

**ATUG Regional Conference 2006
Collaborate, Communicate, Innovate**

**REGIONAL BROADBAND
CAN Demonstrations Program: Case Studies**

Moving Forward: initiating the next wave

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Exploring Regional Telco Models

This paper reviews Victorian State Government initiatives aimed at enabling regional access to their future in the 'Digital Community'. It provides a general overview for local government stakeholders of the processes essential for establishing their own broadband agenda - including group needs analysis, building the business case and community consensus, funding scenarios, partnering, governance, commercial imperatives, business design and operations management.

Regional presence in a virtual world requires a physical substrate - access, resources, infrastructure and know-how. Real things. Not ethereal visions provided on a virtual fabric.

So how do we put substance to desire?

The Digital Community

Broadband isn't just a faster way to waste time surfing the net. Broadband communications infrastructure is creating new cost-saving and quality of life capabilities. A Digital Community with wired, unwired and mobile infrastructure, supports a wide range of applications and e-services for businesses, employees, communities and its citizens. Creating a Digital Community can empower local organisations to accomplish more with scarce resources, encourage business growth, create cohesion for local endeavours, and link the facilities, resources and processes necessary for this to be achieved. In the modern world it is the substrate for supporting, improving and re-invigorating the local economy.

In the 21st century, just as it has been in the past, local governments are pressed with the need to:

- lower the cost of their own operations;
- enhance services to the community;
- promote local economic competitiveness; and
- improve the quality of life and satisfaction of their residents.

Making high-speed Internet access available, and affordable, provides a prime means of progressing a number of these goals.

So why aren't we all living in this electronic heaven? How do we get there? What is councils' role? Where do they sit in creating their communities' presence in the online world?

Unfortunately it is not as simple as plugging in the line and flicking the switch. It requires investment, knowledge and market savvy to create a sustainable broadband service; and most of the industry is focused on short term capital return in an industry in rapid flux, where what is installed today may be superseded tomorrow. Regional markets have therefore been seen as low revenue capital intensive prospects, with disaggregated demand, limited (incumbent oriented) client base, low use requirements, low demand and potentially slow uptake.

Councils have largely remained on the margins of this debate, letting the industry run its own race; (and isn't central Government responsible for the provision of telecom services?). But some have taken up the baton; and the Victorian Government is providing assistance; is pressing the agenda federally, and through its own programs; and is supporting local action.

Definitions

Broadband is defined by its key functional characteristics - high speed, always on and capable of delivering a variety of services.

1. The term broadband denotes a high speed/high capacity telecommunications service which can support applications requiring very fast transfer of large amounts of data (such as streaming video).
2. Broadband services are 'always on' so that users do not have to dial-up to activate a connection to their ISP, supply chain network, central or remote offices, etc ...
3. Broadband can allow multiple users or multiple applications (such as simultaneous phone and Internet) on a single connection without diminished quality.

For the average Internet user today, the move from a narrowband dial-up connection to broadband is a step change in the functionality and amenity of the Internet experience. Faster access to the Internet means that it is practical to access data rich sites and content.

Broadband requirements vary with the needs of the user. In general terms:

- research institutions such as universities are seeking data connections (to other similar institutions) of the order of one gigabit/sec (or one million kilobits/sec);
- regional health alliances are procuring connections for acute hospitals of the order of 10 -100 megabits/sec (or 10 -100 thousand kilobits/sec);
- the Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) standard for schools is currently 9 kilobits/sec per student (broadly translating to two to 10 megabits/sec per school – Victorian schools are currently migrating to a minimum 4Mbps standard under VicSmart) ;
- SMEs and households are typically buying 'asymmetric' connections of 256 kilobits/sec downstream and 128 kilobits/sec upstream (asymmetric services are not suitable for some business applications).

For comparison, a narrowband dial-up internet connection to a home typically runs at somewhere between 19 kilobits/sec (the legislated minimum) to 33 kilobits/sec (because of constraints relating to one - or a combination of - the modem, ISP or copper quality). A telephone call requires 2.4 kilobits/sec and a broadcast quality video transmission requires 1,500 kilobits/sec.

State Government Agenda

In the 2002 election, the Victorian Government stated a goal of leading Australia in the take up of broadband Internet access and the application of ICT. To support the achievement of this goal, the Government committed to develop a **Broadband Framework**:

“...to ensure that the Victorian Government meets its broadband requirements in a strategic manner that will also facilitate the delivery of enhanced telecommunications infrastructure, greater take up, more competition and lower prices for business and the community” (Tomorrow’s Jobs Today, 2002).

The Broadband Framework was released in April 2005 after the Victorian Government had undertaken an extensive process of policy research and development in an environment, where in recent years, there has been a significant number of internal and external factors at play, such as:

- the market provisioning of ADSL services and positive growth in subscriber numbers;
- the release of the Commonwealth’s response to the Estens and Broadband Advisory Group reports;
- the establishment of the HiBIS funding scheme;
- the implementation of the Victorian State Government’s Telecommunications Purchasing and Management Strategy (TPAMS);
- conduct of the Customer Access Network Demonstrations Program (CANDP) funding initiatives; and
- recent announcements by the Federal Government of Connect Australia funding

The telecommunications industry is in the throes of dynamic change - technically, commercially and in the criticality of its inter-relationships with business, the community and the economy. The Broadband Framework is therefore influenced by, and necessarily reflects, this milieu within which it is crafted: the vagaries of a rapidly changing, still emergent and somewhat unstable field; and under the constraints of an environment where the states have little power or regulatory authority to direct infrastructure development, standards or service provisions.

So the Broadband Framework has had to be designed with coercive, not directive, policy intent aimed to encourage strategic growth of innovative, competitive broadband infrastructure, services, applications, governance and commercial models that hold the potential to benefit future growth of the State’s economy.

The Victorian Government’s **Broadband Framework: Pathway to the Future** was released in August 2005. It espouses six strategies for progressing the broadband agenda that were formulated upon three guiding principles:

1. Strategic use of broadband to deliver community benefits;
2. Government activity that supports market solutions; and
3. State programs complementing Commonwealth responsibilities.

It recognises that with the current development of the broadband market the key issues for the Government to address are:

- the need for innovative use of broadband (rather than simple uptake) to realise its economic potential;
- substantial gaps in coverage of broadband services like ADSL, mainly in low density urban fringe and regional/rural areas; and
- where broadband is available, limited competition in supply and related lack of dynamic price and service offerings.

Thus, the six strategic elements from which the Government's broadband activities and programs are derived are:

1. Aggregation of Government's broadband demand to increase its purchasing power to facilitate improved community access to broadband infrastructure.
2. Lead by innovative use of broadband for the provision of key Government services.
3. Make public infrastructure assets available and use its role in planning to facilitate or support strategic broadband projects.
4. Assist industry and communities to develop innovative market solutions.
5. Provide information that supports the development of broadband in Victoria.
6. Advocate the interests of Victorian broadband users in policy and regulatory forums.

Each of these elements has a specific focus and agenda, but most of the Governments' programs include several of these strategies to help coordinate the interplay of relationships that underpin the more complex amalgam required to achieve the combined goals of extensive service provision, usage and social benefit.

Strategy 1: Government Purchasing Power

Victoria has introduced the **Telecommunications Purchasing and Management Strategy** (TPAMS), a whole-of- government telecommunications procurement program that aims to lower the cost of services to the Government, while making sure the wider community benefits from increased infrastructure investment.

Through TPAMS, bandwidth and next generation networks will become more affordable for government departments, giving them sufficient broadband capacity to achieve the best possible delivery of their core services.

But TPAMS also has a strong focus on improving broadband services in provincial Victoria. Victoria's local councils and regional libraries have been given access to TPAMS, boosting their capacity to achieve substantial savings in telecommunications costs.

TPAMS contracts to date have lowered telecommunications costs to the Government by approximately \$200 million over five years which has secured a comparable investment in new telecommunications infrastructure for Victoria.

In regional areas, TPAMS and aggregated purchasing by Victoria's regional health alliances have led to a further commitment of \$80 million for new telecommunications infrastructure.

Further, via **VicSmart** an \$89m funding commitment announced in the 2005 budget, advanced fibre optic broadband services will be installed to all schools over the next four years.

Under the VicSmart service delivery contract Telstra is required to rollout over \$100 million in telecommunications infrastructure throughout Victoria over this period. So the provision of optical fibre broadband to government schools will not only improve their broadband speeds by up to 60 times, but in so doing will also upgrade around 700 exchanges – 600 in rural and regional Victoria.

Strategy 2: Government as Broadband Leader

Broadband is essential for improving the delivery of government services to Victorians. By ensuring its own rapid adoption and innovative use of broadband, the Victorian Government aims not only to improve the quality, efficiency and accessibility of vital public services, but also to promote greater public interaction and use of broadband by businesses, households and communities.

It is expected that significant economic benefits will be generated from a more productive and efficient government, with government productivity forecast to grow by an average 0.25 per cent a year over the next decade as a result of widespread broadband use.

The Government has therefore established the **Broadband Innovation Fund (BIF)** to support the innovative use of broadband in delivering public services. Funding of \$15 million has been allocated to BIF, to provide seed funding for projects in strategic areas of government service provision, such as health and education, primary industries and the environment.

In implementing the BIF program, the Government will:

- work with Victorian health, education and environment agencies to develop projects that demonstrate the innovative use of broadband;
- undertake thorough evaluations of these projects to quantify the service improvements and productivity benefits achieved; and
- apply its knowledge of the costs and benefits of leading broadband use to broader initiatives across the health, education and environment sectors, such as supporting the system-wide adoption of proven broadband applications.

Thus both the health and education sectors, are not only targeted through broadband access via the TPAMS contracts, but also act as exemplars as leading ICT usage.

Victoria's health sector in particular is recognised as a sophisticated broadband protagonist, with high bandwidth applications such as teleradiology, telepsychiatry and

remote patient monitoring. In this realm the **Hume Regional Broadband Digital Imaging Project** (HRBDIP) is pioneering an exciting new approach to delivering radiology services in provincial Victoria.

The HRBDIP is an integrated digital imaging and radiology information system that allows doctors to view X-rays and other medical images on desktop computers in their practices, discuss cases with specialist radiologists in other locations and consult immediately on treatment options for patients.

Delivered over HumeNet, a broadband network linking health services across Victoria's north-east, the HRBDIP is delivering significant health benefits to communities in the region, including:

- better access to medical imaging services and faster turnaround of images and reports
- improved patient care and more timely treatment
- more effective use of scarce radiology resources
- substantial savings in film costs and a 30 per cent increase in staff productivity.

Victoria now has five regional health alliances with high capacity broadband networks:

- Grampians Rural Health Alliance Network (GRAHNet)
- Gippsland Health Alliance
- Hume Health ICT Alliance (HumeNet)
- Loddon Mallee Health Alliance (LMHA)
- South West Alliance of Rural Health (SWARH).

Together, these alliances are delivering broadband capability to publicly-funded health agencies across provincial Victoria, from large regional acute hospitals to small rural health services.

Strategy 3: Access to Public Infrastructure

The Government has control or influence over a range of assets that can be used to lower the cost of extending broadband services across the State, including telecommunications assets such as fibre-optic infrastructure and communications towers, and other assets such as rights of way and road reserves. These assets can be used to facilitate the creation of broadband networks, particularly for specialised high-end users whose needs may not readily be met by commercial providers.

While regulation of telecommunications infrastructure is the responsibility of the Commonwealth Government, the Victorian Government can also use planning policy to encourage investment and innovation in the supply of broadband to new residential and business developments.

In particular, the Government can encourage the provision of fibre to the home (FTTH) technology to new housing estates in a commercial manner that ensures a fair balance of the costs between homeowners, developers and the telecommunications industry.

And the Government also requires major government infrastructure projects to consider the benefits of fibre rollout as a component of their business cases.

As a case in point, through VicTrack, the Government has invested \$21.5 million in around 600 kilometres of fibre-optic infrastructure (for rail signalling and safety uses) to the Victorian regional centres of Geelong, Ballarat, Bendigo and Traralgon. Excess capacity on the VicTrack fibre may be made available where appropriate.

The Government has also introduced the **Road Management Act 2004** to better coordinate the provision and repair of utilities, including telecommunications, that run over and under Victorian roads.

Through its support of the **Growth Councils' Wired Development project**, the Government, along with the Municipal Association of Victoria, is attempting to develop a systematic approach to using planning regulations and commercial property development strategies to provide FTTH in new housing estates.

The Government is also encouraging broadband use in new buildings by supporting the development of the **Digital Building Telecommunications Access Guideline (DBTAG)**, which establishes guidelines for best practice building design to enable broadband access.

Strategy 4: Innovative Market Solutions

Broadband is a relatively new and complex market for broadband service providers, involving ongoing technological, commercial and regulatory change. And one size does not fit all. In this environment, the Victorian Government can assist market development by supporting innovative projects that trial new broadband technologies and business models, identifying the best approaches to delivering broadband services to particular users and locations.

The Government committed \$5M via the **Customer Access Network Demonstrations Program (CANDP)** to support projects that demonstrate cutting-edge approaches to providing broadband access in under-served markets in order to evaluate the commercial viability of alternative solutions for the provision of 'last mile' infrastructure.

Five projects have been funded to date:

- Wellington CANDP – this project co-funded the rollout of Telstra's 1xRTT CDMA network (ie their 2.5G mobile data services) across the Gippsland region. This trialled the uptake of broadband services in an extended, relatively sparsely populated area; it enabled novel rural applications; and demonstrated the commercial viability of such services. Telstra has since extended these services nationally.
- Shepparton CANDP – this project, originally governed by GMTel (a registered four Council telco entity) has implemented Multipoint Multi-channel Distribution Services (MMDS) to the Shepparton region. This has given competitive broadband network access and multi-line telephone services over a 20km area surrounding the Shepparton CBD. Market demand has grown

markedly and GMTel (now owned by a local media company) is cash flow positive and looking to expand its services in other regional centres.

- Wodonga CANDP – CountryTELL, a telco locally established as an outcrop from the ICT arm of the Murray Regional Development Board, is in the throes of implementing next generation WiMax (viz: 802.16e) services together with competitive 1xRTT CDMA mobile data across the Albury-Wodonga region. The facilities will be locally owned, but supported by national carriers SPTel and AAPT, and several local ISP, IT and other local service enterprises. It is a commercial model focussed on local need, utilising local resources and directing revenues back into the local economy. But it is also a technical high flyer; a real leap into the future.
- Grampians/Pyrenees CANDP – OmniConnect is attempting a paradigm shift in small market broadband services by implementing spread spectrum hotspot technologies in a number of towns across the Grampians/Pyrenees area, and utilising sophisticated bandwidth management and dedicated microwave and satellite backhaul infrastructure to provide high performance services.
- Castlemaine CANDP – this project supported the implementation of an SHDSL DSLAM by Bendigo Community Telco (previously a broadband demand aggregator) to trial higher capacity DSL services and create competitive regional backhaul fibre infrastructure.

All of these projects were awarded funding under the proviso that information would be supplied for release to the public and the industry to assist in evaluating, and encourage, future investment strategies. Thus, they also aim to work in line with Strategy 5 – Information Discovery.

The Government is also exploring innovative market solutions for providing **fibre to the home** (FTTH) to new housing estates. New estates offer the most affordable and practical opportunity for early FTTH deployment. The cost of rolling out fibre when building (in the same manner as infrastructure for water, gas and electricity) is far lower than attempting to retrofit houses with FTTH services.

The Government supported a request for tender (RFT) for the delivery of FTTH services in the Aurora Estate, a housing development in the City of Whittlesea in Melbourne's north. VicUrban, the developer of the Aurora site, released the RFT to the telecommunications market for the provision of FTTH and associated services to Aurora. The RFT process has been concluded and an announcement of the result is imminent.

Through Aurora, the Government is looking to find out more about

- the costs involved in rolling out FTTH in a new estate
- who would pay these costs
- how risk would be allocated in joint FTTH projects
- the kinds of services that make FTTH a selling feature
- the economies of scale required to make a FTTH project work

- whether government policies, Federal, State or local, impact on the success of FTTH rollout
- the information developers, local councils, investors, and State Government require when undertaking FTTH projects

Having FTTH rolled in the Aurora estate will be enormously beneficial in its own right. However, the Government sees Aurora as a valuable opportunity to gain information about what conditions are required to make FTTH a viable proposition on a broader basis. The Government aims to share the lessons from Aurora with other groups interested in the rollout of broadband services, such as developers, local governments and telecommunications investors.

The Government has allocated \$1.5 million to support demand aggregation projects of this type to help user groups to organise, identify their needs and develop strategies to obtain better broadband services.

This support will target projects that:

- show a high degree of community or participant buy-in;
- demonstrate workable strategies for groups in similar circumstances; and
- leverage funding or support from other sources, including the Commonwealth Government's National Broadband Strategy programs.

Strategy 5: Information

The success of the Broadband Framework relies upon groups external to the Victorian Government, such as users, local government, community organisers, commercial broadband suppliers and investors, taking action to exploit the full potential of broadband.

Unreliable or inadequate information can cause these groups to defer their broadband plans, miss opportunities or make poor decisions. Poor information results in slow uptake and market development, and creates the conditions for distorted investment outcomes and market failure.

Governments can therefore play an important role in filling information gaps, ensuring the availability of reliable information about broadband and promoting a better understanding of the potential benefits of broadband.

The Government is publishing a groundbreaking series of reports examining the State's regional, rural and remote telecommunications markets.

The **Spend/Demand – Telecommunications in Regional and Rural Victoria** reports provide a high-quality analysis of current and forecast expenditure on telecommunications services, including broadband, across provincial Victoria.

The reports focus on regional markets that have been partly ignored by telecommunications companies and are valuable tools for investors wanting to deliver the most appropriate solutions to meet the telecommunications needs of Victoria's diverse regional communities.

The Government has also established an online information resource, the **Broadband Access Office**, (www.mmv.vic.gov.au/broadband) to provide continuously updated, high-quality information for:

- local governments, regional and industry organisations and broadband user groups considering strategies such as demand aggregation or ICT planning to obtain better broadband services;
- broadband providers and financial organisations contemplating investing in new broadband technologies or market opportunities in Victoria; and
- individual users seeking general information on broadband and assistance with consumer issues.

The Broadband Access Office also publishes information from the Victorian Government's broadband research, the results of broadband 'demonstration' programs including the CANDP and the BIF, and other credible government, industry and user resources.

The site will also provide information on relevant local, State and Commonwealth Government initiatives.

Strategy 6: Policy & Regulation

Policy decisions made by the Commonwealth Government greatly influence the development of broadband at the local, state and national level.

The Victorian Government is committed to working cooperatively with governments throughout Australia to accelerate the rollout and take-up of broadband services. It will continue to advocate for a strong national approach to broadband that addresses areas of market failure, integrates federal and State strategies, provides adequate levels of funding and delivers regulatory reform to tackle issues that may be affecting access, competition and affordability in the broadband market.

The Victorian Government has been working with the Commonwealth and other State and Territory governments on the National Broadband Strategy (NBS). This work includes:

- actively participating in the Online and Communications Ministers Council and the National Broadband Strategy Implementation Group (NBSIG);
- providing advice to the Commonwealth on the design and delivery of Connect Australia programs in Victoria, including the Broadband Connect and the Clever Networks programs;
- collaborating in NBSIG research projects;
- assisting with the elaboration of ICT risk management strategies on the Communications Sector Infrastructure Assurance Advisory Group (CSIAAG);
- sharing information with other jurisdictions on broadband policy issues; and
- working collaboratively on jointly funded projects.

As an example, collaboration on the **Loddon Mallee Health Alliance** (LMHA) network has delivered broadband to more than 30 regional towns in central Victoria.

This project, jointly funded by the Commonwealth and Victorian Governments, established its own wide area network (WAN) to deliver broadband to hospitals and health agencies. As a result, the LMHA has brought broadband services to towns across the region, from large centres like Bendigo to small towns like Manangatang.

Alongside a contribution of \$2 million from the Commonwealth Government, the Victorian Government's investment of \$7.6 million has enabled the LMHA to meet its broadband needs in smaller towns through an 'open architecture' solution that also provides innovative DSL (Digital Subscriber Line) services to the wider community. Working with project partners Telstra Country Wide and Extel Communications, the LMHA is demonstrating how collaboration between governments and private investors can deliver high-quality, affordable broadband to local health agencies, while having the spin-off effect of increasing community access.

The Government will continue to actively promote the interests of Victorian broadband users by:

- advocating more effective policy responses from the Commonwealth Government to the challenge of ensuring equitable access to broadband in underserved areas;
- advocating review and reform of the national regulatory regime to facilitate market innovation, including the provision of FTTH, the effective allocation of radio spectrum and the introduction of simpler standard contracts for consumers;
- identifying opportunities for coordinating community, industry and government activities, including making Commonwealth Government and carrier information available to policy makers, industry and community demand aggregators; and
- seeking opportunities for coordinating and collaborating with other levels of government on broadband projects.

Combined, these six strategic elements of the Broadband Framework set the stage for the State's future success in the world as a 'Connected Community'. The Victorian Government aims to become a leading user of broadband to improve delivery of government services. In so doing, it will leverage its support for strategic broadband projects to encourage greater investment in telecommunications infrastructure and innovative solutions to provide broadband services to communities across the State. The following table highlights the programs and projects in progress at the end of 2005 as part of the State's major broadband initiatives:

Victorian Government Broadband Initiatives

Initiative	Description	Funding (approx.)
Broadband Innovation Fund (BIF)	The BIF initiative encourages innovative use of broadband within government. Further, it aims to accelerate the rollout of broadband to government agencies, such as schools and hospitals, which will also deliver improved broadband access to communities and businesses.	\$15 million

Moving Forward: initiating the next wave cont ...

Achievement:		
- Hume Regional Broadband Digital Imaging Project (HRBDIP)	This project is an integrated digital imaging and radiology information system that supports the efficient capture, storage, transmission and access to medical digital images. The project is being delivered over HumeNet, a broadband virtual private network linking health services across north-east Victoria.	\$2.2 million
eRich Learning	The Yarra Valley eRich Learning Environment Project aims to improve student engagement and performance by embedding ICT in the teaching and learning practices of a community of Yarra Valley schools (seven secondary colleges, 40 primary schools and one special school), which are connected via the VicSmart broadband network.	\$3.1 million
Learning Pathways	The Far East Gippsland Learning Pathways Project will allow over a thousand students within the ten participating schools to access a range of high quality curriculum via broadband and videoconferencing technologies, thus expanding subject choice, and promoting student retention into post secondary education. The project is being delivered over the VicSmart broadband network.	\$0.8 million
Virtual Services	The South West Alliance of Rural Health's Virtual Services Project will deliver specialist health care services from multiple health care agencies to remote communities via the SWARH broadband network.	\$1.9 million
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Cultural Broadband Network	The Cultural Broadband Network provides broadband links connecting key cultural organisations in Melbourne and regional Victoria (being progressively implemented to June 2007) in order to facilitate broad and diverse community access to digital cultural content.	\$2.8 million
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Demonstrations Program (CANDP)	Supporting investment in alternative regional and rural communications services, the CANDP has demonstrated innovative, commercial and sustainable approaches to providing broadband customer access.	\$5 million
Achievements:		
- Wellington Shire Council	A rollout of Telstra Country Wide's 2.5G mobile data services across the entire Gippsland area.	\$850,000
- City of Greater Shepparton	The implementation of a Multichannel Multipoint Distribution service by GMTel and Comindico.	\$960,000
- Castlemaine	Bendigo Community Telco (BCT) to establish a SHDSL infrastructure servicing Castlemaine.	\$192,000
- Pyrenees Shire	A range of services being implemented by OmniConnect to remote locations in the Northern Grampians and Pyrenees regions.	\$1 million
- Wodonga Shire Council and Murray Regional Development Board	CountryTELL installing a combination of technologies for the Shires of Wodonga/Albury to provide WiMax broadband and 2.5G mobile voice and data services across the region.	\$928,000
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Demand Aggregation Program	The Government has committed funding to support a range of demand aggregation programs.	\$1.5 million
Achievements:		

- Community Networks Project (CNP)	This project is designed to develop template strategies to address the broadband needs of small rural towns.	\$677,000 total committed to date \$320,000 (Vic State funding) \$200,000 additional funding from the Commonwealth.
- Film Industry Broadband Resources Enterprise (FIBRE)	A demand aggregation program which developed and implemented the operation of a commercially sustainable broadband network for the film and television post-production sector in Australia.	\$75,000
- G21 (City of Geelong, Borough of Queenscliff, Surf Coast Shire, Golden Plains Shire, Colac Otway Shire)	Funding for the development of a telecommunications strategy.	\$40,000
- Wodonga	The State has assisted the Albury-Wodonga region in the development of a demand aggregation and business case for broadband.	\$56,000 (funded in partnership with the NSW Government)
- Latrobe City	Funding for the development of a telecommunications strategy.	\$60,000
Digital Media Fund (DMF)	The DMF assists in the development of artistic content designed for a multimedia platform.	\$3 million
Digital River Digital Building Telecommunications Access Guideline	A grant to encourage competitive delivery of broadband services through a best practice multi-carrier building access framework.	\$140,000
Regional Fast Rail Fibre Optic Network	The Government has invested in approximately 600 km of fibre infrastructure to four major Victorian regional centres (Geelong, Ballarat, Bendigo and Traralgon). The principle use of the network is for rail signalling, but excess capacity on the network can support a range of advanced telecommunications services. This network and VicTracks's existing rights of way are strategic assets for the State.	\$21.5 million
Rural Regional Health Alliances	Regional Victoria is now served by five regional health alliances with high-capacity broadband networks, which provide the platform for the extension of advanced e-health services across Victoria.	\$20 million
Achievements:	These alliances encompass the areas of acute health, community and primary health, and some are also extending to local GP network connections.	
- Grampians Rural Health Alliance Network (GRAHNet)	The networks encompass connectivity between organisations within that regional organisation, and also to the HealthSMART data centres which deploy centralised applications across the State.	
- Gippsland Health Alliance		
- Hume Health ICT Alliance (HumeNet)		
- Loddon Mallee Health Alliance (LMHA)		
- South West Alliance of Rural Health (SWARH).	The networks are also delivering cost savings to various health agencies through the use of VOIP technologies.	

Telecommunications Purchasing and Management Strategy (TPAMS)	<p>TPAMS is a whole-of-government strategy to facilitate more competitive telecommunications markets and greater access to broadband services, strategically using the Government's \$178 million annual telecommunications expenditure, \$50 million of which is currently spent on broadband and narrowband data.</p> <p>TPAMS and the regional health alliances broadband purchasing has resulted in a commitment of approximately \$80 million of new telecommunications infrastructure, most of which will serve regional areas.</p>	\$55 million
Victorian Photonics Network	Seed funding for the establishment of the network.	\$140,000
Wired Development/Aurora	<p>The Government has supported the Municipal Association of Victoria and the Growth Councils Wired Development Consortium's development of a commercial and planning model for the provision of advanced broadband services into new housing estates. The Wired Development project is investigating a systematic process for provision of advanced broadband services in new developments, and is exploring breakthrough strategies to establish FTTH in these developments as a way of accelerating the provisioning of FTTH in Victoria.</p> <p>The Government, through Multimedia Victoria and the Government's urban development agency, VicUrban, is also supporting the Aurora Optical Fibre Implementation Tender. This tender, which is being developed in partnership with the Wired Development, is seeking a commercial solution for the provisioning of FTTH in the Aurora estate in Melbourne's outer north-east.</p>	\$470,000
Victoria Laboratory of National ICT Australia (NICTA)	Through investment, the Government has secured a \$50 million Melbourne node of NICTA.	\$8 million
Information Discovery	<p>The Government is actively reducing the cost to investors of obtaining information on Victoria's regional, rural and remote telecommunication markets.</p> <p>Projects include the <i>Spend/Demand – Telecommunications in Regional and Rural Victoria</i> reports that provide much-needed information on telecommunications demand and expenditure throughout greater Victoria. These reports will be updated annually.</p>	\$200,000
VicSmart	<p>The Government has allocated an additional \$89M for fibre optic links to be installed in schools. Government schools will improve broadband speeds by up to 60 times and 700 exchanges, 600 in regional areas, will be upgraded in the process.</p> <p>Telstra is required to rollout over \$100 million in telecommunications infrastructure throughout Victoria over the next four years.</p>	\$89 million

Moving Forward	The Government has allocated \$6 million for the implementation of NGN broadband infrastructure and services to areas currently unserved in the Loddon-Mallee & Grampians regions. The program may be extended statewide if successful.	\$6 million
Total Commitment (approx.)		\$237 million

Where to from here?

Progressing on from the initial CANDP Demonstrations Program initiatives, in the *Moving Forward* statement, the Victorian Government has committed \$6 million in grant funding from the *Regional Infrastructure Development Fund* (RIDF) to improve the accessibility and affordability of broadband in provincial Victoria, initially targeting the Grampians and Loddon-Mallee regions.

On 26 April 2006 the Government released a request for Expressions of Interest for **Grant Funding to Assist Investment in Next Generation Broadband: Loddon-Mallee and Grampians**. It was advertised in both metropolitan and regional press, and an information briefing was held on Thursday, 4 May 2006. The EOI closes on 22 June 2006 (allowing approximately 8 weeks for responses).

The EOI is available from www.tenders.vic.gov.au.

Key features of the funding commitment are to:

- deliver broadband access to a specified region at affordable prices (refer s3.2.1 and s3.2.2 of the EOI);
- support the development of next generation network (NGN) broadband infrastructure, services and applications (refer s3.2.3);
- be extended statewide if successful (refer s3.3);
- offer two contestable infrastructure grants to telecommunications providers (refer s7.4); and
- build on existing projects (refer s5 and s6).

The EOI is the first step in delivery of this project. In the EOI, the Government reserves its rights to determine next steps, specifically to:

- incorporate information from the EOI into another delivery process or strategy to be determined;
- release a restricted RFT to those short listed respondents; or
- directly negotiate with a selected respondent.

The Objectives

The project has three core objectives aimed at progressing the broadband agenda for future regional communications. These are to:

- provide the greatest possible broadband **coverage** (in excess of 80%) of **unserved** areas in the Loddon-Mallee and Grampians;
- provide **affordable and accessible** broadband services over the life of the project (to the end of 2012); and
- deploy **next generation broadband network infrastructure** (consistent with International Telecommunications Union (ITU) definition/standards).

Project outputs are as follows:

Objective 1:

The Government's objective is to achieve broadband coverage of at least 80% of premises in currently unserved areas by the end of 2008. (The Government will provide respondents information on unserved areas in the target regions). For the purposes of the EOI 'coverage' is based on a minimum standard of service defined as equivalent to the 256/128 kb/s and 512/256 kb/s service bundle requirements as stipulated by the Commonwealth's *Broadband Connect* program (although respondents are encouraged to bid a higher minimum service standard).

Objective 2:

The Government has a project objective to meet the following targets for the proportion of broadband services (equal to or better than the minimum standard) actually provisioned to premises in the unserved areas. The target is expressed as a percentage of the average Victorian regional broadband penetration rate for the previous financial year – as shown below:

Period (Calendar year)	Target for uptake for the PREVIOUSLY unserved areas
2009	25% of the average Victorian regional broadband penetration rate for 2007-08
2010	50% of the average Victorian regional broadband penetration rate for 2008-09
2011	75% of the average Victorian regional broadband penetration rate for 2009-10

Objective 3:

The Government intends to support the deployment of a NGN. It is proposed that the Government would rely upon an independent expert to assess that the network deployed is consistent with ITU definition and standards as they relate to NGN (funding would be conditional against this measure).

However, MMV has also noted the Minister for Communications, Information Technology and the Arts, Senator Coonan, statement of high level policy direction for the *Connect Australia* programs provided on 8 March, which has flagged a large scale investment of *Connect Australia* funds in an alternate open access regional NGN

The EOI therefore offers two potential options for responses:

- Option A - Moving Forward stand-alone from Connect Australia competitive network funding.
- Option B - Moving Forward leveraging Connect Australia competitive network funding.

These options recognises the possibility that respondents may be developing larger national and/or state projects on the supposition of funds for competitive networks that will be made available under the Commonwealth Government's *Connect Australia* program.

Evaluation criteria are as follows:

- compliance with the EOI;
- provision of all information as specified in the EOI;
- demonstrated capability, expertise and experience of the respondent;
- ability to deliver the project's objectives;
- ability to meet RIDF evaluation criteria (in particular the RIDF requirements that subsidy be provided for capital expenditure only);
- ability to deliver the project within the Government's funding commitment;
- business plan and financial capability; and
- resourcing – staff and contractors.

Aside from the Moving Forward EOI, other broadband initiatives have highlighted a number of general issues that MMV is attempting to address via other alternate means.

Councils' role in the Digital Community

Telecommunications is not traditionally an area of local government responsibility. However, a lack of good, affordable broadband services in many areas has caused a

number of local councils to start thinking about how they can help promote broadband for their areas.

Many local council areas do not have access to ADSL or cable broadband and the majority of council areas still have only partial coverage for their communities and businesses. Even those councils with "full" broadband coverage may find over the next decade that today's technologies are inadequate to service the needs of their communities.

Local councils are increasingly delivering services online, and are aware that slower dial up connections that tie up phone lines can discourage citizens from using these services.

Councils can get involved by considering broadband in a number of areas within council responsibilities and through other activities.

Broadband - Council Processes

Recognition of council's role in planning and advocating for the provision of broadband infrastructure in council process is a key starting point for any local government interested in facilitating the rollout of broadband infrastructure and services in its area.

Whilst conditions may vary greatly across municipal areas, councils have a common framework within which broadband strategies can be delivered and there are some clear steps a council can take.

Including broadband in council corporate documents

One of the first steps local councils can take is to start including the issue of broadband in their corporate frameworks, from Municipal Strategy Statements through to annual plans. The issue of broadband can be reflected in a local government corporate framework, from an overarching vision for the local area to specific policy and program documents. Broadband can be included in all of the following framework documents:

- Municipal Strategy Statements;
- Council Corporate Plans; and
- Annual Plans and Budgets;

Developing an ICT/telecommunications plan for the area

Whilst planning for broadband may not be a high priority relative to some of local government's more traditional functions, advocacy activities do not necessarily require large capital or operational expenditure to achieve results. An allocation of strategic planning resources within councils to develop an ICT plan can be enough to understand the state of broadband access in a municipality and develop possible strategies.

There are a number of activities a council can undertake to help when developing an ICT/telecommunication plan:

- making a clear argument for the economic and social benefits of broadband;

- looking at council processes and use of ICT and community use of ICT; and
- mapping supply and demand in the area

Making a clear argument for the economic and social benefits of broadband

Any ICT plan will need to make a strong argument for local council interest/involvement in the area of broadband. These arguments will have been articulated in the council's Municipal Strategy Statement, but should be laid out clearly and in detail in an ICT plan. Economic arguments about the benefits of broadband revolve around increases in productivity, employment and investment due to access to broadband. Such arguments make a strong case for local government interest in ensuring that adequate services are available and provide a rationale for local government activities in this area.

Looking at council processes and use of ICT and community use of ICT

An ICT plan will also need to identify those procedures and functions used by councils that are being transferred from a paper based process to an online process. Council's own use of ICT can act as a catalyst for increased community and business use of ICT, and in the process expectations in relation to bandwidth will increase. A good example of this is a council moving towards an on-line system for lodgement of planning, building and subdivision applications.

Mapping supply and demand in the area

A key part of ICT planning is to understand both the council's and the community's current and future telecommunication needs. Equally important is to understand the level of supply of telecommunications services in the local area. Gathering this information can be done through undertaken a mapping exercise to scope demand for and supply of telecommunications/broadband for the area. This exercise should identify where there is a disjuncture between the current need for and the supply of broadband. It should also identify areas where demand for broadband services is likely to increase in the future. This would include identifying broadband needs in areas earmarked for development and redevelopment, or those where land has been rezoned.

A plan of the municipality with broadband telecommunications infrastructure and facilities can be cross referenced against areas of current and potential high demand.

An ICT plan will identify possible activities for councils to undertake to improve broadband services in their areas.. These range from simply raising awareness of the benefits of broadband, through to strategies requiring greater commitment such as forming buying groups to collectively purchase services or even forming regional telcos. Councils may also consider using its planning powers to encourage the rollout of broadband infrastructure in the area. This approach was taken by the City of Whittlesea, which amended its planning laws to mandate the provision of telecommunications conduit in all new estates in the area (at the cost of the developer). The Aurora project, discussed earlier, is located within the City of Whittlesea, offering an opportunity for the Victorian Government to test the impact of such a policy on the viability of delivery of FTTH.

CANDP - Issues Identified

The Victorian Government's Customer Access Network Demonstrations Program, through implementation of the five projects, identified a number of issues relevant to progressing sustainable broadband service industries in regional areas.

In 2002 the CANDP was established as a research program as part of the Victorian Government's *Regional Connections* policy. The objective of *Regional Connections* was to improve the environment for investment in regional communications infrastructure by providing information on the technical and commercial feasibility of alternative CAN infrastructure in a variety of regional settings.

The Government released guidelines for the CANDP in May 2002 which specified nine eligibility criteria:

- Demonstrates how the project will contribute to socio-economic development.
- Investment in CAN infrastructure
- Information sharing
- Relevance of the model
- Demonstrates community and local Government support
- Leverages private investment
- Uses shared infrastructure where appropriate
- Is supported by feasibility analysis and business plan
- Meets Victorian Industry Participation Policy

Twenty one CAN proposals from seventeen applicants were received, some of which contained multiple, and possibly separable components for grant allocation. None were acceptable as funding propositions from their initial submission and required further elaboration prior to approval.

It should be noted that sixteen of these project fell by the wayside through the evaluation process. It should also be noted that all of the proposals that were successful had particular individuals involved who were highly motivated, persistent and willing to evaluate a myriad of options to enable their success.

From the program the following general issues were noted.

Applicants

There was a lack of response from the major carriers. Although capital funding was available for any viable proposals:

- Telstra Country Wide was the only prime carrier to have submitted any applications.

- Some local players that were expected to bid did not respond; (NB: they have since shown interest).
- After presentation of initial proposals one carrier announced its extraction from the regional market due to lack of take-up of their wholesale product. This impacted several proposals but also had implications beyond the CANDP; viz:
 - The CANDP applicants that lost the prime supplier in their proposed solution had to respond with alternate bids using different technology and partners. This created a probity issue in the CANDP grants process, but also created considerable delays in bringing potential projects forward.
 - The availability of spectrum was restricted which required the need for alternate sub-licensing arrangements.
 - The unavailability of a particular spectrum range can also constrain the types of broadband technology that could be used.

Sourcing carriers with the capability available (eg spectrum, backhaul, hubs, etc), motivation and willingness to establish local broadband infrastructure, even when funding is available; and knowing who these players are, and maintaining their commitment to implement, obviously presents some problems for local communities.

For the next round of funding in the *Moving Forward* initiative MMV requires registration of potential players and demonstration that the proposals engage local council initiatives and directions in drawing up their plans.

Location

The geographic dispersal of the infrastructure development emanating from the proposals was disappointing:

- overlap existed in the areas targeted by several of the proposals;
- the prime focus tended to be major regional centres where broadband services already existed;
- few extended services into low density areas; and
- in some regions no players came forward, so significant gaps existed.

Government policy indicated that precedence would be given to areas where competitive services are lacking; where the services can be leveraged for the growth of regional business; and preferably where the infrastructure would be sustainable. In most cases the proposals came from carriers and suppliers, with Council support being sought as an add on to their business plans. There was generally little evidence of drive from local government to seek the development of regional centric and locality specific broadband plans.

Business Model & Risk

The majority of applications arose in zones where tier 1 carriers had already established core infrastructure; ie mainly along the interstate fibre lines that run through central Victoria. Most of the CANDP proposals would extend access to this core, but they

generally only targeted areas with the greatest possible aggregated population and business demand.

This is good business economics, but the CANDP prime agenda was to establish the paradigms upon which the broadband business framework could be extended, and to evaluate to what extent. Thus, market potential did not form the prime selection criteria for Government CANDP investments.

The selection criteria weighed the social gains together with the commercial opportunities, business interests and incentives, and the regional development agenda *a propos* improved communications infrastructure; they do not just evaluate the economic implications vis-à-vis the pure financial derivatives for the companies involved. However, if the demonstration boundaries are to be pushed, the commercial risks also increase. In evaluating the applications the attempt was therefore made to balance social good with research value and sensible business acumen.

Regardless, the business models received in all of the proposals were either rudimentary or non-existent. The showed a significant lack of understanding of their market nor the potential risks involved in such ventures.

Governance

There are a number of possible infrastructure ownership, management and usage options available for the implementation and operation of CAN services, eg:

- Carrier;
- Corporate aggregator;
- Corporate ownership but with ‘nominated’ arrangements for services and/or maintenance;
- Community management structure with ownership as above;
- Community management structure with corporate ownership shared by users;
- Government ownership with nominated carrier services and Community governance;
- Inter-carrier agreement with local access infrastructure ownership, management or governance;
- Combinations of the above.

Only a few of these options arose, primarily in the carrier ownership and aggregator mould. However, the more progressive projects were initiated by local government and had local ownership as a primary element.

Project support

The CANDP expected organisations bidding for the grants to have the necessary commercial, technical and project management skills and resources available to develop the proposals. This did tend to limit the field to the current telcos, and thus proscribe governance models and commercial options that might otherwise have been available.

For example, after their initial proposal encountered difficulties by the departure of one of their prime carriers, Albury - Wodonga requested independent funding for redevelopment of their plans to cover costs for co-ordination, management and cross border inter-government negotiations. In this instance, as their plans were well advanced, assistance was provided.

But this raises the fundamental issue of resources for project initiation in general. There are a number of regional areas with significantly less resources than Albury-Wodonga. Without intervention or support they are unlikely to ever create viable options or attract commercial interest. But support of this type cannot be provided for every town in the State on an ongoing basis. The Broadband Access Office has therefore been designed to have a CANDP website attached to help provide templates and business planning resources to assist local areas to develop future broadband proposals. This website is currently in development.

Information Sharing

Many of the CANDP submissions did not provide the commercial information required for critical evaluation of their bids. This information was sought via proforma letter for the second stage of the evaluation of their proposals. However, some players regarded some of this information as commercial-in-confidence.

The program evaluation requirements therefore needed clarification and commitment prior to grants being awarded.

Arising from this, MMV developed templates for the provision of the information in conjunction with a standard evaluation framework. These will now form the framework for the submission of future proposals.

Shared Infrastructure

Preference was given to applications that utilised infrastructure sharing arrangements. However, few applications addressed this criteria. Most saw this as access to towers or buildings for radio/microwave relay; few identified switching/routing capacity, server farms, premises; or installed cabling, fibre, microwave; nor network management capabilities, etc. It is these functions, and knowledge capabilities, that will be the major asset in the next generation of IP telecommunications services, not the physical links. This should be borne in mind when developing plans for the economic growth of a region via ICT. It is the other services and facilities that may well be the revenue source for ongoing sustainability of the physical resources.

Ownership

Regardless of the scope of the shared infrastructure vision, asset ownership arrangements need to be considered. There is no guarantee that a CANDP project will necessarily succeed, or that the companies involved will remain viable. A number of options were therefore reviewed for maintenance of the infrastructure if the broadband enterprise fails (and/or even if it succeeds):

- Transfer to Govt;

- Sale by Govt;
- Relocation for other facilities;
- Debt recovery by local carrier;
- Transfer to other carrier with continuation of service; etc

As part of the program policy options for 'clawback' were identified and negotiated prior to entering into local carrier arrangements.

Further, under shared infrastructure arrangements a number of governance, ownership, management, contractual and financial arrangements are possible. It is important that the pros and cons of alternatives also be evaluated, policy options identified and contingency plans thought through.

Mapping

There is a general lack of knowledge of the location of services, extent, type, access availability, underlying infrastructure, etc. This creates difficulties in understanding the competitive market and developing strategies for regional development. A map of service availability, costs, providers and usage is fundamental intelligence for policy development, program management and strategic development decisions.

Establishment of a base for service standards for CANDP infrastructure has therefore specified the mapping requirements for each implementation, their users and services. As such, the CANDP website currently in development will be part of a system that keeps information records on traffic volumes, type, services, availability, the standards adopted, equipment in use, suppliers and network performance. This will form a base for ongoing evaluation; for the development and reporting of standards; possibly for marketing or evaluation of such efforts; benchmarking; and the development of future online service delivery programs.

Costings and Funding

Many of the CANDP proposals received evaluated the hardware costs but not many of the other associated facilities or operational elements. Costs may exist for interlinking, configuration, and services required from other players (who may also benefit from implementation) eg:

- comms link to ISP's; or
- software developers for websites;
- web software for client users;
- internal management systems, eg billing
- market research, advertising, sales, ... etc;
- corporate salaries (eg for technical support, or management required for a co-op);
- frequency licence costs; etc

These may all be part of establishing a sustainable local telecommunications service. But they may also be a source of work for local ICT industries or suppliers, who may also be potential investors in, or clients of, the services themselves. It is the interlinking of these services that forms the substance of a digital community – not just the communications infrastructure.

Services

The majority of CANDP applications specified the infrastructure required for telecommunications services. However, only one attempted to provide facilities to facilitate the development of other online services. It is these ancillary facilities (software, servers, applications, etc...) that are likely to benefit clients, the community and support regional business development to a greater extent than the underlying physical infrastructure that is required to support these processes. Most of the proposals were therefore incomplete in providing business solutions. This is likely to limit market uptake by comparison with city centric services where large businesses have such skills, facilities and services in-house.

Industry Development

The integration of business applications was also significantly lacking in all but two of the proposals received. One was seeking funding to develop its own business, which was not necessarily regionally focused. The other sought to develop a distributed call centre business as an ancillary to development of its telecommunications services.

Future CANDP tenders will seek the development of business integration models beyond the carrier infrastructure.

The Digital Community Redefined

The concept of Digital Community services needs recognition in the developmental plans of regional Australia. Having access to a standard telephone line is no longer the baseline adequate to deliver regional economic growth. The obvious lack of plans at the local level for engendering an online identity and integration of broadband services into their vision for regional development is to a large extent embedded in our understanding of the previous telecommunications regime. Things need to change.

Economic benefit in the future will to a large extent flow from online services themselves as well as their use in modernising and streamlining business operations. Local availability and access to broadband ICT facilities and services is therefore central to economic performance. Plans for integration and uptake of broadband as an element of regional development plans should therefore be on the agenda for all local communities. The Victorian Government recognises the need. And local governments are now beginning to come online.

A Digital Community is not just carriers making profit for providing broadband. It is the community profiting from using it; linking its capacities; creating an identity; becoming and being an entity of substance in the new virtual world.

Other Information Available

The Government has made available additional research on regional telecommunications at the Broadband Access Office (<http://www.mmv.vic.gov.au/broadband/BroadbandHome>), including:

- Availability and Demand
- Economic benefits of broadband
- Community Attitudes
- Backhaul in Victoria
- Implications of HiBIS for Victorian Regions

Economic, social and demographic research on regional Victoria, and Loddon-Mallee and Grampians is available at:

- Know your Area (<http://www.doi.vic.gov.au/doi/knowyour.nsf>)
- Victoria in Future 2004 – Population Projections (<http://www.dse.vic.gov.au>)
- Regional Matters – (<http://www.information.vic.gov.au/resources/atlas/index.html>)
- Regional Development Victoria website - <http://www.business.vic.gov.au/BUSVIC/LANDING/SEC12.html>
- Budge, Trevor 2003 “Country towns: more than just statistics” Sustaining Regions, Vol. 3, No. 1, Flinders University, Adelaide, Spring 2003.

Information on the *Next Generation Broadband: Loddon-Mallee and Grampians* EOI is available on the Broadband Access Office website at -

<http://www.mmv.vic.gov.au/broadband/Nextgenerationbroadbandfunding>