



City of Armadale Case Study

Located only 30 minutes south east of the CBD, the City of Armadale is a growing regional centre at the heart of a bustling urban community that offers a relaxed lifestyle with all the conveniences of modern day living. Boasting a modern city centre nestled amongst scenic parks, undulating hills and picturesque valleys, the City takes pride in its cultural heritage and unique community feel.

Objective:

The City of Armadale spans across 545 square kilometers and is experiencing rapid growth. It estimates its population will increase from 55,000 to 90,000 over the next ten years. To provide council services across a large geography and a fast growing population, the Council manages several facilities catering to diverse community programs such as recreation, library services and many more.

To effectively manage its widely located facilities, the Council needed a fast and reliable communications infrastructure. In May 2008, Mr Adam Holthouse, Manager Information & Communications Technology invited Wave1 to discuss its communication needs. Major observations that came out of this meeting were:

- Existing Motorola wireless links from the Council Head Office to the Depot and from the Depot to the Seville Grove library weren't fast enough to cater to the Council's growing communication needs.
- New Council facilities such as the Aquatic Centre, the Kelmscott Library, the Visitor Centre and the Arena Recreation Centre were to become an integral part of the Council network.

Thus the requirements outlined were:

- Provide a faster and more reliable communication link between its two major sites namely; the Council Head office and its Depot
- Provide fast and reliable communication links to each of its newly built facilities in such a way that they become an integral part of one seamless Council WAN
- Any solution proposed shall be able to support Data, VoIP and Video applications

Wave1 was asked to do a feasibility study for providing a fast, bandwidth efficient and reliable microwave network to the above sites with a view to achieve all of the above objectives.

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Solution Proposed

After the meeting, Wave1 carried out a detailed terrain analysis and radio path studies. A topographical study revealed presence of large trees and undulating terrain, therefore making the microwave communications even more challenging.

Solution Design:

A more detailed site survey was carried out with the help of travel towers and the final design was prepared and presented to the Council as follows:

- Existing 30 meter communication tower at the Kelmscott Depot was to be leveraged to distribute bandwidth to the existing and the new Council sites.
- A 100 Mbps full duplex digital licensed microwave was proposed between the Council and the Depot to make enough bandwidth available at the Depot to support its own needs as well as cater to all the new sites.

Solution Configuration:

After approval was granted by the Council, Wave1 executed the whole project and the following WAN configuration was installed:

- A digital full duplex 100 Mbps licensed microwave backbone was installed between the Council Head Office and the Depot
- A point to point 108 Mbps class licensed wireless link was installed between the Depot and the Kelmscott Library. A 15 meter telescopic mast was installed at the Kelmscott Library to achieve the requisite line of site.
- A 108 Mbps class licensed multipoint wireless link was installed at the Depot to cater to the Seville Grove Library, the Aquatic Centre and the Champion Centre.
- A point to point 108 Mbps class licensed wireless link was installed between the Visitor Centre and the Council Office.
- Similarly, a point to point 108 Mbps class licensed wireless link was installed between the Arena and the Depot. Here again a 15 meter mast was needed at the Arena to overcome challenging tree heights interfering with the radio path.

Critical Considerations:

While designing and implementing the above Wide Area Network, the following critical considerations were dually accounted for:

- There may be a future consideration to host the Depot as a Council's DR site and therefore any link proposed to the Depot should be reliable, fast and upgradable.
- The network shall be able to Support QoS applications such as Voice and Video in the future.
- Prevent overcrowding of class licensed systems at the Depot to avoid any possible interference.
- All locations where masts were essential were thoroughly studied by our civil engineers for a structurally safe implementation.



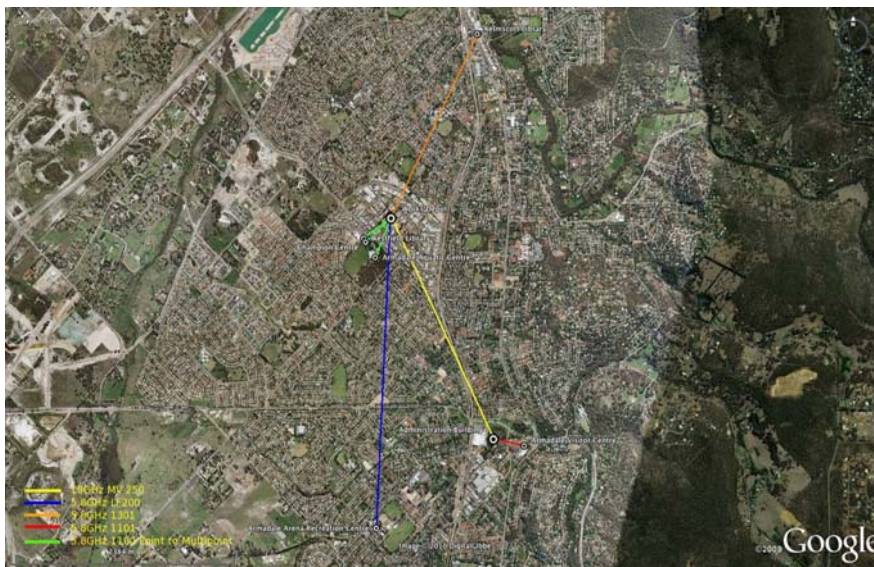
Wave1 team installing a 15 meter telescopic mast at the Arena Recreation Centre.



ICT Manager Adam Holthouse and his team on the Council's roof inspecting works

Wave1 project managed the whole job and ensured the whole network delivered had excellent link availability figures and fast bandwidth. Throughout the execution of this project, there was a very big support by Mr Adam Holthouse and his IT Team.

City of Armadale Microwave WAN now appears as follows:



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Benefits:

- A seamless Microwave WAN which allows the Council to easily manage its geographically diverse infrastructure.
- The faster network allows centralized server applications managing all remote offices. This has resulted in substantial financial savings.
- The microwave network, while offering much faster links, has allowed the Council to reliably run QoS applications such as VoIP and Video as well as data.

Testimonial from City of Armadale

The City of Armadale ICT department manages 14 sites around the City, with 8 of them now connected via Wave1 high speed microwave solutions.

In the past other suppliers had advised the City that connecting certain sites was not feasible, either due to cost or location. Wave1 staff had no problems advising of a suitable, cost effective solution to enable us to deliver increased service levels to over 300 staff including data, voice and video systems. “We couldn’t deploy solutions such as VOIP to these locations previously due to bandwidth restrictions” says Adam Holthouse, Manager Information & Communications Technology “Now with our Wave1 solution in place we are able to fully utilise such technologies and get the return on investment that we are looking for”.

The devices that were recommended by Wave1 are also capable of scaling to meet future requirements of the City, with most sites now running at 36Mbps-54Mbps, scalable to 100Mbps. “With our City growing at around 4% per annum this gives us great scope for the future” says Adam Holthouse.

Mr Adam Holthouse – Manager Information & Communications Technology

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