CP7 station Long Term Charge (LTC) recalibration methodology

04 December 2024

Version 1

Contents

1 Introduction

Purpose of this document

1.1 The purpose of this document is to set out the calculation methodology that was used to recalibrate the station Long Term Charges (LTCs) during the recalibration for control period 7 (CP7).

1.2 The CP7 final determination consistent LTC price list was published on 20 December 2023[1].

1.3 The price list will be indexed annually throughout CP7 to reflect inflation, with the corresponding updated price list being made available on the CP7 access charges web page.

1.4 This document does not outline how individual LTCs for new stations[2], opening mid-control period, are negotiated, and set. The initial LTC for a new station is agreed in a process that is separate to the periodic review. It is negotiated between the Station Portfolio Surveyor, customer team and the relevant train operator, and is not related to or dependent upon the LTC values generated under the periodic review recalibration.

[1] This was published in 2023/24 prices and is available on the CP7 access charges web page.
[2] Charged from the date on which the station opened to the first fare-paying passengers.

2 What is the station LTC?

Purpose and recovery of the charge

2.1 The station LTC is one of a range of track access charges payable by train operators to Network Rail for use of its infrastructure. The LTC is the charging mechanism through which Network Rail recovers its efficient cost of maintenance, repair and renewals (MRR), over the course of a control period, across all stations that it owns and at which it has MRR responsibilities.

2.2 The station LTC is paid by passenger operators that use a station and is paid either directly or indirectly to Network Rail depending on whether:

a) A specific passenger operator is the Station Facility Owner (SFO), and therefore holds the responsibility for the day-to-day operation of the station. In this case the SFO pays the LTC to Network Rail in full and then has a separate agreement, between it and any other operator that calls at the station, to recover a share of the total LTC in proportion to the number of vehicle departures made by each other operator using the station.

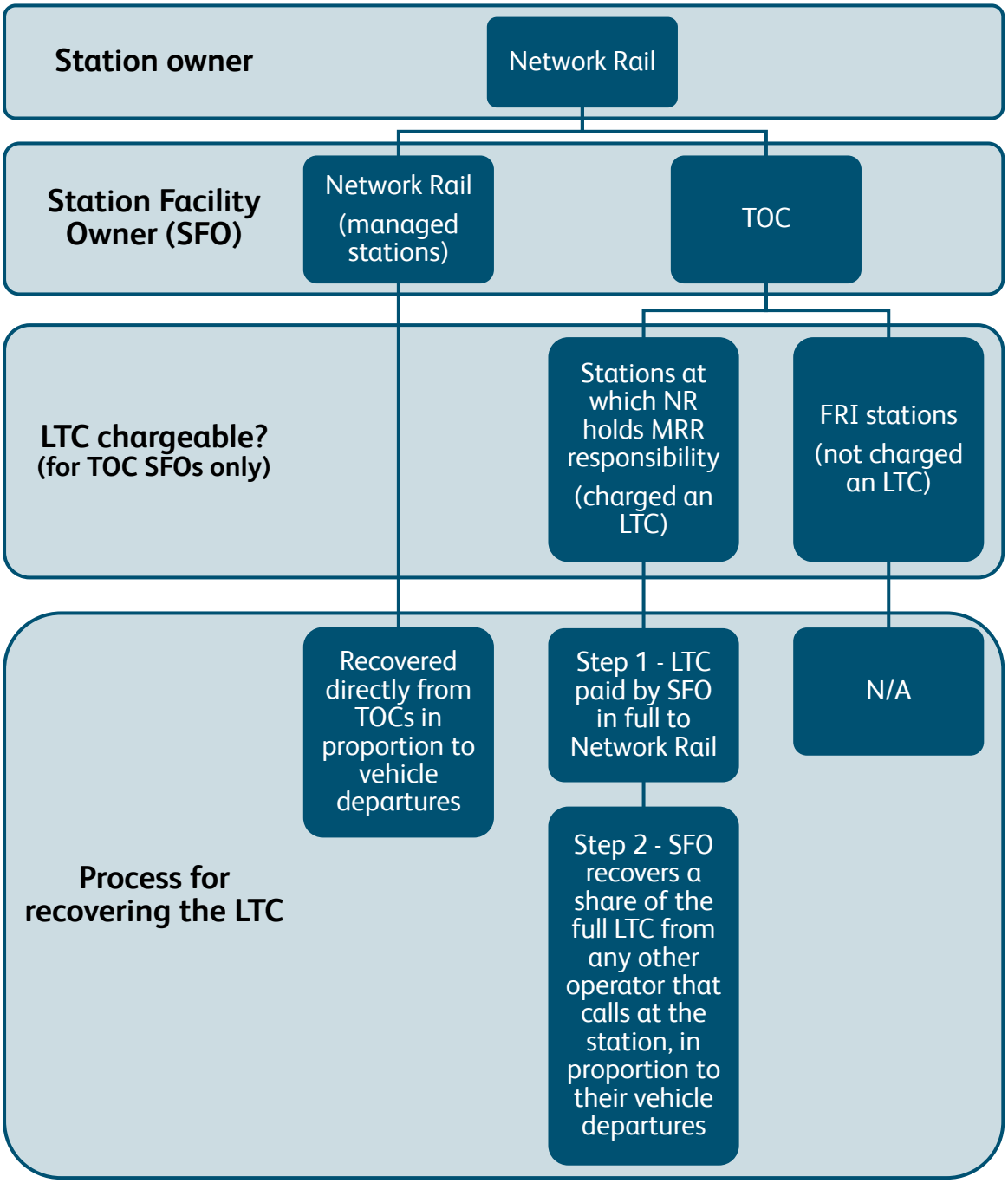
b) Network Rail operates the station (there are currently 20 Network Rail 'managed stations'[3]). The LTC is recovered directly from any operators that call at the station, in proportion to the number of vehicle departures made by each operator using the station.

2.3 The above LTC recovery paths are summarised in Figure 1.

2.4 There are some stations that Network Rail owns but for which it does not recover an LTC. An example of such a station is one that is on a lease type called a 'Full Repairing and Insuring' (FRI) lease, for which the SFO has the contractual responsibility for all MRR.

[3] See here for list of the 20 Network Rail managed stations, 11 of which are in London.

Figure 1: Summary of LTC recovery.



Elements of the LTC

2.5 The LTC covers the MRR costs associated with two broad asset categories:

a) **Operational Property**: This broadly covers any assets which comprise the physical fabric/structure of the station building(s). It includes, but is not limited to, assets such as staircases, platforms, and canopies. There is an Operational Property element of all station LTCs.

b) **Station Information & Security Systems (SISS)**: This includes, but is not limited to, assets such as CCTV systems and timetable information boards. Due to varying responsibilities for SISS MRR activities across different stations, some stations are allocated a SISS element of the LTC whereas others are not.

2.6 Network Rail carries out SISS renewals activity at most stations and SISS maintenance & repair at a proportion of these.

2.7 At some stations, the SFO has taken on the responsibility for completing the SISS MRR activities and will pass on a share of the charge to other operators using the station(s) via an independent agreement. In these instances, no Network Rail SISS charge is allocated.

2.8 In addition, there is a sub-category of the SISS element of the LTC, namely the 3rd party SISS maintenance contract costs. There are a number of specified SISS asset maintenance contracts that are in place between Network Rail and various external 3rd parties. The costs of these contracts are recovered from the relevant SFOs via the LTC. These contracts only cover specific stations as set out in the contract details; therefore the 3rd party SISS maintenance contract element of the LTC is only allocated to these specified stations.

3 LTC recalibration

Reason for recalibration

3.1 The station LTCs are fully recalibrated once every five years, as part of the periodic review in advance of each new control period. The rates are only adjusted during the control period to reflect inflation on an annual basis. The CP7 LTCs were recalibrated as part of PR23 and took effect from 01 April 2024.

3.2 As part of the periodic review process, Network Rail undertook an industry consultation with stakeholders on the appropriateness of its calculation methodology. This industry consultation included changes, proposed by either Network Rail or ORR, to the calculation methodology; it also explored the application of any policy decisions made by ORR.

3.3 The allocation of the LTCs to specific stations during the recalibration exercise is done in line with the industry-agreed methodology, following and incorporating the conclusions of consultations completed by ORR and Network Rail that are confirmed in ORR's final determination.

3.4 Network Rail owns and maintains the station LTC model which is used to recalibrate the LTCs.

Level of recovery from the LTC

3.5 The LTCs are recalibrated in line with the efficient forecast total cost of MRR at all Network Rail owned stations over the course of the upcoming control period.

3.6 As of 2019, Network Rail's operations are planned, funded, and implemented on a regional basis. Therefore, station maintenance, repair and renewals plans are developed at a regional level, with their funding also being allocated at this level. The LTC model works to allocate the LTCs such that the regional total planned costs are recovered, consistent with ORR's final determination.

4 The LTC calculation methodologies

4.1 There are two separate calculation methodologies that are applied during the LTC recalibration. The methodology adopted in each case is dependent upon the type/classification of the station in question. The two calculation methodologies are summarised below:

a) **Station specific** – under this calculation methodology, a station's LTC is determined using individual station specific cost forecasts for Operational Property and SISS MRR. This is used for 'Large'[4] stations.

b) **Category Averaged** – under this calculation methodology, a station's LTC is determined using a methodology which apportions a small number of regional control period cost forecasts between all stations within the relevant region, based on an estimate of relative station sizes and on station specific long term renewals cost forecasts. This is used for all stations charged an LTC but not defined as 'Large'.

4.2 The station specific and Category Averaged calculation methodologies are described in detail in later sections of this document.

[4] Defined for CP7 by ORR PR23 – Review of Network Rail's access charges, Conclusions on charging framework, 20 October 2022 (page 41). Also listed in Table 1.

5 Station specific LTC calculation – Large stations

The Large stations

5.1 The set of Large stations in PR23 was defined by ORR as part of its PR23 consultation on access charges, and is listed in Table 1[5]. All remaining stations that are charged an LTC are referred to as the 'Category Averaged' stations. All but one of the Network Rail managed stations is classed as Large in CP7, with Guildford being the exception.

Table 1: List of 33 Large stations which have station specific LTCs in CP7. Where a station is marked '**(NR)**', this indicates that it is also a Network Rail managed station. Note that this does not form part of the station name.

33 Large stations		
Birmingham New Street **(NR)**	Glasgow Queen Street (Low Level)	London Liverpool Street **(NR)**
Brighton	Highbury & Islington (GN & City Line)(Low level)	London Marylebone
Bristol Temple Meads **(NR)**	Highbury & Islington (North London Line)(High Level)	London Paddington **(NR)**
Cardiff Central	Leeds **(NR)**	London St Pancras International **(NR)**
Clapham Junction **(NR)**	Liverpool Central	London Victoria **(NR)**
East Croydon	Liverpool Lime Street **(NR)**	London Waterloo **(NR)**
Edinburgh Waverley **(NR)**	London Bridge **(NR)**	Manchester Piccadilly **(NR)**
Gatwick Airport	London Cannon Street **(NR)**	Reading **(NR)**
Glasgow Central **(NR)**	London Charing Cross **(NR)**	Stratford (London)
Glasgow Central Low Level	London Euston **(NR)**	Vauxhall
Glasgow Queen Street (High Level)	London Kings Cross **(NR)**	Wimbledon

[5] 19 of the 20 Network Rail managed stations are classed as Large, with the exception being Guildford.

Calculation methodology

5.2 The station specific LTC calculation is applied to the 33 Large stations that are listed in Table 1.

5.3 For this calculation, a set of individual cost forecasts for the upcoming control period for each Large station is gathered; these forecasts are then adjusted to account for efficiency targets where required[6], and converted into annual costs. Following these adjustments, the post-efficient annual costs are totalled to generate the annual LTC for that station.

5.4 The individual cost forecasts that are collected for each Large station are provided as either annual or control period forecast costs. Where these costs are provided as control period totals, they are divided by five to generate nominal annual costs.

5.5 Table 2 lists the cost forecasts that are gathered for the Large stations and shows the period over which the forecast applies.

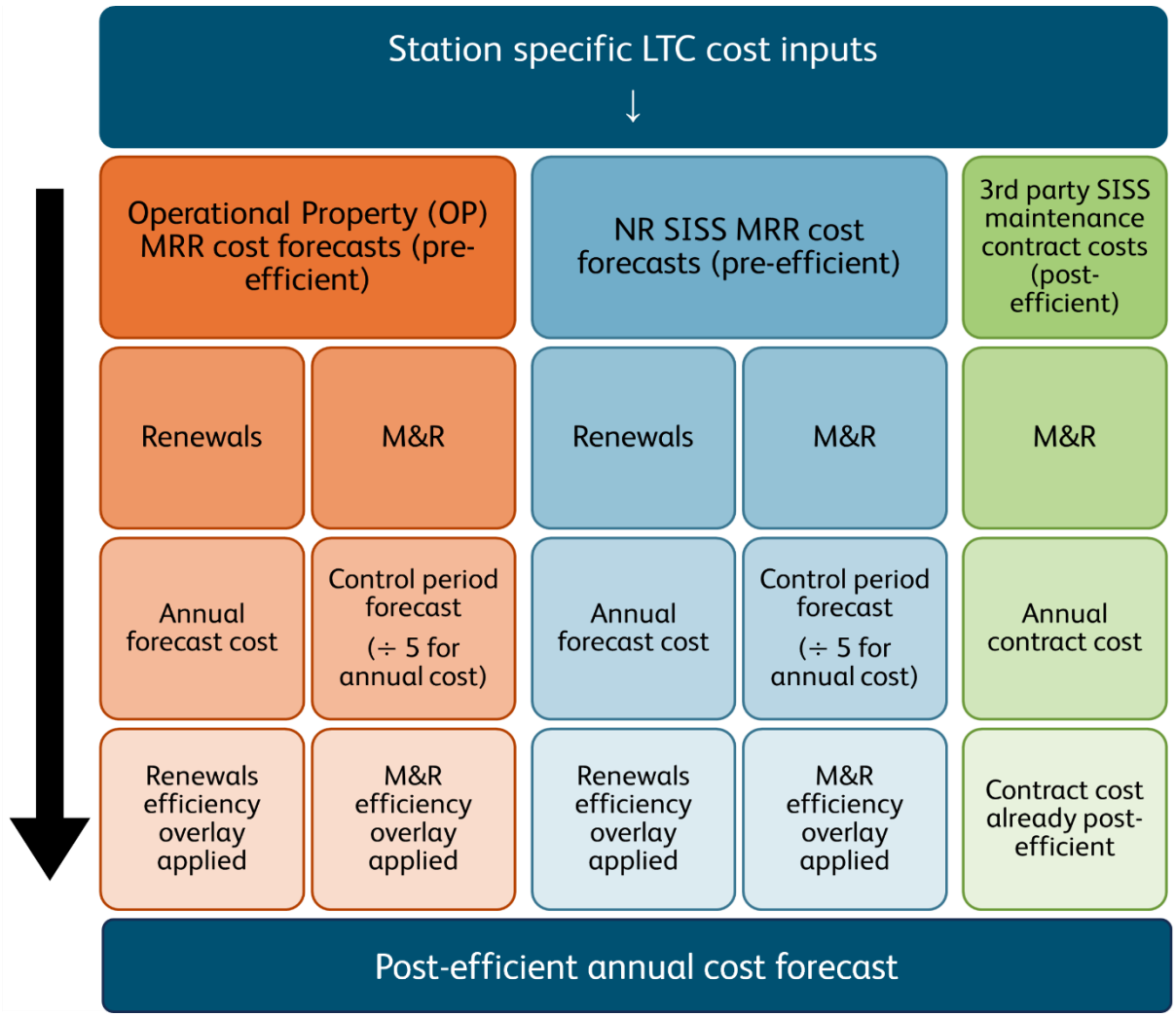
Table 2: Time frame covered by the cost forecasts for the LTC model for the Large stations.

Works type	Annual forecast cost	Control period forecast cost
Operational Property renewals	✓	
Operational Property maintenance & repair		✓
SISS renewals carried out by Network Rail	✓	
SISS maintenance & repair carried out by Network Rail		✓
3rd party SISS maintenance contract costs	✓	

5.6 Figure 2 outlines the cost forecasts that are gathered for each of the Large stations and summarises the process via which they are adjusted to reach a post-efficient annual forecast cost.

[6] The 3rd party SISS maintenance element of the LTC is not adjusted for efficiency as these are separately agreed contract costs.

Figure 2: Summary of the cost forecasts that feed into the station specific calculation, and how they are treated to generate a post-efficient total annual cost. The process reads from top to bottom.



6 Category Averaged LTC calculation

Overview

6.1 The Category Averaged LTC calculation is applied to all the stations that are charged an LTC, but that are not classed as Large. Under this calculation methodology, regional total station MRR forecast costs for the control period are apportioned between all of the non-large stations within the relevant region, in proportion to an approximation of their size and complexity relative to one another.

6.2 Below is a high-level outline of the main steps in calculating the constituent parts of a Category Averaged station's LTC (and are explained in more detail in the following sections).

a) **Calculate the Operational Property element of a station's LTC**. This is done by taking the post-efficient regional annual forecast expenditure in the control period across all Category Averaged stations, and then allocating a share of this to the station based on both a station specific long term renewals cost[7], and the station category (A-F)[8]. For a more detailed explanation, see the Operational Property calculation section below.

b) **Calculate the Network Rail SISS element of a station's LTC**. This is done by taking the post-efficient regional annual forecast expenditure in the control period across all Category Averaged stations, and then allocating a share of this to the station based on a station specific long term renewals cost. The station categories (A-F) are not used in the allocation of the SISS elements of the LTC.

c) **Identify any annual 3rd party SISS maintenance costs** that are applicable to the station.

d) **Add steps a, b and c together** to calculate the total annual LTC for a Category Averaged station.

6.3 The SISS element of a station's LTC may comprise only a Network Rail SISS element (b), only a 3rd party SISS maintenance contract element (c) or it may comprise a combination of the two. It follows that for a given station, either the Network Rail or 3rd party element of the SISS charge may be zero.

[7] "Long term cost" meaning an annual average renewal cost over 35 years, based on engineering analysis. This is the annual depreciation rate (£/year) of the asset type at each station, based on a standard 35 year average expected asset life, unit replacement costs and local cost and condition adjustment factors. This is not related to specific control period forecast costs.
[8] See the Station categories (A – F) section of this document.

Station categories (A – F)

6.4 A key component of the Category Averaged LTC calculation is the station categories. These are used in the allocation of the Operational Property element of the LTC.

6.5 The station categories serve to separate the stations within a given region into six Operational Property charging bands. The intention of these categories is to group stations together based on an estimate of station size, grouping the 'largest' stations together in category A, and the 'smallest' stations together in category F. This allows all stations in the same region and category to be charged the same amount for the Operational Property element, spreading the charges evenly. This approach is done in acknowledgement of the complex variation of asset types across the entire station portfolio, with varying volumes, conditions and lifetimes, which are unfeasible to be calculated on a station by station basis for each control period. This also accounts for detailed regional MRR plans at station level not being mature enough at the point of the LTC recalibration to allow precise charging for specific works.

6.6 The Category Averaged LTC calculation methodology places stations into one of six charging bands, on the broad assumption that larger stations are generally costlier to renew and maintain than smaller stations. The metric that is used as a proxy for station size within the LTC calculation is the daily passenger usage at each station, based on ORR estimates of station usage[9], published annually in November. This assumes that the more passengers that use the station, the larger the station.

6.7 For CP7, the ORR estimates of station usage data covering April 2021 to March 2022 (published in November 2022)[10] was used within the LTC model to place stations into categories for CP7. The stations will be charged based on this category assignment for the duration of CP7.

6.8 Table 3 sets out the daily passenger entries criteria that were used to place stations into categories in the CP7 recalibration. These criteria were set such that they maintained the same proportion of stations in each category, at a national level, as was seen in CP6. This was in response to changes in passenger usage across the station portfolio since PR18. The intention of retaining the number of categories, and the spread of stations across them, was to avoid influencing the level of the charges by adjusting the number of categories that were in use within the LTC model.

[9] Total annual passenger entries into the station, based on ORR-produced data which provides an estimate of total entries & exits at each station. The ORR total entries & exits figures are halved to produce the nominal number of entries into the station.
[10] This edition was used in CP7 as it was the latest available on publication of the draft CP7 LTC price list in July 2023. The November 2023 edition (covering April 2022 to March 2023) would have caused changes to the price list at a very late stage, during the finalisation of the price list (post-assurance).

Table 3: Daily entries criteria for station categories A – F in PR23 for CP7.

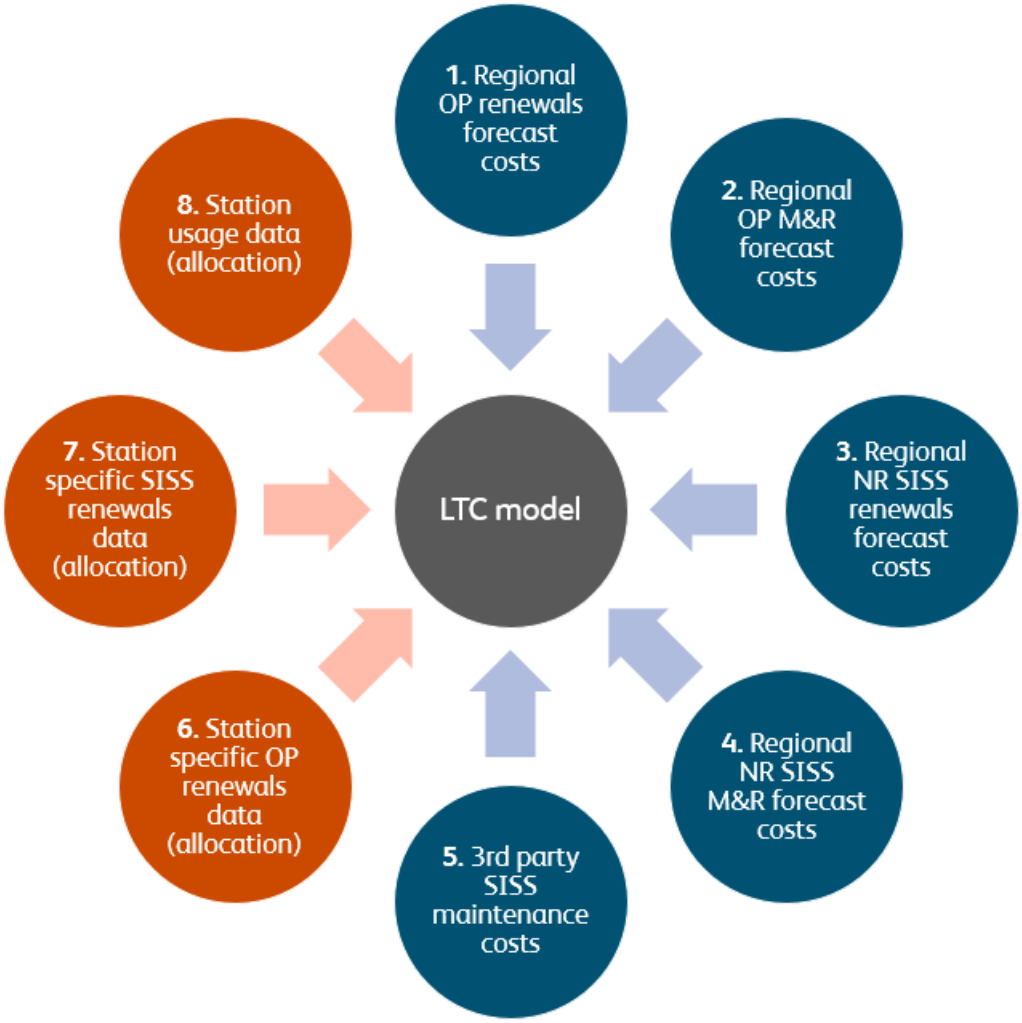
Category	Daily passenger entries criteria
A	6,302 +
B	3,058 – 6,302
C	1,528 – 3,058
D	765 – 1,528
E	189 – 765
F	0 – 189

Data inputs

6.9 There are a number of inputs that feed into the LTC model to calculate the Category Averaged station LTCs. These inputs are a mix of forecast costs, and some station specific data which is used to allocate the forecast costs between all the stations.

6.10 Figure 3 shows all of the data inputs required by the LTC model to calculate a new set of charges for the Category Averaged stations.

Figure 3: Inputs to the LTC model for the Category Averaged stations. The inputs in the dark blue circles (numbers 1 – 5) are costs and the inputs in the orange circles (numbers 6 – 8) are used in the allocation of the costs. (OP = Operational Property).



Calculation of the LTC components

Operational Property

Data inputs required

- **Input 1:** Regional Operational Property renewals forecast costs
- **Input 2:** Regional Operational Property M&R forecast costs
- **Input 6:** Station specific Operational Property renewals data (for allocation)
- **Input 8:** Station usage data (for allocation)

6.11 The numbered inputs relate to those identified in Figure 3.

Cost allocation methodology

6.12 The Operational Property element of the LTC is based on the regional forecast costs for the MRR of Operational Property assets, across all of the region's Category Averaged stations and over the entire control period. This forecast is shared between the stations via an allocation methodology which uses station usage and station-specific long term asset renewals figures to apportion the cost between all the stations within the region.

6.13 Under this calculation methodology, the Operational Property element of the charge is allocated to stations based on:

a) Station categories A – F.

b) Station specific long term Operational Property renewals costs.

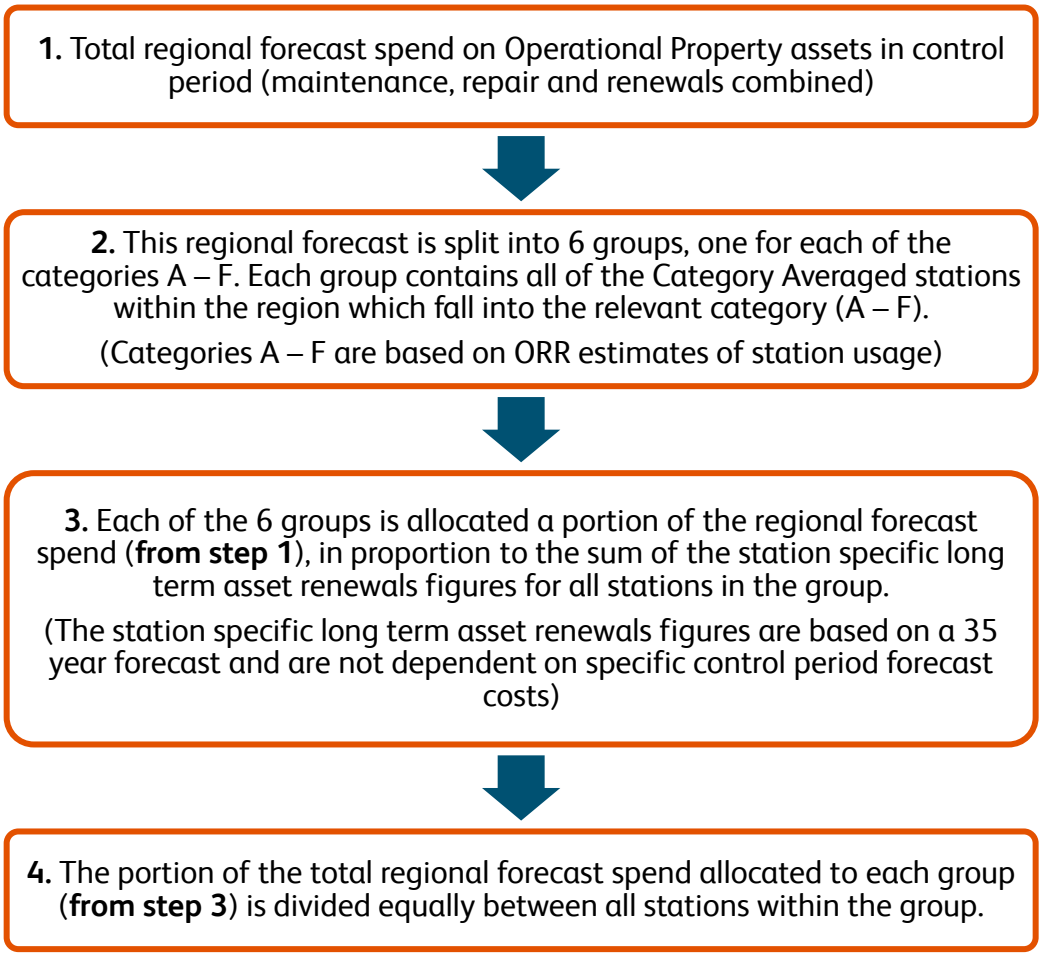
6.14 The station specific long term Operational Property renewals costs provide a measure of the annual long term (35 year) renewal costs for each station[11]. The sum of these values for all the stations in a given region and category (A – F) is used to set the proportion of the regional control period forecast cost being recovered in each station category charging band. The intention of this is to apportion the regional control period forecast costs relative to how costly the station assets are collectively to renew on a long term basis.

6.15 The diagram in Figure 4 outlines the high-level steps in the allocation process that is used to share the total regional Operational Property forecast spend in the upcoming control period between each of the stations within that region.

[11] This is the annual depreciation rate (£/year) of the asset type at each station, and is not dependent on specific control period costs/budgets.

6.16 A more detailed flow chart outlining the calculations that underpin the allocation of the Operational Property charge to the Category Averaged stations is in Appendix A – Category Averaged Operational Property calculation.

Figure 4: High-level outline of the process for allocating Operational Property charges to categories within a region.



6.17 The steps in Figure 4 are summarised in the following formula:

$$OP_x = \frac{\left(OP_{Region} \times \frac{\sum L_x}{\sum L_{Region}}\right)}{N_x}$$

6.18 Where:

a) OP_x is the Operational Property charge for the control period per station in the region and category x.

b) OP_{Region} Region is the total regional forecast spend on Operational Property assets in the region for the control period.

c) $\sum L_x$ is the sum total of the station specific long term Operational Property renewals costs for all stations in the region and category x.

d) $\sum L_{Region}$ is the sum total of the station specific long term Operational Property renewals for all stations in the region.

e) N_x is the number of stations in the region and category x.

6.19 In general, the higher the station category[12], the greater the Operational Property charge. This is because busier stations (which are placed in a higher category) tend to be costlier to renew, repair and maintain than stations with fewer passenger entries (which are placed in a lower category).

6.20 However, the Operational Property allocation methodology is such that it is possible for a lower station category to have a greater Operational Property charge than that of a higher station category, within a given region. This is because the station specific long term asset renewals figures (referred to in step 3 above) are based on long term costs related to asset lifetimes; they are neither related to one another, nor dependent on regional forecast costs for a given control period, nor directly influenced by station usage within a given year.

6.21 Specifically, if the particular set of stations within a region and category has a greater average long term asset renewal cost than that of a higher category within the same region, the Operational Property charge for each station in the lower category will be greater than that of the higher category.

6.22 Though it is important to note that, even in this case, the Operational Property costs will still be as cost reflective as possible based on the long term view of the cost of renewals at recalibration.

The new station discount

6.23 When a new Category Averaged station opens and begins being charged an LTC, it is granted an initial discount on the Operational Property element of its LTC. This is because very little structural/building work is expected to take place during the first few years of operation, given that the station is new.

6.24 The Operational Property element of a new station's annual LTC is reduced by 90 % to reflect this. This initial discount is set to apply for a fixed five-year period. It follows that, unless a station happens to open on the very first day of a new control period, this initial five-year discount will extend some way into the control period after that in which the station opened. This is taken into consideration when the LTCs are fully recalibrated for the beginning of a new control period.

6.25 When recalibration of all the LTCs takes place, there will likely be a number of new stations which are due to be charged a discounted rate on their Operational Property for part of the upcoming control period.

[12] Category A being the highest and category F being the lowest.

6.26 The total regional forecast expenditure on Operational Property is allocated between all the stations in the region such that the new station discount is satisfied for the correct time period for each new station, and the total regional forecast expenditure is recovered across all Category Averaged stations by the end of the control period.

6.27 Once the five-year discount period of a new station comes to an end, the station will move onto a higher LTC matching that of the existing stations in the same region and category, for the remainder of the control period.

6.28 When a new station opens in mid-CP7 (post-recalibration), the Operational Property element of its LTC is simply set equal to 10% of that for an existing non-new[13] station in the same region and category. This new station would then be incorporated into the next recalibration to set the level of its LTC for the next control period (CP8), via the recalibration methodology set out in this document.

6.29 A worked example demonstrating how the LTC for existing stations is adjusted to account for a new station is provided under Appendix A – Category Averaged Operational Property calculation.

6.30 In the CP7 recalibration, any new stations that opened during CP6 (but before finalisation of the price list on 01 December 2023) were included as new stations in the recalibration exercise, and therefore received a discounted rate for some of CP7 compared to existing stations in the same region and category.

Definition of a new station

6.31 Within the context of the LTC, a new station is defined as an entirely new station which has been constructed and introduced to the national rail infrastructure for the very first time[14]. A station which has undergone any degree of redevelopment, upgrade or extension is not considered to be a new station with respect to the LTC.

[13] A station that is not classed as 'new' (i.e. more than 5 years old).
[14] A station which previously did not exist on the network in any shape or form.

Network Rail (NR) SISS

Data inputs required

- **Input 3:** Regional NR SISS renewals forecast costs
- **Input 4:** Regional NR SISS M&R forecast costs
- **Input 7:** Station specific SISS renewals data (for allocation)

6.32 The numbered inputs relate to those identified in Figure 3.

Cost allocation methodology

6.33 The Network Rail SISS element of the LTC accounts for the proportion of the MRR of SISS assets for which Network Rail is responsible. Any work that Network Rail carries out is charged to the relevant SFOs via the LTC.

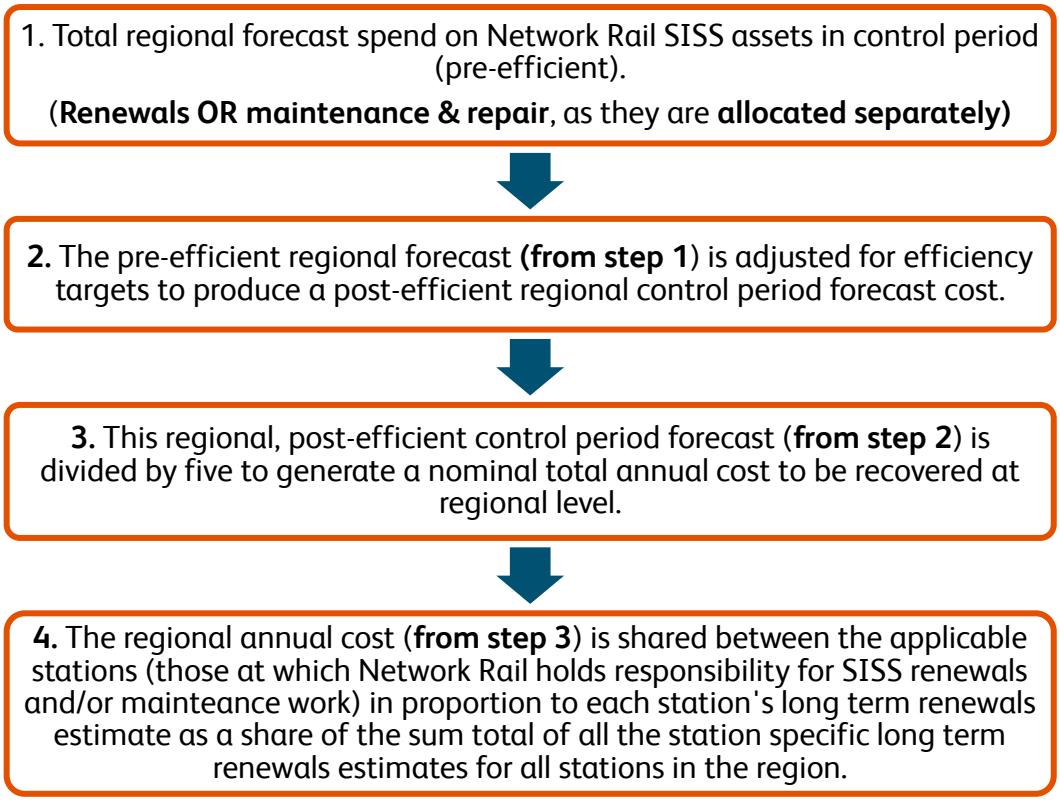
6.34 This element of the LTC is based on the regional forecast costs for the maintenance, repair and separately the renewals of SISS assets, across all of the region's Category Averaged stations and over the entire control period. This forecast is shared between the stations via an allocation methodology which uses station-specific long term asset renewals figures[15] to apportion the cost between all the stations within the region.

6.35 Network Rail SISS costs are only allocated to the stations at which Network Rail carries out renewals and/or maintenance work on some/all SISS assets. This element of the LTC is not allocated to stations at which the SFO has direct responsibility for these works.

6.36 The diagram in Figure 5 outlines the high-level steps in the allocation process that is used to share the total regional SISS forecast spend in the upcoming control period between each of the applicable stations within that region.

[15] Long term asset renewals costs which are the annual average renewal cost over 35 years, equivalent to those used to apportion the Operational Property part of the LTC. This is not based on specific control period forecast costs.

Figure 5: High-level outline of the process for allocating Network Rail SISS charges to categories within a region.



6.37 The reason that the renewals and maintenance & repair elements are allocated separately, despite being allocated using the same methodology, is to allow each element of the LTC to be published separately. This is to provide transparency and clarity within the price list by showing which elements of the LTC have been applied, and in what proportion, to each station.

3rd party SISS

Data inputs required

- **Input 5:** 3rd party SISS maintenance costs
- **Input 7:** Station specific SISS renewals data (for allocation)

6.38 The numbered inputs relate to those identified in Figure 3.

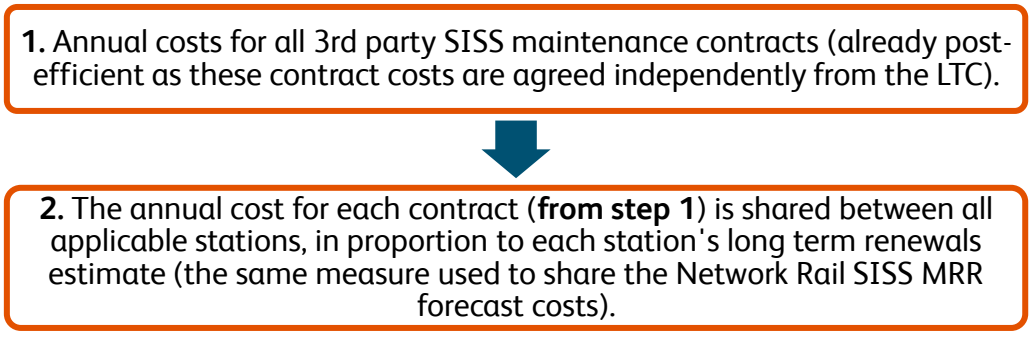
Cost allocation methodology

6.39 The 3rd party SISS element of the LTC accounts for the proportion of the MRR of SISS assets for which one or more third party organisations are responsible. Any MRR and/or support that is provided by the third parties is charged via the LTC, and only to the applicable SFOs.

6.40 There are a small number of 3rd party SISS maintenance contracts whose costs are recovered through the LTC. Each one of these contracts only applies to a specified group of stations. In many cases these are Network Rail managed stations, but not exclusively. There are a relatively small number of Category Averaged stations to which the 3rd Party SISS maintenance charges apply. The 3rd party SISS maintenance costs are allocated only to the group of stations that are specified under each of these separate contracts.

6.41 The diagram in Figure 6 outlines the high-level steps in the allocation of the 3rd party SISS maintenance contract costs between the applicable stations.

Figure 6: High-level outline of the process for allocating the 3rd party SISS maintenance contract costs to applicable stations.



7 Exceptions to the station LTC

7.1 There are some stations that are either owned by Network Rail, or connected to Network Rail infrastructure in some form, that are not subject to the LTC.

Table 4: Exceptions to the LTC. Exception examples correct at December 2023.

Station type	Why are these stations not charged an LTC?	Examples
Full Repairing & Insuring (FRI) lease stations	An FRI lease is a lease type under which the train operating company that manages the station (so is the SFO) has taken on full responsibility for the MRR activity at the station. This means that Network Rail does not carry out any MRR works at the stations, so does not charge an LTC at the station (the LTC recovers Network Rail's MRR costs). Network Rail is still the owner of the station.	Many of the stations in the Anglia route in the Eastern region – for example, Cambridge, Newmarket and Shoeburyness.
Isle of Wight (IoW) Island Line stations	Along with all of Network Rail's IoW railway assets, the stations are leased under one lease to the TOC/SFO. This lease includes its own separate suite of charges and is an unregulated lease.	Brading, Ryde St. Johns Road and Smallbrook Junction.
Officially closed stations	Any stations that were previously charged an LTC but have since been officially closed (with closure ratification notice issued by ORR)[16] are no longer charged an LTC.	Newhaven Marine, Angel Road and Folkestone Harbour.
Stations not owned by Network Rail	There are a small number of stations that are not owned by Network Rail, therefore Network Rail does not charge an LTC.	Liverpool South Parkway, Warwick Parkway and Haggerston. Tyne & Wear (T&W) Metro stations[17] – e.g. Brockley Whins Welsh Core Valley Line stations[18] – e.g. Cardiff Bay

[16] ORR station and depot access closures.
[17] These stations are owned by Tyne & Wear Metro (Nexus).
[18] Network Rail transferred ownership of Core Valley Line (CVL) stations to Transport for Wales in March 2020, hence CVL stations are no longer charged an LTC.

8 Contacts

8.1 We welcome questions on any aspect of this document or the LTC calculation process more generally. Depending on the nature of your query you should contact one of the Network Rail colleagues listed in Table 5 in the first instance.

Table 5: List of contact details for queries relating to the recalibration of the station LTCs.

Person/team	Area	Contact email address
Conor Murrells Regulatory Economics Manager	Policy and periodic review issues	Conor.Murrells@networkrail.co.uk
Rebecca Townsend Senior Regulatory Economist	Charging methodology	Rebecca.Townsend@networkrail.co.uk

9 Version control

9.1 The date that this document was published, and its version number, are shown on the cover page. This document may be updated on occasion to update or refine the content as required. Table 6 provides a record of the version history of this document.

Table 6: Version control for the CP7 LTC recalibration methodology document.

Version number	Date	Description of change	Document owner
1	04/12/2024	Original CP7 version created.	Conor Murrells (Regulatory Economics Manager, Network Rail)

10 Appendix A – Category Averaged Operational Property calculation

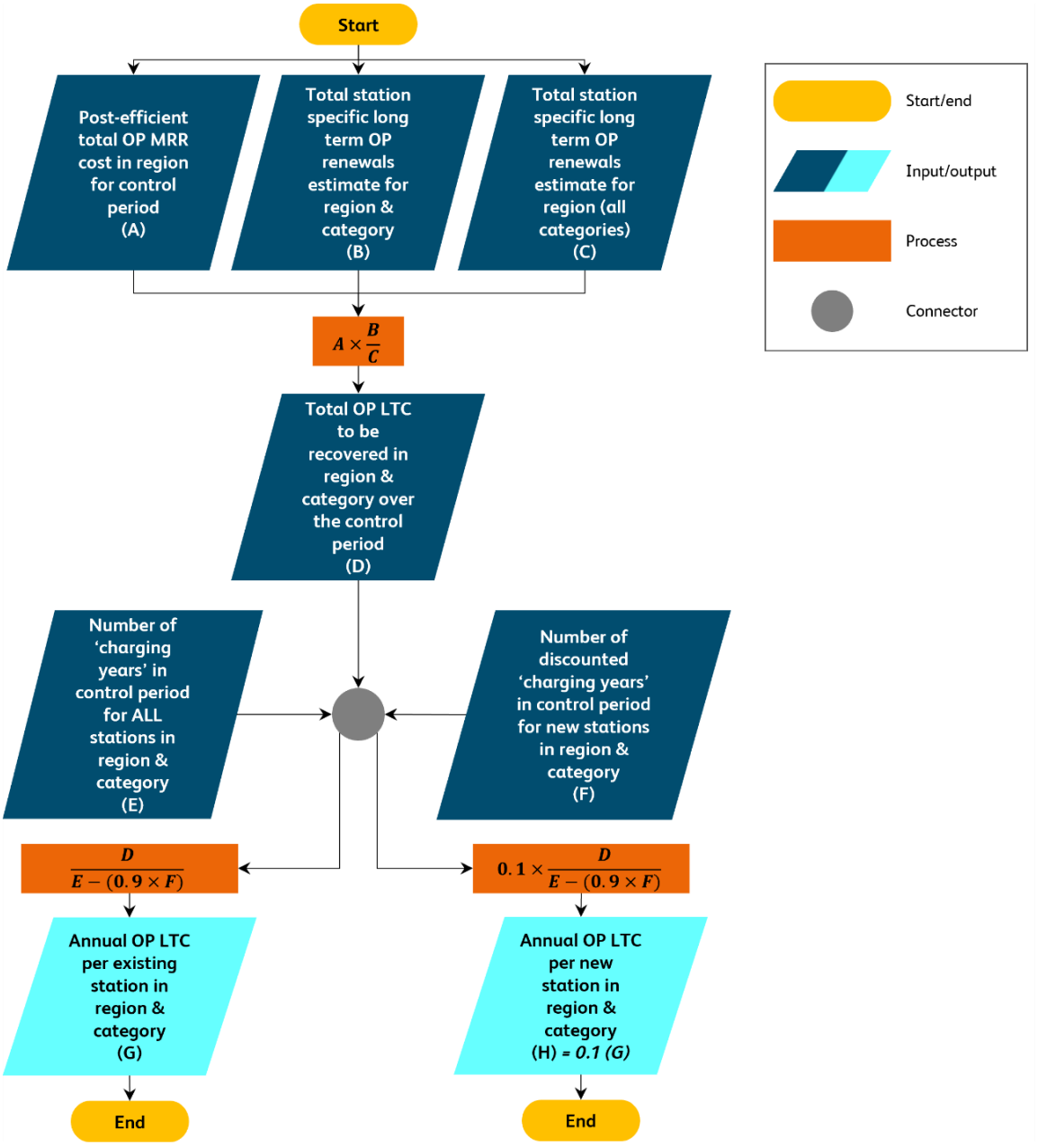
10.1 The detail in this section differs from that in the chapter 6 (above). The cost allocation methodology described in chapter 6 explains, at a high level, the general principle of the setting of the Operational Property element of the LTC, where a regional forecast is shared between categories and then allocated to stations using a weighting based on station-specific long term renewals forecasts. It does not include the new station discount element of the calculation as this is more complex and is not relevant in all cases.

10.2 An explanation of the detailed calculation, the relationship between the model inputs and Operational Property charge and a worked example demonstrating the new station discount are provided in this section to provide clarity and transparency around how the Operational Property element of the LTC is calculated.

Calculation process flow diagram

10.3 Figure 7 illustrates the detailed process via which the Operational Property element of each Category Averaged station's LTC is calculated. The light blue/turquoise output boxes – (G) and (H) – are the possible annual charges within a given region and category, depending on whether the station is existing or new within a given year of the control period.

Figure 7: The detailed calculation process for the Operational Property (OP) element of the LTC.



Further calculation detail

10.4 This section outlines the origin of the equations that appear in Figure 7.

10.5 The Operational Property element of a new Category Averaged station is set at 10 % of that of an existing station in the same region and category (A – F).

10.6 In order to achieve this, and recover the total forecast spend on Category Averaged stations within a region and category over the control period, the charges must be set so that both of these criteria are met:

a) Each station in the region and category is charged an amount such that the sum total over the control period matches the forecast cost.

b) Any new stations in the region and category are charged an annual rate that is 10 % of that for the existing stations in the same region and category. This reduced rate must apply only for the years in which the station remains classed as 'new' (less than 5 years since opening) from the start of the control period.

10.7 To achieve this, the Operational Property LTCs within a specific region and category (A – F) are set on a 'charging year' and 'discounted charging year' basis.

Figure 8: Equations that are used in the LTC model which express and fulfil both a and b set out above.

$$
\begin{aligned}
D &= G(E-F) + F(0.1G) \\
&= EG - FG + 0.1FG \\
&= EG + (0.1-1)FG \\
&= \mathrm{EG} - 0.9\mathrm{FG} \\
&= \mathrm{G(E} - 0.9\mathrm{F)} \\
\therefore G &= \frac{D}{E-0.9F}
\end{aligned}
\qquad \textbf{AND} \qquad
\begin{aligned}
H &= 0.1G \\
&= 0.1 \times \frac{D}{E-0.9F}
\end{aligned}
$$

Relationship between Operational Property charge and model inputs

10.8 In light of the new station discount extending from one control period to the next, there is a slightly complex relationship between all of the variables that contribute to the Operational Property element of an individual station's LTC. The following formula represents the general format of the calculation of this element of a station's LTC:

$$OP_{per\ station} = x\ A\left(\frac{B}{C}\right)\left(\frac{1}{E-0.9F}\right)$$

10.9 Where:

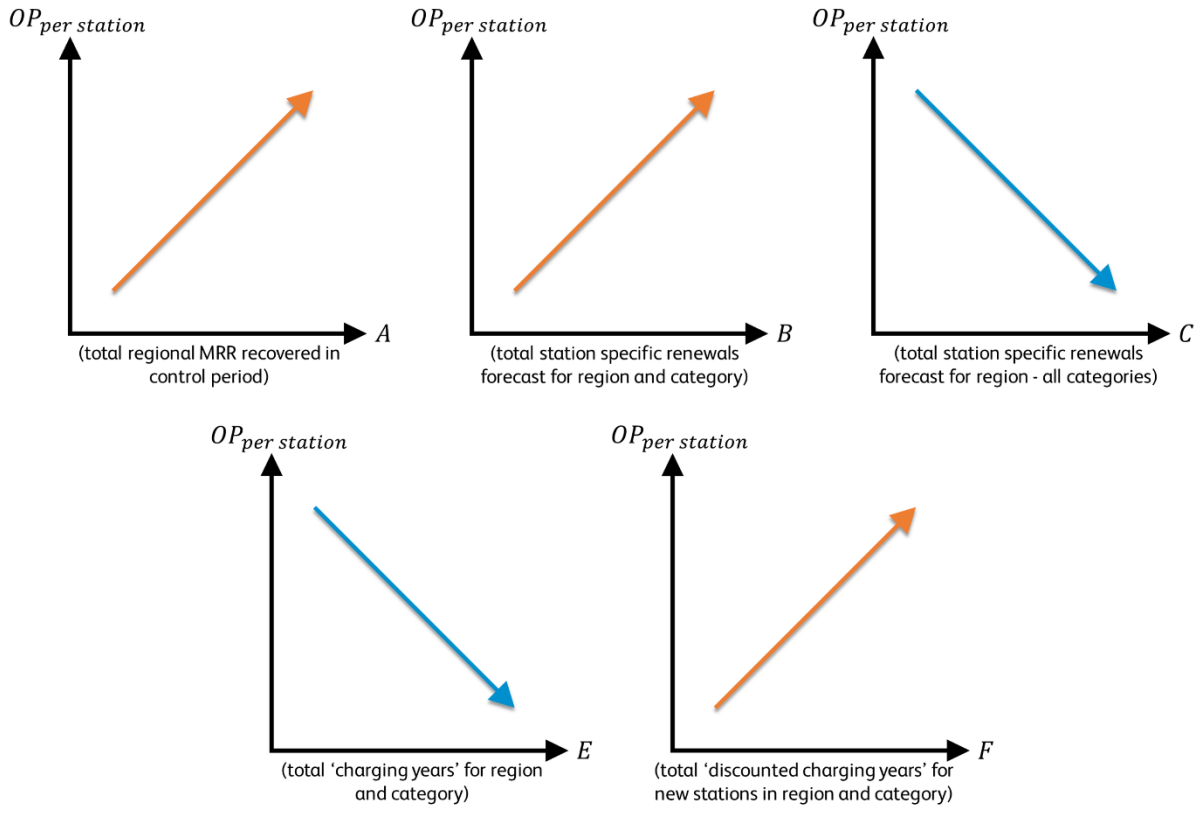
a) The letters A, B, C, E and F denote the contributing variables in the above section.

b) $OP_{per\ station}$ is the Operational Property charge for a given station in the region and category.

c) x is equal to either 0.1 or 1, depending on whether the station is new or existing respectively.

10.10 Figure 9 shows how the Operational Property element of a station's LTC changes with each contributing variable.

Figure 9: Charts showing how the Operational Property element of a station's LTC changes with each contributing variable. $OP_{per\ station}$ is the Operational Property charge for a given station.



10.11 Note that as new stations are added to the region and category, the values of A, B, C, E and F will **all change**. The degree to which each of these values change when an additional new station is included, will each have an influence on the Operational Property charge for an existing station in the region and category. It is the combination of changes to each of these values that will **together determine the net change** in the overall charge for a station.

10.12 It is this complex relationship between the contributing variables which makes it difficult to disaggregate the impacts of each input to the LTC model on individual LTC charges of Category Averaged stations.

New station discount example

10.13 At recalibration, new stations (those less than 5 years since opening) are charged a discounted Operational Property element of their LTC that:

a) Is set at 10 % of the level of the Operational Property charge for an existing station in the same region and category (A – F).

b) Applies for a number years of the next control period, depending on when in the current control period the station opened to the public.

10.14 Table 7 shows a simplified example of the Operational Property expenditure forecast in CP7 for a set of three existing stations which are all in the same region and category. Stations K – M all opened prior to the beginning of CP6 so are not classed as new for any portion of CP7.

Table 7: Example Operational Property expenditure forecast for 3 existing stations in the same region and category.

Operational Property expenditure forecast WITHOUT new station – regional assumption (£)						
	CP7					
	Year 1	Year 2	Year 3	Year 4	Year 5	**Total**
Station K	10	10	10	50	10	90
Station L	10	10	10	10	10	50
Station M	10	200	10	10	10	240
Total K – M	30	220	30	70	30	**380**

10.15 It can be seen from Table 7 that the total Operational Property expenditure forecast for the region and category without the addition of a new station is £380; this is the amount that would be recovered across Stations K – M in CP7, with each of these three stations paying an annual operational property charge of £380/(3×5)=£380/15=£25.30.

10.16 Table 8 shows the Operational Property expenditure forecast for the same region and category as in the example in Table 7, however in this example there is a new station (Station N) which has opened in the same region and category as Stations K – M. Station N opened two years before the start of CP7.

10.17 Note that the Operational Property expenditure forecast for Station N for CP7 is included in the CP7 total for all four stations in the region and category.

Table 8: Example Operational Property expenditure forecast for 3 existing stations and 1 new station in the same region and category.

Operational Property expenditure forecast WITH new station – regional assumption (£)						
	CP7					
	Year 1	Year 2	Year 3	Year 4	Year 5	**Total**
Station K	10	10	10	50	10	90
Station L	10	10	10	10	10	50
Station M	10	200	10	10	10	240
Station N (new)	5	5	5	20	5	40
Total K – N	35	225	35	90	35	**420**

10.18 Table 8 shows that the total Operational Property forecast expenditure for the region and category with the addition of a new station is £420; this is the amount that must be recovered across Stations K – N in CP7 under the Category Average calculation.

10.19 If the Operational Property charge was split equally between the four stations for each year of CP7, each station would have an annual Operational Property charge of $\frac{£420}{4\times5} = \frac{£420}{20} = £21$.

10.20 However, considering the new station discount that will be applied to station N under the Category Averaged methodology, the annual charge for each station will not be the same in all years of CP7. Since Station N opened 2 years before the start of CP7, its annual Operational Property charge for the first 3 years[19] of CP7 will be 10 % of the annual charge for each of Stations K – M in CP7.

10.21 Table 9 represents the CP7 Category Averaged approach used in the CP7 recalibration, in which Station N sees the Operational Property discount in the first 3 years of the control period.

10.22 It shows the annual breakdown of the Operational Property charge for Stations K – N throughout CP7. The values are set such that the following conditions are met:

a) The annual charge for Station N for the first 3 years of CP7 is 10 % of the annual charge for Stations K – M throughout CP7.

[19] Note that depending on when in CP6 a station opened, the discount in CP7 may apply for between 1 and 5 years.

b) The sum of all the annual charges for Stations K – N throughout CP7 is equal to £420 Operational Property expenditure forecast for the region and category.

Table 9: Example CP7 Operational Property LTC components for 3 existing stations and 1 new station (with a 3-year discount) with adjustment for regional recovery.

Operational Property component of LTC – INCLUDING recovery of expenditure forecast at regional level (£)						
	CP7					
	Year 1	Year 2	Year 3	Year 4	Year 5	**Total**
Station K	24.3	24.3	24.3	24.3	24.3	121.4
Station L	24.3	24.3	24.3	24.3	24.3	121.4
Station M	24.3	24.3	24.3	24.3	24.3	121.4
Station N (new)	2.4	2.4	2.4	24.3	24.3	55.8
Total K – N	75.3	75.3	75.3	97.1	97.1	**420.0**

10.23 Table 9 demonstrates that in order to recover the £420 expenditure forecast for the region and category in full, the annual Operational Property charge for existing Stations K – M would need to be increased from £21 (see paragraph 10.19 above) to £24.30. This is an increase on the amount they would have been charged had the operational property charge been split equally between Stations K – N in each year of CP7.

10.24 Table 10 demonstrates the under-recovery of regional costs which would be seen if the operational property charge for existing stations is not adjusted to account for a new station (as shown in Table 9).

Table 10: Example CP7 Operational Property LTC components for 3 existing stations and 1 new station (with a 3-year discount) without adjustment for regional recovery.

Operational Property component of LTC – EXCLUDING recovery of expenditure forecast at regional level (£)						
	CP7					
	Year 1	Year 2	Year 3	Year 4	Year 5	**Total**
Station K	21.0	21.0	21.0	21.0	21.0	105.0
Station L	21.0	21.0	21.0	21.0	21.0	105.0
Station M	21.0	21.0	21.0	21.0	21.0	105.0
Station N (new)	2.1	2.1	2.1	21.0	21.0	48.3
Total K – N	65.1	65.1	65.1	84.0	84.0	**363.3**

10.25 If existing Stations K – M were charged only £21 for their annual operational property[20], but Station N was still given a 90 % discount compared to the other three stations, for three years of CP7, the total cost recovery for the region and category would come to only £363.30. This is £56.70 short of the £420 Operational Property expenditure forecast which must be recovered in the Category Averaged methodology.

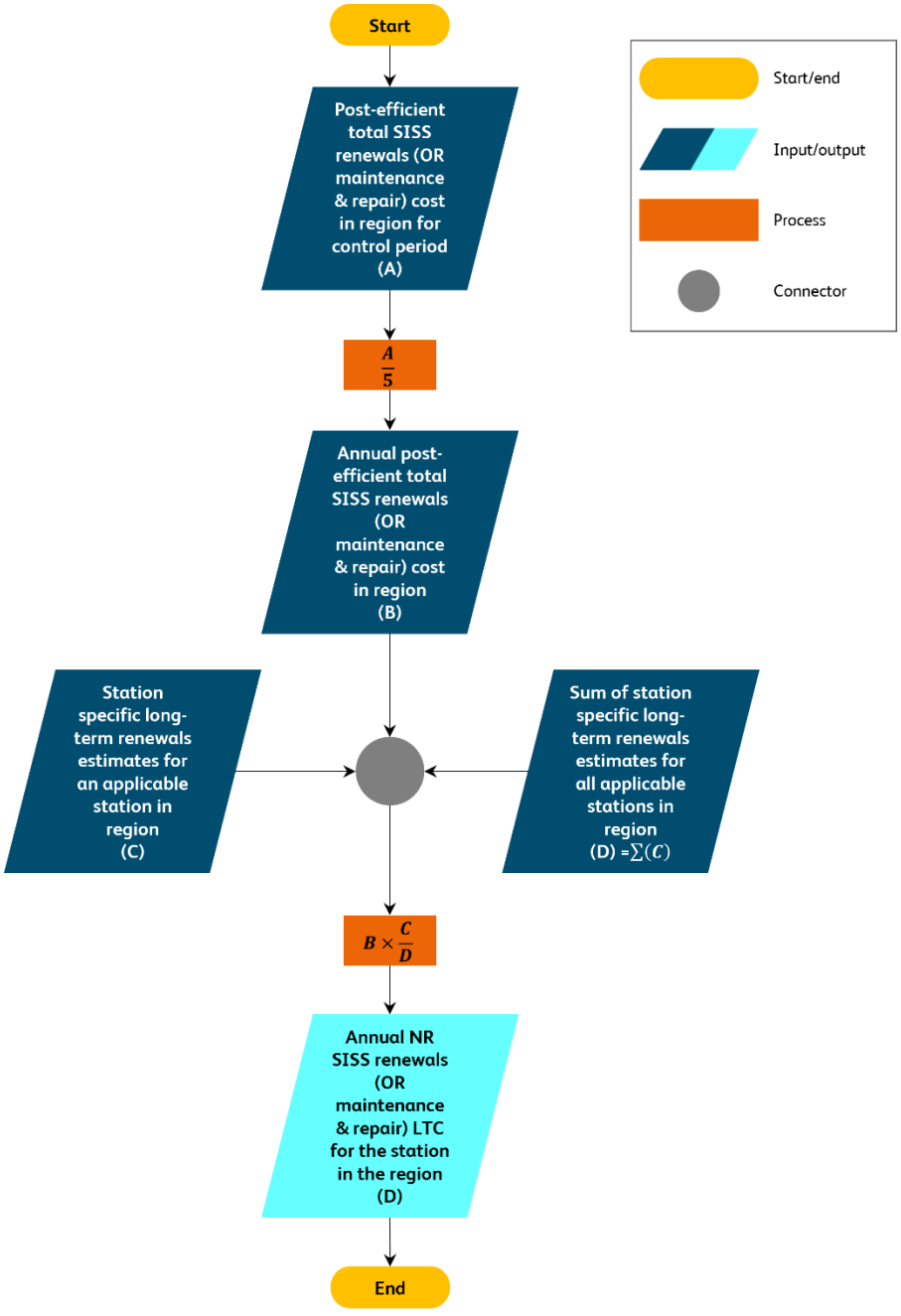
[20] As they would have been without the cost-recovery adjustment.

11 Appendix B – Category Averaged Network Rail SISS calculation

Calculation process flow diagram

11.1 Figure 10 illustrates the detailed process via which the Network Rail (NR) SISS element of each Category Averaged station's LTC is calculated. The light blue/turquoise output box (D) is the annual NR SISS renewals (OR maintenance & repair) charge for a given station within a particular region.

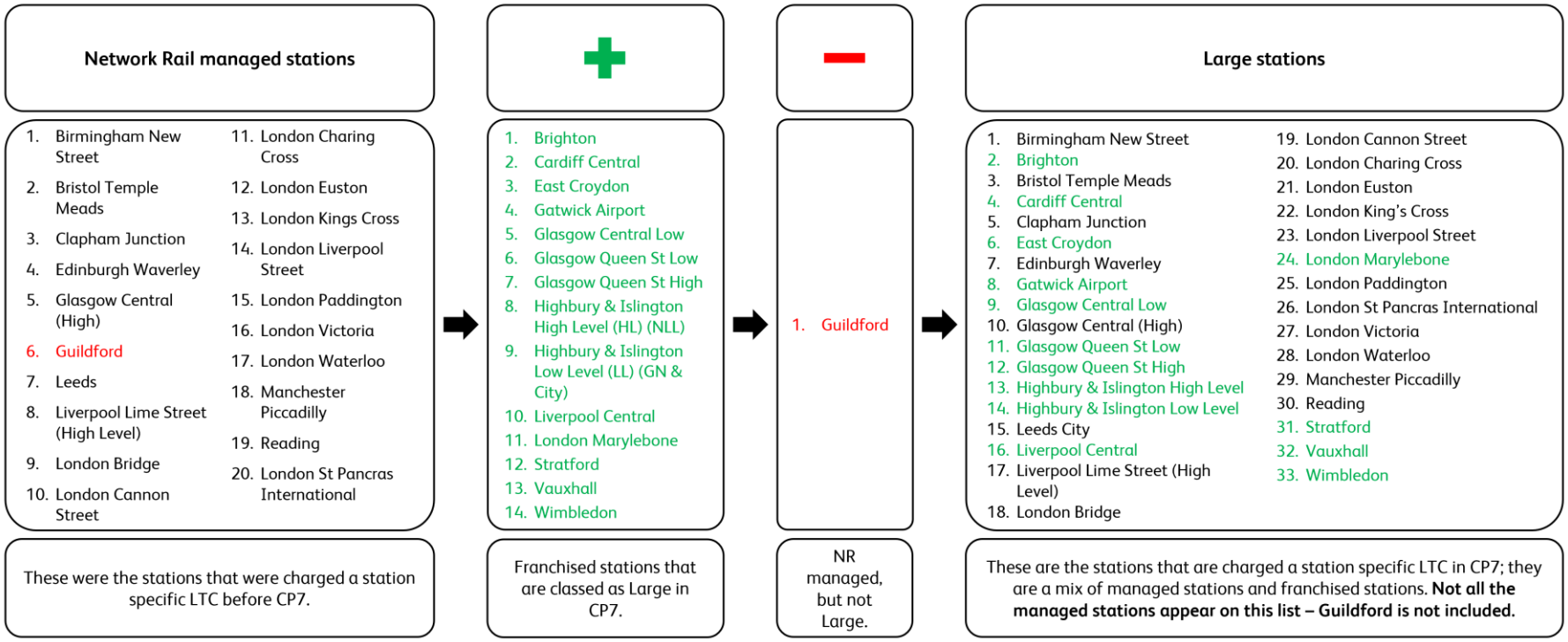
Figure 10: The calculation process of the NR SISS element of the LTC.



12 Appendix C – Managed and large stations

12.1 The 33 Large stations are charged a station specific LTC in CP7; prior to CP7, only the 20 Network Rail managed stations were charged on this basis. Note that Guildford (Network R managed) is NOT classed as a Large station.

Figure 11: Diagram showing how the list of stations with a station specific LTC in CP7 (the Large stations) differs from the list of Network Rail managed stations.



13 Appendix D – Categories A – F defined for CP7

CP7 station category criteria

13.1 The daily passenger entries criteria were reviewed and updated in PR23 (for CP7) in response to changes in passenger numbers at stations since the PR18 recalibration (for CP6).

13.2 If the same boundaries used in PR18 were applied to the PR23 passenger usage data, there would be no category A stations and far fewer in categories B – E. This is due to changes in passenger usage from 2016/17[21] to 2021/22[22]. Therefore, it was considered appropriate to readjust to the category criteria in line with this change. The criteria were adjusted to maintain the proportion of stations in each of the categories from CP6 to CP7, to retain the relevance of each of the categories.

Table 11: The change in category A – F passenger entries criteria adopted in CP7 to retain the relevance of the category structure from PR18 to PR23.

Category	Daily passenger entries criteria (CP6)	Number of franchised stations in category (CP6)	% of the 2,309 franchised stations in CP6		Daily passenger entries criteria (CP7) – retains % stations in each category as in CP6	Number of Category Averaged stations in category (CP7)	Number if PR18 criteria applied
A	13,000 +	18	0.8 %		6,302 +	17	0
B	5,000 – 13,000	81	3.5 %		3,058 – 6,302	79	38
C	2,500 – 5,000	141	6.1 %	→	1,528 – 3,058	138	92
D	1,200 – 2,500	250	10.8 %		765 – 1,528	244	182
E	300 – 1,200	682	29.5 %		189 – 765	665	598

[21] Passenger usage data used to place stations into categories in PR18.
[22] Passenger usage data used to place stations into categories in PR23.

Category	Daily passenger entries criteria (CP6)	Number of franchised stations in category (CP6)	% of the 2,309 franchised stations in CP6		Daily passenger entries criteria (CP7) – retains % stations in each category as in CP6	Number of Category Averaged stations in category (CP7)	Number if PR18 criteria applied
F	0 – 300	1,137	49.2 %	→	0 – 189	1,105	1,338
Total	-	**2,309**	**-**		**-**	**2,248**	**2,248**

13.3 Note that the total number of Category Averaged stations in CP7 is as it was in the draft price list, published in July 2023, as the criteria needed to be reset in advance of this. These criteria were applied for the final CP7 price list published 20 December 2023. At CP7 draft there were 2,248 Category Averaged stations; at final there were 2,251.

13.4 Three new Category Averaged stations had opened and been added to the price list between these two documents, however it would not have been proportionate to reset the boundaries at such a late stage for a difference of only 3 stations.