

# WAIKATO VHF GROUP Inc. - NZART Branch 81

## HISTORICAL INTRODUCTION by Ian Brown, ZL1TAT

### 1963 to 1982

On the 16th of June 1963, a meeting of interested VHF'ers from around the Waikato and Bay of Plenty was called at the Cambridge residence of Jack Rintoul ZL1RG. Attended by ten ham operators, that meeting moved that a VHF group to be known as "The Waikato VHF Group" be formed to serve an area south of Auckland. (Even in those days, we were keen to demonstrate to Auckland that life existed south of the Bombay Hills). Jack Rintoul ZL1RG and Eddie Amon ZL1ACL were elected our first President and Secretary respectively. Subscriptions were established at two shillings and sixpence (equivalent to \$13.31 in 2024), and that foundation group of ten decided to hold their second meeting three months later.

September 1963 saw the introduction of the "Technician class" amateur radio licence, which encouraged many new operators onto the VHF bands and in turn swelled our club membership. Numbers attending many of those early meetings were swelled by regular visitation of fellow Auckland VHF'ers who travelled down to our meetings held at various locations around the Waikato. To maintain regular contact between group members, a weekly Sunday morning net was established on the low end of 2-metres. Those early meetings were mainly social events, with little formal business conducted. The first balance sheet, which showed a net income of £2.1.9 did little to reflect activities of group members who were busy establishing our area on VHF maps. Because of the geographical area represented, covering from Bombay in the north to Taupo in the south plus the Bay of Plenty and northern King Country, a policy of holding meetings at different locations was adopted. Besides, there wasn't enough room in ZL1RG's shack to accommodate all of us anymore!

During 1964, interest grew in a group project, and initial investigations were made into establishing a VHF Group owned 2-metre radio beacon. That project didn't see any further progress for some time, due mainly to lack of finance. Our Sunday morning nets were shifted to Sunday evenings in 1965, and two years later the group's weekly news broadcast commenced. By 1968, talk of establishing 2-metre repeaters in New Zealand had commenced. Our member's enthusiasm for establishing a repeater in the Waikato area prompted a fund raising project to raise the necessary funds. Over several years, the Waikato VHF Group established a reputation for its project equipment, which included FM detector modules, SWR bridges, receiver pre-amplifiers, FM Adaptors, kitset transistor FM transmitters and receivers. Bulk purchases and sale of FM channel crystals were also made for those fund raising endeavours. In May 1970, the Sunday night net was changed from AM on the bottom end of 2-metres to 146MHz FM, beginning with our news broadcast.

By the time approval to establish 2-metre repeaters was granted in mid-1970, our VHF Group had raised sufficient finance to commence construction of a channel "B" FM repeater. Equipment developed specifically for that by our group was first displayed to those attending our meeting in February 1971, when an application for a licence was made. A site on the western side of the Kaimai range, east of Matamata, was readied. That repeater came into permanent operation on the 14<sup>th</sup> December 1971, at which time it was only the second amateur FM repeater operating in New Zealand. Also in 1971, our group launched the "Waikato VHF Award", and an application was made for a 2-metre beacon licence. Our first beacon, using a hybrid valve/transistor transmitter and optically encoded keyer was commissioned in April 1972 operating on 145.150MHz with the callsign ZL1VHW.

Easter 1973 saw the Waikato VHF Group host its first VHF Convention, held at the Hamilton Teacher's College and attended by 102 VHF'ers from throughout New Zealand. To improve its coverage, our 2-metre repeater was relocated to Mt. Te Aroha immediately prior to that event. Success of that project prompted a major boost to sales of the group's kitset repeater, which within a few years was installed in one out of every three amateur FM repeater sites operating across New Zealand, and became the basis for many more stations.

At our 1973 AGM, it was moved that finance be made available to start construction of a second repeater, channel "C", for Mt. Edgecumbe in the eastern Bay of Plenty. That was commissioned in late 1973 using our original "Waikato" design repeater. A quarterly newsletter, doubling as a meeting notice, was instituted in November 1975.

During 1978, our group became an Incorporated Society. Also that year, our 2-metre beacon transmitter and keyer, now six years old, was replaced by all solid state designs. Our beacon was relocated to a central Hamilton site in December that year and joined by a 70cm beacon operating on 433.15MHz.

Our first lady president was elected in May 1979 when Sharyn Stowers, then ZL1TQV and later becoming ZL1BIS, took the chair for two years. Also in 1979, we commenced distribution of the electronics magazine "Elektor" as its New Zealand agent. This role continued through until 1986 when difficulties with the publisher forced us to abandon that venture.

In January 1980, plans commenced to establish a 70cm repeater. Using recycled commercial equipment, our '860 station initially went on air in Hamilton during March 1982, prior to relocating to Mt Te Aroha in July that year. Our 1297.15MHz beacon was commissioned just before Christmas 1980, joining the other two beacons on their central Hamilton site in time for the summer DX season.

Up until then, all 2-metre repeaters in New Zealand had operated using a  $\pm 15\text{kHz}$  deviation specification with 700kHz Rx/Tx offset. After NZART moved to adopt the international commercial 30F3 ( $\pm 5\text{kHz}$ ) FM standard with 600kHz Tx/Rx offset, this change was implemented on our repeaters during November 1981.

At our August 1981 general meeting, a motion in favour of obtaining NZART branch status was adopted. That move to upgrade our affiliation status desired since 1966 was however to take another four years to realise.

## **HISTORICAL MILESTONES**

**by Gavin Petrie ZL1GWP and Ian Brown ZL1TAT**

**1963** 16<sup>th</sup> June - ten radio amateurs met at Cambridge and establish "The Waikato VHF Group". Our first Chairman was Jack Rintoul ZL1RG and Secretary was Eddie Amon ZL1ACL. A subscription was set at two shillings and sixpence.

A weekly net was begun and held each Sunday morning on the bottom end of the 2-metre band.

**1964** Our first AGM was held at Ron Buckley ZL1AFC's QTH on Piako Road. The first balance sheet showed a net income of £2.1.9 (equivalent to \$114.24 in 2024).

Initial investigations were made into establishing a VHF Group owned radio beacon to operate on 2-metres.

- 1965** The Sunday morning net moved to Sunday evening.
- 1967** A “weekly news broadcast” was added to the Group’s Sunday evening net.
- 1968** Our first fund raising project (FM Receiving Adaptor) commenced, raising money for a 2m repeater.
- 1969** At our October meeting, it was decided to produce an SWR Bridge as a further fundraising project. Thirty of those were sold.
- 1970** The Sunday evening net changed from AM to FM in line with current trends. Approval was granted mid-year for 2-metre repeaters to be established in New Zealand. By that time our VHF Group had raised sufficient funds to commence construction of a FM repeater.
- 1971** An application was made in February for a repeater licence, with Chan 'B' (Rx 146.35MHz / Tx145.65MHz) being allocated in October that year. A site on the western side of the Kaimai Range, at Omahine Road east of Matamata was established. Mains power supply was provided from a 100kVA transformer from when a nearby site had been a quarry. The “Waikato VHF Award” was launched. In November, application was made for a 2-metre beacon licence. 14<sup>th</sup> December, our Channel 'B' repeater came into permanent operation, initially from trustee ZL1TAT’s QTH at Hinuera.
- 1972** In April, our first beacon came into operation from the Omahine Road site operating on 145.15MHz with call sign ZL1VHW.
- 1973** 7<sup>th</sup> April (in time for VHF Convention) our 2m Channel 'B' repeater was relocated to Mt. Te Aroha, substantially improving its coverage which (for the first time) now included the Bay of Plenty. “Waikato FM Repeater” printed circuit board kits were made available as a fund raising project, achieving sales throughout NZ and in Australia. Waikato VHF Group hosted Easter VHF Convention (attended by 102) at Hamilton Teacher’s College. Construction of a second repeater commenced, this one on channel 'C' for Mt. Edgecumbe to cover the eastern Bay of Plenty.
- 1975** Mt. Edgecumbe channel ‘C’ repeater was commissioned on 2<sup>nd</sup> March. A quarterly newsletter was instituted in November. Group members participated in VHF field day, operating from Mt Ranginui.
- 1978** The Waikato VHF Group became an Incorporated Society; No. 212737.
- 1979** Our original 2-metre beacon hybrid transmitter plus keyer were replaced by all solid state designs, then relocated to the Hamilton Central Telephone Exchange roof in January and joined by a 70cm beacon on 433.150MHz. Our first lady President, Sharyn Stowers, ZL1TQV, later becoming ZL1BIS, took the Chair for 2 years.

Our Group commenced distribution of the electronics magazine 'Elector', as its New Zealand agent.

- 1980** In January, plans were put in motion to establish a 70cm repeater.
- 1981** A beacon on 1297.150MHz was installed at the Hamilton Central Telephone Exchange site, and commissioned in January.
- At our AGM in August, a motion in favour of obtaining NZART branch status was adopted. However this took another four years to realise.
- Des Hamblyn ZL1HP was elected President. Subscriptions were increased from \$2.50 to \$5.00, being the first increase since establishment of our club.
- During November, the 2-metre band plan changed from 700kHz to 600kHz Tx/Rx offset for FM repeaters, leading Channel 'B' on Mt. Te Aroha to its new Tx allocation of 146.950MHz.
- 1982** Our 70cm 438.600MHz (Tx) repeater went to air in March, initially from a site on Newcastle Road, in Hamilton. In July it was relocated to Mt. Te Aroha.
- In October, a remotely controlled link was established between our 2-metre repeater '695 on Mt. Te Aroha and Auckland '690 for joint Sunday 'Nets'.
- 1983** On December 10<sup>th</sup>, our 2-metre repeater (146.975MHz) was commissioned at Tairua to cover the eastern Coromandel peninsula.
- 1985** During Easter we hosted our 2<sup>nd</sup> VHF Convention in Hamilton, this time at the Waikato Polytechnic.
- 1986** NZART Branch (81) status finally obtained.
- At our June AGM, a motion was adopted changing the Group's financial year end from 31 March to 31 December.
- 1987** During January, commercial Tait equipment was installed for our 2-metre repeater, '695 (146.950MHz) on Mt. Te Aroha. The original repeater, in service since 1973, was retired to Hamilton Branch 12's museum.
- In July the committee agreed to linking, on a restricted basis, Te Aroha 146.950MHz and Tairua 146.975MHz, via a dedicated inter-site UHF link.
- 1988** To extend 2-metre repeater coverage out to the west coast, on February 27<sup>th</sup> we co-locate a 146.575MHz ('5675) "Raglan" solar-powered repeater above the end of Plateau Road over the western side of the Wharauoa Plateau.
- In October, the Group approves its 70cm (438.400MHz) repeater at Te Aroha to be designated for voice primary use, and data as a secondary use. A voice announcement to be made before any data transmission takes place outside the 2300hrs to 0600hrs time slot.
- 1999** 9<sup>th</sup> September, the death of Des Hamblyn ZL1HP was recorded with regret. Des was a foundation member of our Group. One of his major contributions was the running our Sunday night News and Net for many years.
- 2000** During October, interim approval was received from FMTAG (Frequency Management and Technical Advisory Group) for the use of 439.100MHz at our proposed Karapiro National System site (that site never proceeded).
- 2001** 15<sup>th</sup> December, an extension to the National System (439.150MHz) was installed on Mt Putauaki (Edgecumbe) for the Kawerau Amateur Radio and

Hobbies Club. Technical assistance to assemble and install that repeater plus link was provided by our Group.

Late that year, an initial run of 25 'Sound Card' kits (following Ron Badman ZL1AI's design), to interface a transceiver for digital mode operation, were produced to coincide with his article published in Break-In.

- 2002** Our January Committee meeting approved manufacture of a further 25 'Sound Card' kits.

2<sup>nd</sup> February, the 439.750MHz National System repeater equipment at Kaimai was updated with Tait 300 series equipment, plus a second-hand replacement tower was installed on the original foundation. The 145.400MHz data repeater antenna was replaced with a temporary folded dipole so the original antenna could be refurbished.

10<sup>th</sup> February, - new 550Ah VRLA batteries were installed at the Kaimai site backing-up the National System repeater, plus the now refurbished data repeater antenna was re-installed on the tower.

In September the Group hosted an APRS Forum at the Hamilton Branch 12 Club rooms which was led by Alan Wallace ZL1AMW.

Motorola GM300 equipment used on Tairua '6975 hadn't stood up to periods of high use, so was replaced with Tait 300 equipment.

- 2003** A decision was made to replace our Kaimai tower due to its deteriorating condition with extensive rust.

As an interim measure, equipment for the Hamilton National System terminal was installed at a commercial site near Hamilton's southern boundary in time for the upcoming Technology Convention. Our desire was it could remain there until space we occupied was required for commercial use.

19~20 April, - our Group organized the Easter "Technology Convention", held at the Hamilton Astronomical Society Club Rooms on Brymer Road.

In June the Group hosted another APRS Forum at the Hamilton Branch 12 Club rooms, which was again led by Alan Wallace ZL1AMW.

- 2004** A Kenwood TK-705D 2-metre transceiver was donated to our Group by Ross Grindrod ZL3DC for loan to members and those new to amateur radio.

Initial discussions were held regarding the installation of an IRLP (Internet Radio Linking Project) system in the Waikato.

- 2005** In early January an IRLP system was installed on Te Aroha (146.950MHz), for a trial period of 12 months.

During October the National System nodes (Kaimai and Hamilton) were changed to the new National System frequency plan. Kaimai now on 434.850MHz (Tx) and Hamilton on 439.975MHz (Tx).

- 2006** 25<sup>th</sup> April - after a delay of approximately 9 months, the Waikato, Bay of Plenty arm of the National System, was reconnected at Klondyke.

Our AGM unanimously agreed the IRLP node should continue to operate on '695 for the foreseeable future.

- 2007** In August, the Kenwood TR3200 transceivers initially used for IRLP node link access were replaced with Icom F210s transceivers, plus the hard drive on the node computer was upgraded.

Manufacture of the new tower for Kaimai was completed in Te Puke.

- 2008** At our 30 March AGM, Noel Rowe ZL3GR relinquished his position as President after 10 years of excellent service to the Waikato VHF Group. Alan Wallace ZL1AMW was elected as President.
- 2009** 6 & 7 February - a working bee was held at Kaimai to replace our tower and antennas. Hut foundations plus floor were also replaced on 6<sup>th</sup> February. 12cm (2424.256MHz) beacon was installed at Kaimai on 7<sup>th</sup> February. 11-12 April (Easter) the Waikato VHF Group in conjunction with Hamilton Amateur Radio Club Branch 12, organized the Technology Convention held at the Chartwell Scout Hall, in Hamilton. Our 144.650MHz "OTO Digipeater" at Rangitoto was upgraded on 5<sup>th</sup> June, with Tait T355/T356 equipment. Following an indication of "commercial rental" for access to Mt. Te Aroha, our committee considers alternatives to replace that site's 2-metre repeater coverage. From this, a proposal for a "WaiPlenty network" of (eventually) four sites is developed, to be installed as finances and site access permit. A strategic decision was made to employ current commercial repeater and link equipment throughout, and to co-locate wherever possible to facilitate multi-coupling onto commercial E-Band antennas, eliminating our requirement for outside plant maintenance (a significant cost saving to our Group).
- 2010** With construction of the Te Uku wind farm about to encroach on our "Raglan" repeater site, we abandon that site (a wind turbine now stands there). Negotiations commence to co-locate at the Te Uku microwave & VHF site. Approval is promptly obtained to co-locate our '5675 repeater plus associated links at the Te Uku microwave & VHF site on the ridge between Hamilton and Raglan. That repeater is commissioned on 24<sup>th</sup> April with an east-facing link towards Te Weraiti to later link with '695 when it transfers there. 15<sup>th</sup> October, after twenty-eight years of operation, Te Aroha '840 was switched off due to lack of use and expiry of its radio licence.
- 2011** 15<sup>th</sup> March, Te Aroha '695 was switched off, and Te Weraiti '695 (which had already been installed in readiness for that change-over) was remotely commanded on to continue our 2m repeater coverage over eastern Waikato and western Bay of Plenty. An associated west-facing link connects that repeater to Te Uku '5675, completing Stage 1 of the WaiPlenty 2m repeater network. IRLP access to that new network was established on 30 March. September – operational and maintenance responsibility for the Tairua '6975 repeater was transferred to Mercury Bay Branch 85.
- 2012** Maungakawa '5575 with its associate link to Te Uku '5675 and onto Te Weraiti '695 installed and commissioned on 21 November. Three repeaters now operated in our WaiPlenty 2-metre network.
- 2013** The Group's 50<sup>th</sup> Anniversary is celebrated at our 24<sup>th</sup> March AGM. An iced chocolate cake decorated with an image of our Kaimai tower was provided by ZL1PK's wife Doreen, and enthusiastically consumed by those attending.
- 2014** Waihi North '5475 with associated link to Te Weraiti '695 was installed and commissioned on 22<sup>nd</sup> November, completing our WaiPlenty network. This installation on private property is the only one in that network where the outside plant (antenna etc.) is entirely VHF Group owned.

**2015** Early July, a Digital Mobile Radio (DMR) repeater (439.725MHz) based on Motorola DR3000 equipment was installed atop the KPMG building in central Hamilton. Ownership of that repeater was later transferred to Branch 12.

**2017** A site visit to Te Uku on 11<sup>th</sup> January to investigate why '5675 was off the air discovered our repeater plus link radio shelf had been stolen about Thursday 29<sup>th</sup> December, along with a large quantity of our host's equipment! An equivalent repeater/link shelf was loaned to us and installed a month later.

At our 19 March AGM, Alan Wallace, who'd been President since the 2008 AGM, announced that due to work pressures he wouldn't stand again. Alan was thanked for his contribution to the Group over the previous nine years. Phil King ZL1PK was elected as our new President.

By mid-year, our equipment stolen from Te Uku hadn't been located despite investigations by the Police and a Private Investigator plus ourselves. It was found that some of the commercial equipment (including the Police's own) had been sold in Australia and North America – none of that was recovered!

25<sup>th</sup> October - our Rangitoto 144.65MHz Digipeater (Rx on 144.65MHz and 144.575MHz) was shut down.

**2018** Most of our repeater equipment stolen from Te Uku was discovered in a Hamilton storage facility (the culprit had fled NZ soon after the burglary). It was checked over and reinstalled at Te Uku on 22<sup>nd</sup> November.

**2019** 16<sup>th</sup> January – our 2m, 70cm & 23cm beacons were decommissioned and removed from Hamilton Central Telephone Exchange building, two days ahead of forty years on site.

29<sup>th</sup> September - Kaimai 145.400MHz Data repeater was shut down, and removed.

19<sup>th</sup> December - a 144.575MHz APRS Digipeater supplied by and licenced to Warren ZL2AJ. (ID ZL2AJ-6) is established at our Kaimai site. Refer map at <https://aprs-map.info/?center=-37.8813,175.9384&zoom=16>

**2021** 28<sup>th</sup> May – we discovered Waihi North '5475's antenna had suffered storm damage. A replacement antenna was ordered and installed on 12<sup>th</sup> June.

3<sup>rd</sup> July, Waihi North again off the air, this time as a result of serious equipment damage by rats. Following extensive repairs in Hamilton, including replacing the battery charger and damaged wiring, that site was back on the air on 20<sup>th</sup> November.

**2022** During April, signal from Te Weraiti '695 was observed to have dropped significantly, and our link with Te Uku had failed. On 2<sup>nd</sup> May, a contractor visiting the site discovered seriously damaged repeater antennas plus the VHF Group's Te Uku facing Yagi facing smashed. Temporary low-gain antennas were erected to restore basic service until full re-rig of the mast could be carried out. Performance of '695 meantime was about 20dB down.

17<sup>th</sup> November, the VHF Group's failed battery at Te Weraiti was replaced and a new charger plus Low Voltage Disconnect was installed.

**2023** Our sixtieth Anniversary was celebrated at our 26 March AGM. For that event, Syd Rowe ZL1LWR baked us a cake which was iced by Christine Cecil, topped with a photographic image of our Kaimai repeater site. Short work of that cake was made by those attending! Ian ZL1TAT recalled our "First Sixty Years" by way of a PowerPoint presentation.

**2024** After multiple failures of the aging controller in the Kaimai National System '485 ULS, a temporary Motorola DR3000 repeater was installed on 25<sup>th</sup> May. In early August after a long wait, Te Weraiti '695 and our Te Uku link were restored to near original levels when new antennas were installed during complete re-rigging the mast.

Gavin Petrie ZL1GWP passes away on 22<sup>nd</sup> August, ending his 38 years of excellent service as VHF Group Secretary, and more recently as web master.

After nearly 41 years of service, amateur radio access to its site was withdrawn, so Tairua '6975 was shut down and removed on 27 August.

Also in August, Te Weraiti '695 developed a buzz on its tail after our "mains monitoring" plug-pack power supply failed. This was resolved on 16<sup>th</sup> September when a replacement plug-pack was installed.