Whanganui District Council

Springvale Structure Plan

April 2018

Executive Summary

Historically Whanganui has experienced low rates of residential development meaning there has been little need for urban growth management or a strategic approach towards residential development. This has resulted in development coming forward in a sporadic manner with relatively few constraints resulting in a range of negative effects, particularly the residential areas on the city's edge, in terms of restrictions on infrastructure servicing in these areas. Springvale is one of the areas where this is an issue; adhoc infill development has created problems with stormwater management as well as provision of other services. There are developers interested in further development within the Springvale area and there is a risk that existing issues will be exacerbated.

This Structure Plan, prepared in collaboration with Whanganui District Council Officers, seeks to guide and inform the residential development of the Springvale Future Development Area. It determines an appropriate residential density for the area, addresses key development issues, and identifies and costs the infrastructure required to facilitate development. A conceptual layout is proposed based on the New Zealand Urban Design Protocol and the principles of sustainable development, and incorporates and acknowledges the area's unique topography and natural features. The Structure Plan also seeks to integrate residential development into the existing urban fabric and make efficient use of existing infrastructure networks.

Overall, it is considered that a high quality and desirable residential area can be created that will be a great place to live and play, and that will be resilient to natural hazards. A number of recommendations to further guide residential development in the Springvale Future Development Area are also made, including more detailed technical investigations and consultation with the public and key stakeholders.

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1. Introduction

- **Overview**

Historically Whanganui has experienced low rates of residential development meaning there has been little need for urban growth management or a strategic approach towards residential development. This has resulted in development coming forward in a sporadic manner with relatively few constraints, resulting in a range of negative effects that are now being realised, particularly in the residential areas on the city's edge. These negative effects are being realised acutely in Springvale where infill development and increasing density have created problems with stormwater management as well as provision of other services. There is now a clear need to provide a Structure Plan to guide the development of Springvale to ensure residential development comes forward in a co-ordinated and sustainable manner.

- **What is a Structure Plan?**

A Structure Plan is a planning framework to guide the future development of a defined area. It sets out the key issues and matters to be considered in development and provides a written and illustrative guide to how development should come forward along with identifying key infrastructure requirements.

- **Why develop a Structure Plan?**

A Structure Plan provides a co-ordinated and strategic approach to developing an area. This means that the community, developers, landowners, Whanganui District Council (WDC) and other key stakeholders have a shared input and understanding of how Springvale will be developed.

- **How will the Structure Plan be implemented?**

The Springvale Structure Plan will be implemented via the Whanganui District Plan, through a plan change. The plan change will be subject to a full statutory consultation process in accordance with Schedule 1 of the Resource Management Act 1991 (RMA).

2. Objectives

- **Purpose**

The purpose of the Structure Plan is to set out a co-ordinated and strategic approach to developing the Springvale Future Development Area that will result in a sustainable, high quality residential area that integrates successfully with and compliments surrounding areas. The Structure Plan seeks to guide and inform the development of the Springvale Future Development Area, address key development issues and determine the key infrastructure requirements to facilitate development.

- **Key objectives:**

  - ✓ Establish an appropriate density for residential development;
  - ✓ Propose a street network that maximises connectivity, integrates seamlessly with the surrounding area and encourages walking and cycling;
  - ✓ Create a layout and environment that promotes integrated urban design, placemaking and community interaction and inclusiveness;
  - ✓ Identify key servicing and infrastructure requirements and the cost of provision;
  - ✓ Provide an integrated network of open spaces that provides for a range of recreational activities;
  - ✓ Protect and enhance the area's unique landscape, ecology and cultural heritage;
  - ✓ Integrate measures to reduce flood risk and treat and attenuate stormwater flows.

WHANGANUI DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

3. Site Context

3.1 Overview

In 2008, Whanganui District Council prepared the draft Whanganui Growth Strategy as a response to increased development being experienced in Whanganui and an identified need to take a more strategic approach toward managing growth. The strategy involved a review of factors contributing to current residential growth and applied an assessment process to determine the most appropriate areas for future greenfield residential development. The residential assessment included identification of blocks of land on the urban periphery that might be suitable for residential development.

A total of 20 areas were identified as being potentially suitable for residential development and each area was scored against weighted criteria to determine the most suitable areas for residential development. The criteria used were as follows:

- Impact on cultural and natural resources;
- Impact on landscape integrity;
- Accessibility to community activities and transport routes;
- Retention of rural land diversity;
- Supporting a range of housing needs;
- Logical development sequence;
- Ability to provide efficient and effective infrastructure; and
- Market demand.

Of the 20 areas assessed, the 'Fitzherbert Avenue Extension' (Study Area 4) and 'Springvale South' (Study Area 5) were determined to be the most suitable areas for residential development. Although the 2008 Growth Strategy has not been adopted by WDC and is no longer a relevant document, it provides useful background information and justification for developing a Structure Plan to guide residential development in Springvale.

- **Springvale Structure Plan Area**

The Structure Plan area includes two discreet study areas from the 2008 Growth Strategy:

Study Area 4 – situated to the west of the existing residential area of Springvale south of Fitzherbert Avenue on largely undeveloped land. The area is bound to the north by sand dunes adjacent to Fitzherbert Avenue, existing residential zoned land in Springvale to the south and east, Titoki Wetland to the south west and Mosston Road to the West. The area is 53 hectares in size and zoned 'Rural Lifestyle' in the Whanganui District Plan.

Study Area 5 – situated west of the existing residential area of Springvale on largely undeveloped land north of Fitzherbert Avenue. It is bound by Buxton Rd to the north, residential zoned land in Springvale to the east, Mosston Rd to the west. The area is 40 hectares in size and is currently zoned 'Rural Lifestyle' in the Whanganui District Plan.

The combined area of Study Area 4 and 5 is 93 hectares and is approximately 1.8km in length (running north-south) and between 500m to 900m in width (east-west). Collectively Study Areas 4 and 5 are referred to as the 'Study Area' (Figure 1).

Figure 1: Site Context and Study Area

3.2 Strategic Context

- **Historic and Recent Development**

Historically Whanganui has been a relatively compact city of defined zoning and land use, with most development pre-1950's and located in Central Whanganui. In the 1960's and 1970's Springvale, parts of Whanganui East and Aramoho were developed, creating a more sprawling urban isthmus. More recently, development has been concentrated in the St Johns Hill/Otamatea area, with secondary growth near the western end of Springvale Road. The Maxwell-Brunswick-Kai Iwi- Westmere-Blueskin area, which is adjacent to and included within the north western part of the Study Area, has also been an area where recent development has been concentrated. The development of these areas has come forward with relatively few constraints, with a market driven approach resulting in sporadic development with no clear forward planning to guide where or how residential development should occur.

- **Population**

The Whanganui District has an estimated resident population of 43,600 and an average household size of 2.36 people[1].

The most recent Community Profile for Whanganui[2] predicts modest population growth of 3.9% for the District over the next 25-30 years. Despite this modest population growth forecast house stock is increasing. On average 75 residential building consents have been granted every year in the last five years (2011-2015)[3], reflecting that, parallel to the trend for smaller households, there is a continued demand for new housing in the District.

The District Council assumes, in the Long Term Plan, that 70 dwellings per year are anticipated[4].

Within the suburb of Springvale, the development in the Rural Lifestyle Zone is expected to occur at a rate of approximately 10 dwellings per year for the period until 2043, accounting for 35% of the total growth in the suburb. Development within another suburb that is partially within the Study Area, Tawhero, is expected to occur at a rate of 3 dwellings per year for the period until 2043, representing 44% of development, the remainder being infill development.

Between 2013 -2028 it is estimated that the proportion of the population at retirement age will increase by 31.2% while the proportion of the population of working age will decrease by 6.2%. This will mean an increase in individuals aged over 65 years and a decrease in younger age groups.

- **Housing type and development demand**

There is a trend for an increase in the number of dwellings in the district and a slight decrease in the average household size, from 2.37 in 2013 to 2.25 in 2043. Associated with this, it is also expected that the dwelling occupancy rate in the District will also decrease. All four suburbs which are included partially within the Study Area (Springvale, Tawhero, Blueskin and Mosston) are forecasted to experience development demand ranging from an 8.4% to 40% increase in the number of dwellings for the period between 2013 and 2043.

The types of housing that will predominately experience growth over the next 20-30 years is couples without dependants and lone person households.

- **Economic Indicators**

Information on the local economy provided by Whanganui and Partners[5] for March 2016 indicates positive signs of economic growth. The regional GDP for 2015 was $39,372 per capita, which while below that national average reflects a 12.9% growth in GDP since 2010. The median household income for the Whanganui District in 2013 was $43,800 with the highest household incomes by area being recorded in Blueskin followed by Otamatea and the lowest in Gonville West. The rate of unemployment for the Whanganui District was 9.6% of the population in 2013, an increase of 3% from 2006 and above the national average of 7.1%.

[1] http://forecast.idnz.co.nz/whanganui accessed 14 September 2016
[2] *ibid*
[3] Whanganui District Council
[4] Whanganui Long Term Plan – page 76
[5] Whanganui and Partners is tasked by Whanganui District Council to oversee its economic development activity.

3.3 Council documents

- **Whanganui District Plan**

The Whanganui District Plan is a legally binding document prepared in accordance with the Resource Management Act 1991 (RMA). It defines the way in which Whanganui District's land use will be sustainably managed and is the Council's key statutory resource management planning document. It determines the zoning of all areas of the city and sets out objectives, policies and rules in relation to these zones.

The Springvale Future Development Area is primarily zoned as Rural Lifestyle (Figure 2).

The Study Area is currently recognised within the District Plan as a development overlay referred to as the Springvale Indicative Development Plan on in Appendices J and J(B), along with text within the Subdivision and Infrastructure chapter. The relevant policies state that subdivision within the area identified as Springvale Indicative Development Plan is not to be ad-hoc, is to encourage connectivity and quality urban design and be in general accordance with the Springvale Indicative Development Plan. The Indicative Development Plan is based on an early draft version of this Structure Plan.

There are two designations within the Study Area, for the purpose of drainage detention (D151, D152). The Study Area also contains an archaeological site (Site 255).

There is a series of Whanganui District Council designations adjacent to the Study Area, to allow for widening of Mosston Road, for the purpose of improving the safety of freight movement (D162-185).

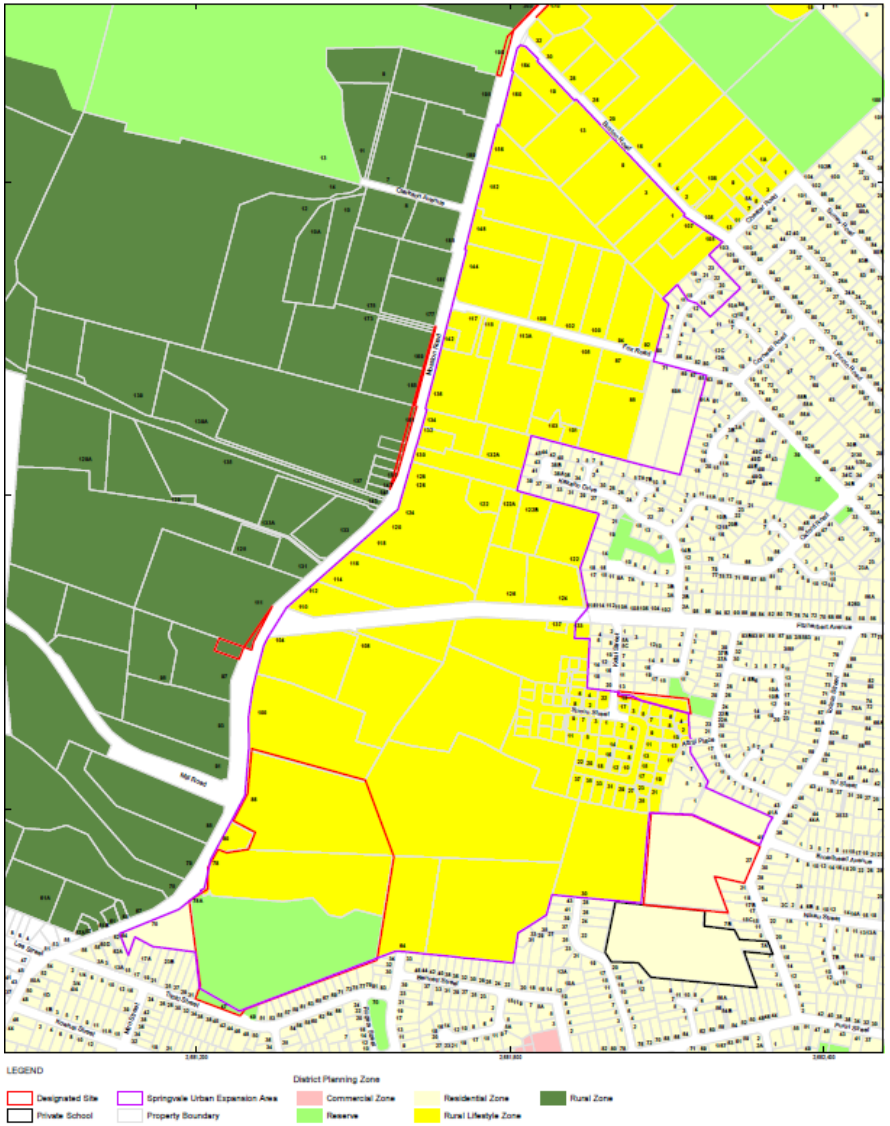

Figure 2: District Plan information.[6] (A3 version in Appendix B)

[6] Whanganui District Plan

The following objectives within Chapter 13 of the District Plan relating to subdivision and infrastructure are particularly relevant to the Structure Plan and the outcomes that it seeks to achieve:

Objective 13.2.1 Sustainable subdivision and infrastructure development in the residential areas of Whanganui that:

a. *Appropriately integrates infrastructure with land uses.*
b. *Provides a safe, healthy and liveable residential environment.*
c. *Connects infrastructure and communities together.*
d. *Is resource and energy efficient.*
e. *Has low environmental impact and integrates the natural environment.*
f. *Avoids, or minimises adverse effects on historic heritage including archaeological sites.*

Objective 13.2.2 Subdivision and infrastructure development that demonstrates that following qualities of good urban design defined in the New Zealand Urban Design Protocol:

a. Context.
b. Character.
c. Choice.
d. Connections.
e. Creativity.
f. Collaboration.
g. Crime Prevention through Environmental Design (CPTED).

The following policies are also of particular relevance to the Springvale Indicative Development Area:

Policy 13.3.1 Promote a pattern of urban development that is compact and efficient in the use of land and infrastructure services

Policy 13.3.35 Require all subdivision and development in the Springvale Indicative Future Development Area to proceed generally in accordance with the provisions of the Springvale Indicative Development Plan to ensure that:

a. Stormwater is managed comprehensively and not in an ad-hoc manner.

b. The transport network is consistent with the Wanganui Urban Transport Strategy 2011, and the indicative roading layout.

c. Encourages connectivity of services and land uses with public open space.

d. Quality urban design outcomes are achieved.

e. Infrastructure is developed in a logical sequence, and generally designed and located as shown on the Springvale Indicative Development Plan.

Policy 13.3.36 Avoid development within the Springvale Indicative Future Development Area that:

a. Is in conflict with the indicative transport layout; and the stormwater management infrastructure, including ponding areas shown on the Springvale indicative development plan.

b. Results in ad-hoc, unconnected and piecemeal infrastructure development.

c. Proceeds in advance of a comprehensive plan for managing infrastructure in the Springvale Indicative Development Area, excluding land identified in Appendix J(B).

Policy 13.3.37 Enable development on land identified in Appendix J(B) and within the Springvale Indicative Future Development Area where the development is generally in accordance with the provisions of the Springvale Indicative Development Plan.

Policy 13.3.38 Avoid any land use and/or subdivision development that allocates reticulated infrastructure intended to service the Springvale Indicative Future Development Area to other areas.

- **Whanganui District Council 10-year Plan (2015 – 2025)**[7]

The 10-year Plan (or 'Long term Plan') has a number of functions, including describing Community Outcomes, outlining the role the Council will play in achieving those outcomes, and identifying some of the key challenges facing the Council over the next 10 years.

It also provides an overview of each activity the Council will carry out and the services it will provide and determines how much the business of the Council will cost, and how it will be funded. This includes the Fitzherbert Avenue extension – a key precursor for developing the Springvale Future Development Area.

- **Whanganui Leading Edge**

The Council adopted its vision "Whanganui Leading Edge" on 28 October 2014. Whanganui Leading Edge is also described in the Leading Edge Strategy, which sets the scene for creating a progressive and exciting District.

This Structure Plan aligns with the Leading Edge philosophy by encouraging partnerships, promoting connectivity, championing innovative approaches and safeguarding the cultural heritage and natural resources within the Springvale Future Development Area, to create an environment with a sense of place, identity and vitality.

The following strategic objectives are all aspects of the Leading Edge vision that can be directly advanced through development in the Springvale Future Development Area:

***Deeply united**:*

- *Strengthen partnerships and ways of working collaboratively to weave our aspirations together – while respectfully acknowledging differences.*
- *Demonstrate strong, positive and empowering leadership to support unity and drive our district forward.*

***Globally connected**:*

- *Achieve greater accessibility to and within the district for all modes of transport including through making our district more walk and cycle friendly.*

Powered by creative smarts:

- *Retain our historic and cultural heritage as a key point of difference.*

***Flowing with richness**:*

- *Ensure our built environment reflects 21st century needs while protecting our distinctive heritage.*
- *Pursue integrated and rejuvenated urban design, placemaking and landscape approaches.*
- *Act as a kaitiaki for the environment – preserving and conserving our natural resources by seeking sustainable and innovative green solutions.*
- *Look after out infrastructural network and assets with a view to the future – making sure that we couple this to a sustainable use of technology and other materials.*
- *Continue to deliver a proactive, flexible and continually evolving District Plan – with the provision of appropriate zones and precincts.*

[7] As amended 30 June 2016

3.4 Site Description and Land Use

- **Physical Characteristics and Ecology**

Both Study Area 4 and 5 feature morphology typical of their near-coastal setting, along with other natural and physical features unique to the area.

Both study areas are characterised by mixed grasses and planted exotic and native trees and shrubs typically associated with rural, rural-residential and residential activities.

Study Area 4 features a number of prominent remnant dunes formed through wind-based transport of sand by the prevailing westerly wind, with one prominent dune and associated minor dunes running east to west in the northern area of Study Area 4 being a dominant feature of the local landscape. Parts of both study areas have hummocky topography typical of dune systems although both study areas also feature large areas of flat to rolling topography. Low lying areas within both study areas are prone to become boggy in winter and during high rainfall events.

Titoki Wetland, situated in the south west of Study Area 4, is a remnant dune wetland typical of coastal dune systems that would have historically been commonplace throughout the area (zoned as a District Plan Reserve). Titoki Wetland has been restored in recent years and features a locally significant area of open water along with regenerating native vegetation typical of coastal dune/wetland assemblages, which provides habitat for a variety of aquatic and bird life. Karaka, *Cordyline*, *Tenax* and various *Coprosma* species are well represented in the Wetland and the surrounding area. The wetland is identified in a Manawatu-Wanganui Regional Council Regional Wetland Inventory and Priorities (June 2008) as a priority A wetland, which is the highest priority.

Aside from the native vegetation within and immediately adjacent to Titoki Wetland there is almost no remaining native vegetation within the Springvale Future Development Area aside from a small pocket on the large remnant dune in Study Area 4.

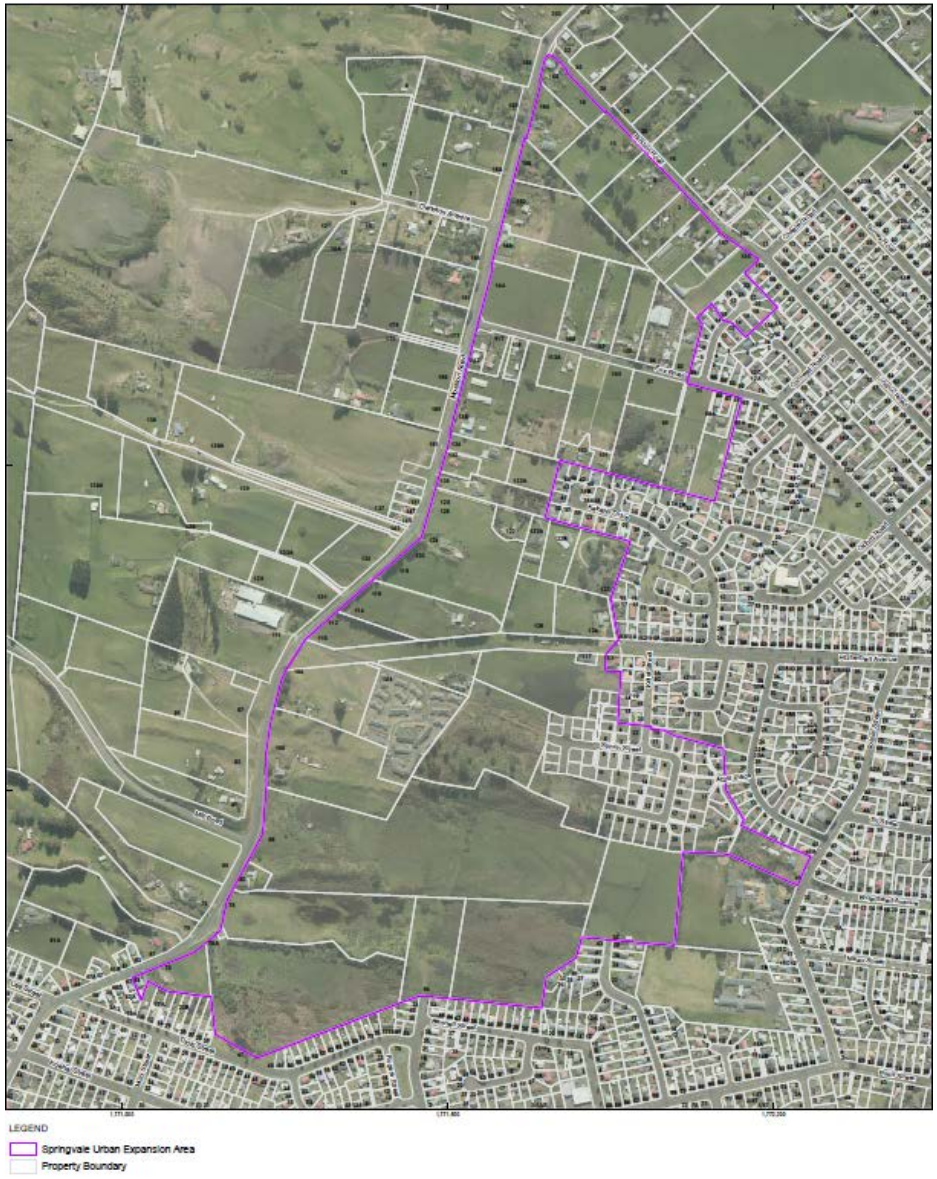

Figure 3: Aerial Photo Overlay (A3 version in Appendix B)

- **Geology and Geomorphology**

Geological records indicate the area as being underlain by loose, poorly consolidated sand mainly in fixed dunes of Holocene Age and undifferentiated Late Quaternary river gravel, sand and fan deposits of Holocene/Pleistocene Age. WDC's Soil Map indicates that the Study Area is underlain with yellow/brown wind-blown sand.

The topography of the area, close proximity to the coast, recent aerial information and ground conditions indicate that the area is dominated by wind-blown sand dune morphology. The ridges and hollows appear to be approximately aligned with the coastline. The raised section of the central-southern area indicates typical sand dune morphology with steeper slope angles on the coast (southern) side, with shallower angles on the lee (northern) side. Hollows within the ridges appear waterlogged and boggy indicating poor drainage within the area and high groundwater levels beneath the area.

- **Current Land Use**

Study Area 4 includes the Titoki Wetland, the large east-west running dune and associated minor dunes (all of which are vegetated), a large area of flat and swampy pasture area and a small amount of residential and rural-residential activity. Study Area 4 also includes the BUPA Broadview Rest Home and Hospital.

Recent development has occurred primarily off Kelsi Street to the south, broadly in accordance with the Indicative Development Plan. Further development is anticipated to the North and West of this cluster of development.

Study Area 5 includes approximately 40 predominantly rural-residential properties, although several larger lots are more rural in character. There are also a small number of residential properties adjacent to the existing road end of Fitzherbert Avenue and on Fox Road and Buxton Road adjacent to established residential areas. There are also a small number of light industrial type activities fronting Mosston Road.

Figure 4: Digital Terrain Model (A3 version in Appendix B)

3.5 Surrounding Context

- **Character analysis**

There is little consistency in the character surrounding the Study Area:

Rural - The area to the west of Mosston Road features predominantly rural type land uses and is distinctly rural in character, although interspersed with residential and rural-residential activity.

Rural Residential – The area west of Mosston Road and the area north of Buxton Road feature a number of rural residential/lifestyle blocks, and the area immediately north of Buxton Road on Study Area 4 is distinctly rural residential in character.

Residential/Urban – The area to the west and south of both Study Area 4 and 5 is residential in character, with recent residential development within Springvale prominent along the western boundary of both study areas.

Industrial – There is a small industrial estate situated on Mill Road to the west of Study Area 4 although it is largely obscured from the Study Area.

Wetland and Open Space – Titoki Wetland and associated open space is prominent in the south west corner of Study Area 4. Given its size and close proximity it provides a strong focal point to Study Area 4.

Coastal Setting – Given the presence of coastal dunes within both study areas there is a strong coastal character underlying the area, with the coastal marine area 1.7km to the south and south west of Study Area 4.

Local Services and Community Facilities – The Study Area is in close proximity to a number of community facilities typical of residential land use, including Springvale Park, the Splash Centre and the YMCA community centre. In addition, Tawhero School, St Marcellin Primary School and Rutherford Junior High School are within walking distance and there a number other schools within the surrounding area. Two golf courses, Whanganui Golf Club and Tawhero Golf Club, are both located close to the perimeter of the Study Area. Nearby on Fitzherbert Ave is a cluster of retail and commercial activities including a dairy, café, pharmacy and hairdresser. The facilities within the suburb of Castlecliff are also relatively accessible from the Study Area.

3.6 Transport and Accessibility

- **Existing Road Network**

Mosston Road forms the western boundary of the Study Area and is a key arterial route linking areas to the south of the city including the residential suburb of Castlecliff and the Heads Road Industrial Area to the north of the city, including State highway 3. Mosston Road forms a junction with Fox Rd in Study Area 5 which acts as a collector road providing access to Springvale and the centre of Whanganui.

Buxton Road provides access to the north of Study Area 5 and also links the area with Springvale, although there is no through vehicle access on to Mosston Road.

Several residential roads provide access into Study Area 4; Rogers Street, Tawhero Road, Kelsi St and Fitzherbert Avenue. As a result of cul-de-sac-type development adjacent to Study Area 5 there are few roads providing direct access aside from Mosston Road, Buxton Road, Fox Road and Fitzherbert Avenue.

- **Whanganui Urban Transportation Strategy 2011 (WUTS)**

The WUTS identifies key transport objectives and actions the Council and community will take to reach Whanganui's wider strategic goals. It sets out key objectives and actions under the following five themes:

- Theme 1 – Wayfinding is Easy
- Theme 2 – A Vibrant Central Area
- Theme 3 – Riverfront Enhancement
- Theme 4 – Enhancing Freight Movement
- Theme 5 – Real Transport Choices
- Theme 6 – Integrating Land Use and Transport Processes

The following excerpts from Theme 4 'Enhancing Freight Movement' are of particular relevance to the Structure Plan:

"Council is considering proposals to encourage residential development and lifestyle blocks along Mosston Road in the future. This land use will conflict with the use of Mosston Road and Montgomery Road as a truck route. The District Plan review will need to address this issue to ensure the safety and efficiency of this heavy vehicle route is not further compromised. Provision of new direct road access to properties onto Mosston Road should be minimised or ideally prohibited. …Structure Plans for the future development of these areas will ensure future land use is integrated with the transport network…"

"The Strategy promotes the extension of Fitzherbert Avenue to Mosston Road to link with Manuka Street as high priorities. Together these actions will facilitate more efficient movement of freight to/from the Mill Road Industrial Area"

The WUTS identified a number of actions of varying priorities, which the Structure Plan is consistent with and gives effect to:

- Action 23 – District Plan Review – Mosston/Montgomery Roads – formally incorporating the Structure Plan into the District Plan will include a consideration of plan requirements along the Mosston Road boundary of the Springvale Future Development Area
- Actions 27 and 38 –Cycle lanes on Mosston/Montgomery Roads – to be considered in the Implementation Plan for the Structure Plan.
- Action 30 – Fitzherbert Avenue Extension – to be considered in the Implementation Plan for the Structure Plan.
- Action 40 – Mosston Road/Montgomery Road Walkability – to be considered in the Implementation Plan for the Structure Plan.

- **Public Transport Network**

Figure 5 overlays the Springvale Future Development Area on the bus routes for the area[8]. There is currently only one bus route operating in proximity to the Study Area along Totara Street to the east of Study Area 4 before heading eastward along Fitzherbert Avenue toward the central city. There is also a separate service to the north of the Study Area serving the existing Springvale Area.

Figure 6 shows the existing heavy vehicle routes surrounding the area.

- **Pedestrian and Cycle Network**

The surrounding road network to the south and east of the Study Area features an integrated and well-connected network of footpaths and pedestrian facilities, although crossing facilities on busy roads such as Totara Street could be safer and provide a higher level of service.

Mosston Road, Fox Road and Buxton Road do not include dedicated pedestrian footpaths or crossing facilities and offer a generally poor level of service for pedestrians. The provision of footpaths along Mosston and Montgomery Road is identified as a high priority action in the WUTS[9] in order to provide connectivity between residential areas.

Whanganui has an identified cycle network and has made significant progress in creating cycle lanes and facilities on many of the city's busiest roads. Council recently released a draft Active Transport Strategy for public consultation[10]. The Active Transport Strategy is seeking to achieve a "walk and cycle-friendly district that provides healthy and sustainable travel choices for commuting to everyone".

Figure 7 provides an extract from the 2017 draft Active Transport Strategy showing the Council's programme of urban cycleways within Whanganui, including a proposed east-west route along Fitzherbert Avenue (including the proposed Fitzherbert Avenue extension) and a proposed north-south route running through the middle of the Springvale Structure Plan Area.

The Whanganui Shared Pathways Strategy was adopted in April 2012 and envisions a shared pathway network that is safe, convenient, interconnected, accessible, attractive and expressive to support an active and healthy community. This can be achieved through the incorporation of shared pathways into future development proposals. The Structure Plan will seek to fully implement the Shared Pathways Strategy and the Active Transport Strategy through the design of the transport network.

[8] http://www.horizons.govt.nz/HRC/media/Media/Bus-Route-Timetable/Wanganui-Timetable-Feb2015.pdf, accessed July 2016.
[9] *Ibid* Action 40, page 30.

[10] http://www.whanganui.govt.nz/our-district/have-your-say/past-consultations/Draft%20Active%20Transport%20Strategy/Documents/Draft%20Active%20Transport%20Strategy%20-%20Final.pdf

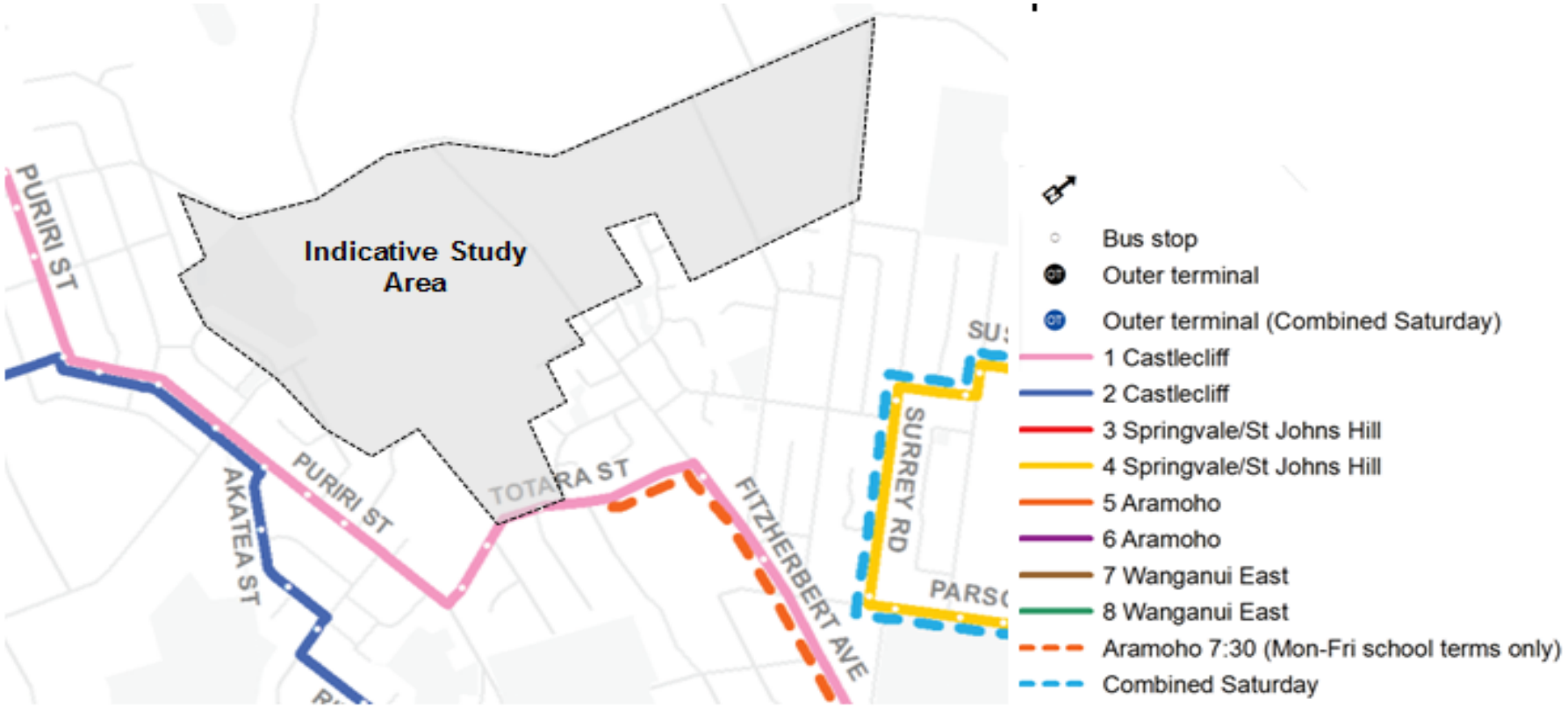

Figure 5: Existing bus routes

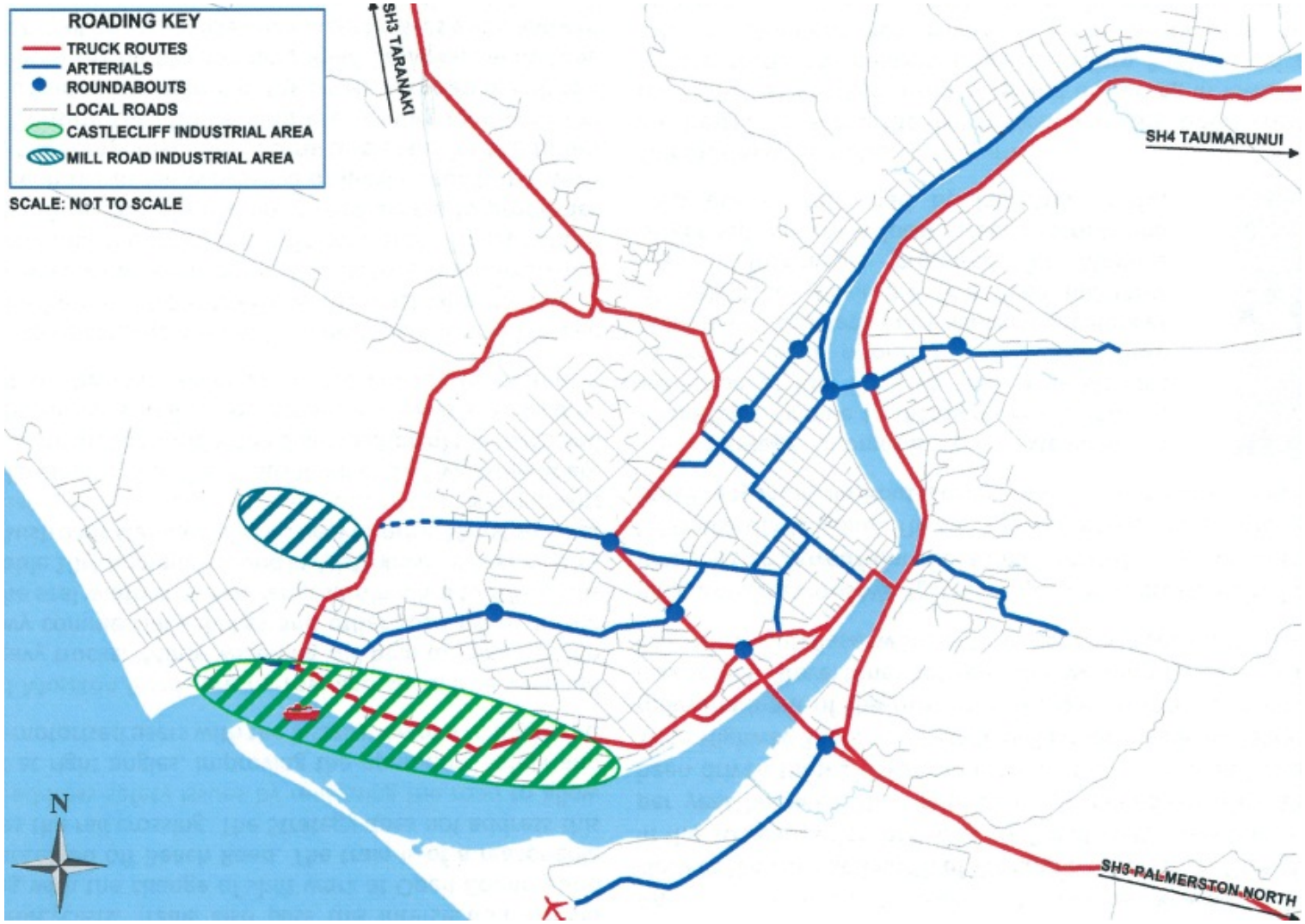

Figure 6: Existing Heavy Vehicle Routes and Proposed Fitzherbert Avenue Extension.[11]

[11] Whanganui Urban Transport Study (2011) – Figure 4.1

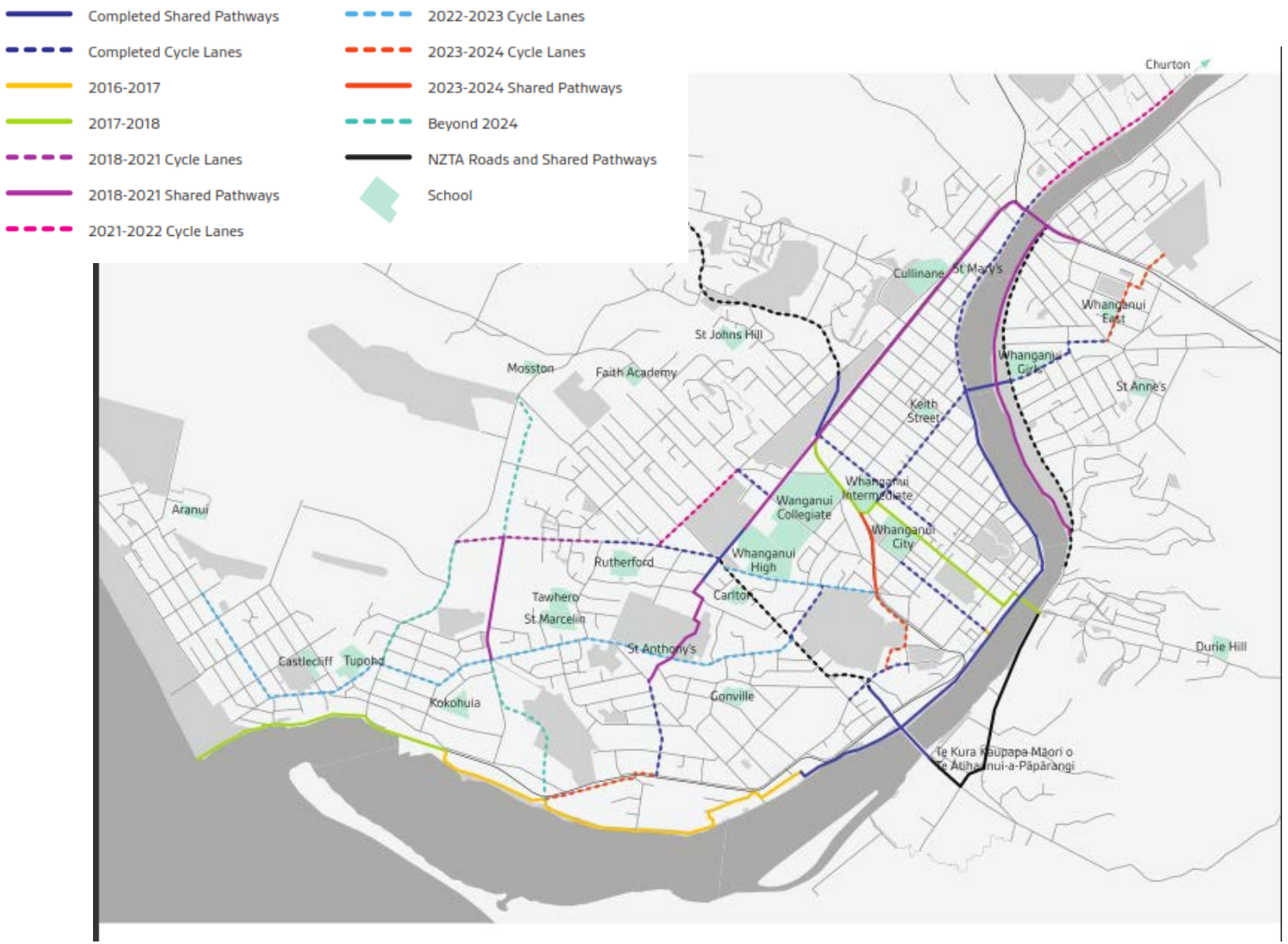

Figure 7: Urban Cycleways Programme infrastructure development plan.[12]

[12] Draft Whanganui Active Transport Strategy (2017)

3.7 Existing Services

- **Stormwater**

The Drainage and Water Services map included as Figure 8 below shows the extent of existing reticulated water services in the wider Springvale Area. There is very little reticulated service provision within the Study Area, although there are water pipes running along Fox Road and the majority of the Fitzherbert Avenue, with a stormwater pipe also extending along Fox Road. Well known capacity constraints exist to the north of the Study Area in conjunction with the Churton Creek stormwater system, which is piped through the northern section of Study Area 5.

- **Utilities**

The Combined Services Map included as Figure 11 shows the extent of existing electricity, gas, and telecommunications lines serving the Springvale Area.

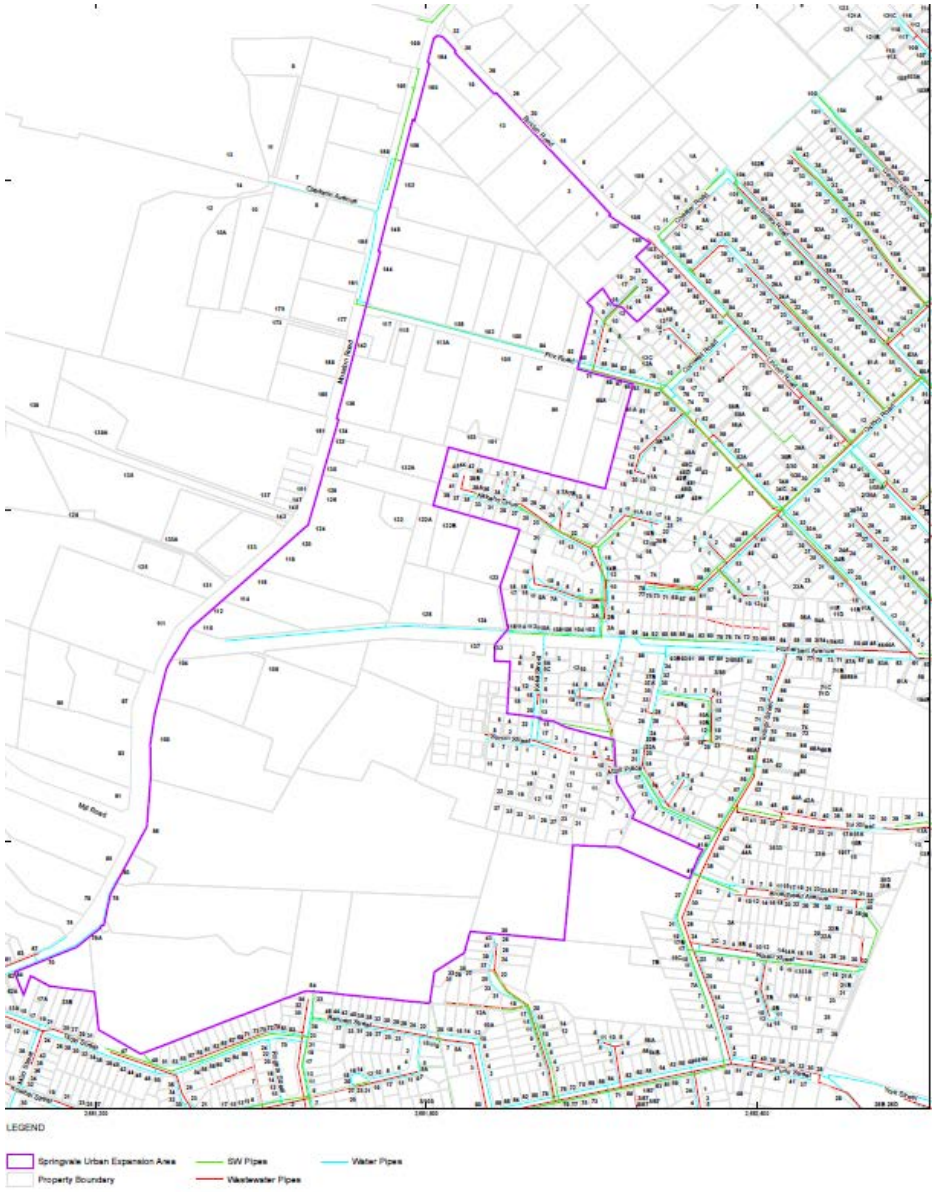

Figure 8: Water Service Map (A3 version in Appendix B)

Figure 9: Existing stormwater attenuation west of the Study Area (2011)

Figure 10: High water table and open water within Study Area 5 (2011)

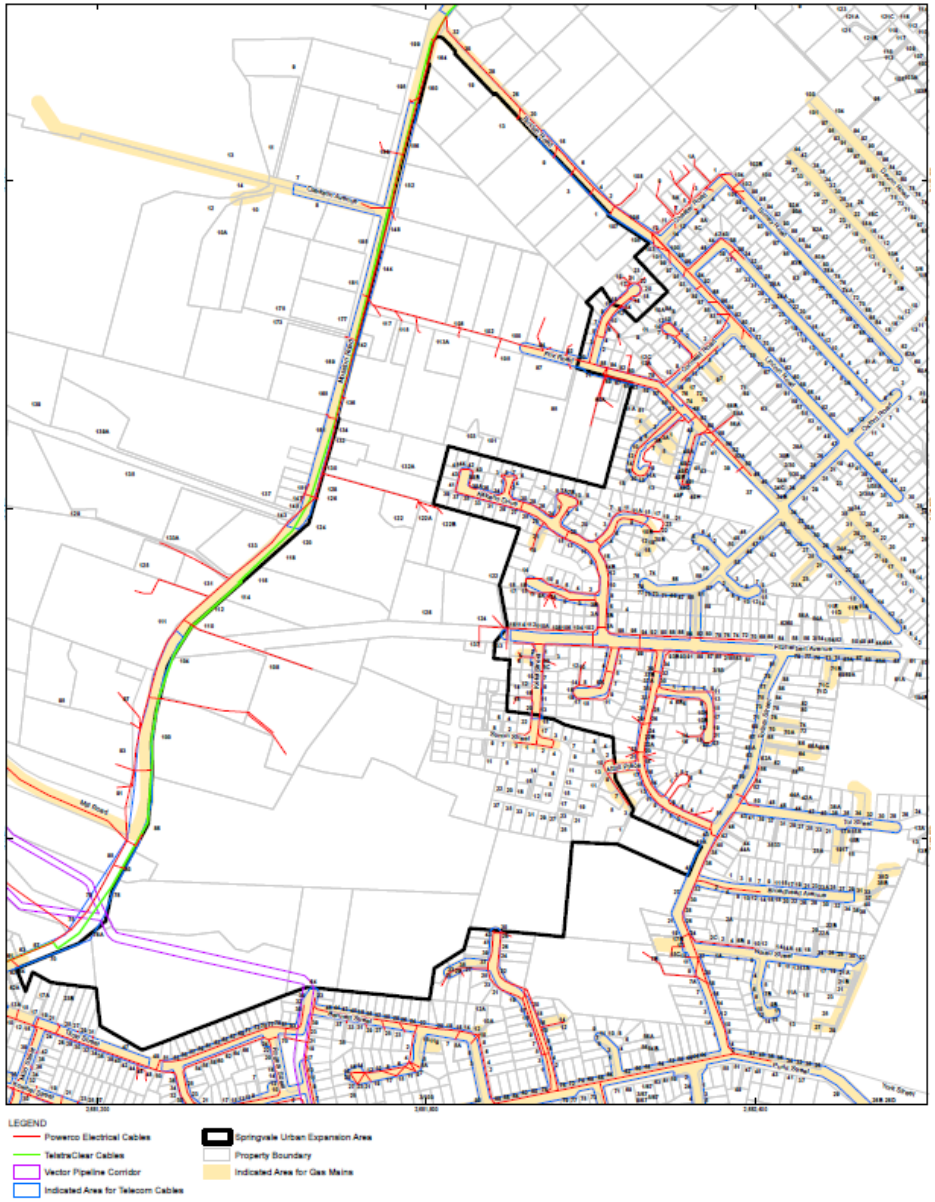

Figure 11: Combined Services Map (A3 version in Appendix B)

3.8 Future servicing

- **Telecommunications, power and gas services**

There is capacity for telecommunication services across the bulk of the site, either by way of broadband or VDSL services. ADSL and wireless services are available across the entire Study Area while fibre is available along the eastern portion and VSDL along the western portion, parallel to Mosston Road.

Existing electricity cables run along the perimeter of the Study Area and cross through the site as an extension off Fox Road and Mosston Road/Kakaho Drive. Powerco have assessed the capacity of the electricity distribution network supporting the area and have advised that there is an existing 11kV electricity distribution line with capacity available running along Manuka Street. Powerco have stated that development in the entire Study Area would have an electricity capacity demand of 3.3MVA, which is a significant amount and beyond Powerco's ability to supply at this stage. They have confirmed that there is presently capacity to supply some development in the Springvale area, and without more specific understanding of the development and staging, it is difficult to ascertain when more capacity will be built into the line. Powerco supports staged development in the area to allow for developers to engage with contractors and to work closely with Powerco.

GasNet (the gas distributors of the area) identified an existing low pressure reticulation network (2 kilopascals) operating on the eastern side of the Study Area, which can immediately service further development off Fitzherbert Avenue and Simon Street. With additional reinforcement, this network could be extended to service the Study Area.

There is an existing medium pressure gas network on Buxton Road and along Mosston Road (210 kilopascals). GasNet have indicated that they prefer to service the Study Area from this medium pressure gas network. In order to do this, staged development in the Study Area needs to start from Mosston Road or Buxton Road. Alternatively, feeder roads off Mosston Road could be developed first to allow the network to extend into the development areas.

GasNet will need to determine the viability of reticulating each area before committing to an extension of the network.

4. Structure Plan Features

4.1 Urban Design Principles

- **Urban Design Protocol**

The vision and objectives of the Structure Plan are based on a number of key principles and design guidelines. These follow on from the high level urban design guidance Council received from Kobus Mentz when commencing the Structure Plan, the scope of works, and the '7 C's' of the New Zealand Urban Design Protocol (MfE 2005), included below as follows:

Context: Seeing that buildings, places and spaces are part of the whole town or city.

Character: Reflecting and enhancing the distinctive character, heritage and identity of our urban environment.

Choice: Ensuring diversity and choice for people.

Connections: Enhancing how different networks link together for people.

Creativity: Encouraging innovative and imaginative solutions.

Custodianship: Ensuring design is environmentally sustainable, safe and healthy.

Collaboration: Communicating and sharing knowledge across sectors.

- **Guiding Design Principles**

The Structure Plan shall:

- ✓ Use Low Impact Design stormwater infrastructure to support the development and that connects into a main north-south swale. This will also provide an attractive pedestrian and cycle route and calm traffic at appropriate points;
- ✓ Retain and develop areas of ecological, natural and historic interest into quality public space;
- ✓ Create a series of inter-connecting and self-explaining streets that provide north-south access (between Structure Plan area and existing areas of residential) and east-west access to amenities and town centre;
- ✓ Adopt CPTED and Universal Access principles within its design;
- ✓ Be predominantly residential with ancillary uses. Other commercial uses that support the local/rural economy may be appropriate in certain locations; and
- ✓ Contain a range of lot sizes to create a diversity of housing size and affordability that are adaptable to changes in use and intensity over time.

4.2 Open Space and Attenuation Areas

- **Open Space and Ecology**

As part of the Structure Plan, three significant new areas of open space are proposed to the south of Fitzherbert Avenue. Titoki Wetland reserve will be retained and enhanced as part of the development and will form part of the transition to rural/residential character to the west of the Swale Road in addition to providing recreational opportunities for local residents. North-west of Titoki Wetland a small park for leisure activities and children's play space is proposed that integrates with the wetland and the proposed Swale Road.

Immediately east of Titoki Wetland and the Swale Road an open space is proposed which compliments the park and wetland and will provide further recreation opportunities and amenity within this part of the residential area.

The significant sand dune north of Titoki Wetland represents an excellent opportunity to create open space suitable for active and passive recreation whilst also improving connectivity and reinforcing a sense of place.

The Structure Plan maximises these opportunities by creating an attractive public space featuring look-out points towards the ocean at the top of the dune and creating a strong east-west green link that integrates with the established residential area of Springvale to the east. This aligns with the Leading Edge strategy, which seeks to pursue placemaking and landscaping approaches and to preserve and conserve natural resources in order to represent the 'flowing with richness' theme.

Figure 12: Green Network

The dune open space also provides a unique opportunity to re-establish the once rich and diverse dune ecology and connect it with the Titoki Wetland and other open spaces via the Swale Road.

A linear green space is proposed running perpendicular to the Swale Road along the line of Churton Creek.

- **Stormwater Attenuation**

Stormwater attenuation is identified on Figure 13. It has a primary function to provide storage areas for stormwater following rain events both from within the Study Area and from the catchment above the Study Area. Stormwater is proposed to drain the swale and downstream piped stormwater network at a measured rate whilst also allowing stormwater to infiltrate the soil and sub-soil prior to release. The Titoki wetland is hydraulically critical for the stormwater design.

- **Swale Road**

The Swale Road is discussed further with respect to the proposed street network and stormwater services in Section 4.5 of the Structure Plan but in summary is a wide (up to 30m and no less than 20m), multi-functional transport corridor integrating a vegetated swale to collect, attenuate and distribute stormwater flows, whilst also allowing stormwater to infiltrate the soil and sub-soil. It will also provide a green corridor linking the network of open spaces, to promote and enhance ecology and biodiversity.

Figure 13: Blue Network

4.3 Connectivity

- **Street network**

The Structure Plan sets out a logical and inter-connecting network of streets that integrate well with its context. The two principal streets within the development are Fitzherbert Avenue, the principal east-west axis road linking the development to the east and providing direct connections to the city centre, and the Swale Road, the principal north-south axis road linking communities to the north and south of the Study Area. Fox Road and to a lesser extent Buxton Road also provide an east-west function through the Study Area.

The secondary streets within the development have been laid out to create viable development parcels of approximately 100m by 70m (this varies where the Study Area interfaces with existing residential areas or accommodates existing features to be retained, such as the large dune). In addition, several streets have been aligned to take advantage of views of open space and distinctive features within the area in order to reinforce a 'sense of place' and establish a legible movement network for the area.

Three intersections are proposed to connect the Study Area with Mosston Road (Fitzherbert Avenue, Fox Road, and a new intersection providing direct access from Study Area 4, opposite the existing Mill Road/Mosston Road intersection). Along a length of approximately 1.8km this is considered the minimum number of intersections required to provide sufficient choice and minimise travel time between any part of the proposal and Mosston Road, without compromising traffic safety.

Figure 14: Roading Hierarchy

- **Fitzherbert Avenue Extension**

Fitzherbert Avenue currently bisects the Structure Plan area, finishing approximately 600m from Mosston Road. This alignment is considered less than ideal given the presence of the sand dune, which will greatly reduce sight distances to the south and create a traffic safety hazard. It is therefore proposed to realign Fitzherbert Ave northward so that it intersects with Mosston Road at right angles and is sufficiently north of the dune to ensure adequate sight distances to the south along Mosston Road are attained.

Once extended it will create a strategically significant route for the area and city and will have multiple benefits. Although Fitzherbert Avenue has been identified in WUTS as a strategic, arterial route, it is considered important that this road remains residential in character to integrate it with the existing residential section of Fitzherbert Avenue, and to reflect the proposed residential land use along the extension area.

A series of residential streets are proposed to intersect with Fitzherbert Avenue to reinforce the residential character of the area, although residential lots fronting Fitzherbert Avenue will have rear access to minimise access safety issues. It is considered important that the proposed residential area not 'turn its back' on the Fitzherbert Ave extension and it is fully integrated as part of the Study Area. This is particularly important because of WUTS objectives to improve walking and cycling access in the area – passive surveillance is a key requirement for creating a safe environment for pedestrians and cyclists.

The junction of Fitzherbert Avenue and Totara Street currently prioritises traffic turning from Totara Street onto Fitzherbert Avenue but will need to be re-prioritised in favour of traffic heading in both directions along Fitzherbert Avenue.

Figure 15: Fitzherbert Avenue/Totara Street Intersection

Figure 16: Reprioritisation of traffic flows will be required

- **Mosston Road – Limited Access**

As per Action 23 from WUTS, it is proposed that access onto Mosston Road from lifestyle blocks fronting Mosston Road be prohibited by legal mechanism, with all future access proposed via a new road running parallel to Mosston Road. This will provide both safety benefits to residents and avoid exacerbation of existing safety issues along Mosston Road. It will also provide enhanced amenity to the lifestyle blocks.

- **Walking and Cycling**

All roads are proposed to be designed to NZS 4404 Land Development and Subdivision Infrastructure (NZS 4404) or better and will incorporate design features to ensure a high level of service for both pedestrians and cyclists, with all roads providing adequate width and safety features to encourage cycling.

Fitzherbert Avenue has been targeted as a future cycle route in the Whanganui Cycling Strategy Implementation Plan (updated 2011) and is proposed to be designed with mandatory cycle lanes to ensure its integration with existing cycling routes[13].

The Swale Road will be of sufficient width to ensure a walking/cycling track can be established in conjunction with the road, providing a direct link to larger areas of open space.

- **Public Transport**

Connectivity and walking distance to bus stops will be improved through the proposed street network, network of footpaths and pedestrian crossing facilities. The proposed street network will also allow the seamless integration of existing bus routes into the Study Area, possibly utilising Mosston Road and Fitzherbert Ave and potentially the Swale Road.

Figure 17: Poor sight distances evidence along Mosston Road

Figure 18: Proposed location of access to Study Area 5

[13] WUTS (2011) Action 38

4.4 Secure by Design

- **Crime Prevention Through Environmental Design**

The following principles have been followed in developing the Structure Plan.

✓ Lots have been positioned to allow fronts to face the street and backs to face backs to maximise passive surveillance and minimise the risk of crime. Care has been taken to position the backs of proposed lots against the backs of existing lots to protect the privacy and safety of residents.

✓ Public will be overlooked by building fronts and/or streets and have a choice of entrance and exit points. A number of lots have been positioned within the dune system to maximise the development potential of the area and take advantage of views. However, these have been positioned to ensure there are no parts of the public space that are not accessible from a public street or visible from lot frontages. The backs of the proposed lots set into the public space will be largely protected by the topography and vegetation in the dunes.

✓ Devices to slow vehicle speeds at likely crossing points for pedestrians and outside shops and schools are suggested. These traffic calming measures could include changes to the surface treatment or volume of planting within the road reserve (particularly where the Swale Road intersects these crossing points) providing a continuous visual link between areas of green space.

✓ The design of the street network and the suggested position of the local retail area ensures that the majority of residents have walkable access to a corner dairy or bus stop within an 800m (10 mins walk), which provides those in the community who cannot or do not drive (e.g. the young or elderly) with access to essential amenities.

✓ All streets have been designed with a 20 metre road reserve to ensure sufficient space for the provision of footpaths and berms.

4.5 Services

- **Low Impact Design Stormwater Infrastructure**

The impact of future development on the existing downstream stormwater infrastructure will be minimised by utilising low impact stormwater features. The result is a network of swales and stormwater attenuation that collect stormwater within the development and distribute it gradually into the existing stormwater system, thereby minimising the impact caused by extreme stormwater events. The Swale Road will contain the principal swale linking the network of attenuation areas and will be a prominent feature within the road reserve and will have a number of functions and benefits:

- ✓ Collects, distributes and attenuates stormwater from within the area and distributes stormwater from areas to the north.
- ✓ Allows infiltration of stormwater flows into the soil and sub-soil
- ✓ Marks a transition between suburban and rural character.
- ✓ Creates a safe recreational route for walkers and cyclists
- ✓ Enhances aesthetic values and provides amenity to the residential area.
- ✓ Creates a green corridor linking the various open spaces with Titoki wetland, promoting ecology and biodiversity.
- ✓ Forms part of an integrated, multi-modal and multi-functional transport corridor.

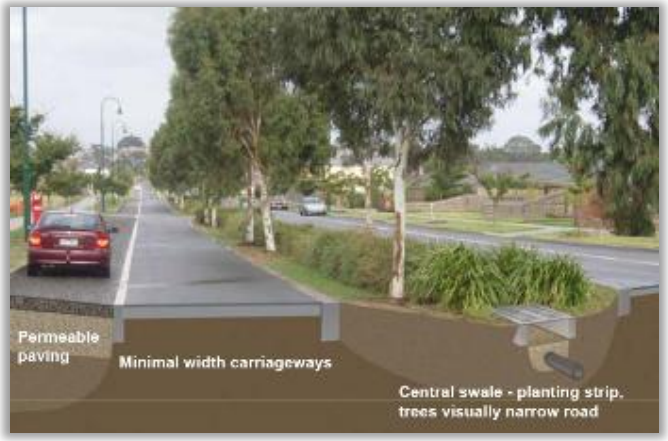

Figure 19: Typical Swale Road cross-section - Auckland North Shore

Figure 20: Example of road with central swale - Auckland

- **Utility Connections**

More detailed studies are required to determine exact service requirements, however preliminary studies have determined that existing reticulated networks are able to be extended into the Study Area. High level costs for all required infrastructure are set out in Section 4.8 below.

4.6 Site Constraints

- **Geotechnical Investigation**

A preliminary investigation and site walkover was conducted to gain initial geotechnical and geomorphological knowledge of the area. Combined with previous knowledge and anecdotal evidence, this provides the basis for identification of geotechnical hazards that may have the potential to affect the area.

By utilising standard earthworks techniques and an area-wide development strategy, it is likely that most geotechnical hazards can be suitably mitigated. It is considered that based on an initial assessment, and by following the recommendations of the geotechnical investigation, that the area will have no greater geotechnical risk than the established residential areas of Whanganui.

Dynamic compaction and the importation of fill material may be required to facilitate residential development and will help reduce the impact of seismically-induced ground movement including liquefaction.

The preliminary Geotechnical Report is included as Appendix C to this Structure Plan.

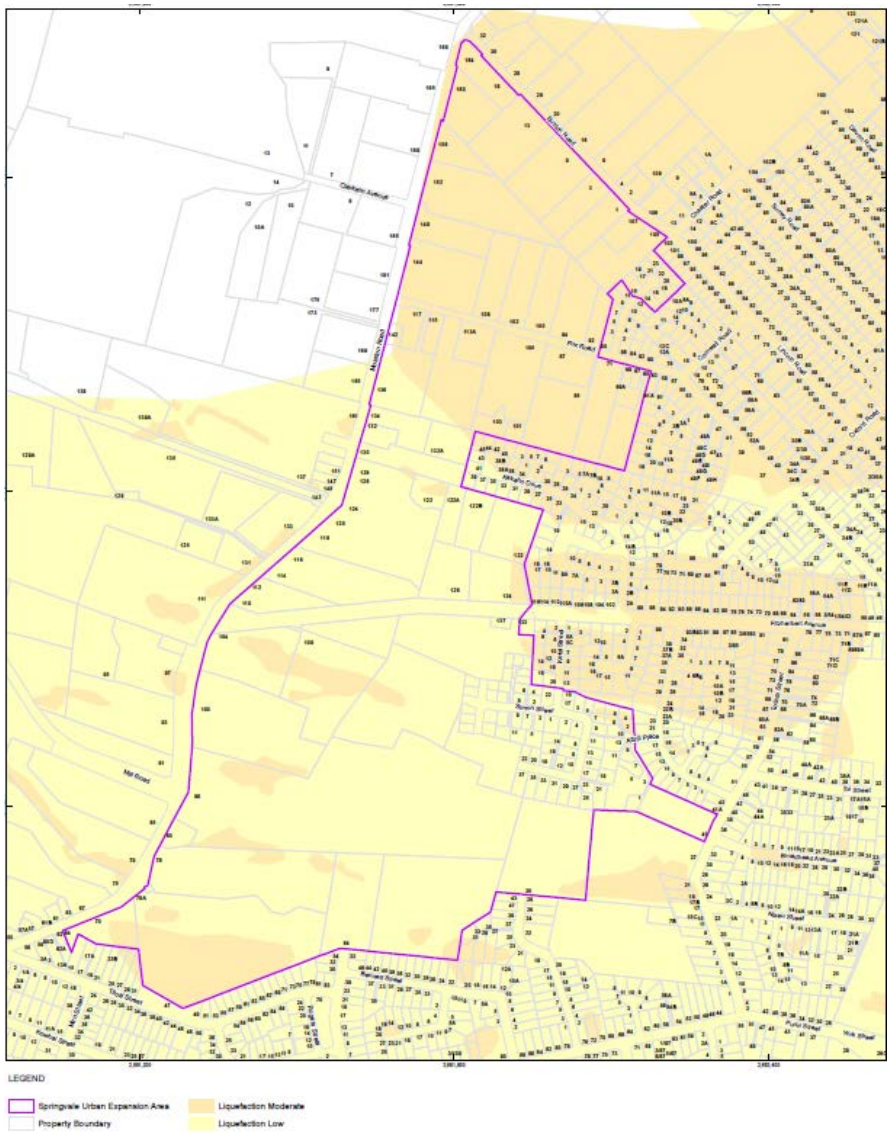

Figure 21: Liquefaction Hazard Map

- **Archaeological Investigation**

A high level archaeological investigation of the Study Area was undertaken as part of the Structure Plan process, which concluded there is a comparatively low risk of archaeological remains being present. T

The sand dunes across the Study Area have the highest potential for discovery of buried prehistoric and historic remains and in particular, it is considered the area in the vicinity of Buxton and Fox Roads.

The Archaeological Report is included as Appendix D to this Structure Plan.

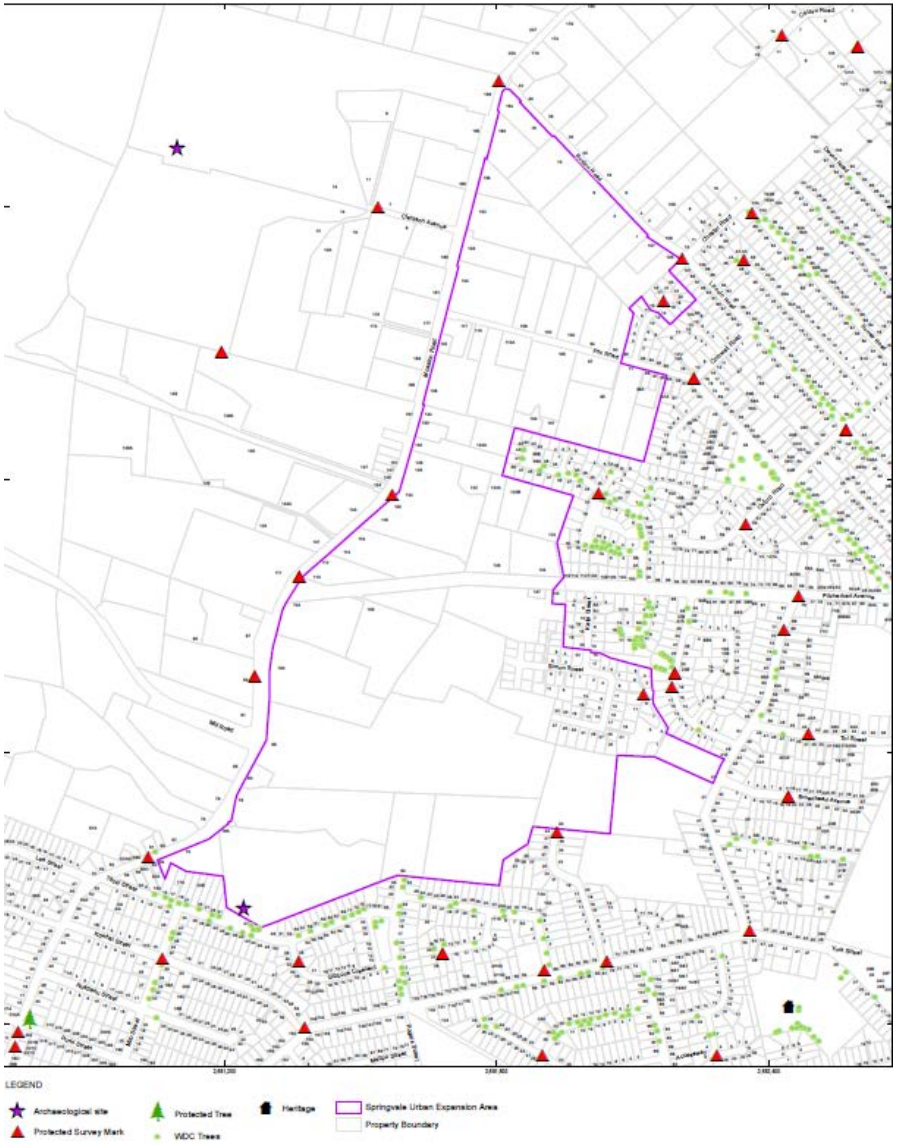

Figure 22: Known Archaeological Sites, Protected Trees, Survey Marks and Heritage Features

4.7 Land Use

- **Residential Land Use**

The proposed land use is predominantly residential with rural/residential properties fronting Mosston Road. A significant amount of open space is also proposed. Consideration has been given to alternative land use in parts of the Study Area however given the strategic fit with existing residential areas and the efficient manner in which residential infrastructure can be provided through extension of existing networks, residential use is considered the most efficient and practical use of the land resource.

- **Lot size and diversity**

A range of residential lot sizes are proposed to facilitate a diverse range of housing sizes and affordability. To the west of the Swale Road, larger lot sizes of 1,000m^2 and above have been provided, which reinforces the transition from suburban to rural character. It is anticipated that larger lot sizes will provide for large family homes set within significant private open space. To the east of the Swale Road, lot sizes of between 500m^2 -700m^2 have been provided. The majority of lots within the area are this size, which also reflects the current market demand in Whanganui.

Along Fitzherbert Avenue a residential lot size of 350m^2 to 500m^2 has been provided to encourage smaller housing sizes and therefore a more affordable option for future residents.

The total number of lots proposed in the Study Area is:

- **577 residential lots (350m^2 - 700m^2)**
- **116 lifestyle lots (1,000m^2)**
- **674 lots in total**

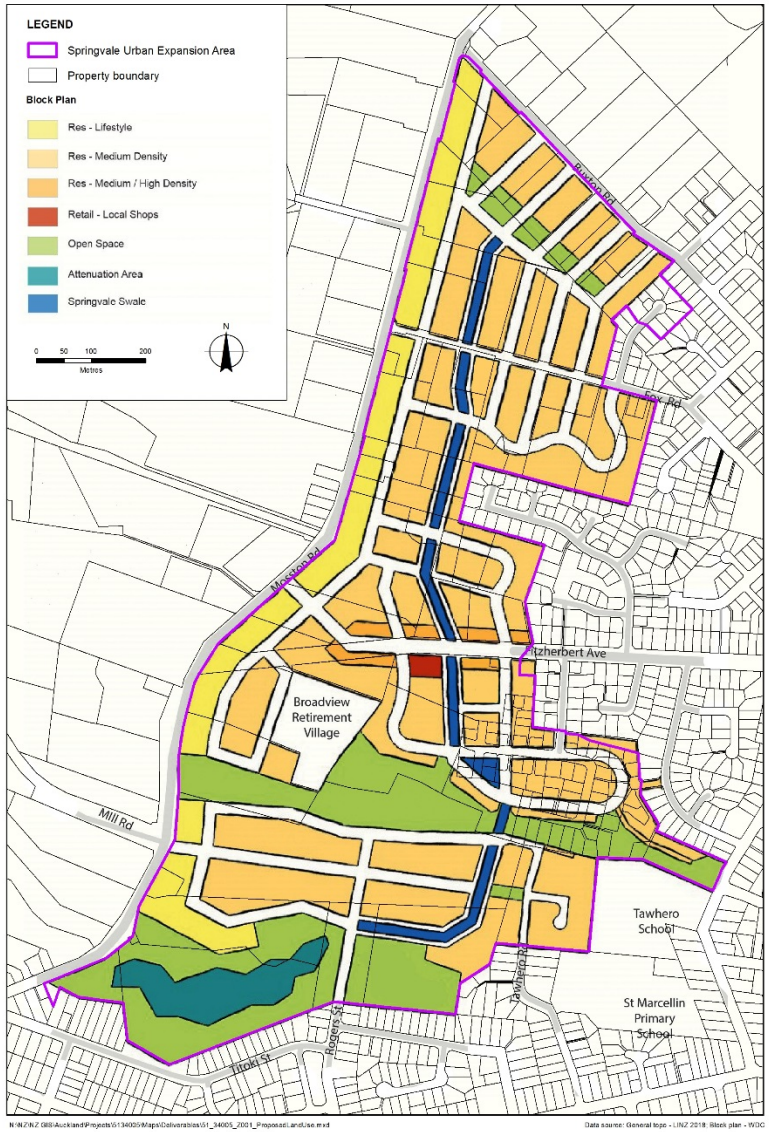

Figure 23: Proposed Land Use

- **Commercial Land Use**

A small area of 500m^2 of commercial/retail zoned land is proposed on Fitzherbert Ave to provide for the day to day needs of residents. A café, convenience store or other small scale type retail service activity is anticipated in this area.

- **Existing land parcels and dwellings**

The proposed roading layout and development blocks have been integrated with existing land parcels and dwellings where possible ensuring the majority of dwellings will be unaffected. Further sensitivity analysis and refinement of the proposed layout will further improve the integration with existing land parcels and dwellings.

4.8 Development Blocks and Infrastructure Phasing

- **Development Blocks**

The Structure Plan proposes an integrated approach to development. However, it also recognises that development will come forward as a series of discrete development blocks over a long period of time. Phasing of residential development is not considered critical to the implementation of the Structure Plan provided key roading and stormwater infrastructure is protected through funding, designation and/or constructed, and that strategic open space and attenuation areas are identified and protected. For example, development is already occurring off Kelsi Street within the Structure Plan area (possible Phase 7). If the stormwater swale is not constructed as part of the first phase of development, an alternative hydraulically neutral stormwater management system, which temporary discharges to the existing network, will be required until the swale is complete.

Phasing may also depend on downstream infrastructure costs and other constraints. Figure 24 identifies the seven development blocks and possible phasing as follows:

Development Blocks (north to south)	Possible Phasing
Buxton	Phase 3
Fox 1	Phase 4
Fox 2	Phase 5
Fitzherbert Ave North	Phase 2
Fitzherbert Ave South	Phase 1
Mosston	Phase 6
Titoki	Phase 7

Figure 24: Development Blocks and Phasing Option

- **Key Infrastructure Phasing**

The phasing of infrastructure is critical to ensuring development comes forward in an integrated and co-ordinated manner and in accordance with the principles and general layout of the Structure Plan. The following key infrastructure identified on Figure 25 is recommended to be designated and/or constructed as soon as funding and the statutory planning process allows:

1. Designation of the Swale Road route;
2. Designation and construction of Fitzherbert Ave Extension and associated junction works;
3. Designation or zoning of strategic open space and stormwater attenuation; and
4. Designation of the road head into the Titoki development block from Mosston Road.

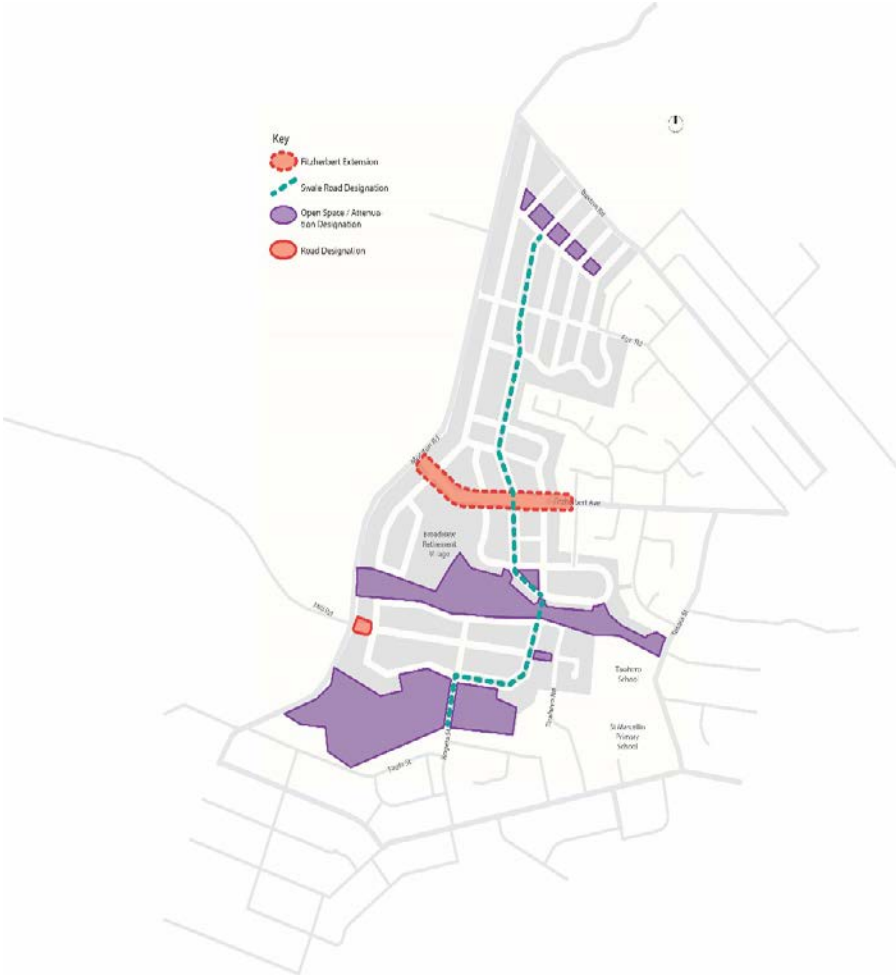

Figure 25: Key Infrastructure

4.9 Infrastructure Costs

- **High Level Approach**

The following key infrastructure costs have been estimated on the basis of the proposed layout applying current cost rates and industry best practice and design standards. Note the infrastructure costs do not include land purchase or costs associated with planning and designation processes.

- **Roading**

The estimate of roading costs has been based on NZS 4404 typical road design.

Table 1: High level cost estimate for roading infrastructure

Type of Road	Quantity	Cost
Secondary Arterial (Fitzherbert Avenue) workings. 15m carriageway.	0.547km of proposed section @ $1,774,916 per km	$970,879
Residential Collector workings. 14m carriageway with major cycleway route.	1.200km of proposed section @ $1,579,784 per km	$1,895,741
Local Residential workings. 11m carriageway.	7.800km of proposed section @ $1,381,842 per km	$10,778,367
Cul-de-sac workings. 6m carriageway.	0.100km of proposed section @ $1,417,504 per km	$141,750
Total (excluding GST)		**$13,786,737**

- **Water Supply**

A conceptual layout for the proposed water supply is provided in Appendix E. This has been derived based on the requirements of NZS4404 and the NZ Fire Service Firefighting Water Supplies Code of Practice. It is assumed that a connection to the 225 mm Mill Road main will be required to provide adequate pressure to the Structure Plan area. A hydraulic model of the entire Whanganui city water supply is currently being calibrated. On completion of which, the concept plan can be reviewed.

Table 2 provides indicative costings for the proposed reticulation mains and the extension to the Mill Road main. The costing includes an allowance for a rider main on the opposite side of each road as per NZS4404.

Table 2: High level cost estimate for water supply infrastructure

Description	Qty	Rate	Cost
150 mm Zone Meter	2	$25,000	$50,000
150 mm Retic with rider mains - Buxton Road	575m	$370	$212,750
150 mm Retic with rider mains - Road Parallel to Mosston	1,160m	$370	$429,200
225 mm Main Mosston Road from Mill Road to Fox Road - no rider main	1,600m	$285	$456,000
225 mm Main From Mill Road Stub to Mosston Road	585m	$285	$166,725
225 mm Connection Mosston to Fitzherbet main - no rider main	185m	$285	$52,725
150 mm Fox Road Upgrade - Sherwood to Mosston (with rider main)	440m	$370	$162,800
150 mm Fitzherbert Reticulation (with rider main)	525m	$370	$194,250
150 mm Retic with rider mains	7,635m	$370	$2,824,950
150 mm Retic without rider mains	2,690m	$235	$632,150
Total (excluding GST)			**$5,181,550**

- **Wastewater**

Whanganui District Council recently completed a master-planning exercise for the wastewater network. The masterplan provides details as to the upgrades required to the existing network to resolve any existing capacity constraints as well as additional upgrades to service the various growth areas, including the Springvale Structure Plan area.

An options investigation for the wastewater network configuration within the Structure Plan area is currently being completed. The investigation has considered a number of options including servicing the area with a traditional gravity system or alternatively a low pressure system. The preliminary results from this investigation identify a preferred option consisting of a traditional gravity system discharging to three different points in the existing reticulation system. The proposed configuration is cognisant of the development phasing discussed in Section 4.8 and enables the initial phases to be developed without significant spending on capacity for the later phases.

The proposed layout is provided in Appendix F. Because of the undulating topography three small pump stations are required. The selection of the preferred option will occur in 2017.

Table 3 provides indicative costings for the proposed reticulation mains within the Structure Plan area as well as upgrades required to the existing receiving network to cope with the additional flows.

Table 3: High level cost estimate for wastewater infrastructure

Description	Qty (m)	Rate	Cost
Buxton Road			
New 150 mm Retic mains (<3m depth)	160	$260	$41,600
New 150 mm Retic mains (3-4m depth)	220	$410	$90,200
Fox Road			
New 150 mm Retic mains (<3m depth)	425	$260	$110,500
Fitzherbert Road			
New 150 mm Retic mains (<3m depth)	215	$260	$55,900
New 150 mm Retic mains (3-4m depth)	240	$410	$98,400
Road Next to Mosston			
New 150 mm Retic mains (<3m depth)	1,215	$260	$315,900
Downstream Network Upgrades			
Rogers Street 225mm	90	$360	$32,400
Karamu Street - 225 mm	190	$360	$68,400
Increase storage on Heads Rd	14	$1,500	$21,000
Increase storage at Moutoa Gardens	22	$1,500	$33,000
New pump station with 2 L/s capacity	1	$120,000	$120,000
New pump station with 8 L/s capacity	1	$160,000	$160,000
New pump station with 2 L/s capacity	1	$120,000	$120,000
New 150 mm rising main	435	$260	$113,100
New 150 mm Retic mains (<3m depth)	6,525	$260	$1,696,500
New 150 mm Retic mains (3-4m depth)	1,690	$410	$692,900
New 150 mm Retic mains (>4m depth)	400	$785	$314,000
Total (excluding GST)			**$3,371,300**

- **Stormwater**

A 2D stormwater model has recently been built for wider Springvale Structure Plan catchment. This model has been used to size the proposed swale and attenuation areas. Other studies are currently underway that may influence the required stormwater attenuation volume required, particularly at the Titoki Wetland. This is not expected to have a material impact on the width of the swale designation or the overall proposed layout. Previous reports have identified that a hydrogeological study is required to identify groundwater levels to inform and finalise the swale design and identification of proposed section and finished floor levels.

Additionally, the swale sizing has been derived assuming that the attenuation in the upstream Churton Creek, at the Mosston Road culvert and Tayforth Road culvert, are retained. These attenuation areas are not formalised and are a result of the existing road culverts acting as a constraint to flows. It is recommended that WDC designate and formalise these upstream attenuation areas to ensure the resultant stormwater flows arriving in Springvale Structure Plan area via the Churton Creek are managed. A proposed stormwater layout is provided in Appendix G.

Table 4 provides indicative costings for the proposed stormwater reticulation mains, swale and attenuation areas. The stormwater mains have been sized at a high-level only, to cope with a 1 in 10-year rainfall event.

Table 4: High level cost estimate for stormwater infrastructure

Description	Unit	Qty(m)	Rate	Cost
Springvale Swale	m	1700	$ 400.0	$ 680,000
Titoki Wetland Extension	LS	1	$ 250,000.0	$ 250,000
Road culverts arcoss Springvale Swale	each	8	$ 60,000	$ 480,000
300 mm SW main	m	3,570	$ 423	$ 1,510,110
450 mm SW main	m	1,520	$ 480	$ 729,600
600 mm SW main	m	450	$ 650	$ 292,500
750 mm SW main	m	170	$ 725	$ 123,250
Ponds - 5 in total	each	5	$ 100,000	$ 500,000
Total (excluding GST)				**$4,565,460**

5. Recommendations

5.1 Next Steps

The report accompanying this Structure Plan includes an Implementation Plan outlining the key next steps. These are also summarised in the following paragraphs:

1. Plan change to fully incorporate Springvale Future Development Area into the District Plan

The Plan Change will update the existing Springvale Structure Plan Indicative Overlay within the District Plan, along with consideration of design guidelines and any other required amendments to existing District Plan provisions.

The supporting report to the Structure Plan discusses options for the Plan Change process.

2. Consultation Strategy

Although the Structure Plan feeds directly into the District Plan review and will be subject to a statutory public consultation process, a three-pronged consultation strategy is recommended to be implemented to ensure all relevant parties are engaged, namely:

- Landowners;
- Key stakeholders, including developers, iwi groups, statutory organisations and other key interest groups and individuals; and
- The public and local communities.

The supporting report for the Structure Plan includes a high level consultation plan. This will need developing into a comprehensive plan to address consultation requirements.

3. Further studies

The preliminary Geotechnical Report in Appendix C and the Springvale Stormwater Swale Design - Preliminary Design Report (GHD – September 2012) identified a further study to refine development of the required infrastructure:

- Hydrogeological study to identify groundwater levels to inform and finalise the swale design and identification of proposed section and finished floor levels.

4. Swale Road

The Swale Road route should be designated as soon as practicable and the land purchase process associated with securing the route initiated.

5. Scheme assessment/business case for Fitzherbert Avenue extension, designation and implementation

A traffic scoping study and scheme assessment/business case should be initiated for the Fitzherbert Avenue extension including detailed investigations of the junctions with Mosston Road and Totara St. The outcome should be preferred options for the extension and junctions. Following this, the land should be designated to future-proof the preferred alignment.

6. Development Contribution Study

The supplementary report to the Structure Plan includes an evaluation of options for securing development contributions within the Springvale Future Development Area.

A study to determine an appropriate development contribution levy for residential development should be initiated. The outcome will be an amendment to the Development Contributions Policy for the SFDA.

6. Conclusion

Preparation of the Structure Plan has allowed an in-depth investigation of factors determining the suitability or otherwise of the Study Area for residential development.

Based on the key findings it is concluded that the Study Area is suitable for residential development, and that if developed in accordance with the principles set out and incorporating key infrastructure as highlighted will result in a high quality and desirable residential area. More detailed investigations along with consultation will need to be undertaken to determine how the identified development blocks come forward.

6.1 Scope and limitations

This report has been prepared for the benefit of Whanganui District Council. No liability is accepted by GHD or any employee or sub-consultant of this company with respect to its use by any other person.

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