Final report template for Community Projects and Internet Research - to be sent to gertrud@internetnz.net.nz on the date specified in your contract	
Grant reference number:	PRS2201600008
Name of recipient	*Matt Hampton*
Name of organisation *(if applicable)*	Community Wireless Trust
Title of project/research	Waimate District Digital Development Project
Amount of funding received	*$15,000 plus gst*
Budget details	***Original Estimate*** 5 GHz Rocket ac PRISM with GPS Sync @ $385.00 each x 10 = $770.00 5G-19-120 5GHz 19dBi Antenna @ $249.00 each x 10 = $498.00 5GHz Upper Gigabit Wireless Bridge @ $1450.00 each x 4 = $2900.00 Ubiquiti EdgePoint 6 Port WISP Router @ $225.00 each x 1 = $225.00 Solar power and Batteries = $1200.00 Estimated cable plus connectors = $750. Total = $14,990. GST = $2248.50 **TOTAL = $17238.50** ***Actual*** High School to Silos 2 x EP-R6 178.35 each = $356.7 1 x EP-R8 $675 each = $675 1x EP-S16 $750 each = $750 2 x AF-5U $1350 each = $2700 4 x PBE-5AC-300-ISO $190.53 each = $762.12

	2 x TS-8-PRO $303.63 each = $607.26 1 x ES-16-150W $491.95 each = $491.95 1 x EP-54V-150W $315 each = $315 1 x EP-54V-150W-DC $108.75 each = $108.75 5 x LBE-5AC-16-120 $152.25 each = $761.25 5 x NBE-5AC-16 $138.33 each = $691.65 2 x LBE-5AC-23 $91.35 each = $182.7 5 x RP-5AC $369.75 each = $1848.75 2 x ANT117 $216.63 each = $433.26 1 x AP-5AC-90-HD $604.65 each = $604.65 Solar Panel 200w plus Batteries x 4 $1200.00 Subtotal = $12489.04 Silos to Te-Kiteroa 2 x ANT206 $178.35 each = $356.7 2 x RP-5AC $369.75 each = $739.5 1 x ANT117 $216.63 each = $216.63 Subtotal = $1312.83 Cabling 1 x TC-PRO $239.25 each = $239.25 1 x TC- CARRIER $345.15 each = $345.15 1 x TC-CON-100 $77.43 each = $77.43 3 x TC-GND-20PK $20.88 each = $62.64 Subtotal = $724.47 Total = $14526.34 GST = $ 2178.95 **<u>TOTAL INC GST = $16705.29</u>**

	No, currently still awaiting approval from Makikihi & Waihao Downs Schools. They have had a change of Principals and discussions are continuing. However in the interim with the solar and wind powered expansion, we should be able to cover both localities by the end of next month. We have subscribers waiting!
Project/research approach and methods	*How did you undertake this project, what were your strategies and timelines?* Year 1 Stage 1 Planning Waimate (Complete) 1.1 Recruit 3 – 6 trustees to oversee a local Proof of Concept project in the Area 1.2 Source sponsorship from community to fund proof of concept 1.3 Investigate hardware to determine suitability 1.4 Source access to high points for location of backhaul equipment 1.5 Enlist experience help if required (i.e. technical skilled) 1.6 Obtain permission form local School to use the spare Optical Network terminal port 1.7 Obtain and connect a wholesale Internet connection for the ONT Stage 2 Proof of concept Waimate (Complete) 2.1 Install Hardware at the school 2.2 Install Hardware at high point 2.3 Install Hardware at Staff homes 2.4 Install Wisp software and server 2.5 Monitor and tweak network for Pilot rollout 2.6 Seek suitable community members for Pilot Programme 2.7 Monitor and improve network for 3 – 6 months Year 2 Stage 3 Pilot programme Waimate (Nearing Completion) 3.1 Decide on connection pricing plans 3.2 Investigate and implement Community connections 3.3 Throughout the Pilot seek further connections 3.4 Continue to upgrade and improve network prior to Full Rollout 3.5 Continue to seek funding 3.6 Continue to seek sites for further expansion 3.7 Investigate and seek all options that enhance the Key Strategic Imitative 3.8 Investigate the implementation of a Community CCTV setup

	Stage 4 Full rollout Waimate (To be Implemented April 2018) 4.1 Communicate the availability of the network 4.2 Continue to upgrade and improve network 4.3 Continue to seek funding 4.4 Continue to seek sites for further expansion 4.5 Continue to investigate and seek all options that enhance the Key Strategic Imitative Stage 5 BYOD programme Waimate (To be Implemented late 2018) 5.1 Engage with Schools in relation to devices. 5.2 Engage with Schools in relation to their stakeholders 5.3 Engage with suppliers re devices 5.4 Continue to seek funding 5.5 Continue to seek sites for further expansion 5.6 Continue to investigate and seek all options that enhance the Key Strategic Initiative 5.7 Collaborating with schools/parents finalise BYOD programme 5.8 Rollout BYOD programme
Summary of project/research outcomes	Excellent, securing low cost, high tech hardware from Ubiquiti that is in continuous development has been hugely advantageous. Since the project commencement, hardware has gone from basic programming of network connection to wirelessly accessing units and upgrading. Hardware is improving with each new software upgrade, giving us a life span of the current hardware for 5 yrs. Currently the network is generating approx $1500 a month with no advertising so far. We are looking at commencing some advertising at the end of Feb to increase the numbers, however we are mindful of congestion issues , and accordingly we will be upgrading one of the 200Mb pipes to a 500Mb pipe to keep up with our customers expectations. We are actively working with a local farmer to give us access to a higher repeater location, allowing the signal to reach from Glenavy in the south of the district through to Makikihi and St.Andrews in the north. This repeater will be solar and wind powered and will go a long way at increasing our coverage.
Achievements	● Installation of 9 free teacher connections for Waimate High School, giving direct access to school cloud environment and internet access

	● Installed free wifi for the South Canterbury A & P Showgrounds - users since install - 1306 since March 2017 ● Installed partial free wifi through Waimate Town Centre - users since install - 3150 since March 2017. ● Ministry of Education granted access to network to put Waimate High School on the cloud as part of the Community of Learning. ● Current MOU developed in conjunction with MOE.
Difficulties	*Please outline any difficulties you had and how you managed them* There is an issue with the cost of installation and hardware being unaffordable for those that need it the most , we are currently exploring funding options to alleviate this.
Findings/learnings	*What were your major take away points or discoveries in doing this work?* More time needs to be spent on creating an effective means of distributing funds generated by the network back to the community - CWT's attempt via WDDT failed miserably and cannot be repeated. As CWT is run by volunteers , there will come a point in the near future where the network(s) will reach a point that there will need to be at least one salaried member to keep up with the growing demand. This will result in exponential growth that will deliver many times the value of the INZ grant that has been received. Funding is an ongoing issue that is hampering the growth of the network - this is apparent in two ways , firstly is that installation and hardware costs can be an insurmountable barrier for some potential customers and secondly expanding the network into other areas is held up due to the cost of establishing suitable repeater sites. CWT is currently developing a prototype for low cost solar powered repeater stations - once this is completed and rolled out we should see a significant increase in our client base due to reaching some of our more remote rural based community members.
Do you anticipate their being anything media-worthy in your project/research*	*Any outstanding discoveries, good-news stories or unique work (in your opinion?) *Please note we may use this information in a media release.*

	New networks in the pipeline, so watch this space!