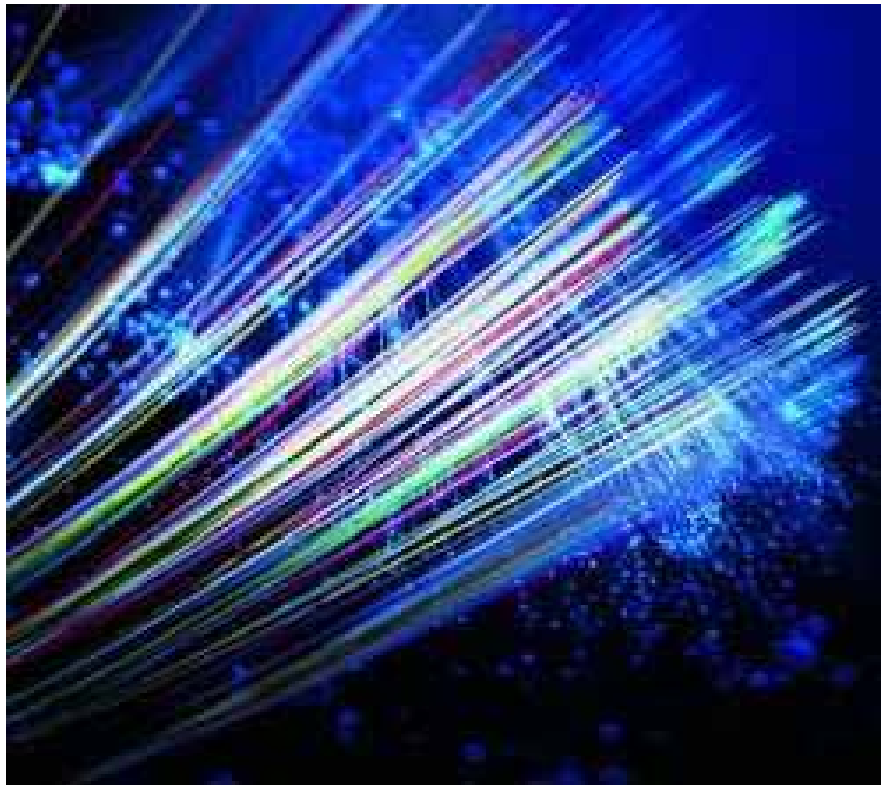




Wanganui Broadband Strategy



Wanganui District Council Strategy

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1. Introduction

Ultra fast broadband is broadband that easily allows users to do the things they want to do. An ultra fast broadband network will deliver broadband speeds at least 50 times faster than those currently available in New Zealand.

Within 10 years, upload speeds of 100Mbit/s and download speeds of 100Mbit/s will be the minimum standards for most New Zealand homes and businesses, some of whom are already receiving speeds of 1Gbit/s through ultra fast broadband networks.¹ An ultra fast broadband network will provide access to 'Triple Play' services – internet access, voice (telephone) and video (thousands of high definition television stations).

Wanganui currently suffers from a lack of affordable, high speed, high capacity broadband. Evidence indicates that inadequate broadband is already negatively affecting the district's schools, businesses and industry and the public sector. Inadequate broadband services also affect the type of businesses that Wanganui can attract, for example, film or design work requires high speed, high capacity broadband to operate.

Current commercial broadband services in Wanganui are profit based and focus on improving services where financial returns make investment viable. Due to the high cost of developing base broadband infrastructure (in particular trenching costs for laying fibre) the commercial sector is unlikely to meet the current or future broadband needs of the Wanganui community.

For Wanganui to enjoy the wider economic and social benefits of high speed broadband, public investment in broadband infrastructure coupled with strong leadership is required. The Government's \$1.5B investment in ultra fast broadband infrastructure recognises the need for public investment and aims to connect 75% of New Zealanders within ten years. Wanganui District Council (Council) aims to facilitate Government investment in ultra fast broadband in Wanganui, so that the District is connected as quickly as possible.

The introduction of an ultra fast broadband network must be supported by quality education programmes in order to maximise the benefits to the Wanganui community. This will ensure that Wanganui people are aware of how improved broadband services could enhance their business, organisation or personal life.

This draft Broadband Strategy covers Council's vision, drivers, principles, strategies and benefits of accelerating fibre to the premises in the Wanganui District.

2. Rationale for Council's involvement

There are five key reasons why both central and local government need to take an active interest in the future of broadband.

- **The scale of investment required** – the laying of the fibre is expensive and investment is only likely to deliver returns over a long period of time. Government and councils work with intergenerational timeframes, whereas private companies require a return over a shorter period of time.
- **The likelihood of picking winners** – the private sector will pick the most lucrative markets and leave less viable markets without adequate service.
- **Economic and social benefits** – some of the benefits such as those to education or health may not be directly translated into monetary savings or may have long pay back periods that the private sector is not prepared to factor into their business cases..
- **The presence of sunk investments** – The existing copper and fibre network represents a significant asset for the incumbent telecommunications firm. Delaying the roll out of an ultra fast broadband network maximizes the returns from existing

¹ New Zealand regional Fibre Group, <http://www.nzrfg.co.nz/fibre-qa>

investments and as a result new investment is likely to be held off for as long as possible.

- **Supply and demand** – Current supply does not meet current (let alone future) demand.

3. District Vision and Strategy

3.1 Community Outcomes

The development of a high speed and capacity broadband network contributes to all the Community Outcomes in the following ways:

1. **A healthy community** – e-health initiatives will improve access to and quality of healthcare services.
2. **A safe community** – community security services enhanced through Closed Circuit Television (CCTV); community safety promoted through internet campaigns; and mobile technology services for people away from home who need to access emergency services.
3. **A prosperous community** – economic development and innovation opportunities will be enhanced.
4. **A well connected community** – enhanced internet connections provide social and economic benefits, similar to those provide by roading infrastructure – a virtual highway.
5. **A community where people work together** – e-governance opportunities
6. **A community with quality education** – e-learning opportunities.
7. **A community with well developed amenities and recreational opportunities** – the community and particularly youth, will benefit from enhanced entertainment opportunities.
8. **A community with identity** – Community access to quality information about Wanganui; Promotion of Wanganui to the community, New Zealand and the world;
9. **An environmentally sustainable community** – the potential of working from home will reduce pressure on the transport network, reduce reliance on fossil fuels consumption and provide access to green technology information..

3.2 Family-friendly Wanganui

Council's vision for the District is to be the preferred place for families to settle and live and to make Wanganui home.

Council's strategies for achieving its vision are also drivers for improved broadband services in the District. Strategies for achieving the District's vision include:

Economic opportunities

- Identify and develop economic development initiatives
- Improve business and industry growth, investments and performance
- Facilitate training and education opportunities
- Promote and support the tourism sector/Regional Tourism Organisation functions
- Promote and support events
- Encourage and support the uptake of technology that assists economic development

A good image and sense of identity

- Undertake research aimed at attracting families
- Promote the quality of life in Wanganui – climate, travel benefits, family-friendly policies

Good health care services

- Advocate for retention of full hospital services
- Assist with the recruitment of obstetricians, paediatricians and midwives

Connectivity

- Facilitate good urban design
- Facilitate the provision of digital infrastructure to support families, schools and businesses

Quality education

- Promote quality schools and preschools
- Facilitate and support tertiary educational opportunities to attract youth to Wanganui

Quality and affordable housing in contemporary family neighbourhoods

- Ensure District Plan zoning and rules advance family-friendly interests
- Encourage environmental sustainability of neighbourhoods

Recreation and culture

- Provide and maintain parks, recreational and sporting amenities and facilities that meet the needs of all age groups and abilities.
- Encourage development of a vibrant Central Business District - shops and cafe scene, riverfront development

4. Broadband Vision

Council's vision for this strategy is:

“To ensure extensive, future-proofed, open access, ultra-fast broadband infrastructure is available throughout Wanganui District as soon as possible, in order to seize the associated economic, educational and social benefits for Wanganui District.”

5. Principles

The following principles underpin this Strategy:

- **Provide leadership**

Council will lead the drive for developing a future-proofed, open access ultra-fast broadband network in Wanganui.

- **Ensure fair competition**

Fair competition among providers is a key component of affordable, ultra-fast broadband. Broadband infrastructure developed through this strategy should be open access².

- **Provide access for all**

Network design will aim to make ultra fast broadband available and affordable to as many end users as possible. Closing the digital divide is a key aspect of providing access for all.

- **Future-proof the network**

The network will be future-proofed. This means that Layer 1 (dark fibre³) infrastructure will be designed to support advances in technology as they become available.

- **Ensure efficiency**

The network will use existing infrastructure, including poles for overhead deployment, and planned civil works where possible to avoid duplication and maximise resource use.

- **Educate the community**

² Open access refers to equitable, non-discriminatory access to Layer 1 or Layer 2 of the network to increase wholesale and retail competition and therefore increase the available options for end users.

³ Dark fibre refers to fibre optic cable with no service running through it – the base infrastructure for a fibre network.

Knowledge of how ultra fast broadband can assist various sectors of the community is crucial for gaining the maximum economic and social benefits of a high speed network.

- **Actively seeking partners and funds**

Council will actively seek external funding and partnerships to assist in developing an extensive, future-proofed, open access, ultra fast broadband infrastructure network.

6. Strategies

6.1 Provide leadership to ensure Wanganui is one of the first districts to offer ultra-fast internet

Council will provide strong leadership to ensure the vision for broadband in Wanganui is achieved.

Council is working with Crown Fibre Holdings and other organisations to realise the opportunity for open access broadband for the community. Council is in a good position in the community to garner support for an ultra fast broadband network and assist with regulatory issues.

6.2 Advocate for an open, future-proofed network

The critical elements for an ultra fast broadband network incorporate:

- **Open access** – that stimulates competition among services.
- **Symmetrical capacity** – to allow interactive two-way communication at the same upload and download speeds.
- **Ultra-high capacity** – to support advanced services, remove capacity constraints and allow significant spare capacity for growth
- **Affordable access** – access for the whole community, both urban and rural.

The network needs to be future proof and address Wanganui's infrastructure needs over at least the next 20 years. The aim will be to initially supply a minimum of 100mb/s, with access to 1 Gigabit connections and dark fibre, where appropriate, and with the scalability to provide higher speeds and capacity in the future as technology advances.

6.3 Prioritise the rollout of the network

Map – Appendix 1

Initial six stages of rollout - urban

- **Develop a 22km fibre backbone in the urban area**
- **Connect Central Wanganui**
- **Connect Castlecliff**
- **Connect Aramoho**
- **Connect Wanganui East**
- **Connect St John's Hill/Springvale**

Connecting the whole District – rural and backhaul⁴

- **Connect rural Wanganui**
- **Develop excellent backhaul links**
- **Initiate immediate access to wireless technology where possible**
- **To have high speed broadband throughout the entire district in future**

Urban rollout - six stages: The strategy aims to connect the following sectors first: education; health; business and industry; central and local government agencies. (The

⁴ Backhaul refers to the connections between Wanganui and the rest of New Zealand – e.g. the fibre optic 'road out of the district'

Government refers to this as 'MUSH'– Municipalities, Universities, Schools and Health plus business).

MUSH, business and some tranches of residential were identified as priority sectors for connection to ultra fast broadband, in the Government's \$1.5B Ultra Fast Broadband Initiative (UFB). The first three stages of the urban rollout catch most of Wanganui's MUSH and business sites. Residential areas will be included in the urban rollout in order to maximise connection to the network. Uptake levels are crucial to the financial success of the network.

Rural rollout: Rural areas are expected to be connected as part of the Government's Rural Broadband Initiative (RBI). The RBI intends to connect 97% of rural schools to fibre, enabling speeds of at least 100mb/s, with the remaining 3% to achieve speeds of at least 10mb/s.

Wanganui Rural Community Board and Council have informed the Government via a submission to the RBI, that the focus on rural schools picks up some of Wanganui's rural areas but many are not caught under the RBI. As the rural area is a significant driver of economic growth in Wanganui, Council and Wanganui Rural Community Board will continue to work with the Government, investors, industry and the rural community to ensure all of Wanganui District is connected to ultra fast broadband.

The areas set out in the RBI invitation for Expressions of Interest do not reflect council or health board zones. Wanganui's RBI District includes Bulls, Palmerston North and Kapiti and some of Ruapehu. Council is interested in neighbouring districts in terms of backhaul and also where economies of scale make collaboration sensible.

Rural areas may be connected to wireless technology in the short term, or in areas where fibre is too expensive. Rural wireless technology could also supply some backhaul capacity.

Backhaul: Council considers that connecting Wanganui to the world is crucial for the success of an ultra fast broadband network in the District; the principles in this strategy apply not only to connecting the District internally but also to connecting Wanganui to the rest of New Zealand and the world. This means that backhaul links from Wanganui should be future proofed, open access, affordable and efficient.

6.4 Facilitate education programmes to ensure the full potential of broadband is realised in Wanganui

Council will work with key stakeholders to ensure education programmes are developed that assist the community in becoming computer and internet literate and innovative and confident in using the latest that technology has to offer. This will help ensure Wanganui gains the greatest benefits from improved broadband services in the District.

6.5 Develop partnerships with central government and the public sector

Council cannot achieve the Broadband Vision on its own. Council will work with Government, investors, industry, business and the community to achieve the Broadband Vision.

The Government intends to provide high speed broadband to 75% of New Zealand and based on population statistics, including Wanganui. The key issue for Council is not whether Wanganui will eventually be connected to an ultra fast broadband network, but how to make Wanganui an attractive option for early connection to such a network.

7. Benefits of ultra fast broadband

BENEFICIARY	BENEFITS
Society	<ul style="list-style-type: none">• Innovation• Economic growth and productivity• Expanded human capital

Community	<ul style="list-style-type: none"> • Local economic growth • Efficient service provision • Access for under-served areas
Sectors:	
- Education	<ul style="list-style-type: none"> • e-learning provides opportunities for lifelong learning • Content rich learning material in schools • Ability to utilise virtual classrooms • Reduced costs to schools • Improved professional development opportunities for teachers
- Health	<ul style="list-style-type: none"> • e-health or telemedicine technologies will provide innovation of healthcare with improved healthcare at reduces cost by: <ul style="list-style-type: none"> - Facilitating better access to accurate and timely patient care data, through electronic health records reducing the amount of costly medical tests. - Improving video conferencing enabling remote diagnostics and consultations reducing time delays and access to healthcare advice. - Real time imaging transmissions can enable immediate second opinions on MRIs, CT scans or x-rays. • Enable large files e.g. x-rays to be sent • Facilitate liaison with experts in other centres • Improve professional development • Attract medical professionals to the district
- Business and industry	<ul style="list-style-type: none"> • Local economic development, innovation • Attract and retain businesses, investment and talent to enable the district to grow and prosper. • e-business opportunities connect businesses to international markets • Potential for media and research firms to develop. • Contracts able to be delivered locally • New ways of working, not dependent upon location. • Improved job training and employment options • Aid disaster recovery
- Governance	<ul style="list-style-type: none"> • e-governance opportunities reducing costs and increasing community engagement
- Safety	<ul style="list-style-type: none"> • Security services (CCTV)
- Environment	<ul style="list-style-type: none"> • Working from home will reduce pressure on the transport infrastructure.
Individuals	<ul style="list-style-type: none"> • Improved quality of life • Convenient access to information and other services • Assisting those with disabilities and access to services from home • Access to entertainment such as movies and television, YouTube, Flickr (photos), music • Connecting with others through email, chat, voice , telephone services and file sharing with a broader range than dial-up. • On-line shopping which could include virtual clothes fittings • Education and skills upgrading

8. Council's role

- Work with central government and Crown Fibre Holdings to gain funding and priority status for the Wanganui network;
- Provide Council owned infrastructure and/or land for the Wanganui network;
- Ensure Council regulations assist in the efficient and cost effective rollout of the Wanganui network;
- Undertake community engagement to increase uptake and ensure the success of the Wanganui network;
- Become an anchor tenant of the Wanganui network
- Act as a neutral broker and facilitator to work with Crown Fibre Holdings, investors, providers, and end users to bring supply and demand together
- Potential to contribute financially to the Wanganui Network

9. Financial implications

Ultra Fast Broadband Initiative

The Government has set aside \$1.5 B for its Ultra Fast Broadband Initiative (UFB). The UFB funding is to be distributed through Crown Fibre Holdings Limited and will contribute up to 100% of the 'in the street' costs of ultra fast broadband networks across New Zealand. The Government's objective is to connect 75% of New Zealanders to an ultra fast broadband network by 2020. The UFB requires partners to commit to connecting any given region and funding the cost of the connection from the street to the premise. This represents an approximate 50/50 funding arrangement between Crown Fibre Holdings and partners. Partners are required to buy back Crown Fibre Holdings shares in the network as the partners connect customers.

Council would rather not build the Wanganui ultra fast broadband network; however Council can make Wanganui a more attractive prospect for connection for both Crown Fibre Holdings and potential UFB partners. This means that Wanganui would be at the front end for UFB funding and become connected quickly. Council will support Crown Fibre Holdings and potential partners to connect Wanganui District to ultra fast broadband.

Council will consider laying ducts, ready for fibre, in the following circumstances:

- Where there are no overhead lines; and
- There is a street opening (or other appropriate trench) for other works; and
- There is no existing publically owned infrastructure.

Putting ducts in when the street is already opened for other works is the most cost effective and efficient approach to laying ducting. This ducting can then be sold or leased to the new Wanganui network owner. Putting in ducts while the street is already opened also reduces the inconvenience the community suffers through having the same streets dug up continuously.

Council considers that the network would most effectively be built in the following stages, because uptake would be maximised, community benefit would be maximised and it aligns with Council's Growth Strategy⁵:

Stages:

Build backbone (22 kms)
Central
Castlecliff
Aramoho
Wanganui East

⁵ Council's Growth Strategy sets out a planned approach to urban growth in Wanganui, in order to maximise the benefits of existing and future infrastructure.

St Johns Hill/Springvale

(Base Map – Broadband fibre with poles – appendix 1)

There are a variety for options for design and build, including the use of existing overhead networks; underground ducting and shallow trenching.

In the future Council may choose to contribute financially to the Wanganui network and be involved as a network owner; however, at this stage Council intends to do everything it can to support others in this role.

10. Implementation

An implementation plan has been developed that includes specific network design, costs and timeframes. At this stage the details are confidential, due to undertakings made by Council to Crown Fibre Holdings and commercial sensitivity aspects. Other actions for implementation include:

- Working with Government, Crown Fibre Holdings and potential partners to ensure Wanganui is included in any initial allocation of funding.
- Identifying potential partners to own and build the network.
- Liaising with key stakeholders – education, health, business and industry, government sector and the community to encourage uptake.
- Undertaking a survey of local businesses and industries to determine current broadband needs And level of education required to maximise the benefits of an ultra fast broadband network.
- Educating and promoting the benefits of an ultra fast broadband network to the community.
- Developing a monitoring and evaluation plan.
- Undertaking network design work.
- Developing appropriate codes, policies and plans to facilitate the roll out of broadband.
- Developing consistent engineering standards.

10.1 Network design

The following steps have been undertaken or are being examined, in order to inform the network design:

1. Map places that need to be connected (complete)
2. Refer to the growth strategy – consider issues around Heads Road industrial area and other key commercial areas (complete)
3. Map/overlay existing infrastructure (ongoing)
 - Ducts
 - Overhead networks
 - Decommissioned gas and water pipes
 - Any other infrastructure that could be used as a conduit for open access ducting and/or dark fibre
4. Overlay Council's civil works programme and piggy-back on street opening work (ongoing)
5. Map/overlay existing gaps (complete)
6. Develop a fibre backbone and stages for most effective network rollout (complete)
7. Examine the Government's \$300M Rural Broadband Initiative (RBI) to ascertain areas likely to be connected and areas likely to be excluded under the RBI
8. Develop a plan for connecting those rural areas not included in the RBI.

10.2 Other methods

Other methods for enabling the provision of ultra fast broadband in Wanganui include:

1. Develop an engineering code or District Plan rule that requires developers of new subdivisions to install future-proofed ducting and/or dark fibre in new subdivisions. The code could specify Fibre to the Premises (FTTP) as a requirement for greenfields development.
2. Develop an engineering code that requires any brownfields redevelopment or key subdivision maintenance to install future-proofed ducting and dark fibre.
3. Develop an amendment to Streets Infrastructure Bylaw 2008 to include requirement that when Council is notified of a street opening Council can choose to install future-proofed ducting and/or dark fibre.
4. Examine whether the District Plan should allow for shallow or micro-trenching.
5. Undertake a plan change to allow new networks to be deployed overhead on existing poles.

10.3 Engineering standards

Compliance with national standards and the development of local standards is important to ensure the effectiveness and efficiency of the network. The following standards need to be considered:

- Examine the new *National Code of Practice for Utilities Access to Road and Rail Corridors*. This is an industry led initiative to manage utility access to road and rail corridors under one code. Local authorities have been involved in the development of the code.⁶
- Examine the Government's National Environmental Standards for telecommunications facilities (NES), which set new, national standards for permitted activities under the Resource Management Act. NES overrides existing district plans. (District plans will be able to set specific conditions within the NES, such as colour of cabinets.)
- Keep a watching brief on Telecommunication Users Association of New Zealand's (TUANZ) work with the Government to develop national interoperability guidelines.⁷
- Develop a policy and a set of standards and specifications for installing ducting and fibre, for example: Pipe size, distance from (or proximity to) other infrastructure, mapping, connections and so on. Ensure that any policies align with national codes and standards.
- Accurate mapping of new infrastructure and maintenance or upgrades (or any other relevant changes) to infrastructure should be a key aspect of an engineering code and should align with Council's Geographical Information System and Asset Management Plans.

11. Monitoring and Evaluation

Develop a monitoring and evaluation plan to measure the success of this strategy. Possible measures of the effectiveness of the strategy in delivering effective broadband infrastructure could include:

- Use of network
 - Surveys administered – success demonstrated by an increase in the network's use
 - Success demonstrated by a percentage increase in end users
 - Success demonstrated by providers using the network
- Understanding of the network's application

⁶ <http://www.nzuag.org.nz/national-code/>.

⁷ TUANZ *Towards a National Digital Architecture*, 3 November 2008

- Surveys administered – success demonstrated by increased understanding of broadband opportunities within the business, education and other relevant sectors
- Network development
 - Success demonstrated by adherence to scheduled start and completion dates
 - Success demonstrated by adherence to budget parameters
- Project funding
 - Success demonstrated by the securing of funding

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APPENDIX 1: BASE MAP BROADBAND FIBRE

