



Te Utanganui

Central New Zealand Distribution Hub Masterplan

Palmerston North City Council

19 April 2023



→ The Power of Commitment

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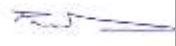
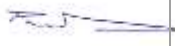
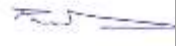
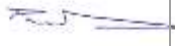
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Executive summary

Palmerston North City Council (PNCC) commissioned GHD to develop a Masterplan for Te Utanganui – The Central New Zealand Distribution Hub. The Masterplan is intended to be a high-level planning document to assist future planning, advocacy, communication and promotion of Te Utanganui.

The area covered by the Masterplan extends from Bunnythorpe in the north to the southern boundary of the existing North East Industrial Zone (NEIZ), including land to the east of Railway Road, the west of the NEIZ and adjacent to Newbury Line, Roberts Line North and Campbell Road.

The Masterplan has to balance a number of physical and environmental constraints while evaluating where growth in logistics and freight activity could be accommodated, as well as where housing for the growth could go. It has to consider, at a headline level, the transport implications of this growth and therefore what will need to be in place to ensure the safe, efficient operation of this crucial component of the New Zealand distribution task.

To meet demand for a high growth scenario, the Masterplan proposes three stages of expansion. The first would be relatively soon, in 2025/26. This would be followed by further growth in 2032 to coincide with the planned opening of the KiwiRail freight hub, and a further expansion by 2052.

Much work will need to be completed to take this Masterplan from concept to reality. Specifically, this Masterplan is not a more detailed structure plan that is designed to give effect to a masterplan, and it does not account for the funding required to deliver the NEIZ infrastructure or the supporting transport infrastructure among other key components for success.

To provide early signalling of potential land use change, rapid progress to community engagement is recommended. The proposed expansion areas will require rezoning of land, which may not be consistent with the current landowners/occupiers' intentions for their properties. To progress, a Communications Plan is recommended to set out a strategy for engaging with key stakeholders. As funding streams are yet to be identified for the various projects required to successfully implement Te Utanganui, business cases at an appropriate level will be required.

Realisation of Te Utanganui requires re-zoning and this should occur promptly to avoid the potential to hold up growth. The plan change documentation should also include Notices of Requirement for new infrastructure, including roads and three waters as appropriate. This will assist with land purchase and infrastructure provision.

Contents

Executive summary	i
Purpose and scope	1
Why the Masterplan matters	1
Specific areas of focus for the Masterplan	1
What the Masterplan process is not	1
The subject area	2
Introducing the name <i>Te Utanganui</i>	2
The area covered under the Masterplan	2
The Masterplan	3
Key features of the Masterplan	3
Industrial land provision	3
Housing provision	5
Cultural considerations	5
Multi-modal transport network	5
Stormwater considerations	6
Masterplan staging	7
Staging influencers	7
Industrial land demand	7
KiwiRail Freight Hub	7
Stormwater management	7
Palmerston North Integrated Transport Initiative	8
Water and wastewater	8
Proposed staging	8
Caveats to the Masterplan	14
An appropriate level of granularity is included	14
Funding solutions will be needed	14
Land ownership concentration will need to be overcome	14
Timing is crucial and subject to change	14
Plan changes will take time	15
Constraints incorporated into the Plan	15
Terrain, flood plain, stormwater and ecology	15
Transport	17
Land use constraints	19
Implementation	21
Engagement	21
Engagement with affected landowners	21
Communications Plan	21
Working with Te Utanganui and PNITI governance groups and Rangitāne o Manawatū	21
Funding	22
Plan change process	22
Projects that enable	22
The Masterplan preparation process	23
Data and perspectives gathering (Steps 1 to 5)	23
Objectives for Te Utanganui	23
Masterplan objectives	24
Optioneering (Steps 6 and 7)	25

Considerations for all scenarios	25
Draft and Final Masterplan (Steps 8 to 10)	26
Scope and limitations	27

Figure index

Figure 1 Location of Te Utanganui	2
Figure 2 Masterplan	4
Figure 3 Te Utanganui Stage 1	9
Figure 4 Te Utanganui Stage 2	11
Figure 5 Te Utanganui Stage 3	13
Figure 6 Flood plain, stormwater and ecology constraints	16
Figure 7 Transport constraints	18
Figure 8 Land use constraints	20
Figure 9 The Masterplan project approach	23
Figure 10 Summarised objectives from data and perspectives gathering	24
Figure 11 Summarised obstacles from data and perspectives gathering	24
Figure 12 Te Utanganui mapped objectives	25

Appendices

Appendix A	Rangitāne o Manawatū Cultural Impact Assessment
Appendix B	Industrial and housing land forecast
Appendix C	Technical Assessment - Stormwater
Appendix D	Technical Assessment - Transport
Appendix E	Technical Assessment - Rail
Appendix F	Technical Assessment - Noise
Appendix G	Constraints Maps
Appendix H	Grade separation of Railway Road/Roberts Line – transport assessment
Appendix I	Review of guiding documents

Purpose and scope

Palmerston North City Council (PNCC) commissioned GHD to develop a Masterplan for Te Utanganui – the Central New Zealand Distribution Hub. The Masterplan is intended to be a high-level planning document to assist future planning, advocacy, communication and promotion of Te Utanganui. It has five specific areas of focus, while an even wider range of objectives and obstacles to be overcome were identified by technical advisors and stakeholders on the project. To the extent possible, these objectives and obstacles, often in competition with each other, have been accommodated in the Masterplan presented in this document.

Why the Masterplan matters

The Masterplan will be used in a number of ways, including to:

- inform plan change processes
- help with advocacy to central government
- assist in communications with the public and other agencies around the vision for the area
- demonstrate the value of the proposal to potential investors.

Specific areas of focus for the Masterplan

The project brief included five specific areas that PNCC wanted to ensure were covered in the Masterplan:

- accommodate future demand for industrial land, and its implications for employment
- implications of expansion of the distribution hub and its employment on demand for housing
- addressing potential transport impacts of the expanded distribution hub
- addressing stormwater implications of an expanded distribution hub
- incorporating cultural aspirations and values into expansion of the distribution hub.

What the Masterplan process is not

It is important to clarify the limits of the Masterplan.

First, the Masterplan is a headline plan, designed with the uses and areas of focus set out with the above in mind. It is not a detailed implementation plan or an engineering or design plan where each pipe or stormwater manhole is shown.

Second, the Masterplan team has relied on information provided by technical advisors, directly appointed by PNCC, in the technical areas of economics, transport, rail, stormwater and noise, and a Cultural Impact Assessment prepared by Rangitāne o Manawatū (provided in Appendix A, whilst the supporting technical reports are provided in Appendices B-F). While the GHD project team has reviewed inputs where possible, the Masterplan is a collaborative effort reliant on these inputs.

Third, as part of the Masterplan process, the project team met with over 30 stakeholders and partners across the five specific areas of focus, as well as in separate hui with the local iwi – Rangitāne O Manawatū. Elected Members were kept abreast on the progress of the work. To the extent possible, we have incorporated the feedback and objectives provided by stakeholders and partners. We have paid particular attention to objectives and obstacles that were raised repeatedly. That said, objectives are often by definition competing, and not every objective or obstacle can be met or overcome by one plan.

The subject area

Introducing the name *Te Utanganui*

The name *Te Utanganui* was gifted to the project by Rangitāne O Manawatū, who are mana whenua for Papaioea (Palmerston North). The name refers to the concept of an inland port, of transient goods arriving by sea, sky, and land, and then out again – *ki tai*. It represents the significant role *Te Utanganui* has in the transport of goods throughout New Zealand and the world. *Ki uta* refers to an inland location, and *Nui* describes the vastness and importance of the hub¹.

The area covered under the Masterplan

The area covered by the Masterplan is shown in Figure 1. It extends from Bunnythorpe in the north to the southern boundary of the existing North East Industrial Zone (NEIZ), including land to the east of Railway Road, the west of the NEIZ and adjacent to Newbury Line, Roberts Line North and Campbell Road.

The purpose of *Te Utanganui* is to create a multi-modal freight distribution hub connecting air, road, rail and sea in the lower North Island. *Te Utanganui* is intended to act as the third node in New Zealand's national transport and freight network². The catalyst for *Te Utanganui* is development of the KiwiRail Freight Hub and the subsequent opportunity for multi-modal freight distribution.

More than \$8 billion of transport and infrastructure investment is planned for the next 10 years in the Manawatū. The combination of the NEIZ expansion and the planned KiwiRail Freight Hub to the north of the existing zone is intended to unlock freight distribution in the lower North Island.

The area to the north of the city is highly constrained. The airport, Mangaone Stream floodplain, topography, existing and proposed development and other infrastructure combined to make identifying an expansion area for the existing NEIZ challenging.



Figure 1 Location of *Te Utanganui*

¹ Te-Utanganui-Story.pdf (ceda.nz)

² <https://ceda.nz/teutanganui>

The Masterplan

The Masterplan presented here builds on work done previously by others including input from technical advisors appointed directly by PNCC, as well as input from over 30 stakeholders and partners and several rounds of feedback from relevant parties.

Key features of the Masterplan

The Masterplan provides for strong growth in logistics and freight activity, centred around the existing NEIZ. The proposed NEIZ extension would provide for approximately 26 ha by 2025/26, a further 150 ha by 2032, and approximately 112 ha by 2052 to meet projected demand – a total of ~288 ha.

Due to the existing risk of flooding in the Upper Mangaone Stream, compounded by potential displacement attenuation and storage effects of the KiwiRail hub, and existing rural residential properties to the north of Parr Road, approximately 150 hectares of industrial land is sited on the elevated gentle slopes east of Railway Road. The slopes to the east of Railway Road are incised by a series of east-west gullies perpendicular to Railway Road which isolate the gently sloping areas suitable for development. The layout of building footprint demonstrates the type required to “preserve existing drainage pathways and topography while navigating the gullies to create an integrated development”³. Stormwater management will depend on the KiwiRail hub and potential downstream upgrades of the existing NEIZ stormwater management scheme.

The remaining ~138 ha is provided to the west of Bunnythorpe in two distinct areas – close to the existing NEIZ and north of Kairanga-Bunnythorpe Road. This is flatter land which may be able to accommodate larger building platforms, subject to stormwater capacity.

Careful siting and design of the building platforms and site development areas requires working with the landform and drainage pattern required for erosion control, stormwater attenuation and treatment wetlands. As the gullies limit the building platform available, 23 hectares of the proposed industrial land adjoins the Mangaone Stream on a slightly elevated bank west of the NEIZ. Here, the risk of flooding depends on the management of the future stormwater management scheme for the NEIZ zone expansion.

The Masterplan incorporates a centralised stormwater management approach applying across the zone extension areas, which involves the creation of Council-owned reserves which are accessible to Rangitāne and the public. The stormwater management approach has been designed to meet the requirements of the PNCC operative District Plan for hydraulic neutrality and retention of the first 5 mm of rainfall for a 24-hour rain event, integration into the surrounding community and to provide a level of amenity.

An assessment of housing capacity by FreshInfo shows that additional housing would be required to support a high growth scenario for logistics and freight activity.⁴ This is in addition to the housing capacity required to meet existing short-, medium- and long-term demand as identified in PNCC’s NPS UD Housing Capacity Assessment (HCA)⁵. An additional 3,500 dwellings are required across Palmerston North over the next 30 years to support the growth in industrial activity and employees from the zone expansion. Some of these are proposed to be located in Bunnythorpe.

Industrial land provision

The Masterplan provides for ~288ha of industrial land, excluding the stormwater reserve in Area C. The area of industrial land is slightly higher than FreshInfo has modelled as being required, to take into account a degree of delivery uncertainty. The proposed industrial zone extensions focus on:

- Cohesion and multi-modal connectivity with the KiwiRail hub, airport, existing NEIZ and regional arterial roads.
- Separation from the flood plain, to the extent feasible and practicable.
- Providing suitable terrain for large building platforms to preserve flexibility for future logistics/freight land.

³ Stormwater and Flooding Assessment – Te Utanganui Masterplan Plan, D Arsenau (2 May 2022)

⁴ See Appendix B

⁵ housing-and-business-development-summary-2019.pdf (pncc.govt.nz)

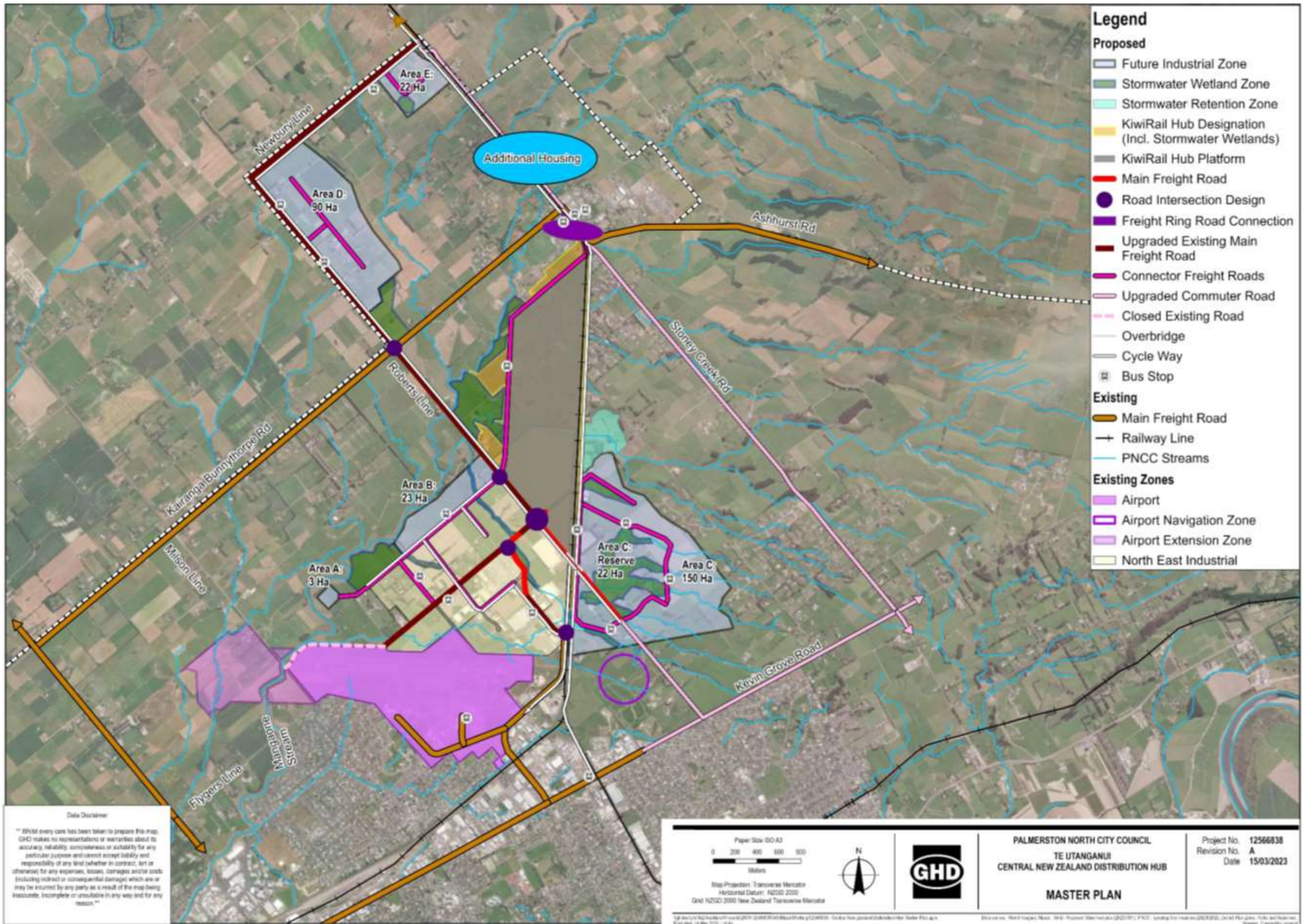


Figure 2 Masterplan

- Use of land less suitable for residential development due to noise and activity from the airport, rail, and freight vehicles.
- Significant green space that assists with stormwater management but also provides improved amenity.
- Availability of stormwater retention/ attenuation pond and wetland sequence provided upstream for KiwiRail hub and industrial development and detention/wetland in the floodplain.
- Consolidated downstream stormwater treatment wetland.

Housing provision

Bunnythorpe is not currently identified as a future development area in the HCA. Taking into account the need for an additional 3,500 dwellings to support the NEIZ expansion, the Masterplan suggests that some additional housing could be accommodated in Bunnythorpe. This would be a change in this community and further investigative work is required to confirm where additional residential development could be accommodated, in consultation with the Bunnythorpe community. Considerations are:

- Need to connect the eastern and western sides of Bunnythorpe by providing multi-modal transport access across the railway line.
- Impact of significant constraints within and around the village, including flooding, water and road infrastructure capacity, electricity transmission and distribution lines, the railway line, the proposed freight ring road to the south, and the PNCC boundary.
- Connecting new housing areas to the existing community and avoiding severance as a result of new infrastructure and development.

Accordingly, the Masterplan identifies the Bunnythorpe area as the location for additional housing, but it does not go to the extent of identifying specific locations.

Cultural considerations

There is the opportunity with the proposed reserve, stormwater treatment and retention wetlands, and connecting streams, water ways and ephemeral flow path corridors, for them to be designed and managed in acknowledgement of and collaboration with Rangitāne O Manawatū. This could include the incorporation of Te Aranga design principles to include earthworks and plantings to enhance indigenous biodiversity and ecology.

Whilst the Masterplan does not include detailed design work, as part of implementation there will be opportunities to embed Te Ao Māori into Te Utanganui, including:

- Commercial opportunities for Rāngitane O Manawatū to purchase land for development within Te Utanganui
- Procurement opportunities – to use mana whenua businesses as Te Utanganui develops
- Architecture and design opportunities, including co-design as the infrastructure and buildings are developed in Te Utanganui
- Opportunities to embed Te Reo Māori within the zone
- Residential development opportunities associated with new housing in Bunnythorpe.

Multi-modal transport network

The multi-modal transport network in the Masterplan is focused on the following:

- Consistency with the Palmerston North Integrated Transport Initiative (PNITI) and specifically the relevant short-, medium- and long-term projects in the north of the city
 - Short-term – intersection upgrades on Kairanga Bunnythorpe Road with SH3, SH54 and Milson Line, SH54 and Roberts Line N, and Stoney Creek and Kelvin Grove roads.
 - Medium-term – Upgrades to Kairanga Bunnythorpe Road, Ashhurst Road, Kelvin Grove between Stoney Creek and Railway roads, and Roberts Line N from Railway Road to Kairanga Bunnythorpe Road

- Long-term – Bunnythorpe western and southern bypasses, new cycleway along Waughs Road and eastern boundary of the KiwiRail Freight Hub, upgrade of Stoney Creek Road from the Kelvin Grove Road intersection north (for non-freight commuter traffic).
- Using the existing road network to the extent feasible
- Connecting the industrial zone extension area into the freight network by air, road and rail
- Providing east-west connectivity over the railway line
- Providing walking and cycling access to and within the zone, including connecting to the Feilding to Palmerston North shared path, which runs to the west of Railway Road
- Providing north-south connectivity across Roberts Line between the existing NEIZ and the future KiwiRail Hub and zone extension, including the potential to grade-separate Roberts Line/Richardson Line
- Supporting the future Freight Ring Road.

From a multi-modal transport perspective, the Masterplan provides for:

- The hinterland freight traffic to come in from the future freight Ring Road and SH3, with Roberts Line redeveloped to become the main NW/SE corridor axis
- A roundabout at the Roberts Line/Richardsons Line intersection to facilitate north-south connectivity between the existing NEIZ and the KiwiRail Hub
- To the west, Roberts Line is upgraded to provide a direct link to the future Ring Road and to Campbell Road to Feilding via an upgraded Newbury Line
- Replacement of the existing level crossing for Roberts Line S over the North Island Main Trunk Railway with a grade separated crossing, to provide east-west connectivity within the zone extension area
- Short-term retention of the Richardsons Line connection to Milson Line, with closure of this intersection by 2032 once grade separation of the Roberts Line/Railway Road intersection is complete. If the airport runway was extended, and this route remained it would need to be a tunnel, with ground water and potential flooding implications
- Alderson Drive/El Prado Drive and Richardsons Line are linked for internal NEIZ connectivity
- Managing congestion of the road network, increasing efficiency and connectedness, including a bus route and cycle paths network for the NEIZ, KiwiRail hub, city and Bunnythorpe.

This overall freight network provides resilience with alternative routes available during flooding events. Upgrading of culverts, bridges, and design for flood water conveyance for the main routes would increase connectivity resilience.

Stormwater considerations

All proposed industrial areas will have consolidated stormwater retention and treatment wetlands designed and constructed prior to building. Treatment wetlands would be planted with specialised eco-sourced native reeds and rushes, with adjoining terrain and plantings to promote indigenous wetland habitat.

The proposed KiwiRail Freight Hub requires the culverting of natural streams (Mangaone tributaries) at the point where they discharge to the Mangaone floodplain. The size and design of culverts and any flow paths within the KiwiRail Hub platform will determine the degree and nature of built development upstream to the east. Management guidelines addressing permeability and stormwater retention for the upstream catchment of the KiwiRail Hub are recommended for any future Zone change. Any blocking of the waterways along the railway line would mean the KiwiRail Hub platform would act as a dam.

Proposed Industrial Area C will need to be developed having regard to the existing or upgraded culverts under the railway and Railway Road and downstream through the existing NEIZ and Area B, and to the north of Area C the culvert under the KiwiRail Hub platform.

Areas set aside for stormwater retention, detention and treatment are all to be designed and managed as Council 'reserve' areas to provide cultural, biodiversity, recreational and amenity values. Where possible, these reserve areas are to be connected through planted riparian, or cycleway/walkway corridors. Scheme plans for industrial subdivisions should include integrated plantings for road, boundaries and stormwater reserve areas to protect and enhance cultural ecological, recreational and amenity values of the locality.

A comprehensive Stormwater Management Plan will be required for each area to identify the infrastructure needs. This will be dependent on staging, landowner distribution and local topographic conditions. An

estimate of 4-6% of total development area will need to be allocated for centralised stormwater facilities, in addition to any buffers or land required for drainage-related needs.

Masterplan staging

The purpose of staging the Masterplan is to focus on the integration of land use and supporting infrastructure, including transport and stormwater in particular, and to optimise efficiency relative to a more ad-hoc approach.

As noted elsewhere in the Masterplan, the need for funding is recognised, but this document does not provide a detailed evaluation. High-level placeholder growth programmes will need to be developed for the next PNCC Long Term Plan to support the Masterplan staging. The plan change(s) required to support Masterplan implementation, alongside the required business cases for the various transport infrastructure projects, will include more detailed technical information.

Staging influencers

There are several factors influencing Masterplan staging. These include the outputs of FreshInfo's industrial land supply and demand assessment, timing for the KiwiRail Freight Hub, stormwater flood risk and management and timing for projects to be delivered as part of PNITI.

Industrial land demand

The industrial land demand and supply assessment undertaken by FreshInfo determined that ~270ha of additional industrially zoned land will be required over the next 30 years to meet the high demand scenario. The demand for this land will not occur all at once, and FreshInfo also modelled **when** this additional land might be required. Staging land release will rely on several different factors, including progress with PNITI and the KiwiRail Regional Freight Hub.

Under FreshInfo's supply and demand model, land release is triggered when the existing NEIZ supply can only absorb 10 more years of demand, based on the demand scenario selected. FreshInfo chose 10 years to retain a sufficient buffer from a planning perspective and limit the impact of scarcity on land prices. The model defaults to releasing enough land to absorb 20 additional years of NEIZ demand. This means that there will be 30 years of land supply in the year the trigger is pulled – the 10-year buffer plus the 20 years of new supply.

The FreshInfo model identifies two key dates when additional land needs to be released:

- Approximately 2030 - release of ~145ha
- Approximately 2048 - release of ~125ha.

KiwiRail Freight Hub

Whilst the Notice of Requirement (NoR) for the KiwiRail Freight Hub is yet to be confirmed, it has a lapse date of 15 years. Assuming the outcome of the appeals is to confirm the NoR, KiwiRail advises that the freight hub will commence operation approximately 2032 with the site fully developed by 2051. Our current understanding is that KiwiRail will acquire ~50 ha of the existing NEIZ, but it intends on leasing ~15ha back to commercial operators. The net loss from the existing NEIZ therefore is ~35ha. As part of its modelling, FreshInfo removed ~35ha of land from the existing available land from 2022 – the year KiwiRail issued its NoR.

Stormwater management

The areas identified in the Masterplan are in discrete catchments and are therefore mostly independent of each other. Areas A and B are at the bottom end of the catchment and will need to incorporate the stormwater discharge from the NEIZ north of Richardsons Line. A wetland zone has been identified on the Masterplan that may be able to facilitate both areas.

Area C will make use of the existing topography to help manage stormwater prior to crossing Railway Road. Upgrades to Railway Road will need to be considered for this area, which includes the KiwiRail Freight Hub. Part of this area also discharges to the existing NEIZ stormwater management scheme. Upgrades to the

existing scheme to accommodate Area C have not been considered as it is understood that the existing scheme is at full capacity once the existing NEIZ is fully developed, leaving little room for further upgrades. However, Council may wish to explore this further if they do not want to utilise the existing gullies for stormwater management for Area C.

Areas D and E will be required to manage their stormwater onsite so as not to effect flooding downstream but these areas are considered independent of any known staging work at this time.

There is also the potential that the bridge over the Mangaone Stream, on Roberts Line, may need raising to accommodate a 1:200 year flood event.

Palmerston North Integrated Transport Initiative

PNITI includes a variety of different transport-related interventions and improvements, proposed to be implemented over the short, medium and long-term. The timing for many of these projects are yet to be confirmed.

GHD is aware that PNCC is progressing several PNITI projects in the vicinity of Te Utanganui:

- Upgrade of Kairanga Bunnythorpe Road/Roberts Line intersection to a roundabout
- Upgrade of Kelvin Grove/Stoney Creek Road intersection to a roundabout
- Design of the cycleway from Bunnythorpe south along the railway corridor
- Upgrading bridges on Kairanga Bunnythorpe Road in the vicinity of Bunnythorpe.

Waka Kotahi is progressing the upgrade of the SH3 corridor between Keith Street and Stoney Creek Road.

None of these upgrades take into account potential growth in freight or other traffic from an expansion of the NEIZ – they are primarily in response to existing safety issues in these locations. Further work will be required to take account of the potential growth in transport needs in the area.

Water and wastewater

Water supply and wastewater system upgrades may be required to accommodate additional housing in Bunnythorpe and the additional industrial development in the NEIZ expansion area. In the next two years, PNCC will be upgrading the wastewater pump station in the area to facilitate existing projected growth. However, this is based on the existing growth and it doesn't accommodate the expansion zone growth.

The type and extent of industrial growth needs to be finalised so this can be accommodated into the design of future upgrades.

Proposed staging

Taking the above into account, the proposed staging for the Masterplan incorporating referenced areas A-E is shown on Figure 3, Figure 4 and Figure 5 and described in the following paragraphs.

Stage 1 – 2025/26

Areas A and B are rezoned from Rural to North-East Industrial and available for development. This would provide an initial ~26ha of industrial land alongside a stormwater management reserve. Opening these areas to development would likely require construction of a new road connecting the western side of the existing NEIZ and expansion areas A and B with Richardson's Line. Whilst the Long Term Plan (LTP) includes funding for an upgrade of Richardsons Line, it does not include this connector road, which would currently be located on private land. A designation process to support land acquisition for new connector roads is recommended.

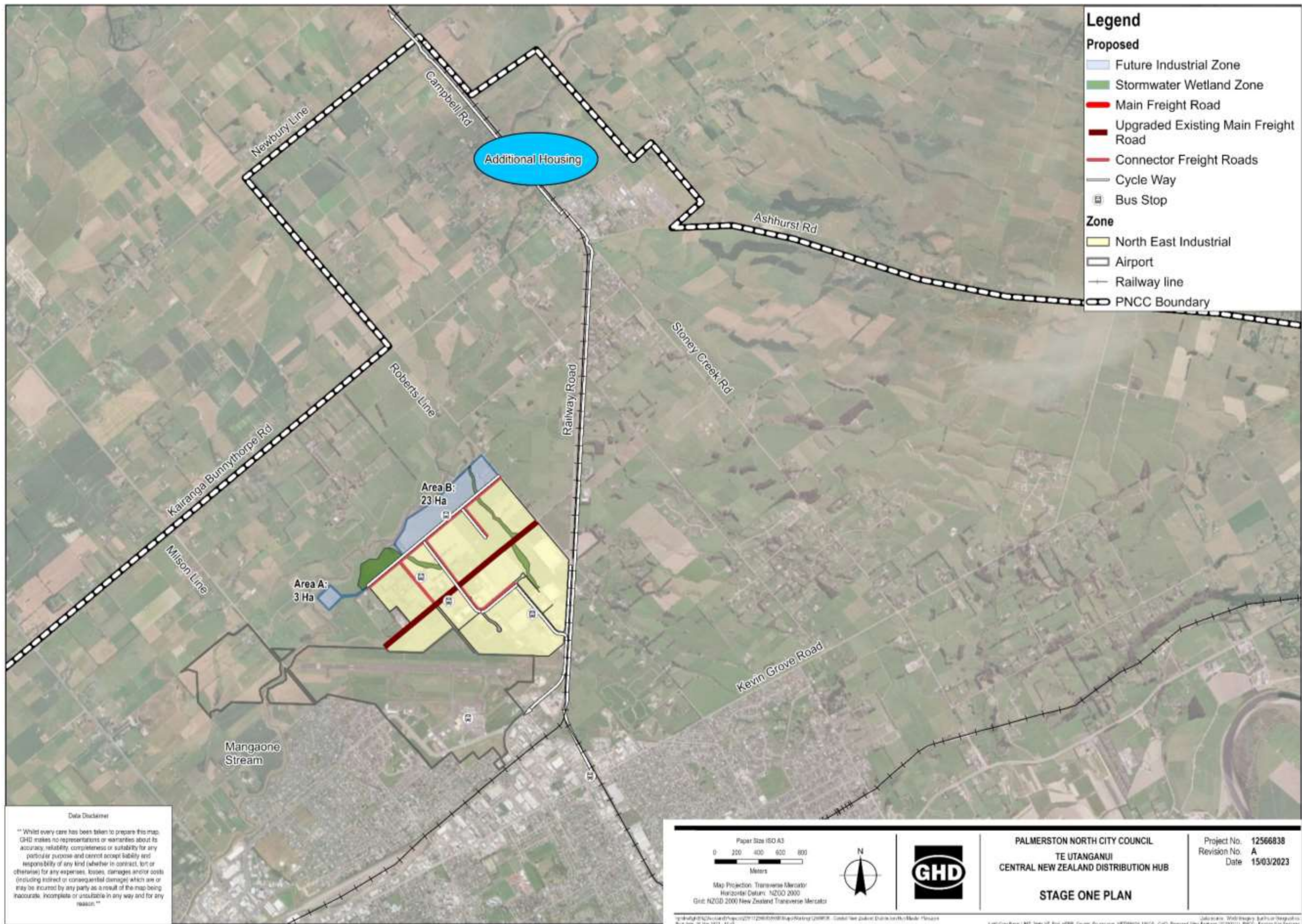


Figure 3 Te Utanganui Stage 1

Stage 2 – 2032

Area C is rezoned from Rural to North East Industrial and it is available for staged development. This would provide an additional ~150ha of industrial land alongside a centrally located stormwater/amenity/ecological reserve of ~22 ha. This area could be developed in stages, from the south to the north, provided the future internal road network was designated to facilitate future growth.

The first stage of the KiwiRail Freight Hub, at the southern end, is anticipated to be open in 2032. This would include realignment of Railway Road to the west of the Freight Hub footprint and construction of a roundabout at the intersection of Roberts Line and Richardsons Line.

It is understood that the existing level crossing on Roberts Line is to be closed as a result of safety concerns. In order to create a successful and efficient connection between this part of Te Utanganui and the KiwiRail Freight Hub, the recommended approach is a construction of a grade-separated crossing of the railway line by Roberts Line, and development does not commence in Area C until grade separation is achieved. This will require a feasibility assessment and a Business Case (Appendix H includes a preliminary assessment). At a minimum, design of grade-separation of Roberts Line and the railway should consider:

- Target/expected users
- Selection criteria between overpass or underpass of the railway, e.g. cost, safety, community environment
- Types/modes of traffic (cyclist, pedestrian or level of motorised traffic)
- Surrounding property boundaries that could complicate civil engineering structures or drainage solutions
- Access to frontage properties, such as the Foodstuffs site
- Effects on the arterial traffic route along Railway Road which with the Rail Hub connects into Roberts Line and then around the proposed perimeter road
- In the event that the grade separation is constructed after the Rail Hub commences its operation, careful consideration of construction staging so as not disrupt the hubs (rail) operation
- Access to the KiwiRail water bore on the north-west corner of the Roberts Line/Railway Road intersection.

An extension of El Prado Drive from the southern part of the Railway Road through to an upgraded Richardsons Line would increase the freight connection to the KiwiRail Hub and provide east-west connectively as well as north-south.

Based on an existing understanding of the PNITI programme, the following local network transport upgrades would also be required by 2032 to support Te Utanganui. These should take account of traffic volume predictions based on an expanded NEIZ:

- Upgrade the intersection of Railway Road and El Prado Drive
- Upgrade the intersection of Roberts Line and the new road to the south of Area A and B
- Upgrade the intersection of Kairanga Bunnythorpe Road and SH3 – double-laning may be required.

Construction of the Freight Ring Road would be required in the period between 2032 and 2037, noting that this is subject to a business case process to determine the route location and there are wider city benefits associated with the Ring Road.

Land should be rezoned in Bunnythorpe and be available for construction of additional housing to supply increased employment within the expanded NEIZ.

Development in Area C is contingent on the implementation of an appropriate solution to convey stormwater from this area, through the existing NEIZ, into the Mangaone Stream. This would connect into Area B, which is part of Stage 1 of the Masterplan.

The Masterplan shows Richardsons Line ending at the airport, with the Milson Line connection/intersection closing. This would result in a reallocation of traffic throughout the NEIZ area and surrounds, and further traffic modelling is required to determine the full impact of this change. This closure should not occur until grade separation of Roberts Line and Railway Line is complete, which would provide access to Te Utanganui from the south for employees and local freight. If the western end of Richardsons Line beyond the airport is retained, then safety improvements would also be required to the Milson Line/Richardsons Line intersection alongside a significant upgrade of Flyers Line. These projects aren't currently in the existing programmed works under the LTP.

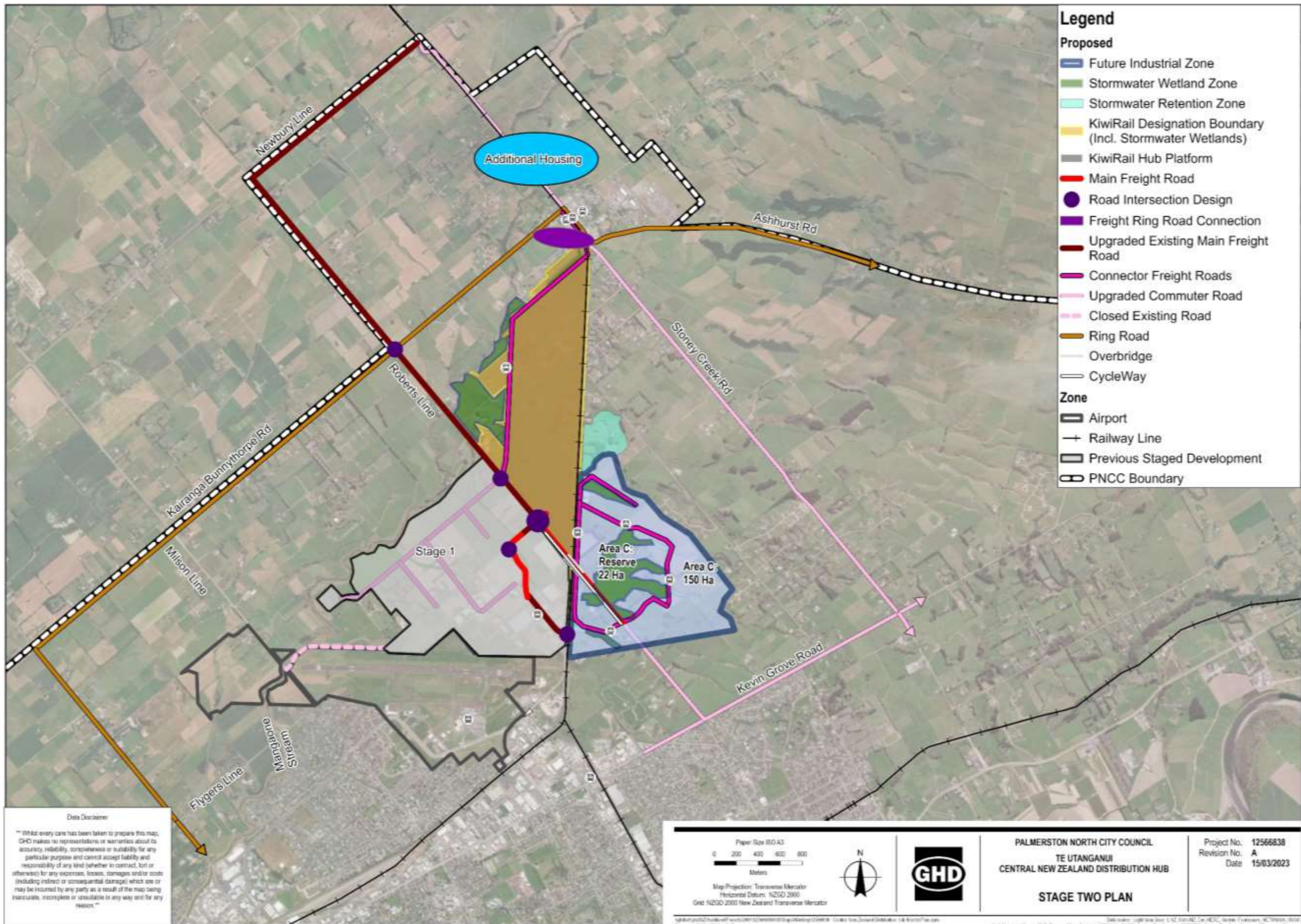


Figure 4 Te Utanganui Stage 2

Stage 3 – 2052

Areas D and E would be rezoned from Rural to North East Industrial. How these areas would connect to the expanded NEIZ depends on the design of the Freight Ring Road and how it intersects with the northern part of the KiwiRail Freight Hub and the realigned Railway Road.

As Te Utanganui develops, and to maximise the north-south connectivity, grade separation of the Roberts Line/Richardsons Line intersection may be required to remove the potential for east/west friction and the separation of through traffic along Roberts Line from 'internal' NEIZ freight traffic. The design for a solution for Roberts Line/Richardsons Line should consider, at a minimum:

- The KiwiRail Freight Hub internal rail traffic operation i.e. rail vehicle, locomotives, and wagon shunting
- The KiwiRail Freight Hub internal vehicular road traffic operation
- The traffic volumes and vehicle types from and to NEIZ
- Access to existing properties on nearby sections of Roberts Line and Richardsons Line
- Access to freight from all directions.

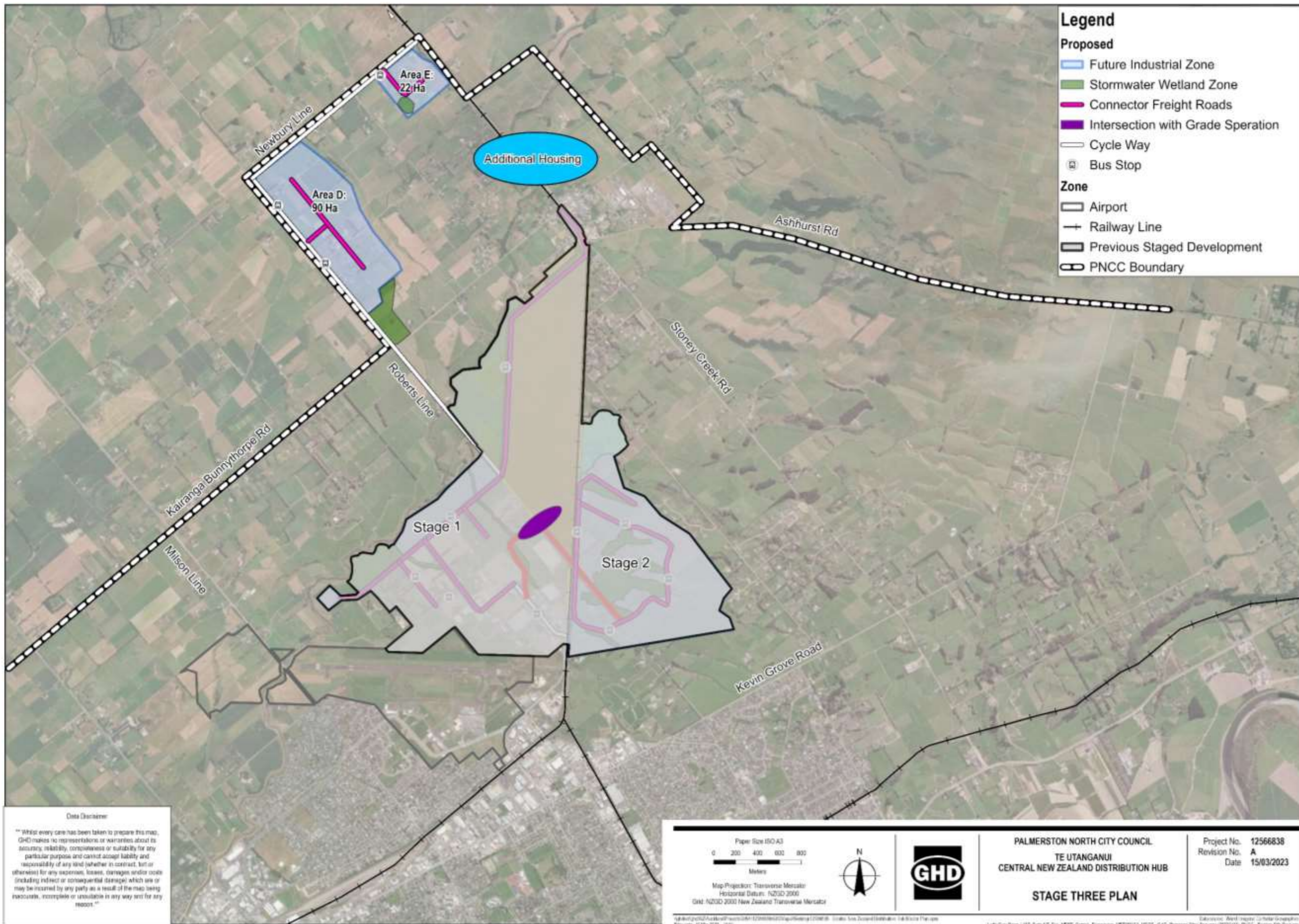


Figure 5 Te Utanganui Stage 3

Caveats to the Masterplan

The Masterplan on its own will not achieve every objective set by stakeholders and partners as ambitions for Te Utanganui (see the section entitled Objectives for Te Utanganui). However, it was important to develop a Masterplan that did not exclude the possibility of achieving these objectives, and that explicitly allowed for achieving these objectives where possible.

Nevertheless, there are limitations to the Masterplan, which are discussed briefly here.

An appropriate level of granularity is included

This Masterplan is intended to set out a preferred direction for development of the Te Utanganui subject area. It is not a plan change proposal or a structure plan, and therefore does not have the level of detail that those documents would include. This is intentional because it creates clarity about the scale of development being provided for, the most likely areas for development, and some of the key transport and stormwater implications, while retaining a level of flexibility required at this stage of the process.

Funding solutions will be needed

Many elements of the Masterplan remain unfunded. This includes elements of the PNIT1 roading improvements, as well as all the infrastructure underpinning the expanded NEIZ. Who will pay for this infrastructure and by what mechanism are fundamental questions to be answered but are beyond the scope of this Masterplan.

We recommend moving swiftly toward signalling how the infrastructure will be funded. Experience elsewhere demonstrates that announcing future zoning changes leads to rapid market engagement by developers. This development is often on the expectation that the general ratepayer will fund the new infrastructure to enable development, rather than funding coming primarily from the land owners who benefit from the windfall gain in value from increased zoning rights.

Land ownership concentration will need to be overcome

Concentration of land ownership leads to artificially high land prices and can constrain growth. Examples of this in industrial and residential markets across New Zealand are common. The Masterplan cannot stipulate land ownership models but has attempted to contribute toward competitive land markets by recommending an ambitious approach toward land release such that development of land is likely to be freer than might otherwise be the case.

Timing is crucial and subject to change

Where possible, the Masterplan has suggested staging for industrial land releases and transport improvements. These timings are driven in part by the assumptions about demand for industrial land, and consequent housing demand and pressures on the transport network. Project partners and stakeholders responsible for delivering vital components of the infrastructure network to make Te Utanganui succeed, including KiwiRail, Waka Kotahi, and PNCC will need to collaborate closely to align staging for minimum disruption and maximum success.

The existing LTP does not include the NEIZ expansion-related infrastructure upgrades. The design of current infrastructure upgrades within or adjacent to the expansion zone footprint takes into account existing growth but not the projected growth associated with the zone expansion. Business cases are yet to be complete for a number of these projects.

Further, questions of timing cannot be seen separately from questions of funding and plan changes being approved, so the Masterplan timings should be seen as indicative only.

Finally, the scenario adopted in the Masterplan is one of high growth. The intent was to err on the side of over-provision rather than under-provision of industrial land capacity. This was to avoid the common mistake in New Zealand's history of under-planning for infrastructure. Stakeholders and partners need to retain as

much flexibility as they can with regard to staging, such that plans can be slowed down if the pace of uptake of industrial capacity is slower than the high growth scenario adopted in the Masterplan.

Plan changes will take time

Comprehensive structure planning and plan change proposals will need to be developed to give effect to the Masterplan. The Masterplan does not go to the level of detail required to proceed directly to a plan change proposal. Given the time required to develop and approve a plan change, planning for each stage would need to begin several years in advance. Any plan change process will need to take into account the Resource Management system reform process and timeframes.

A key lesson learnt from the development of the existing NEIZ related to the importance of ensuring the integrated provision of infrastructure being achieved at the earliest stage of development for greenfield industrial areas. To achieve this outcome, the future Structure Plan will need to be anchored within both the subdivision and land use provisions of the planning framework. Other resource management issues primarily focused on identifying key areas of risk associated with greenfield development, including the long-term efficiency and effectiveness of urban form, infrastructure provision and subdivision layout.

Constraints incorporated into the Plan

The Masterplan directly considers several constraints on where and how development can occur. Those are discussed in detail here. A3 versions of the Constraints Maps are provided in Appendix G.

Terrain, flood plain, stormwater and ecology

The study area has two main landforms – the Upper Mangaone floodplain, which is not flat but has undulating terrain where the tributaries meander across the floodplain over time. To the east of Railway Road, gentle slopes are incised by the series of east-west gullies perpendicular to Railway Road. These gullies fragment and isolate the flat areas that are suitable for large scale development.

The Upper Mangaone's "flashy" hydraulic response to rainfall, the presence of its flood plain and risk of flooding is a major constraint for development of industrial development in the study area. The proposed KiwiRail Hub platform will be a limiting constraint on the level of future development permeability upstream, east of the railway line.

Pallic silts and loam soils east of the Mangaone Stream are typically saturated over winter months, indicating that stormwater management measures dependent on soakage /infiltration will not be effective⁶.

The risk of flooding is also a roading and connectivity issue, and for resilience, alternative routes should be available so transport can avoid flood prone areas during flood events.

Current land use in the Masterplan area is almost entirely "high producing exotic grassland". However, there are few significant land use restrictions⁷. Agriculture is a preferred land use in floodplain areas.

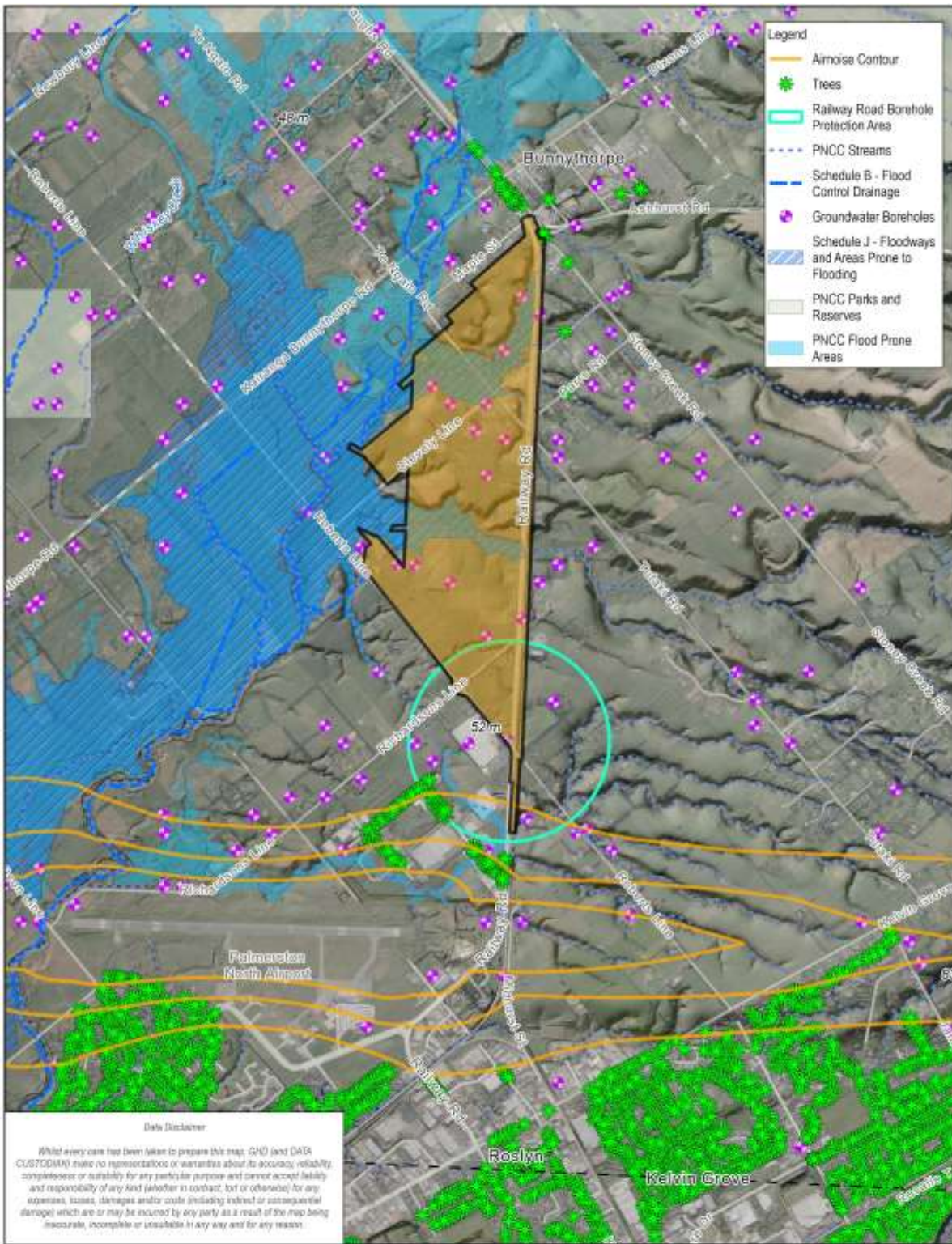
The raised platform of the proposed KiwiRail hub will displace floodwater volume in the floodplain. This could impact future development to the east of Railway Road with regard to culvert capacity for stormwater management.

In terms of flooding, the elevated gentle slopes east of the existing Railway Road is a preferable location for development. In all instances, the proposed expansion areas are deliberately submitted out of the floodplain.

The numerous natural stream pathways are to be preserved where possible, and while not many natural wetlands exist, with the removal of grazing animals and drains, there is opportunity for enhancement of ecological and mahinga kai values.

⁶ Stormwater and Flooding Assessment – Te Utanganui Masterplan Plan, D Arsenau (2 May 2022)

⁷ Stormwater and Flooding Assessment – Te Utanganui Masterplan Plan, D Arsenau (2 May 2022)



<p>Date Disclaimer</p> <p>Whilst every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unusable in any way and for any reason.</p>	  	<p>Palmerston North City Council Te Utanganui</p> <p>Constraints Map Environmental</p>	<p>Project No. 12566838 Revision No. - Date 16/03/2023</p> <p>FIGURE 2</p>
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Figure 6 Flood plain, stormwater and ecology constraints

Transport

Rail - there is a risk of the railway line dividing and restricting movement in urban and non-urban environments, exacerbating existing congestion and causing severance. With the KiwiRail Freight Hub, longer and more frequent trains are expected, and grade separated crossing of the railway line will be required to facilitate and enable east-west connectivity. In considering transport connectivity, movement, efficiency, and safety, we must consider:

- Freight
- Commercial activity
- Airport
- Commuters for business, institutions, and schools
- Residential, sporting and community activity
- Cycling and walking.

The proposed KiwiRail hub itself will affect connectivity as well as locality amenity through noise, vibration, and potential reduced visual amenity. This visual amenity impact will be most notable for those looking down on the site from the east, potentially making the east less desirable for residential development.

Road - there is a risk that the transport network does not adequately allow for freight growth and efficiency, including connecting the industrial zone expansion to the KiwiRail Freight Hub. There is a need to address existing congestion within the road network and then to provide for growth in traffic activity associated with the ongoing expansion of the NEIZ and environs. Factors considered include:

- Connection of freight from the Regional Ring Road, state highways and the city to the airport, KiwiRail hub and industry to be enabled through infrastructure such as roundabouts, overbridges, upgrades and diversions
- Separated main and connector road freight traffic, as much as possible, from other road activities such as schools, commercial, institutions, residential, and passenger airport traffic
- Freight roading design and infrastructure for heavy, large, and long vehicles e.g. logging trucks to the KiwiRail Regional Freight Hub
- Bunnythorpe as a node has significant floodplain, streams, Transpower infrastructure, rail, road configuration, and urban development constraints for development of an efficient regional Ring Road.

Airport - the airport is an important existing freight destination. Airport noise level contours and the high frequency airport navigation zone are a constraint for development and stormwater treatment ponds nearby would increase risk of aircraft bird-strike. A designation limits development of land located under the core Approach & Take Off (A&TO) Surface. This will avoid development within the core 'take-off and approach surface', providing development fits within the specified height restrictions.

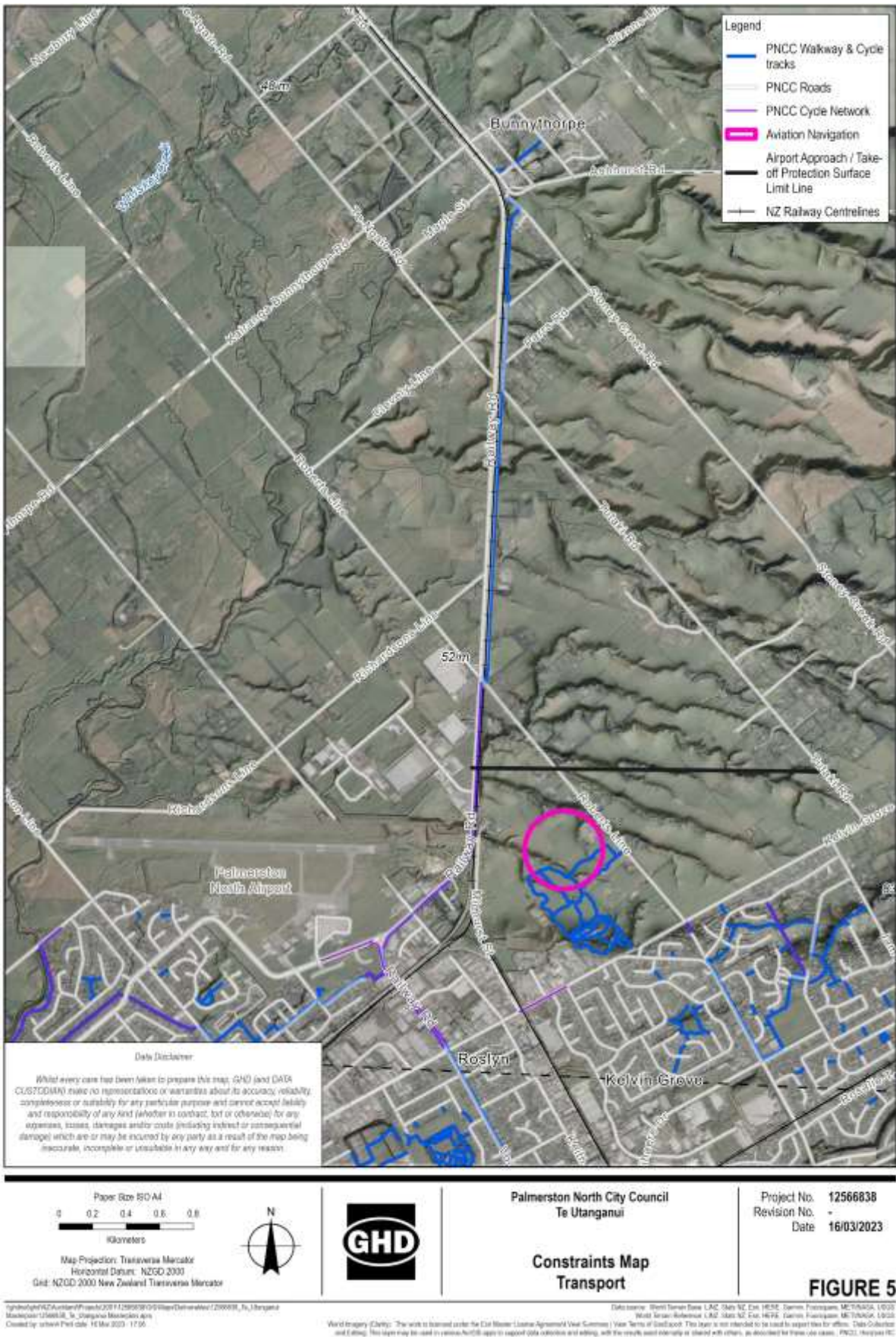


Figure 7 Transport constraints

Land use constraints

Residential and commercial growth is limited by the Transpower and Powerco substations, infrastructure and transmission lines, rail, the planned Ring Road, and the Mangaone floodplain.

The degree of built development upstream east of the railway will be determined by the sizing and design of the flow paths and culverts under the Railway line and roads and within KiwiRail Hub platform and NEIZ area.

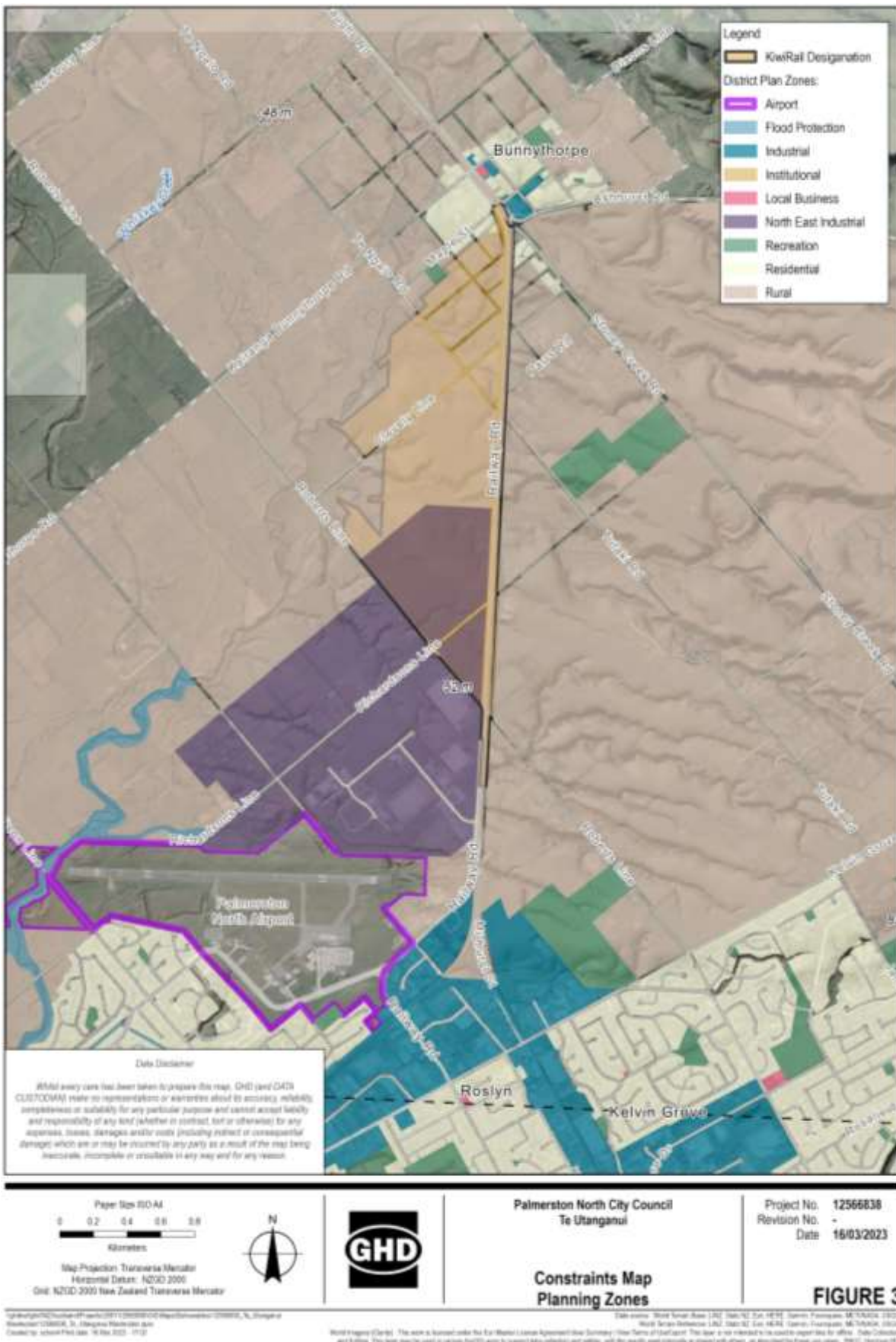
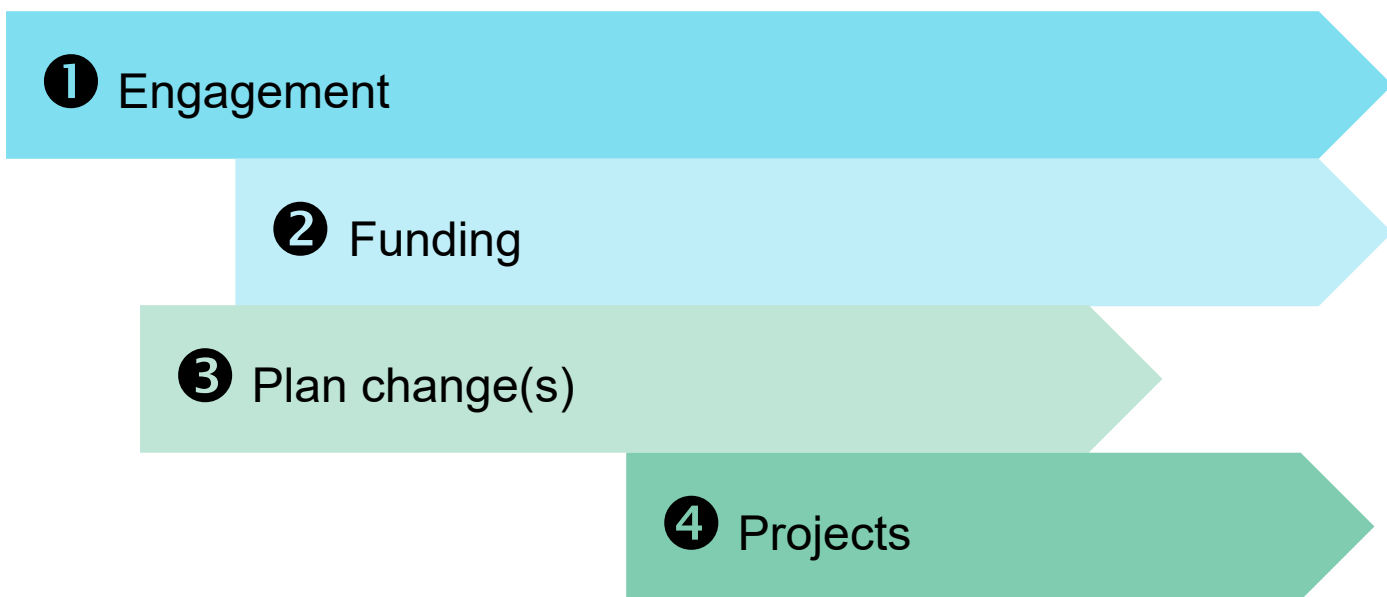


Figure 8 Land use constraints

Implementation

This section outlines several key points required to progress the Te Utanganui Masterplan towards implementation. A detailed Implementation Plan is recommended as the next step for the Te Utanganui Masterplan, which addresses the following four topics. Whilst each topic can progress individually, progression will need to overlap to ensure timeframes are met for land release and the overall zone expansion.



1 Engagement

Engagement with affected landowners

The proposed expansion areas will require rezoning of land, which may not be consistent with the current landowners/occupiers' intentions for their properties. Uncertainty about timeframes and implications for their properties has the potential to cause anxiety and it may undermine potential support for the zone expansion. Engagement with these landowners is recommended **before** any aspect of the Masterplan is released to the public, so they are not taken by surprise.

Engagement with key landowners holding 'lynch-pin' properties is also recommended, the purpose of which is to attempt to avoid land ownership concentration, leading to artificially high land prices and constrained growth. It will also be important to clarify expectations about the benefits of rezoning (increased land values) and the role those who benefit from increased land values will play in funding the needed infrastructure.

Communications Plan

A Communications Plan is recommended to set out a strategy for engaging with key stakeholders, such as existing NEIZ landowners, interested developers, adjoining communities, infrastructure providers etc.

Working with Te Utanganui and PNITI governance groups and Rangitāne o Manawatū

The governance groups for Te Utanganui and PNITI are key stakeholders for the success of Te Utanganui. Continuing to work with Rangitāne o Manawatū as a project partnership is also recommended.

2 Funding

Funding streams are yet to be identified for the various projects required to successfully implement Te Utanganui. Business cases at an appropriate level are required as is the development of high level placeholder growth programmes for the next PNCC Long Term Plan, to support Masterplan staging. These growth programmes should take into account increased demand on infrastructure as a result of Te Utanganui, including transport, water, wastewater and stormwater.

3 Plan change process

Realisation of Te Utanganui requires re-zoning and this should occur promptly to avoid the potential to hold up growth. The plan change could be staged, to enable Area A and B to progress in the next couple of years, with the remaining areas re-zoned separately. Any plan change process will need to take into account the Resource Management system reform process and timeframes. The plan change documentation will need to include more detailed technical information (including traffic modelling and stormwater modelling) and a Structure Plan to provide more granular information about the expanded NEIZ. The inclusion of management guidelines addressing permeability and stormwater retention for the upstream catchment of the KiwiRail Hub are recommended for any future Zone change.

The plan change documentation should also include Notices of Requirement for new infrastructure, including roads and three waters as appropriate. This will assist with land purchase and infrastructure provision.

4 Projects that enable

A number of enabling projects have been identified in this Masterplan, which are required to support implementation of Te Utanganui. These include projects identified as part of the PNITI programme of works will require appropriate approval, programming and sequencing. The following projects have been recommended as necessary:

- Designation process/land purchase for new local roads, including connecting Richardsons Line and El Prado Drive and a new local road to provide access to Areas A and B.
- Upgrade the intersection of Railway Road and El Prado Drive
- Upgrade the intersection of Roberts Line and the new road to the south of Area A and B
- Upgrade the intersection of Kairanga Bunnythorpe Road and SH3
- Grade-separation of Roberts Line over the railway line by 2032
- Potentially grade-separation of Roberts Line and Richardsons Line by 2052
- Water, wastewater and stormwater upgrades to support additional demand from Te Utanganui
- Upgrading culverts and bridges as required to provide appropriate and/or required levels of flood water conveyance.

The Masterplan preparation process

The project to develop the Masterplan began in late 2021 and concluded with the Final Masterplan being signed off in March 2023. This section briefly summarises the process to develop the final Masterplan. The project's 10 steps are set out in Figure 9.

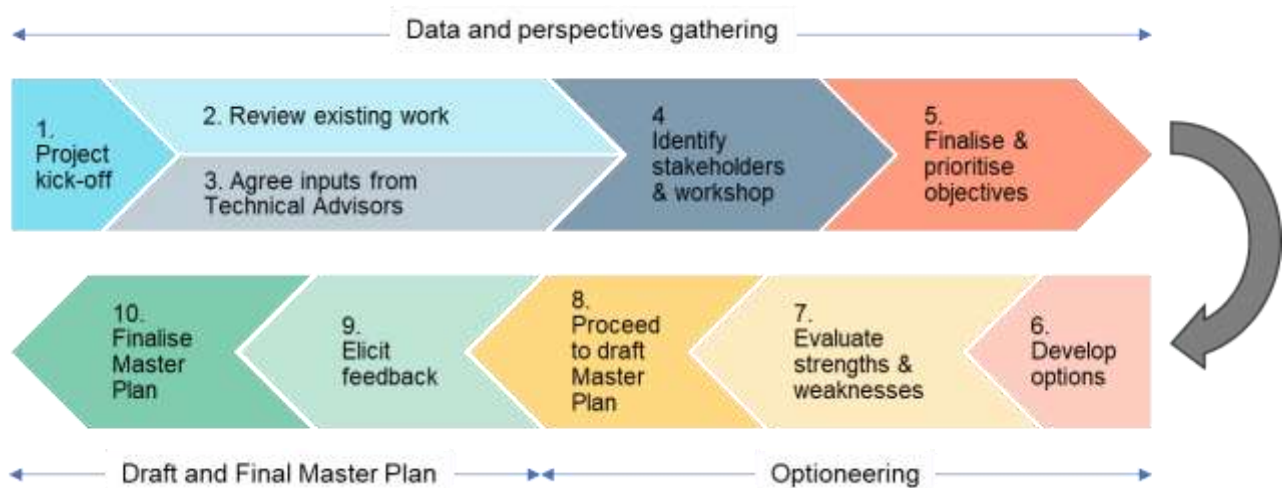


Figure 9 The Masterplan project approach

These steps are covered in more detail below.

Data and perspectives gathering (Steps 1 to 5)

The first five steps of the project were focused on data and perspectives gathering.

Following project kick-off, a thorough review of existing documents was undertaken to ensure the objectives and obstacles previously highlighted were captured. Technical Advisors (TAs) were appointed directly by PNCC to focus on the area of Economics (housing and industrial land demand), Rail, Noise, Transport, Stormwater and Cultural Impact. TAs were briefed on inputs that would be needed to help develop a technically-sound Masterplan and were commissioned to report on those inputs prior to Step 5 of the project beginning.

A series of stakeholder workshops were held beginning in late February and concluding in late March along the lines of the areas of focus the project brief set out – stormwater, transport, housing, and industrial land. A separate hui was held with iwi representatives to understand what they saw as the objectives and opportunities of the distribution hub, and elected members were briefed on progress.

Objectives for Te Utanganui

The existing documents, Technical Advisor input and reports, stakeholder and iwi meetings yielded a long list of objectives and obstacles for Te Utanganui. Some of these objectives are in competition with each other. Some were raised more often than others. In Step 5, we worked through a consolidation process to finalise a shorter list of 12 objectives and 22 obstacles based on these various inputs. These objectives and obstacles follow in Figure 10 and Figure 11.

Theme/Category	Final Objectives	Number of mentions
Transport	Create a transport network that is multi-modal, inter-connected across air, rail and road, and promotes ease of movement of goods and people within Te Utanganui and around the city	19
Housing	Create a high level of amenity in and around Te Utanganui for workers and visitors alike	16
Housing	Supply a mix of typologies and price levels of housing that is accessible to employment, and incorporates aspirations of Māori/iwi (including for papakainga housing), age groups (including multigenerational) and household sizes	12
Industrial land	Generate sustainable economic growth and employment opportunities, including opportunities for Iwi/Māori, through development and procurement as well as operation	10
Transport	Develop a fast and low cost freight transport system with increased operational capacity, efficiency and resilience	10
Other	Develop Te Utanganui in a way that minimises its carbon footprint in construction and operation	9
Cultural	Incorporate tangata whenua elements into the design and delivery of Te Utanganui	9
Industrial land	Focus Te Utanganui on logistics and distribution - not manufacturing or other uses	6
Stormwater	Build an integrated stormwater system that meets and exceeds legal requirements	5
Transport	Improve transport safety across the rail, road and air network	4
Industrial land	Provide a choice of commercial development opportunities so that land prices remain affordable for distribution activities	3
Transport	Use KiwiRail assets efficiently, considering any other spatial requirements for success	2

Figure 10 Summarised objectives from data and perspectives gathering

Risk of...	Category
Not having an integrated transport and road safety network for all transport modes including public transport, cycling and walking in both internal and external destinations	Transport
Not having enough freight routes within the regional freight system	Transport
Being unable to maintain long-term and renewal costs and affordability of Te Utanganui operations	Transport
Being unable to obtain funding investment and infrastructure provision to support Te Utanganui	Transport
Poor connectivity within the NEIZ and the extension area	Industrial land
Insufficient vacant industrial zoned land for new development and operation of Te Utanganui	Industrial land
PNCC and Regional Council being unable to coordinate infrastructure and dependencies on planned zoning rules	Industrial land
Being unable to separate the freight/industrial area from the residential area	Industrial land
Not having a competitive land market	Industrial land
Not enabling housing intensification and creating more housing typologies to support Te Utanganui	Housing
Insufficient electricity and water supply to accommodate future demand growth	Housing
Poor water quality and ecology outcomes, primarily at the subdivision stage of development, in areas affected by natural hazards	Stormwater
Poor stormwater position/design that would have an impact on downstream flooding and water quality	Stormwater
Not embracing Iwi/Māori aspirations/outcomes	Cultural
Not meeting community expectations or providing confidence and reassurance to local residents and businesses in regard to the impacts or outcomes of the project	Cultural
Not partnering with Iwi/Māori, mana whenua and other government agencies/steering groups on decision making such as land use and zoning changes	Cultural
New businesses not being attracted to the development area	Cultural
Local residents being overly impacted from a change of environment, amenities and land acquisition	Cultural
Being unable to accommodate for population, economic and freight growth	All/General
Poor communication among stakeholders	All/General
Being unable to comply with legal changes or requirements	All/General
Construction causing noise, traffic and land disturbance to local residents	All/General

Figure 11 Summarised obstacles from data and perspectives gathering

Several of the objectives outlined in Figure 10 would be difficult to achieve through the Te Utanganui Masterplan development process. However, they are relevant for **implementation** of the Masterplan, including through a potential plan change to the Palmerston North District Plan, if this is required, to give effect to the Masterplan.

Masterplan objectives

As a result, these objectives were further refined for the purpose of informing development of the Masterplan options, to enable an evaluation of which option was the most appropriate to take forward to be developed as the draft and final Masterplan.

The Masterplan objectives were defined as:

- **Objective 1:** Te Utanganui provides an efficient, safe, multi-model transport network that connects air, rail and road, and promotes ease of movement of goods and people around the city.
- **Objective 2:** Te Utanganui has a high level of amenity for workers and visitors.
- **Objective 3:** Te Aranga Māori Design Principles are reflected in the design of Te Utanganui.
- **Objective 4:** Te Utanganui is designed in a way that supports future minimisation of its construction and operational carbon footprints.
- **Objective 5:** Te Utanganui includes an integrated and centralised stormwater system that meets and exceeds legal requirements.
- **Objective 6:** Te Utanganui development is integrated with Palmerston North and the Manawatū.

Figure 12 shows the relationship between the overall objectives for Te Utanganui and the Masterplan objectives as listed above. The four overall objectives relating to supplying a mix of housing typologies and price levels; generating sustainable economic growth; focusing Te Utanganui on logistics and distribution; and providing a choice of commercial development opportunities are a function of broader policy decisions, including a potential future plan change, rather than the Masterplan itself.

Theme/Category	Final Objectives	Number of mentions	Mapped MP objectives
Transport	Create a transport network that is multi-modal, that connects air, rail and road, and promotes ease of movement of goods and people around the city	19	1
Housing	Create a high level of amenity in and around Te Utanganui for workers and visitors alike	16	2
Housing	Supply a mix of typologies and price levels of housing that is accessible to employment, and incorporates aspirations of Māori/iwi (including for papakainga housing), age groups (including multigenerational) and household sizes	12	NA
Industrial land	Generate sustainable economic growth and employment opportunities, including opportunities for Iwi/Māori, through development and procurement as well as operation	10	NA
Transport	Develop a fast and low cost freight transport system with increased operational capacity, efficiency and resilience	10	1
Other	Develop Te Utanganui in a way that minimises its carbon footprint in construction and operation	9	4
Cultural	Incorporate tangata whenua elements into the design and delivery of Te Utanganui	9	3
Industrial land	Focus Te Utanganui on logistics and distribution - not manufacturing or other uses	6	NA
Stormwater	Build an integrated stormwater system that meets and exceeds legal requirements	5	5
Transport	Improve transport safety across the rail, road and air network	4	1
Industrial land	Provide a choice of commercial development opportunities so that land prices remain affordable for distribution activities	3	NA
Transport	Use KiwiRail assets efficiently, considering any other spatial requirements for success	2	1

Figure 12 Te Utanganui mapped objectives

Optioneering (Steps 6 and 7)

Taking into account the Masterplan objectives outlined above, the output of the Industrial and Housing Land Supply and Demand Assessments, and a number of constraints identified in consultation with stakeholders and Technical Advisors (see **Constraints incorporated into the Plan** for a more detailed discussion of these constraints), we developed a number of scenarios and sub-scenarios for how varying levels of growth in demand for industrial land and housing could be accommodated.

The scenarios varied primarily in how much growth in industrial demand they assumed, ranging from 64 hectares to 266 hectares. They also prioritised different elements of the transport network based on how much bigger the role of freight movement was anticipated to be under different growth scenarios. Finally, they considered the impact of the KiwiRail Hub by considering how different planning would need to be against a counter-factual of no KiwiRail hub.

Considerations for all scenarios

In addition to the industrial and housing supply and demand, and transport-related elements to test through the three options, GHD also identified several land use-related considerations which applied to all scenarios:

- Avoid all known cultural sites.
- Avoid natural wetlands, as this is prescribed by the National Policy Statement on Freshwater Management 2020.

- Consider how flood risk is managed.
- Consider the influence of topography, particularly in relation to stormwater.
- Consider typical land requirements for logistics/freight – flat, rectangular, frontage requirements.
- Exclude existing designations, e.g. flight approach paths, flight radar.
- Accommodate within the existing PNCC local authority boundary.
- Implement PNITI options as part of the growth plan:
 - Short term: bridge and intersection upgrades
 - Medium term: road upgrades
 - Long term: Bunnythorpe bypass, road upgrades and cycle network improvements – this is related to traffic volumes from Te Utanganui.
- In Step 7, feedback on the various scenarios and sub-scenarios was sought from:
 - Technical Advisors directly commissioned by PNCC
 - the Te Utanganui Reference Group
 - the Te Utanganui and Palmerston North Integrated Transport Investment (PNITI) Steering Group.

Draft and Final Masterplan (Steps 8 to 10)

From this Optioneering process, clear direction was provided on the scale of development that should be allowed for, preferences over location of residential housing, and transport connections. This feedback was incorporated into the Masterplan in Step 8.

In Step 9, final feedback was sought from Council Staff, before the Masterplan, set out in this document, was agreed (Step 10).

Scope and limitations

This report has been prepared by GHD for Palmerston North City Council and may only be used and relied on by Palmerston North City Council for the purpose agreed between GHD and Palmerston North City Council as set out in this report.

GHD otherwise disclaims responsibility to any person other than Palmerston North City Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Appendices

Appendix A

**Rangitāne o Manawatū Cultural Impact
Assessment**

Appendix B

Industrial and housing land forecast

Appendix C

Technical Assessment - Stormwater

Appendix D

Technical Assessment - Transport

Appendix E

Technical Assessment - Rail

Appendix F

Technical Assessment - Noise

Appendix G

Constraints Maps

Appendix H

**Grade separation of Railway
Road/Roberts Line – transport
assessment**

Appendix I

Review of guiding documents



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→ **The Power of Commitment**