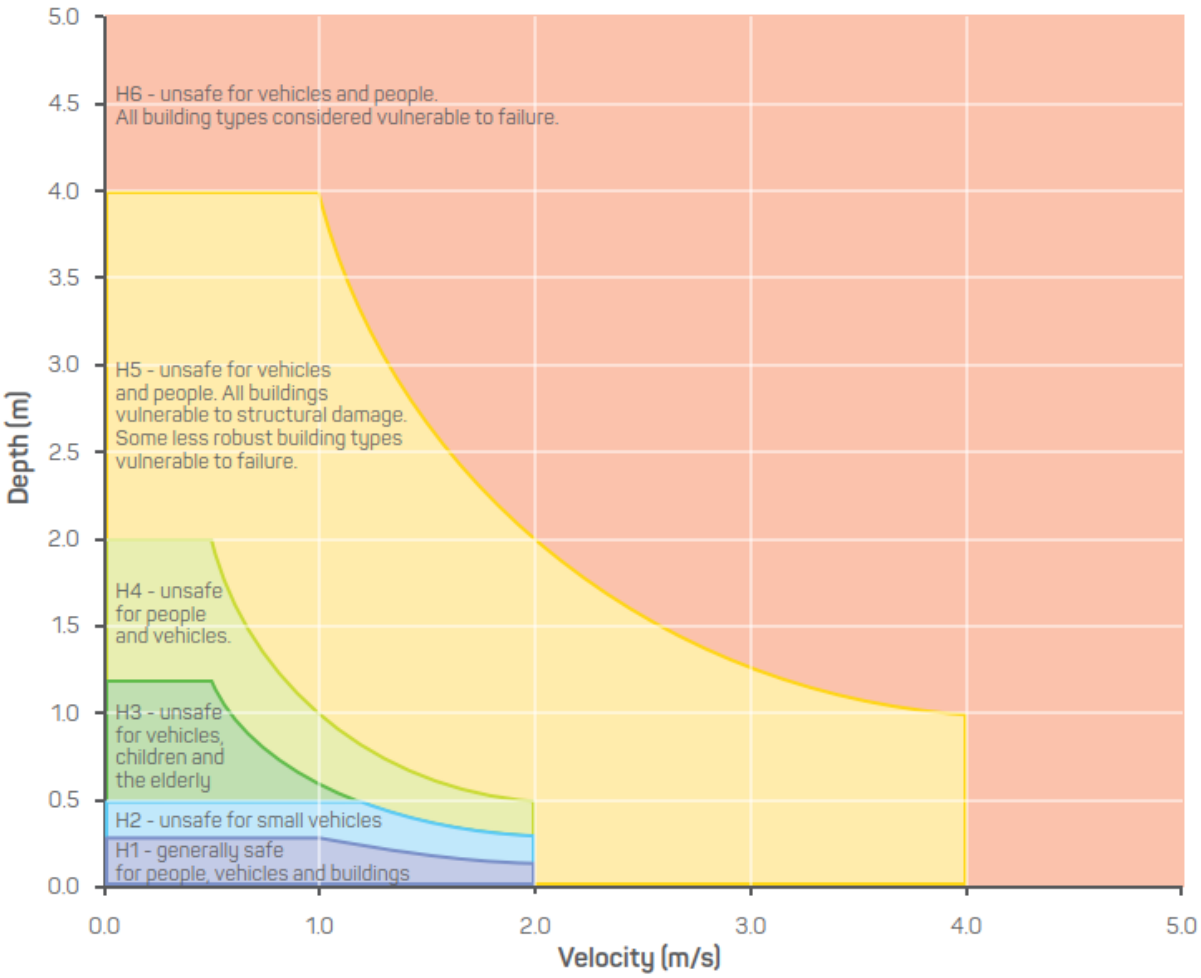

General flood hazard vulnerability curves[1]

[1] Smith, G.P., Davey, E.K. and Cox, R.J. (2014), Flood Hazard UNSW Australia Water Research Laboratory Technical Report 2014/07 30 September 2014.