Public Transport Authority (PTA) 2009 Floor and Ceiling Costs Review

Final Determination on the PTA's Proposed Revised Floor and Ceiling Costs for:

Perth to Midland and Perth to Robbs Jetty Routes

25 September 2009

Economic Regulation Authority
WESTERN AUSTRALIA

A full copy of this document is available from the
Economic Regulation Authority web site at **www.era.wa.gov.au**.

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FINAL DETERMINATION

1. On 30 October 2008, the Public Transport Authority (**PTA**) submitted its proposed revised floor and ceiling costs for the Perth to Midland and Perth to Robbs Jetty routes to the Economic Regulation Authority (**Authority**) to apply from 1 July 2009.

2. The Authority required the PTA to submit its proposed revised floor and ceiling costs for the above routes pursuant to clause 9 of Schedule 4 of the *Railways (Access) Code 2000* (**Code**).

3. Consistent with the requirements of clause 9(5) of Schedule 4 of the Code, the Authority has given consideration to PTA's proposal and to the outcome of the public consultation process it has undertaken in accordance with the requirements of clauses 9(3) and 9(4) of Schedule 4 of the Code. The Authority notes that no public submissions were received on the PTA's proposal.

4. The final determination of the Authority is that the floor and ceiling costs to apply to the route sections of the Perth to Midland and Perth to Robbs Jetty routes, from 25 September 2009, are required to be the costs set out in Appendix 4 of this determination.

REASONS FOR THE FINAL DETERMINATION

BACKGROUND

5. The PTA is the provider of passenger transport services and owner of rail infrastructure in Perth, covering approximately 220 kilometres of track. The PTA is split into a number of businesses which provide for the transport of passengers in Perth and country areas and is also the 'below rail' provider of rail infrastructure in the urban network.

6. Section 3 of the Act defines a "railway owner" to mean the person having the management and control of the use of the railway infrastructure. Within this context, the PTA is considered to be the owner of the Western Australian (**WA**) urban railway infrastructure.

7. The Authority is required under clause 9, Schedule 4, of the Code to make determinations of floor and ceiling costs for rail lines where the Authority considers there is a likelihood of a proposal being made to the railway owner for access under the Code.

8. Both the Perth to Midland and Perth to Robbs Jetty routes have some route sections which are currently used by third parties. In the case of the Perth to Midland route, the Indian Pacific passenger train uses the Midland to East Perth section of this route and in the case of the Perth to Robbs Jetty route a third party operator uses the Fremantle Port to Robbs Jetty section of the route to haul containers. Both operators have access agreements outside the Code.

9. On 30 October 2008, the PTA submitted its proposed revised floor and ceiling costs for the Perth to Midland and Perth to Robbs Jetty routes to the Authority. This proposal is available on the Authority's web site (www.era.wa.gov.au).

10. The Authority notes that as a result of its review of compliance arrangements for WestNet Rail and the PTA undertaken in late 2007/early 2008, it revised its compliance obligations on the PTA in light of the nature of the PTA's urban network and the limited extent to which third party access to the PTA rail network was likely to be an issue in the future. Under this revised compliance regime, the Authority will not be undertaking future reviews of the PTA's floor and ceiling costs, beyond this current review, except where access seekers approach the Authority seeking access under the Code and the Authority decides that a review is required.

11. The scope of the floor and ceiling cost review is limited to those matters set out under clause 9 of Schedule 4 and related sections of the Code.

12. Reference has been made to PTA's current Costing Principles in undertaking this determination.

LEGISLATIVE REQUIREMENTS

13. The key areas of the Code and the Act that have relevance to the calculation of the floor and ceiling costs are as follows:

Railways (Access) Code 2000

Schedule 4 – Provisions to be paid for access

Division 1 - Preliminary

Clause 1. Definitions

In this Schedule —

access-related functions means the functions involved in arranging the provision of access to railway infrastructure under this Code;

incremental costs, in relation to an operator or a group of operators, 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 railway owner or the associate 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;

operating costs in relation to railway infrastructure includes —

(a) train control costs, signalling and communications costs, train scheduling costs, emergency management costs, and the cost of information reporting; and

(b) the cost of maintenance of railway infrastructure calculated on the basis of cyclical maintenance costs being evenly spread over the maintenance cycle,

and if, for particular infrastructure, modern equivalent assets are determined to be appropriate for the purposes of clause 2(4)(c)(ii), the operating costs in relation to that

infrastructure are to be the costs that would be incurred were that infrastructure replaced using those modern equivalent assets;

total costs means the total of all —

(a) operating costs;

(b) capital costs; and

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

Clause 2. Definition of "capital costs"

(1) In this Schedule —

capital costs means the costs comprising both the depreciation and risk-adjusted return on the relevant railway infrastructure.

(2) For the purposes of this clause, railway infrastructure does not include the land on which the infrastructure is situated or of which it forms part.

(2a) Despite subclause (2), railway infrastructure is to be taken, for the purposes of this clause, to include a cutting or embankment that is made after the commencement of this Code for any reason, but the value of any such cutting or embankment as railway infrastructure is not to include the value of the land of which it forms part.

(3) The costs referred to in the definition in subclause (1) are to be determined as the equivalent annual cost or annuity for the provision of the railway infrastructure calculated in accordance with subclause (4).

(4) The calculation is to be made by applying —

(a) the Gross Replacement Value (*GRV*) of the railway infrastructure as the principal;

(b) the Weighted Average Cost of Capital (*WACC*) as the interest rate; and

(c) the economic life which is consistent with the basis for the GRV of the railway infrastructure (expressed in years) as the number of periods,

where —

GRV is the gross replacement value of the railway infrastructure, calculated as the lowest current cost to replace existing assets with assets that —

(i) have the capacity to provide the level of service that meets the actual and reasonably projected demand; and

(ii) are, if appropriate, modern equivalent assets;

and

WACC is the target long term weighted average cost of capital appropriate to the railway infrastructure.

Clause 4. Nature of costs

The costs referred to in this Schedule are intended to be those 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.

Division 2 – Provisions relating to access price negotiation

Clause 7. Floor price test

(1) 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.

(2) The total of —

(a) the payments to the railway owner by —

(i) all operators; and

(ii) all other entities,

that are provided with access to a route, or part of a route, and associated railway infrastructure (*the route*); and

(b) the revenue that the railway owner's accounts and financial statements show as being attributable to its own operations on the route,

must not be a sum that is less than the total of the incremental costs resulting from the combined operations on the route of all operators and other entities and the railway owner.

Clause 8. Ceiling price test

(1) An operator 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.

(2) For the avoidance of doubt it is declared that the calculation of total costs under subclause (1) —

(a) is for the whole of the route and associated railway infrastructure; and

(b) is to be the same for all operators,

regardless of the extent of the operations or use of the route and infrastructure by any particular operator.

(3) The total of —

(a) the payments to the railway owner by —

(i) all operators; and

(ii) all other entities,

that are provided with access to a route, or part of a route, and associated railway infrastructure (t*he route*); and

(b) the revenue that the railway owner's accounts and financial statements show as being attributable to its own operations on the route,

must not be a sum that is more than the total costs attributable to the route.

(4) It is not a breach of this clause for —

(a) payments to the railway owner mentioned in subclause (1) to exceed the total costs referred to in that subclause; or

(b) the total sum mentioned in subclause (3) to exceed the total costs referred to in that subclause,

if the over-payment rules approved or determined under section 47 are complied with.

Clause 9. Determination of costs by Regulator

(1) The Regulator may, if he or she considers that it is likely that a proposal will be made to the railway owner in respect of a route, determine —

(a) the costs referred to in clause 7 in respect of the operations and use of infrastructure that the proposal would involve; and

(b) the costs referred to in clause 8 attributable to the route and associated infrastructure.

(2) The Regulator is to notify the railway owner whenever he or she proposes to exercise the power conferred by subclause (1), and the railway owner is to make an initial determination of the costs and provide details of that determination to the Regulator.

(3) Before the Regulator makes a determination under subclause (1) he or she is to —

(a) cause a notice of his or her intention to do so to be published in an issue of —

(i) a daily newspaper circulating throughout the Commonwealth; and

(ii) a daily newspaper circulating throughout the State;

and

(b) include in the notice the following information —

(i) a statement that written submissions relating to the determination may be made to the Regulator by any person within a specified period;

(ii) the address to which the submissions may be delivered or posted.

(4) The period specified under subclause (3)(b)(i) is to be not less than 30 days after both of the notices under subclause (3)(a) have been published.

(5) In making a determination of costs under this clause the Regulator must have regard to —

(a) the initial determination made by the railway owner under subclause (2); and

(b) any submission relating to the determination made in accordance with the notice published under subclause (3).

(6) The Regulator is to notify the railway owner of the costs determined under subclause (1).

Railways (Access) Act 1998

Section 20. Functions of the Regulator

The Act also provides a framework within which the Authority's determination is to be made. Section 20(4) states:

In performing functions under the Act or Code, the Regulator is to take into account-

(a) the railway owner's legitimate business interests and investment in the railway infrastructure;

(b) the railway owner's costs of providing access, including any costs of extending or expanding the railway infrastructure, but not including costs associated with losses arising from increased competition in upstream or downstream markets;

(c) the economic value to the railway owner of any additional investment that a person seeking access or the railway owner has agreed to undertake;

(d) the interests of all persons holding contracts for the use of the railway infrastructure;

(e) firm and binding contractual obligations of the railway owner and any other person already using the railway infrastructure;

(f) the operational and technical requirements necessary for the safe and reliable use of the railway infrastructure;

(g) the economically efficient use of the railway infrastructure; and

(h) the benefits to the public from having competitive markets..

PUBLIC CONSULTATION

14. Clauses 9(3) and 9(4) of Schedule 4 of the Code require that the Authority seek public comment on a railway owner's proposed floor and ceiling costs prior to making a determination on these costs.

15. On 12 November 2008, the Authority issued notices in daily newspapers circulating throughout the State (The West Australian) and throughout the Commonwealth (The Australian) as well as on the Authority's web site. The notices called for submissions from interested parties on PTA's proposed floor and ceiling costs for the rail lines under review. The closing date for public submissions was 5 January 2009.

16. No public submissions were received.

SCOPE OF MATTERS COVERED UNDER THE FINAL DETERMINATION

17. This Final Determination deals with those matters associated with the PTA's proposed floor and ceiling costs, as outlined under clause 9 and other relevant clauses of Schedule 4 of the Code.

FLOOR AND CEILING COSTS

18. The PTA is required to negotiate access prices between a floor and a ceiling as specified in clauses 7 and 8, Schedule 4 of the Code.

19. The floor is determined by the incremental costs resulting from the operations on the section of a route and use of the infrastructure. "Incremental costs" is defined in clause 1, Schedule 4 of the Code as the sum of the operating costs and, where applicable, the capital costs and the overheads resulting from the access seeker's operation that the railway owner would be able to avoid in respect of the 12 months following the commencement of access.

20. The calculation of the floor is dependent upon a number of specific circumstances which will vary based on each access application. Each operator can have a different floor and the sum of all operators' floors on a route section will be no less than the floor for that route section.

21. Similarly, the ceiling is derived from the total costs attributable to the section of a route and the use of the infrastructure. Total costs is defined in clause 1, Schedule 4 of the Code as the total of all operating, capital and overhead costs resulting from the provision of access-related functions by the PTA.

22. The components of the floor and ceiling costs and the approach to estimating these costs are not based on actual costs or the actual network but rather the hypothetical GRV of a modern equivalent asset (**MEA**), assuming efficient practices. The standard of service assumed for the hypothetical GRV of a MEA must be consistent with what is to be provided by the actual network to meet current and reasonably projected demand.

23. Schedule 2 of the Code defines a "route section" as a section of the railway network that has been divided for management and costing purposes. Each route section contains its own derived ceiling and floor costs and it is between these costs that access prices will be negotiated. It should be noted that a negotiated route could equate to a route section (or part thereof) or be a combination of several route sections.

24. The Authority has previous agreed, under its earlier floor and ceiling costs determinations, to the PTA's proposed MEA for the two routes (including route sections) relevant to this determination, as shown in Appendix 1. As the PTA has not proposed any changes to this MEA under its current proposal the Authority has accepted the proposed MEA fro the two relevant routes as set out under Appendix 1.

ASSET PRICING MODEL

25. To calculate the floor and ceiling costs, the PTA created a Costing Model in 2003-04. This Costing Model was further refined in 2007-08. The Costing Model forms the basis for the asset valuation of the PTA's Metropolitan Train Network.

FORECAST CAPITAL EXPENDITURE

26. The PTA has not forecast any capital expenditure on upgrading of its rail network for the three year period from 1 July 2009 to 30 June 2012.

DISCUSSION OF KEY ISSUES

27. Key issues pertaining to the PTA's floor and ceiling costs in are discussed under the following headings.

- Capital costs.
- Non-Capital Costs
  - Operating costs and working capital.
  - Maintenance costs.
  - Overhead costs.
- Floor Costs

28. The discussion commences with a review of what has been established in the PTA's current Costing Principles followed by a summary of the PTA submission and the Authority's assessment.

29. It should be noted that where the Consumer Price Index (**CPI**) is mentioned, it refers to the CPI as published by the Australian Bureau of Statistics based on the weighted average of the eight capital cities (All groups).

Capital Costs (GRV and Economic Life)

PTA's Costing Principles

Infrastructure included

30. The assets included in the capital cost calculations consist only of assets that are directly engaged in the provision of rail infrastructure services. These are identified in Section 3(1) of the Act and include the following.

    - Railway track, associated track structures, over or under track structures, supports (including supports for equipment or items associated with the use of a railway).
    - Tunnels and bridges.
    - Stations and platforms.
    - Train control systems, signalling systems and communication systems.
    - Buildings and workshops.
    - Associated plant, machinery and equipment.

    The Act includes "electric traction infrastructure" which is not listed in the costing principles.

    Sidings or spur lines that are excluded by Section 3(3) or Section 3(4) of the Act's definition of railway infrastructure are not included in the capital cost calculations.

31. Assets that support operating functions are also not included in the asset base for capital cost calculations. These are included in the operating cost or overhead cost calculations as appropriate. Assets in this category include motor vehicles, computers, printers, facsimile machines, photocopiers, system hardware and software, mobile and fixed communications, office furniture and equipment. The cost of these assets is to be calculated on a net basis.

32. Cuttings and embankments are not in the initial capital calculations. However, expenditures on cuttings and embankments incurred since the commencement of the

regime, to create capacity or expand the network, or to improve operating standards or efficiency, are included in the calculation of the ceiling.

GRV

33. There are a number of underlying assumptions which affect the calculation of GRV including the following.

- Capacity of infrastructure
- Route optimisation
- Contributed assets
- Greenfields site
- MEA
- Unit rates
- Design, construction and project management fees
- Financing charge during railway infrastructure construction

34. The cost of formation is to be included in calculating the GRV.

GRV - Capacity of Infrastructure

35. The infrastructure is required to be optimised to meet current and reasonably projected demand.

GRV - Route Optimisation

36. 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.

GRV - Contributed Assets

37. Contributed assets will be included in the cost of capital for the purpose of calculating the GRV and the ceiling. 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 ceiling costs.

38. 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.

GRV - Greenfields Site

39. 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.

GRV - MEA

40. 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.

41. Key capital cost drivers PTA will adopt to ensure a MEA network are as follows.

- The operating track standard (axle load and speed).
- Population of supporting infrastructure (bridges and culverts).
- Topography of the route (gradient and track curvature).
- Automatic train protection and signalling.
- Passenger stations.

42. The operating standards that the PTA has applied for determining GRV are in accordance with the National Codes of Practice.

GRV - Unit Rates

43. This information is contained in the PTA's Costing Model and will be made available to the Authority. The model contains information of the source and the assumptions that are currently used in the model.

44. In addition, the PTA will identify and provide to the Authority unit rate information and assumptions that it considers can be released as part of the public consultation process for the Authority's determination on the floor and ceiling costs to apply to certain routes.

GRV - Design, Construction and Project Management Fees

45. The 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.

GRV - Financing Charge During Railway Infrastructure Construction

46. The PTA will apply the WACC determined by the Authority to the construction cash flows to calculate the financing charge.

Economic Life

47. The PTA's economic life assumptions as detailed in the Costing Principles are 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.

48. The economic life of assets adopted by the PTA is set out in the table below.

Table 1: Economic life of assets as set out in PTA's Costing Principles

Asset	Life Expectancy (years)			
Earthworks for track	100			
Bridges, tunnels and culverts				
Bridges (not footbridges)	100			
Culverts	50			
Level crossings	10			
Access roads	10			
Fencing of track	10			
Track materials				
Rail	**0-10 MGT**	**>10–15 MGT**	**>15-20 MGT**	**>20 MGT**
Curve <400m	15	8	7	6
Curve 400-800m	30	14	12	10
Curve >800m & Tangent	70	65	62	60
Turnouts	**0-10 MGT**	**>10–15 MGT**	**>15-20 MGT**	**>20 MGT**
Bearers – concrete	40	35	32	30
Blades and stock rails	9	5	5	4
Rail bound crossings	17	12	12	10
Balance of Turnout	25	22	21	20
Sleepers (concrete)	50			
Ballast	25			
Jewellery	25			
Track construction	50			
Roads and shunter's pathway	10			
Signalling				
Track	20			
Flashlights	10			
Boom gates	10			
Communications	20			
Maintenance Track signs	10			
Contractors margin	50			
Engineering and contract management	50			
Interest on construction	50			

PTA's Proposal

49. The following costs proposed by the PTA for its routes and route sections are indexed to 30 June 2008 based on the Building Cost Index (**BCI**) published by the Department of Housing and Works.

- Unit rates for track capital, signalling and communications, which are based on rates extracted from the Mandurah line.
  - It is assumed that only concrete sleepers are used in the network and that the rate is 1,430 sleepers per kilometres and rail weight is set at 50kg and ballast is set at a depth of 200mm.
  - Maximum operating design speed for passenger trains is 140Kph.
- Unit costs for tunnels, bridges and overhead electricity, which are based on rate extracted from the Mandurah line.

  - Cost for tunnels are based on average PTA ledger rates sourced from internal PTA reviews.
  - Unit costs for bridges over water, which are based on the costs associated with the Goongoongup Bridge in East Perth.
  - Station costs, which are based on internal and external reviews of costs for construction of existing station structures.
- Unit costs of signalling, which are based on rates extracted from the Mandurah line.

50. The PTA has proposed that population data be based on route section definitions contained in the PTA Costing Model. Data on tunnels, bridges and overhead electricity applied in the PTA's proposal was based upon physical verification and the Fixed Asset Register of the PTA.

51. The PTA has also proposed that economic lives be based on the PTA costing principles. The costing principles do not include the economic life for some items such as for stations and overhead power traction. The economic life for these items was based on PTA engineering standards.

52. The PTA's proposal also stated that economic life information for stations and the electricity overhead system, for the purposes of its costing model, have both been given an economic life of twenty five years.

53. The PTA's proposal stated that Perth Station costs were allocated to each route by passenger boarding's and to each route section by train kilometres.

54. Interest during construction was assumed to be at the following rates.

- 1km per day for track.
- $1M per month for non track infrastructure such as bridges, stations and tunnels.

55. The PTA proposed that WACC be set as approved by the Authority.

56. The GRV capital costs were calculated as an annuity at the beginning of the period according to the PTA costing principles.

57. The PTA's proposed capital costs by routes and route sections, as contained in its submission, are outlined in Appendix 2 of this final determination.

Authority's Assessment

58. The PTA has generally calculated its capital costs, for each of its major capital assets, based on costing information from the construction of its new Mandurah line with subsequent indexation to 30 June 2008 based on the BCI.

59. There are two approaches which could be adopted in order to assess the capital costs outlined in the PTA's proposal used in the calculation of its GRV. These approaches are either to test PTA's unit costs by obtaining current market rates by checking prices with major suppliers of sleepers, rail, ballast and other significant capital items or to use an indexation approach based on the unit costs approved in the previous Authority review in 2004. The Authority considers that the indexation approach is appropriate in the case of the PTA's network, where third party access is likely only at the margin and in light of the Authority not requiring future floor and ceiling cost reviews unless

necessary (refer paragraph 10) and also noting that no public submissions were received on the PTA's proposal.

60. In examining the PTA's costing model it became evident that the PTA had calculated its annuity figures relating to its capital items incorrectly, resulting in the capital values listed in its Table headed "Ceiling Price Schedule" being incorrect. The PTA subsequently, on 11 September 2009, provided the Authority with a revised floor and ceiling price schedule. This revised schedule is available on the Authority's web site (www.era.wa.gov.au).

61. The Authority also notes that the PTA's proposal assumed an economic life for its stations of twenty five years. In 2004, the Authority determined that the economic life for stations should be fifty years for the purposes of the GRV calculation.

62. The Authority sought clarification on this matter from the PTA. The PTA responded to the effect that it had calculated its GRV based on an economic life for its stations of fifty years but had made a typographical error in the body of its proposal whereby the twenty five years should have been fifty years. The Authority accepts this clarification.

63. In applying the indexation approach, the Authority used BCI information obtained from the Department of Housing and Works, for the period 2004 to 2008, to escalate PTA's relevant unit costs as approved by the Authority in its 2004 review. The BCI information used by the Authority is shown in Appendix 3.

64. The Authority's assessment indicated that the PTA's proposed costs for its major capital assets, as revised on 11 September 2009, were reasonable.

65. The PTA also included in its GRV calculations, costs under the heading "Project Management and Interest".

66. While the Authority notes that interest on construction is an appropriate inclusion in the GRV costs, the Authority does not consider it appropriate to include project management costs as such costs have already been included in the construction costs under the PTA's proposal.

67. The Authority obtained further information from the PTA showing the breakdown of the project management and interest cost item. This breakdown is as follows:.

- Proposed total interest costs - $10.65 million.
- Proposed total project management costs - $73.37 million

68. As the amount provided for interest on construction under the PTA's proposal ($10.65 million) represented a similar proportion of the PTA's total GRV as had been approved by the Authority in its previous 2004 review, this cost is considered to be reasonable.

69. In relation to the project management costs, as a result of discussions with the PTA to clarify this matter the PTA agreed with the Authority's view that it was inappropriate to include project management costs in the "project management and interest" component of the GRV as these costs had already been taken into account in the PTA's proposed GRV under the capital costs.

70. Based on the above, the Authority has excluded the PTA's proposed total project management costs amounting to $73.37 million (under the PTA's "project management and interest" item) from the GRV calculation.

Non-Capital Costs

Operating Costs and Working Capital.

Costing Principles

71. The PTA will test whether the operating costs used for determining the floor and ceiling are efficient in the following manner:

- benchmarking will be used where it is available and comparable;
- for certain processes and activities unit costs from competitive tendering may be used;
- 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;
- actual costs may be used where the consumption and scope are efficient (e.g. train controller's salaries if the number of controllers and their range of duties are efficient by benchmarking); and
- actual costs may also be used where the costs come from a competitive market such as insurance, or are regulatory costs (such as the cost of rail safety accreditation).

72. In measuring efficiency, the PTA recognises that these costs change over time especially as a result of innovation and technological change.

73. In determining what maintenance activities are required to maintain MEA infrastructure in a GRV based regime, major periodical maintenance (**MPM**) activities have not been included because MPM is assumed to extend the economic life of the assets.

74. Operating costs are defined in the Code, and the PTA has four categories of operating costs in its Costing Model as follows.

- Routine maintenance for track, and signals and communications.
- Cyclical maintenance for track, and signals and communications.
- Network management costs.
- Working capital.

75. Routine and cyclical maintenance for track, and signals and communications will be discussed in the section on maintenance costs.

76. Network management costs are costs directly associated with operational management of the network. They reflect a centralised train control system and include compliance costs with the PTA's safety accreditation requirements under the *Rail Safety Act 1998* and requirements for emergency management.

77. Allocation of non-sector specific operating costs is to be in accordance with the allocation rules using Gross train movements.

78. Operating costs also include the approved annual working capital charge that is calculated by multiplying half the WACC by the annuity.

PTA's Proposal

79. The PTA's proposed operating costs were based on costs developed in the original model indexed by the CPI to reflect costs as at 30 June 2008 for Train Control, Train Scheduling, Emergency Management. These costs were allocated to each route by train kilometres.

80. An allowance for working capital was included in the PTA's proposed operating costs, consistent with the methodology under the PTA's costing principles.

Authority's Assessment

81. The Authority notes that the PTA's proposal indicates that its operating costs have been calculated to 30 June 2008 by escalating by CPI its maintenance costs outlined in its 2004 costing model.

82. The Authority has reviewed the PTA's operating costs by applying the relevant CPI escalation rate, over the period 2004 to 2008 (13.7%) to the PTA's approved 2004 operating costs. The PTA's figures are consistent with the values derived by the Authority.

83. The Authority has also reviewed the working capital costs provided in the PTA's proposal, The methodology used in the calculation of these costs is consistent with the requirements set out in the PTA's Costing Principles. However, the working capital calculation depends on the annuity value and as noted above, under paragraph 60, the PTA made an error in calculating its annuity values (and subsequently submitted a revised ceiling price schedule) which also resulted in an error in its working capital values. The revised costs submitted by the PTA on 11 September 2009 also included revised working capital values.

84. The Authority is satisfied that the PTA's proposed working capital figures, as revised on 11 September 2009, are appropriate.

Maintenance Costs

Costing Principles

85. The PTA uses a track maintenance model which calculates the cost of maintaining the track infrastructure with the following assumptions:

- 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;
- the PTA's maintenance practices also comply with the Codes of Practice for both the SG and NG network;
- the maintenance regime is broadly classified into routine maintenance and cyclical maintenance;
- there are two major activity classifications within routine maintenance, namely routine inspections (include patrolling, on-train inspection, track condition monitoring, defined event inspections by patroller and structures inspection), and

routine maintenance (which is the corrective action taken as a follow up to routine inspections); and

- cyclical maintenance represents tasks that are undertaken at regular intervals which are necessary to achieve the expected asset life (e.g. track resurfacing, rail grinding, ballast top up and cleaning, rail defect removal and structures maintenance to achieve economic life, as well as firebreaks, scrub slashing, drainage, access roads and road seal on level crossings to meet operational and safety requirements).

86. As the level of maintenance activity varies over the life of the asset, 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.

87. 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 the PTA is negligent in its responsibility as a railway owner. The PTA intends to calculate incident costs based on a historic cost approach.

88. Routine maintenance of signalling and communications is based on industry accepted inspection regimes and fault history. It includes specified periodical inspections and procedures (including testing) and responses to faults. Cyclical maintenance is significantly less important for signalling and communications and includes component rebuilds to achieve economic life.

89. The signal and communications maintenance model is incorporated as part of the 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.

PTA's Proposal

90. The PTA's proposed track maintenance costs were based upon maintaining the infrastructure to a serviceable level until the end of its economic life. The activities and rates are contained within the PTA Costing Model.

91. Track maintenance unit rates were based on rates used in the Northern Suburbs line indexed by the CPI to 30 June 2008.

92. The PTA's proposed station maintenance costs were based on internal PTA engineering data and have been indexed by CPI to reflect current costs as at 30 June 2008.

93. Signalling and communications maintenance costs are based on costs developed in the original model indexed by the CPI to 30 June 2008. The activities and costs are contained within the PTA Costing Model.

Authority's Assessment

94. The Authority notes that the PTA's proposal indicates that its maintenance costs have been calculated to 30 June 2008 using costs appropriate to the maintenance of

relevant network assets, with reference to the costs outlined in its 2004 costing model, and escalating these costs by the CPI to 30 June 2008 costs.

95. The Authority has reviewed the PTA's maintenance costs by applying the relevant CPI escalation rate, over the period 2004 to 2008 (13.7%) to the PTA's approved 2004 maintenance costs. The PTA's figures are consistent with the values derived by the Authority.

Overhead Costs

Costing Principles

96. Overhead costs are defined in the Code and the PTA has the following two categories of overhead costs in its Costing Model.

- Network and Infrastructure division overheads.
- Corporate overheads.

97. The Networks and Infrastructure Division overheads include the following.

- Safety.
- Legal fees and other statutory costs.
- Training and development costs for management and staff.
- Communication costs such as telephone, facsimile and data transmission, motor vehicle, travel and accommodation.
- Office stationery and consumable sundry items.
- Inventory holding cost.
- Labour on costs (superannuation, payroll tax, workers compensation and long service leave).
- Fringe benefits tax.

These costs are apportioned directly to branches within the Network and Infrastructure Division.

98. Corporate overheads include the following.

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

Allocation of corporate overheads will be by staff numbers for those branches of the Network and Infrastructure Division associated with the management of the rail network.

99. Information technology costs are distributed based on the personal computers and share of other computer systems within the Network and Infrastructure Division branches associated with the management of the rail network.

100. All overhead costs will be allocated on a route section basis by the number of train movements.

PTA's Proposal

101. The PTA's proposed overheads were based on costs developed in the original model indexed by the CPI to 30 June 2008 and included the following.

- IT costs.
- Management costs, including motor vehicles.
- Support costs, including HR services and accounting services.

102. The proposed overhead costs were allocated by staff numbers to the regulated framework and within the regulated framework by train kilometres to each route section.

103. Construction and engineering overheads were set in accordance with the methodology outlined in the PTA's Costing Principles.

Authority's Assessment

104. The Authority notes that the PTA's proposal indicates that its overhead costs have been calculated to 30 June 2008 using the overhead costs outlined in its 2004 model escalated by the CPI to 30 June 2008 costs.

105. The Authority identified an error in the PTA's proposal whereby the PTA's overhead costs had been escalated from its 2004 costs using the BCI rather than the CPI. this error occurred due to an error in the PTA's costing model. The PTA subsequently submitted revised overhead cost figures to the Authority on 11 September 2009.

106. The Authority has reviewed the PTA overhead costs, as submitted on 11 September 2009, by applying the relevant CPI escalation rate, over the period 2004 to 2008 (13.7%) to the PTA's approved 2004 overhead costs. The PTA's 11 September 2009 figures are consistent with the values derived by the Authority.

Floor Costs

107. The PTA's floor costs in its proposal appeared to be excessive compared to the floor costs approved by the Authority in 2004. As a result of discussions with the PTA on this matter, the PTA submitted revised floor costs on 15 September 2009. These revised floor costs are available on the Authority's web site (www.era.wa.gov.au).

108. The PTA's revised floor costs have been calculated on the basis of escalating, by the BCI, the 2004 floor costs previously approved by the Authority. The Authority considers the PTA's floor costs, as revised on 15 September 2009, to be reasonable.

Adjustment of Costs to 1 July 2009

109. The PTA's capital, non-capital and floor costs were provided as costs applicable from 1 July 2008. The Authority has adjusted these costs to be current at 1 July 2009 by applying the relevant cost adjustments [WACC (7.19% pre-tax real) and CPI (1.5%)] applicable for 2008-09.

DETERMINATION OF PTA's FLOOR AND CEILING COSTS

110. Based on the assessment outlined above, the Authority's final determination of the PTA's proposed floor and ceiling costs for the two route sections submitted in the PTA's proposal, are shown in Appendix 4.

111. The Authority has assessed the difference between its determined ceiling costs (Appendix 4) compared to the PTA's proposed ceiling costs (Appendix 2) for the two route sections under review. A summary of the cost differences is outlined in Table 2.

Table 2: Summary of differences between the PTA's proposed ceiling costs and the Authority's determined ceiling costs

Route Section	Ceiling Costs (Proposed by the PTA, adjusted to 1 July 2009)	Ceiling Costs (Determined by the Authority to be current at 1 July 2009)	Difference
Perth Central (excl) to East Perth (excl)	5,273,888	4,535,255	-14.0 %
East Perth Terminal (incl) to Midland (incl)	18,080,315	16,239,708	-10.2 %
Perth Central (excl) to North Fremantle (incl)	19,983,518	18,133,683	-9.3 %
North Fremantle (excl) to Fremantle (incl)	6,015,400	5,195,670	-13.6 %
Fremantle (excl) to Robbs Jetty (incl)	1,445,607	1,266,992	-12.4 %
	50,798,729	45,371,307	-10.7 %

112. The Authority's determined ceiling costs are from 9.3 to 14.0 per cent lower than the ceiling costs proposed by the PTA. This difference is the result of the Authority excluding the project management costs proposed by the PTA, under its 'Project Management and Interest' category, in its GRV calculations. This issue has been discussed under paragraphs 65 to 70 above.

113. The floor and ceiling costs will be adjusted by the PTA, on an annual basis, from 1 July 2010 in accordance with the requirements set out in the PTA's Costing Principles.

114. As noted above, the Authority will not be undertaking future reviews of the PTA's floor and ceiling costs, beyond this current review, except where access seekers approach the Authority seeking access under the Code and the Authority decides that a review is required.

APPENDICES

Appendix 1 PTA Nominated Route Sections

Table 3: Approved Level of Service Indicators

	Passenger MEA Specifications	Freight MEA Specifications
Target Max Speed	90-115	80
Rail Weight (kg)	50	50
Sleeper Type	concrete	concrete
Sleeper Spacing (per km)	1430	1430
Axle load (tal)	16	21

Table 4: General Route Section Information

Route Sections	Route Distance (km)	Track Section Lengths (km)	Number of Level Crossings
Perth – East Perth	2.65	7.51	1
East Perth - Midland	13.63	26.79	8
Perth – North Fremantle	16.29	33.85	4
North Fremantle - Fremantle	2.45	7.61	0
Fremantle – Robbs Jetty	3.32	3.32	6

Appendix 2 PTA's Proposed Revised Floor and Ceiling Costs (as revised on 11 and 15 September 2009) [Applicable from 1 July 2008]

Table 5: PTA's Proposed Gross Replacement Value

Route Sections	Signalling ($)	Comms ($)	Track ($)	Stations ($)	Bridges and Subways ($)	Overhead Power ($)	Train Control ($)	Tunnels ($)	Boom Gates & Crossings ($)	Project Management & Interest ($)	Total ($)
Perth Central (excl) to East Perth (excl)	6,756,613	570,646	12,144,786	1,476,723	7,084,825	2,174,082	299,521	18,541,183	1,301,091	10,745,890	61,095,359
East Perth Terminal (incl) - Midland (incl)	9,732,830	2,932,415	46,382,038	36,859,728	*32,560,571*	*11,172,090*	1,539,168	0	17,871,142	26,146,955	185,196,937
Perth Central (excl) to North Fremantle (incl)	11,863,563	3,505,643	38,433,915	45,864,243	9,716,154	13,356,009	1,840,044	42,438,708	10,539,582	32,416,375	209,974,236
North Fremantle (excl) to Fremantle (Incl)	1,751,167	527,611	15,557,605	6,871,594	32,854,532	*2,010,124*	276,933	0	0	12,484,374	72,333,940
Fremantle (excl) to Robbs Jetty (incl)	2,373,217	0	4,242,564	0	0	0	375,305	0	4,139,120	2,231,041	13,361,246
Total	32,477,389	7,536,314	116,760,908	91,072,288	82,216,081	28,712,304	4,330,971	60,979,892	33,850,935	84,024,636	541,961,718

Table 6: PTA's Proposed Floor and Ceiling Costs

Route Section	Train Kms	GRV ($)	Capital ($)	Perth Station Allocation ($)	Maintenance ($)	Working Capital ($)	Operating ($)	Overhead ($)	Floor ($)	Total Ceiling ($)
Perth Central (excl) to East Perth (excl)	183,013	61,095,359	4,541,458	100,285	390,798	163,265	32,416	45,665	45,466	5,273,888
East Perth Terminal (incl) - Midland (incl)	952,815	185,196,937	14,649,325	522,113	1,977,911	526,643	166,578	237,746	217,164	18,080,315
Perth Central (excl) to North Fremantle (incl)	1,151,259	209,974,236	15,840,381	826,977	2,260,296	569,462	199,140	287,261	254,608	19,983,518
North Fremantle (excl) to Fremantle (Incl)	173,268	72,333,940	5,146,876	124,463	485,826	185,030	29,971	43,234	44,370	6,015,400
Fremantle (excl) to Robbs Jetty (incl)	5,529	13,361,246	1,284,792	3,972	68,658	46,188	40,618	1,380	4,573	1,445,607
Total	2,465,884	541,961,718	41,462,833	1,577,810	5,183,489	1,490,589	468,723	615,286	566,182	50,798,729

Appendix 3 BCI Indices Applied by the Authority

Table 7: Building Cost Index Values

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2004	133.6	134.4	135.1	136.2	137.3	140.4	142.2	144.0	145.8	147.6	149.8	152.6
2005	153.9	155.2	156.7	157.5	158.6	159.5	160.8	161.8	162.9	163.0	163.1	163.2
2006	165.9	168.5	171.2	173.3	175.1	177.5	178.6	179.6	180.6	181.8	183.0	184.1
2007	185.8	187.5	189.2	190.9	192.7	194.6	196.1	197.7	199.3	201.0	202.7	204.4
2008	206.2	208.0	209.8	210.9	212.0	213.1	215.1					

Appendix 4 Authority's Determination on PTA's Proposed Revised Floor and Ceiling Costs [Applicable from 25 September 2009]

Table 8: 2009 Determined GRV for the PTA

Route	Signalling	Comms	Track	Stations	Bridges and Subways	Overhead Power	Train Control	Tunnels	Boom gates and Crossings	Interest on Construction	Total
	($)	($)	($)	($)	($)	($)	($)	($)	($)	($)	($)
Perth to East Perth	6,857,962	579,205	12,326,958	1,498,874	7,191,097	2,206,693	304,013	18,819,301	1,320,607	985,910	52,090,621
East Perth to Midland	9,878,822	2,976,401	47,077,769	37,412,623	33,048,980	11,339,671	1,562,256	0	18,139,209	1,734,538	163,170,270
Perth to North Fremantle	12,041,516	3,558,228	39,010,424	46,552,207	9,861,896	13,556,349	1,867,645	43,075,289	10,697,676	6,168,817	186,390,046
North Fremantle to Fremantle	1,777,434	535,525	15,790,969	6,974,668	33,347,350	2,040,276	281,086	0	0	1,917,112	62,664,421
Fremantle to Robb's Jetty	2,408,815	0	4,306,202	0	0	0	380,935	0	4,201,206	5,075	11,302,233
Total Cost	32,964,549	7,649,359	118,512,322	92,438,372	83,449,323	29,142,989	4,395,935	61,894,590	34,358,698	10,811,452	475,617,591

Table 9: 2009 Determined Costs for the PTA

Route Sections	Capital Costs	Perth Station Allocation	Maintenance Cost	Working Capital	Operating Cost	Overhead Cost	Floor Cost	Ceiling Cost
	($)	($)	($)	($)	($)	($)	($)	($)
Perth to East Perth	3,820,217	101,789	396,660	137,337	32,902	46,350	46,148	4,535,255
East Perth to Midland	12,830,536	529,945	2,007,580	461,258	169,077	241,312	220,421	16,239,708
Perth to North Fremantle	14,002,997	839,381	2,294,200	503,408	202,127	291,570	258,427	18,133,683
North Fremantle to Fremantle	4,345,696	126,330	493,113	156,228	30,421	43,882	45,035	5,195,670
Fremantle to Robbs Jetty	1,110,715	4,032	69,688	39,930	41,227	1,400	4,642	1,266,992
Total	36,110,161	1,601,477	5,261,241	1,298,160	475,754	624,514	574,673	45,371,307