



Government of **Western Australia**
Public Transport Authority

PTA THIRD PARTY RAIL ACCESS COSTING PRINCIPLES

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**PTA THIRD PARTY RAIL ACCESS – COSTING PRINCIPLES
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1. INTRODUCTION

1.1. Background

- 1.1.1. The purpose of the Railways (Access) Act 1998 (the Act) and the Railways (Access) Code 2000 (the Code) is to establish a rail access regime that encourages the efficient use of, and investment in, railway facilities by facilitating a contestable market for rail operations.
- 1.1.2. The Act requires nominated parts of the rail network managed by PTA to be made available for access by third party rail operators. Schedule 1 of the Code lists the sections of the PTA rail network covered by the Code.
- 1.1.3. PTA is established under the Public Transport Authority Act 2003 to direct, manage, maintain and control the Government Railways in Western Australia.
- 1.1.4. The Economic Regulation Authority (ERA) was established on 1 January 2004 and became responsible for the administration of the Act and the Code which were previously the responsibility of the Office of the Rail Access Regulator.

1.2. Relevance of the Costing Principles

- 1.2.1. Section 46(1) of the Code requires each railway owner to prepare and submit to the ERA a statement of the principles, rules and practices (the Costing Principles) that are to be applied and followed by the railway owner in the determination of the costs associated with the Floor Price Test and the Ceiling Price Test referred to in Clause 7 and Clause 8 of Schedule 4 of the Code.
- 1.2.2. The Costing Principles is the main facet of the access regime to ensure that the correct risk return balance is struck between third party train operators and PTA.
- 1.2.3. The objectives of the Costing Principles are:
 - 1.2.3.1. To provide the framework for the calculation and determination of Incremental and Total Costs required under the Code; and
 - 1.2.3.2. To define the manner in which the keeping and presentation of the railway owners' accounts and financial records so far as they relate to the determination of the Incremental and Total Costs will occur.
- 1.2.4. Definitions for key terms referred to in the Costing Principles, whether defined in the Act or the Code or not, are provided in Section 8.
- 1.2.5. The Over-payment Rules determined by the ERA under Part 5, Section 47 of the Code are linked to the Costing Principles in so far as application of the Ceiling Price Test defined in Clause 8 of Schedule 4 of the Code is concerned. The Over-payment Rules, as determined, set out the methodology in dealing with overpayments where breaches of the Ceiling Price Test have occurred.
- 1.2.6. These Costing Principles have been developed on the basis that they are a set of principles and that they will need to be supported by databases and costing models containing considerable detail, which will change from time to time. That detail is not contained in this document but PTA recognises that it must:
 - 1.2.6.1. Prepare and have the information available for the ERA at all times and its preparation and maintenance must be consistent with these principles;
 - 1.2.6.2. Respond to any request or Determination by the ERA related to these Costing Principles and their application; and
 - 1.2.6.3. Comply with its obligations under the Code.

- 1.2.7. The Code also allows PTA to negotiate prices between the Incremental and Total cost and as such the Incremental and Total Costs only provide the lower and upper boundaries to potential final prices for access which will be established by negotiations (and if necessary arbitration).
- 1.2.8. Although this document only refers to the Costing Principles, PTA notes that Clause 13, Schedule 4 of the Code provides the Pricing Guidelines on which negotiated access prices under the Code are to be based.
- 1.2.9. PTA is prepared to discuss access with interested parties either within the requirements of the Code or outside the Code. However PTA will only apply these Costing Principles in response to a proposal made under the Code.

1.3. Definition of Route

- 1.3.1. The Code refers to specific 'routes' in Schedule 1. In this context, the term is used to define groupings of contiguous track sections between junctions for the purpose of exhaustively listing the track sections covered by the Code. Route is a defined term in the Code meaning "those parts of the railway network and associated infrastructure to which this Code applies, and includes part of a route".
- 1.3.2. Schedule 2 of the Code defines a 'Route Section' as sections of the railway network that has been divided for management and costing purposes.
- 1.3.3. PTA will calculate Incremental and Total Costs at the Route Section level, which will then provide an aggregated Incremental and Total cost for the 'route' nominated by the access seeker. The Route Section for key parts of the network, which will be used in the application of these costing principles, are included in clause 8.3. If Incremental and Total cost calculations are required for the rest of the network in Schedule 1 of the Code, they will be provided to the access seekers in accordance with Section 9(1)(c) of Part 2 of the Code.
- 1.3.4. The route Total Costs together with volume detail provided as part of Section 7(1)(b)(i) of the Code will assist access seekers to assess price consistency and accuracy.
- 1.3.5. Schedule 2 of the Code also lists the information relating to the standard of and the characteristics of the infrastructure, together with operating limits, for each route and which must be provided to access seekers.

1.4. Structure of this Document

- 1.4.1. This statement of Costing Principles is structured into seven further sections:
 - 1.4.1.1. Section 2 – Determination of capital costs;
 - 1.4.1.2. Section 3 – Determination of operating costs;
 - 1.4.1.3. Section 4 –Overhead costs;
 - 1.4.1.4. Section 5 – Other matters;
 - 1.4.1.5. Section 6 – Review and consultation;
 - 1.4.1.6. Section 7 – Annexures; and
 - 1.4.1.7. Section 8 – Definitions.

2. DETERMINATION OF CAPITAL COSTS

2.1. Introduction

- 2.1.1. The Total Costs, and in certain circumstances the Incremental Costs, include a capital charge. The Code sets out the basis for determining the capital charge based on the annuity formula, calculated having regard to the gross replacement value of the infrastructure, its economic life and an allowable rate of return. The capital charge, using the annuity formula, compensates PTA for both the return on capital and for capital depreciation.
- 2.1.2. There are five key elements which underpin the determination of the appropriate capital charge:
 - 2.1.2.1. Infrastructure to be included in the calculations;
 - 2.1.2.2. Gross replacement value;
 - 2.1.2.3. Economic life of the asset;
 - 2.1.2.4. Allowable return; and
 - 2.1.2.5. Annuity calculation.
- 2.1.3. Each of these elements are discussed below.

2.2. What infrastructure is included

- 2.2.1. The assets included in the capital calculations included only the assets directly engaged in the provision of rail infrastructure services, and as defined in the Code and include:
 - 2.2.1.1. Railway track, associated track structures, over or under track structures, supports (including supports for equipment or items associated with the use of a railway);
 - 2.2.1.2. Tunnels and bridges;
 - 2.2.1.3. Stations and platforms;
 - 2.2.1.4. Train control systems, signalling systems and communications systems;
 - 2.2.1.5. Buildings and workshops; and
 - 2.2.1.6. Associated plant, machinery and equipment.
- 2.2.2. Sidings or spur lines that are excluded by Section 3(3) or (4) of the Act from being railway infrastructure are not included.
- 2.2.3. Assets which support operating functions will be included in the operating cost or overhead cost calculations as appropriate. Assets included in this category are motor vehicles, computers, printers, facsimile machines, photocopiers, system hardware and software, mobile and fixed communications, office furniture and equipment. The costs of these assets will be calculated on a net basis.
- 2.2.4. The PTA will not include cuttings and embankments except where expenditures on cuttings and embankments incurred since the commencement of the Rail Access Regime, to create capacity or expand the network, or improve operating standards or efficiency.

2.3. Gross Replacement Values

2.3.1. There are a number of underlying assumptions which affect the calculation of Gross Replacement Values (GRV) including:

2.3.1.1. Capacity of Infrastructure

- a. The infrastructure is required to be optimised to meet current and reasonably projected demand.
- b. PTA believes the existing network can meet the current and reasonably projected demand for all users taken together. If PTA sought to include the costs of additional infrastructure, to meet projected demand it would need to demonstrate:
 - i. The basis of the demand projection; and
 - ii. A commitment to the capital expenditure.

2.3.1.2. Route Optimisation

- a. PTA has assumed that the optimised network is provided by the rail track within the existing corridor of the land and therefore the resulting lateral alignment of the network is considered efficient

2.3.1.3. Contributed Assets

- a. Contributed assets will be included in the cost of capital for the purpose of calculating the GRV and the Total Cost. Contributed assets include both government and operator contributed assets, and the cost of operating and maintaining these assets will also be included in the calculation of Total Costs.
- b. In the case of Government and operator contributed assets, the value of the contributed capital will be accounted for as an equivalent annuity payment which is to be included in the revenue earned on the asset, for the purpose of the Ceiling Price Test.
- c. As an illustration, if PTA contributed 50% of the capital cost of a new level crossing, with the other 50% coming from another source, then for the purpose of the Total Cost calculation, the full cost of the level crossing calculated as an annuity would be added to the Total Cost of the relevant Route Section. As for the 50% contribution from the other source, that amount would be annualised and treated as revenue for the purpose of the Ceiling Price Test of that Route Section.

2.3.1.4. Greenfields Site

- a. For the purposes of calculating the GRV, the replacement cost calculations are to assume a greenfields site and hence costs related to constructing around rail traffic, surface restoration and other surface diversions are excluded from the GRV.

2.3.1.5. Modern Equivalent Assets

- a. Replacement values are to be assessed on the basis of Modern Equivalent Assets (MEA), where appropriate.

- b. PTA considers that various components of the existing track configuration such as rail weights can be adopted as the MEA. It is assumed, however, that this track configuration is new in accordance with the Code. Where the Total Costs calculated for a specific route using MEA are significantly higher than the existing infrastructure calculation, the ERA may determine that it is not appropriate to apply MEA. Under these conditions the pre-existing infrastructure may be used in determining the Total Costs if the existing infrastructure meets current and anticipated operational and safety standards and if the infrastructure components are available in the market.
- c. It is PTA's view that the current exceptions in calculating the GRV for the existing network are:
 - i. Optic fibre has been used as the MEA asset to provide digital communications on main lines where signalling is used (excluding North Fremantle to Robb Jetty and Armadale to Mundijong);
 - ii. Processor Based Interlocking has been used in all cases of signalling systems instead of electro-mechanical interlockings (excluding North Fremantle to Robb Jetty and Armadale to Mundijong); and
 - iii. Electrocode has been used in all cases of signalling systems in Armadale to Mundijong and North Fremantle to Robb Jetty.
- d. However, PTA recognises that the ERA, when determining the Incremental and Total Costs on the various routes as either part of the Clause 9, Schedule 4 of the Code review or as Clause 10, Schedule 4 of the Code request will decide the MEA applicable to the Route Sections and the exceptions proposed by PTA.
- e. PTA calculates the GRV using current market testing unit rates for materials and construction based on the MEA, or using the existing infrastructure, if appropriate. All Total Costs will be calculated using best practice capital cost unit rates. Where there is a likelihood that the Total Cost calculation for a Route Section has the potential to breach the Total Cost, the ERA may require an independent review of these costs.
- f. The key steps required to complete a GRV estimate based on MEA are:
 - i. Identify the route for which the GRV is being calculated;
 - ii. Assess the existing railway infrastructure specification to ensure that the MEA test is appropriate;
 - iii. Review asset databases to ensure the population of assets is correct;
 - iv. Confirm existing network capacity will meet current and reasonably expected future demand on the network;
 - v. Confirm unit rates are based on Efficient Costs;
 - vi. Complete an analysis of each asset class to optimise the network to a MEA; and

- vii. Calculate the current replacement cost GRV of the railway infrastructure using the MEA or existing asset specification if appropriate.
- g. The key capital cost drivers PTA will adopt to ensure a MEA network are:
 - i. The operating track standard (axle load, speed);
 - ii. Population of supporting infrastructure (bridges, culverts);
 - iii. Topography of route (gradient and track curvature);
 - iv. Automatic train protection, signalling; and
 - v. Passenger stations.
- h. The operating standards that PTA will apply for determining GRV are in accordance with the National Codes of Practice. Nevertheless, PTA recognises that the standards to be adopted in the calculation of the GRV, including track specifications, will need to be agreed to by the ERA.

2.3.1.6. Unit Rates

- a. PTA will build unit rates into the PTA Costing Model based on:
 - i. Tendered rates PTA has tested in the market; and
 - ii. Direct quotations from suppliers.
- b. where these rates have any adjustment for scale or scope or the impact of location these assumptions will be included.
- c. This information is contained in PTA's Costing Model and will be made available to the ERA and contains information of the source and the assumptions that are currently used in the model.
- d. In addition, PTA will identify and provide to the ERA unit rate information and assumptions that it considers can be released as part of the public consultation process for the ERA's Clause 9, Schedule 4 of the Code determination on the Incremental and Total Costs to apply to certain routes.

2.3.1.7. Design, construction and project management fees

- a. PTA will apply design, construction and project management fees at a rate of 20% of the total cost of the infrastructure and based on an economic life of 50 years.
- b. Because PTA uses primary unit rates for establishing construction costs, it is appropriate to charge full project management fees on the materials cost calculated for the infrastructure. In cases where such fees are included in unit rates, PTA accepts that the project management fees should be reduced to account for such charges, keeping total design, construction and project management fees in line with a 20% limit.

2.3.1.8. **Financing charge during railway infrastructure construction**

- a. The Code requires that the GRV for railway infrastructure be applied as part of the calculation of the capital charge. Consistent with this approach is that PTA will include in the capital cost an allowance for its cost of capital and related financing fees and charges during the construction period.
- b. PTA will apply the WACC determined by the ERA to the construction cash flows to calculate the financing charge. Upon completion of construction, the interest calculation ceases. In determining the annuity payment attributed to such costs, a 50-year economic life assumption will be utilised.
- c. Construction rates will vary depending on scale and scope and also the geography and the impact of other infrastructure on the route. PTA has used an average construction rate of one kilometre per day. This rate will be based on the entire route and allocated to Route Sections on a per kilometre basis. The ERA may consider a higher or lower rate in some sections of the network and adjust the construction rate accordingly.

2.4. Economic Life

- 2.4.1. PTA has evaluated the economic lives of its infrastructure based on the application of MEA with new components and key determinants of asset life such as environmental factors, which will have an impact to extend or reduce the life of the asset.
- 2.4.2. This evaluation is based on generally accepted industry lives and PTA's own experience. The lives adopted by PTA are generally consistent with those accepted in other regimes.
- 2.4.3. Two assets subject to reduced lives due to the specific nature of the rail operation in which they are used are:
 - 2.4.3.1. Rail life – affected by track curvature and volume; and
 - 2.4.3.2. Turnouts – a complex asset which has a different spread of lives for components.

2.4.4. Rail life is one asset where the track curvature and volume specific to a nominated route will reduce the life of the rail. The effect of such curvature and traffic volume on economic life will be represented using the matrix show below. These estimates are based on engineering assessment of rail life on curves, and have previously been applied elsewhere by the ERA.

Life Expectancy (Years)				
Rail Curvature	0 - 10 MGT	>10 – 15 MGT	>15 – 20 MGT	>20 MGT
0 to 400 metre radius	15	8	7	6
400 to 800 metre	30	14	12	10
>800 to tangent	70	65	62	60

MGT = Million Gross Tonnes

This matrix assumes that rail lubrication is used as a preventative maintenance method.

2.4.5. In the case of turnouts some components have different lives. As approved by the ERA, PTA will calculate the annuity based on the individual components and the lives of each component as shown below:

Turnout Sub asset	Years 0 - 10 MGT	Years >10 15MGT	Years >15 20MGT	Years >20MGT
Bearers (concrete)	40	35	32	30
Blades and Stock Rails	9	5	5	4
Rail bound crossings	17	12	12	10
Swing Nose crossings	25	20	17	12
Balance of turnout	25	22	21	20

MGT = Million Gross Tonnes

2.4.6. Whilst this will be discussed in the section relating to maintenance in Section 7.1, the maintenance regime has been set to allow the asset to reach its economic life. It has been assumed that the asset is life expired at the end of that period, has no economic (salvage) value and there are no costs to reclaim or dispose of the life expired assets.

2.4.7. The economic lives of the assets adopted by PTA are set out in Section 7.1.

2.5. The annuity calculation

2.5.1. The annuity calculation provides a return on capital and implicitly provides for depreciation of the asset.

- 2.5.2. PTA has adopted the methodology (applying the PMT) formula used in a Microsoft Excel spreadsheet to calculate the annuity required.
- 2.5.3. The MS Excel terminology for the annuity formula (PMT) is described:
 - 2.5.3.1. Rate of Interest: be set at the relevant WACC as defined by the Code;
 - 2.5.3.2. Nper: be expressed in years and based on the relevant economic life of the track sections;
 - 2.5.3.3. Pv: is the GRV of the relevant Route Section;
 - 2.5.3.4. Fv: is the salvage value, if any, which remains at end of economic life. When an asset achieves its full economic life, then the salvage value is to be set at zero; and
 - 2.5.3.5. Type: be set at the start of the period by inputting "1".
- 2.5.4. This formula calculates the costs at the beginning of the period which does not reflect the actual payment cycle for access charges. The appropriate methodology is to calculate the change monthly in arrears but this is not possible under the definition of the Code where economic life for the GRV of the railway infrastructure is to be expressed in years as the number of periods.
- 2.5.5. To allow for this, the ERA has determined that PTA can include in its operating costs a proxy for the working capital required because of the effects of the formula (refer to section 3.3).

3. DETERMINATION OF OPERATING COSTS

3.1. Introduction

- 3.1.1. PTA has prepared its operating costs based on the Efficient Cost of maintaining the MEA network.

3.2. Efficient Cost Tests

- 3.2.1. PTA will test whether the operating costs used for determining the Incremental and Total Costs are efficient as follows:
 - 3.2.1.1. Benchmarking will be used where it is available and comparable;
 - 3.2.1.2. For certain processes and activities unit costs from competitive tendering may be used;
 - 3.2.1.3. If the maintenance programs are based on accepted industry standards for maintenance which describe the scope and frequency of the activity then this may be considered to be efficient;
 - 3.2.1.4. Actual costs may be used where the consumption and scope are efficient (eg. Train controller's salaries if the number of controllers and their range of duties are efficient by benchmarking);
 - 3.2.1.5. Actual costs may also be used where the costs:
 - a. Come from a competitive market such as insurance; or
 - b. Are regulatory costs (such as the cost of Rail Safety accreditation).
 - 3.2.1.6. In measuring efficiency, PTA recognises that these costs change over time especially as a result of innovation and technological change.

3.3. Definition of Operating Costs

- 3.3.1. In determining what maintenance activities are required to maintain MEA infrastructure in a GRV based regime, major periodical maintenance activities (MPM) have not been included. For the purpose of the Costing Principles, this is because MPM is assumed to extend the economic life of assets.
- 3.3.2. However, it is noted that the use and definition of MPM has a wide variety of application and interpretation in the rail industry.
- 3.3.3. There are some activities which are included in both MPM or in Cyclical Maintenance in a GRV based regime and are not exclusive to either.
- 3.3.4. Therefore PTA has defined the terms Routine and Cyclical Maintenance to detail what activities have been included in operating costs.
- 3.3.5. Operating costs are defined in the Code and PTA has four categories of operating costs in PTA's Costing Model as follows:
 - 3.3.5.1. Routine Maintenance for track, and signals and communications;
 - 3.3.5.2. Cyclical Maintenance for track, and signals and communications;
 - 3.3.5.3. Network Management Costs; and
 - 3.3.5.4. Working Capital.
- 3.3.6. **Routine and Cyclical Maintenance for track**
 - 3.3.6.1. PTA has developed a track maintenance model which calculates the cost of maintaining the track infrastructure in accordance with the defined assumptions documented in the Costing Principles. The assumptions adopted in this process are:
 - a. The track infrastructure is new at year 1 and is maintained to realise the defined economic life of components of the asset. The infrastructure maintenance levels and the frequency of the activities are deemed to comply with the Australian Standard AS4292 Parts 1 and 2 which specify safety requirements of the Railway Safety Management System. PTA's maintenance practices also comply with the Codes of Practice for both the Narrow and Standard Gauge network.
 - 3.3.6.2. The maintenance regime is broadly classified into two categories:
 - a. Routine Maintenance; and
 - b. Cyclical maintenance.
 - 3.3.6.3. There are two major activity classifications within Routine Maintenance.
 - a. Routine inspections; and
 - b. Routine Maintenance – which typically follows the inspection process.
 - 3.3.6.4. The inspection regime includes patrolling, on-train inspection, track condition monitoring (using recorder vehicles), defined event inspections by patroller and structures inspection.
 - 3.3.6.5. Routine Maintenance is therefore the corrective action taken as a follow up to routine inspections.

- 3.3.6.6. Cyclical Maintenance represents tasks that are undertaken at regular intervals which are necessary to achieve the expected asset life and include:
- a. Track resurfacing, rail grinding, ballast top up and cleaning, rail defect removal and structures maintenance to achieve economic life; and
 - b. Firebreaks, scrub slashing, drainage, access roads and road seal on level crossings to meet operational and safety requirements.
- 3.3.6.7. The cost of repairing incidents such as fire and flood, or damage caused to the track as a result of derailments or accidents has been included in maintenance costs but only to the extent they are not recoverable from insurance or operators. The cost of repairing incidents will not be included if it can be shown that PTA is negligent in its responsibility as a railway owner. PTA intends to calculate incident costs based on a historical cost approach. However, PTA understands that the ERA will decide on the manner in which the cost of incidents will be calculated when determining the Incremental and Total Costs on the various routes as part of the Clause 9, Schedule 4 of the Code review.
- 3.3.6.8. The track maintenance model is incorporated as part of the PTA Costing Model and includes all the assumptions and prices used. As the level of maintenance activity varies over the life of the asset, it is appropriate to calculate the net present value of the projected stream of maintenance costs that occurs over the life of the asset, starting with the assumption of a new asset in year 1. The annualised value of this stream of costs is then used to represent an average annual maintenance charge over the life of the asset.
- 3.3.6.9. These are costs included in the definition of Operating Costs in Schedule 4 of the Code.

3.3.7. Routine and Cyclical Maintenance for signalling and communications

- 3.3.7.1. Signalling and communications costs largely are based on Routine Maintenance because of the safety and operating requirements of these systems.
- 3.3.7.2. Routine Maintenance is based on industry accepted inspection regimes and based on fault history. It includes specified periodical inspections and procedures (including testing) and responses to faults.
- 3.3.7.3. Cyclical maintenance is significantly less important for signalling and communications and includes component rebuilds to achieve economic life.
- 3.3.7.4. The signal and communications maintenance model is incorporated as part of the PTA Costing Model. The annual charge is based on an annualised value of the net present value of maintenance costs stream. Maintenance costs are allocated to Route Sections according to train movements.
- 3.3.7.5. These are costs included in Part (b) of the definition of 'Operating Costs' in Schedule 4 of the Code and NPV of the cash flows is then used to calculate an average annual maintenance charge over the life of the asset.

3.3.8. **Network Management Costs**

3.3.8.1. These are PTA costs directly associated with operational management of the network as defined in Part (b) of the definition of 'Operating Costs' in Schedule 4 of the Code.

3.3.8.2. They reflect a centralised train control system and include compliance costs with PTA's Rail safety accreditation requirements under the Rail Safety National Law (WA) Act 2015 and requirements for emergency management.

3.3.9. **Working Capital**

3.3.9.1. Because of the limitations in the Code in calculating the annuity formula described in Section 2.6 PTA has included in its operating costs an annual working capital charge that is calculated by multiplying $\frac{1}{2}$ of the WACC by the annuity.

3.4. **Allocation of Operating Costs**

3.4.1. Track and signalling maintenance costs are directly allocated to Route Sections based on the nature and population of the infrastructure.

3.4.2. Allocation of non-sector specific operating costs including costs in Part (a) of the definition of 'Operating Costs' in Schedule 4 of the Code is in accordance with the allocation rules using train movements and listed in Section 7.2. In general, train movements will provide the most appropriate allocation method for PTA's Network, which predominately is for the transport of urban passengers.

4. **OVERHEAD COSTS**

4.1. **Definition of Overhead Costs**

4.1.1. Overhead costs are defined in the Code and PTA has two categories of overhead costs included in the PTA Costing Model as follows:

4.1.1.1. Network and Infrastructure Division overheads; and

4.1.1.2. Corporate overheads.

4.1.2. These are defined in Section 7.2 and included in the PTA Costing Model.

4.1.3. PTA is a vertically integrated organisation structured into autonomous Divisions that report to the Chief Executive Officer. The Network and Infrastructure Division (N&I) is responsible for railway access and has its own management structure and related overheads. It is supported by Corporate Divisions that provide accounting and financial support, accreditation and safety related issues and human resource matters such as payroll. These overheads have been allocated based on the usage by N&I as a proportion of all other users in the organisation.

4.1.4. It should be noted that within N&I not everything is access related and in that respect only those costs related to access will be included in the Floor and Ceiling Price Tests. For example, all costs including overhead costs associated with branches such as the Property and Planning Branch which are not involved in access related matters are excluded.

4.1.5. Overhead costs are as follows:

4.1.5.1. N&I overhead costs include:

a. Safety;

b. Legal fees and other statutory costs;

- c. Training and development costs for management and staff;
- d. Communication costs such as telephone, facsimile and data transmission, motor vehicle, travel and accommodation;
- e. Office stationary and consumable sundry items;
- f. Inventory holding cost;
- g. Labour on costs (Superannuation, Payroll tax, Workers Compensation and Long Service Leave); and
- h. Fringe Benefits Tax.

4.1.5.2. These costs are apportioned directly to branches within N&I.

4.1.5.3. Corporate Costs include:

- a. Building lease costs;
- b. Power and water;
- c. Corporate overheads (finance, safety compliance and human resources); and
- d. Safety accreditation fees.

4.1.6. Allocation of corporate overheads will be by staff numbers for those branches of N&I associated with the management of the rail network.

4.1.7. Information technology costs are distributed based upon the personal computers and share of other computer systems within N&I branches associated with the management of the rail network.

4.1.8. As stated in Section 7.2 all overhead costs will be allocated on a Route Section basis by the number of train movements.

4.2. Allocation of Overhead Costs

4.2.1. PTA has considered the correlation between the allocation proxy and the causality of the cost for categories of overheads. An allocation table is included in Section 7.2. In general terms, train movements will provide the most appropriate allocation method for PTA's Network, which predominantly is for the transport of urban passengers.

5. Other Matters

5.1. Incremental and Total Costs variations

5.1.1. Determined incremental and Total Costs may be indexed annually for a period of up to five years. Indexation enables Total Costs to reflect a return to PTA over that five year period and to enable the administration of the Overpayment Rules in relation to revenues received from Access Agreements without the need for the ERA or PTA to re-determine those costs.

5.1.2. Following the expiration of the five year period, determined Costs will remain unchanged unless the ERA approves a subsequent determination of Costs.

5.1.3. PTA will index Incremental and Total Costs based on CPI less the "X" factor. The "X" factor will be set at one quarter of the annual change in CPI. In determining CPI, the Australian Bureau of Statistics Weighted Average of Eight Capital Cities All Groups CPI index will be used. The annual change will be calculated as the percentage change in the average of the four quarters to March of each year from the average of the previous four quarters.

- 5.1.4. PTA will submit the annual inflation adjusted Incremental Costs and Total Costs for determined routes to the ERA for the review and approval.

5.2. Calculation of the Total Cost

- 5.2.1. Clause 1, Schedule 4 of the Code includes a definition of the costs to be included in the calculation of the Total Cost.
- 5.2.2. There will be only one regulatory Total Cost for all access seekers on a Route Section and the Total Cost will be calculated based on:
 - 5.2.2.1. Capital Costs (Section 2 of this Costing Principles document);
 - 5.2.2.2. Operating costs (Section 3); and
 - 5.2.2.3. Overhead costs (Section 4).
- 5.2.3. PTA recognises the need to demonstrate to the ERA that the costs referred to above are efficient.

5.3. Calculation of the Incremental Cost

- 5.3.1. The Floor Price Test is defined in Clause 7, Schedule 4 of the Code.
- 5.3.2. The calculation of the Incremental Cost is dependent upon a number of specific circumstances which will vary based on each access application. Each operator can have a different Incremental Cost and the sum of all operators Incremental Costs on a Route Section will be no less than the sum of Incremental Costs resulting from the combined operations on the route of all operators, other entities and the railway owner.
- 5.3.3. PTA will apply the following factors to calculate the Incremental Cost:
 - 5.3.3.1. The percentage that the incremental traffic represents of the total traffic;
 - 5.3.3.2. The existing overall level of traffic (that is, high or low density traffic use);
 - 5.3.3.3. The requirements of the service (e.g. high speed passenger versus low speed freight);
 - 5.3.3.4. The nature of the infrastructure (which will influence the operating costs) and the specific requirements of the user; and
 - 5.3.3.5. The nature of the train operations and its impact on overhead costs.
- 5.3.4. These factors will influence the derivation of the Incremental Costs to be avoided and issuing a set of rules which deals with these and other factors, either individually or in combination, is impractical. Each application will be based on its individual circumstances and will set out the factors that PTA determines are relevant in calculating the Incremental Cost. If factors other than those mentioned above are considered relevant by PTA it will apply to the ERA to have these additional factors included.

6. COMPLIANCE AUDITS

- 6.1. Where a party approaches the ERA seeking access to PTA's rail network under the Code the ERA may require that PTA's compliance with the Costing Principles be subject to an independent external audit. The costs of such an audit will be the responsibility of the PTA. The ERA will approve the scope of the audit and may select and manage the auditor. The final audit report will be made available to the ERA. The ERA may place the audit report excluding any confidential components on its website.

6.2. The ERA also has the power to commission special purpose compliance audits on any issue arising under the Costing Principles as considered necessary.

7. REVIEW AND CONSULTATION

7.1. Where a party approaches the ERA seeking access to PTA's rail network under the Code the ERA may require that the Costing Principles be reviewed.

7.2. The ERA has power under the Code to require that the costing Principles be amended at any time. Access seekers or operators may request the ERA at any time to consider amendments to these Principles.

8. ANNEXURES

8.1. Economic Life of Assets

		Life Expectancy (Years)				
1	Earthworks for Track	100				
2	Bridges, Tunnels & Culverts					
a	Bridges (not footbridges)	100				
b	Culverts	50				
3	Level X-ings	10				
	Access Roads	10				
4	Fencing of Track	10				
5	Track Materials					
		0-10 MGT	>10-15 MGT	>15-20 MGT	>20 MGT	
a	Rail	Curve <400m	15	8	7	6
		Curve 400-800m	30	14	12	10
		Curve >800m & Tangent	70	65	62	60
b	Turnouts	Bearers – Concrete	40	35	32	30
		Blades & Stock Rails	9	5	5	4
		Rail bound Crossings	17	12	12	10
		Swing Nose Crossings	25	20	17	12
		Balance of Turnout	25	22	21	20
c	Sleepers (concrete)	50				
d	Ballast	25				
e	Jewellery	25				
6	Track Construction	50				
7	Roads & Shunters Pathway	10				
8	Signalling					
a	Track	20				
b	Flashlights	10				
c	Boom gates	10				
9	Communications	20				
10	Maintenance					
a	Track Signs	10				
11	Contractors Margin and Contribution to Overheads	50				
12	Engineering & Contract Management	50				
13	Interest on Construction	50				

8.2. Operating and Overhead Cost Classification

Cost Classification	Description	Inclusions
Operating Costs		Access management; train control; train scheduling and operations planning; safeworking management; telephone charges; and radio licences.
Overheads	Corporate	Accounting and finance; safety compliance and accreditation fees; payroll and human resources; and building and occupancy costs including accommodation costs and costs of power and water.
	Network & Infrastructure Division (N&I)	Legal and other statutory fees; training and development costs for management and staff; communication costs such as telephone, facsimile and data transmission; and travel and accommodation costs; net costs of office equipment, motor vehicles and information technology, such as computers; financial costs including bank fees and charges (excluding interest); insurance and risk management costs; Fringe Benefits Tax and labour on-costs; inventory holding costs; and costs of office stationary, consumables and sundry items.

Notes:

Train movements are used to allocate overhead costs.

9. DEFINITIONS

Access Agreement - means an agreement between PTA and an entity for access by that entity within the code.

Ceiling Price Test - means an operator (or group of operators) that is provided with access to a route and associated railway infrastructure must pay for the access not more than the Total Costs attributable to that route and that infrastructure.

Contractor - means a person or entity engaged by PTA to provide advice about or to perform part of its access related functions.

CPI - means the Weighted Average of Eight Capital Cities All Group Consumer Price Index published by the Australian Bureau of Statistics or the Australian Statistician.

Cyclical Maintenance - means tasks that are undertaken at regular intervals (e.g. annually or specific longer intervals) which are necessary to achieve the expected asset life. Tasks could include:

- Track resurfacing – rail grinding, calculation, ballast top up and cleaning, rail defect removal, and structures maintenance.
- Signalling and communications – servicing, component replacement and cleaning.
- Track – firebreaks, scrub slashing, drainage, access roads, road seal on level crossings; and
- Signalling and communications – upgrading of components and change out for detailed servicing.

Efficient Costs - means those costs that would be incurred by a body managing the railways network and adopting efficient practices applicable to the provision of railway infrastructure, including the practice of operating a particular route in combination with other routes for the achievement of efficiencies.

Floor Price Test - means an operator that is provided with access to a route and associated railway infrastructure must pay for the access not less than the Incremental Costs resulting from its operations on that route and use of that infrastructure.

GRV - means the Gross Replacement Value of the railway infrastructure calculated as the lowest current cost to replace the existing assets with assets that:

- Have the capacity to provide the level of service that meets the actual and reasonably projected demand; and
- Are, if appropriate, MEA.

Incremental Cost – means:

(a) the operating costs; and

(b) where applicable —

(i) the capital costs; and

(ii) the overheads attributable to the performance of the railway owner's access-related functions whether by the railway owner or an associate

that the PTA would be able to avoid in respect of the 12 months following the proposed commencement of access if it were not to provide access to that operator or group of operators.

MEA - means Modern Equivalent Asset, being an optimised network that is re-configured using current modern technology serving the current load with some allowances for reasonably projected demand growth up to five years in the future. The MEA excludes any unused or under-utilised assets and allows for potential cost savings that may have resulted from technological improvement.

MPM - means major programmed maintenance activities which are, or are associated with, partial asset renewal to maintain functional condition of the infrastructure and which occur at intervals greater than one year.

Network Management - means activities that are undertaken in the provision of train management. Functions include access management, train scheduling, operations planning, management, customer service and safe working management.

Overheads - means overheads attributable to the performance of the railway owner's access-related functions whether by the railway owner or an associate.

Over-payment Rules - means those rules determined by the ERA in accordance with Clause 47 (part 5) of the Code and deal with the circumstance of a breach of the Ceiling Price Test.

PTA – means the Public Transport Authority of Western Australia established by the Public Transport Authority Act 2003 section 5.

Routine Maintenance - means regular and ongoing maintenance activities, which are required to meet specific levels of defined safety and operational standards and commences from day one of operation and is generally continuous for the life of the operation. There are two major activity classifications:

- Routine Inspections
 - i. Track – includes patrolling; track recording using on track recording technology, ultrasonic testing, site inspections; and structures inspections; and
 - ii. Signalling and Communications includes programmed inspections and systems and equipment testing.
- Routine Maintenance – usually undertaken as a result of the inspection process
 - i. Track – includes change out of failed sleepers or components; cross boring; recanting of curves; geometry corrections and tamping following inspections; turnout maintenance, minor formation repairs; and fastening replacement; and
 - ii. Signalling and communications – includes scheduled services, replacements and cleaning, etc.

Total Cost - means the total of all:

- Operating costs;
- Capital costs; and
- Overheads attributable to the performance of the railway owner's access related functions whether by the railway owner or an associate.

as defined in Clause 1, Schedule 4 of the Code.

WACC - means the target long term weighted average cost of capital appropriate to the railway infrastructure expressed as an annual interest rate and determined by the ERA in accordance with Clause 3, Schedule 4 of the Code.

PTA Costing Model - means the model that PTA use to calculate Total Costs and includes the associated models and data bases for:

- The track and signalling and communications model which calculate the GRV of the infrastructure;
- Track and signalling/communications maintenance models;
- The operating costs model;
- The overhead and other costs allocation model;
- Track population databases.

and supporting detail for these models including unit rates, assumptions and sources of information as well as the physical characteristics of the infrastructure including distance and specifications.