

IN THE MATTER

**of the Resource
Management Act 1991**

AND

IN THE MATTER

**Hutt City Proposed District
Plan**

HEARING 6 –INFRASTRUCTURE

**JOINT STATEMENT OF EVIDENCE OF
GRAEME MCCARRISON FOR
SPARK NEW ZEALAND TRADING LTD**

AND

**ANDREW KANTOR FOR
CHORUS NEW ZEALAND LTD**

AND

**COLIN CLUNE FOR
ONE NZ GROUP LTD AND FORTYSOUTH**

AND

**FIONA MATTHEWS FOR
CONNEXA LTD**

4 SEPTEMBER 2026

1. EXECUTIVE SUMMARY

- 1.1 Spark, Chorus, Connexa, One NZ, and FortySouth welcome the opportunity to provide this evidence. Each company's core business is:
- Chorus - own and operate a nationwide network of fibre optic and copper cables connecting homes and business together.
 - FortySouth - responsible for, building, owning, operating, and maintaining the mobile tower/structure infrastructure for One NZ to attach their active network equipment.
 - Connexa - responsible for, building, owning, operating, and maintaining the mobile tower/structure infrastructure for Spark and 2degrees to attach their active network equipment.
 - Spark and One NZ remain telecommunication network operators providing customers the opportunity for digital connectivity.
- 1.2 The diagrams in Appendix 1 give a general understanding of what each organisation is responsible for and highlights the split between passive structures owned by Connexa and Forty South and the active components of the Spark and One NZ (and 2Degrees) wireless networks.
- 1.3 Telecommunications companies deliver critical communications infrastructure (defined in the Wellington Regional Policy Statement as *Regionally Significant Infrastructure*) that connects communities, promotes inclusivity, supports economic and environmental objectives, and is a critical part of our response to climate change. Telecommunications infrastructure is highly dynamic, and, unlike other infrastructure sectors, our network requirements are changing and evolving constantly at a fast pace due to technological evolution.
- 1.4 The three most significant issues that we are facing in regard to the regulatory settings are firstly the lack of national consistency of the regulatory regime for telecommunications; secondly limited recognition of the impact of development on existing network facilities; and thirdly the lack of requirements for the provision of telecommunications (both fixed line and wireless) in large new developments and subdivisions. If we are going to have well-functioning urban and rural areas, then telecommunication cannot continue to be an afterthought.

- 1.5 Spark and One NZ are continuing the roll-out of 5G mobile networks, deploying over 1,000 new mobile sites to increase capacity and extend network coverage. Work has started on planning for the 6G network. Chorus continues to expand its fibre network in urban and small rural settlements. The continuous technology upgrades, often leading to the need to swap out poles, are needed to keep up with the increasing demand for data and speed of service by consumers and businesses. Exponential growth in the use of data is continuing and each year the amount of data handled by telecommunications networks roughly doubles¹. Chorus, Spark, One NZ, Connexa and FortySouth, along with other telecommunication providers, invest significantly every year (approximately \$1.4 billion)² in our networks to ensure New Zealanders have access to world class digital services.
- 1.6 Satellite technology with low Earth orbit (LEO) satellites acting as cell towers and integrating with the existing on the ground networks is still new and evolving technology. The technology enables the satellites to connect devices (such as mobile phones) directly. The Spark³ and One NZ Satellite have since in late 2024⁴ provided satellite-to-mobile service powered by Starlink's technology. Connection to the satellite services only occurs the user/customer is in an area without standard Spark/One NZ mobile coverage, where a user has a clear line of sight to the sky. These satellite services enable users to send and receive texts and access data on selected satellite-ready apps for example Whatsapp, Facebook Messenger, AccuWeather & Google Maps. A user needs an eligible phone, SIM and enterprise mobile plan TXT and voice services.
- 1.7 Satellite broadband services are widely available in NZ via a range of providers. These services currently depend on satellites connected via a dish which connects via cable to a wifi router inside the building receiving the service. These networks, supplement, rather than replace, ground-based networks.
- 1.8 Dependency on the ground-based networks for telecommunication services is not changing anytime soon.
- 1.9 We try to work pro-actively with local government before and during plan review processes, and submit on regional and district plans with the aim of reasonable

¹ The New Zealand Commerce Commission, [Annual Telecommunications Monitoring Report – 2021 Key Facts](#), 17 March 2022

² <https://www.comcom.govt.nz/regulated-industries/telecommunications/monitoring-the-telecommunications-market/annual-monitoring-report/>

³ <https://www.spark.co.nz/online/large-business-govt/products/connect/mobility-solutions/satellite#satellite-ready-apps>

⁴ https://one.nz/why-choose-us/spacex/?&&&qad_source=1&qclid=EAlaIqObChMlJa3f_4uFiwMVX6VmAh3mnCJwEAAYASAAEgLcw_D_BwE&qclsrc=aw.ds

national consistency of the policy frameworks and rules for telecommunications. Reducing the number of bespoke and inconsistent rules enables the efficient design of our networks to meet local community demands and respond to the physical geography of districts and regions.

- 1.10 We rely on regulatory frameworks both nationally, via the National Environmental Standards for Telecommunications Facilities 2016 (NES-TF), and locally, via the Hutt City district plan, to appropriately enable the planning for upgrading of existing networks and construction of new network assets to support economic growth, deliver digital services and enable connectivity to the rest of the world. These frameworks are also relied on as we increase the resilience of the networks in response climate change and natural hazards.
- 1.11 Enabling appropriate permitted heights for new cell sites is essential to support the provision on telecommunication services to businesses, residents and visitors of Hutt City. Amendments to the NES-TF 2016 is understood to be gazetted before the hearing, and will come into effect in early October 2026. The Minister in December 2025 released the report summarising submissions on the NES-TF proposals and outlined the officials' recommendations. In May 2026 the Minister Responsible for RMA Reform's (the Minister's)⁵ final decisions on the proposed amendments to the National Environmental Standards for Telecommunication Facilities (NES-TF). Since May 2026 there has been further amendments following a MBIE/MfE Technical Group review. We have set out a summary of the key changes to the NESTF start paragraph 4.4 and some of the detailed changes are set out in the tables in appendix 3.
- 1.12 The proposed district plan has had an interesting journey in which the companies were actively briefly involved at the early draft plan stage. We recognise that the proposed Plan is attempting to have consistency with the other Wellington recently reviewed plans such as Wellington City and Porirua City. The proposed Wellington City Plan offers in our opinion a good framework for infrastructure.
- 1.13 We are also mindful that the National Policy Statement – Infrastructure (NPS-I) was released in December 2025. NPS-I supports the operation, maintenance, renewal and upgrade of existing infrastructure, and to the development of new infrastructure

⁵ The Prime Minister agreed that portfolio responsibility for statutory decisions on the listed national direction rests with the Minister Responsible for RMA Reform, rather than the Minister for the Environment as stated in the Resource Management Act 1991 (RMA). The Minister Responsible for RMA Reform can exercise these powers in accordance with section 7 of the Constitution Act 1986.

across Aotearoa New Zealand. Finally, after 30 plus years there is recognition of the critical importance of infrastructure in New Zealand.

- 1.14 The critical place of infrastructure for Aotearoa New Zealand is elevated in the goals of the Planning Bill and Natural Environment Bill. The Illustrative National Policy Direction, which dedicates a theme to Infrastructure, was released 25 August 2026 for which submissions close 16 October 2026. We recognised the replacement legislation for the RMA do not have a bearing on the review of the Hutt City Plan. We note the NPS-I signals the change in the recognition and status of infrastructure in the Aotearoa New Zealand planning system.
- 1.15 At the time of drafting our evidence it would have been useful to have NES-TF 2026 in effect. At the hearing ourselves and our planning expert Mr Tom Anderson will provide relevant NESTF 2026 information based on the gazetted regulation. The NES-TF 2026 will resolve a number of the outstanding matters that the reporting planner has rejected our submissions. The companies would like to commend the officers on the pre-hearing workshops process that has enabled infrastructure submitters to background information and understanding of the practical needs for a reasonable regulatory framework. We consider that recommendations of the S42 reporting officer are generally practical and recognise telecommunications, with Mr Andersons evidence outlining where we consider further consideration is needed.

2. INTRODUCTION

Graeme McCarrison

- 2.1 My full name is Graeme Ian McCarrison. I am the Environment & Planning Manager at Spark, a position I have held since February 2015. I am authorised to give this evidence on Spark's behalf.
- 2.2 I hold the qualification of Bachelor of Regional Planning (Honours) from Massey University. I am a Fellow member of the New Zealand Planning Institute and was on the board of the New Zealand Planning Institute ("NZPI") between April 2018 and April 2022. Between 2012 and April 2015 I was the chairperson of the Auckland branch of the New Zealand Planning Institute. In 2016 I received a NZPI Distinguished Service Award, and I part of the team that received a best practice award for iwi engagement by NZPI in 2015.
- 2.3 I have worked in the public sector in Auckland including as Director of Regulatory Services at Papakura District Council, Planning Manager for Waitakere City Council and in the private sector as a self-employed consultant and as a consultant at Murray North Partners. The last fifteen years have been in the telecommunications sector. Prior to Spark I held the equivalent position at Chorus (November 2011 to January 2015), where I advised both Chorus and Spark on resource management and government matters. I work nationally with a primary focus the review of all regional, district and spatial plans plus any related local government documents that have the potential to enable or impact the telecommunications industry.
- 2.4 I continue to co-ordinate and facilitate a wide group of infrastructure/network utility organisations with national network interests. I organise a shared approach and resources that enables Spark, FortySouth, One NZ, Connexa and Chorus to be involved at a national level in every relevant Plan review recently including: Gore, Mackenzie, Far North, Wellington City & Region, Timaru, Kaipara, Porirua, Wairarapa, Waitomo, Waitaki, and Waikato Regional Coastal Plan.
- 2.5 I represented the telecommunications industry on the Ministry for the Environment established project and working group to draft a potential draft National Planning Standards for Network Utilities, which first met on the 12 October 2016. Post February 2018, I co-ordinated the project working group of experts and specialist knowledge from in-house and external professionals representing a range of network utilities including telecommunications, rail, electricity distribution, gas transmission, 3 waters, road transportation which continued to fund and develop as draft provisions until early

2020. This work is one of many documents being considered as the recently formed Ministry of Cities, Environment, Regions and Transport (“MCERT”) progresses work on developing National Standards under the proposed Planning and Natural Environment legislation. I am currently a member of the Infrastructure Practitioners Group established by MCERT to be a technical advisory group on matters infrastructure.

- 2.6 I have submitted on behalf of Spark and generally combined with Chorus (Andrew Kantor), Fortysouth and One NZ (Colin Clune) and Connexa (Fiona Matthews) on a wide range of Resource Management Act amendment and reform documents.
- 2.7 I represent the Telecommunications Forum (TCF) on the Technical Advisory Group for the NES-TF 2026 alongside my colleagues Andrew Kantor – Chorus, Colin Clune – FortySouth, and Fiona Matthews Connexa, as well as our planning expert Tom Anderson, and local government representatives. Since the NES-TF 2016 amendments, the group made up of representatives from the Ministry of Business, Innovation and Employment, MCERT, and Local Government New Zealand meet at least annually to discuss and review the effectiveness of the National Environmental Standards for Telecommunication Facilities Regulations 2016 (NES-TF). I note that the amended NES-TF 2026 due to be gazetted in early September 2026 and come into effect in the week being the 4th of October 2026.

Colin Clune

- 2.8 My full name is Colin William Clune. I am the Resource Management Manager at FortySouth, previously I held a similar a position at One NZ/Vodafone since October 2014. I was an in-house contractor for Vodafone (September 2010 to September 2014). I advise FortySouth and One NZ on resource management and government matters. I am authorised to give this evidence on FortySouth and One NZ behalf.
- 2.9 I hold the qualifications of Bachelor of Urban Planning and Master of Planning from the University of Auckland.
- 2.10 I am currently on the Technical Advisory Group for the NES-TF amendments. I am also a participating member of the New Zealand Telecommunications Forum, working to efficiently resolve regulatory, technical and policy issues associated with network telecommunications.

Andrew Kantor

- 2.11 My full name is Andrew Robert Kantor. I am the Environmental Planning and Engagement Manager at Chorus, where I have been employed since 2015. I am authorised to give this evidence on Chorus' behalf.
- 2.12 I hold the qualification of Master of Science (Environmental Science) from the University of Auckland and am an associate member of the New Zealand Planning Institute.
- 2.13 I have 20 years of resource management experience, comprising of roles for various infrastructure providers in New Zealand and overseas.
- 2.14 I am currently on the Technical Advisory Group for the NES-TF amendments. I am also a participating member of the New Zealand Telecommunications Forum, working to efficiently resolve regulatory, technical and policy issues associated with network telecommunications.

Fiona Matthews

- 2.15 My full name is Fiona Elisabeth Matthews. I am the Planning Manager at Connexa Limited (Connexa). I have held this position since October 2022. Previously, I was a Planner for Spark New Zealand, (May 2018 to September 2022), where I advised Spark on resource management and regulatory matters. I am authorised to give this evidence on Connexa's behalf.
- 2.16 I obtained a Bachelor of Science and a Post-Graduate Diploma of Environmental from Massey University. I have 13 years' experience in the resource management field, and in addition to my roles at Connexa and Spark I have had various local and central government roles. c I hold an associate New Zealand Planning Institute Membership.
- 2.17 I am on the Technical Advisory Group for the National Environmental Standard Telecommunication Facilities amendments (NES-TF amendments). I am also a participating member of the New Zealand Telecommunications Forum, which works to efficiently resolve regulatory, technical and policy issues associated with network telecommunications.

Scope of evidence

- 2.18 This statement of evidence covers the following areas:
- a. Critical and essential nature of telecommunications

- b. National environmental standards for telecommunications facilities
- c. Impact of Urban Intensification
- d. Site Acquisition
- e. Customer connections
- f. Active Street frontage

3. CRITICAL AND ESSENTIAL NATURE OF TELECOMMUNICATIONS

- 3.1 Every day, it is estimated 402.74 million terabytes⁶ of data are created each day. In zettabytes, that equates to around 147 zettabytes per year, around 12 zettabytes per month, 2.8 zettabytes per week, or 0.4 zettabytes every day that roughly 2.5 quintillion bytes of data are created globally. A zettabyte is 1,000 bytes to the seventh power (one zettabyte has 21 zeros). In 2025 the global amount of data was estimated to be 181 zettabytes. Some examples of the way data are generated or consumed include social media sites, financial institutions, medical facilities, shopping platforms, vehicles, mobile calls, gaming, video conferencing, streaming films/series including via Netflix or YouTube and smart technology such as AI, smart technologies, machine to machine communication.
- 3.2 It is fair to say that we all dependent on the critical and essential services delivered by our telecommunications network infrastructure. The COVID-19 pandemic demonstrated just how much we rely on access to 'public digital infrastructure'. A lack of, or limited access to telecommunications continues to create digital inequity. This equity issue is being confronted by partnership initiatives by the companies.
- 3.3 Public good value provided though our privately owned and funded networks, connects people, communities, businesses and public infrastructure (including transport, social education, health) with data, products and services. Our physical networks/infrastructure include cell-sites, fibre, satellites, IoT devices, high-powered computing facilities and data centres/exchanges, to support the provision of telecommunication services enable the New Zealand to remain competitive internationally and face up to challenges such as climate change. New Zealand's networks are part of the global networks of connectivity on which we depend on a few international submarine telecommunication cables. Approximately 98% of our digital traffic travels via these submarine cables.

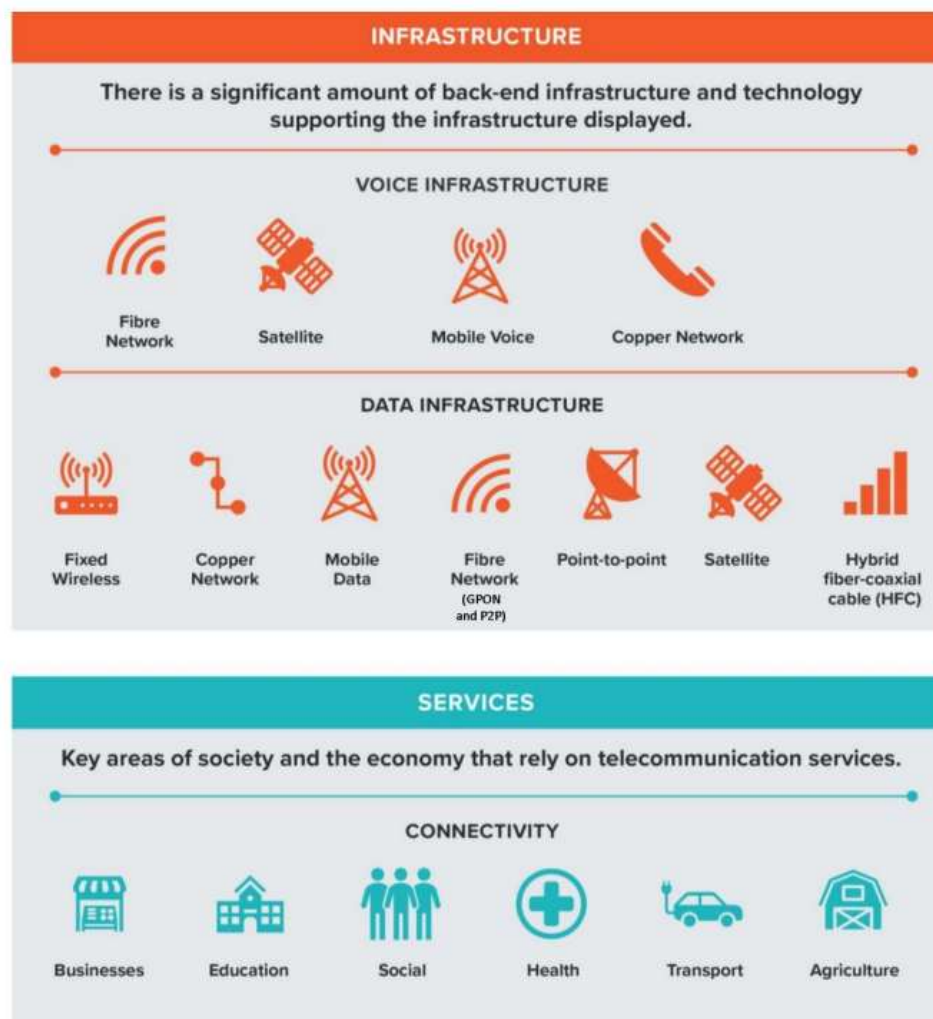
⁶ <https://explodingtopics.com/blog/data-generated-per-day>

- 3.4 Telecommunication connectivity appears to be simple, instant and invisible. For example, via my device I ask for a phone number, and I am connected. I ask Siri, Google or an AI agent a question, and in a fraction of a second, I have information. The telecommunications networks of the operators are in reality not invisible nor simple to construct and require significant on-going investment for upgrading with rapidly evolving technology.
- 3.5 The telecommunications industry collectively invests on average \$1.4 billion⁷ each year to deliver new services and network technology. At the same time, fierce competition is delivering more value to consumers at lower prices, meaning New Zealand is now in the enviable position of having world-class networks and services, at below OECD average prices, for both fixed and mobile communications
- 3.6 Digital connectivity and services, provided by Spark, One NZ and Chorus (as supported by Connexa and FortySouth), underpin and transform a range of services delivered by local, central government and businesses alike, including (to name a few):
- (a) Remote environmental sensing for early fire detection network in forests or areas at risk from fire. The 360-degree cameras and IoT sensors are continuously monitoring conditions, supported by Artificial Intelligence analytics providing valuable real-time data on statistics such as air quality and ground temperature. Warning data is transmitted to Fire and Emergency New Zealand who can then act if appropriate.
 - (b) Smart pay apps on your device and other payment services including payWave.
 - (c) Infrastructure management i.e. monitoring movement and traffic flow, monitoring and managing water, electricity and other utility services including waste management providing customers real-time information.
 - (d) Monitoring and real-time reporting of air flow and quality; or water quality for swim ability or drinking; flood warning accompanied with real-time mapping and predictions.
 - (e) Drones for monitoring especially in high hazard environments e.g. during a forest fire or a flood event when it is unsafe to fly other aircraft; reporting fires and managing search and rescue situations; mapping for hazards or size of forests for carbon credit assessments.
 - (f) Health and safety monitoring, for example GPS tracking sensors.

⁷ <https://www.comcom.govt.nz/regulated-industries/telecommunications/monitoring-the-telecommunications-market/annual-monitoring-report/>

- (g) Communication in all its forms from calling, text, social media, Microsoft Teams or Zoom to evolving VR meeting and collaboration interaction services in 3D platforms such as MeetinVR.

3.7 The telecommunications services are relied on by the majority of society, and the economy are provided via several different types of infrastructure and technologies, as illustrated in the diagram below by New Zealand Infrastructure Commission, State of Play: Telecommunications discussion document December 2020.⁸



Source: New Zealand Infrastructure Commission, Te Waihangā and TCF

New Zealand's Telecommunication Networks

3.8 For mobile services, Spark, One NZ and 2degrees are the three major mobile network operators who each compete for customers over their own networks, utilising poles and cabinets owned by Connexa and FortySouth, and radio spectrum licensed from

⁸ New Zealand Infrastructure Commission / Te Waihangā *State of Play: Telecommunications Discussion Document*, (December 2020) www.tewaihang.govt.nz at page 9.

Central Government. Sometimes we can co-locate our equipment with another operator on a single facility to save the cost of building a separate facility. Additionally, Spark, One NZ and 2degrees established and jointly own Rural Connectivity Group ("**RCG**"), a wireless network that is extending mobile and wireless broadband coverage to remote areas of rural New Zealand as part of the Government's Rural Broadband Initiative and other dedicated funding sources.

- 3.9 New Zealand has a 'open access' national fixed line network owned by various wholesale companies such as Chorus. Chorus operates "open access" network, meaning it sells wholesale network access to retail phone and broadband providers rather than directly to everyday consumers. Chorus is the line network company providing fixed line connections within Hutt City. Retailers like Spark and One NZ that provide customers connectivity for digital services via fixed, and/or wireless networks.
- 3.10 Chorus owns the national copper line network, and most of the fibre network built in cities and towns, under the Government-sponsored ultra-fast broadband ("**UFB**") programmes UFB 1 & 2 and extensions. Chorus is planning further expansion of the fibre network.

Ultrafast Broadband

- 3.11 The Ultrafast Broadband (UFB) network comprises cable, duct and cabinet or exchange-based electronics, to provide GPON (Gigabit Passive Optical Network) equipment and routing equipment, between the end customer the Point of Interconnect ("**POI**"). Multiple cables emanate from GPON locations to clusters of end users within a geographic area.
- 3.12 The UFB network is an 'open access' network, which allows a variety of internet service providers and resellers to operate off the fibre network infrastructure, ensuring end users have a variety of choice as to the ISP as well as packages, pricing and service levels on offer. Fibre is a future-proofed technology that offers a scalable, low-cost pathway to major ongoing performance upgrades. The UFB network is continually being developed and expanded to meet demand within the existing coverage area and grown to meet demand where economically feasible.

Wireless telecommunications networks

- 3.13 The rollout of 5G continues and the fast-evolving digital technology that it enables is critical to a well-functioning urban and rural environments. It is widely expected to transform our cities and the ways in which we use other kinds of infrastructure. 5G

into rural communities enables access to the 600Mhz band, which is particularly important for rural areas given its ability to provide 5G connectivity over greater distances, including 3.5GHz.

- 3.14 Telecommunication networks closed out the 3G networks in early 2026 as part of undergoing a migration towards 5G technology nationwide. 5G technology has a higher bandwidth allowing a greater amount of data to be sent and received. As a result, the radio frequency fields emitted from 5G antennas are larger than previous generations of technology. Consequently, to remove these fields from entering the public domain, antennas need to be placed on correspondingly taller poles, as well as having a cognisance of taller buildings, whether these are built or can be built to a certain height as a permitted activity. This has been recognised by Central Government, and higher poles being a feature of the NES-TF 2026.
- 3.15 Our wireless telecommunications networks have a number of benefits, including enabling the provision of Emergency Mobile Alerts by the National Emergency Management Agency. These alert messages are sent by authorised emergency agencies to capable mobile phones. The alerts are designed to keep people safe and are broadcast to all capable phones from cell towers within the emergency area. The alerts have been used numerous times for local and national emergencies, including:
- (a) 111 emergency calling;
 - (b) Natural emergencies event warnings to potentially affected people for earthquakes, flooding or other natural emergencies. The alerts are becoming how nationally significant events and information are communicated to New Zealanders in an immediate and succinct manner.
 - (c) A world-first, 'Hourua' is a step towards enhancing national emergency preparedness, New Zealand's leading telecommunications providers, Spark and One New Zealand, have partnered with Next Generation Critical Communications (NGCC) and Police Minister Mark Mitchell to launch the Cellular Network Visibility Service - a tool that provides emergency services with real-time mobile network insights. Hourua is an important collaboration that is delivering real value for our critical emergency services teams who are saving lives and protecting New Zealanders on the front line.
 - (d) Current program of expanding the battery capacity of 295 Spark/Connexa sites to provide continued operation for 24 hours during power outages.
- 3.16 Currently central government is investing \$1.4 billion in an upgraded 'Public Safety Network'. Tait Systems New Zealand is building a new digital Land Mobile Radio

(LMR) network to ensure Fire and Emergency New Zealand, New Zealand Police, Hato Hone St John, and Wellington Free Ambulance have access to secure and reliable communication, where and when they need it. Across New Zealand, the LMR network will operate through approximately 500 transmission sites.

- 3.17 One critical challenge in building the LMR network is extending radio coverage across new infrastructure for all emergency services, particularly major roads like Wellington's Transmission Gully, which opened in 2022 without wireless coverage. Transmission Gully is a vital and fast route for first responders travelling to or from Wellington, and where emergencies can occur, secure and reliable radio coverage is essential. This is an example of where new routes have not had wireless coverage designed into the roading project. RCG has now delivered reasonable coverage along Transmission Gully for Spark, One and 2degrees.
- 3.18 New Zealand has multiple layers of networks (wireless, IoT and fixed line, plus satellite) and providers include:
- a. Wireless networks of Spark, One NZ, 2 degrees and Rural Connectivity Group (RCG) (a joint venture between Spark, One NZ and 2 degrees)
 - b. Fixed line networks operated by Chorus nationally including Hutt City. Note that Spark and One NZ have large fibre networks of their own.
 - c. Wireless Internet Service Providers (WISPs) – including local providers WombatNET and Gravity (satellite) in the Wellington region and or wider.
 - d. International companies e.g. Starlink (SpaceX), AST SpaceMobile, Iridium, Amazon.
- 3.19 Telecommunications infrastructure is a key enabler of future technologies that are expected to be one of the solutions to many of today's challenges, from climate change to lifting our productivity and innovation. The Climate Change Commission's advice to the government as part of the emissions reduction plan notes precision agriculture as an example of the ways in which technology will help to improve efficiency and reduce environmental impacts in agriculture – it requires digital connectivity and networks to be possible⁹.
- 3.20 The Infrastructure Commission's discussion document on Infrastructure for a Better Future recognises the critical nature of telecommunications infrastructure. The report

⁹ <https://ccc-production-media.s3.ap-southeast-2.amazonaws.com/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf>; p. 306

notes that 'Increasing reliance on communications makes telecommunications infrastructure more critical.'¹⁰

Satellites

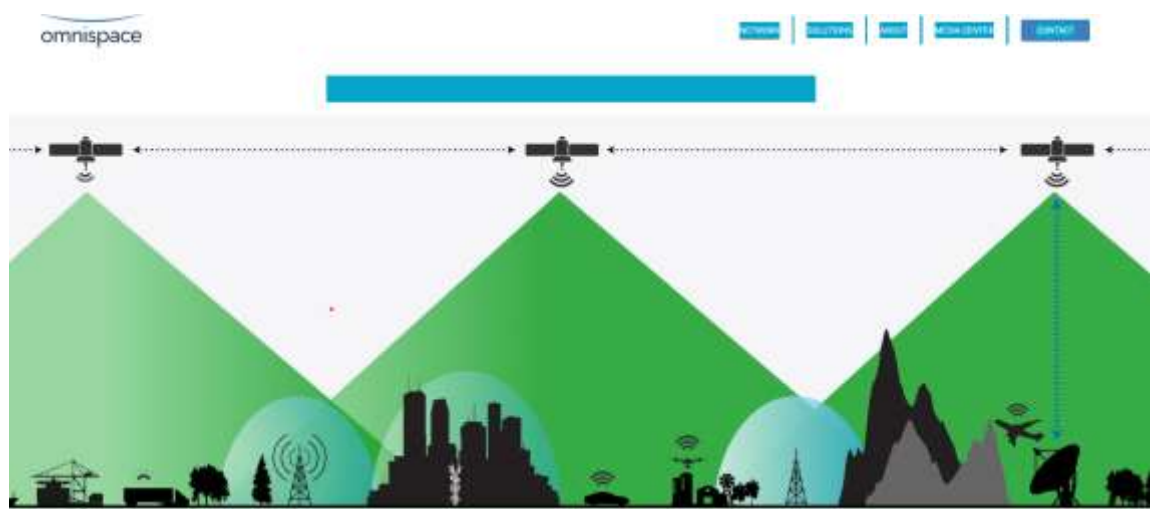
- 3.21 Telecommunication connectivity infrastructure (satellite direct to phone or device) continues to be fast evolving and ever changing as we integrate new technology to expand customer opportunity to connect when they want it just about anywhere. New Zealand has a long history of satellite services going back to Warkworth Satellite Earth Station to broadband services satellite to a dish connected to wifi router into a building. However, the utilisation of new non-geostationary constellations of multiple satellites that orbit earth has significantly improve the broadband services available to business/rural and residential customers. The SpaceX Starlink service is one such global company that retails wireless broadband services into New Zealand. Starlink has approximately 85,000 customers in the year to June 30, 2025, according to the Commerce Commission's 2025 Telecommunications Monitoring Report.
- 3.22 Spark and One NZ provide satellite-to-mobile services. The One NZ Satellite TXT (text) service launched in late 2024¹¹ and Spark from 2026. 2degrees has signed deal with AST SpaceMobile and says it will launch satellite broadband for smartphone users this year.
- 3.23 It is worth remembering that the technology is still evolving, so the service and experience will improve and expand as the number of satellites in the sky increases. Satellite services can't provide 100% connect ability, as you need a clear line of sight to the sky to get connected. Satellite services add an additional layer of resilience, particularly now, as we face increasingly severe and frequent weather events due to climate change. Once there are more satellites launched and the service is available more broadly, it will allow mobile customers to start to use their phones in more areas that aren't reached by existing mobile coverage.
- 3.24 Satellites are part of the integrated communications network solution and are not expected to replace the need for cell towers. The mobile operators in Aotearoa New Zealand have significant upgrade and new sites planned for across the country. Our networks reach 99% of the populated areas of Aotearoa. Satellite enables coverage of the areas currently difficult to service mainly due to our topography. Satellite

¹⁰ <https://www.infrastructure.govt.nz/assets/Uploads/Infrastructure-Strategy-Consultation-Document-June-2021.pdf>; p. 34

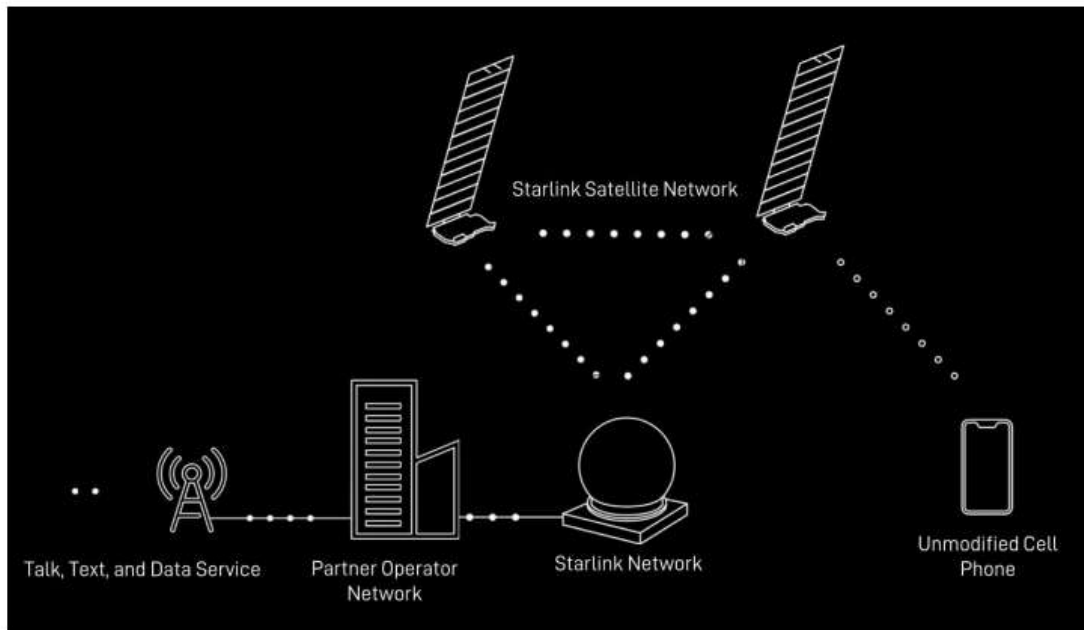
¹¹ https://one.nz/why-choose-us/spacex/?&&&&gad_source=1&qclid=EAlaIqObChMlJa3f_4uFiwMVX6VmAh3mnCJwEAAYASAAEgLcw_D_BwE&qclsrc=aw.ds

coverage has finite capacity (e.g. when a satellite service is used for making calls, connectivity is lost inside a building). Hence partly why there will be continued need for cell towers. To address this, there will continue to be an increasing number of new infill cell towers constructed across Aotearoa, including in sensitive environments such as outstanding natural landscapes, or in the coastal environment.

- 3.25 The below diagram shows that when standing within the mobile network's coverage area your device will connect to your local provider's network (e.g. Spark or One NZ). When beyond this coverage or roaming, your device will seamlessly connect through the satellite network.



3.26 The below diagram¹² from SpaceX shows how the services via satellites will be provided.



Direct to Cell satellites act like cell towers in space, sending traffic to partner operator's cores using Starlink's space and ground systems

4. NATIONAL ENVIRONMENTAL STANDARDS FOR TELECOMMUNICATIONS FACILITIES

- 4.1 We rely primarily on the regulatory framework of the NES-TF to upgrade the existing network and build new telecommunications infrastructure in roads and in rural zoned areas. Over the next decade the telecommunications sector will need to invest approximately \$1.6 billion and build 3,500-4,000 new sites to meet the growing demand for mobile services which is currently experiencing growth at approximately 20 percent year on year. Significant elements of telecommunication networks are provided for as permitted activities, reflecting their importance as a significant physical resource.
- 4.2 The imminent NES-TF amendments further expand the range of permitted activities. The 2026 amendments focus on simplifying readability of the documents to reflect district plan rules. However, regulated activities not complying with the relevant permitted activity standards in the NES-TF remain subject to the relevant district plan. There remains a number of zones outside the road e.g. residential, where the construction of new cell-sites (pole with antennas) depends on being provided for in district plans. Mr Anderson details these in his evidence.

¹² <https://www.starlink.com/business/direct-to-cell>

- 4.3 Once a cell-site is established, the maintenance and upgrading is covered via the NES-TF. Further, subpart 5 of the NES-TF identifies certain types of district plan rules relating to sensitive natural and built environments which still apply to regulated activities and where resource consent would otherwise be required in the relevant district plan. Regional Plan provisions continue to be excluded from the NES-TF.
- 4.4 Given the above, we will continue to face challenges to build and maintain network partly due to councils administering the NES-TF particularly when it comes to determining which or if any regional or district plan provisions apply to a proposal. It can be difficult and complex especially when a proposal is in one or multiple sensitive environments (NES-TF Subpart 5 environments). Consistency across the national, regional and district planning frameworks is fundamental to the industry having certainty and clarity around what is supported and enabled in each region. The proposed Planning and Natural Environment legislation provide the opportunity via the National Instruments i.e. national policy and national standards for nationally consistent provisions across natural environment and land use plans.
- 4.5 The amendments to the NES-TF 2026 (noting at the time of preparing this evidence we have not seen the final NES-TF 2026) include significant changes (also see the tables in appendix 3 for key details):
- scope of the NES-TF expands to regulate activities outside the road in a wide range of zones but excludes residential and open space special purpose zones but includes commercial type (not all), and industrial.
 - new and amended definitions such as for ancillary equipment, facility, flange, headframe, and temporary telecommunication facilities;
 - amending rules for cabinets
 - in the road adjoining residential zone area per cabinet increases to 2.0m²
 - in the road adjoining non-residential zones area per cabinet increases to 3.0m²
 - co-location to 6.0 m² where the group of cabinets support two facility operators, and 9.0 m² for three or more facility operators. Separation between groups of cabinets reduces from 30m to 10m.
 - amending the notional envelope for facilities in the road reserve increase to 5.0m in length and 1.2m in diameter;
 - amended rules for antennas outside the road reserve 1.0m,
 - removal of the '100-metre rule', that specifies new poles in the road reserve must be within 100 m of an existing pole.
 - amended rules for pole heights and widths including:

- 20 metres in the road reserve adjoining residential (Large lot residential, Low-density residential, Settlement, Māori purpose, General residential, Medium-density residential & High-density residential zones)
- 20 metres in and outside road reserve for local centre and neighbourhood zones
- 25 metres in road reserve open space (only natural open space and sport and active recreation) metropolitan, mixed-use, town centre, city centre, commercial large format retail, special purpose and industrial zones;
- 25 metres outside road reserve, mixed-use, commercial large format retail, special purpose and industrial zones;
- 35 metres in and outside road reserve rural zones
- expanding where new or replacement telecommunication poles outside the road as permitted in local centre, neighbourhood centre, mixed-use, commercial, large format retail and industrial zones.
- Co-location is permitted with the provision of headframes and 5m height for poles in and outside of the road reserve commensurate with the sensitivity and built-form characteristics of the zone a pole is in or adjoining - maximum widths of.
 - 1.6 metres in road reserve adjoining residential zone where the pole is at least 15m, but no provision for additional 5m height for co-location.
 - 2.5 metres in neighbourhood centre, local centre and mixed-use zones
 - 4.5 metres in commercial, large format retail and industrial zones,
 - 6 metres in the rural zone except within the 50 m setback
- Introduce a height-in-relation-to boundary setback rule of 4 metres and 60° recession plane for new poles with antennas outside the road reserve in a local centre, mixed use, and neighbourhood centre, commercial, industrial and large format retail zones, applying from site boundaries of a residential zone (excluding road boundaries)
- enabling renewable and non-renewable electricity generation
- amendments to the 50-metre rural setback to improve its workability and enable relocation, size increases and headframe replacement for existing poles within this setback;
- proposed new activity standards:
 - for temporary telecommunication facilities,
 - renewable electricity generation to power rural telecommunication facilities;
- provide for battery storage in cabinets when it is powering rural facilities connected to small-scale renewable electricity generation (solar and wind) and on-board temporary facilities

- Permitted activity for customer connections to heritage buildings to be installed and operated on the front façade or on a primary heritage features only if the line is enclosed within existing conduit, and on archaeological sites with buildings;
- a restricted discretionary activity status for non-compliance with the standard on customer connection lines to heritage buildings;
- the exemption from natural hazard rules for NES-TF regulated activities is not amended as this aligns with the NPS-Natural Hazards.

4.6 Our position is that the proposed district plan should align with the NES-TF 2026 where there are relevant regulation and definitions.

- Ancillary equipment is wide in scope and includes any equipment above ground mounted on a pole, building or in a cabinet;
- Under the NES-TF a headframe provides for the mounting of antenna and ancillary equipment provides for any other form of mount or means to attach equipment to the pole of building;
- Relocation of existing poles in all zones existing poles can now be relocated up to 10m. Note that in a rural zone there is no relocation limit for existing poles in a rural zone outside the 50-metre rural setback.

4.7 While the NES-TF 2026 is more comprehensive the telecommunications industry continues to be dependent on Hutt City district plan provisions. The key areas where district plans need to include provision for telecommunications:

- Subpart 5 area (sensitive environments e.g. ONL, SNA, Heritage) – note only change relates to customer connections to heritage buildings;
- Active Street frontage overlay is not a subpart 5 area, therefore new facilities including poles, cabinets and antennas should be a permitted activity;
- New poles and antennas (cell-sites) outside the road reserve in the following zones residential, open space, metropolitan, town centre, city centre and special purpose zones;

5. IMPACT OF URBAN INTENSIFICATION

5.1 As set out in this evidence above, the telecommunication network technology requirements are constantly changing and evolving. We rely on the NES-TF and district plan rules to protect the existing network and appropriately enable the upgrading of existing networks and construction of new networks. The NES-TF 2026 only partially resolves our issues given it does not address the impact of new buildings constructed in close proximity to existing facilities.

5.2 The S42a report recommended permitted rules for height of new or upgraded telecommunication facilities that will support the antennas being above the permitted building height to ensure:

- a. Radiofrequency emission compliance with the NES-TF regulation 55
- b. Certainty of network coverage and capacity to service customer needs
- c. Certainty of network coverage and capacity to service customer needs
- d. Potential Path loss risks are taken into account – the following diagrams & appendix 2 demonstrate the issues

Demonstrating how taller buildings are limiting coverage from antennas

5.3 Wireless signals do not travel easily through obstructions, and this can result RF compliance issues under regulation 55 and blackspots within the wider network where customers are in the shadow of taller permitted buildings.



5.4 The mobile network operators advise that the ideal height for an antenna is 5 metres taller than surrounding buildings and obstructions, with space for additional antennas used for sharing the mast to accommodate growth.



5.5 The proposed plan supports intensification of Hutt City, including with additional building heights and walkable catchments. The enabled built form is expected to impact coverage from existing wireless telecommunications facilities that have been

established to cover these areas to provide telecommunications and wireless broadband that contribute to well-functioning urban environments. This can occur by either physically blocking the coverage from the antennas by building in front of them, or siting buildings too close to antennas for them to comply with radiofrequency standards, requiring them to be decommissioned so creating a potential health and safety risk to residents and occupiers of the proposed building. The telecommunications industry currently has no way of being made aware of building proposals that will affect existing facilities until construction is underway. When this happens, it can take considerable time to find a replacement site, if one can be found that provides a similar coverage footprint. It is our position that the zone provisions should protect existing infrastructure from the adverse effects of other parties.

5.6 What we are seeking is that where an existing facility on a road or on a site directly adjacent to a new development, that there is a requirement for dialogue with the facility owner to assess the impact on operational performance and whether these effects can be mitigated, such as providing a location on the building for antennas where coverage from an existing facility such as a pole in a road will be blocked or be unable to meet radiofrequency standards. Mr Anderson details the specific wording in his evidence.

5.7 This general approach is consistent with the Australian Government's Telecommunications in New Developments Policy, 17 February 2024 ("the Policy") see:

<https://www.infrastructure.gov.au/sites/default/files/documents/telecommunications-in-new-developments-policy-february-2024-final.pdf>

5.8 The Policy has two key objectives:

- a. to provide people moving into new developments with ready access to modern telecommunications (voice and broadband); and
- b. to support a competitive and sustainable market for the provision of such infrastructure. The Policy sets out how developers are responsible for organising and meeting the costs of 'pit and pipe' infrastructure within their developments, so that services can be provided when people move into premises.

5.9 In regard to mobile (wireless) infrastructure, the Policy notes that where mobile coverage is not included in the design of new development or expanding suburbs, there will be diminished digital connectivity and inclusion outcomes for residents in

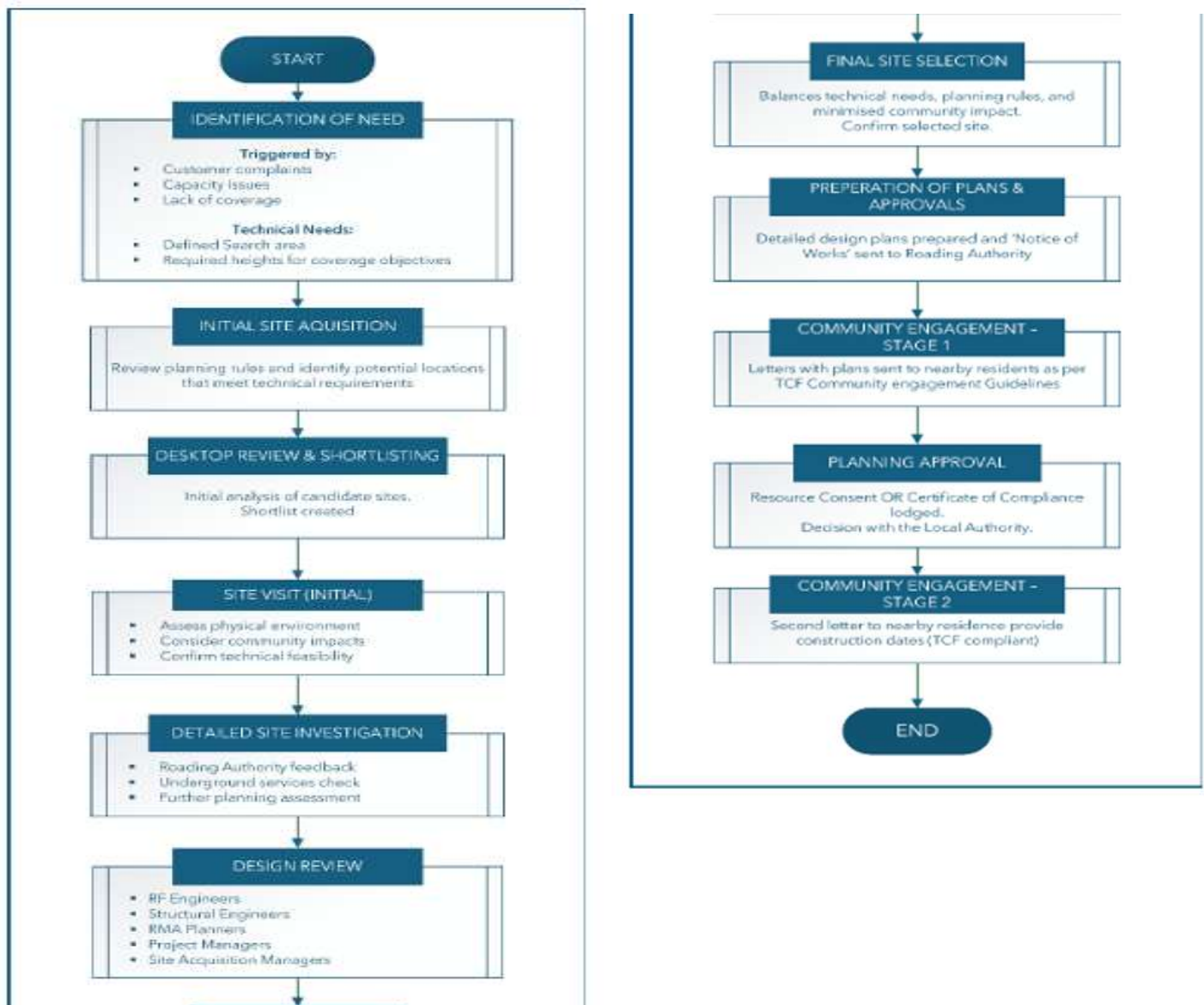
those areas. The Policy advocates for developers to consider mobile connectivity as part of the overall application process, with a similar level of importance to other utilities such as water, electricity and sewage. It also promotes early engagement by developers with mobile network operators to ensure mobile coverage is in place prior to selling or leasing of a building unit. Setting aside areas appropriate for mobile telecommunications infrastructure is one of the specific considerations set out in the Policy.

- 5.10 In addition, we suggest provisions are included that would trigger those conversations between developers and network utility operators early in the development process before designs are finalised. This will ensure suitable early conversations are had over providing fibre and mobile network coverage to developments and opportunities are not missed to provide quality services, which may include integrating equipment or ducting/space into proposed buildings. Note we are currently requesting that the same approach be incorporated into the Auckland Unitary Plan under Plan Change 120.
- 5.11 We acknowledge that the requirements to consult operators/tower owners will require systems and contact details to be put in place. We will work with the Council to establish the necessary processes and contract information to support the relief being sought.

6. SITE ACQUISITION PROCESS

- 6.1 The process to acquire a site can be long and complex even when the facility is a permitted activity. The telecommunications sector wants to be a good neighbour. The companies building cell sites have voluntarily adopted the TCF Community Engagement Guidelines. As part of the guidelines, the companies share their plans with nearby residential property owners and provide information to help educate the community about what's involved. Where appropriate, the sector proactively engages with district councils and community leaders to ensure the location of cell sites are in the best locations available to them. Community representatives are best placed to champion the interests of their community and the social, economic and environmental benefits of digital connectivity. The sector is committed to ensuring it maintains its social license to operate, and the TCF will be proactively updating the guidelines to reflect the NESTF updates.
- 6.2 The site acquisition process is thorough and includes an extensive and robust evaluation of all options. The location and design of cell sites take into consideration

the surrounding environment and the coverage needs for the area. Pole heights vary and are determined by the coverage objectives, not the maximum height allowed under the NES-TF. Environmental considerations include existing housing and street infrastructure, surrounding landscapes, topography, and district planning rules such as heritage and cultural overlays.



7. CUSTOMER CONNECTIONS

- 7.1 Chorus relies on Regulation 40 the NES-TF to provide customer connections from existing support structures (poles) in all zones. If a customer connection requires new poles, it is not a regulated activity under the NES-TF, and the relevant District Plan rules apply. There are a range of number of reasons why Chorus would need to provide overhead customer connections via new poles, particularly in rural or sparsely populated areas.
- 7.2 The primary reason is because the area covered by the infrastructure is often large, and the need for comparatively expensive underground cabling isn't justified by the relatively low number of customers.
- 7.3 Other reasons include:
- Adaptability to difficult terrain
 - Presence of existing services or other underground constraints
 - Faster deployment
 - Accessibility for maintenance
 - Minimal disruption during installation

8. ACTIVE STREET FRONTAGE

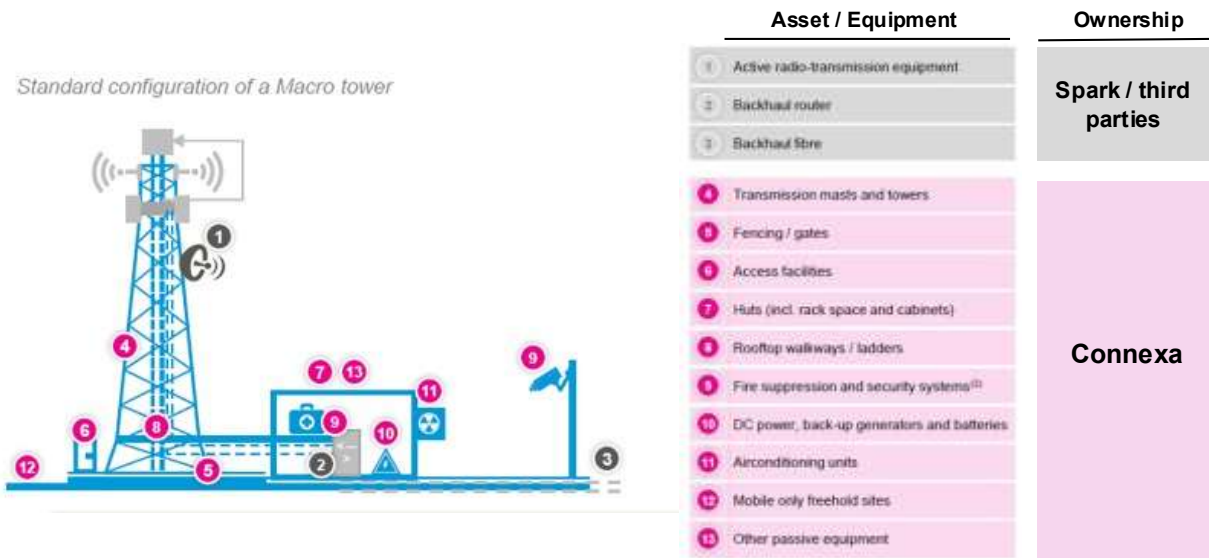
- 8.1 The NES-TF permitted new facilities in the road reserve in all the commercial zones that have the 'active street frontage overlay' is applied. The active street frontage overlay in our opinion is not covered under subpart 5 of the NES-TF. The focus of the active building frontages provisions is to support where there are frequent doors and windows and where people can easily see from inside to the public spaces outside. Regulation 47 related to visual amenity landscapes covers district plan rules that protection of landscape features (such as view shafts or ridge lines) identified as having special visual amenity values. Clearly in our experience and opinion NES-TF regulation 47 is not applicable and nor is meant to enable the provision to ensure people can easily see from inside to the public spaces outside. As such, Mr Anderson is not pursuing our submitted relief regarding telecommunications poles in the Active Street Frontage Overlay.

GRAEME MCCARRISON, COLIN CLUNE, ANDREW KANTOR AND FIONA MATTHEWS,

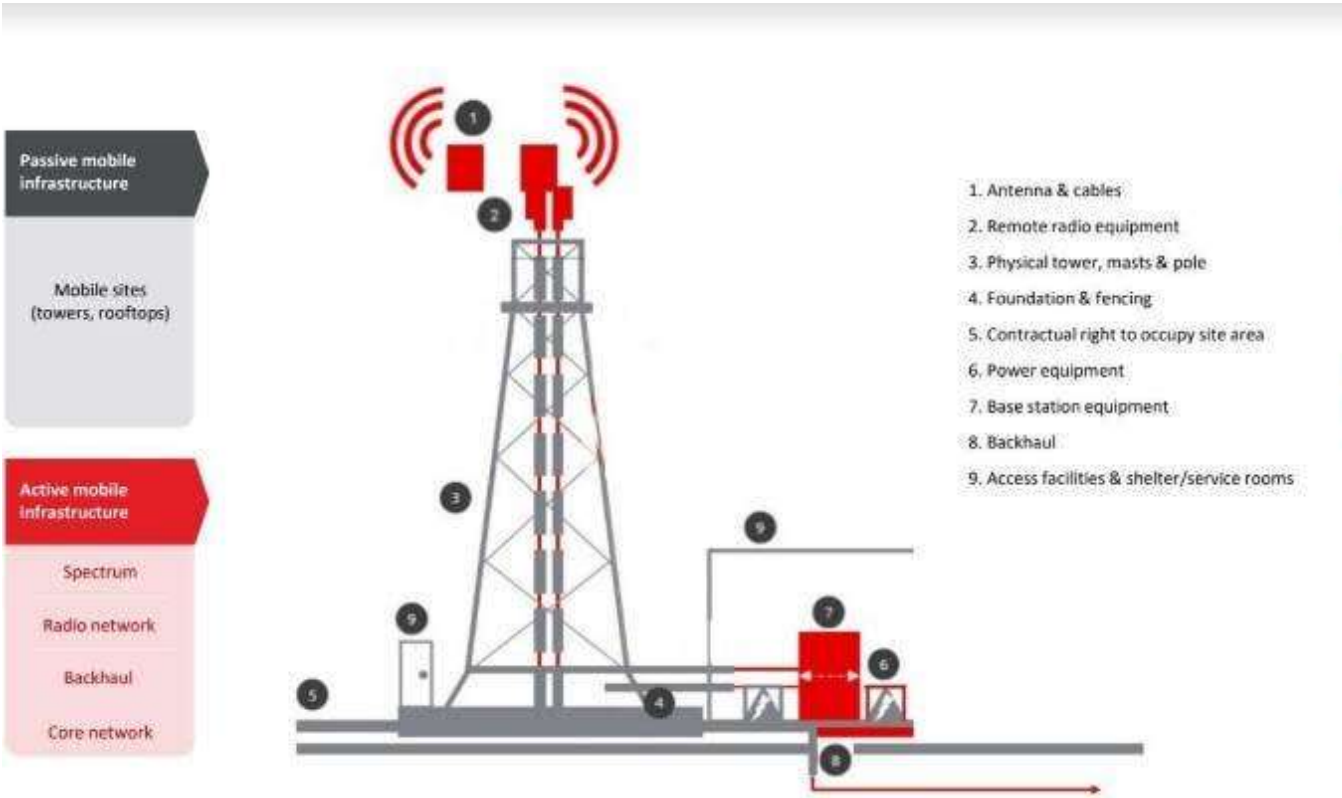
4 September 2026

Appendix 1 Connexa, FortySouth and Chorus

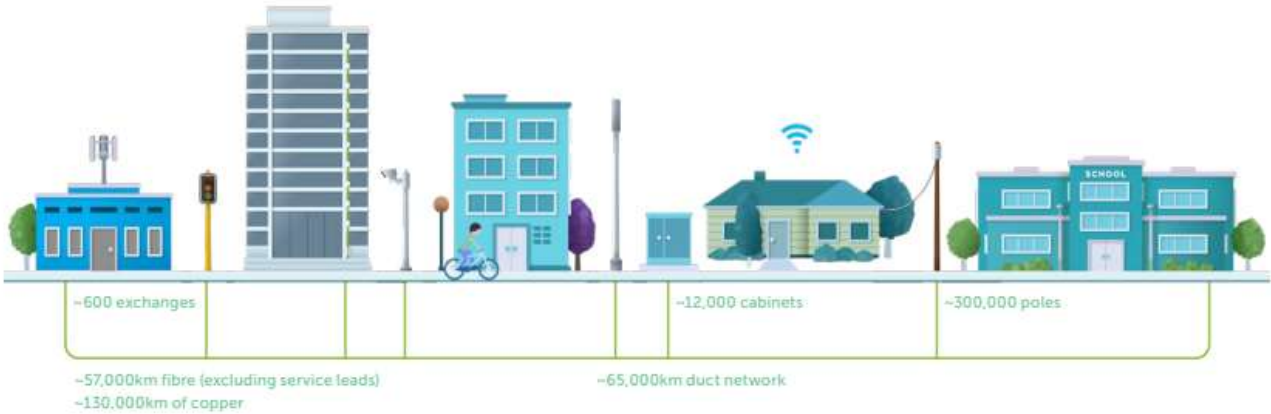
Spark / Connexa asset split on a typical macro tower



FortySouth



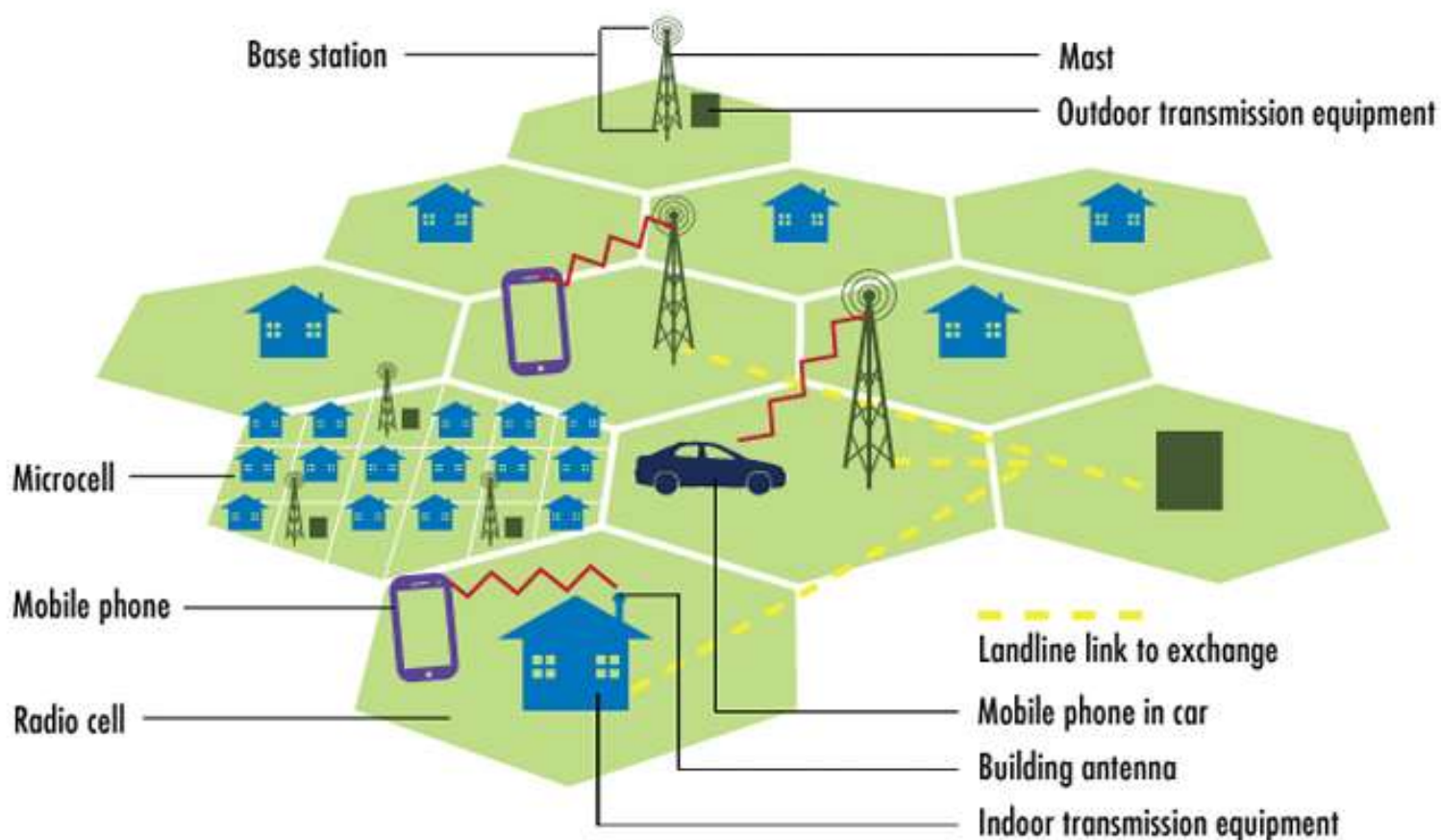
Chorus



Appendix 2

Mobile Networks

A mobile network is a communication network where the last link is wireless. Mobile networks consists of macro base stations for higher capacity, wider area coverage, and smaller microcells (also known as small cells) typically for densification for macro capacity offload. Microcells transmit generally at higher frequencies and at lower power creating a smaller coverage area.



Path Loss

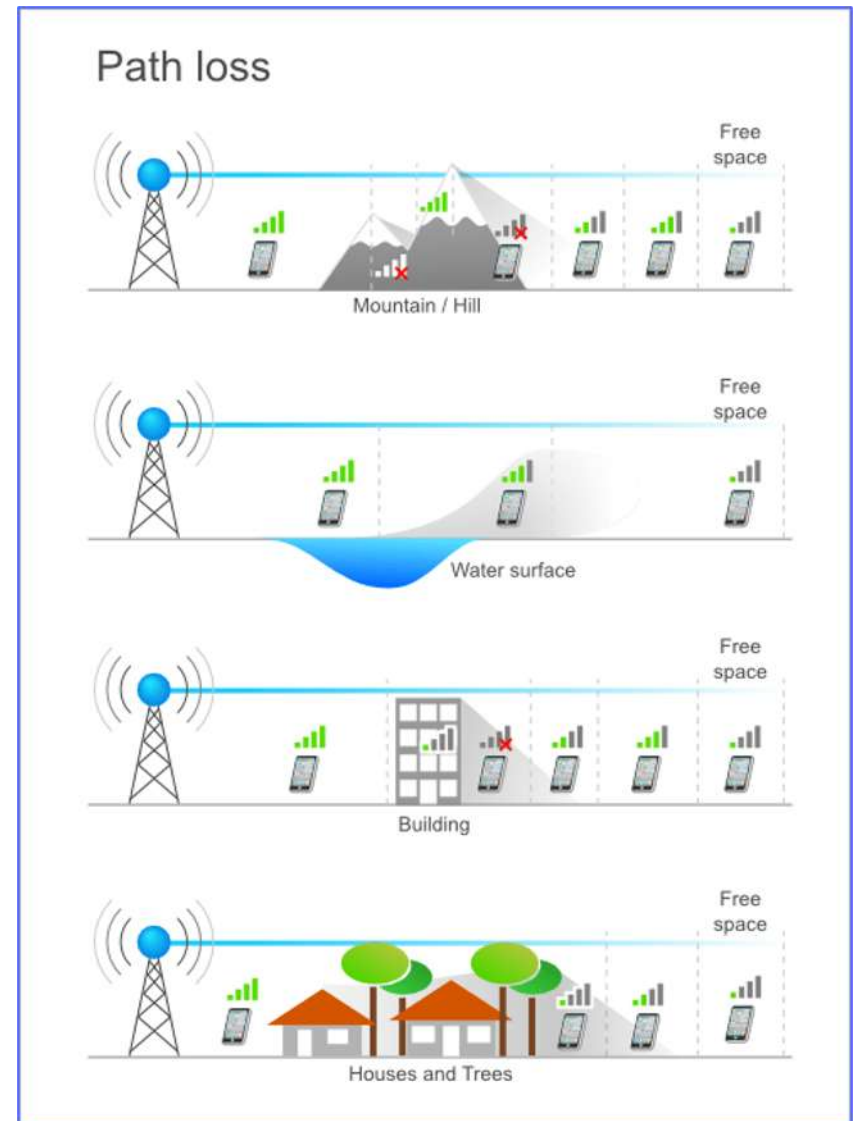
Path Loss, as a radio propagation concept, refers to the phenomenon of the power density decrease (attenuation) of an electromagnetic wave as it propagates through space i.e. from mobile base station to mobile phone (downlink), and vice versa (uplink). Path Loss is a key factor in the design of any wireless communications system.

Path loss can be caused by various factors:

- Free-space loss (distance)
- Fading (frequency dependent)
- Shadowing
- Reflections at large obstacles
- Refraction depending on the density of the medium
- Scattering at small obstacles
- Diffraction at edges

Other important variables in determining the path loss are the environment (urban, suburban or rural), terrain contours, absorption (buildings, walls, vegetation), the distance between transmitter and receiver, and the type and height of antennas.

The formulas for calculating path loss are outside the scope of this document.

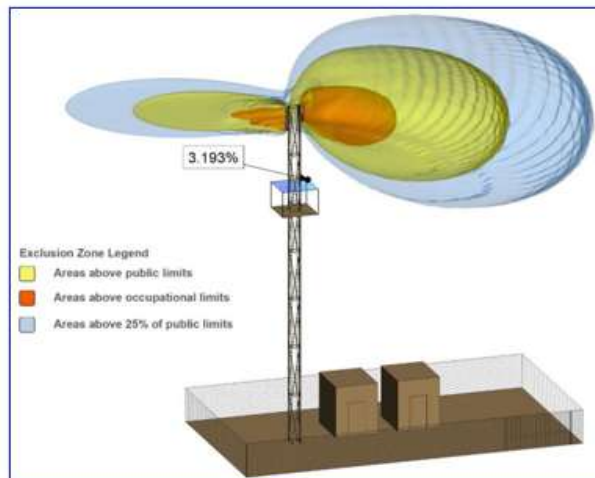


Exposure to radiofrequency fields

All mobile sites comply with NZS 2772.1:1999, which sets out limits for exposure to the radiofrequency radiation produced by all types of radio transmitters, for people exposed at work and for the general public.

Spark uses an advanced EME compliance software called iXUS to establish and maintain RF Safety Compliance. The tool requires several inputs including tower height, antenna model, transmit powers, nearby building heights and areas accessible to the public. The output graphically displays distances, both horizontally and vertically, that meet compliance including areas between 25% & 100% of the public limit and areas above occupational limits.

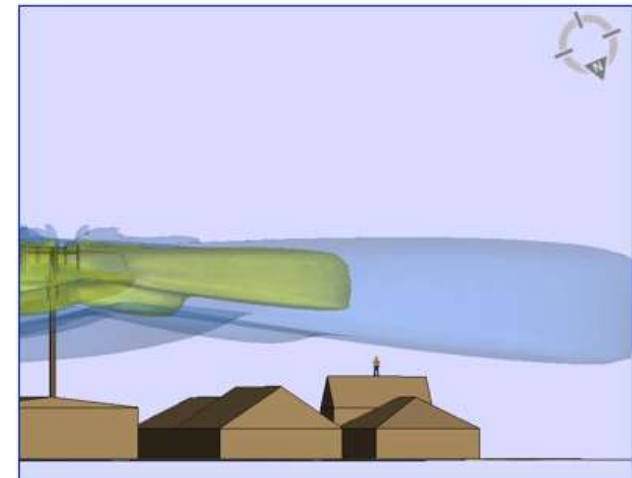
The majority of sites are designed to sit below 25% of the public limit. In reality One NZ and Spark mobile sites sit in the region of 4% of the public limit (based on independent site measurements from EMF Services Ltd).



An example of calculated exposure at a given location



An example of RF Lobes – Plan view



An example of RF lobe clearance from an elevation view

Reverse Sensitivity examples

Issue

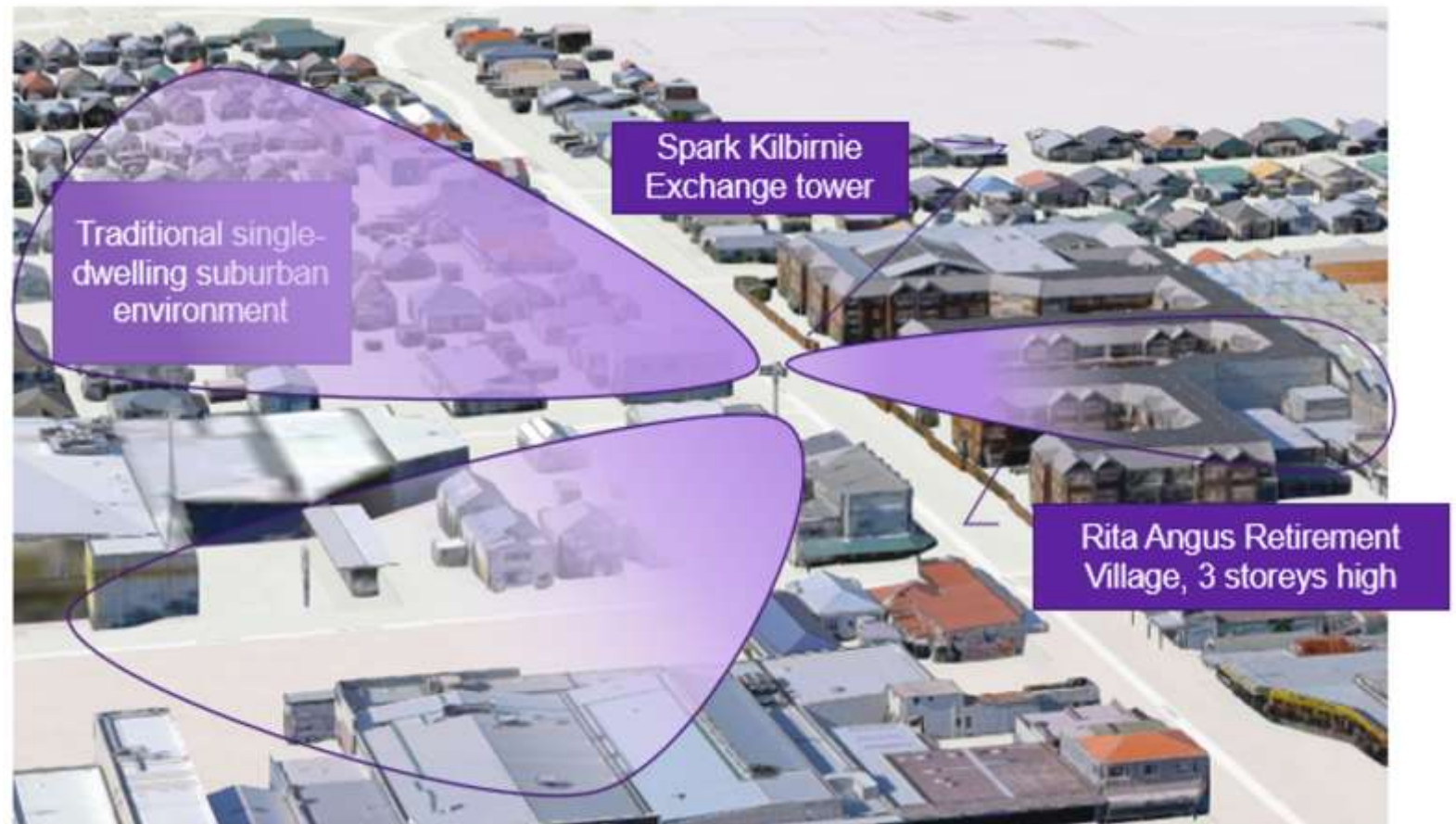
- Proposal for high density along all public transport routes
- High density 6 potentially more levels
- Coverage impact
- Increase RF compliance challenge
- Public perception
- Difficult to lease space on residential complex's

5780 Manukau Rd Epsom/Greenwood's Corner. This site will remain in place as it is too difficult to find another site to replicate the existing coverage and capacity. One or two additional sites will be required to correct the coverage footprint of the existing pre-development. Sector facing the building is turned off.



Kilbirnie Example

3-D building example from Kilbirnie in Wellington, showing single-level dwellings and multilevel apartments and a nearby Spark tower. The Rita Angus retirement village has 3 story building which blocks the existing coverage of the Spark site. To replace the coverage an additional site is required, or the existing site rebuilt to at least 17m, the NESTF does not provide for this.



Te Aro Example

In February 2023 Spark decommissioned an entire sector of its Te Aro site. The site serves both business and residential customers. Currently there is a coverage blackspot while Spark finds additional sites. It is complex to find and negotiate access for new or relocated sites and still being resolved



Replacing an existing site can take a lot of time – Remuera Shops



Appendix 3

Pole size standards proposed for the NES-TF 2026

Note that poles in subpart 5 areas will continue to be subject to district plan rules.

NEW OR EXISTING TELECOMMUNICATION POLES IN THE ROAD RESERVE						
Adjoining zone	Proposal permits installation of a new pole	Pole size standard (height × width) (metres)	Pole height for co-location (metres)	Headframe size standard (metres)	Panel antenna size standard	Dish antenna size standard
Residential zones - Large lot residential zone - Low-density residential zone - Settlement zone - Māori purpose zone - General residential zone - Medium-density residential zone - High-density residential zone	Yes	20 × 0.9	No	1.6*	The width of a non-dish (panel) antenna must not exceed 0.7 metres (with a headframe) in all zones. The notional envelope of each panel antenna per operator (without a headframe) must not exceed 5.0 metres in length × 1.2 metres wide in all zones. (A 'notional envelope' is the smallest 'theoretical' cylindrical shape within which all non-dish antenna must fit.)	The diameter of a dish must not exceed 0.6 metres in all zones. The protrusion distance must not exceed 0.8 metres in all zones. (A 'protrusion distance' is the amount by which a dish antenna extends out from the edge of the pole.)
Local centre zone	Yes	20 × 1.5	25	2.5*		
Neighbourhood zone	Yes	20 × 1.5	25	2.5*		
Open space zones - Natural open space zone - Sport and active recreation zone	Yes	25 × 1.5	30	1.6*		
Metropolitan zone	Yes	25 × 1.5	30	2.5*		
Mixed-use zone	Yes	25 × 1.5	30	2.5*		
Town centre zone	Yes	25 × 1.5	30	2.5*		
City centre zone	Yes	25 × 1.5	30	2.5*		
Commercial zone	Yes	25 × 1.5	30	4.5		

NEW OR EXISTING TELECOMMUNICATION POLES IN THE ROAD RESERVE						
Adjoining zone	Proposal permits installation of a new pole	Pole size standard (height × width) (metres)	Pole height for co-location (metres)	Headframe size standard (metres)	Panel antenna size standard	Dish antenna size standard
Large format retail zone	Yes	25 × 1.5	30	4.5		
Special purpose zones - Airport zone - Corrections zone - Future urban zone - Hospital zone - Port zone - Stadium zone - Tertiary education zone	Yes	25 × 1.5	30	2.5*		
Industrial zones - Light industrial zone - General industrial zone - Heavy industrial zone	Yes	25 × 1.5	30	4.5		
Rural zones - General rural zone - Rural production zone - Rural lifestyle zone	Yes	35 × 1.7	40	4.5		

NEW OR EXISTING TELECOMMUNICATION POLES <i>OUTSIDE</i> OF THE ROAD RESERVE ¹³						
Zone	Proposal permits installation of a new pole	Size standard (height x width) (metres)	Pole height for co-location (metres)	Headframe size standard (metres)	Panel antenna size standard	Dish antenna size standard
Residential zones • <i>Large lot residential zone</i> • <i>Low-density residential zone</i> • <i>Settlement zone</i> • <i>Māori purpose zone</i> • <i>General residential zone</i> • <i>Medium-density residential zone</i> • <i>High-density residential zone</i>	No					Dish on existing poles: 0.6-metre diameter dish 0.8-metre protrusion distance
Local centre zone	Yes	20 × 1.5	25	2.5*	1.0	1.2
Neighbourhood zone	Yes	20 × 1.5	25	2.5*	1.0	1.2
Open space zones • <i>Natural open space zone</i> • <i>Sport and active recreation zone</i>	No				1.0	1.2
Metropolitan zone	No				1.0	1.2
Mixed-use zone	Yes	25 × 1.5	30	2.5*	1.0	2.0
Town centre zone	No				1.0	1.2
City centre zone	No				1.0	1.2
Commercial zone	Yes	25 × 1.5	30	4.5	1.0	2.0
Large format retail zone	Yes	25 × 1.5	30	4.5	1.0	2.0
Special purpose zones • <i>Airport zone</i>	No				1.0	2.0

¹³ For zones where new poles are not permitted outside the road reserve (residential, open space, special purpose, city centre, metropolitan and town centre zones), district plan rules will continue to apply. For existing poles in these zones, the existing rules in the NES-TF – in regulations 31 and 33 permitting changes to the height, width and headframe for a pole – will largely be retained.

NEW OR EXISTING TELECOMMUNICATION POLES <i>OUTSIDE</i> OF THE ROAD RESERVE ¹³						
Zone	Proposal permits installation of a new pole	Size standard (height x width) (metres)	Pole height for co-location (metres)	Headframe size standard (metres)	Panel antenna size standard	Dish antenna size standard
• <i>Corrections zone</i> • <i>Future urban zone</i> • <i>Hospital zone</i> • <i>Port zone</i> • <i>Stadium zone</i> • <i>Tertiary education zone</i>						
Industrial zones • <i>Light industrial zone</i> • <i>General industrial zone</i> • <i>Heavy industrial zone</i>	Yes	25 × 1.5	30	4.5	1.0	2.0
Rural zones • <i>General rural zone</i> • <i>Rural production zone</i> • <i>Rural lifestyle zone</i>	Yes	35 × 6	40	6	1.0	2.0