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Residential Growth Plan Change - Murchison

Background Report – Technical Reference Document

28 July 2022

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Revision Details

Revision	Details
0	Initial draft for comment
1	Amended as per client review, added additional information and refined growth area boundaries. Used for position papers.
2	Amended as per position papers and Council infrastructure meetings.
3	Report finalised with minor amendments.

Contents

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1 Introduction

This document comprises technical background material, obtained from Tasman District Council (Council) staff and external infrastructure and service providers, iwi, and key third parties, to inform the Murchison residential growth plan change.

2 Cultural and Heritage

Information on this plan change was provided to Ngati Waewae in a hui on 2nd February 2022, and email updates provided through the informal engagement process.

There are no known cultural heritage sites within the identified growth areas (NZ Archaeological Association). Note that there is one archaeological site, M29/1 (an Adze findspot) near to site Future Development Strategy (FDS) 2022 T-153 (1308 Mangles Valley Road), however, site T-153 has subsequently been removed from the FDS and the scope of this plan change.

3 Ecology

Western Fairfax Street Site (T-146) and Eastern Fairfax Street Site (T-136)

The portion of the growth area on the western site of Fairfax Street (FDS 2022 Site T-146) originally bordered the Matakitaki River, however, the boundary was adjusted to align with an embankment and to exclude the lower river terrace due to potential flood hazard. There is a small unnamed watercourse running immediately to the west of the new growth area boundary, on the lower side of the embankment.

Figure 1: Western Fairfax Site – Unnamed Creek (Indicated by Blue Line)

There is also an unnamed waterway running through the portion of the growth area on the eastern site of Fairfax Street (FDS Site T-136). This site is partly within an unconfined aquifer.

Figure 2: Eastern Fairfax Site – Unnamed Creek (Indicated by Blue Line)

Both unnamed waterways are spring-fed creeks and tributaries of Neds Creek. These waterways used to be important for trout spawning, eels, upland bully, and potentially other species such as northern flathead galaxias, however, have become polluted, particularly with fine sediment (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, email 1 February 2022).

Discharges from urban environments are usually uncontrolled and have adverse effects on waterways. Spring-fed creeks like the two in this area are particularly vulnerable to discharges of fine sediment (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 1 February 2022). Any earthworks in Murchison south of State Highway 6 have to be very carefully controlled for this reason (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 1 February 2022).

It is also noted that faecal contamination (E.coli) appears to be widespread in the Neds Creek catchment, including in the tributaries. The main risk to public health is through contact with creek water and then handling food, or any other means consuming some of the contaminated water by other means (Tasman District Council State of the Environment Report, River Water Quality in Tasman District 2015).

Parts of Neds Creek have been restored, resulting in the return of eels and trout in these areas (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, email 1 February 2022). There is an opportunity to also enhance to waterways within the growth area sites.

There are some Significant Natural Areas (SNAs) identified on the property adjacent to T-146 (Matt Moss, Ecologist, email 1 February 2022). Urbanisation and development will have an effect on habitats here (Matt Moss, Ecologist, email 1 February 2022). Council's ecologists have confirmed that any effects on SNAs and ecological values can be addressed through the resource consent

process at the time of development Matt Moss, Ecologist, email 27 July 2022). This includes existing provisions and standards in the TRMP and the Nelson Tasman Land Development Manual 2020.

65 Hotham Street

There is an unnamed waterway running through the southern portion of the 65 Hotham Street site. This is a tributary of Neds Creek which has recently become highly degraded and is contaminating the area downstream with fine sediment and faecal matter (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 28 January 2022). There is an opportunity to enhance this part of the waterway, which will also improve stream quality downstream (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 28 January 2022).

Figure 3: 65 Hotham Street - Unnamed Waterway

Rural Residential Sites

- Site T-154 at 268 Mangles Valley Road:

  This site adjoins a waterway and is within an unconfined aquifer (2019 FDS Site Re-evaluation Notes, 10 November 2021). While the values of the adjoining waterway are unknown, there is a chance that it contains Northern Flathead Galaxias (NFG), which is a rare, range-restricted fish species, mostly found in the small streams in valleys of the upper Buller/Matakitaki/Maruia catchment (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 28 January 2022).

  There are currently no identified wetland or SNAs around this site, however, this ecological district is still being surveyed (Matt Moss, Ecologist, email 1 February 2022). There are SNA's noted based on adjacent landowner's mailing addresses (Matt Moss, Ecologist, email 1 February 2022).

- Site T-155, located opposite 702 Mangles Valley Road:

This site contains a stream and unknown scattered vegetation (2019 FDS Site Re-evaluation Notes, 10 November 2021). While the values of the adjoining waterway are unknown, there is a chance that it contains Northern Flathead Galaxias (NFG), which is a rare, range-restricted fish species, mostly found in the small streams in valleys of the upper Buller/Matakitaki/Maruia catchment (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 28 January 2022).

There is a wetland located across the road from this site (Matt Moss, Ecologist, email 1 February 2022). There are no identified SNAs around this site (Matt Moss, Ecologist, email 1 February 2022).

- Site 156 at 40 Matiri Valley:

  There is a waterway running through the centre of the site, and some vegetation (2019 FDS Site Re-evaluation Notes, 10 November 2021). The site is within an unconfined aquifer.

  While the values of the adjoining waterway are unknown, there is a chance that it contains Northern Flathead Galaxias (NFG), which is a rare, range-restricted fish species, mostly found in the small streams in valleys of the upper Buller/Matakitaki/Maruia catchment (Trevor James, Senior Resource Scientist Freshwater and Estuarine Ecology, 28 January 2022).

- Site T-175 at 2595 Kawatiri-Murchison Highway:

  This site borders the Buller River. A Significant Natural Area (SNA) has been identified on the adjacent property (Matt Moss, Ecologist, email 1 February 2022). It is recommended that general landscape re-planting by done on a case-by-case basis to improve the ecological values of this area (Matt Moss, Ecologist, email 1 February 2022).

4 Reverse Sensitivity

4.1 Rural and Residential Land Use Activities

Reverse sensitivity is an important consideration for residential and rural residential development in Murchison, as the areas proposed for rezoning have a large amount of Rural 2 land surrounding them.

4.2 State Highway

The T-175 site is located on State Highway 6.

Waka Kotahi have developed a Reverse Sensitivity Guideline[1] to mitigate the effects of noise and other disturbances from the state highway network on the habitants of any new dwelling. As part of this, Waka Kotahi have developed a reverse sensitivity 'buffer' and 'effects' area. The excerpt below explains the function of these areas.

'The approach is based around buffer and effects areas, which are determined in the same way for both rural and urban state highways, but the applicable reverse sensitivity controls within each area vary depending on the environment. To achieve a reasonable level of acoustic amenity, all noise sensitive activities in rural areas should be located outside of a buffer area, providing a setback from state highways. The buffer area will be partly or sometimes fully within the state highway designation, particularly for more recent designations. However, in other cases where an existing state highway has a narrow designation, the buffer will need to be

[1] Waka Kotahi's Reverse Sensitivity Guideline: https://www.nzta.govt.nz/resources/effects-on-noise-sensitive-land/

accommodated outside the designation, and for example might take the form of local roading, stormwater treatment or reserve land within a new residential development, or may be accommodated by building setbacks within larger sections. Beyond the buffer area buildings containing new noise sensitive activities within a wider 'effects area' may be allowed but need to be designed and constructed to achieve reasonable indoor acoustic amenity. In urban areas noise sensitive activities may be allowed in the buffer area, subject to additional vibration controls.'[2]

The Waka Kotahi buffer and effects areas are depicted below for the T-175 growth area.

Figure 4: Reverse Sensitivity Map – 2595 Kawatiri-Murchison Highway (https://nzta.maps.arcgis.com/apps/webappviewer/index.html?id=2d268db599fe452bbe7ee2d2e90454b1)

The Reverse Sensitivity Guideline includes a recommended set of standard district plan objectives, policies, and rules for development within the buffer and effects areas.

4.3 The National Grid

Transpower have advised that none of the identified growth areas contain National Gird assets, however, site T-154 at 268 Mangles Valley Road site (proposed for Rural Residential rezoning), is opposite sites that contain National Grid transmission lines and assets which appear, in places, to

[2] Waka Kotahi Reverse Sensitivity Guideline, Page 7: https://www.nzta.govt.nz/resources/effects-on-noise-sensitive-land/

be less than 30m away from this infrastructure (Email from Trudi Burney, Transpower, 28 October 2021).

The potential for the lines to swing out into the 268 Mangles Valley Road site, and an appropriate building setback distance, may need to be considered (Transpower, email 28 October 2021). Transpower have advised that 'if all buildings are required to be 10m setback from the road boundary and that all earthworks and construction can comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP:34 2001) any potential effects can be managed.'

In this case, the minimum setback distance between a building and the road is 10m in the Rural Residential Zone (TRMP Rule 17.8.3.1(g)). The powerlines appear to be located approximately 24.5m from the road frontage of 268 Mangles Valley Road at their closest point (see the measurements on the aerial below), meaning that – with the 10m road setback – any dwelling would be around 34.5m (or more) away from powerlines (or would be otherwise consented for this rule breach – note. Transmission lines are not identified as a matter that must be considered if breaching this rule). The 34.5m setback distance exceeds the excavation and building setback distances in NZECP:34 2001, Section 2.

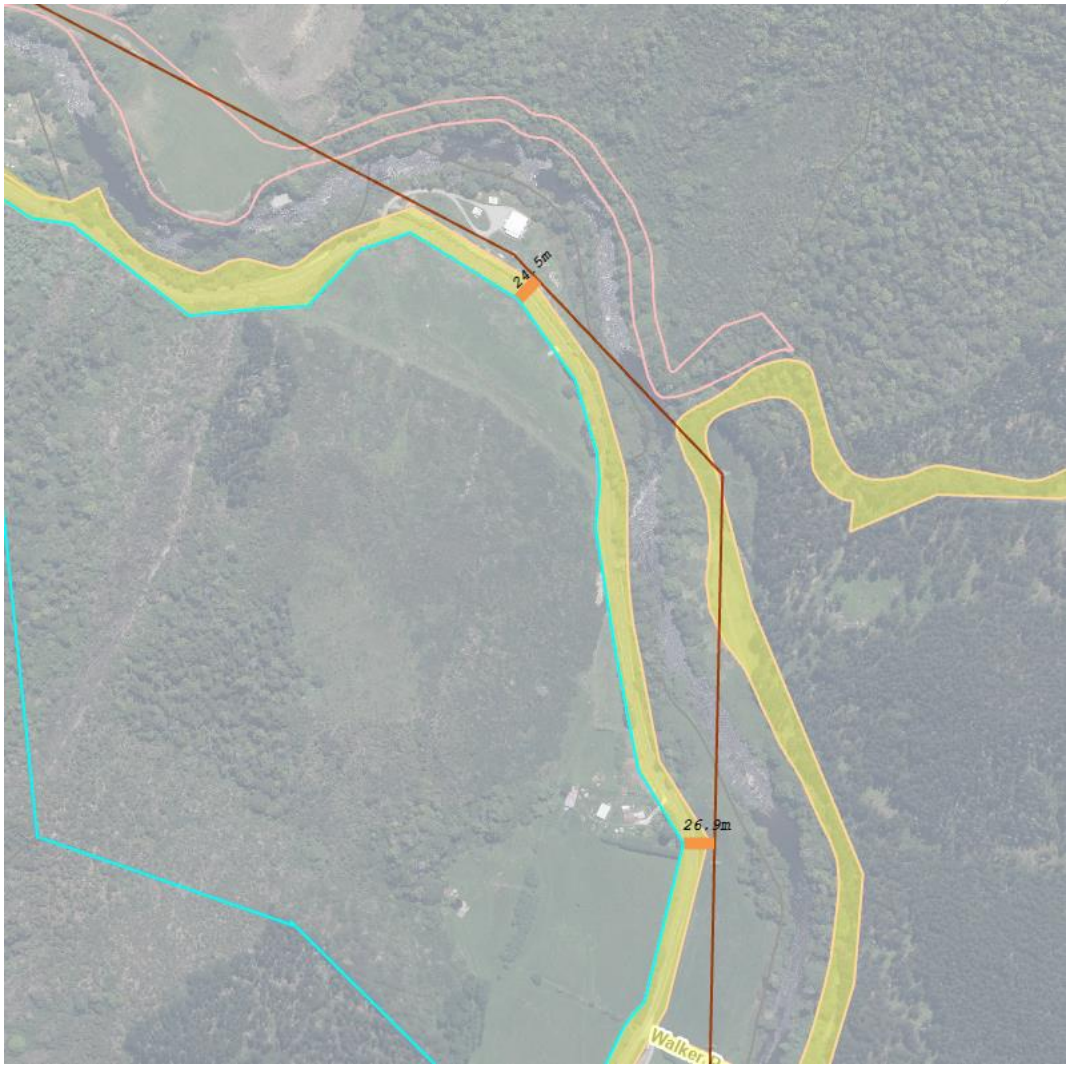


Figure 5: T-154 – National Gird Setback Distance

5 Infrastructure

5.1 Reticulated Stormwater

The re-zoning will need to be deferred subject to either to a reticulated stormwater connection or the developer demonstrating sufficient onsite stormwater detention (Council Internal Infrastructure Meeting, 9 February 2022). There are no planned reticulated stormwater infrastructure works in the Long Term Plan 2021-2031 for Murchison.

5.2 Wastewater

There is limited wastewater capacity available in Murchison, meaning that the proposed residential rezoning will need to be deferred subject to wastewater (Wouter Woortman, Team Leader – Infrastructure Planning, 8 June 2022). New wastewater pipes will need to be installed (at the cost of the developer) to service the sites when sufficient capacity is available (Council Internal Infrastructure Meeting, 9 February 2022).

The Rural Residential sites will need to be self-serviced with onsite wastewater disposal (Council Internal Infrastructure Meeting, 9 February 2022).

There are no planned wastewater infrastructure works in the Long Term Plan 2021-2031 for Murchison.

5.3 Potable Water

The proposed residential rezoning will need to be deferred subject to potable water supply (Jeff Cuthbertson, Wastewater Engineer, 28 July 2022).

The Long Term Plan 2021-2031 includes an upgrade to the Water Treatment Plant to meet drinking water standards and increase resilience. Works are programmed to commence in 2025 and be completed in 2026.

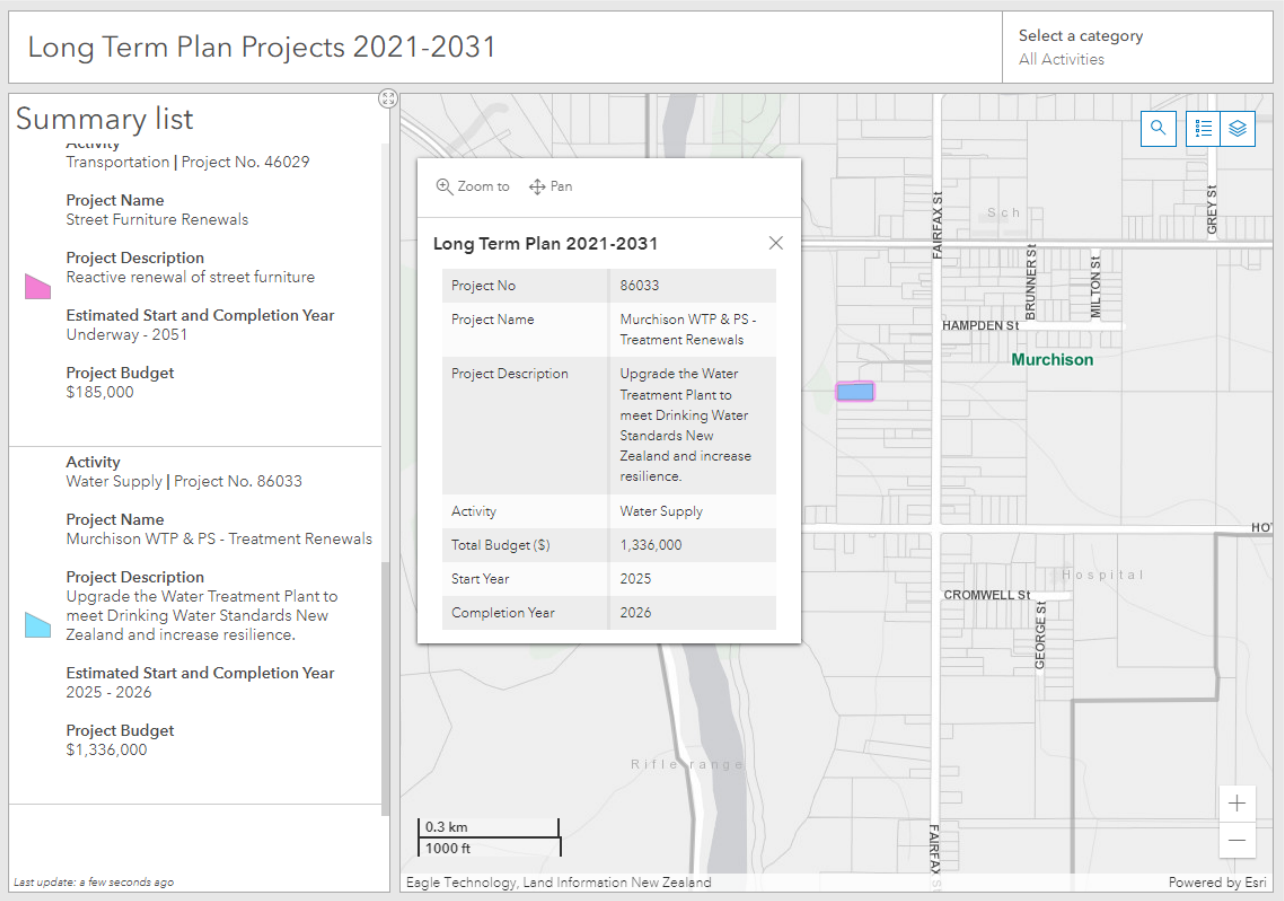


Figure 6: Water Treatment Plant Upgrade, LTP 2021-2031 (Source: https://www.tasman.govt.nz/my-council/key-documents/long-term-plan/long-term-plan-2021-2031/projects/)

The Rural Residential sites will be self-serviced.

5.4 Transport

5.4.1 Vehicle Access

The TRMP does not include any indicative roads in Murchison, as shown in Figure 7 below.

It has been suggested that a new indicative road be added on the adjoining site at 55 Hotham Street, to connect Hotham Street to Brunner Street (Council Infrastructure Meeting, 9 February 2022). This is outside of the scope of this current plan change and can be considered in the Tasman Environment Plan.

Overall, no transportation issues have been raised for the proposed residential rezoning.

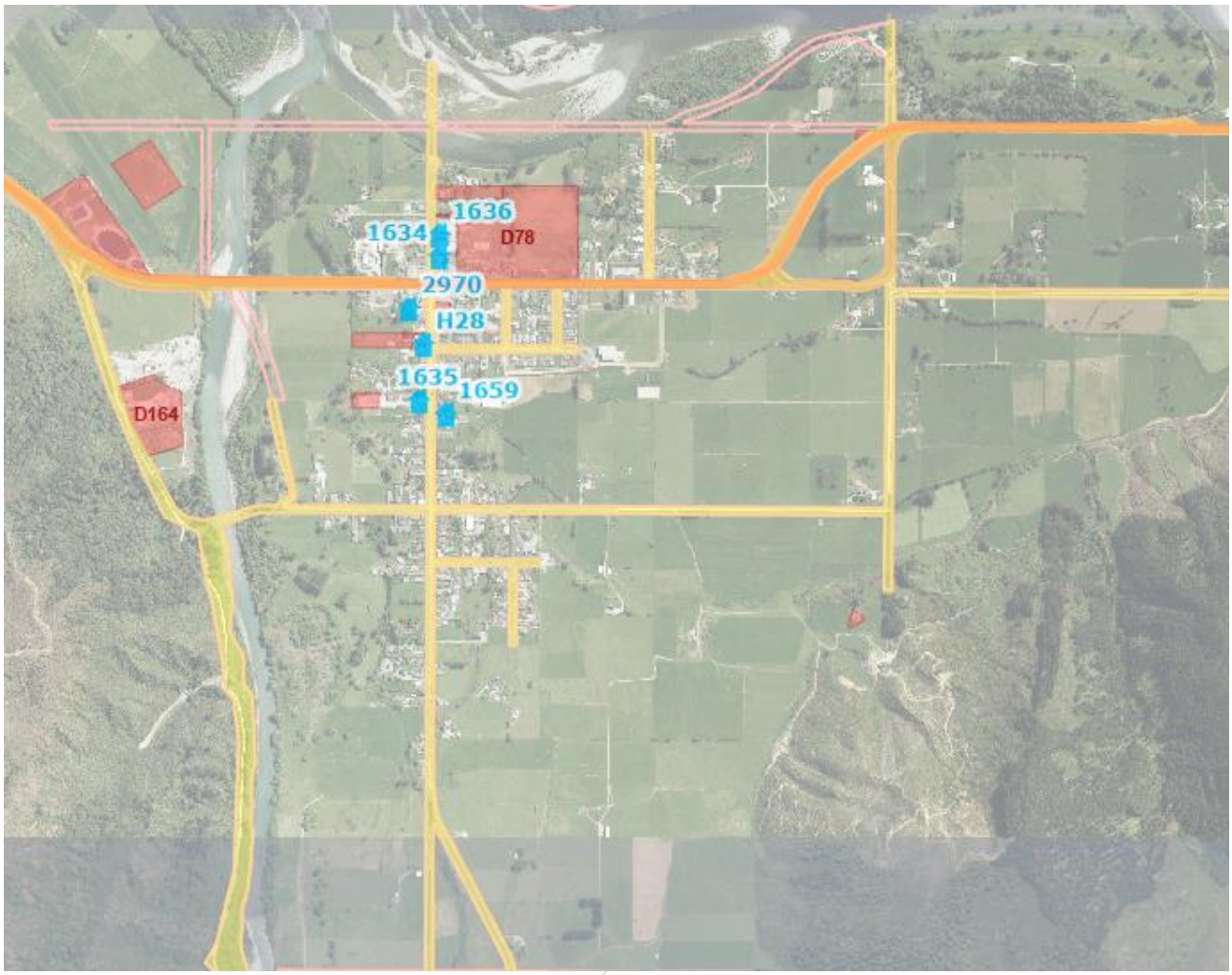


Figure 7: TRMP Area Map - No current indicative roads or walkways

For the Rural Residential sites, it has been noted that Council do not want to add more properties to roads with a low level of service (Drew Bryant, Council Infrastructure Meeting, 8 October 2021). This is not a concern as the identified sites are relatively small and will therefore have a low traffic generation (Council Internal Infrastructure Meeting, 9 February 2022).

The T-175 site at 2595 Kawatiri-Murchison Highway is located on State Highway 6, administrated by Waka Kotahi NZ Transport Agency (Waka Kotahi). Waka Kotahi have previously assessed the proposed subdivision of this property, and are interested in the development of this site (Transport Meeting, 1 November 2021).

5.4.2 Active Transport

The Walking and Cycling Strategy 2022-2052 outlines a plan to create 'greenways' or slow speed zones (less than 30kph), with the use of traffic calming treatment, where all road users and residents feel safe. A number of streets in Murchison, including Fairfax Street and Hotham Street which provide access to identified growth areas, have been identified as planned slow speed zones (Walking and Cycling Strategy 2022-2052).

The Walking and Cycling Strategy 2022-2052 includes plans for a cycle lane along State Highway 6. The map below depicts the proposed cycle routes in Murchison. There is also an existing shared path along Chalgrave Street and Hotham Street which is not shown on the map.

The Transport Team have requested an indicative walkway from Hotham Street to the Recreation Centre (Council Infrastructure Meeting, 9 February 2022).

Figure 8: Proposed Walking and Cycling Improvements, Walking and Cycling Strategy 2022-2052

5.5 Power and Internet

Network Tasman have advised that they are happy with the growth areas from a network planning and development perspective (Network Tasman, email 21 March 2022).

Chorus have advised for the residential sites that Murchison has Next Generation Access; an Ultrafast Broadband internet product which provides broadband to the home. Additional infrastructure (fibre cable) would need to be installed by the developer to service the growth area (Chorus, email 26 October 2021). An email update regarding refined growth area boundaries and

the Rural Residential sites was sent to Chorus in March 2022 – no feedback has been received on this.

6 Services and Facilities

6.1 Parks and Reserves

The existing reserves in the Murchison area are depicted in Figure 10 below. The TRMP does not currently include any indicative reserves, roads, or walkways for the Murchison township, as evidenced by Figure 7 above.

The reserves team have advised that a reserve (around 1,500sqm) may be desirable on the eastern side of Fairfax Street (Reserves Meeting, 11 November 2021), however, the size of the Fairfax Street site has now been reduced and this is no longer considered to be necessary.

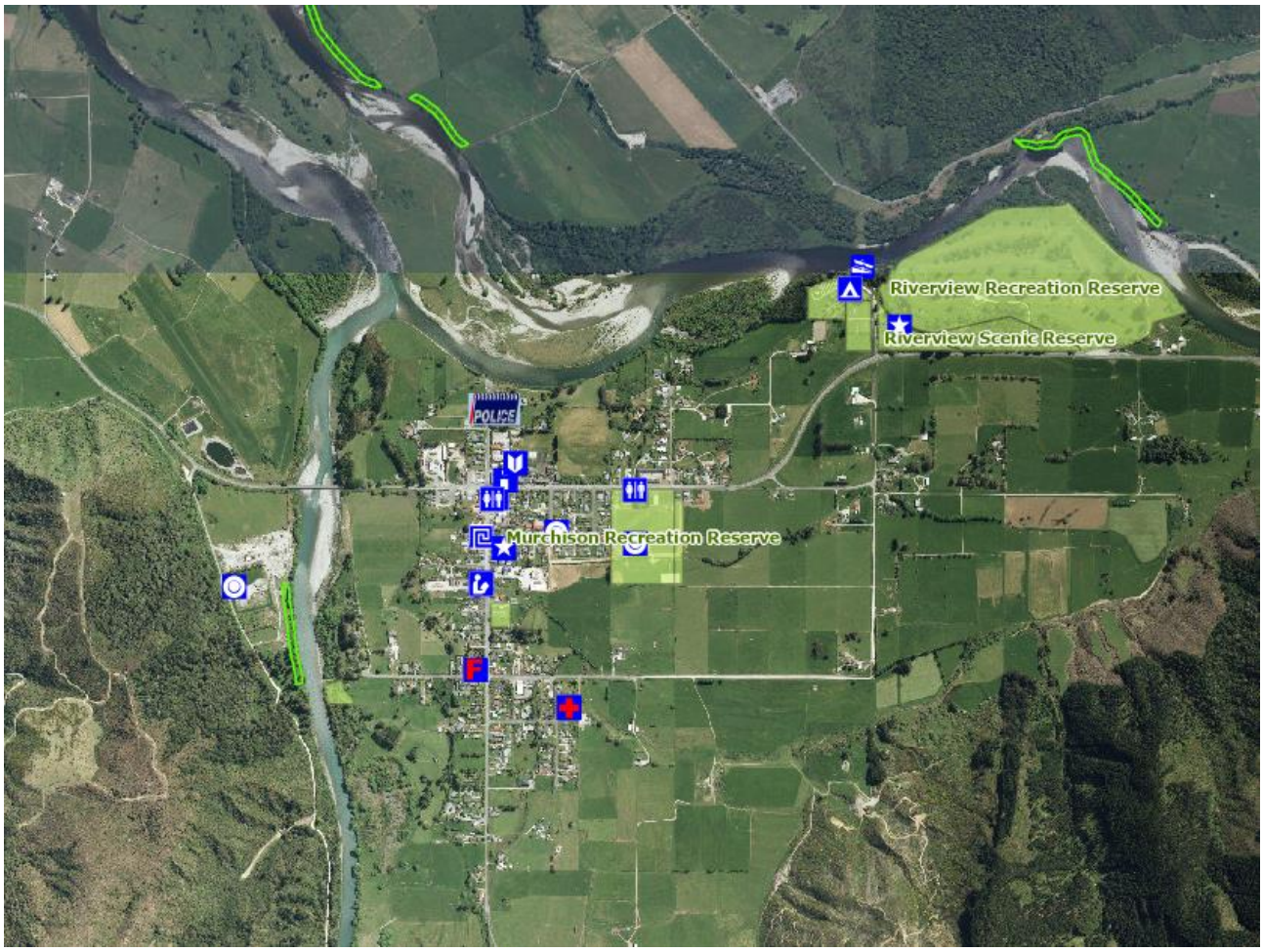


Figure 9: Existing Reserves (TDC Recreation Map)

6.2 Community Facilities

The Murchison Recreation Centre and Recreation Reserve are located at 34 Hampden Street, and border the 65 Hotham Street growth area. Murchison has an area school, which caters for year 1 to 13 students, located at 61 Waller Street.

Information on the proposed re-zoning has been sent to the Ministry of Education and the Nelson Marlborough District Health Board. The Ministry of Education are generally interested in estimated yields, however, have not raised any concerns. The Nelson Marlborough District Health Board have not responded.

7 Natural Hazards

7.1 Flooding

Murchison is located on elevated river terraces such that the urban area is not subject to flood hazard from the Buller and Matakitaki rivers. However, there are a number of smaller tributary streams that drain from the hillslopes to the west and southwest of the urban area. These streams flow through the urban area and present a localised flood hazard (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

7.1.1 Neds Creek

Neds Creek has flooded in the past impacting nearby properties. Channel improvements have lessened, but not removed, the flood hazard presented by Neds Creek (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). As part of these improvements the Council has acquired land at 16 Hampden Street (outlined in yellow below) for stormwater management purposes (Reserves Meeting, 11 November 2021).

7.1.2 65 Hotham Street

The growth area at 65 Hotham Street is immediately south of land acquired by Council for stormwater management purposes and on a slightly higher elevation terrace. As such it is not subject to flood hazard from Neds Creek (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). A tributary stream flows across this area that will present some flood hazard (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). Any development will need to accommodate this tributary channel and its flow (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

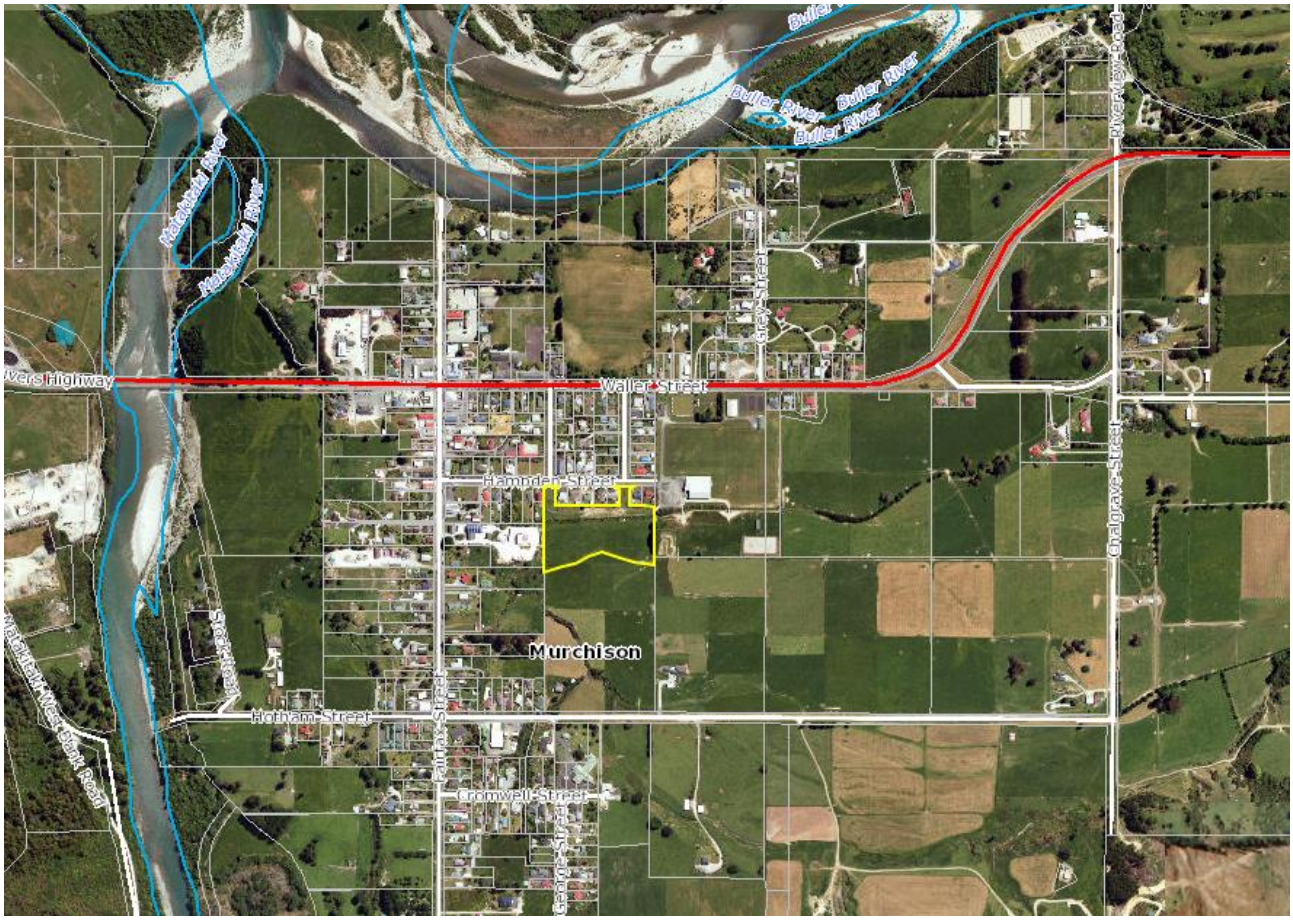


Figure 10: 16 Hampden Street – Acquired for Stormwater Management Purposes

The estimated overland flow paths in the area of 65 Hotham Street are shown below. Land higher than the 170 mRL contour is likely to have less risk from flooding (Email from Emma McFarlane, Stormwater Planning Advisor, 10 December 2021) – 65 Hotham Street is below this contour (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

Figure 11: Estimated overland flow paths - 65 Hotham Street (Email from Emma McFarlane, Stormwater Planning Advisor, 10 December)

Figure 12: Existing contours - 65 Hotham Street (Email from Emma McFarlane, Stormwater Planning Advisor, 10 December)

The image below is a screenshot of a video of the July 2021 flood event in Murchison. The yellow arrow identifies the house at 65 Hotham Street.

Figure 13: July 2021 Flood Event (65 Hotham Street indicated by yellow arrow)

Figure 14: 65 Hotham Street

7.1.1 Eastern Side of Fairfax Site (T-37)

There are two tributary watercourses running through the T-37 growth area. These will present some localised flood hazard (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). Any development will need to accommodate these tributary channels and their flows (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

7.1.2 Western Side of Fairfax Site (T-146)

The T-146 growth area is located on an elevated terrace adjacent to the active flood plain of the Matakitaki River. As such, it is not subject to flood hazard (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

7.1.3 Rural Residential Sites

Growth areas T-154 and T-155 are located on elevated terraces adjacent to the Mangles River. Growth areas T-156 and T-175 are located on elevated terraces adjacent or close to the Buller River. None of these growth areas are subject to flood hazard from these two rivers (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). Small tributary streams may flow across or adjacent to some of these growth areas. These areas are for rural residential development and the

presence of these tributaries can easily be accommodated (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

7.2 Seismic Risk

There are no known active faults directly affecting Murchison. The active White Creek Fault is located approximately 12km west of Murchison (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). This fault ruptured in 1929 resulting in the M_w 7.3 Murchison earthquake (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). The active Lyell Fault and Inangahua Fault are located approximately 18 km and 28 km west of Murchison respectively (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022). The Alpine Fault is located approximately 27km away to the south-east of Murchison (Glenn Stevens, Senior Resource Scientist – Hazards, 2 February 2022).

Figure 15: Fault Lines and Fault Rupture Risk Area (FDS Mapping)

7.3 Other

Fire Hazard

There is a wildfire risk for the Rural Residential sites (2019 FDS Site Re-evaluation Notes, 10 November 2021). This risk of wildfire can be addressed through onsite mitigation (2019 FDS Site Re-evaluation Notes, 10 November 2021).

Civil Defence

The growth area has been discussed with Civil Defence (meeting, 7 April 2022) who have not raised any other issues with the site (beyond what has been discussed with Glenn Stevens, Senior Resource Scientist – Hazards).

8 Fire Ban/ Sensitive Areas

The Tasman Resource Management Plan includes existing provisions to manage potential adverse amenity effects from the discharge of contaminants from outdoor burning. This is managed through rules that apply to the Fire Sensitive Area overlay, which generally aligns with Residential zoning in the district.

The residential growth areas are located adjacent to, but are not within, Council's Fire Sensitive Area overlay, shaded orange in Figure 16 below (TDC Local Maps). This overlay aligns with the existing Residential zoning. Fire Sensitivity Areas do not apply to the rural residential zones.

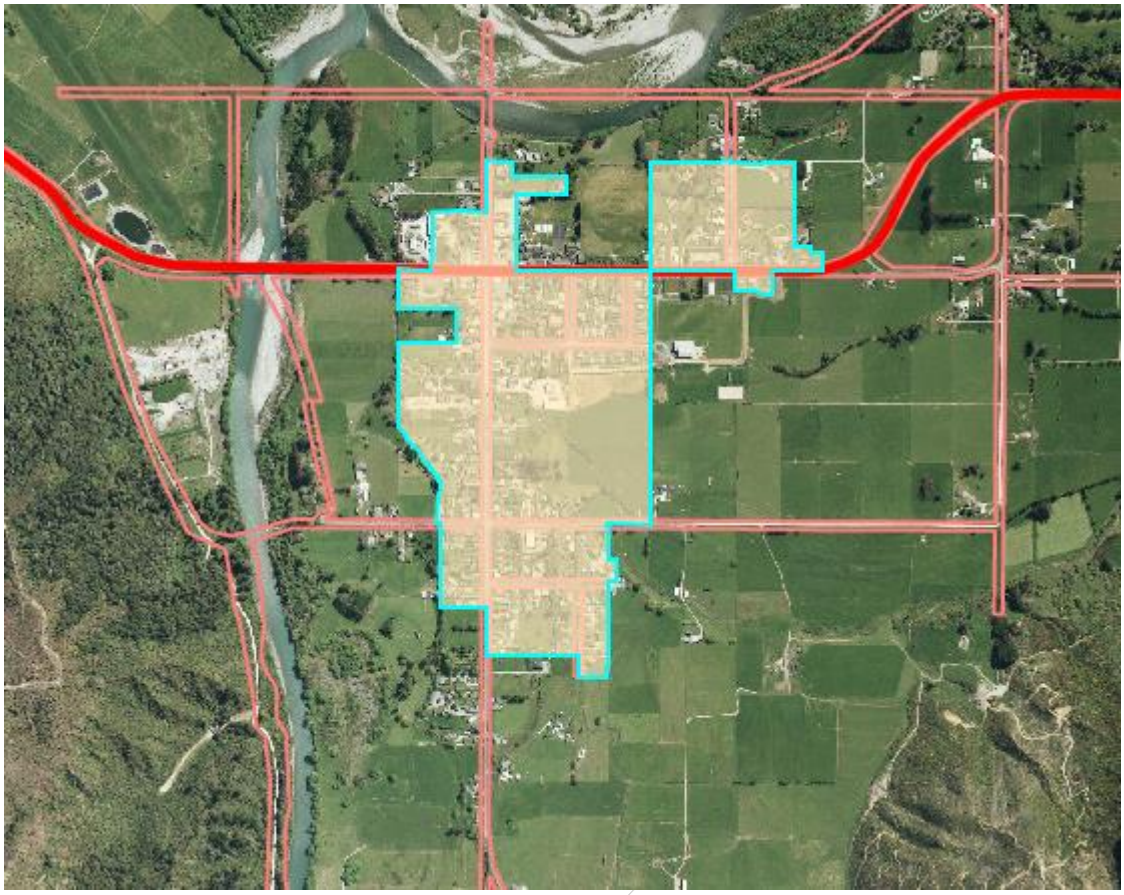


Figure 16: Fire Sensitive Area overlay, shaded orange (TDC Local Maps)

9 Topography and Land Productivity

9.1 Topography

The Murchison township is relatively flat and is bordered by mountains to the east and west, by the Buller River to the north, and the Matakitaki River to the west. The growth areas are relatively flat. The rural residential areas are generally flat to gently sloped. Typically, they are at the base of hills.

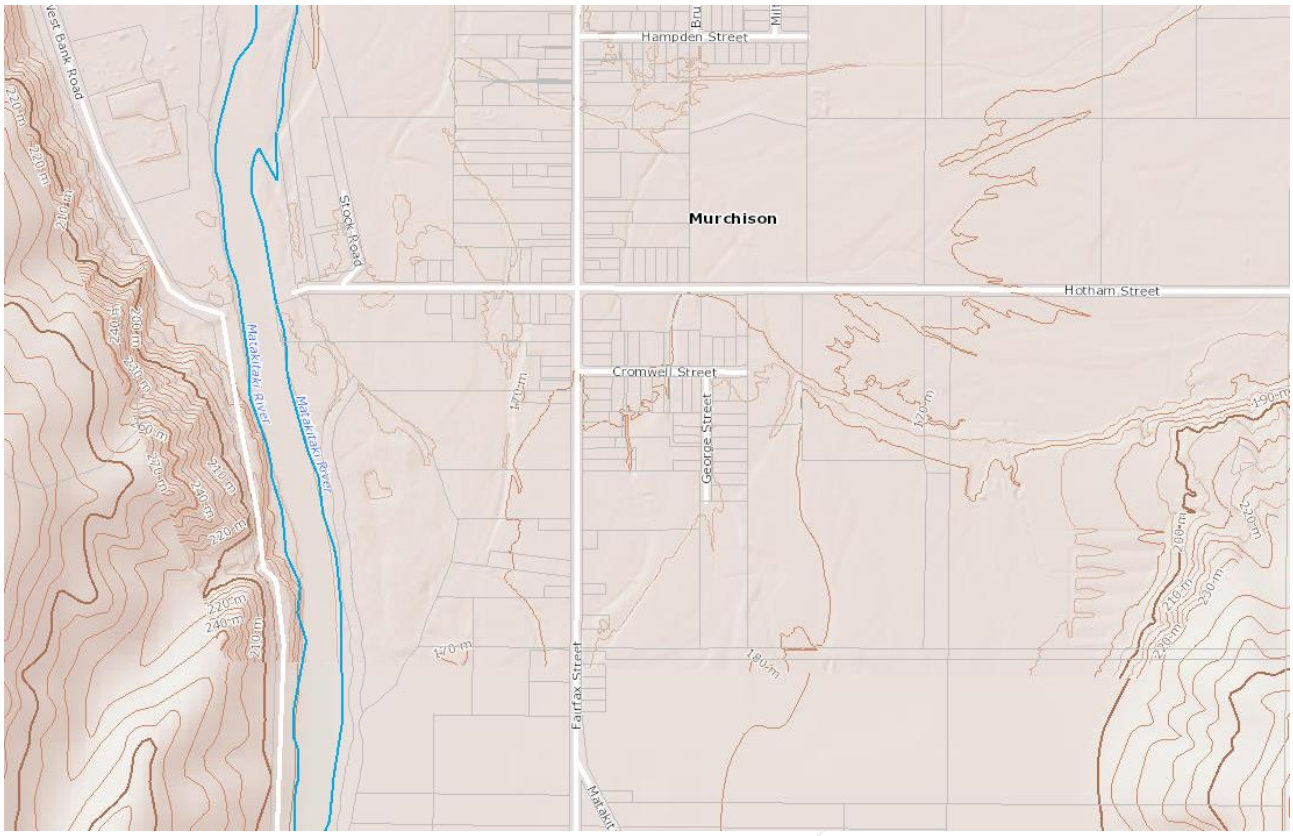


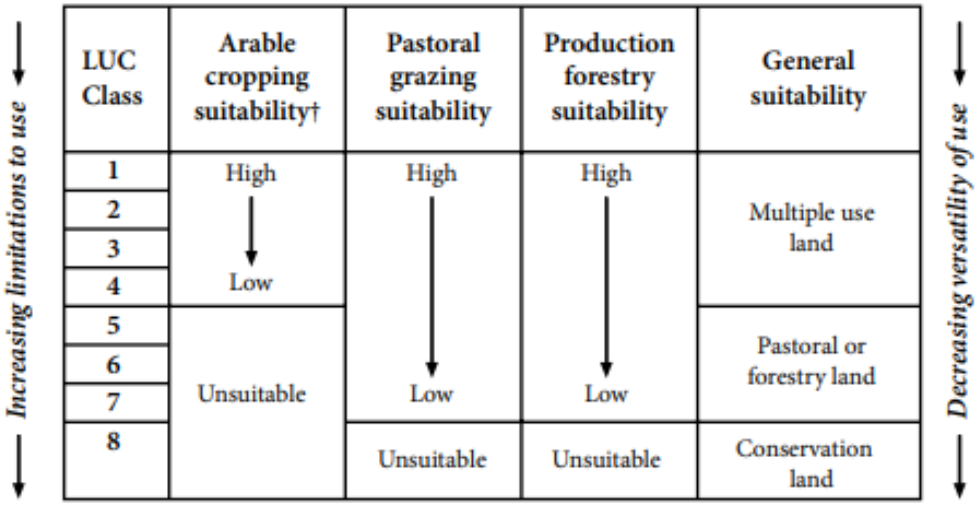
Figure 17: Topo Map (Top of the South Maps)

9.2 Land Productivity

Council uses three productive land classification systems. These are:

- Land Use Capability (LUC):

  The Land Use Capability (LUC) classification system is a measure of the versatility of the land, and includes eight soil classifications, LUC 1 being the most versatile with the least limitations, and LUC 8 being the least versatile with the greatest limitations, as illustrated in Figure 18 below.



LUC Class	Arable cropping suitability†	Pastoral grazing suitability	Production forestry suitability	General suitability
1	High	High	High	Multiple use land
2	↓	↓	↓	
3				
4	Low			
5	Unsuitable	Low	Low	Pastoral or forestry land
6				
7				
8		Unsuitable	Unsuitable	Conservation land

Figure 18: LUC Classification Classes

The LUC system is based on five attributes (rock type, soil, slope angle, erosion type and severity, and vegetation cover), and does not consider economic input for improvements (e.g. drainage, fertiliser, irrigation) (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022). LUC is a national classification system, meaning that it can be used to compare land in the Tasman region to other land in other parts of the country (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022).

This classification system has an emphasis on conservation rather than production, and focuses on forestry to pastoral to arable land, meaning that it is not reliable for ranking horticultural land types (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022). Horticulture is a significant land use in the Tasman region (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022). The PLC classification system is also being used for this reason.

- Classification System for Productive Land in Tasman (PLC) 1994:

  The PLC system was developed by Agriculture New Zealand for Tasman District Council in 1994, when it was found that the LUC system consistently undervalued some types of soils and climatic areas in the region (Highly Productive Land – Tasman District Council Submission to the Ministry for the Environment, October 2019). The system groups land units into similar classes using a range of topographical, soil, climate, and past use criteria (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022).

  The classification system ranges from 'A – Very Intensive Horticulture', being the most productive, to 'H – Non-Productive', being the least productive (refer to Figure 20). The classification indicates the potential land use. Each classification is suitable for the specified land use, and all land uses assigned to categories below itself. For example, soil classified as 'D – Cropping' could be used for cropping, as well as intensive pastoral, extensive pastoral, productive forestry, and non-productive use.

Range of enterprises that could be sustained on a land unit	TDC Class							
	Very Flexible ——— Inflexible							
	A	B	C	D	E	F	G	H
Very Intensive Horticulture								
Semi-IntensiveHorticulture								
Intensive Cropping								
Cropping								
Intensive Pastoral								
Extensive Pastoral								
Production Forestry								
Non Productive								

Figure 19: PLC Classification Classes

- Classification System for Productive Land in Tasman (PLC) 2021:

  The PLC classification was re-assessed in 2021 using a new set of criteria. This system is currently being ground truthed to ensure accuracy. Some discrepancies have been found

been the PLC 2021 classification and field observations (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022).

Productive land has been assessed for the growth areas based on all three productive land classification systems.

Figures 20-22 show the LUC classification system. Note that this map does not include classification of land which is already zoned Residential (or deferred Residential), or include LUC classes 4-8. Using the LUC classification system:

- The T-37 (Fairfax Street), T-146 (Fairfax Street), 65 Hotham Street, and T-175 (2595 Kawatiri-Murchison Highway) growth areas are classified as LUC3, which means that the land is identified as highly productive land, suitable for arable cropping, horticulture and pastoral grazing.
- The south-eastern part of the T-156 site is also classified as LUC3, with the reminder of the site having a lower unspecified classification.
- The T-154 and T-155 sites have a classification of less than LUC3, and are therefore not considered to be highly productive under this classification system.

Note: The growth area boundaries shown in Figure 20 on the maps below are those originally consulted on in Round 1 Engagement, and are not the same as the proposed Plan Change site boundaries

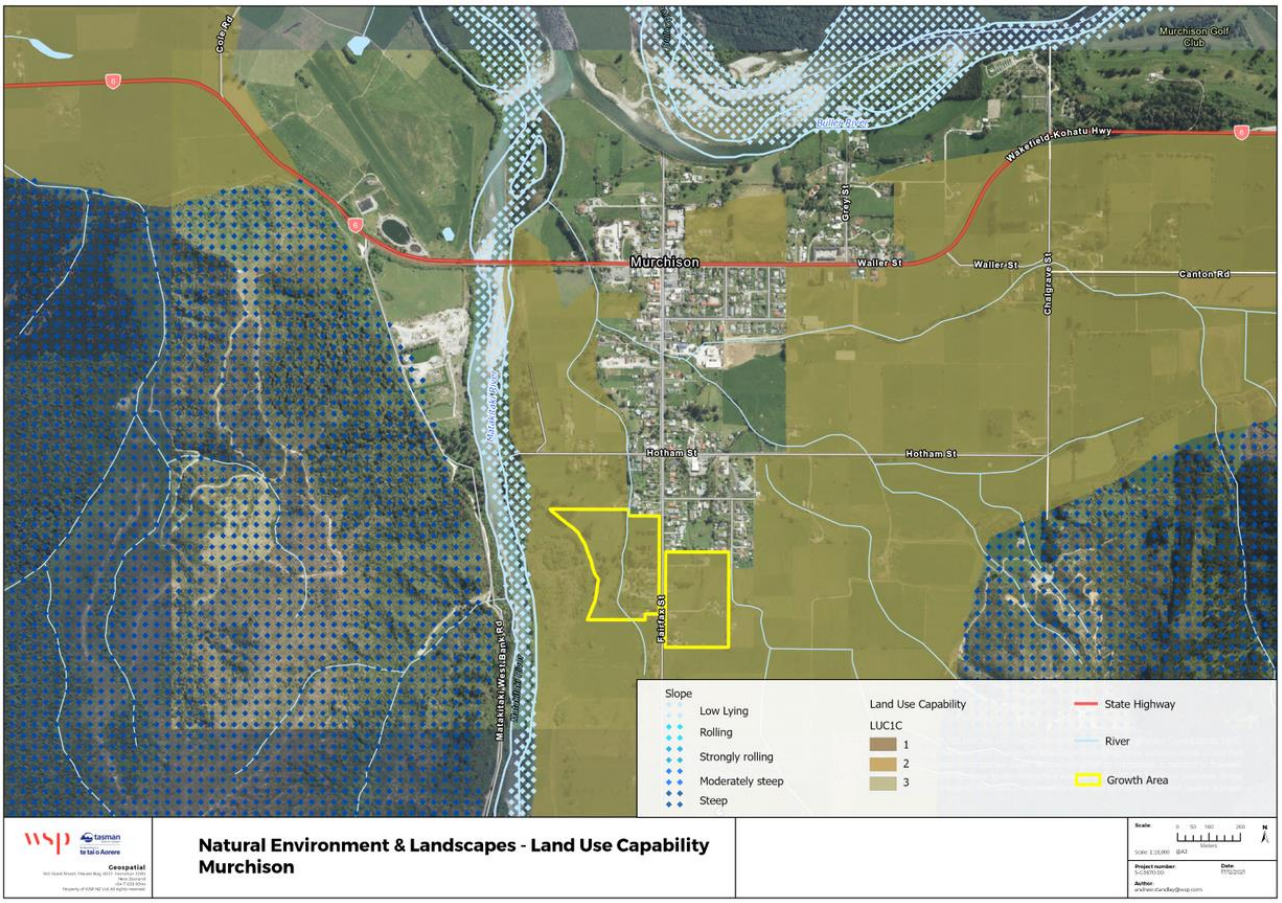


Figure 20: LUC Map - Murchison Township (FDS Mapping)

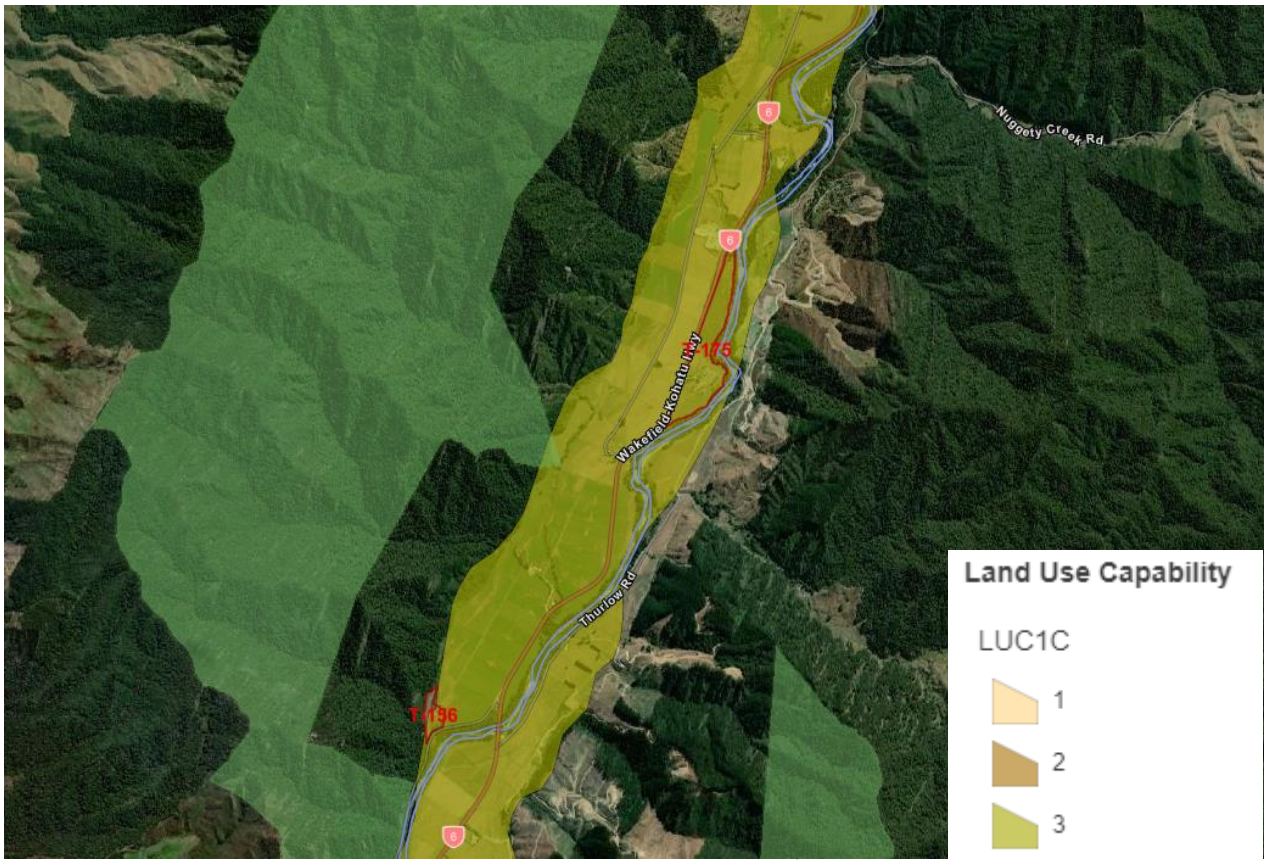


Figure 21: LUC Map – T-156 and T-175 Sites (FDS Mapping)

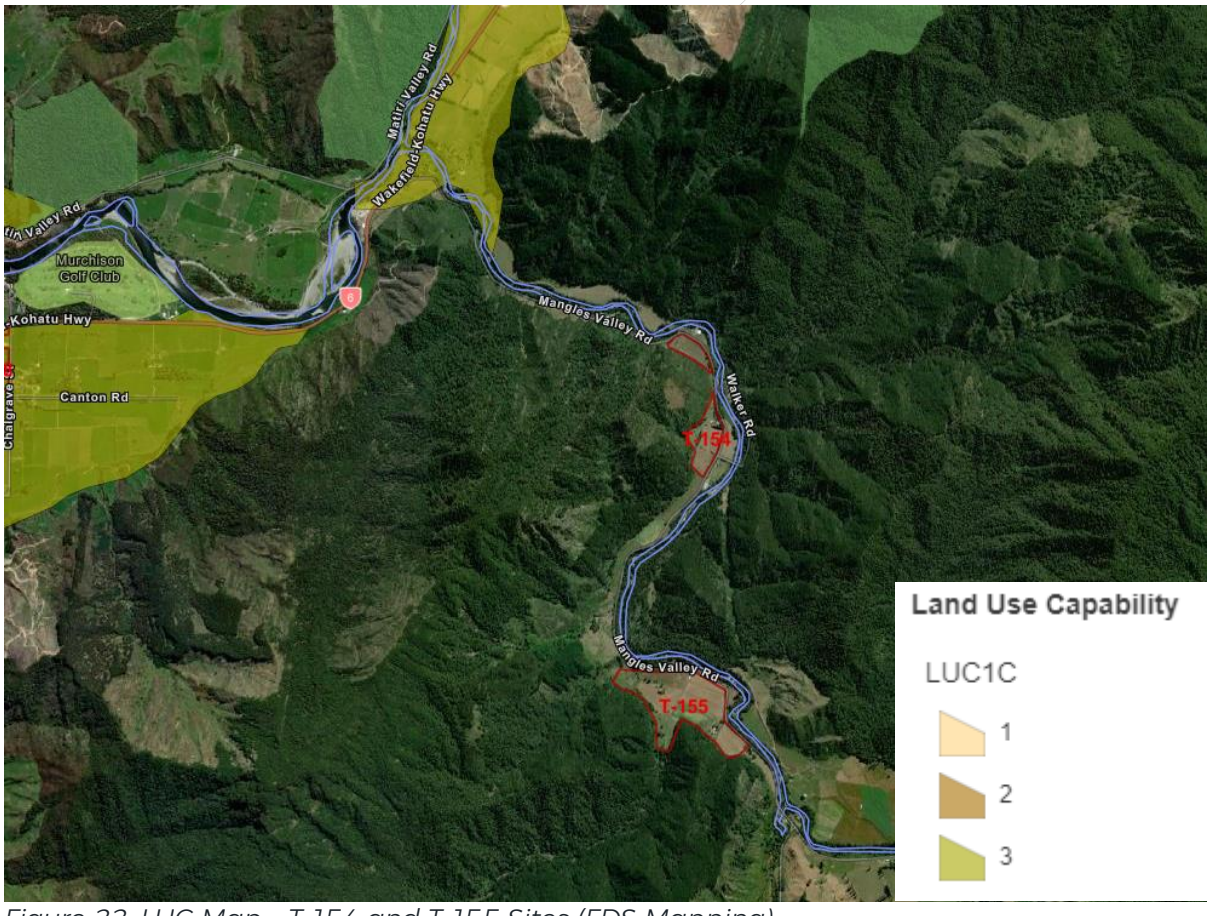


Figure 22: LUC Map – T-154 and T-155 Sites (FDS Mapping)

Under the Productive Land Classification undertaken in 1994:

- The growth area on the eastern side of Fairfax Street (T-37), 65 Hotham Street, T-154, T-155, T-156, and T-175 are classified as 'D'
- The growth area on the western side of Fairfax Street (T-146) is classified as 'F', indicating that it is not highly productive.

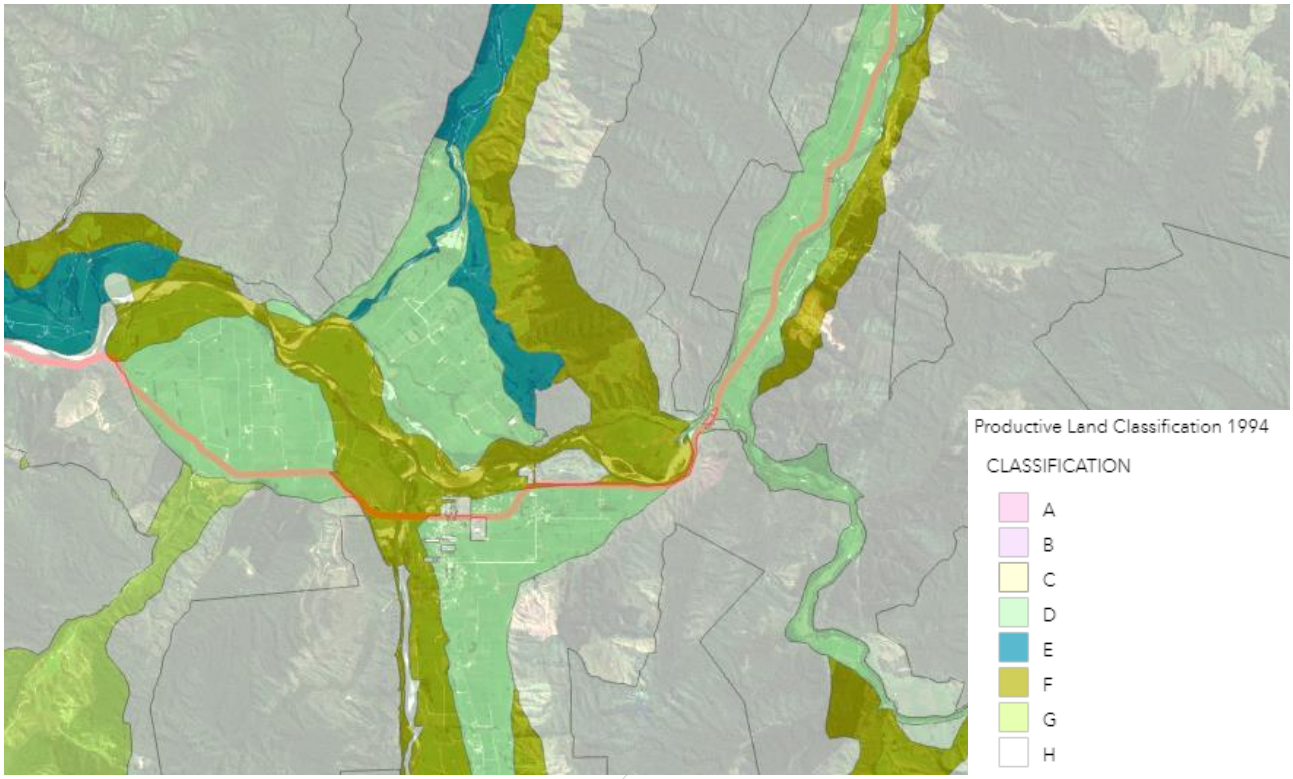


Figure 23: Land Productivity Classification Map 1994 (Local Maps)

Under the Productive Land Classification undertaken in 2021:

- The growth area on the eastern and western sides of Fairfax Street (T-37 and T-146), 65 Hotham Street, T-154, T-155 andT-156 are classified as 'D'
- T-175 is classified as 'F'

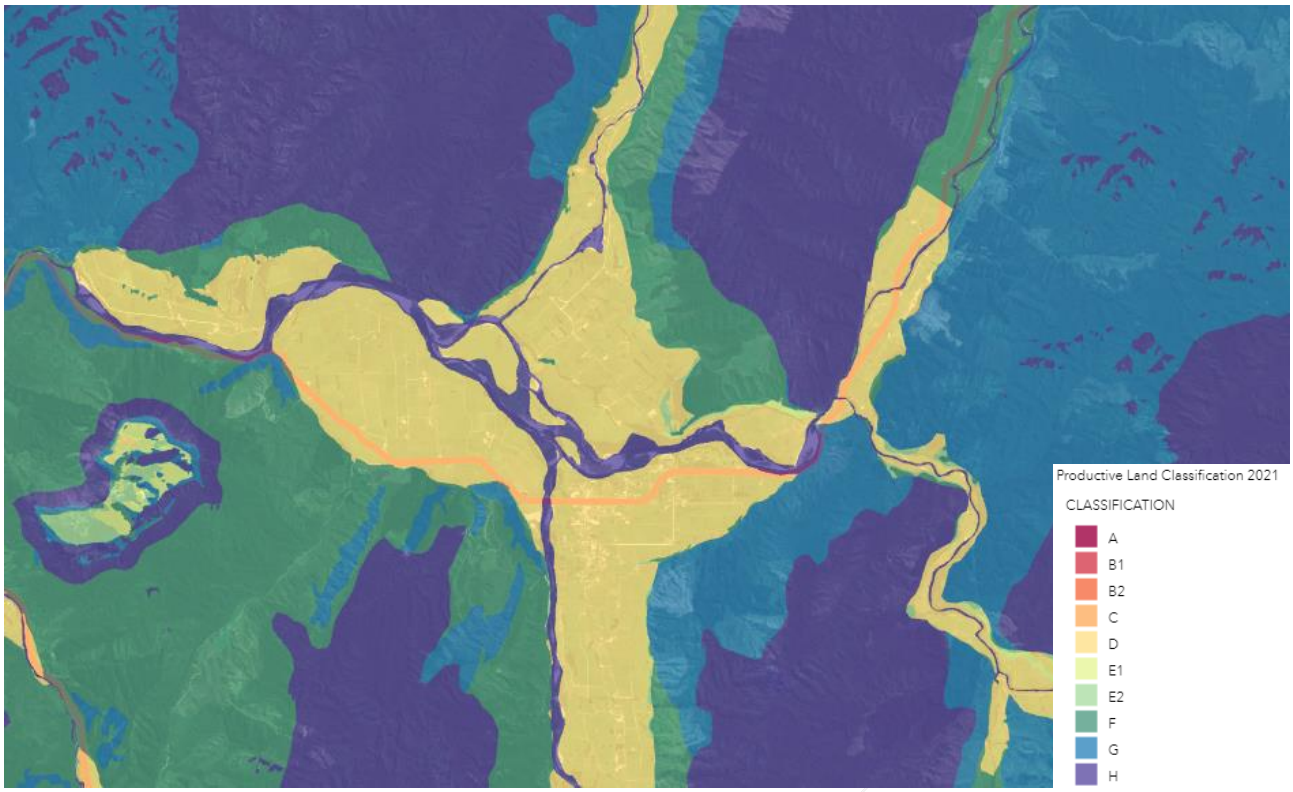


Figure 24: Land Productivity Classification Map 2021 (Local Maps)

The productive capability of the residential growth areas is limited due to adjoining residential areas, the existing land use (T-146 is used as a holiday park), and existing fragmentation (not large enough to be highly productive) (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022). The productive capability of the rural residential growth area is limited due existing fragmentation, and physical constraints (hills and waterways) (Mirka Langford, Senior Resource Scientist – Land and Soil, meeting 19 January 2022).

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