WestNet Rail's Floor and Ceiling Costs Review

Draft Determination on the Proposed Floor and Ceiling Costs for:

Mainlines

Worsley Line

Terminal Ends

Grain Lines

20 March 2007

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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DRAFT DETERMINATION

1. On 11 September 2006 and 13 October 2006, WestNet Rail Pty Ltd (**WNR**) submitted its proposed floor and ceiling prices for the mainlines, Brunswick to Premier line, terminal ends to the Kwinana to Bunbury rail line and three grain lines to the Economic Regulation Authority (**Authority**) for approval. The submission of the proposed floor and ceiling costs for the rail lines resulted from a requirement, under the approved 2006 Costing Principles, for WNR to review the Gross Replacement Value of these rail lines following the initial approval of the floor and ceiling costs in September and October 2003 by the Independent Rail Access Regulator (**IRAR**) and July 2004 by the Authority.

2. The Authority has considered the proposed floor and ceiling costs for the rail lines under review in conjunction with comments made in submissions to the Authority by interested parties.

3. In undertaking its assessment, the Authority has taken into account the needs and interests of the community, track users and WNR as required under Section 20(4) of the *Railways (Access) Act 1998* (**Act**).

4. The draft determination of the Authority is to not approve WNR's proposed floor and ceiling costs. The detailed reasons for this draft determination are set out in this document.

5. The four amendments to WNR's proposed floor and ceiling costs required by the Authority are listed below.

Summary of Amendments

Required Amendment 1

The costs associated with the proposed Venn passing loop should be excluded from the GRV calculation of the floor and ceiling costs for the SWM.

Required Amendment 2

The unit prices submitted by WNR for various infrastructure assets should be amended to be consistent with Table 1 on pages 32 and 33 of the draft determination.

Required Amendment 3

The floor and ceiling calculations submitted by WNR should be revised to incorporate the changes required under Amendment 2.

Required Amendment 4

The determined floor and ceiling costs for the mainlines and the Worsley line will apply from 1 July 2006 to 30 June 2009. The determined floor and ceiling costs for the grain lines and Terminal Ends will apply from 1 January 2007 to 30 June 2009. WNR will submit its proposed revisions to the floor and ceiling prices, for all the rail lines subject to review, nine months prior (by 1 October 2008) to the date from which the next determination of floor and ceiling costs will apply (1 July 2009).

REASONS FOR THE DRAFT DETERMINATION

Background

6. WestNet Rail Pty Ltd (**WNR**) is the principal provider of "below" rail freight infrastructure, covering approximately 5,000 kilometres of track, in the south-west of Western Australia. WNR is a subsidiary company owned by Babcock and Brown Ltd, a publicly listed Australian company.

7. Section 3 of the Western Australian *Railways (Access) Act 1998* (**Act**) defines a "railway owner" to mean the person having the management and control of the use of the railway infrastructure. Within this context, WNR is considered to be the railway owner for the freight rail infrastructure.

8. The Authority is required under Clauses 9 and 10, Schedule 4, of the *Railways (Access) Code 2000* (**Code**) to make determinations of floor and ceiling costs for rail lines nominated by the Authority or access seekers.

9. The scope of the floor and ceiling cost review is limited to those matters specifically set out under Schedule 4 of the Code and outlined in the next section under Legislative Considerations (Paragraph 23).

10. In September 2003, the IRAR approved the floor and ceiling costs for the four mainlines under the provisions of Clause 9, Schedule 4, of the Code. Subsequently, in October 2003, the IRAR approved the floor and ceiling costs for the Brunswick to Premier (**Worsley line**) under the provisions of Clause 10, Schedule 4, of the Code. In each of these determinations the IRAR carried out a public consultation process during the course of its assessment. The approved floor and ceiling costs for the mainlines and the Worsley line were to apply from 1 July 2003.

11. In July 2004, the Authority approved the floor and ceiling costs for the terminal ends for the Kwinana to Bunbury mainline (**Terminal Ends**) under clause 10, Schedule 4 of the Code. At this time, in a separate determination, the Authority also approved the floor and ceiling costs for four grain lines also under clause 10, Schedule 4 of the Code. The approved floor and ceiling costs for the Terminal Ends and the four grain lines were to apply from 1 January 2004.

12. In its September 2002 determination of WNR's inaugural Costing Principles, the IRAR stipulated the requirement for a review of the Gross Replacement Value (**GRV**) every three years. The GRV, as the asset value, underpins the floor and ceiling cost calculations.

13. Following a request from WNR, the Authority approved an extension of time, to 11 September 2006, for WNR to submit its proposed revisions to its floor and ceiling costs for the mainlines, Worsley line, terminal ends and an extension of time to 13 October 2006 for the revisions to the floor and ceiling costs for the four grain lines.

14. WNR advised the Authority that the floor and ceiling costs for only three of the grain lines would be included in this review as the fourth grain line, Mullewa to Narngulu, would require significant upgrading to accommodate the proposed increased transport requirements of mid-west iron ore producers. This upgrading will result in a significant change to the Modern Equivalent Asset (**MEA**) standard for the

Mullewa to Narngulu rail line. WNR indicated that once it had confirmed transport requirements (expected by July 2007) with the companies involved, a new MEA standard would be developed and revised floor and ceiling costs would then be calculated and submitted to the Authority for review.

15. On 15 September 2006 and 17 October 2006, the Authority issued notices calling for submissions from interested parties on WNR's proposed floor and ceiling costs for all the rail lines under review. Two submissions were received:

- Joint submission from Alcoa World Alumina Australia Pty Ltd and Worsley Alumina Pty Ltd (**Alcoa/Worsley**).
- Australian Rail Track Corporation Ltd (**ARTC**).

The Authority accepted two further submissions (from Alcoa/Worsley and WNR) which were received after the public submission period had closed. All these submissions are available on the Authority's web site (www.era.wa.gov.au).

16. The Authority's draft determination on WNR's proposed floor and ceiling costs focuses on the elements within the scope of the floor and ceiling costs review as outlined under paragraph 23 below.

17. The Authority has noted some comments in the ARTC submission, such as consistency with the ARTC Access Undertaking and the need to change to the Depreciated Optimised Replacement Cost asset valuation methodology to ensure consistency. Legislative constraints imposed under Clause 4, Schedule 4 of the Code require the Authority's determination to be limited to a GRV valuation methodology. Consequently, ARTC's comments in regard to a DORC valuation methodology fall outside the scope of this determination.

18. Two important reference documents in the determination of the floor and ceiling costs are the Authority's Costing Principles Final Determination and Approval, released on 21 August 2006, to apply to WNR and the approved WNR Costing Principles. The Authority's Final Determination and Approval focused on the discussion of principles, rules and practices that were considered to be important by stakeholders when determining the floor and ceiling costs in the review of WNR's Costing Principles which commenced in December 2005. Both documents are also available on the Authority's web site.

19. To assist the Authority in the review of WNR's proposed floor and ceiling costs and assess the issues raised in the public submissions the Authority engaged PricewaterhouseCoopers (**PwC**). PwC then engaged Hughes Consulting Services Pty Ltd (**HCS**) to provide advice on costing and engineering issues. The consultants (**PwC/HCS**) provided recommendations on WNR's proposed MEA standard for the rail lines to meet current and projected levels of demand and reviewed WNR's capital, maintenance, operating and overhead costs to identify acceptable costs, that can be substantiated and/or benchmarked, in order to ensure that operating and technical efficiencies are achieved at the MEA standard.

20. In preparing its report, PwC/HCS reviewed and considered all the submissions received from interested parties and participated in meetings with WNR to check the veracity of the costs proposed by WNR. The PwC/HCS review also considered additional information provided by WNR and Alcoa/Worsley in support of their proposals.

21. The PwC/HCS report recommendations are summarised within the Authority's draft determination. The report is also available on the Authority's web site (www.era.wa.gov.au).

22. This draft determination makes reference to a number of acronyms which are identified in the glossary in Appendix 4.

Legislative Considerations

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

a) *Definition of Costs (Clauses 1 and 2, Schedule 4 of the Code)*

All costs referred to under the Code are those that would be incurred by adopting efficient practices in the provision and management of railway infrastructure including the practice of operating a particular route in combination with other routes for the achievement of efficiencies.

Incremental costs are the operating costs and, where applicable, capital costs and overheads that the rail owner would be able to avoid in respect of the 12 months following the proposed access.

Operating costs are the train control, signalling and communications, infrastructure maintenance, train scheduling, emergency management and information reporting costs. The cost of maintaining the railway infrastructure is to be calculated on the basis that cyclical maintenance costs are evenly spread over the maintenance cycle. All cost items are to be based on the costs that would be incurred if the infrastructure were replaced using MEA.

Capital costs are the costs comprising both the depreciation and risk-adjusted return on the relevant railway infrastructure. It is to be determined using an annuity formula by applying the GRV of the infrastructure as the principal, the Weighted Average Cost of Capital (**WACC**) as the rate of return and the economic life of the railway infrastructure in years. The GRV of the rail infrastructure is calculated as the lowest current cost to replace existing assets that have the capacity to provide the level of service that meets the actual and reasonable projected demand and are if appropriate, MEA.

Total costs include the total of all operating and capital costs and overheads attributable to the performance of the access-related functions of the railway owner.

b) Determination of the WACC (Clause 3, Schedule 4 of the Code).

The Authority is required to determine, as at 30 June each year, the WACC for the rail infrastructure associated with the non-urban network. In 2003 and every five years thereafter, the Authority is to publicly consult when determining the WACC.

c) *Nature of costs (Clause 4, Schedule 4 of the Code).*

All costs are to be those that would be incurred by adopting efficient practices for the provision of rail infrastructure, including the practice of operating a particular route in combination with other routes to achieve efficiencies.

d) *Allocation of costs to determine the floor (Clause 7, Schedule 4 of the Code).*

The floor price of a route and associated railway infrastructure is the incremental costs resulting from the combined operations of all operators and other entities on that route and use of that infrastructure.

e) *Allocation of costs to determine the ceiling (Clause 8, Schedule 4 of the Code).*

The ceiling price of a route and associated railway infrastructure is the total cost attributable to that route and infrastructure.

f) *Determination of the floor and ceiling costs on routes for which access proposals are likely to be made (Clause 9, Schedule 4 of the Code).*

The Authority is required to nominate the routes which it considers that proposals for access are likely to be made, and ask the railway owner to propose floor and ceiling costs of these routes. The Authority will make a determination on these costs and will seek public comment before making the determination.

g) *Determination of the floor and ceiling costs on routes which have not been assessed under Clause 9 (Clause 10, Schedule 4 of the Code)*.

When a proposal is made on a route where the floor and ceiling costs have not previously been determined by the Authority, the railway owner will be required to notify the Authority of its costs. The Authority will either approve the railway owner's proposed costs or make an appropriate determination of the costs. In both instances, the Authority may seek public comment on the determination, as long as the time limit imposed on the railway owner, under the Code, to present to the operator a draft access agreement for consideration is not breached. This time constraint can be waived by the operator who is seeking access.

h) *Review and re-determination of costs (Clause 12, Schedule 4 of the Code).*

If it is considered that there is a material change in the circumstances that existed when the floor and ceiling costs were determined, the Authority may review the costs and make a fresh determination. The Authority may also give public notification of such a review and seek public comment on the determination.

i) *Competition Principles (Section 20(4) of the Act).*

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.

The nature of the decision-making power given to the Authority under Clauses 9 and 10 of Schedule 4 of the Code is mandatory in that the Authority must take into account all the factors listed in Section 20(4) of the Act. However, the Authority has discretion to allocate such weight to each of the factors listed in Section 20(4) of the Act as it considers appropriate for each particular case.

Costs in the WA Rail Access Regime

24. WNR is required to negotiate access prices between a floor and a ceiling as specified in Clauses 7 and 8, Schedule 4 of the Code.

25. 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.

26. 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.

27. WNR has applied the following factors to calculate the floor:

- the percentage that the incremental traffic represents of the total traffic;
- the existing overall level of traffic (i.e. high or low density traffic use);
- the requirements of the service (e.g. high speed passenger versus low speed freight);
- the nature of the infrastructure (which will influence the operating costs) and the specific requirements of the user; and
- the nature of the train operations and its impact on overhead costs.

28. 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 WNR.

29. 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 MEA, assuming efficient practices.

30. There is no obligation for WNR to provide a network that is MEA or to adopt the specific maintenance practices assumed in the Regime as its actual practices. However, 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.

31. 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.

32. The IRAR and the Authority agreed to WNR's definition of the railway network into routes and route sections which were outlined in the 2003 and 2004 determinations based on differences in track characteristics and traffic densities. The current review of the floor and ceiling costs are for the same routes and route sections as presented in the earlier determinations and are outlined in Appendix 2.

33. To calculate the floor and ceiling costs, WNR has developed a computerised costing model, the access pricing model (**APM**). The WNR APM is a bottom-up model where individual activity unit costs are applied to estimated activity levels to derive floor and ceiling costs for individual route sections. The APM stores population data, including all costs and physical parameter assumptions, in a Microsoft (**MS**) Access database. The database has an interface that allows the user to select routes and vary assumptions prior to running the model.

34. Preliminary calculations are performed within MS Access, and thereafter the results are exported as text files to the Decision Support System (**DSS)** where final calculations are conducted and summary results on access costs are presented. As a check, the DSS calculations are mirrored in MS Excel.

Assessment Process

35. The Authority's draft determination provides the railway owner, operators and access seekers with the proposed outcome of the Authority's consideration of WNR's proposed floor and ceiling costs. The draft determination also proposes amendments which are required to be made to WNR's proposed floor and ceiling costs in order for the Authority to approve them.

36. The process and timetable for the review of the proposed floor and ceiling costs is as follows:

- November 2006- Public submissions on WNR's proposed floor and ceiling costs.
- March 2007- Authority's draft determination published.
- April 2007- Public submissions on draft determination close.
- May 2007- Authority's final determination published.
- June 2007- Amended floor and ceiling costs submitted and approved.

Discussion of Issues

37. Issues pertaining to WNR's floor and ceiling costs in this draft determination are discussed under the following headings:

- Level of service and modern equivalent asset standard.
- Capital costs.
- Operating costs and working capital.
- Maintenance costs.
- Overhead costs.

38. The discussion commences with a review of what has been established in WNR's approved Costing Principles (2006) under each of the above headings. This is followed by a summary of WNR's submission, relevant comments received in the public consultation process, assessment and recommendations from the Authority's consultants, and then the Authority's assessment and any amendments required.

39. It should be noted that, as outlined under paragraph 17, those matters raised in submissions which were considered to be outside the scope of the floor and ceiling costs review were not taken into account in this draft determination.

40. The Authority has taken the view that those sections of WNR's proposed floor and ceiling costs on which no comment has been made are acceptable to track users and access seekers.

41. It should be noted that in the case of the grain lines, only three specific grain lines are subject to floor and ceiling cost determinations. The unit costs arising from the determination on these three lines is used to calculate the equivalent floor and ceiling costs for the rest of the grain network based on either a 16 or 19 tonne axle load, whichever is relevant to the particular grain line.

Level of Service and Modern Equivalent Asset Standard

Costing Principles

42. The term Modern Equivalent Assets (MEA) has been defined[1] as:

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

43. The operating standards that WNR will apply for determining GRV are as follows:

- for that part of the standard gauge network that is part of the Defined Interstate Railway Network (**DIRN**), i.e. Kalgoorlie to Kwinana, as defined by the Australian Transport Council standards in place at 1 January 2002; and

[1] WNR, Costing Principles, page 25.

- for the standard gauge (**SG**) branch lines and the narrow gauge (**NG**) main and branch lines, the standards that WNR is required to maintain the tracks at in accordance with the lease obligations with the WA Government entered into in December 2000.

44. A "greenfields" assumption is to be utilised for estimating a GRV on a MEA basis for WNR, and costs related to constructing around rail traffic, surface restoration and other surface diversions are excluded from the GRV. It is also assumed that the optimised network is provided by rail track within the existing corridor of land. In other words, the existing rail track alignment of the network will be considered as efficient.

45. WNR is required to provide a set of assumptions that it intends to adopt when calculating a GRV on a MEA for a mainline asset, and for branch, feeder and grain lines. These are to include assumptions on rail weight, ballast depth, sleeper types (and spacing), fastener type, signalling type, passing loop lengths, manner in which bridges are to be designed, network construction rate, turnouts and formation costs.

46. Where the ceiling costs calculated for a specific route section using MEA is significantly higher than the existing infrastructure calculation, the Authority may determine that it is not appropriate to apply MEA. Under these conditions, the pre-existing infrastructure may be used in determining the ceiling costs if the existing infrastructure meets current and anticipated operational and safety standards and if the infrastructure components are available in the market.

47. For those parts of the network that WNR is able to demonstrate are MEA, common proxies for estimating efficient costs are likely to be the unit cost levels quoted in competitive tenders for providing actual services. However, unit rates will need to be assessed against the quantity of units consumed to ensure operating (productivity of inputs) and technical (type and combination of inputs) efficiency. Benchmark unit rates will also require adjustment for environmental factors as well as for factors such as the scope of the contract and the time elapsed since it was awarded.

48. For the parts of the WNR network that are not considered MEA, the Authority will benchmark their costs against other comparable assets as required.

WNR's Proposal

49. WNR considers that the majority of the existing track configuration (i.e. sleeper type, rail weights, etc.) can be adopted as the MEA on the assumption that the track configuration is new in accordance with the Code.

50. WNR proposes the following assumptions where the existing network is not considered MEA:

- concrete sleepers for the 75km of timber sleepered track in two sections between Koolyanobbing and Kalgoorlie on the Forrestfield to Kalgoorlie rail line (**EGR**). The timber sleepered track in both these sections will be replaced in 2007.
- concrete sleepers have also been considered to be MEA on the South West mainline (**SWM**) between Kwinana and Bunbury. WNR has indicated that Stage 1 of the SWM between Kwinana and Pinjarra and Stage 2 between Brunswick Junction and Bunbury Inner Harbour have had concrete sleepers

completed to date with the remaining sections between Pinjarra and Brunswick Junction to be completed in the next 2-3 years;

- optic fibre to provide high speed digital communications on main lines where CTC signalling is used. This work is currently in progress and is expected to be completed by mid 2007;
- processor-based interlocking in all cases of CTC signalling systems instead of electro-mechanical interlockings. This work is also in progress and is also expected to be completed by mid 2007; and
- a centralised train control system which is expected to be fully operational by mid 2007.

51. WNR's SG and NG Codes of Practice are to apply to the MEA as WNR is required to comply with these Codes of Practice under its Rail Safety Accreditation.

52. WNR has stated[2] that the same MEA standards approved by the IRAR in September 2003 and the Authority in July 2004 have been used in the proposed floor and ceiling costs for the current review.

53. The September 2003 and July 2004 approved MEA standards are outlined in Appendix 1.

Interested Party Submissions

Submissions Received During Submission Period

54. The Alcoa/Worsley submission indicated:[3]

> It is now four years since the MEA was defined and there are still sections of track on the SWM which remain at the old standard of 19.5t/80km/h. Since the whole line must be at the higher standard before new rollingstock can be utilised, all users have been funding the gradual installation of concrete sleepers and new rail and turnouts without any benefit flowing to the users in the three years since the 2003 determination.
>
> Based on the failure of WestNet to provide the MEA standard claimed in December 2002 over the entire SWM, the ERA needs to monitor that MEA upgrades are delivered on a timely basis or alternatively act promptly to revise the ceiling down until the committed standard is delivered.

Submissions Received after Submission Period

55. In a supplementary submission, WNR claimed[4] that the IRAR in the September 2003 floor and ceiling cost determination (**2003 determination**) stipulated that "*access seekers wishing to include penalties (or discounts) for non performance of agreed standards should incorporate the appropriate provisions in their access agreements with WNR*". WNR also noted that the 2003 determination recognised that the IRAR would monitor the delivery of the level of service, through key performance indicators, and revise the MEA standard if it is demonstrated that WNR is consistently not providing the expected standard of service. WNR asserted

[2] WNR, Proposed Floor and Ceilings for Mainlines, Worsley line and Terminal End Bits, page 7.

[3] Alcoa/Worsley, Submission on the Review of WestNet Rail's Floor and Ceiling Costs for certain Rail Lines, page 7.

[4] WNR, Supplementary Submission, page 1.

that with the above statements in the 2003 determination, it was WNR's view that the IRAR did not envisage revisions to the MEA standard.

56. WNR has recognised that the concrete re-sleepering program for the SWM has not been completed as outlined in paragraph 50. However, it asserts that at least 94 kilometres (or 55%) of the work has been completed to date and that the remaining 76 kilometres will most likely be re-sleepered in the 2008-09 financial year. WNR indicated that this timing is due to the unavailability of the required track laying equipment, labour and concrete sleepers due to prior requirements for the resources to the construction of the Perth to Mandurah urban passenger rail line and the completion of concrete re-sleepering of the remaining sections in the EGR.

57. WNR has also refuted the claim in the Alcoa/Worsley submission, as outlined in paragraph 54, that users have not been able to benefit from upgrades to the track since the 2003 determination. WNR has indicated that Alcoa has benefited through increased haulage of bauxite since the completion of re-sleepering of the Kwinana to Pinjarra sections of the SWM.

58. WNR also claimed that the current rolling stock utilised by all above-rail customers (with the exception of the passenger service) cannot operate to the MEA standard. This rolling stock has a substantial remaining useful life and is not likely to be replaced until after WNR completes the re-sleepering programme in 2008-09.

59. In a supplementary submission, Alcoa/Worsley clarified[5] the comments from its original submission in relation to the timeliness of construction of new assets and upgrades to existing assets. Their concern related to prepaying for new assets or upgrades to existing assets through an increased ceiling when the upgrades are not completed on a timely basis. They believe that the costs associated with any upgrades should not be included in the ceiling until such time as all the work is completed.

PwC/HCS Assessment

60. PwC/HCS has reviewed the comments made by Alcoa/Worsley outlined in paragraph 54 and offer the following comment[6]:

> The basis of the MEA is defined in the Costing Principles as '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 into the future. The MEA excludes any unused or under utilised assets and allows for potential cost savings that may have resulted from technological improvement.'

61. PwC/HCS noted that in its supplementary submission that WNR had indicated its intention to complete a series of upgrades to move closer to the MEA for most components. PwC/HCS also believes that for some components of the MEA specification, such as the earthworks height, it may be prohibitively costly (i.e. not economically efficient) for the rail owner to universally adopt the MEA standard as the minimum actual standard. PwC/HCS indicated that the interpretation and intent of the Regime was reflected in the 2002 Costing Principles determination where the IRAR indicated that *there is no obligation for the railway owner to provide a network*

[5] Alcoa/Worsley, Supplementary Response by Alcoa World Alumina Australia and Worsley Alumina on the Review of WestNet Rail's Floor and Ceiling Costs for Certain Rail Lines, page 1.

[6] PwC/HCS, Review of WestNet Rail's Floor and ceiling Costs for certain Rail Lines, Page 8.

that is MEA or to adopt the specific maintenance practices assumed in the regime as its actual practices. However, Clause 13(c)(i), Schedule 4 of the Code requires *the prices for access to reflect the standard of the infrastructure concerned and the operations proposed to be carried on by those using the network*. However, PwC/HCS notes that under Schedule 4 clause 2 (4) of the Code, the Authority has the discretionary judgement on when it is appropriate (i.e. efficient and reasonable) to apply the MEA standard and consequently the IRAR's 2003 determination stated that the Regulator will monitor service levels and will revise the MEA standard if it can be demonstrated that WNR is consistently not meeting the expected level of standard and service.

62. PwC/HCS considers that it was not the intention of the ceiling cost calculation within the Regime to require the rail owner to provide a completely MEA compliant network but rather to progressively implement components of the MEA standard (e.g. replacing timber sleepers with concrete) as commercially appropriate. PwC/HCS also considers the intention of the MEA is to facilitate the setting of the absolute upper limit of costs using a simplifying set of modern construction assumptions, with prices to be negotiated to appropriate levels below the ceiling to reflect the standard of the infrastructure concerned. This approach:

- reduces regulatory costs by simplifying and streamlining ceiling cost calculations,
- provides some potential to pass onto track users gains from technological innovation (e.g. centralised train control);
- precludes inefficient outcomes which could require the network owner to replace otherwise fit-for-purpose assets prior to their life expiry (e.g. timber bridges or lower height formations); whilst
- protecting access seekers from abuse of monopoly power by containing the upper limit of prices to the efficient cost levels which would prevail if the network was totally replaced.

Authority's Assessment

MEA Standard

63. The Authority notes that WNR has proposed the same MEA standards that the IRAR approved in the 2003 determinations for the mainlines and Worsley line and the Authority approved in the 2004 floor and ceiling cost determinations (**2004 determination**) for the Terminal Ends and the grain lines which WNR has used to calculate its proposed floor and ceiling costs.

64. The Authority also notes that in its 2002 determination on WNR's inaugural Costing Principles, the IRAR stipulated[7] that the GRV is to be calculated as the lowest cost to replace 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. The IRAR stipulated that the floor and ceiling prices and the approach to estimating these prices are not based on actual costs or the actual network but rather the hypothetical GRV of a MEA, assuming efficient practices. There is no obligation for the railway owner to provide a network that is MEA or to

[7] IRAR, Determination on Costing Principles to Apply to WestNet Rail, Page 7.

adopt the specific maintenance practices assumed in the Regime as its actual practices. However, Clause 13(c)(i), Schedule 4 of the Code requires that access prices reflect the standard of the infrastructure concerned and the operations proposed to be carried on by those using the network.

65. The Regime is a negotiate-arbitrate model with access prices to be negotiated between the rail owner and access seeker within floor and ceiling costs as a commercial outcome. The Code has provided for this feature under Clause 13(c)(i), Schedule 4 as indicated above in paragraph 61. The rail owner is required to comply with the guidelines under this clause in the price negotiation process.

66. The Authority also notes that the WNR Standard Access Agreement makes provision for the reporting of service level standards through quarterly reporting of agreed key performance indicators (**KPI**). The Standard Access Agreement also makes provision for reward and penalty subject to actual performance against the agreed KPI's as outlined under clause 2.12(7).

67. The Authority is aware that under the terms of WNR's lease agreement with the WA Government, the Government has powers to assess the performance of WNR and to require remedial work to be undertaken, if required, to lift WNR's performance to agreed standards. An audit was performed in 2005 by an independent auditor, commissioned by the Government, who found that WNR was operating the network to acceptable standards.

68. The Authority is aware that in the 2003 determination the IRAR indicated it would monitor the delivery of the level of service, through key performance indicators, and revise the MEA standard if it is demonstrated that WNR is consistently not providing the expected standard of service.

69. The Authority considers that there is significant provision for the application of penalties for not meeting agreed service level standards through mechanisms in the Standard Access Agreement and considers there is no requirement for this provision in WNR's floor and ceiling costs.

SWM Upgrading

70. The Authority has noted the Alcoa/Worsley comments in their submission and outlined in paragraph 54 regarding the need to revise the MEA standard as WNR has not delivered the MEA standard for the SWM that the IRAR approved in the 2003 determination.

71. The Authority has also noted WNR's comments in its supplementary submission outlined in paragraph 56 that approximately 55 percent of the concrete re-sleepering programme on the SWM has been completed and the balance will be completed in 2008-09 and the completed work is on the most heavily trafficked sections of the SWM. The Authority has been provided with information to support WNR's claim, outlined in paragraph 57, that Alcoa has benefited from the completed section of the re-sleepering programme through haulage of increased tonnages of bauxite between Pinjarra and Kwinana.

72. The Authority is aware that the re-sleepering programme for the SWM commenced in September 2004 and the first stage from Kwinana to Pinjarra was completed by March 2005. This was followed by completion of the Brunswick to Bunbury Inner Harbour sections by September 2005.

73. The Authority has assessed the impact of the partially completed re-sleepering programme on the ceiling cost for the SWM. The analysis reveals that timber sleepers for the remaining 76 km of the SWM results in an increase of approximately $322,000 to the ceiling cost. This occurs because unit costs for timber sleepers are higher than unit costs for concrete sleepers and differences in asset lives with timber sleepers having an asset life of 20 years compared with 50 years for concrete sleepers. This analysis suggests that a concrete sleeper MEA standard for the SWM has financial benefits for track users.

74. The MEA has been defined in terms of an optimised network using modern technology serving the current load and projected demand growth up to five years into the future. Hence, the 2003 determined MEA standard is intended to be in place at the end of the five year period (2008) unless it can be demonstrated that WNR is consistently not meeting the expected standard of service. WNR has indicated that it will achieve its commitment of meeting the MEA standard by completing the outstanding section of the re-sleepering programme in 2008-09.

Conclusions

75. The Authority has noted the PwC/HCS comments in regard to service level standards and the requirement for WNR to deliver the MEA standard as outlined in paragraphs 60-62. The Authority's view is that there should be no change to the MEA standard, as submitted by WNR, for all the rail lines under this review.

76. In regard to the MEA standard for the SWM, WNR commenced its re-sleepering programme within 12 months of the 2003 determination and has made significant progress by completing the most heavily trafficked sections of the SWM to the MEA standard. WNR has provided acceptable reasons for the delay in completing the work and has provided a timetable to complete re-sleepering of the remaining sections of the SWM. Nevertheless, the Authority expects that WNR will commence re-sleepering of the outstanding Pinjarra to Brunswick sections of the SWM by October 2008 to demonstrate its commitment to meeting the MEA standard within the five year timeframe required.

Capital Costs

Costing Principles

77. The assets included in the capital cost calculations consist 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:

- 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; and
- associated plant, machinery and equipment.

Sidings or spur lines that are excluded by Section 3(3) or (4) of the Act from being railway infrastructure are not included.

78. 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.

79. 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 improve operating standards or efficiency, will be included in the calculation of the ceiling.

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

81. The infrastructure is required to be optimised to meet current and reasonably projected demand. If WNR seeks to include the costs of additional infrastructure to meet projected demand, it would need to demonstrate:

- the basis of the demand projection; and
- a commitment to the capital expenditure.

82. WNR's economic life assumptions as detailed in the Costing Principles are based on engineering assessment of rail life and have been approved by the Authority.

83. Key capital cost drivers WNR will adopt to ensure a MEA network are:

- the operating track standard (e.g. axle load and speed);
- population of supporting infrastructure (e.g. bridges and culverts); and
- topography of the route (e.g. track curvature and gradient).

84. All operator and government contributed assets are to be included in calculating the floor and ceiling costs. An amount of the contribution determined as the equivalent annual cost will be credited to the operator and the route section(s) concerned in the calculation of the over-payment in the ceiling price test.

85. The appropriate design, construction and project management fee is at a rate of 20% of the total cost of the infrastructure and based on an economic life of 50 years.

86. The appropriate construction rate is an average of 1 kilometre (**km**) per day, and there will be sections of the network that the Authority may consider a higher or lower rate to be more appropriate.

87. The WACC is to be used as the interest rate for assessing the capital costs incurred during the construction period for the calculation of the financing charge which ceases upon completion of construction. A 50 year economic life assumption is used in amortising financing costs.

WNR's Proposal

88. WNR has indicated[8] that the same asset population approved by the IRAR in its September 2003 and October 2003 determinations and by the Authority in its July 2004 determinations have been used in the calculation of the floor and ceiling costs for the rail lines under review, with the exception of additional passing loops and the extension of existing loops required on the SWM to support anticipated future growth and the inclusion of Communications Backbone infrastructure which were previously omitted and now included for the SWM and EGR.

89. WNR's unit rates for track capital have been assessed independently by consulting engineers Worley Parsons (**WP**). WNR engaged WP to market test all unit prices of capital in WNR's asset base. WNR indicated this was done by WP obtaining quotes from multiple suppliers in the market and then making recommendations to what the market rates are. WNR has used the output of the WP report to update unit rates in the APM. Where these rates have any adjustment for scale or scope or the impact of location these assumptions have been included.

90. The cost of the centralised train control system has been updated since the 2003 determination to reflect the actual project cost.

91. WP outlined in its report[9] the scope of work that WNR had set for the WP review as:

- summarise, from previous determinations, the specifications for track, signalling and communications infrastructure;
- identify the cost elements and appropriate unit rates categorisations;
- identify targeted suppliers/contractors and provide brief to allow understanding of the requirements;
- receive the suppliers and contractors quotes/tenders, make any adjustments for misunderstandings or incompleteness in their quotes through consultation with them;
- compile the best offers to provide a "market tested" best result; and
- provide the findings in a report.

Specifications for track, signalling and communications infrastructure remains unchanged from the initial determination approved by the IRAR in the 2003 determination.

92. The directives set by WNR for the valuation of rail infrastructure were:

- adopt Modern Engineering Equivalent Replacement Asset principles (i.e. replacement value of current design standards of existing infrastructure);
- adopt current best practices for construction;
- adopt the most economic construction package to deliver the lowest economic costs and pricing discounts recognising economies of scale;

[8] WNR page 7.

[9] Worley Parsons, Review of Unit Prices for Clause 9 Ceiling Price Review, page 2.

- adopt a "greenfields" approach for all infrastructure construction. Work to be undertaken free of all rail traffic;
- allowance for wastage;
- transport of materials to site; and
- engineering and construction overheads to be separately defined.

93. The principles and methodology adopted by WP in undertaking the assignment was outlined in section 3.1 and 3.2 respectively of its report. WP has indicated that the unit costs proposed in its report have been confirmed through interaction with suppliers, contractors, industry contacts and internal expertise within WP. WP claims this interaction has provided the ability to compare values with various sources and other projects to give a high level of certainty that the values provided are realistic and accurately reflect the current market rates.

94. The WP report outlined the market tested unit rates for all elements of rail infrastructure with the exception of bridges, culverts, level crossings, track signage, shunter pathways and access roads where the 2003 determined costs were escalated to 2006 prices using Australian Bureau of Statistics (**ABS**) indices to reflect cost movements. For signalling and communications equipment, the 2003 determined costs were escalated to 2006 values using escalations based on price movements for individual components supplied by a signalling and communications contractor. The WP report is available on the Authority's web site.

95. Signalling assets include track circuits, interlocking, cabling, power supply and stand-by plant, signal equipment and telemetry equipment. Communications assets include radio control equipment, base stations, towers, communications backbone 4 fibres, carrier equipment, cabling ducts and pits.

96. Unit rates were multiplied by the population data for that particular section of the route using the MEA standard which then produced the GRV.

97. The same remoteness factors and economic lives for the classes of assets approved in the 2003 determination have been applied by WNR in its proposed floor and ceiling calculations.

98. The transport cost approved for the 2003 determination was escalated by the ABS *Transportation* Index to reflect 2006 values.

99. WNR has also indicated that the same assumptions regarding design, project management, construction financing costs and construction margins that were approved in the 2003 determination have been used in its submission.

100. WNR's proposed capital costs by routes and route sections, as contained in its submission, are outlined in Appendix 2 of this draft determination.

Interested Party Submissions

Submissions Received During Submission Period

101. Alcoa/Worsley enlisted the services of Indec Consulting to assist with the preparation of its submission on WNR's proposed floor and ceiling costs.

Alcoa/Worsley has indicated[10] that it does not agree with many of the proposed unit rates used in developing the proposed new GRV. They claim that WNR appears to be using prices from the top of the current WA "mining boom" cycle to inflate the cost base for the next three years and if inflated costs are used for individual items for a three yearly price reset, then users of the network will be dis-advantaged until the next review. Further, Alcoa/Worsley assert that with the CPI-X indexation before the next review, the inflated prices proposed could be further inflated by higher than normal CPI outcomes over the next two years. The potential for this to occur is evidenced by the last two CPI Quarterly rises for Perth which will flow through to the 2007 CPI-X indexation.

102. The submission suggests that the Authority should ensure that the provisions of the Code provide a mechanism to deliver the lowest costs and hence competitive pricing for end users whilst providing WNR with a reasonable return on its investment. The GRV should reflect efficient costs and it should not be distorted by short term market distortions.

103. The Alcoa/Worsley submission itemised a number of unit prices for infrastructure where it is claimed that the WNR proposed unit prices are too high and do not reflect efficient practices and scale discounts that would result from construction of a "greenfields" railway. These items of infrastructure include rail, sleepers, ballast and earthworks.

104. In regard to unit prices for rail, the Alcoa/Worsley submission indicated that WNR had over-estimated the unit prices of $1500 per tonne by approximately 8%, for the two categories of rail, based on rail prices for construction projects in New South Wales and Victoria and the movement in domestic steel prices over the 3.5 year period of approximately 29%. The submission stated that rail prices should be set at $1375 per tonne.

105. In regard to sleepers, the Alcoa/Worsley submission claimed that the proposed unit prices for SG sleepers was about 15% too high and for NG sleepers about 13% too much which was not reflective of large scale competitively tendered projects. The submission stated that sleeper prices should be $81 per SG sleeper and $74 per NG sleeper.

106. The Alcoa/Worsley submission claimed that WNR's proposed ballast price, inclusive of transport, was about 45% too high as the price reflected a single source quarry which included significant transport costs for large haulage distances. The submission recommended that a unit price of $25.50 per tonne delivered to site was more reflective as it took into consideration the use of material from local quarries as opposed to the WNR proposed unit price of $37 per tonne delivered to site.

107. The Alcoa/Worsley submission also expressed concerns about WNR's proposed unit prices for earthworks claiming the proposed prices for NG lines of the SWM and Worsley were about 26% too high as they were based on 100% imported fill. The submission claimed that in the 2003 determination, the IRAR used a combination of "imported" material and "cut and fill" material to arrive at a 2003 determined unit price for earthworks. Using a similar approach, Alcoa/Worsley propose that the 2006 unit price for earthworks should be $117.68 per linear metre, for the SWM, as opposed to WNR's proposed $159.92 per linear metre for the

[10] Alcoa/Worsley, page 8.

SWM. For the Worsley line the corresponding numbers should be $159.18 per linear metre and not $216.33 per linear metre as proposed by WNR.

108. In its submission, Alcoa/Worsley claim that applying ABS Producer Price Indices to a range of infrastructure items, such as bridges, culverts, surfacing, access roads and walkways, as applied by WNR to escalate the 2003 costs to 2006 values is not appropriate as the percentage escalation is based on Western Australian data and therefore includes the significant upward pressure on rates created by the demand for rail personnel on mining projects throughout WA at the current time. It is also suggested that the figures do not represent long term contract rates set by WNR and Alcoa/Worsley's preference is to see the three year price resets based on efficient costs which would take into consideration innovation or changed construction practices resulting in reduced costs. Alcoa/Worsley stipulate that the Authority needs to form a view on short term price cycles and the influence these may have on the GRV.

109. In regard to WNR's proposed communications GRV, Alcoa/Worsley indicated that the proposed communications GRV has been increased by approximately 91%, from the 2003 determination, which was principally associated with the inclusion of Communications Backbone costs which were omitted from the 2003 review as indicated in paragraph 88. Alcoa/Worsley's consultant estimated the communications GRV for the SWM to be about 31% below WNR's proposed GRV calculation and on this basis suggested that the Authority review WNR's proposed GRV calculation to ensure that it reflects the lowest current cost.

110. The submission also claims that the WNR proposed signalling GRV is too high. The Alcoa/Worsley consultant has calculated the GRV to be about 37% below what has been proposed by WNR taking in to account common trenching and new unit pricing estimates for signalling assets. Based on the large disparity between the GRV calculations, Alcoa/Worsley suggest that the Authority review the signalling asset list and installation costs to ensure that the economies achieved through the use of the Communications Backbone and common trenching are reflected in the signalling GRV.

111. The Alcoa/Worsley submission has questioned the need for the additional capacity enhancements proposed for the SWM. In particular, Alcoa/Worsley has challenged the requirement for the construction of a new passing loop north of Pinjarra (at Venn) and the extension of three passing loops at Brunswick, Benger and Yarloop. The submission concedes that the new passing loop at Burekup is needed due to proposed expansions by Alcoa at its Wagerup operations and Worsley's operations. Alcoa/Worsley also make the point that they do not agree with the current approach by the Authority to allow full recovery of proposed capacity improvements in advance of the commissioning of the improvements especially as WNR seeks direct funding from users. The submission suggests that WNR needs to provide justification for the additional infrastructure based on users' current and future needs and timing and any increase in ceiling costs should be phased to coincide with the availability and usability of the infrastructure.

112. The Alcoa/Worsley submission suggests that there are implications for the calculation of the GRV for the Terminal Ends to the SWM if any of the unit costs proposed by WNR are not accepted by the Authority. Alcoa/Worsley would like the Authority to review the unit prices for calculation of the GRV for the Terminal Ends and update the prices if corresponding unit prices for the SWM and Worsley lines are changed. In addition, the submission suggests that WNR has miscalculated when the revised floor and ceiling calculations for the Terminal Ends apply from as

WNR, in its submission, indicates the revised floor and ceiling costs apply from 1 July 2006 whereas the revisions should apply from 1 January 2007 in accordance with the Authority's July 2004 determination. The submission also requests that the Authority make it clear in its determination when the revised floor and ceiling costs for the Terminal Ends commence.

Submissions Received after Submission Period

113. In a supplementary submission, WNR rebutted many of the claims by Alcoa/Worsley for lower unit costs for the calculation of the GRV for the SWM, Terminal Ends and Worsley lines.

114. In regard to Alcoa/Worsley's claims for lower rail unit costs, WNR indicated[11] that WP had market tested national and international rail component suppliers with the pricing trends from international suppliers delivering similar trends to national suppliers. WNR contends that the $1375 per tonne price claimed by Alcoa/Worsley is the Eastern States price and ignores the cost of delivery to Perth whereas the $1500 per tonne cost of rail provided by WP was the delivered cost to Midland. Further, WNR has stipulated that the increase in costs can be supported by information from the ABS Producer Price Indices for manufacturing which show that the cost of manufacture of railway components has increased by about 44% between December 2002 and March 2006.

115. WNR has indicated that in its estimates of concrete sleeper costs, WP has based its estimates on large quantity purchases (for greater than 100 km's of track) available at Midland and accurately reflects the current competitive cost for sleepers to Western Australia. Further, WP had noted that Alcoa/Worsley cost estimates reflect no increase in costs for SG sleepers from the prices determined in 2003 which does not reflect the market changes and influences in the period 2003 to 2006.

116. In its comments on Alcoa/Worsley cost estimates for ballast, WNR has indicated that WP obtained ex quarry costs for supply of ballast from a number of locations around the WNR network and considered it appropriate to apply an average delivery distance/cost to the ex quarry supply costs for ballast with the average transport distance for the SWM assessed at 70 km. Based on this methodology, the ballast cost for the SWM was assessed as $31.47 per tonne.

117. In regard to Alcoa/Worsley's cost estimates for earthworks, WNR indicated that the WP costs were based on an "all-in" rate of $250 per linear metre with formation fill sourced locally and only the higher quality capping layer to be imported and not the 100 per cent fill as suggested by Alcoa/Worsley. It is suggested that the WP estimates represent a 13% increase since the 2003 determination and as the costs in the WP estimates have made allowance for minimising imported fill, they should not be reduced any further.

118. In response to Alcoa/Worley's claim that efficient costs should be used to estimate the costs for bridges, culverts and access roads rather than use price indices to uplift costs to 2006 values, WNR has offered the following explanation[12]:

[11] WNR, Supplementary Submission, page 2.

[12] WNR, Supplementary Submission, page 4.

The process adopted by WP in establishing current prices for culverts is identified below:

- the supplier was provided with the table of sizes consistent with the 2003 determination;
- item sizes manufactured by the supplier were priced (75% of all size combinations on the list);
- the remaining item sizes (25% of list) were escalated using the ABS Producer Price Index; specifically Index 6427 table 10 and 11 *Concrete Pipe and Culverts*. The percentage increase from December 2002 to March 2006 is 9.5%; and
- to complete the pricing process the install component factored the material costs for pipe culverts by 1.1 and box section culverts by 0.8. This approach is consistent with that used in the initial determination.

WP consider that a commonly available escalation index from the ABS is the appropriate method to arrive at the current costs for those item sizes not presently manufactured. The escalation factor is transparent and recognises the real increase in the manufacture of pre cast culvert components.

119. WNR has also responded to Alcoa/Worsley's assertion that the Authority should review the WNR proposed communications and signalling GRV to ensure they are based on efficient costs. WNR has indicated that it has provided additional information to the Authority and its consultant, PwC/HCS, explaining how the communications and signalling infrastructure is configured and the levels of reliability and redundancy that are considered necessary within the system.

120. WNR has also provided a response to Alcoa/Worsley's requirement for WNR to justify the capacity enhancements of the SWM (in the form of new and extension of existing passing loops). WNR has provided the following explanation[13]:

> The requirement for the new crossing loop at Venn (north of Pinjarra) and the extension of three existing crossing loops is based on future pathway requirements, based on reasonably projected future demand.
>
> The Pinjarra crossing loop is located in Pinjarra and is constrained from further extension due to major protected level crossing infrastructure to the north and south of Pinjarra. The preferred site of "Venn" has been selected to accommodate a long loop consistent with other loop extensions along the South West corridor.
>
> Extension of Brunswick, Benger and Yarloop to accommodate longer trains is necessary to maximise pathway utility. Network management planning has been undertaken to consider all future expansion requirements of all WNR's current customers including Alcoa, Worsley, Griffin, Cockburn Cement, Iluka and general freighters.
>
> In order to have operational flexibility, the new and extended crossing loops are deemed necessary to accommodate the known expansions from the existing customer base. To date other customers have already absorbed a daily pathway between Brunswick and Kwinana. Whilst other expansions have not yet been contractually agreed, WNR is permitted under clause 2(4)(c) of Schedule Four of the Access Code to provide for existing and reasonably projected demand. WNR must consider network capacity from a customers' perspective as well as ensuring the operational integrity to maximise on time service delivery. A level of redundancy must also be allowed in the network to allow for the impact of "out of schedule" services.
>
> WNR has also indicated that in its earlier submission the GRV for the new passing loop at Burekup was understated in the APM at $1,347,504 and a revised estimate had placed the cost at $3,220,000 which would increase the ceiling cost for the

[13] WNR, Supplementary Submission, page 5.

SWM. WNR notes in its submission that justification for the additional cost would be made available to the Authority.

121. In its response to Alcoa/Worsley's requirement that the Authority review the unit prices for the calculation of the GRV for the Terminal Ends, WNR has stated that the unit prices used for the Terminal Ends are the same rates used for routes calculated under the APM and two independent audit reviews conducted during the 2003 review confirmed pricing consistency within the APM.

122. In a subsequent submission, Alcoa/Worsley indicated that rail prices should be $1240 per tonne as they believed this price was achievable for delivery of large quantities of rail track. In this submission, Alcoa/Worsley has also revised its sleeper prices to $75 per SG sleeper and $68.50 per NG sleeper, inclusive of fastenings. Alcoa/Worsley also commented that the ballast price for the SWM and Worsley line should be $20.70 per tonne ex quarry with a transport distance of no more than 40 km to be included in the costing for deliveries of up to 400,000 tonnes of ballast.

123. In its submission, Alcoa/Worsley established that the earthworks cost for the SWM should remain at $117.68 per linear metre. However, based on some revised calculations, Alcoa/Worsley now believe that the efficient earthworks cost for the Worsley line should be $145.30 per linear metre which represents a further reduction of about 9% on the earthworks cost proposed in its earlier submission.

124. In regard to bridges and culverts, Alcoa/Worsley claimed in its submission that there are inconsistencies in the escalation of items that make up this category of infrastructure with some items moving at a higher rate and others at a lower rate to the escalation proposed by WNR and would like the Authority to further test the prices for the items of infrastructure.

PwC/HCS Assessment

125. PwC/HCS has undertaken a comprehensive review of the input prices proposed by WNR in its calculation of the GRV and has also reviewed submissions from interested parties in formulating its views on the appropriateness of the GRV proposed by WNR. The following comments provide a summary of PwC/HCS' assessment and more details are available in its report which is available on the Authority's web site.

126. In its assessment on the unit price for steel rail, PwC/HCS notes that WNR has proposed prices of $1,440 per tonne for 60kg rail and $1,500 per tonne for 50kg rail (both delivered to Midland). PwC/HCS has confirmed with another rail owner that their OneSteel large order price is $1,240 per tonne for a 60kg rail ex-works excluding flashbutt welding ($200 per weld per 110 metres or $30 per tonne for 60kg) providing a price ex-works including welding of $1,270 per tonne. PwC/HCS has assessed the rail transport cost to be 12 cents per tonne km and applying this to a Whyalla-Midland movement (2,340km) produces a transport cost of $285 per tonne generating a complete rail cost delivered to Midland of $1,554 per tonne for 60kg rail. As this price exceeds the WNR proposal for 60kg rail of $1,440/tn, PwC/HCS considers the price proposed by WNR as reasonable.

127. PwC/HCS considers that 50kg rail is currently a higher cost option, as it is produced by OneSteel in lower volumes. Alcoa/Worsley argued that the rates for rail should be based on the lowest cost rail weight, being the cost for 60kg rail, as this determination assumes large-scale network construction, which would lead to

increased volumes for 50kg rail resulting in similar prices for both 50kg and 60kg rail. Overall, the PwC/HCS view, is that the Alcoa/Worsley argument is valid and that if both sizes had large scale production volumes, the price of 50kg and 60kg should be broadly the same (i.e. efficient rail unit prices for large scale orders should be assumed to equal to lowest price per tonne for a given size across all sizes). Consequently, PwC/HCS considers the price for 50kg rail should be reduced to match the 60kg rail price. This change is recommended as the existing premiums prevail due to the lower volumes of 50kg (and also 41kg) rail being manufactured and it is expected that any premium should disappear where a large and regular volume purchase occurs with a large procurement being a required assumption for the purpose of the GRV calculation. Whilst WNR disagreed with the Alcoa/Worsley assertion in its supplementary submission, PwC/HCS considers a key theme of the Regime is the use of judgement based assumptions to try to replicate the most efficient outcomes.

128. In regard to sleeper prices, PwC/HCS notes that WNR has proposed a price of $95 per SG concrete sleeper from Humes at Welshpool. WNR sought to further support this claim by providing more recent emails from Humes (Rinker) illustrating a further modest price prise.

129. Alcoa/Worsley referred to the contract price for SG concrete sleepers of $75 per sleeper, as provided by Rocla (Mittagong & Grafton in NSW) to another rail owner.[14] However, PwC/HCS independently confirmed that their free on train (ex Rocla works) price is $86 for 1.35 million concrete sleepers including fastenings over 2.5 years. Whilst the $86 per sleeper ex-works price from Rocla appears cheaper, once transport is added-in, the delivery cost from Mittagong to Midland (3,930km) is likely to be between $70 and $90 per sleeper making supply ex-Mittagong uncompetitive. Overall, the $95 per SG concrete sleeper from Humes appears reasonable as the ex-works price in WA. However, the issue of volume needs to be considered as the Rocla information illustrates that lower prices (ex-works) can be achieved where higher economies of scale are present.

130. PwC/HCS has noted that at a price of $147 per DG timber sleeper, the WNR cost is lower than the PwC/HCS estimate of market costs. WNR advised that the reasons behind the sharp rise in the DG timber sleepers is unclear and that the cost of the fastenings for a DG sleeper in the 2003 determination may have been understated. The plates and fasteners on a DG sleeper are factored by 1.5 of a SG sleeper to allow for the third rail on the DG sleeper.

131. For SG concrete sleepers, PwC/HCS has tested the WNR proposed cost by obtaining the breakdown of the price paid by another rail owner including transport and fastenings. Lower prices are obtainable on the east coast compared to current WA prices driven by higher volumes and economies of scale. The analysis requires an assumption of large volume purchases providing economies of scale. Whilst WNR has provided evidence from Humes supporting concrete sleeper costs of $85 (NG) and $95 (SG) including fastenings the Rocla evidence illustrates that the Humes price does not appear to represent the most cost efficient outcomes achievable from a large scale competitive tender. The information from Rocla suggests that higher volumes can generate economies of scale and lower prices down to $86 per sleeper (ex-works). WNR has generally assumed an order size for

[14] According to a Rocla press release, at www.pipe.rocla.com.au/news/200605/article401.shtml, the cost is $85 per sleeper.

the GRV of 100km of track[15] which is equivalent to an order of 160,000 sleepers which is approximately a quarter of the size of the recent order placed by another track owner with Rocla (1.35m over 2.5 years). The transport component of this cost (Welshpool-Midland of about 20km) is not material and may well be included as part of large orders. Consequently, PwC/HCS recommend the WNR price for SG concrete sleepers be reduced by 5% to recognise a further scale discount but result in a price slightly above that of the $86 ex-work price for Rocla and also recognising WA may have some other input costs which are higher than eastern states.

132. The NG sleeper price is typically 8-10% below the SG price based on it being shorter (requiring less concrete) and being cheaper to transport. Consequently, PwC/HCS recommends a 9% reduction from the recommended SG price. This results in a price of $82 per sleeper compared with WNR's proposed price of $85 per sleeper.

133. In relation to ballast costs, WNR has proposed the ex-quarry ballast price of between $16.50 and $25.50 per tonne for all lines under review. Hanson provided Alcoa/Worsley with a quote (for the SWM) of $20.70 per tonne ex-quarry at either end of the SWM. WNR has proposed $25 per tonne ex quarry for the SWM based on a quarry at either end of the SWM . PwC/HCS has confirmed with Hanson the validity of their quote.

134. To test these quotes PwC/HCS independently sought further ballast cost information from other rail network owners elsewhere in Australia and were advised that their average price per tonne in eastern and central Australia is $15 per tonne ex-quarry whilst the ballast price accepted by the Essential Services Commission in Victoria for a recent rail decision was an average of $25 per tonne ex-quarry and $30 per tonne delivered.

135. To further test the ballast market, with particular reference to WA, PwC/HCS obtained quotes from two ballast suppliers in WA:

- Boral indicated that they do not have the capacity to deliver the quantities required for WNR, nor do they have 50mm ballast available. However, a hypothetical price for 40mm ex Perth would be $36 per tonne.
- ReadyMix provided a quote for 50mm ballast of $31.90 per tonne ex Gosnells.

136. Overall, the quotes from Readymix and Boral are likely to be above the efficient cost for a large scale order with the two suppliers providing the 'list price' consistent with the PwC/HCS approach being a hypothetical request for supply. Consequently in relation to the SWM, PwC/HCS recommend adopting the Hanson price of about $21 per tonne ex quarry as the relevant ex quarry price for Bunbury and Perth (Midland and Kwinana).

137. PwC/HCS has recommended reducing the proposed ballast price to $21 per tonne ex quarry for the other locations in the rail system for which ex quarry prices have been proposed by WNR with the exception of Kalgoorlie where WNR has proposed a lower quarry price. For Kalgoorlie, PwC/HCS has calculated a lower price based

[15] WNR, Costing Principles Annexure 7.1, page 20.

on a pro-rata adjustment consistent with the differences in the relevant WNR ex quarry prices.

138. In its assessment of the cost of earthworks, PwC/HCS reviewed the methodology used for the calculation of the cost in the 2003 determination and has confirmed that the methodology is appropriate.

139. In its review of the issues regarding earthworks calculations raised in the Alcoa/Worsley supplementary submission, PwC/HCS consider that the general principle adopted by Alcoa/Worsley is acceptable except that railway construction involves a long thin site with considerably more terrain height variation over the length of the site than a building site which has more regular dimensions and for which Rawlinson rates (as indicated in the Alcoa/Worsley supplementary submission) would be appropriate. This then increases unit costs (over those proposed by Alcoa/Worsley using the Rawlinson rates) due to the additional cost of cut and fill required plus assoc iated costs such as:

- toe-in of batters to reduce sideways movement (especially on curves);
- topsoil stripping and stockpiling;
- provision of environmental protection;
- provision of silt barriers to watercourses;
- protection of cuttings from scouring;
- grassing, topsoiling and stabilising of fill and all earthwork batters; and
- provision of access points and pads for maintenance, including removal and revegetation of construction roads at completion.

140. PwC/HCS suggest that for railway construction, the earthwork rate can be doubled as a result of the additional works required over and above standard “cut to fill” or “borrow to fill” earthworks. Most ‘greenfield’ sites in terrain such as the SWM will obtain fill from ‘borrow’ beside the construction site for which the rate should be marginally higher than a normal ‘cut to fill’ arrangement, as was the principle adopted in 2003 determination.

141. Overall, PwC/HCS is of the view that the proposed WNR approach to calculating earthworks quantities appears reasonable and agrees with WNR proposed price change consistent with ABS *Roads and Bridge Construction* index increase of 17%.

142. In its proposed costs for bridges and culverts, WNR indicated that an escalation approach was used as they did not have enough recent construction history for new bridges to provide documentary evidence on the most recent unit price outcomes. WNR additionally held the view that the rise in unit costs for bridges and culverts between 2003 and 2006 would be likely to be in excess of their claim for a 17.3% escalation. Whilst ideally this review would have appreciated more evidence to assess the change in bridge and culvert costs, after reviewing a range of cost index movements which provide support that construction costs have risen by more than the proposed escalation, PwC/HCS considers that the proposed escalation rate for the 2003 determined costs for bridges and culverts is acceptable.

143. PwC/HCS has reviewed the signals and communications systems and considers them to be appropriate and detailed. However, they consider that it is difficult to compare these systems against a benchmark quote as the network consists of a number of base components provided and installed by specialist technicians.

PwC/HCS believe that the rate of increase in the cost of these systems since the 2003 determination should not be higher than the relevant ABS index. WNR's proposed increase of 10% is in line with the increase in CPI between June 2003 and June 2006.

144. WNR has requested that the Authority include $4.99m of Communications Backbone assets for the SWM into the GRV which were inadvertently overlooked in the 2003 review. Some Communications Backbone components were also omitted for the EGR as well. PwC/HCS has discussed this issue in detail with WNR and has also reviewed a breakdown of the omitted components and confirmed they are prudent and necessary inputs for an effective communications system. PwC/HCS has also reviewed the unit costs of the communications assets and has confirmed them to be reasonable, inclusive of economies achieved by large scale orders and capturing efficiencies via combining some trenching for signalling and communications assets.

145. PwC/HCS has discussed the signalling asset list and installation approach in detail with WNR and views these outcomes as reasonable. PwC/HCS has also reviewed the unit costs and has confirmed them to be reasonable and inclusive of economies achieved by large scale orders.

146. In regard to the requirement for new passing loops, WNR explained that the requirement for the new passing loop at Venn (north of Pinjarra) is based on future pathway requirements. The Pinjarra crossing loop is constrained from further extension due to major protected level crossing infrastructure to the north and south of Pinjarra. The preferred site of Venn has been selected by WNR to accommodate a long loop consistent with other loop extensions along the South-West corridor. PwC/HCS tested whether the shorter loop at Pinjarra will still be required if a loop is added at Venn and WNR advised that the Pinjarra loop is still needed as it is the stopping place for the Australind passenger service and for passing short trains. Pinjarra is also the junction point for all Alcoa traffic from Calcine to Kwinana. Pinjarra will be required to hold Alcoa trains departing from Calcine when opposing trains are in the same section. Overall, PwC/HCS is of the view that the proposed new loop at Venn is operationally justified and generally supported by customers.

147. WNR explained that the reason for the extension of existing loops at Brunswick, Benger and Yarloop was to accommodate longer trains and is considered necessary to maximise pathway utility. Network management planning has been undertaken to consider all future expansion requirements of all current WNR customers, including Alcoa, Worsley, Griffin Mining, Cockburn Cement, Iluka, Verve Energy and the general freighters.

148. The Alcoa/Worsley submission endorses only needing an extra passing loop at Burekup. While Alcoa/Worsley notes in the future there is a need for extended loops between Pinjarra and Bunbury if longer trains are required to meet future increases in tonnages, at this stage Alcoa has no plans to increase train lengths. Alcoa/Worsley also notes that if Worsley expands operations there will be a requirement for additional loops between Brunswick Junction and Bunbury Inner Harbour.

149. WNR has asserted that in order to have operational flexibility the new and extended crossing loops are necessary to accommodate the known expansions from the existing customer base. To date, a track user has already absorbed a daily pathway between Brunswick and Kwinana. While other expansions have not yet been contractually agreed, WNR is obligated to provide for existing and reasonable

projected demand. The lead time to seek all planning and statutory approvals including construction exceeds 12 months. WNR believes that it must consider network capacity from the customers' perspective, as well as ensuring the operational integrity to maximise on-time service delivery. PwC/HCS has considered the WNR arguments in support of the proposed extension of the three loops and believes that the extended loops are operationally justified and have the general support of track users.

150. In its assessment of track-laying costs, PwC/HCS noted track-laying is not often tested for price, hence WNR consulted with contractors and most track-lay prices were adjusted by 17% - coincidently the same rise as the ABS based rise of 17.4% used for escalating other infrastructure costs. However, PwC/HCS notes the proposed 25% increase in track-lay costs for the Worsley line is higher than the track-lay increases for the other lines and in the absence of more specific detail on why track-lay costs more for the Worsley line, PwC/HCS recommends assuming a uniform increase of 17% in track-lay costs for all routes. The recommended tracklaying costs are outlined in Table 1 below.

Authority's Assessment

General Comments

151. In its assessment of WNR's proposed capital costs, the Authority is guided by the advice from its consultant PwC/HCS which has carried out an independent analysis of unit costs which underpins the GRV calculation. PwC/HCS has reviewed the costs proposed by WNR and the alternative costs proposed by Alcoa/Worsley for a number of asset classes. PwC/HCS has undertaken independent checks with suppliers and other rail owners in order to evaluate an efficient cost for the supply of rail infrastructure assets to WA. PwC/HCS has taken particular care to ensure that the recommended unit costs reflect efficient costs for the construction of new rail lines which is the requirement for the calculation of the GRV under the Regime.

152. The Authority has noted Alcoa/Worsley's comments regarding the need for the Authority to discount WNR's proposed high capital costs because they reflect costs associated with the current "mining boom" in Western Australia and are therefore not considered to be efficient. The Authority, however, has been advised by PwC/HCS that a significant proportion of the unit asset costs have been based on quotes and contracts from Eastern States suppliers and represent current costs of supply to rail infrastructure projects around Australia (with the cost of transport to WA being additional). The Authority also notes that clause 12, Schedule 4 of the Code permits the Authority to re-open a floor and ceiling cost determination in the event that "*a material change in any of the circumstances that existed at the time when the Regulator approved or determined costs under clause 9 or 10 in respect of a proposal*". Therefore, if the Authority believes that the costs have moved significantly, either up or down, then the floor and ceiling costs can be reviewed again in between resets.

Supply of Track Profile Elements (Unit Costs)

-Rail

153. In regard to the unit prices for rail, PwC/HCS considers that the WNR proposed cost of $1440 per tonne for 60kg rail is reasonable based on its analysis outlined in paragraph 126. However, PwC/HCS does not agree with WNR's proposed cost for 50kg rail as it does not reflect efficient costs arising from large purchases. PwC/HCS considers that the same price for 41kg, 50kg and 60kg rail is reasonable.

The Authority concurs with PwC/HCS' views and agrees that there should be no difference in unit costs for the three classes of rail.

-Sleepers

154. There are a number of categories of sleepers in the WNR network with concrete sleepers replacing timber sleepers for the NG and SG rail lines according to the MEA standard. PwC/HCS considers that the WNR proposed cost of $95 per SG concrete sleeper ex works WA is reasonable as the Alcoa/Worsley proposed price does not include transport costs for delivery to WA. However, PwC/HCS considers that this cost should be reduced by 5% to reflect a scale discount likely to result from large volume orders. For NG sleepers, PwC/HCS recommends a 9% reduction on the recommended SG sleeper price resulting in a price of $82 per sleeper compared with WNR's proposed price of $85 per sleeper. The Authority accepts PwC/HCS' recommendations with regard to what are acceptable sleeper prices.

-Ballast

155. PwC/HCS has expressed some concern at the proposed cost of ballast for all the rail lines and does not believe the prices represent the lowest available from suppliers. Following confirmation from an alternate supplier, PwC/HCS recommends that lower ballast prices should be used in the GRV calculation for all rail lines. The Authority notes that the revised ballast costs are similar to the ballast costs proposed by Alcoa/Worsley for the SWM and Worsley lines. The Authority agrees with the PwC/HCS recommendations. These revised ballast costs are outlined below in Table 1.

Construction (Unit Costs)

-Earthworks

156. PwC/HCS has assessed the WNR calculation of earthworks costs to be reasonable following a review of the methodology adopted in the 2003 determination. This review resulted from the proposed earthworks cost in the Alcoa/Worsley submission which was significantly less than the WNR proposed cost. Alcoa/Worsley claimed this was due to WNR's use of incorrect methodology in calculating the earthworks cost. PwC/HCS has confirmed that the earthworks cost was calculated correctly and the price change was consistent with the *ABS Roads and Bridge Construction* index which is an appropriate benchmark comparison. The Authority agrees with the PwC/HCS recommendations.

-Tracklaying

157. PwC/HCS does not consider that WNR's proposed increase of 25% in tracklaying costs is reasonable as the benchmark indices for this category of costs should be about 17% based on advice from tracklaying contractors. PwC/HCS recommends that a 17% increase in tracklaying costs be applied across all the routes as there does not appear to be any logical explanation for differences between the routes. The Authority agrees with the PwC/HCS recommendations. The revised tracklaying costs are outlined below in Table 1.

-Bridges and Culverts

158. PwC/HCS considers that the use of ABS escalation factors by WNR to escalate 2003 determined costs to 2006 values is reasonable albeit not ideal in assessment of efficient costs for bridges and culverts. PwC/HCS has been unable to test the market to confirm construction costs for these categories of assets because of the

specific nature of the assets and WNR has not in recent times constructed these assets. PwC/HCS believes that the proposed costs are reasonable because of the magnitude of increases in a range of asset classes are greater than the escalation factor used by WNR to escalate 2003 costs. The Authority agrees with the view of PwC/HCS. The Authority is aware that in the WNR rail network there are a large range of culverts which should be standardised into a smaller range of sizes and types. Accordingly, the Authority will prior to the next review of the floor and ceiling costs in three years agree with WNR a simpler structure for culverts in keeping with an MEA rail network.

Communications and Signalling

159. PwC/HCS has undertaken a review of the signalling and communications asset structure to confirm that the costs proposed by WNR are reasonable. The review included an independent check with component suppliers that make up the asset structure to assess increases in cost since 2003. PwC/HCS was satisfied that the increase in costs since the 2003 determination was reasonable. PwC/HCS has also confirmed WNR's inclusion of the Communications Backbone costs for the SWM and EGR to be genuine as these costs were inadvertently omitted in the APM for the 2003 determination and the omission was discovered during the update for the 2006 review. The Authority agrees with the PwC/HCS recommendations.

Forecast Capacity Enhancement

160. The Authority has noted that WNR has proposed the expansion of the SWM through the addition of two new passing loops, at Venn and Burrekup, and the expansion of three existing loops at Brunswick, Benger and Yarloop. Alcoa/Worsley has indicated that only one of the new loops, at Burrekup, is required to accommodate increased Alcoa and Worsley transport requirements. WNR has provided further information on the timing and need for the loops with Burrekup scheduled for third quarter of 2007 and Venn not scheduled for installation until the second half of 2009. The timing for the extension of the three existing loops is for the last quarter of 2008.

161. WNR has indicated that the expansion to the SWM is necessary to accommodate growth in traffic from existing and new track users as outlined in paragraph 120. WNR has also provided information on the growth in haulage tonnages and train movements from 2003 to 2006 and its forecasts for 2009. The increase in train movements is about 10% with consequent increase in tonnages transported of about 8% from 2003 to 2006. WNR has also forecast an increase in train movements of about 9% associated with an increase in tonnages transported by about 18% indicating the need to provide infrastructure to accommodate longer trains if the forecasts were to materialise. Following the advice from PwC/HCS and the supplementary information provided by WNR on traffic movements, the Authority considers that the requirement for the enhancements to the SWM is justified.

162. However, while the Authority accepts that the enhancements are justified, the Authority notes the comments from Alcoa/Worsley with regard to WNR's proposed new passing loop at Venn, to the effect that this loop is not required, and the expectation by WNR that the loop would not be built until the latter part of the 5 year forecast period (2006-2011) in late 2009. The Authority has decided, that due to uncertainty as to whether there would be sufficient traffic increase over the 2006-2011 period to justify the construction of this passing loop within this 5 year period, the proposed Venn passing loop has been excluded from the MEA and associated

calculation for the SWM for the purpose of the draft determination. The Authority invites submissions from interested parties on this issue and will review its decision prior to the final determination in the light of any such submissions received.

163. The Authority has also considered the request for an increased cost estimate for the Burrekup loop to be included in the GRV as outlined in paragraph 120. The Authority has raised the issue with WNR which has indicated that the cost provided in the submission was a preliminary estimate whereas the cost provided in the supplementary submission reflected a more accurate estimate when more information became available. PwC/HCS has reviewed the revised cost estimate and considers that the new estimate is reasonable. Consequently, the Authority accepts that the new cost estimate for the Burrekup loop should be included in the GRV calculation for the SWM.

Redundant Assets

164. The Authority notes that PwC/HCS has reviewed the asset register for the APM and confirmed that there are no redundant assets included in the GRV calculations.

Unit Cost Changes Required

Table 1: Recommended Unit Cost Changes

Item[16]	2006 WNR Price ($)	Authority's Determined Price($)
Cost per 60 kg/m rail per tonne (delivered Midland)	1,440[17]	1,440
Cost per 50 kg/m rail per tonne (delivered Midland)	1,500[18]	1,440
Cost per 41 kg/m rail per tonne (delivered Midland)	1,600[19]	1,440
Concrete sleeper cost SG (delivered Midland)	95	90
Concrete sleeper cost NG (delivered Midland)	85	82
Ballast cost per tonne Bunbury	25	21
Ballast cost per tonne Esperance	26	21
Ballast cost per tonne Kalgoorlie	20	17
Ballast cost per tonne Kwinana	25	21

[16] PwC tested a sample of the items for which unit prices were provided. For those categories which yielded discrepancies between the price sought by WNR and the price deemed appropriate by PwC – such as ballast – all the items in that category were then calculated and listed in this table.

[17] Price includes delivery to Midland

[18] Price includes delivery to Midland

[19] Price includes delivery to Midland

Item[16]	2006 WNR Price ($)	Authority's Determined Price($)
Ballast cost per tonne Midland	25	21
Tracklay Collie East (per km)	117,510	110,356
Tracklay South West Main (per km)	117,510	110,356
Tracklay Grain Region (per km)	116,260	109,182
Tracklay EGR dual gauge track (per km)	144,300	144,300
Tracklay Brunswick to Worsley (per km)	117,510	110,356

Draft Determination

Required Amendment 1

The costs associated with the proposed Venn passing loop should be excluded from the GRV calculation of the floor and ceiling costs for the SWM.

Required Amendment 2

The unit prices submitted by WNR for various infrastructure assets should be amended to be consistent with Table 1 on pages 32 and 33 of the draft determination.

Required Amendment 3

The floor and ceiling calculations submitted by WNR should be revised to incorporate the changes required under Amendment 2.

Operating Costs and Working Capital

Costing Principles

165. Operating costs are costs directly associated with operational management of the network. They reflect a centralised train control system and include compliance costs with WNR's safety accreditation requirements under the *Rail Safety Act*, train scheduling and requirements for emergency management and information reporting.

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

167. WNR 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).

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

169. Centralised train control costs will be apportioned directly to routes based upon actual train control resources managing traffic over each route.

170. Allocation of non-sector specific operating costs is to be in accordance with the allocation rules using Gross Tonne Kilometres (**GTKs**) or train movements. Train movements have been linked to network management functions and the management of maintenance related functions have been linked to GTKs. WNR is of the view that this will provide the most appropriate allocation between users which are predominantly rail freight customers. The allocation of operating costs will in the first instance be apportioned to the route level and subsequent allocation to the route section level will be determined by the Authority as part of the floor and ceiling cost determinations.

WNR's Proposal

171. Operating costs are allocated in accordance with the allocation rules in the Costing Principles and are based on WNR's approved budget for the 2006-07 financial year.

172. Train control costs are based on the assumption, included in the APM, that train control is centralised. The train control costs have been directly allocated to the six main routes based on the number of train controller's required to manage each route. The train control system which manages the entire network is allocated to route sections based on the proportion of train movements in the relevant section divided by total network train movements consistent with the 2003 determination.

173. Network management costs, which include train scheduling and emergency management functions, have been reduced by about 37% on the basis that some of the costs have now been included in the overhead functions. Network management costs are allocated to routes and route sections by train movements.

174. WNR has included operating costs associated with civil, control and signalling head office and regional administrative support functions in its 2006 submission. WNR has indicated that the IRAR mistakenly excluded the control and signalling component of these costs in the 2003 determination. These elements of operating costs are allocated to route and route sections by GTK's.

175. WNR has indicated that the GTK's and train movement numbers used to allocate common operating and overhead costs has been updated in the APM to reflect 2005 calendar year information.

176. WNR has adopted the methodology outlined in the Costing Principles for its calculation of working capital for each of the routes under the current review.

177. WNR's proposed operating costs by routes and route sections, as contained in its submission, are outlined in Appendix 2 of this draft determination.

Interested Party Submissions

Submissions Received During Submission Period

178. In regard to WNR's proposed train control costs, ARTC suggested that the re-allocation of the train control costs was proportionally less on the WNR only segments (e.g. SWM) and placed a proportionally increased cost on lines where competition currently exists. Consequently, ARTC suggested that this is an anti-competitive outcome and the Authority needs to ensure that the approach taken by WNR is reasonable.

179. Alcoa/Worsley does not consider[20] that the allocation of common costs to route sections provides a fair representation of allocated costs but acknowledge that the direct allocation of operating costs has been improved substantially since the 2003 determination, although the increase in the operating costs on a network wide basis is unacceptable and does not represent efficient costs.

180. Further, Alcoa/Worsley consider that the WNR submission does not provide enough detail on the breakdown of operating costs. Alcoa/Worsley stipulate that WNR should be required to provide a more detailed breakdown of costs including separate figures for working capital, operating costs, overheads and network management for the lines under review and also identify costs allocated to other lines on the network not the subject of the proposed review. Key indicators, such as the number of full time employees (**FTE's**), transaction costs and information technology (**IT**) costs should be provided to prove efficient costs are being used.

181. Alcoa/Worsley has asserted that operating costs, exclusive of network management, have increased by approximately 20% since the 2003 determination as proposed in the WNR submission. They also claim that centralised train control costs have increased by about 22% since 2003 and suggest that there are no savings resulting from the implementation of a centralised train control system. They question why this is so, when the closure of remote train control centres and signalling boxes should be delivering significant reductions in labour costs and consequent reductions in operating costs resulting from this initiative. Alcoa/Worsley would like the Authority to review the increases in operating and network management costs against the savings anticipated from the capital investment in centralising train control and also benchmarked for efficient cost.

182. In regard to working capital, Alcoa/Worsley has indicated that any reductions to WNR's proposed GRV would result in lower capital costs and as capital costs are a function of working capital, there should be a corresponding reduction in working capital as well.

[20] Alcoa/Worsley page 21.

Submissions Received After Submission Period

183. In its supplementary submission, WNR has responded to Alcoa/Worsley's queries on operating costs by indicating that the Authority and its consultant, PwC/HCS has been provided with a breakdown of operating costs, overheads and network management costs, including FTE's and other related KPI information for benchmarking purposes.

184. WNR has also stipulated that current operating and network management costs reflect the centralised train control model and that the 2003 determination was based on centralised train control being in place and the number of train controllers assumed in the APM being commensurate with centralised train control at that time. WNR claims that the Alcoa/Worsley submission overlooks the increase in the number of train controllers in a centralised train control function since the 2003 determination to support additional new and likely traffics resulting in additional train movements.

185. Further WNR claims that the operating and network management costs reflect the current level of activity and that detailed "confidential" budget information and employee numbers provided to the Authority would allow benchmarking to be undertaken to test for efficiency.

186. In a supplementary submission, Alcoa/Worsley outlined the need for greater transparency of operating and overhead costs in the WNR submission to enable track users to gain a better understanding of cost allocations and the relevance of the allocations to their routes.

PwC/HCS Assessment

187. In its review of submissions from interested parties, PwC/HCS noted that train control costs are allocated directly to the rail routes based on proportion of the train controllers' resources and time used on each of the routes. PwC/HCS considers this approach is a more appropriate method than allocating costs based on train numbers or GTK as was done in the earlier determinations.

188. PwC/HCS analysed the quantum of the proposed train control costs and indicated that at a cost of about $128,000 per FTE (inclusive of on-costs such as payroll tax and superannuation) the cost appeared to be reasonable. PwC/HCS has also sighted supporting documentation outlining the allocation of train controllers across the routes in the rail network. WNR has increased the number of staff in train control from 29 in the 2003 determination to 37 in its current proposal. This has arisen due to placing an additional control desk in the Mid-West region to deal with projected demand for all Stage 1 projects in the region (4 controllers) and an additional desk (4 controllers) in the Eastern Goldfields for projected increase in traffic for the Portman Mining expansion and other new business growth in iron ore.

189. PwC/HCS also examined the costs in the civil and control and signalling head office and regional administrative support category. This category largely relates to the WNR internal cost (about 26% of $6.477 million) for the management of the maintenance outsourcing contract with John Holland and other maintenance contracts as required. This component relates to the supply of specialist labour resource; engineering support services; environmental services and materials management storage and handling. PwC/HCS sighted copies of John Holland invoices to confirm this expenditure.

190. PwC/HCS also tested whether John Holland costs would be lower for a new MEA network. WNR stated that it had not adjusted for a new MEA network as the nature of these costs are not influenced by the age or MEA standard of the network with these costs being incurred regardless of the status of the network. The materials management, storage and handling represent the cost of holding sufficient inventory for emergency and scheduled maintenance activities. The environmental and engineering services are part of the infrastructure management overhead to provide technical and regulatory advice on an "as required" basis. PwC/HCS is of the view that the proposed increase in the civil, control and signalling costs is reasonable to meet WNR's responsibilities regarding the management and operation of the maintenance contract undertaken to maintain a safe railway network.

Authority's Assessment

General Comments

191. WNR's operating costs are categorised as network management, train control, civil and communications and signalling support costs and working capital which are consistent descriptors with the functions as outlined in the Costing Principles. While the operating costs were summarised in these categories in the WNR submission, WNR has provided to the Authority and PwC/HCS much greater detail on the breakdown of each cost category on a confidential basis as these are budgeted costs that have been approved by the WNR Board.

192. WNR's proposed operating costs for the three categories outlined above, excluding working capital, total $12,369,358 per annum. This represents an increase of about 12% over the 2003 determined operating costs of $11,059,544 per annum.

Network Management Costs

193. In regard to network management costs, the Authority notes that the proposed costs of $1,140,990 have decreased by about 37% since the 2003 determination. However, some 28% of this reduction has resulted from a shift in costs from operating to overheads under the WestNet Overheads category. The impact of this movement will be discussed later under 'Overhead Costs'. Therefore, the actual reduction in network management costs is a more moderate 11%.

Train Control Costs

194. The train control costs, based on a centralised train control function (similar to the 2003 determination), have increased by about 22% from $3,877,573 to $4,751,368 over the last three years. WNR has attributed this increase to greater traffic movement over the network. In further information provided to the Authority, WNR has indicated that the principal factor that has caused the increase is the need for an additional eight train controllers (on top of the 29 approved in the 2003 determination) on the following basis:

- an additional control desk (4 controllers) in the Mid-West region is needed to deal with increased traffic movements associated with haulage of iron ore from existing and newly developed mines in the region; and
- an additional desk (4 controllers) in the Eastern Goldfields region for projected increase in traffic associated with additional haulage requirements for Portman Mining's expanding operations and new business growth from emerging bulk commodity producers.

The Authority has been provided with information on network traffic movements which has enabled the substantiation of the growth in traffic movements since the 2003 determination and with future growth expectations from emerging business in these two regions, the Authority accepts the additional number of train controllers is required. The Authority notes that while there has also been traffic growth in other regions such as the SWM (see paragraph 161), this has not resulted in the need for additional train controllers in these regions.

195. PwC/HCS has analysed the costs of providing the train control function as outlined in paragraphs 187 and 188 and has established that the train control costs as proposed by WNR are reasonable. On the basis of the PwC/HCS advice, the Authority accepts that the train control costs are reasonable and represent efficient costs which is consistent with the Costing Principles as outlined in paragraph 165.

Civil, Control and Signalling Costs

196. The civil, control and signalling costs represent the head office and regional administrative support functions. WNR's proposed costs at $6,477,000 are about 20 percent higher than in 2003. WNR indicated that this category of costs was excluded from the 2003 determination. This category of operating costs was inadvertently excluded by the IRAR from the 2003 determination when adjustments were made to the proposed maintenance costs for the mainlines as the supervision of the maintenance function was overlooked when the adjustments were made.

Working Capital

197. The Authority notes the Alcoa/Worsley comments regarding working capital outlined in paragraph 182. WNR's proposed working capital whilst not itemised separately in its submission, has been included within the proposed floor and ceiling cost calculations for each of the routes under review. The calculation (half the WACC X annual capital cost) is consistent with the Costing Principles. However, as WNR's proposed GRV has been reduced, the working capital has consequently been reduced for the relevant routes and route sections. The revised working capital for each of the route sections has been outlined in Appendix 3.

Allocation Methodology

198. WNR has proposed the allocation methodology for operating costs based on the Costing Principles for both the routes and route sections under review. While the Authority approved in the Costing Principles the methodology for allocation at the route level, the Costing Principles recognised that allocation down to the route section level would be made during the floor and ceiling cost reviews and interested parties could propose an appropriate allocation methodology for operating costs at a route section level during the floor and ceiling cost reviews. WNR has indicated its allocation methodology for each of the operating cost categories which are outlined in paragraphs 172 to 174.

199. In 2005, the Authority established a working group of stakeholders to evaluate methodologies for allocating common costs (operating and overheads) to routes and route sections. The working group agreed on methodologies for allocation of common costs to the route level only with interested parties being able to put their case for allocation to the route section level during floor and ceiling cost reviews with the decision ultimately to be made by the Authority. The working group recommended to the Authority that train control costs should be directly attributed to rail lines based on train controllers controlling the traffic on the rail lines as this methodology better reflected proportioning the costs to the activities where they

occur. The working group also agreed that where common costs could not be directly attributed, the allocation methodologies approved in the 2003 determination should be used to allocate the common costs at the route level. The Authority accepted the recommendations of the working group and noted that it would be the Authority's decision to allocate the common costs at the route section level during future floor and ceiling cost reviews.

200. The Authority notes that WNR's proposed allocation methodologies for operating costs are consistent with the working group recommendations and the 2003 determination where appropriate at the route level and consequently accepts the allocation methodology proposed by WNR for the allocation of operating costs at the route level. The discussion of the allocation of the operating costs to the route section level is dealt with under the 'Overhead Costs' section.

Detail in WNR Submissions

201. The Authority has noted Alcoa/Worsley's request for greater detail on operating and overhead costs in submissions by WNR. As a result, the Authority requested WNR to provide greater detail in a supplementary submission. WNR has provided this information and a public version of the information has been made available on the Authority's web site with the other submissions relating to this review.

Conclusion

202. The Authority has accepted the advice from PwC/HCS to the effect that the WNR proposed operating costs are reasonable and represent efficient operating costs.

Maintenance Costs

Costing Principles

203. WNR 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;
- WNR'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).

204. 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 is calculated and annualised to derive an average annual maintenance charge over the life of the asset.

205. 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 WNR is negligent in its responsibility as a railway owner. WNR intends to calculate incident costs based on a historical cost approach.

206. 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. The signal and communications maintenance model is incorporated as part of the APM. The annual charge is based on an annualised value of the net present value of maintenance costs stream.

207. Track and signalling maintenance costs are directly allocated to routes based on the nature and population of the infrastructure. These costs are then allocated to route sections according to train movements.

208. Major periodical maintenance (**MPM**) is set at zero on the understanding that MPM is an asset renewal program to maintain the infrastructure in perpetuity. However, re-railing, rail grinding and re-surfacing, and ballast cleaning may be permitted as cyclical maintenance activities if they were considered necessary to achieve the targeted life of the assets.

WNR's Proposal

209. WNR's proposed maintenance costs, for the routes under review, are the 2003 determined maintenance costs on a per kilometre basis escalated by 17.4% to 2006 values. WNR's consultant, WP, has indicated[21] that the major aspects of railway maintenance are associated with the track and civil elements of the infrastructure which influenced the selection of the escalation factor that could be applied to the historic costs. WP also asserted that the equipment, skills and methodology required to maintain the railway are similar to the skills, equipment and methodology required for other civil construction infrastructure.

210. In support of using escalation factors for determining the cost movements, WP has indicated that Rail Regulators in Queensland and Victoria have accepted, or are in the process of accepting, the use of escalation factors to demonstrate increases in maintenance costs. WP also considers it preferable to use escalation factors from a source that can be used in future reviews and can provide consistency in the basis of the calculated increase and for these reasons has used the ABS indices

[21] Worley Parsons, Review of Unit Prices for Clause 9 Ceiling Price Review, Page 26.

Non Building Construction and Road and Bridge Construction. Both indices have revealed an increase of 17.4% for the period December 2002 to March 2006.

211. WNR has indicated that the proposed maintenance costs includes routine and cyclical maintenance for track, signalling and communications infrastructure. Routine maintenance is the corrective action taken as follow up to routine inspections. Cyclical maintenance covers tasks that are undertaken at regular intervals which are necessary to achieve the expected asset life. Major periodic maintenance activities which extend the life of the asset are excluded. WNR stipulates that maintenance activities are consistent with those prescribed in Schedule 4 of the Code and approved in the Costing Principles.

212. WNR's proposed maintenance costs by routes and route sections, as contained in its submission, are outlined in Appendix 2 of this draft determination.

Interested Party Submissions

Submissions Received During Submission Period

213. ARTC has noted[22] that the WNR proposed maintenance costs using a 'dollars per kilometre' approach may over or under estimate the level of expenditure on specific segments of track where a specific rail line may have the average allocation of maintenance assigned to its floor and ceiling calculation when a minimal level of maintenance actually occurs during the three year period of floor and ceiling cost reviews. ARTC suggests an activity based approach as more appropriate and cites its own approach in identifying maintenance costs through Board approved maintenance programs. ARTC suggests the Authority review WNR's planned maintenance expenditure for each of the rail lines and analyse the expenditure against the outcomes of the dollar per kilometre approach that is proposed. This analysis would determine the reasonableness of WNR's approach against planned maintenance expenditures.

214. Alcoa/Worsley does not agree with the methodology of escalating 2003 determined maintenance costs to 2006 values as proposed by WNR. Alcoa/Worsley assert[23] that this approach does not deliver efficient costs of providing maintenance on the network. Alcoa/Worsley considers that with the current cost plus nature of WNR's existing maintenance contract and the inclusion of WNR's contract management costs in overhead costs the WNR proposed maintenance cost of $17,610 per km for the SWM is excessive and does not reflect an efficient cost base for an MEA network.

215. Alcoa/Worsley has proposed an efficient maintenance cost for the SWM to be $12,700 per km using a cost model developed for its submission on the 2003 review of the floor and ceiling costs and provided to the Authority in its current submission, with updated labour rates, on a confidential basis. Alcoa/Worsley suggests that the Authority again review the maintenance costs for the MEA specification as the proposed rates are considered to be about 38% higher than its benchmark rate.

[22] ARTC, Submission on the Review of WestNet Rail's Floor and Ceiling Costs for Certain Rail lines, Page 3.

[23] Alcoa/Worsley page 26.

216. In regard to the maintenance costs for the Worsley line, Alcoa/Worsley claim there is some inconsistency in the proposed rates for the route sections with the maintenance rates quoted in the WNR submission as $17,610 per km for Brunswick to Worsley section and $9,392 per km for the Worsley to Premier section. However, in the table outlining the floor and ceiling costs for the Worsley line, maintenance costs average out at $19,618 per km and $9,489 per km respectively. No explanation has been provided in the WNR submission for this difference.

217. In regard to the maintenance costs for the Terminal Ends, Alcoa/Worsley has suggested that the escalation factor used by WNR to uplift the 2004 determined maintenance rates is incorrect as WNR has used the same escalation factor for the SWM and Worsley lines where the rates were escalated from December 2002 to March 2006, whereas the recalculation should be from January 2004 when the Authority applied the floor and ceiling costs for the Terminal Ends in its July 2004 determination.

Submissions Received After Submission Period

218. In its supplementary submission, WNR has asserted that the Alcoa/Worsley proposed maintenance cost of $12,700 per km for the SWM is substantially flawed as it represents a decrease from the 2003 determined cost of $15,000 per km in a period when real costs have actually increased. WNR has further stipulated that its existing maintenance contract with John Holland escalated by more than 17.4% over the same period and this information has been made available to the Authority.

PwC/HCS Assessment

219. PwC/HCS has noted that WNR has proposed a uniform escalation of 17.4% (based on ABS indices) to 2003 rates to provide the 2006 unit costs. In assessing the reasonableness of WNR's proposed new maintenance costs for undertaking routine maintenance for a MEA network which commences from a new condition, PwC/HCS compared the WNR proposal to the actual maintenance unit costs being incurred in maintaining the existing network. Whilst these actual maintenance unit cost outcomes are confidential, WNR's proposed maintenance costs on four of the mainlines are between 8% and 50% below the actual WNR 2006 unit cost outcomes.

220. Alcoa/Worsley provided a maintenance cost specification suggesting an efficient cost of $12,700 per km for the SWM. This was an update of their 2003 submission which lifted the rate by 7.5% to reflect current labour rates. The key difference between the WNR unit rate and the Alcoa/Worsley unit rate is the Alcoa/Worsley view that at MEA there should be a lower number of trackside staff because of concrete sleepers as the current focus on inspection-related work to ensure safe working would reduce and at MEA there is no need for extra staff to complete rail grinding to improve rail life and ride-ability. After reviewing both labour specifications and assessing resources required to concurrently fulfil both the inspection requirements of the *Rail Safety Act* and other routine maintenance functions, PwC /HCS is of the view that the WNR staff proposal is reasonable.

221. PwC/HCS notes that WNR has proposed an approach to maintenance costs which uses the unit rate as the average across a route but within route sections WNR has proposed to use higher and lower unit rates reflecting factors such as the complexity and asset count of specific sections of track (e.g. turnouts, cross overs, signals, etc). PwC/HCS has reviewed the proposed approach and view it as

reasonable, particularly as it does not impact on overall route costs and reflects the differences in infrastructure between route sections.

222. PwC/HCS has also done some benchmarking of the proposed maintenance costs and found they are generally lower than the maintenance costs on comparable lines (excluding grain) in other Australian rail networks, as shown in the table below.

Table 2: Comparable Maintenance Costs

Line	Routine Maintenance cost ($ per km)
WNR	From 9,392 to 17,610
ARTC network-wide (including some MPM)	14,662[24]
Moura[25]- QR coal line	29,350
Newlands[26]- QR coal line	30,630
ESC Decision Victoria – freight (grain) network[27]	5,109
ESC Decision Victoria Non-RFR Passenger[28]	11,034

223. The 2003 determination reviewed the issue of estimating efficient routine maintenance unit costs in detail. In summary, the 2003 determination reported that QR's average maintenance cost (excluding MPM) was just over $6,000 per km on 16-19 tonne axle load branch lines with annual tonnages of less than 1mgt. The 2003 determination also indicated a cost of $7,000-$9,000 per km on 19 tonne axle load lines where annual tonnages are in the range of 1 to 3mgt and between $8,000-$11,000 per km on 19-21 tonne axle load lines where annual tonnages are in the range of 3 to 6mgt, depending on terrain and location. Whilst it would be reasonable to now escalate these 2003 QR rates by approximately 17%, these rates continue to support WNR's proposed 2006 rates. In relation to the 2004-05 ARTC maintenance cost (including MPM) of $14,662 per km, without MPM, the ARTC routine maintenance cost is estimated to be less than $10,000 per km.

[24] For 2004/05 See: http://www.artc.com.au/docs/accessSeeker/pdf/access_2.10/Unit%20Costs%202004-05%20for%20web.pdf

[25] As per WorleyParsons

[26] Ibid

[27] http://www.esc.vic.gov.au/NR/rdonlyres/95B1F977-DEFC-40FE-829D-9F1C96CE3C02/0/DTR_FinalDecision_PacificNationalProposedAccessArrangement31052006.pdf

[28] http://www.esc.vic.gov.au/NR/rdonlyres/95B1F977-DEFC-40FE-829D-9F1C96CE3C02/0/DTR_FinalDecision_PacificNationalProposedAccessArrangement31052006.pdf

224. Overall, PwC/HCS considers the proposed increase in maintenance costs of 17.4% appears reasonable as it is in line with the relevant ABS indices. This increase is also consistent with the rise in the cost of the John Holland outsourcing contract.

Authority's Assessment

General Comments

225. The Authority notes the comments by ARTC as outlined in paragraph 213 and considers that ARTC has not understood the nature of the Regime which is based on a hypothetical MEA standard with costs to be based on efficient costs and not necessarily actual costs which reflect existing assets as explained in paragraphs 29, 30 and 64. The Authority also notes that under an MEA regime, major periodic maintenance is excluded as it has the ability to increase the life of assets which is not permitted under the Regime.

226. The Authority also notes the Alcoa/Worsley comments as outlined in paragraphs 214 and 215 regarding an appropriate approach to calculate efficient maintenance costs on an activity basis.

Maintenance Costs

227. In the 2003 determination, the IRAR approved the maintenance costs to be based on a dollar per kilometre calculation on advice from two separate consultants who used different approaches to estimate efficient maintenance costs. HCS estimated the appropriate maintenance costs based on a benchmarking approach for similar trafficked and operating standard rail lines in other Australian rail networks. The second consultant, Bovis Lend Lease, used an activity based approach to estimate efficient maintenance costs for the SWM. On the basis that the two approaches delivered similar results, the IRAR approved the use of a dollars per kilometre approach to calculating efficient maintenance costs for rail lines in the WNR network.

228. The Authority notes that the proposed maintenance costs are the 2003 and 2004 determined costs escalated by the ABS *Non Building Construction and Road Bridge Construction* index to 2006 values. On the basis that the 2003 and 2004 determined maintenance costs were deemed to be efficient, the Authority considers that these values would also be efficient in 2006 considering that network traffic movements are at least 8% greater for the current review then they were during the 2003 determination reflecting some productivity improvement. The Authority also recognises that there has been cost escalation since the 2003 determination and that the ABS index is an appropriate index to use to provide the escalation of costs into 2006 values. The Authority has confirmed that this approach of cost escalation has been used by regulators in other jurisdictions in various decisions so that there is some regulatory precedent for the use of ABS indices. PwC/HCS has also confirmed that it is reasonable to use the ABS index as proposed by WNR because of the combination of labour and materials used in the index and is consistent with cost increases in its outsourced maintenance contract.

229. The Authority notes that PwC/HCS considers that the Alcoa/Worsley cost estimates do not reflect an appropriate efficient maintenance cost as outlined above and PwC/HCS benchmarking analysis has revealed that the 2006 proposed costs are reasonable.

Worsley Line

230. In regard to Alcoa/Worsley's comments on the maintenance costs for the Worsley line as outlined in paragraph 216, the Authority notes that WNR has used the average maintenance rates tempered by the population base specific to each route section. Variances within each route section reflect different asset population, such as the number of turnouts, insulated rail joints, bridges and culverts etc. To recognise the variability in maintenance effort over each route section, a formula was established by WNR in its proposal for the 2003 determination to reflect the route section differences in population count of track elements. This same formula was applied to the total route maintenance cost calculated as a flat rate. The Authority has considered this approach to varying maintenance costs by route section dependant on asset population variances and considers it reasonable based on the advice of PwC/HCS as it represents a more realistic outcome for maintenance costs. The Authority notes that WNR has applied this approach to all the routes that are segmented into route sections.

Terminal Ends

231. The Authority notes that WNR has applied the same ABS index amount for the Terminal Ends as for the mainlines and the Worsley line. Due to timing differences in the determinations by six months (i.e. July 2003 for the mainlines and the Worsley line against January 2004 for the Terminal Ends) the escalators need to be different to reflect these differences. However, PwC/HCS does not consider there should be differences in the escalators as the costing for the Terminal Ends determination was based on the same unit cost data and the date of the source data is more relevant for accurate escalation than the date of the determinations. PwC/HCS recommend applying the same escalation methodologies and levels across all routes. The Authority agrees with the PwC/HCS recommendation.

Conclusion

232. On the basis that the 2003 determined maintenance costs were deemed efficient by the IRAR and that the escalation in costs of 17.4%, based on the ABS *Non Building Construction and Road Bridge Construction* index, was considered to be acceptable by PwC/HCS, the Authority considers that WNR's proposed unit maintenance costs are reasonable and reflect efficient maintenance costs.

Overhead Costs

Costing Principles

233. WNR has two categories of overhead costs:

- WNR overheads; and
- corporate overheads.

234. WNR overheads include corridor management, access compliance, information technology (**IT**) and software costs, motor vehicle costs, office accommodation and support services, insurance (based on actual market prices), accreditation costs, human resources (**HR**), accounting/finance and WNR management.

235. Corporate overheads include public relations, corporate governance, treasury and insurance management, corporate procurement and other management services such as Australian Stock Exchange reporting.

236. Two proxies are used to allocate overheads. GTKs are used to allocate costs which vary more in quantum due to volumes moved, and train movements are used to allocate costs which vary more in quantum due to the number of train movements.

WNR's Proposal

237. WNR has categorised its overhead costs into WNR Overheads, WNR Corporate Support Services and WNR Group Overheads whose functions are largely consistent with the Costing Principles as outlined in paragraphs 233 to 235 above and allocated in accordance with the allocation rules in the Costing Principles and are based on WNR's approved budget for the 2006-07 financial year.

238. WNR Overheads comprises some of the functions as outlined in paragraph 234 such as corporate management, insurance, IT equipment and software, motor vehicles and office furniture and equipment. The proposed 2006 costs are $11,701,868 which represents an increase of about 21% on the cost of $9,648,446 approved in 2003.

239. The WNR Corporate Support Services comprises costs associated with human resources, accounting/finance, compliance and information technology. The proposed 2006 costs are $3,629,500, which represents an increase of about 35% on the cost in the 2003 determination.

240. WNR has identified WNR Group Overheads to be functions outlined in paragraph 235 and provided by its parent company Babcock and Brown. The proposed costs for the 2006 review are $862,158, which is unchanged from the 2003 determination.

241. WNR has indicated that the three categories of overhead costs have been allocated to the rail routes and route sections by an equal combination of GTK's and train movement numbers and are the 2005 calendar year information as indicated in paragraph 175.

242. WNR's proposed overhead costs by routes and route sections, as contained in its submission, are outlined in Appendix 2 of this draft determination.

Interested Party Submissions

Submissions Received During Submission Period

243. Alcoa/Worsley considers[29] that WNR's proposed overhead costs are excessive and do not show any attempt to reduce the overheads of the organisation and that the recent separation of the above and below rail organisations has contributed to an increase in overheads. Alcoa/Worsley stipulate that the overhead costs should not have increased at a rate greater than CPI and a maximum increase should be in the order of 7.5%. The submission suggests that the Authority review the overhead costs and allocations to establish if there is any justification for a 23% increase since the 2003 determination. The submission contends that if the 2003 determination approved structure represented efficient cost then the proposed budget approved overhead cost cannot represent an efficient organisation.

[29] Alcoa/Worsley page 23.

244. Alcoa/Worsley has also expressed concern that the allocation methodology used by WNR for allocating overhead costs down to the route section level is unfair as it has resulted in significant increases, in the order of 180%, in overhead costs in some of the route sections in the Terminal Ends despite little or no increase in traffic. Hence, the submission suggests that some form of cap needs to be introduced to eliminate allocations which cannot be substantiated and to remove anomalies created by the current allocation methodology.

Submissions Received After Submission Period

245. In its supplementary submission, WNR has responded[30] to Alcoa/Worsley's queries on overhead costs by providing the following information justifying the proposed increase in overhead costs, as follows:

- movement in the CPI of Perth has been 13.6% since the 2003 determination, which has driven a genuine escalation in costs;
- the overhead baseline costs approved in the 2003 determination was based on a shared services model with the Australian Railroad Group (**ARG**) and an assessment of WNR's level of consumption of those shared services;
- WNR has made available to the Authority its detailed budget (on a confidential basis) for operation as a stand-alone rail owner which shows the true cost to be higher than that previously determined under the shared services approach; and
- WNR offered to work through the detailed budget with the Authority and PwC/HCS.

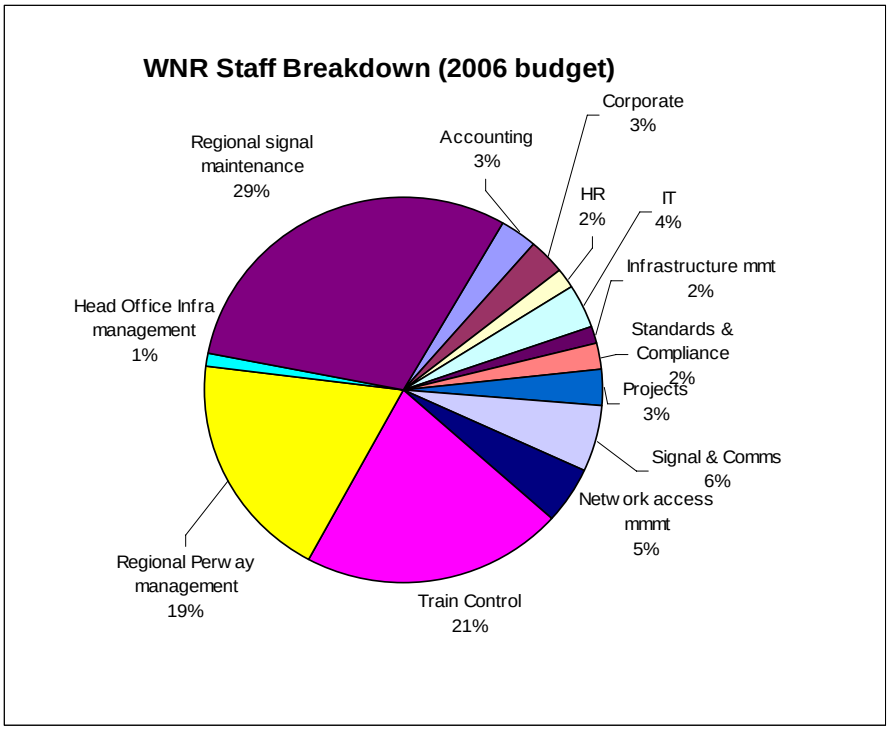
246. In regard to the allocation of overhead costs, WNR acknowledged that there may be an over-allocation of overhead costs to some of the route sections in the terminal ends and offered to meet with the Authority to determine an appropriate methodology for a better allocation of common costs.

PwC/HCS Assessment

247. PwC/HCS has reviewed a more detailed breakdown of overhead costs provided by WNR, on a confidential basis, with PwC/HCS identifying the results on a summary basis to preserve the confidentiality of the information provided.

248. PwC/HCS has observed that WNR has a labour budget for FY 2006 based on194 FTE's. Of this total 35 are included in the calculation of overhead costs, 41 are in train control, 39 in perway management, 59 in regional signal maintenance, 11 in Signal and Communications management and 9 staff being in network access management. Of the staff in the overhead category, 22 are in accounting, HR, IT and corporate functions. The chart below outlines the relative functional mix of the WNR employees.

[30] WNR page 6.



249. In regard to the specific tests of overhead efficiency, PwC/HCS observed the following:

- One FTE is tasked to perform the accounts payable function. The unit cost of this function (before overhead and IT allocation) is viewed as reasonable at less than $5 per account payable.
- The payroll function is outsourced. PwC assessed the cost per pay run and this was below $10 per pay which is an efficient outcome for a relatively small entity.
- Sundry Contract Costs account for 55% of the IT budget. PwC sighted the breakdown of that amount into its 22 constituent items, of which only one accounted for more than 10% of the total, being Transitional Services. While the amount was considered to be somewhat large compared to the other components of that section of the IT budget, it is related to relatively resource-intensive projects such as the maintenance and support of HR and timekeeping systems and the maintenance of email and BlackBerry services.
- In sample testing, PwC also assessed the costs of the WNR IT helpdesk. The labour allocation (2.5 FTE's) and the subsequent cost appears a reasonable cost given the salary range for adequately skilled IT workers and the supporting infrastructure required.
- Of WNR's motor vehicle fleet, 62% is comprised of operational vehicles, indicating that most of the cost is incurred directly in relation to the core activities. Fleet management costs were outsourced and confirmed as efficient. The actual WNR cost in 2006 was 10% above that requested within the APM.
- WNR maintains that the rise in overheads is driven by both the physical separation of the company and the underlying cost growth, with an offsetting decrease in insurance costs. In the 2003 determination, the overheads were allocated between three business entities operating under ARG. Since its

sale in June 2006, WNR operates as a stand-alone business and the operating budget approved by the Board of Directors is the basis of the overheads used in the APM.

250. PwC/HCS noted WNR's justification for overhead cost increases as outlined in paragraph 245. In assessing these cost increases, PwC/HCS stipulated that as overheads are primarily wages and salaries, and given these have generally risen by an average of 4% pa over the past 3 years (or 12.5% in total), it would appear that the 23% rise in overheads is comprised of 54% wages growth and 46% cost growth associated with the separation into a standalone entity.

251. PwC/HCS has observed that in the period since the separation of WNR into a standalone entity, that WNR has had an increase in FTE's within the HR, IT and the commercial groups (e.g. CEO, Business Development, etc.) which has added to costs. This has been significantly offset by a reduction in insurance costs. PwC/HCS has completed a range of assessments of individual items in the overhead cost budget (as summarised in paragraph 249) as well as other aggregate comparisons.

252. Overall, PwC/HCS is of the view that the proposed rise in overhead costs appears reasonable given intervening wages growth and the extra costs associated with separating the above and below rail businesses arising from the sale of the above rail business to Queensland Rail and the below rail business to Babcock & Brown.

253. In regard to the allocation of common costs, PwC/HCS has noted that the 2003 determination approved the allocation of operating costs based on train movement numbers and the allocation of overhead costs based on 50% train movements and 50% GTKs. PwC/HCS has also noted the recommendations from the working group on the allocation methodologies for common costs and considers that the recommended approach has had the desirable benefit of reducing the quantum of operating costs requiring allocation and producing a more accurate/cost reflective outcome. The new cost allocation methodology is reflected in the proposed WNR costs and the recommended PwC/HCS floor and ceiling costs for rail lines.

254. Alcoa/Worsley states that it does not consider that the allocation of common costs to route sections provides a fair representation of allocated costs but does acknowledge that the direct allocation of operating costs has been improved substantially since the 2003 determination, although the overall increase in these costs on a network wide basis is unacceptable and does not reflect efficient costs. Alcoa/Worsley notes that the amount of overhead allocated to the Terminal Ends remained proportionally excessive. The short nature of these sections coupled with the relatively higher number of train movements sees the ceiling costs in these sections made up of proportionally more overheads. In assessing this issue, PwC/HCS is of the view that assessing the equity of the overhead allocation is best done on a route basis, rather than a route section basis. Furthermore, PwC/HCS asserts that the separation out of the Terminal Ends into formal route sections was only undertaken to enable some customers to more fully attribute costs between their operating divisions.

Authority's Assessment

General Comments

255. WNR's has proposed total overhead costs of $16,193,526 per annum which represents an increase of about 23% from the cost of $13,188,808 per annum approved in the 2003 determination. The Authority has reviewed the detailed

breakdown of the proposed 2006 costs into the three categories outlined in paragraphs 238 to 240.

WNR Overheads

256. There has been a 21% increase in the WNR Overheads since the 2003 determination from $9,648,446 to $11,701,868. However, as noted in WNR's submission some $663,300 of the increase has resulted from a re-allocation from operating costs as explained in paragraph 193. The total of the WNR Overheads costs excluding these re-allocated costs is $11,036,568 which represents an increase of about 14% above the 2003 costs. The Authority notes that the primary driver of the growth in these costs is increases in corporate management (CEO, Business Development and support staff) and realised property rental costs (associated with shared premises with ARG) resulting from WNR now operating as a separate stand alone business since June 2006. Insurance costs have decreased since 2003 and the other cost components within WNR Overheads have increased by about 8% in the last three years.

WNR Corporate Support Services

257. The WNR Corporate Support Services costs represent the largest increase at 35% since 2003. The primary reason for this significant rise is due to additional FTE's required to support the accounting, HR and IT functions since the change in ownership. In 2003, these functions were performed by ARG and allocated to WNR on a shared services basis. The costs associated with other functions within this category, such as the provision of legal services and compliance auditing which are outsourced, have increased by about 9% since the 2003 determination.

WNR Group Overheads

258. There is no change proposed to WNR Group Overheads which are essentially services provided by the owner of WNR, Babcock and Brown.

Conclusion- Total Overhead Costs

259. The Authority has noted that in the 2003 determination, the overhead cost structure reflected a divisional organisational structure with the corporate services functions provided by ARG. This organisational structure no longer exists with the change in ownership and the efficient overhead costs needs to be based on the existing organisational structure to reflect reality. Therefore, the Authority's determination of efficient overhead needs to consider the following two issues:

- whether the increased costs resulting from additional FTE's required to service the corporate services functions are reasonable; and
- are the other overhead costs which have increased since 2003 reasonable?

From its analysis of the proposed overhead costs, the Authority notes that overhead costs not associated with an increase in FTE's have increased by less than 10% which is within the level of the increase in the CPI. The Authority has noted the extensive analysis of WNR's proposed overhead costs undertaken by PwC/HCS in paragraphs 248 to 252 which found that the proposed overhead costs were reasonable. On the basis of the Authority's analysis and the PwC/HCS advice, the Authority considers that WNR's proposed total overhead costs are reasonable and represent efficient costs.

Allocation of Overhead Costs

260. The Authority notes Alcoa/Worsley's comments in regard to the allocation of overhead costs as outlined in paragraph 244. The working group set up by the Authority in 2005 recommended that the 2003 determined methodology (using an equal proportion of train numbers and GTK's) for the allocation of overhead costs be used at the route level, whereas it was to be left to the Authority to determine the allocation at the route section level. The Authority has also noted the advice from PwC/HCS outlined in paragraph 254 that assessing the equity of the overhead allocation is best done on a route basis, rather than a route section basis because the identification of the route sections was only undertaken to enable some track users to more fully attribute costs between their operating divisions.

261. The Authority has assessed the proportion of operating and overhead costs as a percentage of total ceiling costs for the SWM, Terminal Ends and Worsley line for the 2003 and 2004 determinations and WNR's proposed 2006 costs to ascertain the change in proportions for operating and overhead costs. The proportions for each of the three lines are outlined in Table 3 below.

Table 3 Comparison of Operating and Overhead Costs

2003-04 Determinations

Route	Operating as a % of Ceiling	Overheads as a % of Ceiling	Operating and Overheads as a % of Ceiling
SWM	9.4	14.6	24.0
Worsley Line	8.1	11.8	19.9
Terminal Ends	32.3	38.3	70.6

2006 Review of WNR's Proposed Costs

Route	Operating as a % of Ceiling	Overheads as a % of Ceiling	Operating and Overheads as a % of Ceiling
SWM	7.6	14.2	21.8
Worsley Line	4.8	14.3	19.1
Terminal Ends	11.5	55.2	66.7

262. The Authority recognises that the allocation methodologies for common costs proposed by WNR has created some anomalies particularly in short route sections and considers that this is due to the arbitrary nature of how the route sections have been defined with some route sections having a length of less than 1km. Therefore, it is more appropriate to assess the impact of the allocation methodologies on a route basis as this is also more common practice in other rail networks around Australia. On a route level basis, the allocation methodologies used have revealed a decrease in the percentage of common costs (operating and overheads) as a proportion of total ceiling costs for the SWM, Terminal Ends and Worsley lines with two exceptions (overhead costs for the Terminal Ends and Worsley line) as noted in Table 3 above. The Authority notes that the combined operating and overhead Costs as a percentage of total ceiling costs have reduced for each of the three routes since the 2003 and 2004 determinations.

263. In its recent review of rail infrastructure costs, the Productivity Commission suggests[31] that potential efficiency gains can result from the application of Ramsey Pricing as an economically efficient method to allocate common costs (operating and overheads) across track users. This involves charging a higher price to segments of the market that value the provision of track access the most (i.e. are willing to bear the higher costs) manifested in a lower price elasticity of demand. The Report notes that while regulators may not accept this principle, Part IIIA of the Trade Practices Act facilitates increased efficiency by allowing pricing based on demand elasticities.

Conclusion- Allocation of Overhead Costs

264. The Authority notes that none of the submissions from interested parties has suggested alternative methodologies to those proposed by WNR for the allocation of common costs to the route section level be used in the 2006 floor and ceiling cost review. Therefore, the Authority is willing to accept the allocation methodologies as proposed by WNR for the purpose of this draft determination but invites submissions from interested parties on this issue and will review its decision prior to the final determination in the light of any such submissions received.

Overall Impact of Cost Changes

265. The Authority has assessed the impact of its determined changes to capital costs (Appendix 3) on the floor and ceiling costs for each of the rail lines under review against WNR's proposed floor and ceiling costs (Appendix 2). A summary of the cost differences are outlined in Table 4 below.

Table 4: Summary of Floor and Ceiling Cost Changes

Rail Line	Floor (%)	Ceiling (%)	GRV (%)
Kwinana to Bunbury Inner Harbour	0.1	-2.2	-3.3
Brunswick to Premier	-0.9	-1.8	-2.7
Forrestfield to Kalgoorlie	-1.3	-1.2	-1.6
Kalgoorlie to Leonora	-0.3	-1.3	-1.5
Kalgoorlie to Esperance	-2.0	-1.5	-1.8
Terminal Ends	-0.3	-0.8	-2.8
Avon to Goomalling	0	-19.4	-20.2
Katanning to Tambellup	0	-22.4	-22.7
Kulin to Yilminning	0	-22.9	-22.1

266. The differences to the WNR proposed floor and ceiling costs are relatively minor for the mainlines, Worsley line and the Terminal Ends. However, the differences are most significant for the three grain lines with reductions to the proposed ceiling costs and the GRV's in the range of 19-23%. This is primarily due to reductions in unit costs for 41kg rail as discussed earlier in paragraphs 126, 127 and 153.

[31] Productivity Commission, Road and Rail Infrastructure Pricing Draft Report September 2006, pp 5.11-5.13.

Consistency of Future Review Dates

267. The GRV calculation needs to be undertaken every three years to be consistent with the approved Costing Principles. Therefore, the floor and ceiling costs for the mainlines and Worsley line would need to be reviewed again prior to 1 July 2009 whereas the floor and ceiling costs for the Terminal Ends and grain lines would need to be reviewed prior to 1 January 2010.

268. The Authority sees merit in consistency of future review dates for the floor and ceiling costs for all the rail lines subject to this review as it will improve the efficiency of the regulatory review process and sought comments from interested parties in notices issued in September and October 2006 on this issue. Under this approach, the end dates for the determined floor and ceiling costs for all the rail lines would be 30 June 2009.

Interested Party Submissions

269. ARTC saw merit in the consistency of timelines and supported[32] this proposal. Alcoa/Worsley also indicated[33] its support for the proposal and has also suggested that the Authority undertake the next review prior to the expiry of the current period of the floor and ceiling costs to ensure that there is no future backdating of floor and ceiling costs as it deemed this approach to be unsatisfactory.

270. WNR did not provide comment on this issue.

Authority's Assessment

271. The Authority has noted the views of ARTC and Alcoa/Worsley and is of the view that there is support for consistency of future review dates for floor and ceiling costs for all the rail lines. Further, the Authority acknowledges the comments from Alcoa/Worsley in regard to completing the review prior to the effective date and considers it appropriate for WNR to submit its revisions to the floor and ceiling costs, for all the rail lines under review, nine months prior to the commencement date for the next determination to enable full public consultation and preparation of draft and final determinations. Consequently, the next review would need to commence on 1 October 2008.

272. On this basis, WNR would be required to submit its proposed floor and ceiling cost revisions for all the rail lines being reviewed by 1 October 2008 with the determined floor and ceiling costs to apply from 1 July 2009.

[32] ARTC page 4.

[33] Alcoa/Worsley page 29.

Draft Determination

Required Amendment 4

The determined floor and ceiling costs for the mainlines and the Worsley line will apply from 1 July 2006 to 30 June 2009. The determined floor and ceiling costs for the grain lines and Terminal Ends will apply from 1 January 2007 to 30 June 2009. WNR will submit its proposed revisions to the floor and ceiling prices, for all the rail lines subject to review, nine months prior (by 1 October 2008) to the date from which the next determination of floor and ceiling costs will apply (1 July 2009).

APPENDICES

Appendix 1 MEA Standard for Certain Rail Lines

WNR Proposed MEA Standard for the Grain Lines

Grain line	Avon to Goomalling (1) and Katanning to Tambellup (2)	Kulin to Yiliminning (3)
Axle Load – Freight (tns)	19 tal	16 tal
Rail weight (min Kg/m)	41	31 (if 31 not available, then 41 to be substituted)
Sleeper type, pattern and spacing	1:4 steel/timber “B’ type 2100mm x225mm x130mm – 1320/km min	1:4 steel/timber “A” type 2100mm x225mm x115mm – 1320/km min
Ballast type & min depth (mm) for Continuously Welded Rail (CWR)	Metal – 150	Gravel/Metal - 150
Ballast type & min depth (mm) for Mechanically Jointed Rail	Not Applicable	Gravel/Metal - 100
Fasteners	Plated timber sleepers, elastic fasteners throughout	Plated curves <800 radius, non-elastic fasteners in timber
Formation depth (m)	1.0 (including capping layer)	1.0 (including capping layer)
Target speed maximum (kph)	80 (subject to operating requirements)	60 (subject to operating requirements)

WNR Proposed MEA Standard for the Main Lines (excluding Terminal Ends)

Main line	Kwinana to Bunbury (SWM)	Brunswick to Premier	Forrestfield to Kalgoorlie (EGR)	Kalgoorlie to Leonora	Kalgoorlie to Esperance
Axle Load Freight (tn) & Max. Speed Freight (kph) [loaded/empty]	At 21tn: 115/115 (NG) At 23tn: 80/80 (NG)	At 21tn: 50/70 (NG)	At 21tn: 115/115 (DG & SG) At 23tn: 80/80 (DG & SG)	At 21tn: 50/70 (SG)	At 23tn: 70/80 (SG)
Max. Speed Passenger (kph)	160 (NG)	N/A	160 (SG)/100 (DG)	N/A	N/A
Ave. Formation height (m)	1.0	1.5 (Brunswick East to Worsley) 1.0 (Worsley to Hamilton & Worsley to Premier)	1.5	1.5	1.5
Rail (kg/m)	50	50	60	50	50
Ballast depth (mm)	250	250 (Concrete sleepers) [34] 150 (timber sleepers)[35]	300	200	250
Sleeper Type & spacing/km	Concrete/ 1,500	Concrete/1,500 Timber/1,470	Concrete/1,500	1 in 4 Steel/1,500	1 in 2 Steel/1,640

Sources: ERA September 2003 WNR Clause 9 Floor & Ceiling Cost Determination (page 18) and October 2003 Worsley Floor & Ceiling Cost Determination (page 4).

[34] For the section Brunswick East to Worsley

[35] For sections East and North of Worsley

Appendix 2 WNR Proposed Floor and Ceiling Costs for Route Sections by Cost Function

Kwinana to Bunbury Inner Harbour

Revised Ceiling @ July 2006	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section								
Kwinana to Mundijong Jn	29.107	$4,122,772	$2,852,189	$511,309	$254,596	$504,678	$306,908	$36,951,012
Mundijong Jn to Pinjarra	48.826	$6,073,151	$4,290,540	$758,888	$328,654	$695,070	$466,409	$56,715,426
Pinjarrato Pinjarra East	1.471	$689,231	$194,011	$110,921	$134,890	$249,410	$109,174	$2,310,330
Pinjarra East to Alumina Jn	0.233	$788,122	$124,933	$135,034	$187,582	$340,573	$136,962	$1,311,123
Pinjarra East to Pinjarra South	1.06	$311,767	$99,241	$49,342	$58,384	$104,800	$42,700	$1,211,948
Pinjarra to Wagerup	33.523	$3,420,218	$2,545,649	$367,437	$194,353	$312,779	$155,911	$35,197,956
Wagerup to Brunswick Jn	42.968	$5,302,980	$3,845,148	$627,763	$299,999	$530,069	$345,837	$51,219,656
Brunswick Jn to Picton Jn	22.083	$3,503,197	$2,217,207	$449,281	$296,323	$540,386	$344,031	$28,706,611
Picton Jn to Bunbury Inner Harb	3.522	$1,512,097	$702,248	$209,009	$215,340	$385,500	$189,931	$8,703,167
Total	182.79	$ 25,723,536	$ 16,871,166	$ 3,218,985	$ 1,970,122	$ 3,663,264	$ 2,097,863	$222,327,228

Brunswick to Premier

Revised Ceiling @ July 2006		Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section	Mtce rate								
Brunswick North - East	17610	0.911	$168,677	$90,184	$21,636	$11,610	$45,248	$5,359	$1,160,381
Brunswick - Brunswick East	17610	1.025	$495,309	$254,114	$66,490	$36,174	$138,531	$13,922	$3,058,037
Brunswick East - Worsley	17610	22.001	$2,745,889	$2,003,036	$381,672	$103,144	$258,037	$90,181	$26,688,059
Worsley - Worsley North	9392	2.316	$493,988	$238,845	$64,464	$37,390	$153,288	$30,126	$2,811,617
Worsley North - Hamilton	9392	8.584	$963,112	$567,523	$92,475	$60,982	$242,132	$50,745	$7,539,517
Worsley East - Worsley North	9392	1.067	$133,628	$73,106	$13,855	$9,183	$37,484	$8,645	$931,376
Worsely - Worsely East	9392	1.885	$253,792	$110,293	$19,851	$23,688	$99,959	$9,324	$1,447,545
Worsley East - Ewington Jn	9392	28.24	$2,156,284	$1,757,274	$214,616	$73,593	$110,801	$62,438	$23,458,746
Ewington Jn - Premier	9392	2.385	$318,765	$267,859	$16,807	$13,100	$20,999	$4,330	$3,300,240
Total		68.41	7,729,445	5,362,235	891,867	368,864	1,106,479	275,069	$70,395,517.76

Terminal Ends

Revised Ceiling @ July 2006	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section								
Inner Harbour 485 Pt to Alcoa (Inbound)	0.512	$515,754	$82,449	7,858	70,914	$354,534	$20,344	$864,067
Inner Harbour 486 Pt to ALCOA (Outbound)	0.38	$334,228	$68,373	3,032	44,514	$218,307	$12,132	$754,239
Inner Harbour 487 Pt to Worsley (Outbound)	0.328	$219,120	$54,830	2,517	27,765	$134,008	$7,531	$631,563
Inner Harbour 485 Pt to 486 pts	0.081	$471,925	$49,699	572	69,816	$351,837	$18,694	$408,448
Inner Harbour 486 Pt to 487 pts	0.055	$180,928	$20,138	352	26,602	$133,836	$7,145	$173,927
Inner Harbour 487 Pt to Woodchips	3.183	$308,268	$271,860	24,732	9,507	$2,169	$5,596	$4,097,735
Kwinana no3 points to bauxite junction	1.853	$477,046	$150,235	26,499	50,433	$249,878	$27,006	$1,877,640
Alcoa Bauxite Jn - Alcoa Bauxite Sdg	1.297	$317,211	$86,959	15,632	35,721	$178,899	$12,723	$1,145,613
Alcoa Bauxite Jn - Alcoa Caustic Sdg Pts	1.893	$198,203	$103,242	12,003	16,052	$66,907	$5,240	$1,492,691
Alcoa Caustic Sdg Pts -Alcoa Alumina Sdg Pts	0.94	$89,188	$50,434	5,625	6,699	$26,429	$2,150	$734,898
Total Route	10.52	3,111,869	938,219	98,823	358,023	1,716,805	118,562	$12,180,820

Forrestfield to Kalgoorlie

Revised Ceiling @ July 2006	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section								
F'Field Sth to Midland	25.711	$5,858,387	$4,026,111	$975,968	$430,124	$426,184	537775.3732	$49,811,584
Midland to Millendon Jn	28.25	$5,960,546	$4,005,115	$1,059,256	$421,593	$474,582	607630.6108	$48,544,289
Millendon Jn to Toodyay West	125.138	$17,908,433	$13,813,244	$2,489,724	$729,090	$876,375	1569128.789	$173,832,446
Toodyay West to Avon Yard	51.827	$8,499,722	$6,198,172	$1,314,850	$459,133	$527,567	767560.9589	$77,612,338
Avon Yard to West Merredin	190.939	$27,746,154	$22,141,282	$3,298,650	$948,587	$1,357,636	1324139.13	$284,831,163
West Merredin to Koolyanobbing	191.981	$25,270,734	$20,278,959	$2,941,722	$848,446	$1,201,607	1059754.343	$264,058,081
Koolyanobbing to West Kalgoorlie	204.329	$26,136,888	$19,694,177	$3,536,595	$849,268	$2,056,848	1431827.818	$256,070,979
West Kalgoorlie to Border	6.21	$1,713,078	$1,165,757	$302,820	$119,316	$125,185	109054.4074	$13,972,929
Avon to West Merredin Sidings	18.049	$1,560,569	$1,415,931	$97,204	$47,434	$0	10410.27	$18,181,379
West Merredin to Koolyanobbing Sidings	9.605	$856,665	$778,883	$51,690	$26,093	$0	5496.43	$10,009,773
Koolyanobbing to W Kal Sidings	4.745	$389,339	$352,189	$25,351	$11,798	$0	2508.87	$4,517,230
Total	856.78	$ 121,900,516	$ 93,869,819	$ 16,093,831	$ 4,890,882	$ 7,045,984	$ 7,425,287	$1,201,442,191

Kalgoorlie to Leonora

Revised Ceiling @ July 2006	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section								
Kalgoorlie to Malcolm	237.498	$20,533,476	$17,460,112	$2,113,791	$666,942	$292,630	$287,966	$242,226,407
Malcolm to Leonora	24.54	$2,660,233	$2,081,813	$348,250	$151,769	$78,401	$99,512	$28,593,082
Menzies sidings	0.325	$23,759	$20,984	$2,071	$703	$0	$126	$292,864
Total	262.36	23,217,467	19,562,909	2,464,113	819,414	371,031	387,605	271,112,353

Kalgoorlie to Esperance

Revised Ceiling @ July 2006	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Route Section								
West Kalgoorlie to Hampton	17.882	$2,500,679	$1,714,398	$319,912	$229,320	$237,049	$219,260	$22,340,303
Hampton to Kambalda	38.25	$4,094,623	$2,960,937	$526,470	$271,079	$336,137	$278,489	$39,882,479
Kambalda to Salmon Gums	229.595	$22,071,889	$17,767,465	$2,518,907	$680,881	$1,104,636	$912,974	$240,668,582
Salmon Gums to Esperance	111.598	$11,005,869	$8,769,988	$1,314,778	$379,465	$541,638	$545,575	$117,268,011
Kambalda siding	0.609	$43,804	$39,252	$3,237	$1,315	$0	$226	$539,171
Norseman Siding	0.524	$39,959	$35,969	$2,785	$1,205	$0	$195	$492,797
Salmon Gums Siding	1.275	$95,592	$85,936	$6,777	$2,879	$0	$473	$1,175,055
Total Route	399.73	39,852,414	31,373,945	4,692,865	1,566,143	2,219,461	1,957,193	422,366,398

Grain Lines

Revised Ceiling @ September 2006								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	Total GRV
Avon to Goomalling	57.69	4,385,906	3,720,733	311,526	252,143	101,504	96,253	51,500,188
Katanning to Tambellup	46.712	3,113,897	2,682,444	252,245	143,126	36,082	43,360	37,214,363
Kulin to Yilminning	99.808	6,497,751	5,844,803	410,111	222,433	20,404	37,780	80,323,583

Appendix 3 Authority Determined Floor and Ceiling Costs for Route Sections by Cost Function

Kwinana to Bunbury Inner Harbour

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**181.69**	**$ 25,169,167**	**$ 16,353,510**	**$ 3,199,614**	**$ 547,843**	**$ 1,404,938**	**$ 3,663,264**	**$ 2,099,724**	**$ 214,917,505**
Route Section									
Kwinana to Mundijong Jn	29.11	$4,046,979	$2,780,671	$509,430	$93,152	$159,048	$504,678	$302,968	$35,950,453
Mundijong Jn to Pinjarra	47.73	$5,684,642	$3,926,749	$746,356	$131,546	$184,921	$695,070	$447,251	$52,110,972
Pinjarrato Pinjarra East	1.47	$685,092	$190,138	$110,785	$6,370	$128,390	$249,410	$108,739	$2,259,764
Pinjarra East to Alumina Jn	0.23	$787,489	$124,372	$134,981	$4,166	$183,397	$340,573	$136,934	$1,303,113
Pinjarra East to Pinjarra South	1.06	$308,910	$96,510	$49,308	$3,233	$55,060	$104,800	$42,667	$1,175,510
Pinjarra to Wagerup	33.52	$3,335,911	$2,464,931	$366,552	$82,575	$109,074	$312,779	$154,675	$34,045,596
Wagerup to Brunswick Jn	42.97	$5,193,163	$3,740,922	$625,665	$125,321	$171,187	$530,069	$342,170	$49,742,622
Brunswick Jn to Picton Jn	22.08	$3,624,634	$2,336,103	$447,839	$78,259	$222,047	$540,386	$375,330	$29,747,377
Picton Jn to Bunbury Inner Harb	3.52	$1,502,347	$693,115	$208,698	$23,219	$191,814	$385,500	$188,989	$8,582,097

Brunswick to Premier

		Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route		**68.41**	**$ 7,587,083**	**$ 5,224,603**	**$ 891,747**	**$ 175,024**	**$ 189,229**	**$ 1,106,479**	**$ 272,612**	**$ 68,523,343**
Route Section										
Brunswick North - East	17,610	0.91	$166,204	$87,793	$21,633	$2,941	$8,589	$45,248	$5,321	$1,127,498
Brunswick - Brunswick East	17,610	1.03	$492,587	$251,416	$66,556	$8,422	$27,662	$138,531	$13,880	$3,020,928
Brunswick East - Worsley	17,610	22.00	$2,684,854	$1,944,260	$381,382	$65,133	$36,042	$258,037	$89,280	$25,891,535
Worsley - Worsley North	17,610	2.32	$491,219	$236,195	$64,435	$7,913	$29,389	$153,288	$29,847	$2,777,255
Worsley North - Hamilton	9,392	8.58	$948,236	$553,240	$92,360	$18,534	$41,970	$242,132	$49,986	$7,338,466
Worsley East - Worsley North	9,392	1.07	$131,662	$71,213	$13,845	$2,386	$6,734	$37,484	$8,480	$906,385
Worsely - Worsely East	9,392	1.89	$251,745	$108,290	$19,874	$3,628	$19,994	$99,959	$9,307	$1,419,577
Worsley East - Ewington Jn	9,392	28.24	$2,106,065	$1,708,478	$214,828	$57,234	$14,725	$110,801	$62,183	$22,797,320
Ewington Jn - Premier	9,392	2.39	$314,512	$263,718	$16,833	$8,835	$4,126	$20,999	$4,328	$3,244,379

Forrestfield to Kalgoorlie

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**856.78**	**$ 120,392,368**	**$ 92,410,557**	**$ 16,093,831**	**$ 3,095,754**	**$ 1,746,243**	**$ 7,045,984**	**$ 7,325,098**	**$ 1,182,799,816**
Route Section									
F'Field Sth to Midland	25.71	$5,822,788	$3,988,982	$978,742	$133,631	$295,249	$426,184	$534,792	$49,364,830
Midland to Millendon Jn	28.25	$5,920,068	$3,964,320	$1,060,940	$132,805	$287,422	$474,582	$602,914	$48,053,417
Millendon Jn to Toodyay West	125.14	$17,716,832	$13,632,536	$2,484,885	$456,690	$266,347	$876,375	$1,548,234	$171,658,048
Toodyay West to Avon Yard	51.83	$8,421,953	$6,123,330	$1,314,430	$205,132	$251,494	$527,567	$758,907	$76,711,792
Avon Yard to West Merredin	190.94	$27,351,898	$21,761,211	$3,297,196	$729,001	$206,854	$1,357,636	$1,301,983	$279,899,438
West Merredin to Koolyanobbing	191.98	$24,942,601	$19,958,287	$2,945,003	$668,603	$169,101	$1,201,607	$1,045,100	$259,907,144
Koolyanobbing to West Kalgoorlie	204.33	$25,780,954	$19,352,880	$3,533,391	$648,321	$189,513	$2,056,848	$1,406,240	$251,653,059
West Kalgoorlie to Border	6.21	$1,703,564	$1,155,384	$304,026	$38,705	$80,264	$125,185	$108,514	$13,838,659
Avon to West Merredin Sidings	18.05	$1,516,220	$1,372,494	$97,747	$45,979	$0	$0	$10,410	$17,593,473
West Merredin to Koolyanobbing Sidings	9.61	$836,242	$758,843	$51,978	$25,421	$0	$0	$5,496	$9,737,322
Koolyanobbing to W Kal Sidings	4.75	$379,249	$342,289	$25,493	$11,467	$0	$0	$2,509	$4,382,635

Kalgoorlie to Leonora

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**262.36**	**$ 22,906,835**	**$ 19,262,345**	**$ 2,464,113**	**$ 645,289**	**$ 164,057**	**$ 371,031**	**$ 386,025**	**$ 266,985,859**
Route Section									
Kalgoorlie to Malcolm	237.50	$20,252,362	$17,188,186	$2,113,713	$575,804	$82,028	$292,630	$286,534	$238,493,508
Malcolm to Leonora	24.54	$2,631,278	$2,053,721	$348,328	$68,800	$82,028	$78,401	$99,364	$28,207,372
Menzies sidings	0.33	$23,196	$20,438	$2,073	$685	$0	$0	$126	$284,979

Kalgoorlie to Esperance

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**399.73**	**$ 39,266,594**	**$ 30,807,114**	**$ 4,692,865**	**$ 1,032,038**	**$ 515,116**	**$ 2,219,461**	**$ 1,918,290**	**$ 414,869,558**
Route Section									
West Kalgoorlie to Hampton	17.88	$2,477,491	$1,691,225	$320,673	$56,656	$171,887	$237,049	$217,804	$22,031,302
Hampton to Kambalda	38.25	$4,044,740	$2,911,959	$527,207	$97,551	$171,887	$336,137	$275,825	$39,221,519
Kambalda to Salmon Gums	229.60	$21,762,440	$17,467,275	$2,519,704	$585,154	$85,671	$1,104,636	$892,589	$236,701,181
Salmon Gums to Esperance	111.60	$10,807,540	$8,580,379	$1,312,409	$287,443	$85,671	$541,638	$531,179	$114,777,143
Kambalda siding	0.61	$42,675	$38,142	$3,255	$1,278	$0	$0	$226	$523,444
Norseman Siding	0.52	$38,987	$35,013	$2,801	$1,173	$0	$0	$195	$479,265
Salmon Gums Siding	1.28	$92,721	$83,121	$6,816	$2,785	$0	$0	$473	$1,135,703

Terminal Ends

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**10.52**	**$ 3,087,047**	**$ 914,202**	**$ 98,823**	**$ 30,626**	**$ 326,592**	**$ 1,716,805**	**$ 118,198**	**$ 11,836,312**
Route Section									
Inner Harbour 485 Pt to Alcoa (Inbound)	0.51	$514,483	$81,225	$7,851	$2,721	$68,152	$354,534	$20,308	$846,467
Inner Harbour 486 Pt to ALCOA (Outbound)	0.38	$333,297	$67,466	$3,039	$2,260	$42,224	$218,307	$12,129	$741,177
Inner Harbour 487 Pt to Worsley (Outbound)	0.33	$218,317	$54,047	$2,524	$1,811	$25,928	$134,008	$7,531	$620,288
Inner Harbour 485 Pt to 486 pts	0.08	$471,726	$49,505	$574	$1,658	$68,152	$351,837	$18,694	$405,663
Inner Harbour 486 Pt to 487 pts	0.06	$180,793	$20,006	$353	$670	$25,928	$133,836	$7,145	$172,036
Inner Harbour 487 Pt to Woodchips	3.18	$301,646	$265,381	$24,807	$8,890	$399	$2,169	$5,596	$4,005,507
Kwinana no3 points to bauxite junction	1.85	$472,367	$145,802	$26,401	$4,884	$45,401	$249,878	$26,788	$1,813,942
Alcoa Bauxite Jn - Alcoa Bauxite Sdg	1.30	$313,978	$83,859	$15,603	$2,809	$32,808	$178,899	$12,630	$1,101,028
Alcoa Bauxite Jn - Alcoa Caustic Sdg Pts	1.89	$193,557	$98,720	$12,029	$3,307	$12,593	$66,907	$5,228	$1,427,618
Alcoa Caustic Sdg Pts -Alcoa Alumina Sdg Pts	0.94	$86,883	$48,189	$5,640	$1,614	$5,009	$26,429	$2,149	$702,585

Grain lines

	Section Length	Total Ceiling	Capital	Maintenance	Working Capital	Operating	Overhead	Floor	Total GRV
Total Route	**307.30**	**$ 10,964,013**	**$ 9,274,749**	**$ 973,882**	**$ 310,704**	**$ 246,689**	**$ 157,990**	**$ 177,393**	**$ 132,423,875**
Route Section									
Avon to Goomalling	57.69	$3,537,192	$2,876,156	$311,526	$96,351	$151,655	$101,504	$96,253	$41,109,239
Katanning to Tambellup	46.71	$2,416,115	$1,997,515	$252,245	$66,917	$63,356	$36,082	$43,360	$28,777,617
Kulin to Yilminning	99.81	$5,010,706	$4,401,078	$410,111	$147,436	$31,678	$20,404	$37,780	$62,537,019

Appendix 4 Glossary

ABS	Australian Bureau of Statistics
Act	Railways (Access) Act 1998
Alcoa	Alcoa World Alumina Australia Pty Ltd
APM	Access Pricing Model
ARTC	Australian Rail Track Corporation Ltd
Authority	Economic Regulation Authority
ARG	Australian Railroad Group Pty Ltd
Code	Railways (Access) Code 2000
CPI	Consumer Price Index
DIRN	Defined Interstate Railway Network
DORC	Depreciated Optimised Replacement Cost
DSS	Decision Support System
FTE	Full Time Employee
GRV	Gross Replacement Value
GTK	Gross Tonne Kilometres
HCS	Hughes Consulting Service
HR	Human Resources
IRAR	Independent Rail Access Regulator
IT	Information Technology
KM	Kilometre
KPI	Key Performance Indicator
MEA	Modern Equivalent Asset
MPM	Major Periodic Maintenance
MS	Microsoft
NG	Narrow Guage
PwC	PricewaterhouseCoopers
SG	Standard Guage
WACC	Weighted Average Cost of Capital
WNR	WestNet Rail Pty Ltd
Worsley	Worsley Alumina Pty Ltd
WP	Worley Parsons

Appendix 5 Map of WestNet Rail Rail Network