

## Definition of Key Terms

**Abandoned pipes** – WCC has identified over 100km of water, sewer and stormwater pipes that may be potentially useful in laying fibre ducting.

**Active Opto-Electronics** – are electrical-to-optical or optical-to-electrical transducers which convert one type of energy to another for information transfer. Network service providers install these electronics to ‘light up’ the dark or passive fibre.

**ADSL (Asymmetrical Digital Subscriber Line)** – This is the most common fixed connection for broadband and it uses the existing copper lines. It enables faster data transmission over telephone lines than a conventional dial-up modem can provide. The asymmetric nature of the connection means that the downstream speed is faster than the upstream speed.

**ADSL 2+** – extends the capability of basic ADSL by doubling the number of downstream bits. The data rates can be as high as 24 Mbps downstream and 1 Mbps upstream depending on the distance from the DSLAM to the customer's home.

**Anchor tenant** – a privately owned network, with the city agreeing to become the anchor tenant by agreeing to buy a minimum annual level of services. The city grants the private company use of public assets and also agrees to be a major customer of the network (an anchor tenant). In exchange the city is compensated for use of public assets. The agreement contains a public benefits section that may include a share of revenue or limited free access to the network.

**Backbone network** – transports massive volumes of data traffic around cities, and between cities and countries. There is no single backbone network, rather many networks in which service providers exchange traffic with other providers.

**Backhaul** – the process of transmitting data from multiple dispersed points (e.g. households, businesses, cell phone towers) to the central telecommunications network, usually using fibre cables.

**Bitstream capacity** – the provision of transmission capacity (upward/downward channels may be asymmetric) between an end-user connected to a telephone connection and the point of interconnection available to the new entrant.

**BOOT Model (Build, Own, Operate, Transfer)** – a model of private ownership where the Council could give a contract to a successful bidder to build own and also operate the network. After 10 years (or a set time) the ownership would be transferred back to the Council.

**Broadband** – a generic term for infrastructure that allows communication and connection to the internet – ‘high capacity’ and ‘high speed’ refer to much the same thing, as communication across a network relates to a flow of data.

**Cabinets/ Cabinetisation** – cabinets containing telecommunications equipment can be installed on kerbsides. Makes wireless internet access easier.

**Copper local loop** – the last few hundred metres of copper wire cables to each house or premise.

**Duct network** – a network of underground plastic pipes that provide a right-of-way in the road corridor and through which fibre optic cables can be passed.

**High speed broadband** – a broadband service which delivers data at rates capable of supporting next generation services, such as interactive video, broadcast-quality television and videoconferencing. This is usually at speeds greater than 1.5 megabits per second (Mbps)

**Incumbent** – a term used to describe existing companies often first established as regulated monopolies.

**JV (Joint Venture)** – is an entity formed between two or more parties to undertake economic activity together. The parties agree to create a new entity by both contributing equity, and they then share in the revenues, expenses, and control of the enterprise. A possible ownership model that the Council could consider.

**Layers** – the Council can have ownership and intervene at different levels of network infrastructure (i.e. layers). Possible ownership levels are at Layer 0, Layer 0 +1, Layer 0+1 + 2, and Layer 0+1+2+3. As we move up in the layers, the control the Council could exercise over the network increases and so do the risks.

**Local loop unbundling (LLU)** – opening the final few kilometres of copper cabling, from the telephone exchanges to each house or premises, to competition so that any telecommunications company can run its services over the copper wires.

**Mbps (megabits per second)** – a measure of data transfer speed. (A megabit is equal to one million bits).

**Micro-trenching** – a method of deploying fibre underground. Undertaken by a large machine that is able to create a trench approximately 100mm wide, lay a duct in it, and then reseal the road.

**MUSH Backbone** – (Municipalities, Universities, Schools and Hospitals) a backbone fibre connection that would connect all entities such as primary and secondary schools, hospitals, medical centres, libraries and pools, service centres, community centres; university sites and research entities, CRI locations; and other community facilities such as fire stations and civil defence centres.

**Next Generation Network** – a packet-based network able to provide services including Telecommunication Services and able to make use of multiple broadband, Quality of service-enabled transport technologies and in which service-related functions are independent from underlying transport-related technologies. It offers unrestricted access by users to different service providers. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.

**Node** – being the first aggregation point for telephone lines from end-users' premises – usually a roadside cabinet or local telephone exchange. Extending fibre to the node allows higher

broadband speeds (even though it does not extend all the way to the premises) because its performance does not decline as steeply over distance as does copper's.

**Open Access** – a system that allows any telecommunications operator to provide its services and applications over the broadband infrastructure – including the backbone, and the connections to each home or premises. This is in contrast to vertically integrated systems where the owner of the infrastructure can restrict who runs services over it and therefore prevent competition.

**Overheading** – cabling that can be attached to the overhead wires e.g. trolleybus lines in Wellington. By far the cheapest deployment method, however not a long-term solution.

**PPP** – ‘Public Private Partnership’ a model of ownership.

**Rights of Way (ROW)** – Council’s right of access to areas e.g. ducts

**Saw Cutting** – a method of deploying fibre underground. Very narrow micro-trenching (10-12mm), where the cable is directly buried in the ground.

**SMEs** – small and medium- sized enterprises

**Staged Network Architecture** – WCC has proposed a three component model for Broadband development comprising an urban fibre network, a wireless/ cellular network, and further development of FTTH options.

**UFN- (Urban Fibre Network)** – a conduit that provides a path for electronic data between buildings and organisations within the urban area. It is an enabling tool to allow an increased volume of data to flow at a faster speed. Urban fibre networks are quite common throughout the world, usually with a substantial amount of central or local government funding involved.

**Undergrounding** – burying cables in the ground. A long term favoured solution.

**Upstream/upload and downstream/download** – this refers to the speed of the broadband connection in each direction. Downstream/download refers to speeds from an external point to your Internet connection. Download is typically faster than the upstream speed (from your Internet connection out to the rest of the Internet).

**Wi-Fi** – describes the generic wireless interface of mobile computing devices, such as laptops in local area networks. A person with a Wi-Fi enabled device such as a PC, cell phone or PDA can connect to the Internet when in proximity of an access point. The region covered by one or several access points is called a hotspot. Hotspots can range from a single room to many square miles of overlapping hotspots.

**WiMAX** – Worldwide Interoperability for Microwave Access, is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular type access.

**Wireless** – a term used to describe telecommunications in which electromagnetic waves (rather than some form of wire) carry the signal over part or the entire communication path.