



Chisholm Case Study

About Chisholm Institute of TAFE:

Chisholm has a proud history of delivering technical training in the South East of Melbourne.

Initially, technical colleges were established in Frankston and Dandenong with others set up in later years. In 1998 all the TAFE colleges located in South East Melbourne were amalgamated into Chisholm Institute of TAFE named in honour of Caroline Chisholm.

Chisholm now operates six Centres of Excellence across six campuses, all located in the South-East region of Melbourne, a culturally diverse region that is home to over 600,000 people. It is one of the fastest growing areas in Australia, and is of significant social and economic importance to Melbourne and Victoria. Chisholm is strategically positioned to serve this population growth corridor. Students are involved directly in the needs and issues of the community around them.

The campuses are located in Dandenong, Frankston, Berwick, Cranbourne, Rosebud and Bass Coast (Wonthaggi).

Objective:

Reliable and efficient communications are essential for an organisation such as Chisholm and are becoming increasingly important as new teaching resources such as video conferencing and streaming media become popular. Chisholm's IT services are delivered primarily out of the Dandenong campus and as such an efficient Wide Area Network with adequate bandwidth is of critical importance.

Chisholm's Rosebud campus had been serviced with a 2 Mbps connection which, while serviceable had not been able to deliver anywhere near the same bandwidth capacity as experienced at the other campuses.

Chisholm Information Technology Services department had been exploring various alternatives to improving the connection speed to Rosebud but these have proved cost prohibitive or highly inefficient.

In September 2007 Chisholm Institute invited Wave1 to discuss options for updating the WAN connections between some campuses with particular emphasis on the Rosebud link and whether it was possible to utilise the Arthurs Seat Radio Towers to relay a signal.

Chisholm had previously explored this option but had been unable to secure a solution. The meetings outlined the following key requirements;

- A fast and reliable communication link between Dandenong and Rosebud delivering at least 50 Mbps
- The link needs to be upgradable and integrate with the current Chisholm WAN infrastructure
- Ability to integrate with existing and future network requirements

Wave1 was asked to do a feasibility study for providing a fast, bandwidth efficient and a reliable microwave link to Rosebud keeping all of the above key criterias in mind.

Solution Proposed

After the meeting, Wave1 carried out a detailed terrain analysis and radio path studies. The study confirmed there was no direct line of sight between Rosebud and any of Chisholm's campuses. A link distance in excess of 50 kilometers posed another major obstacle. The only resolution was to use Arthur's Seat as a Repeater location.

Wave1 then made a detailed research followed by visits to Arthur's seat to identify the potential tower owners at Arthur Seat and started negotiating the tower space and site requirements.



Negotiating space on the tower was very time consuming and challenging. While some towers did not offer suitable locations whilst others were too expensive. In the end, a suitable location on Crown Castle Tower at Arthur Seat was secured. Some of the critical tasks involved in finalizing the Repeater location and subsequent installation were as follows:

- Access to towers was secured and Wave1 riggers climbed the towers and confirmed LOS
- Negotiating and securing a right antenna location including its heights on the tower
- Designing and securing engineering approvals for Antenna Mounts
- Provisioning of an outdoor rated cabinet with Airconditioning to house Microwave equipment and UPS
- Trenching and installing power cables from a remote location to the cabinet.
- Organizing a Radiation Survey conducted on the tower for safe working.
- Arranging a time with other vendors on the tower for an outage during which Chisholm system could be installed.
- In getting all of the above, Wave1 had to negotiate with Tower Owners, Power Authorities, ACMA, Other equipment holders on this tower.



Chisholm Microwave Antennas on Crown Castle Tower installed at 40 Meter height



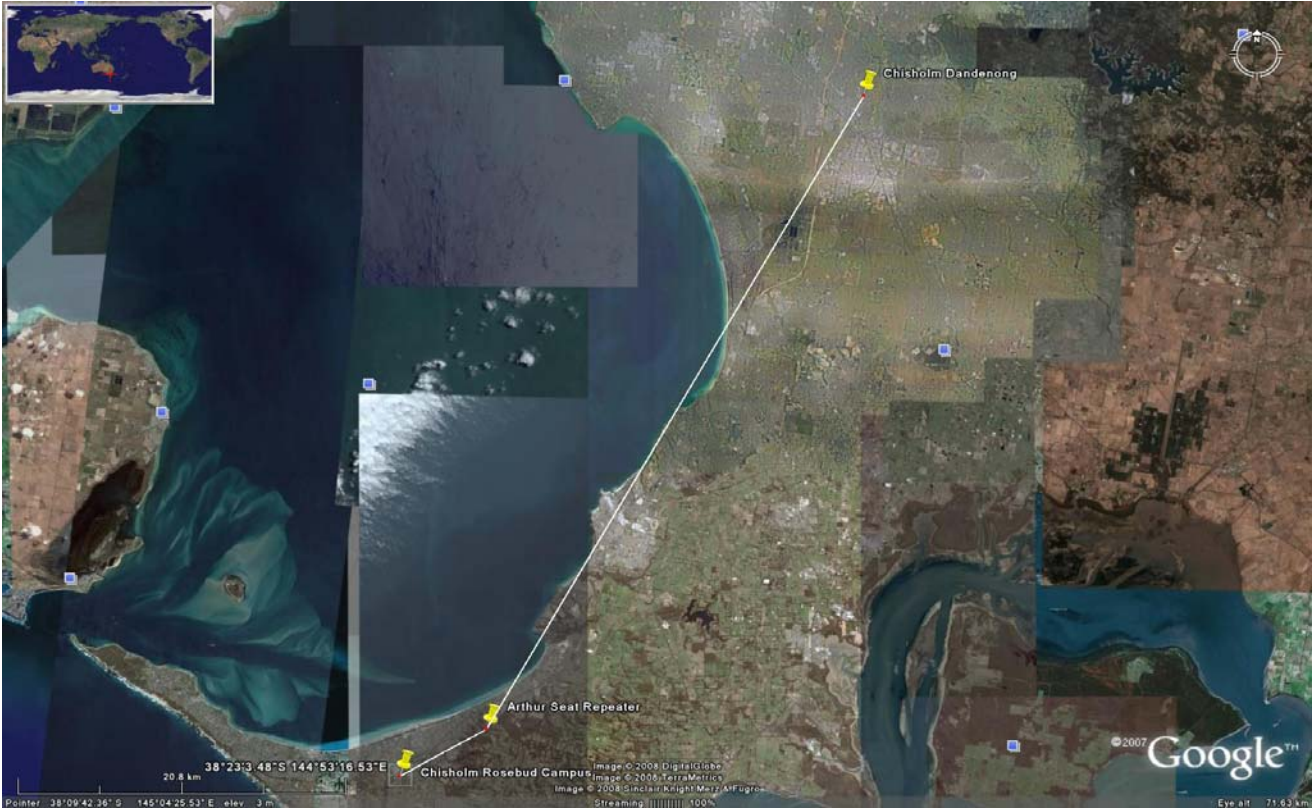
Specially Designed Outdoor rated Cabinet with AC to house Chisholm Microwave

Wave1 project managed the whole job and finally the link was installed in July 2008. Link results were excellent and have been excellent ever since.

Wave1 has installed a 50 Mbps full duplex, digital Data + Voice microwave in 18 Ghz licensed band. The link operates at 14 Mbps but has the capacity to be upgraded to full 50 Mbps.

A second tier upgrade strategy is also incorporated in the solution where by changing minimum hardware link can be upgraded to 100 Mbps.

The link now operates between Dandenong Campus and Arthur Seat (48kms – single hop) and from Arthur Seat to Rosebud Campus (6.5 kms single Hop)



Benefits:

Chisholm has been benefitted manyfolds by upgrading the old 2 Mbps link with Wave1 Microwave service. Besides being state of the art microwave technology, it directly benefits Chisholm as follows:

Bandwidth jump from 2 Mbps to 50 Mbps: Current Microwave service offers a 50 Mbps bandwidth which about 25 times more efficient that the earlier 2 Mbps service.

Cost Savings: Installing Wave1 microwave links has not only offered additional bandwidth/speed between Dandenong and Rosebud but also now saves significant expenses that were ongoing for running a 2 Mbps vcarrier service. Payback period on Wave1 Microwave link was only one year.



Chisholm now owns this microwave infrastructure.

“Chisholm now has a fast reliable and cost effective link between our Dandenong and Rosebud campuses. The link has vastly improved the learning experience with students and staff now having equitable access to off campus teaching and learning resources. The new link has also improved the ability to remotely manage and assist local users.”

John Sedgwick – Team Leader Infrastructure ITS

"The new Wave1 microwave link is far more reliable and noticeably faster than our old connection. The students and staff at Rosebud are very pleased with the improved performance."

Antony Trivett - Regional Manager - Rosebud Campus

For further information on this project, please call:

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