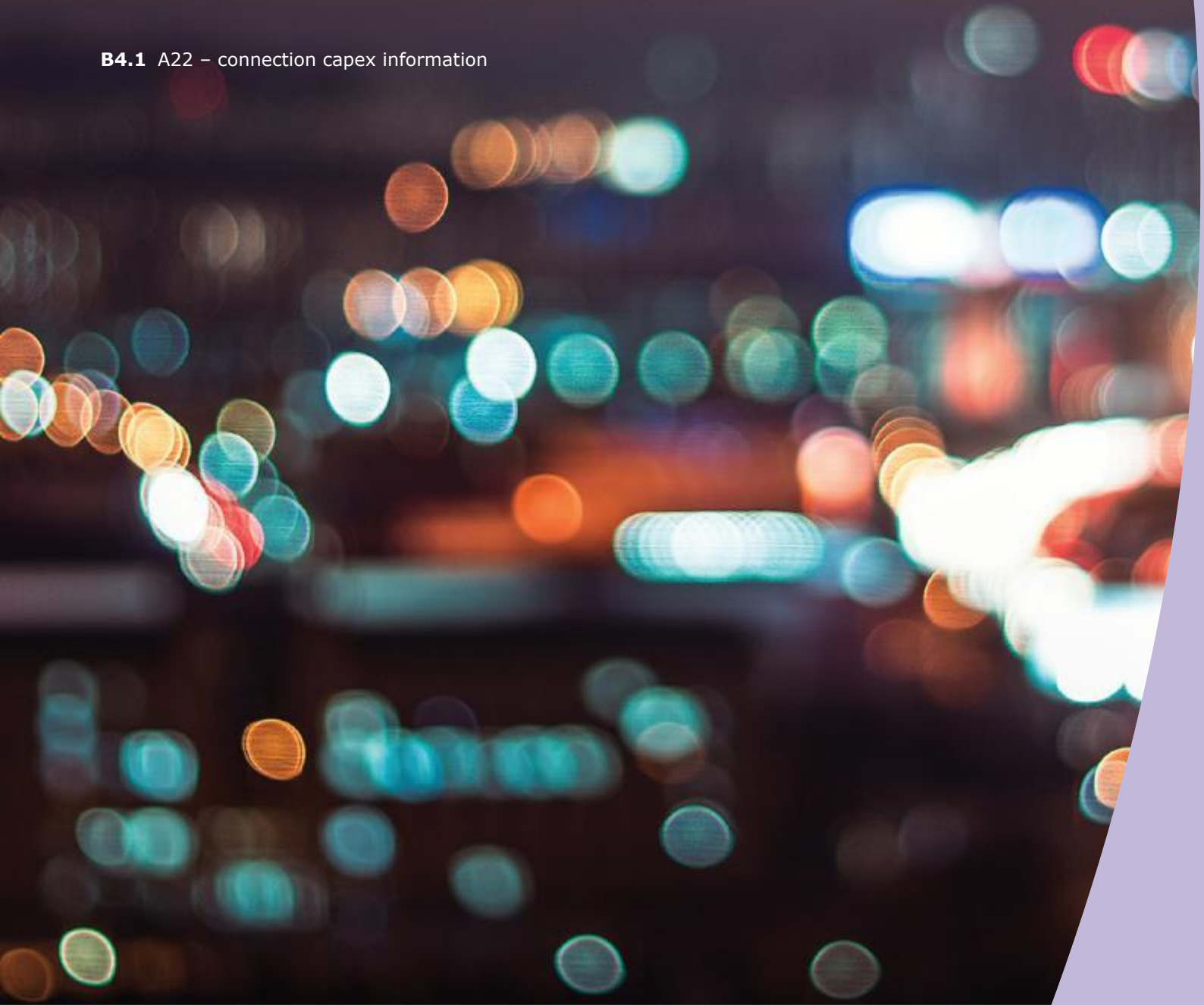
B4 Regulatory Information

Long form responses to the Information Request from the Commission dated 18 November 2020 that relate to regulatory information.

B4.1 A22 – connection capex information



Connection capex information

A22.1 – A description of why each proposed connection type is an appropriate grouping of connection subtypes

The IMs define a connection type as "a category or class of end-user connections …. that are similar in characteristics and cost". We consider that unit costs varying by up to plus or minus 30% from their weighted average can be said to be 'similar'. The table below briefly describes how the 10 connection types we have proposed meet that definition.

Group	Description and subtypes	
Standard – installations		
1	Simple – installation to greenfield, or to MDU or RoW extension	The 4 sub-types in this group are all simple single dwelling installations. The unit costs of the sub-types vary by +7% to -13% from the group's weighted average.
2	General	The 8 sub-types in this group are all the remaining single dwelling installation types. The unit costs of the sub-types vary by +15% to -13% from the group's weighted average.
Standard – extensions		
3	Class 1 (two to five MDU drop-off points or RoW buildings) and fibre access	The 5 sub-types in this group are MDU or ROW extensions of a similar size plus fibre access extensions, which have a similar cost. The unit costs of the sub-types vary by +10% to -28% from the group's weighted average.
4	Class 2 (six to 12 MDU drop-off points or RoW buildings)	The 6 sub-types in this group are all MDU or ROW extensions of a similar size. The unit costs of the sub-types vary by +30% to -16% from the group's weighted average.
5	Class 3 (13 to 48 MDU drop-off points or RoW buildings)	The 4 sub-types in this group are all MDU or ROW extensions of a similar size. The unit costs of the sub-types vary by +30% to -10% from the group's weighted average.
6	Class 4 (49+ MDU drop-off points or RoW buildings)	The 3 sub-types in this group are all MDU or ROW extensions of a similar size. The unit costs of the sub-types vary by +3% to -13% from the group's weighted average.
Standard – ONT, Hyperfibre port cards and incentives		
7	Hyperfibre	These connection types have been included because the costs associated with Hyperfibre installations is different from non-Hyperfibre installations. The total single dwelling installations in groups 1 and 2 are either Hyperfibre or non-Hyperfibre and so the total volume across groups 1 and 2 is equal to the total volume in 7 and 8.
8	Non-Hyperfibre	
Complex		
9	All complex	This is a single sub-type with its own cost forecast.
Hyperfibre access		
10	Non-linear Hyperfibre costs	This is also a single sub-type, with the specific cost characteristic of being non-linear (cost varying with volume).

A22.2 – A description of the assets, costs and any connection sub-types that make up each proposed connection type

[[1]

Chorus CI] The following is a description of assets that make up connection capex types (also referred to as groups):

- **Lead-ins:** Fibre cable that extends from the Fibre to the Home infrastructure and terminates in a premise. In residential areas they usually have eight or less fibre strands but will have a higher fibre count if they terminate in a large building with multiple drop off points.

- **Duct**: Our ducts provide an enclosed, protective passage for cables. Ducts can be underground or embedded in or attached to structures (like bridges or buildings). Once installed, ducts allow cables to be placed without additional excavation. Ducts may also be attached to poles to provide protection, where there is a transition between underground and aerial routes.

- **Microduct**: Microduct is a key component of the UFB Fibre to the Home (FTTH) rollout. Microduct can be configured to allow us to optimise the network capacity in different locations. Our microduct population ranges from 1-way (used for lead-ins) up to 26-way (1-way fits a single fibre cable while 26-way fits 26 fibre cables), with these two types making up nearly 80% of the population.

- **Optical Network Terminal** (ONT): The ONT converts the **optical** signal to an electrical one. The Fibre from the ETP terminates at the ONT inside the end customer's premises. Each ONT has 4x 1Gbps RJ45 Ethernet ports – only one is configured for each NGA access. It also has 2x POTS RJ11 jacks for voice services.

[1] Using the forecast costs for RY2022 as an example.

- **External Termination Point** (ETP): An ETP is a small box about the size of a novel/book. It is mounted on the exterior side of the house about 30cm from the ground. The ETP is usually placed at the side of the house, if possible. This is so that we do not need access to the internal ONT if we need to replace the service lead/fibre. This means that we can provide service without needing access inside the house.

An overview of the different costs incurred is set out in the table below:

Cost Category	Description
Field Technician costs	Rates agreed in our contracts with our field service providers (i.e. building the service lead, travel to the premise, installation of the ONT)
Labour costs	The labour cost required for staff to connect end-users and manage orders using our IT processes
Materials	Cost of fibre, duct, cables, External Terminal Points (ETPs) and ONTS which are the physical assets required for a connection
Managed Migrations	Rates agreed in our contracts with door to door marketing companies
Port cards and optics	Per unit cost based on recent supply contract, adjusted by expected cost reductions in real terms
Customer incentives	Refer to Installations chapter section on customer incentives

A22.3 – An explanation of the approach to cost estimation for the unit cost applied to forecast expenditure for each connection type; this explanation must discuss the extent to which unit costs are based on historical expenditure and historical volumes or any other basis (such as rates agreed with Chorus' external suppliers of goods and services or comparative benchmarks)

[

Chorus CI]

A22.4 – A description of the methodology used to forecast the connection volumes for each proposed connection type and forecast unit costs, including any existing quantitative or economic analysis used in the approach

The main driver of the connection volume forecasts used in the models calculating connection capex is the connection forecast prepared by Chorus's PSM team (the central PSM forecast). That forecast is akin to a P50 forecast because it aims to be a best estimate of the actual level of connections – with there being equal chance that the forecast is too high or too low. That forecast uses actual and forecast market data and a range of other factors to forecast the demand for broadband and Chorus fibre's share of that demand.

As described above, the forecasts for SDU, MDU and ROW installations (groups CG1 to CG6) are then based on those installations maintaining a fixed ratio (as measured in the February 2020 reports) relative to the central PSM forecast.

Hyperfibre ONTs: volumes follow the PSM forecasting modelling on hyperfibre installations.

Hyperfibre port cards and optics: no historical data available. Forecast is based on anticipated uptake of the new Hyperfibre product.

A22.5 – For any non-linear connection costs proposed to be included in each proposed connection type, provide the following information: (1) An explanation of the proposed non-linear connection cost function for each non-linear connection cost; and (2) An explanation of how Chorus has ensured that the non-linear connection costs are not also included in the proposed base capex.

[

Chorus CI]

A22.6 – Proposed connection capex and proposed connection capex volumes for each proposed connection type that relate to PQ FFLAS pre-installations (unconnected with a PQ FFLAS order) and any related capital contributions

We consider 'PQ FFLAS pre-installations' includes connection types that involve work before an installation can occur, so our response relates to the connection types for network extension. We do not include any connection types involved in ordering.

These connection types (also referred to as cost groups, 'CG') are CG3 to CG6.

RT04 provides the proposed connection capex for connection types CG3 to CG6.

Our IFP Connection Capex proposal report provides the connection capex volumes for CG3 to CG6.

Capital contributions for these cost groups is 3% of gross capex as explained in relation to A22.7 response below.

A22.7 – Chorus's approach to capital contributions for each proposed connection type, and a summary of key assumptions used in relation to capital contributions for each proposed connection type.)

The 5-year plan forecasts include forecasts of capital contributions. We know that some of these capital contributions[2] relate to MDU and ROW installations and so we have netted those amounts off against the cost for those groups (CG3 to CG6) on a pro-rata basis. The capital contributions across these four connection types amount to about 3% of the gross capex for those connection types.

Likewise, we know that all capital contributions forecast against a different set of revenue general ledger accounts[3] relate to the complex installation in group CG9 and have therefore been netted off against those costs. These capital contributions are equal to about 12% of the gross capex for those installations.

Refer to our 'Modelling and Cost Allocation Report' (modelling section under heading 'capital contributions') for a further description. Our approach to capital contributions is to seek the appropriate fees or contributions from the party requesting the changes to our network (where we are entitled to under our contractual and regulatory framework).

[2] Forecast in revenue general ledger accounts GL 56030, 56400 and 56070

[3] Being GL 56002, 56015, 56405 and 56415