



Fact Sheet: Agreement with Enable Networks

1. Introduction

The Government's objective for the Ultra-Fast Broadband (UFB) initiative is to accelerate the roll-out of ultra-fast broadband, deploying optic fibre infrastructure to 75 percent of New Zealanders by the end of 2019. The rollout is concentrating until December 2015 on priority broadband users such as businesses, schools and health services, plus greenfield developments and certain tranches of residential areas.

For the purposes of the UFB initiative, having access to Ultra Fast Broadband is taken to mean the availability of broadband services at a speed of 100 Megabits per second (Mbps) Downstream (from the internet to the user) and 50 Mbps Upstream (from the user to the internet). This product will be available for use in the home, while priority users will be able to access even faster speeds.

By way of comparison, the current average internet speed in New Zealand is 3.4 Mbps, ranking New Zealand 27th in the world in terms of Internet speeds¹. Similarly, New Zealand is ranked 24th in a worldwide study of overall broadband quality (measuring speed and technical measures such as latency)². Broadband speeds accessed by many schools are generally 2Mbps or less. Most business and health premises use broadband over copper, not optic fibre, with a maximum symmetric speed of 10Mbps. Such speeds can pose a real restriction on the ability to be highly responsive and work at scale in business, provide modern patient care and deliver e-learning.

This document covers the delivery of UFB in partnership with Enable Networks Limited (**ENL**). If you live in Whangarei, see the fact sheet for Northpower Limited (<http://is.gd/xBGb9I>). If you want to find out about UFB in Hamilton (including Te Awamutu and Cambridge), Tauranga, New Plymouth, Wanganui, Hawera and Tokoroa, see the fact sheet for Ultrafast Fibre Limited (<http://is.gd/mP5tlp>). For other large towns and cities in New Zealand, see the fact sheet for Chorus (www.crownfibre.govt.nz – see Publications & Tenders / Resources).

¹ Source: Akamai State of the Internet, Q4 2010

² Source: Said Business School, Oxford University, Broadband Quality Score, Sept 2010

2. About The Relationship Between CFH and Enable

Enable Networks Limited will act as a Local Fibre Company (LFC) under the UFB initiative, covering Christchurch (including Rolleston and other satellite areas) and Rangiora. Christchurch City Networks Limited (**CCNL**) and Crown Fibre Holdings (**CFH**) are partners in the LFC. CCNL, which trades as Enable Networks at present, is a wholly owned subsidiary of Christchurch City Holdings Limited (**CCHL**).

CCNL's existing fibre assets, comprising approximately 8,300 premises passed with over 300km of fibre infrastructure, will be vended into the venture.

CFH as well as investing in ENL will take a governance role to support the rollout. CCNL and CFH will provide equal numbers of Directors to the ENL Board, which will have an independent Chair.

ENL intends to appoint CCNL as its contractor to undertake the design and build of the UFB in the assigned candidate areas. CCNL may contract with other suppliers and contractors to assist.

CFH funds the cost of fibre "passing", (the connection that runs down the street) as it is completed and signed off to specifications, and then it becomes operational. The partner, CCNL funds each "drop", the connection from the premise to the fibre in the street, as it hooks customers up.

CFH's contract with CCNL uses an Alternative Commercial Model, as contemplated by the UFB Invitation To Participate (ITP), while retaining an overall pro rata per premise funding allocation.

ENL may then contract with Retail Service Providers (**RSPs**) such as Vodafone, CallPlus, Orcon and so forth in the provision of wholesale services. The LFC will operate only at the wholesale level - it doesn't sell services directly to end users. In turn, RSPs use the LFCs' wholesale products to create retail UFB-based services which are sold to residents, businesses, schools and health premises.

The National Maori Rural Broadband Initiative (RBI) Working Group (Nga Pu Waea) has been established with the purpose of providing advice about Maori development opportunities associated with the RBI. CFH and its partners have agreed that the Working Group's scope be extended to cover the UFB Initiative. CFH and its partners will work together and with the Working Group in order to facilitate Maori development opportunities associated with the UFB.

Christchurch City Holdings and Chorus, a business unit of Telecom, have also agreed in good faith to work towards developing a partnership to bring their combined existing fibre networks and expertise to focus on the reconstruction and development of Christchurch.

3. Approximate Coverage Areas and Deployment Plans

ENL is partnering with CFH to deliver ultra-fast broadband to Christchurch (including Lincoln, Prebbleton and Rolleston) and Rangiora. Together these cover around 183,000 projected premises by 2020, which equates to 15.3% of the UFB Objective. Funding associated with the build is allocated pro rata from the Crown's overall funding for UFB.

The population figures are derived from Statistics NZ sub national population estimates for 2010. The premise counts are based on CFH premise definitions and estimates for 2020, as well as Ministry of Education data. Actual premises may vary once detailed deployment planning gets underway.

The build timeframes are indicative only and will be refined once detailed deployment plans are available. It's important to note that deployment timeframes are subject to a number of dependencies, not least being approvals and consents from local and regional authorities.

Approximate Christchurch and Rangiora Coverage Area:

The coverage area within Christchurch extends from Belfast and Harewood in the north to Parklands in the north east. Coverage at the southern boundary will include Sumner, Heathcote Valley and Lyttelton in the south east, extending to Halswell, Hornby South and Islington at the south west extremity. To the west of the city, coverage will extend to Avonhead and Russley. To the north of Christchurch there will be UFB coverage in Brooklands, Spencerville, Kainga, Kaiapoi and Woodend. Figure 1 below provides an overall summary of indicative coverage.

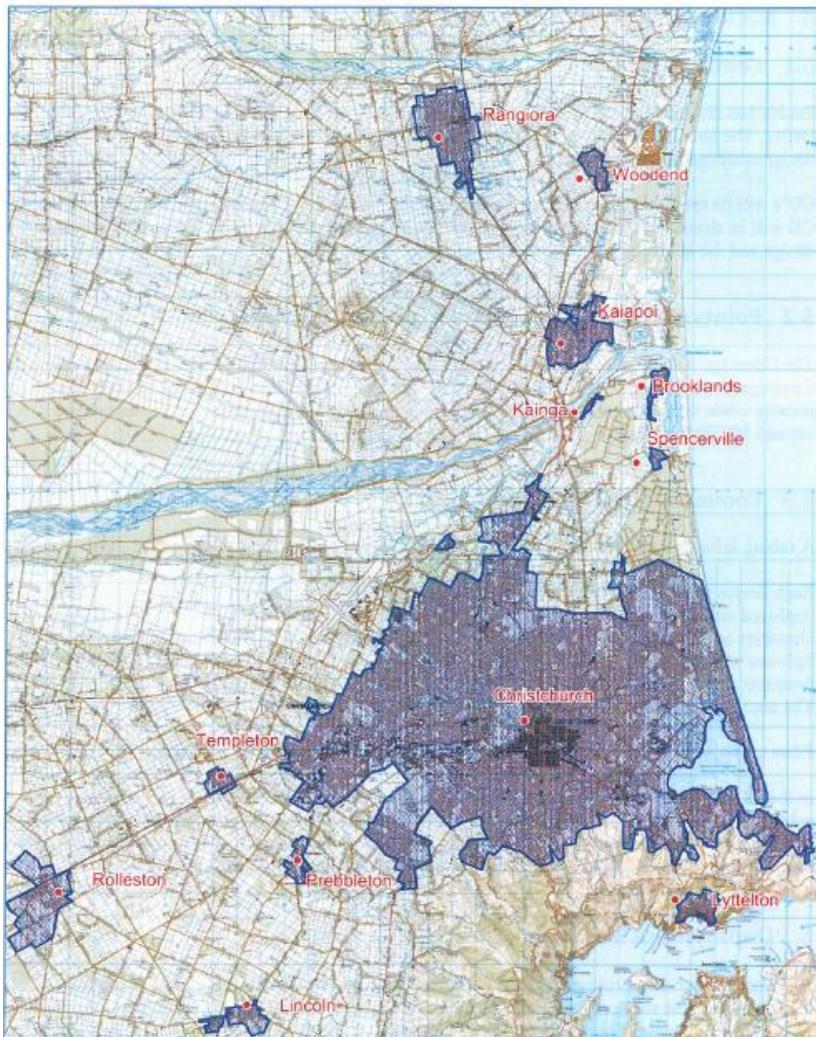


Figure 1: Overall UFB coverage: Christchurch, Rangiora, Rolleston and environs

In Rangiora, the indicative coverage area will align to the town boundaries, including the industrial area to the south of Southbrook Road. Business areas in Figure 2 below are shown in blue and UFB coverage areas in pink.

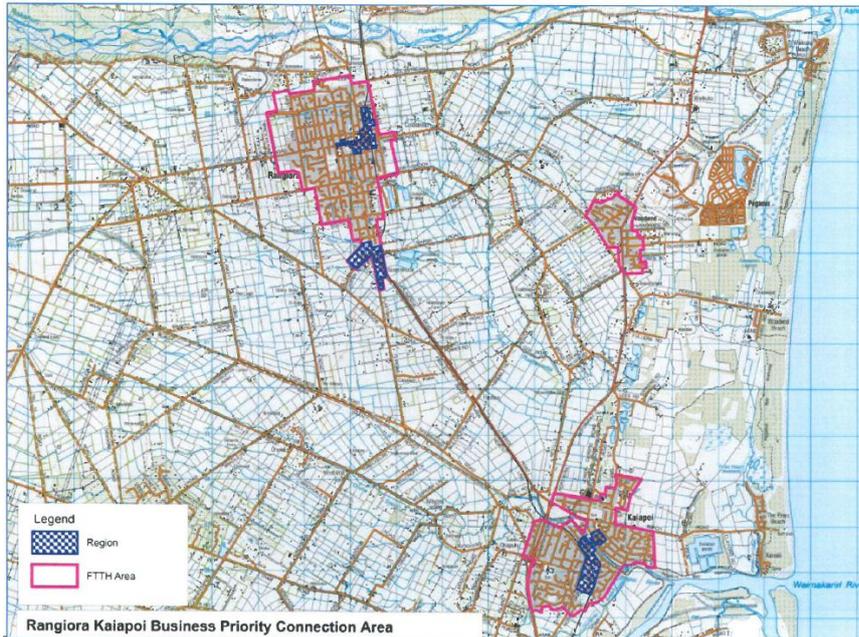


Figure 2: UFB coverage: Rangiora and environs

To the south of Christchurch, towns including Rolleston, Templeton, Prebbleton and Lincoln will all receive UFB. Business areas in the map below are shown in blue.

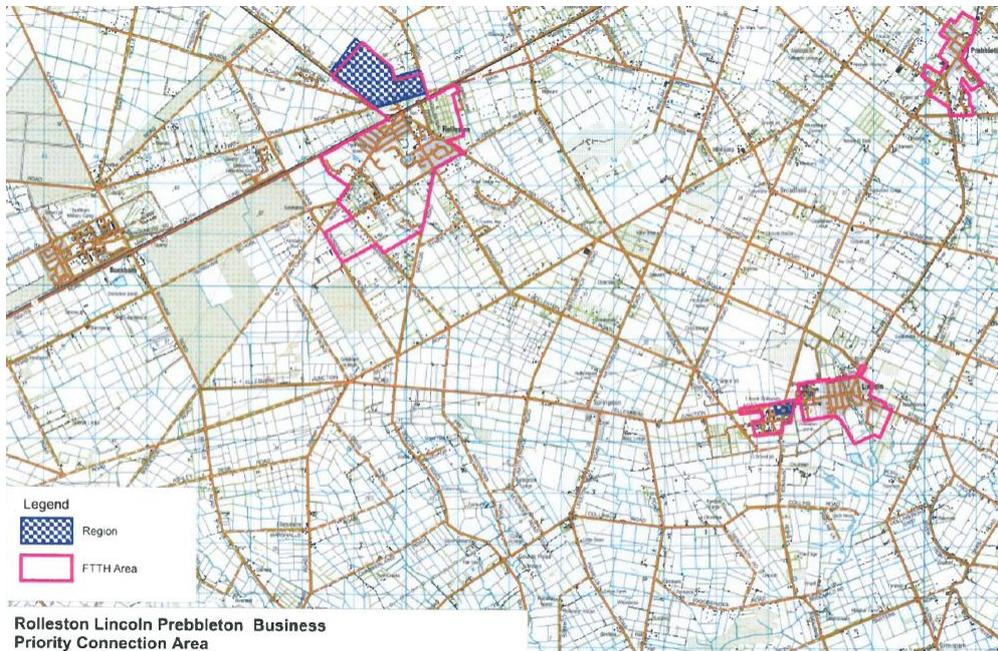


Figure 3: UFB coverage: Rolleston and environs

UFB Marketplace:

Christchurch (including Rolleston, Prebbleton and Lincoln)

A 2010 population estimate found a combined population of almost 388,400. The rollout will cover more than 7,000 business premises, some 170 schools and more than 1000 medical and healthcare services. Over 460 other premises of mixed use will also be covered.

Rangiora

An estimated population in 2010 of almost 10,000. UFB will be delivered to more than 280 business premises, at least 6 schools, and some 10 medical and healthcare services. More than 20 other premises of mixed use will also be covered.

Indicative Build Timeframe:

ENL expects to undertake a build programme spanning seven and a half years, with establishment and trial phases commencing in July 2011. The trial phase is proposed to cover around 500 premises.

Full scale deployment to residential & mixed use areas is expected to commence in Q2 2012, with around 22 deployment tranches each of around 6 months duration. Deployment will proceed concurrently in several tranches at any given time.

All priority segments (businesses, health premises and schools) will be covered by December 2015 in alignment with the Government's UFB policy.

4. Products and Pricing

Ultra-Fast Broadband (UFB) products are based on a "building block" approach. ENL will sell ultra-fast broadband components such as downstream bandwidth, upstream bandwidth and Committed Information Rate (CIR) to the requirements of RSPs. CIR is a guaranteed minimum rate of data transfer for priority traffic. EIR, or Excess Information Rate, is the accepted rate of data transfer for low priority traffic.

UFB pricing is at the **wholesale** level. End-users should bear in mind that prices of retail UFB-based services will reflect non-wholesale costs, such as national backhaul, international bandwidth, provisioning, billing and so forth. **The prices shown below are the price caps agreed between CFH and Enable.** Enable may sell their services at prices below or equal to the price caps, not above.

Prices are per month excluding GST.

The products described below are "templates" at a wholesale level. RSPs will take these product components, add elements under their own control such as national and international bandwidth (which drives data caps) to offer products to end-users.

Products for Home / Retail end users (GPON Technology)

The following products are designed for mass market usage by homes and small businesses.

Product	Upstream and Downstream Speeds	Committed Information Rate	How UFB Products Can Be Used	Wholesale Price Cap (2011)
<i>Entry level Consumer</i>	30 Mbps Downstream / 10Mbps Upstream	Minimum 2.5Mbps Symmetric	Upload a 30MB folder of photos in 24 seconds	\$37.50
<i>Entry level Consumer + HD Video</i>	10 Mbps Downstream only	10 Mbps Downstream only	Watch HD video stream	\$5.00 (2 nd channel \$2.50)
<i>Household 100Mbps</i>	100Mbps Downstream / 50Mbps Upstream	Minimum 2.5 Mbps Symmetric	Download a High Definition movie in <8.5 minutes	\$55.00
<i>Entry level Business</i>	30 Megabits per second (Mbps) Downstream / 10Mbps Upstream	Minimum 5Mbps Symmetric	Run simultaneous HD videoconferences & cloud computing	\$49.95

Additional Bandwidth:		Additional Ports:	
CIR 2.5Mbps	\$1.25 Down / \$2.50 Up	2nd Voice port	\$15
EIR 10Mbps	\$1.35 Down / \$2.70 Up	2nd and subsequent Ethernet port	\$10
		Wi-Fi port	\$2.50

Except in exceptional circumstances there will be **no one off Wholesale connection charge** for residential consumers to connect to UFB at a wholesale level.

ENL will offer an **entry level product**, price capped at \$37.50 per month. This product offers downstream bandwidth at 30 Megabits per second (Mbps) and upstream bandwidth at 10 Mbps. This is lower than the current price of 'Naked DSL', a wholesale copper product which supports ADSL2+ broadband services without a phone line, known in the industry as EUBA 40. This product has a Committed Information Rate (CIR) of 2.5Mbps - this offers approximately 60 times greater dedicated bandwidth than 'Naked DSL'. This product comes bundled with an Ethernet port and an ATA (POTS) port, and will support delivery of high quality telephony as well as broadband.

ENL will also offer a **High Definition Video product** with Downstream bandwidth of 10 Mbps and downstream CIR of 10Mbps, price capped at \$5.00. This product is designed to carry high definition video content such as premium TV. Retail Service Providers may choose to bundle this with the 30/10 entry level product to offer a "triple play" (broadband, telephony and video) product with a wholesale price of \$42.50.

ENL will also offer a **Household 100Mbps product**, price capped at \$55, providing 100Mbps download speed and 50Mbps upload. Like the entry level product this will have a CIR of 2.5Mbps.

With much higher Upstream and CIR components than current copper-based residential broadband products, the UFB products offer a vastly superior service at comparable prices to copper services.

Products for Corporate / Enterprise end users (Point to Point Technology)

Businesses (including health premises) will have access to 100Mbps Symmetric services, scalable to 1 Gigabit per second and above. Symmetric services feature equal allocations of Downstream and Upstream bandwidth. The following products are designed to be used by larger businesses, government agencies and so forth.

Product	Upstream and Downstream Speeds	Committed Information Rate	How UFB Products Can Be Used	Wholesale Price Cap (2011)
<i>100M Symmetric Business</i>	100 Mbps Downstream / 100 Mbps Upstream	CIR not bundled. Minimum 10 Mbps Symmetric CIR, then purchase in increments of 10 Mbps	Upload 100MB file in 8 seconds	\$380
<i>1G Symmetric Business</i>	1 Gbps Symmetric	As above	Send a radiology image (say 1GB) in 8 seconds	\$455
<i>10G Symmetric Business</i>	10 Gbps Symmetric	As above	Run massive data requirements across locations	\$1,355
<i>Dark Fibre</i>	Unlit	n/a	Depends on service provided	\$355

Additional Bandwidth:	
CIR 10Mbps	\$10 (Symmetric)
EIR 100Mbps	\$10 (Symmetric)

ENL will offer a suite of competitively priced business products, including dark fibre and premium Layer 2 services like 100Mbps and 1 Gigabit per second symmetrical services. For example, a 1 Gigabit symmetrical service will be priced capped at \$455, less than half the current minimum wholesale market price for such a service. The LFC will also offer ‘dark fibre’ services where the customer is provided with access to the raw fibre infrastructure.

Price caps ensure there will be no increase in prices for P2P services to 2019. In particular there will be no indexing of UFB price caps to CPI.

Products for Schools:

Schools are a priority segment for the UFB initiative, and will be able to access a range of services ranging in speed from 30 Mbps symmetric to 1 Gbps symmetric. Broadly speaking, UFB products for schools will be provided in a similar manner to business products. However, prices are lower than for businesses because of the Government’s 2010 decision to cover 100% of the cost of the fibre “drop” from a school’s boundary to its server room.

The following products have been designed in consultation with the Ministry of Education to be suitable for schools.

Product	Technology	Upstream and Downstream Speeds	Committed Information Rate	Wholesale Price Cap (2011)
<i>Schools 30Mbps</i>	PON	30 Mbps Symmetric	10Mbps minimum	\$50
<i>Schools 50Mbps</i>	PON	50 Mbps Symmetric	10Mbps minimum	\$60
<i>Schools 100Mbps (PON)</i>	PON	100 Mbps Symmetric	10Mbps minimum	\$150
<i>Schools 100Mbps (P2P)</i>	P2P	100 Mbps Symmetric	10Mbps minimum	\$275
<i>Schools 1Gbps</i>	P2P	1 Gbps down Symmetric	10Mbps minimum	\$330

For more information on the Government's UFB in Schools program, visit <http://www.minedu.govt.nz/theMinistry/EducationInitiatives/UFBInSchools.aspx>

5. Potential Benefits of UFB

In Business

Extending the reach of broadband services tends to be well-correlated with increasing business productivity and economic growth. World Bank analysis published in 2009³ suggests that investment in broadband infrastructure has a higher flow-through to nationwide productivity than other areas of telecommunications such as mobile telephony. Across a range of countries, this analysis showed a 10 percentage-point increase in telecommunications penetration via broadband would be expected to increase economic growth by between 1.2 and 1.4 percent.

In Schools

Schools that are already accessing fibre report a range of benefits such as greater engagement by students and improved learning outcomes, especially in literacy; more opportunity to create, collaborate and connect online; a greater range of subject choices for students via distance learning; more effective assessment practices and administrative efficiencies.

In Health

Potential uses of UFB include tele-health technologies which allow patients to self-monitor their health in the home with appropriate medical oversight; electronic patient health records which are securely stored and universally accessible to authorised medical practitioners; and electronic transfer of advanced medical images (teleradiology, telepathology etc).

³ Source: Broadband Infrastructure Investment in Stimulus Packages, Qiang, World Bank 2009: <http://www.worldbank.org/>

6. Deed of Undertaking

Each of CFH's partners has signed a **Deed of Undertaking** with the Crown. The Deed of Undertaking is an agreement between the partner and the Crown, in which the LFC provides binding "open access" undertakings regarding the application of non-discrimination and equivalence rules in the provision of wholesale telecommunications services offered over infrastructure funded by Crown co-investment. This is able to be enforced by the Commerce Commission.

The Deed of Undertaking relating to Enable is being updated to comply with the revised Telecommunications Amendment Bill and will be published shortly on the CFH website at www.crownfibre.govt.nz.

7. Technology

Both GPON and Point-to-Point technology are being used for UFB.

GPON means Gigabit Passive Optical Network (ITU-T G.984 standard) comprising an optical signal capable of delivering ~2.5Gbps downstream and ~1.2Gbps upstream over a single fibre that is then capable of being split into separate signals to deliver service to multiple customers. For UFB, GPON is split 1:24 enabling up to 24 customers to receive 100Mbps downstream and 50Mbps upstream.

As part of UFB deployment, ENL will have an obligation to maintain currency with international PON technical standards.

Point-to-point fibre optic connections provide a dedicated signal to a single premise and will be used for premium business and some priority users. This is capable of supporting speeds of up to 10 Gbps and is a high end connection.

8. About Enable Networks and CCHL:

Enable Networks (trading name for CCNL) build and operate Christchurch's newest optical fibre network providing dark fibre and metro Ethernet solutions around the city. Enable Networks uses world leading technology laid under the streets of Christchurch to deliver the first 'open access' fibre optic network infrastructure in Christchurch. The network connects directly to businesses, community organisations and technology service providers to transmit data at virtually unlimited speed. From leading retailers to prominent health service providers, many Christchurch businesses of all sizes are connecting over Enable Networks fibre.

Christchurch City Holdings Limited (CCHL), parent company of CCNL, is the wholly owned investment arm of Christchurch City Council, holding shares in eight trading companies and monitoring two further Council-owned companies and their subsidiaries.

9. For more information:

For more information, visit www.crownfibre.govt.nz

