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Wellington City Council

STRATEGY AND POLICY COMMITTEE 23 APRIL 2009

REPORT 3
(1215/52/IM)

SUBMISSION ON BROADBAND INITIATIVE

1. Purpose of Report

To recommend a Wellington City Council submission to the Government's proposal for a Broadband Investment Initiative (BII), and Council's likely role in the BII process.

2. Executive Summary

The Council has a longstanding interest in broadband because of its importance to our innovative, knowledge based economy and the wide range of benefits it promises across social, environmental and economic areas.

This is acknowledged in the Wellington Regional Strategy, and the Council's 2006 ICT Strategy and 2007 Broadband Vision. In addition the Council has agreed broad parameters for its likely role in broadband and ways that it can facilitate additional investment[1]. Most recently, the Council participated in a region-wide bid to the previous Government's Broadband Investment Fund, but that has now been superseded by a proposed Broadband Investment Initiative (BII) attached as **Appendix 2**.

The approach taken in the BII proposal is very consistent with the Council's policy work to date, i.e. a focus on open access fibre[2] and reaching key public users as a step towards fibre-to-the-home. A centralised Crown company would be set up to fund proposals from 25 regionally-based companies yet to be formed. There is an invitation to make submissions by 27 April 2009, and if the BII proceeds as planned an RFP would be released in mid-August 2009 with proposals due mid-October 2009.

The WCC submission attached as **Appendix 1** is supportive of the BII proposal and focuses on specific areas where it could be strengthened, or where the Council may have concerns. In particular:

- there will be a need to balance competitive tension generated in the bid process with a collaborative approach, as utilising existing fibre assets

[1] Strategy and Policy Committee papers of 1 March 2007, 10 April 2008, and 12 June 2008.

[2] see **Appendix 3** for definitions of key terms.

will be desirable;

- the urban areas identified in our region may create some issues - there are three, and they do not include some of our smaller urban areas;
- the Council recognises the very large potential benefits from broadband, but is likely to have additional objectives such as minimising visual pollution from aerial deployment, road disruption, and possible road damage from the extensive civil works that will be required.

This report also notes the likely role of the Council in this process as it progresses, i.e. a focus on use of existing assets, facilitation, and appropriate regulation – with less emphasis on direct investment.

The recommendations in the report are that the submission, with any amendments by the Committee, is agreed. A further paper will be brought to the Committee once the final form of the BII is confirmed.

3. Recommendations

It is recommended that the Committee:

1. *Receive the information.*
2. *Note the previous work in the broadband area that has set a policy framework for future Council involvement, particularly:*
    a. *Intervening to the least extent necessary.*
    b. *Promoting shared open access infrastructure to encourage electronics and services competition rather than infrastructure competition.*
    c. *Prioritising social and community benefits, followed by 'transformative' economic development benefits.*
    d. *Leveraging ownership and management of Council assets in a way that balances these and other Council objectives.*
    e. *Leveraging Council's existing expertise and experience in management of Rights of Way (RoW) and infrastructure networks.*
    f. *Making council assets available for nil or nominal charge, and conducting a shallow trenching trial (both subject to open access provisions).*
3. *Agree that the Council continues to work within a collaborative regional framework (consistent with the Wellington Regional Strategy, for developing broadband initiatives) in response to future requests for proposals under the Broadband Investment Initiative.*
4. *Agree that the submission on the New Zealand Government Broadband Investment Initiative, attached at Appendix 1, be forwarded to the Ministry of Economic Development.*

5. *Authorise the Chief Executive to make any changes to the submission required as a result of committee discussion, and to make editorial changes as required.*

6. *Note the likely timeframes for this process which are submissions by 27 April 2009, release of a Request for Proposals by mid-August 2009, and contracts for an initial round of successful bids by January 2010.*

7. *Agree that the Council role in terms of the proposed Broadband Investment Initiative will be as a facilitator of a regional project – which would include providing access to existing assets, appropriate regulatory settings for road and aerial access, and involvement in demand-side initiatives – but is unlikely to include an equity investment from the Council.*

8. *Note that a further paper will be brought to SPC for agreement to a specific proposal once the final form of the Broadband Investment Initiative is known, and the timing of the paper is likely to be September 2009.*

4. Background

Wellington City Council has a longstanding interest and active role in information and communications technology (ICT).

- In 1995 the Council, along with a number of other partners, set up CityLink to roll out fibre optic cable in the central city. That network has delivered significant benefits to customers in terms of very high capacity and cost-effective connections.
- In 1999 the installation of a new aerial network was permitted, now owned by TelstraClear, which has stimulated competition and better services.
- The Council provided seed funding for Wi-Fi hotspots along the Golden Mile in 2001, and developed a range of community broadband initiatives through the early 2000s.
- In 2008 the Council worked with CityLink on a project to install a fibre loop on the Miramar peninsular that linked sites from the Weta group of companies and provided high capacity linkages to the rest of the world.

These projects recognise the importance of first-rate communications technologies to the city's innovative, knowledge-based economy. As a relatively remote urban centre, Wellington has a great deal to gain from high speed broadband. The 2007 Wellington Regional Strategy (WRS), and the Council's 2006 Information and Communications Technology (ICT) Policy both identified broadband as a key enabler of economic, social and environmental benefits. In March 2007 the Council agreed a Broadband Vision that states:

> *"That, by 2012, all of Wellington City will have affordable access to an interactive and open broadband network capable of supporting applications and services using integrated layers of voice, video and data, with sufficient two-way capacity in the city, and out to the world, to meet the ongoing information and communications*

needs of the city's residents, businesses, investors and institutions."

A number of base assumptions underpin this Vision and role:

- further investment from existing companies will occur, but not fast enough to advance Wellington's competitive position
- fibre-optic should be the base technology – mobile and wireless will be complimentary
- fibre to the home is the end goal we are seeking, and next steps should be consistent with that vision
- open access to base level (passive) infrastructure should be a bottom line.

The WRS provides a mandate, and an integration point for the development of a regional approach – providing regional scale that would be more attractive in any proposal seeking government and private sector involvement. The objective of the broadband project is therefore fast, affordable, open access, ubiquitous broadband for the city and region – to maintain our international competitiveness.

To advance the Broadband Vision, the Council agreed in April 2008 to policy positions around ducting, access to Council assets, and advocacy.

In May 2008 the Government announced the Broadband Investment Fund (BIF), which included $250m for urban, and $75m for rural broadband projects. The Council submitted an Expression of Interest to the BIF along with all other councils in the region, CityLink and Smartlinx3. Although the bid successfully got through to through to the next stage, the BIF was put on hold on 13 November and has now been discontinued.

That was a significant issue for integrating with councils' LTCCP processes, which would have been possible under the BIF timeline. The hiatus has allowed the team dealing with this project to increase work on the areas of deployment technologies and policies that impact this area; and further development of uptake strategies.

5. Discussion

5.1 Broadband Investment Initiative

On 31 March 2009 the Government released a proposal for its $1.5b Broadband Investment Initiative (BII), with an invitation to make submissions by 27 April 2009. If this proceeds as planned an RFP would be released in mid-August 2009 with proposals due mid-October 2009. The thinking in the BII proposal is very consistent with the current position of local government including this Council, i.e.

- recognising the critical importance fast affordable broadband and the step

change needed to achieve it

- a long term ownership interest for the public sector in base layers only, and maintaining open access
- progressive rollout to priority users such as businesses, schools, health providers and initial residential – followed by fibre-to-the-home
- working with existing providers and avoiding excessive duplication of existing infrastructure.

Key features of the proposed Broadband Investment Initiative are:

- The Government's objective is accelerating the roll-out of ultra-fast broadband because of its strong belief in the fundamental importance of broadband to New Zealand's growth prospects. The primary focus is on fibre-optic technology.
- The goals are to make this available to 'priority users' - such as businesses, schools and health services, plus green field developments and certain tranches of residential areas - within the first six years, and to 75% of the population within ten years. This 75% effectively means all sites in every urban area down to the size of Oamaru.
- The Government will establish a Crown-owned investment company ("Crown Fibre Investment Co" or CFIC) to manage this investment across 25 urban areas, which will invest, alongside non-government co-investors, in "Local Fibre Cos" or LFCs. The 25 areas are:

Urban area	**Population**
Auckland (Auckland, Manukau, North Shore, Waitakere cities and Pukekohe)	1,230,606
Christchurch	360,768
Wellington (Wellington, Hutt, Upper Hutt and Porirua cities)	360,627
Hamilton Zone	155,262
Napier and Hastings	118,404
Dunedin	110,997
Tauranga	108,882
Palmerston North and Fielding	89,922
New Plymouth and Hawera	60,057
Kapiti and Levin	56,571
Nelson	56,364
Rotorua	53,766
Whangarei	49,080
Invercargill	46,773

Urban area	Population
Wanganui	38,988
Gisborne	32,529
Cambridge and Te Awamutu	29,646
Blenheim	28,527
Timaru	26,886
Taupo	21,291
Masterton	19,494
Whakatane	18,204
Ashburton	16,836
Tokoroa	13,530
Oamaru	12,681

- The CFIC will operate an open, transparent and contestable process to select partner shareholders for LFCs. It will seek proposals based on clear criteria including the amount of additional fibre coverage, proposed capital structure (including the parties' relative capital contribution requirements), commercial viability, consistency with government objectives, and the track-record of the partner.
- Differential equity rights may apply that initially favour the partner, i.e. the Government's shareholding may be subject to a lower rate of return than the partner for a period (for example, up to ten years). There will be no government commitment or guarantees regarding the rate of return that partners will receive.
- The primary 'product' offered by an LFC will be dark fibre and optionally a bitstream service (Ethernet could be one of the products offered under this). It will not provide retail services, and any potential participant with retail would need to divest it or be a minority shareholder only. A shareholders agreement between the CFIC and the partner will set out the specific objectives of an LFC.
- With the aim of reducing the cost of network deployment, officials (led by the Ministry of Economic Development) will be directed to report back on facilitating access to and use of fibre cable deployment on telephone and electricity poles; local authority-owned passive infrastructure such as ducts; micro-trenching; and fibre-optic cable 'drops' from the street-side into customer premises. This may involve codes of practice or regulatory or legislative amendments.
- The timetable for the BII is as follows:

Timetable	Date
Recommendations approved by Cabinet	end March
Public release of Cabinet paper for comment	end March
Comments on Cabinet paper due	end April
Cabinet report back on submissions, implementation details	end May
Appoint CFIC	mid June
RFP released by CFIC	mid August
Proposals due	mid October
Initial decisions by CFIC	Jan 2010
Further RFPs released by CFIC	To be determined by CFIC

The discussion paper for the Broadband Investment Initiative, along with a Question and Answer section, is attached as **Appendix 2** and is available at:

http://www.med.govt.nz/templates/StandardSummary____40551.aspx

5.2 Council's role in broadband

The 1 March 2007 and 10 April 2008 Strategy and Policy Committee meetings considered and agreed parameters for the Council's role in broadband, and a range of policy changes to facilitate more investment in broadband infrastructure:

Council's role:

- intervening to the least extent necessary
- promoting shared open access infrastructure to encourage electronics and services competition rather than infrastructure competition
- prioritising social and community benefits, followed by 'transformative' economic development benefits
- leveraging ownership and management of Council assets in a way that balances these and other Council objectives
- leveraging Council's existing expertise and experience in management of Rights of Way (RoW) and infrastructure networks.

Facilitating investment:

- making council assets available for nil or nominal charge, and conducting a shallow trenching trial (both subject to open access provisions)
- progressive establishment of a Council-owned duct network (subject to approval of full costings)

- continued development of a business model for possible direct Council investment in an urban fibre network
- advocacy to government for funding support, and for any new trans-Tasman fibre optic cable to land in Wellington.

The provisions around the Council's role are still valid and are discussed further below. Some of the policy positions around facilitating investment have been superseded by subsequent events.

In particular the announcement of the Broadband Investment Fund meant that progressive establishment of a Council-owned duct network was no longer appropriate, as the primary focus was on accessing funding from this source. A business model was under development when the BIF was terminated.

In terms of a new Trans-Tasman fibre-optic cable, this project is still under development with Kordia as a likely supplier. In discussions with government officials and Kordia they appreciate the rationale for a landing point south of Auckland to enhance national resilience. However their engineering investigations have shown the additional cost of a southern North Island landing would be significant because the cable would need to cross a major undersea trench. So a northern North Island landing outside Auckland would achieve resilience while avoiding that cost, and the likelihood of a Wellington landing point now seems low.

5.3 Submission on the Broadband Investment Initiative proposal

As noted above the key aspects of the Broadband Investment Initiative are very consistent with the objectives of the Council in this area. The submission is therefore supportive and most attention is given to some specific areas where changes could be useful or the Council may have particular concerns.

The Government's proposed framework for equity participation raises issues for governance structures and means that councils are less likely to be an investor and more likely to be a member of a proposal consortium or a facilitator in a resulting project. This is because the Government would take primary responsibility for the long-term public sector ownership interest of base-layer networks in this model.

In that scenario the need for direct council investment, to 'make a project happen', or to provide funding for additional objectives above and beyond those of central government, is dramatically lessened.

Councils will be involved in their capacity as managers of the road corridor (above and below ground), where any new broadband infrastructure is likely to be installed. There is also strong community interest in high capacity communication technologies and many councils are working with their communities on projects that utilise these. The council role is likely to include some or all of the following:

- Streamlining the rules and processes around rollout of above and below ground communications infrastructure (noting the multiple objectives of councils in these situations such as preserving visual amenity and minimising the amount of roadworks)
- Promoting the use of broadband in the community, and by schools, health providers and businesses
- Leveraging the significant existing buying power of councils as users of telecommunications services (along with other public sector users)
- Sponsorship of urban fibre networks designed to deliver on community objectives – such as connections to health and education providers (*viz.* the Wellington Loop for inner city schools)
- Allowing access to community assets such as council-owned buildings and ducting, on the basis this is used to provide open access networks.

As in the previous BIF process, this could be advanced through an 'open offer' of assistance in these areas to companies and organisations contemplating a proposal to the BII, with an emphasis on collaborative approaches. From our earlier processes we have established good relationships with the major potential companies, including the electricity lines companies whose possible role has recently been emphasised in the media

Since councils have agreed the importance of broadband regionally, and the need to work together to develop a successful process for the region, it is officers' intention to continue a joint broadband working group of all councils.

The regional areas identified in the proposal are problematic in this context. The cut-off is based on town size, which would exclude smaller centres like Otaki, Paekakariki, Featherston, Carterton, Greytown and Martinborough. In addition, one of the criteria for the groupings appears to be electricity lines company catchments[3]. This raises the following issues:

- Whether a proposal for all urban areas in Wellington region would be acceptable - we suspect this will be allowable if we do not expect any greater share of national funding;
- Alignment of Kapiti and Levin to areas to their north or south - including a standalone Kapiti/Levin bid there are four possibilities
- Similarly, alignment of Masterton to the rest of Wellington region or a standalone bid.

A major goal though this process is to achieve a shared base-level fibre network, but there are significant existing fibre assets that companies may not be prepared to relinquish easily.

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[3] i.e. Electra for Kapiti and Levin; Wellington Electricity Lines Ltd for Wellington, Hutt Valley, and Porirua; and Powerco for the Wairarapa.

Therefore the competitive nature of the RFP process may emphasise a 'winner takes all' situation where bidders who miss out are incentivised to compete with a new network. With the scale of investment involved, and the determination of the Government to achieve a new ultra-fast network, this competition is very unlikely to be successful but could slow down the transition to a common network. This is an issue which could be mitigated by including explicit evaluation criteria around shared network models.

And finally the Council is likely to have additional objectives such as minimising any visual pollution from aerial deployment, road disruption, and possible road damage from the extensive civil works that will be required. These are highlighted in the submission with the clear message that a constructive, partnership approach with councils is likely to be more fruitful than attempts to sweep away regulatory constraints. Those constraints are there for good reason but need to be reassessed with the latest information available and in light of the potential benefits of broadband.

An example of how the Council is working constructively in this area is our development of shallow trenching trials with telco partners.

5.4 Next Steps

With the agreement of the Committee, and any amendments, the submission will be forwarded to the Ministry of Economic Development. Over the following weeks we anticipate there will be preliminary discussions between interested parties as consortia begin to form in each region.

The Council expects to take an active role in this process, as well as continuing necessary associated work on RMA issues, road opening rules, and uptake strategies.

Once the final form of the BII is known mid-year, detailed planning can begin for a proposal or proposals within the Wellington region. A further paper will be brought to Strategy and Policy Committee to confirm the Council's involvement in any final proposal.

6. Conclusion

This report discusses the Government's recently announced Broadband Investment Initiative and recommends a submission to it, attached as **Appendix 1**.

Contact Officer: Paul Desborough, Manager Strategy Unit

Supporting Information

1) Strategic Fit / Strategic Outcome

The recommendations in the paper support Council's overall vision of Creative Wellington – Innovation Capital, and are a strong fit with the economic development strategy.

2) LTCCP/Annual Plan reference and long term financial impact

A provision of $200,000 has been made in the 2009-10 and 20010-11 financial years for planning and feasibility work for this area.

3) Treaty of Waitangi considerations

No direct implications for Treaty of Waitangi considerations.

4) Decision-Making

This is not a significant decision in terms of the Local Government Act 2002.

5) Consultation

a) General Consultation

None required at this stage. Earlier, non specific consultation indicated general support for a more active Council role in this area. Future involvement may require a new entity and any proposals would be assessed for the need to run a consultation process.

b) Consultation with Maori

The paper discusses a long term role for the public sector in an essential network infrastructure, with benefits that include digital inclusion of people in the 'new economy' and other social, environmental and economic benefits. Maori are likely to have an interest in this area and further consultation is planned.

6) Legal Implications

Specific legal advice will be sought on some aspects related to the recommendations.

7) Consistency with existing policy

The recommendations in the report are consistent with existing policy.

APPENDIX 1

Wellington City Council Submission on the Broadband Investment Initiative

Introduction

Overall the Wellington City Council strongly supports the principles and concepts in the Government's Broadband Investment Initiative (BII). The comments in the following submission are focused on areas where we believe the project could be improved or where there are areas of particular concern.

This submission is from Wellington City Council but we also work collaboratively with the other eight councils in our region, and have identified broadband as a key economic enabler in our Wellington Regional Strategy (WRS). The timeframe for submissions has not allowed a formal submission from all nine councils, but this paper is consistent with our regional position to date and it is our intention to continue work regionally on BII matters.

The Council:

- has a strong and longstanding interest in broadband;
- is the owner or regulator of road corridor, airspace and assets that will be needed for fibre deployment; and
- is a representative of community interests across many fronts.

We would like to continue to work closely with the Government and its officials to achieve better ICT outcomes for our region, and the nation. We view this as a partnership and believe there is a strong case for councils to be intimately involved in the development of broadband infrastructure as well as parallel efforts to lift uptake of ICT.

Our approach has always been to consider the issues for broadband with a range of policy objectives in mind - principally the enormous benefits in social, environmental and economic terms that will flow from broadband, but also the potential downsides from visual pollution, road disruption, and increased costs from damage to the road surface. This is discussed further below.

As requested our comments follow the headings in the Cabinet paper which form part of the discussion document.

1. Objectives and Principles

The thinking in the BII proposal is very consistent with the current position of local government including this Council, i.e.

- recognising the critical importance fast affordable broadband to our communities and the step change needed to achieve it
- a long term ownership interest for the public sector in base layers only, and maintaining open access
- progressive rollout to priority users such as businesses, schools, health providers and initial residential – followed by fibre-to-the-home
- working with existing providers and avoiding excessive duplication of existing infrastructure.

Councils will be involved in their capacity as managers of the road corridor, where the majority of any new broadband infrastructure will be installed. There is also strong community interest in high capacity communication technologies and many councils are working with their communities on projects that utilise these.

The council role could include some or all of the following:

- Streamlining the rules and processes around rollout of above and below ground communications infrastructure
- Promoting the use of broadband in the community, and by schools, health providers and businesses
- Leveraging the significant existing buying power of councils as users of telecommunications services (along with other public sector users)
- Sponsorship of urban fibre networks designed to deliver on community objectives – such as connections to health and education providers (*viz.* the Wellington Loop for inner city schools)
- Allowing access to community assets such as council-owned buildings and ducting, on the basis this is used to provide open access networks.

The Wellington Regional Strategy singles out fast, affordable broadband as a key economic enabler, and includes a Regional Broadband Plan. The central objective is to achieve an open access network that delivers very high levels of connectivity at reasonable cost – even where there are services that provide good speeds, the cost often deters full use of the technology.

We support the initial focus on schools, health, business and greenfield developments. We note that the local government sector has not been explicitly included as receiving significant community benefits from broadband.

For example we see libraries as major public facilities with high IT needs that support the after hours work of the schools. They are also a key asset to support the digitally disadvantaged. We are keen to ensure that the development of quality broadband does not lead to a widening in the digital divide.

2. How the government will achieve this objective

In principle we agree with the approach of funding dark fibre. However our experience in trying to build a business model based on duct access and dark fibre as products highlighted the issues around these being ‘thin markets’. This results in a need to specifically address the relationship with a lit services provider or providers.

The proposal appears to do this through allowing bitstream services as an optional product for the base layer infrastructure provider. This area may need more study, including the possibility of some form of exclusive arrangement – for example with a wholesale Ethernet/lit services provider for an initial period - in order to be attractive to prospective investors.

In paragraph 44, reference is made to the government taking a share of the benefits if the fibre company is highly profitable. Where any essential network has monopoly characteristics, a more appropriate objective may be to reinvest surpluses to provide a better level of service, and over time to generate modest surpluses that recover the cost of capital only.

3. Crown-owned holding company – “Crown Fibre Investment Co”

This appears to be a workable structure and will allow consistency of investments across the country.

4. Eligibility of private sector partners

The paper is not explicit about what constitutes private sector partners. It appears to be any organization that is not central government and therefore could include councils.

With the Government accepting primary responsibility for the long-term public sector ownership interest in base-layer networks, we see the possibly of equity investment from our Council as slim. We believe that the council role would be more appropriately targeted at the areas outlined in Section 1.

5. Local Fibre Co

We wish to raise some issues with the groupings of local fibre companies. The cut-off is based on town size, which in our region would exclude smaller centres like Paekakariki, Featherston, Carterton, and Greytown.

We believe that virtually all of these urban centres could easily be part of a Wellington regional network because they lie along road/rail corridors where there is competition in backhaul fibre. Leased fibre would allow an aggregated

urban area to operate seamlessly and in fact the per premise rollout cost in these areas may be less than in many suburbs in the main centres.

The inclusion of all areas may be more attractive to private sector companies as it would allow consistent of marketing of products, and create stronger goodwill as there would be fewer isolated pockets that 'missed out'. In addition, for a first phase that connected key public users, a network that connected these in all urban areas would deliver enhanced benefits – a simple example being co-ordination of education resources across an area.

We recognise the difficulty in moving the town size cut-off to accommodate these areas. However we request that the criteria explicitly allow for bids that include smaller urban areas, providing this does not exceed a percentage of the main nominated areas, there is no expectation of additional funding, and adequate fibre backhaul competition is available.

The proposal recognises that aggregated bids would be acceptable and for our region this is a distinct possibility that would be facilitated by these changes. Kapiti and Masterton are part of the Wellington Region and have strong within-region linkages including substantial commuter populations and accessing health and other services - which have significant potential to be improved through better communication technologies. For some time we have planned as a region and intend to continue this collaborative approach. Although Kapiti, Levin and Masterton will need to consider what the most appropriate course of action is for them in this context, we submit that a more appropriate grouping based on our current way of working would include Kapiti and Masterton with the rest of the Wellington region.

6. Profit allocation

These provisions appear workable.

7. Selection process and criteria

A major goal though this process is to achieve a shared base-level fibre network, but there are significant existing fibre assets that companies may not be prepared to relinquish easily.

The competitive nature of the RFP process is healthy but may create a 'winner takes all' situation where bidders who miss out are incentivised to compete with a new network. This could slow down the transition to greater sharing of fibre assets and ultimately a common network.

This is an issue where some balance may be desirable and could be achieved by including explicit evaluation criteria around shared network models. Where a BII proposal is able to utilise existing assets more fully, this is likely to improve its financial viability (an existing criterion) and reduce its risk profile. But the

Government could send some clear signals at the outset that it expects bidders to fully investigate the potential for pooling resources.

8. Shareholders agreement

No specific comment.

9. Pricing and regulatory matters

See comments under 2. above.

10. Demand-side initiatives

The Wellington City Council has developed a discussion paper on initiatives to foster demand for broadband enhanced IT. The council also has good experience working with schools to achieve uptake with the Wellington Loop Project. It is very clear that providing high speed fibre to the door is only part of the strategy need to achieve widespread uptake.

Using schools as an example, other essential elements are:

- Teacher training
- Role models of successful schools, with an adoption and diffusion process to engage other schools
- Economies of scale and economies of association with multiple schools participating
- Funding for deployment into the schools, monthly fees and equipment
- Specific projects that use the technology
- Resources available that make teachers lives easier and significantly enhance teaching
- A link between the resources and the needs of the school to meet the curriculum and/or NCEA requirements
- A dedicated and skilled project champion with the time to drive the uptake.

We considered 16 uptake outcomes such as export business adoption, the health sector, e-governance, teleworking, new applications, and the digitally disadvantaged to take advantage of enhanced access to broadband. Each group required a clear strategy, programmes and investment.

This is being addressed through the $150m investment in schools – our submission is that this area is looked at carefully to ensure it is adequately resourced, and that a comprehensive approach is taken.

11. Timetable

The timetable appears to be ambitious but feasible.

12. Complementary measures

Low cost deployment options, such as shallow trenching and micro trenching, are outside the standard requirements for councils. However shallow trenching is widely used in Europe and micro-trenching is finding its potential especially in the United States.

Wellington City Council roading engineers see that it may be possible to have these solutions in New Zealand roads but only if there is not a proliferation of new trenches. This is because of the disruption and negative effects of civil works in the road corridor, where more trenching could increase damage the road structure and be difficult to accommodate and manage because of the large amount of existing infrastructure. For example, for some years WCC has not allowed roadworks in December – the community and retailer opposition is too great.

This raises the question of which companies would be able to deploy at shallow depths, and how councils would make this determination. The new National Code does not directly cover this issue. Ideally councils would be able to accept applications for low cost technologies, such as shallow trenching, in suitable sites if the applicant provides fibre on an open access basis. No (or an absolutely minimal number of) additional shallow trenches would then be necessary as fibre capacity could be purchased by other service providers.

The Wellington City Council has written a discussion paper on how this could be achieved. If corridor managers could allow low cost deployment in return for open access, it raises issues around the definition of open access and how councils ensure that telcos abide by an open access agreement.

We have investigated some options to achieve this but clearly one possibility is to accept that the deployment is open access if it is approved for funding by the Broadband Investment Initiative. This would require careful consideration and we would like to work with the Ministry of Economic Development to explore this option.

The decisions on road opening and RMA rules rest with the road controlling authority, as do all decisions on whether utilities are meeting the standards. An explicit ruling may be needed in the National Code and in legislation to clarify this area.

In addition we have concerns about aerial deployment that creates visual pollution, and as noted above this is a policy consideration that is weighed up against the wider benefits of broadband. With the scale of likely deployment under the Broadband Investment Initiative, we believe this is a significant issue

that needs to be fully understood. For example, we suggest allowing for a long-term plan to place overhead infrastructure underground by incorporating this in the business models for fibre deployment.

Significant parts of the Wellington region are rural and we note the intention to create a $48m rural broadband initiative. We see this as a vital component for broadband solutions that address community needs across an area, while acknowledging the more challenging economics of these situations and the need to consider technologies other than fibre.

As noted above, we believe there is scope to develop fibre rollout plans that link closely aligned urban areas that can easily be connected by fibre backhaul. This could partially address the issue raised in paragraph 100 relating to areas outside the 75% coverage area.

13. Risks

No specific comment.

APPENDIX 2

Broadband Investment Initiative Discussion Paper

(attached)

APPENDIX 3

Definition of Key Terms

Abandoned pipes – WCC has identified over 100km of water, sewer and stormwater pipes that may be potentially useful in laying fibre ducting.

Active Opto-Electronics – are electrical-to-optical or optical-to-electrical transducers which convert one type of energy to another for information transfer. Network service providers install these electronics to 'light up' the dark or passive fibre.

ADSL (Asymmetrical Digital Subscriber Line) – This is the most common fixed connection for broadband and it uses the existing copper lines. It enables faster data transmission over telephone lines than a conventional dial-up modem can provide. The asymmetric nature of the connection means that the downstream speed is faster than the upstream speed.

ADSL 2+– extends the capability of basic ADSL by doubling the number of downstream bits. The data rates can be as high as 24 Mbps downstream and 1 Mbps upstream depending on the distance from the DSLAM to the customer's home.

Anchor tenant – a privately owned network, with the city agreeing to become the anchor tenant by agreeing to buy a minimum annual level of services. The city grants the private company use of public assets and also agrees to be a major customer of the network (an anchor tenant). In exchange the city is compensated for use of public assets. The agreement contains a public benefits section that may include a share of revenue or limited free access to the network.

Backbone network – transports massive volumes of data traffic around cities, and between cities and countries. There is no single backbone network, rather many networks in which service providers exchange traffic with other providers.

Backhaul – the process of transmitting data from multiple dispersed points (e.g. households, businesses, cell phone towers) to the central telecommunications network, usually using fibre cables.

BIF – Broadband Investment Fund – the Labour Government proposal for core fibre networks primarily serving MUSH entities.

BII – Broadband Investment Initiative – the current Government's proposal for a $1.5b fibre fund with the objective of installing fibre to 75% of New Zealand homes and premises.

Bitstream capacity – the provision of transmission capacity (upward/downward channels may be asymmetric) between an end-user connected to a telephone connection and the point of interconnection available to the new entrant.

BOOT Model (Build, Own, Operate, Transfer) – a model of private ownership where the Council could give a contract to a successful bidder to build own and also operate the network. After 10 years (or a set time) the ownership would be transferred back to the Council.

Broadband – a generic term for infrastructure that allows communication and connection to the internet – 'high capacity' and 'high speed' refer to much the same thing, as communication across a network relates to a flow of data.

Cabinets/ Cabinetisation – cabinets containing telecommunications equipment can be installed on kerbsides. Makes wireless internet access easier.

Copper local loop – the last few hundred metres of copper wire cables.

Duct network – a network of underground plastic pipes that provide a right-of-way in the road corridor and through which fibre optic cables can be passed.

Ethernet – Ethernet is a family of computer networking technologies for local area networks (LANs). The name comes from the physical concept of the ether. It defines a number of wiring and signaling standards, means of network access, and a common addressing format**.**

High speed broadband – a broadband service which delivers data at rates capable of supporting next generation services, such as interactive video, broadcast-quality television and videoconferencing. This is usually at speeds greater than 1.5 megabits per second (Mbps)

Incumbent – a term used to describe existing companies often first established as regulated monopolies.

JV (Joint Venture) – is an entity formed between two or more parties to undertake economic activity together. The parties agree to create a new entity by both contributing equity, and they then share in the revenues, expenses, and control of the enterprise. A possible ownership model that the Council could consider.

Layers – the Council can have ownership and intervene at different levels of network infrastructure (i.e. layers). Possible ownership levels are at Layer 0, Layer 0 +1, Layer 0+1 + 2, and Layer 0+1+2+3. As we move up in the layers, the control the Council could exercise over the network increases and so do the risks.

Local loop unbundling (LLU) – opening the final few kilometres of copper cabling, from the telephone exchanges to each house or premises, to competition so that any telecommunications company can run its services over the copper wires.

Mbps (megabits per second) – a measure of data transfer speed. (A megabit is equal to one million bits).

Micro-trenching – a method of deploying fibre underground. Undertaken by a large machine that is able to create a trench approximately 100mm wide, lay a duct in it, and then reseal the road.

MUSH Backbone – (Municipalities, Universities, Schools and Hospitals) a backbone fibre connection that would connect all entities such as primary and secondary schools, hospitals, medical centres, libraries and pools, service centres, community centres; university sites and research entities, CRI locations; and other community facilities such as fire stations and civil defence centres.

Next Generation Network – a packet-based network able to provide services including Telecommunication Services and able to make use of multiple broadband, Quality of service-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies. It offers unrestricted access by users to different service providers. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.

Node – being the first aggregation point for telephone lines from end-users' premises –

usually a roadside cabinet or local telephone exchange. Extending fibre to the node allows higher broadband speeds (even though it does not extend all the way to the premises) because its performance does not decline as steeply over distance as does copper's.

Open Access – a system that allows any telecommunications operator to provide its services and applications over the broadband infrastructure – including the backbone, and the connections to each home or premises. This is in contrast to vertically integrated systems where the owner of the infrastructure can restrict who runs services over it and therefore prevent competition.

Overheading – cabling that can be attached to the overhead wires e.g. trolleybus lines in Wellington. By far the cheapest deployment method, however not a long-term solution.

PPP – 'Public Private Partnership' a model of ownership.

Rights of Way (ROW) – Council's right of access to areas e.g. ducts

Saw Cutting – a method of deploying fibre underground. Very narrow micro-trenching (10-12mm), where the cable is directly buried in the ground.

SMEs – small and medium- sized enterprises

Staged Network Architecture – WCC has proposed a three component model for Broadband development comprising an urban fibre network, a wireless/ cellular network, and further development of FTTH options.

UFN- (Urban Fibre Network) – a conduit that provides a path for electronic data between buildings and organisations within the urban area. It is an enabling tool to allow an increased volume of data to flow at a faster speed. Urban fibre networks are quite common throughout the world, usually with a substantial amount of central or local government funding involved.

Undergrounding – burying cables in the ground. A long term favoured solution.

Upstream/upload and downstream/download – this refers to the speed of the broadband connection in each direction. Downstream/download refers to speeds from an external point to your Internet connection. Download is typically faster than the upstream speed (from your Internet connection out to the rest of the Internet).

Wi-Fi – describes the generic wireless interface of mobile computing devices, such as laptops in local area networks. A person with a Wi-Fi enabled device such as a PC, cell phone or PDA can connect to the Internet when in proximity of an access point. The region covered by one or several access points is called a hotspot. Hotspots can range from a single room to many square miles of overlapping hotspots.

WiMAX – Worldwide Interoperability for Microwave Access, is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular type access.

Wireless – a term used to describe telecommunications in which electromagnetic waves (rather than some form of wire) carry the signal over part or the entire communication path.