



Office of the Rail Access Regulator

Draft Report on Key Performance Indicators for the Rail Access Regime

October 2002

Abbreviations

Act	Railway (Access) Act 1998
ARTC	Australian Rail Track Corporation
ATC	Australian Transport Council
Code	Railways (Access) Code 2000
CPI	Consumer Price Index
DORC	Depreciated Optimised Replacement Cost
GRV	Gross Replacement Value
GTK	Gross Tonne Kilometres
IPART	Independent Pricing and Regulatory Tribunal (NSW)
KPI	Key Performance Indicator
MEA	Modern Equivalent Asset
MPM	Major Periodic Maintenance
ORAR	Office of the Rail Access Regulator
QCA	Queensland Competition Authority
ORC	Optimised Replacement Cost
RIC	Rail Infrastructure Corporation (NSW)
WACC	Weighted Average Cost of Capital
WAGR	Western Australian Government Railways Commission
WNR	WestNet Rail

Contents

1	Introduction	5
2	Background	7
	2.1 The Rail Network	7
	Passenger Operation	7
	2.1.2 East West Intermodal Operation	8
	2.1.3 Grain Network Operation	9
	2.1.4 Bulk Commodity Operation	10
	2.2 Rail access regime in Western Australia	12
	2.3 Role of the Regulator	13
	2.4 NECG's Approach	14
3	Key Performance Indicators and Monitoring	15
	3.1 Why measure performance	15
	3.1.1 Principal-agent theory	15
	3.1.2 Possible incentive arrangements	17
	3.1.3 Information for the monitoring process	18
	3.2 What is measured in the regulation of utilities	18
	3.2.1 Rail	18
	3.2.2 Electricity	20
	3.2.3 Gas	20
	3.2.4 Water	21
	3.3 Criteria for the development of KPI regime	21
	3.3.1 Effectiveness	22
	3.3.2 Measurability	23
	3.3.3 Relevance	24
	3.3.4 Comparability	25
	3.3.5 Comprehensiveness	26
	3.4 Stakeholders	27
4	Appraisal and development of KPIs for WNR	28
	4.1 Network overview	28
	4.2 Negotiation framework	29
	4.2.1 Background and legislative requirements	29
	4.2.2 Identification of KPIs	30
	4.2.3 Reporting framework	31
	4.3 Segregation arrangements	31
	4.3.1 Background and legislative requirements	31

4.3.2	Key aspects of the segregation arrangements	33
4.3.3	Identification of KPIs	34
4.3.4	Reporting framework	36
4.4	Statement of train path policy	36
4.4.1	Background and legislative requirements	36
4.4.2	Key aspects of the train path policy	37
4.4.3	Identification of KPIs	38
4.4.4	Reporting framework	39
4.5	Train management guidelines	39
4.5.1	Background and legislative requirements	39
4.5.2	Key elements of the TMG	39
4.5.3	Identification of KPIs	40
4.5.4	Reporting framework	40
4.6	Costing principles	41
4.6.1	Background and legislative requirements	41
4.6.2	Key elements of the Costing Principles	41
4.6.3	Identification of KPIs	41
4.7	Over-payment rules	46
4.7.1	Background and legislative requirements	46
4.7.2	Key elements of the over-payment rules	46
4.7.3	Identification of KPIs	47
4.7.4	Reporting framework	48
4.8	Service quality	48
4.8.1	Background	48
4.8.2	Identification of KPIs	48
4.8.3	Reporting framework	50
4.9	Public interest considerations	51
4.9.1	Safety	51
4.9.2	Review of the Act and the Code	53
5	Timing and transitional issues	55
	Appendix 1 – ARTC measures	56
	Appendix 2 – Queensland Rail	60
	Appendix 3 – Australian Transport Council	67
	Appendix 4 – Safety - Extract from Appendix C of AS4292.1	74

1 Introduction¹

An integral part of the rail access regime in Western Australia is determining that the access rail providers, WestNet Rail (WNR) and Western Australian Government Railways Commission (WAGR), are complying with the requirements of the Act, the Code and the Rail Access Regulator's determinations. To achieve this, a key performance indicator (KPI) framework is required to be developed to assist the Regulator in monitoring compliance with the regime.

To this end, Network Economics Consulting Group (NECG) were engaged to identify and recommend a range of KPIs for the Act and the Code and each of the Regulator's rail access determinations, specifically:

- the segregation determinations (WNR and WAGR final determinations released June 2002);
- costing principles (WNR final determination September 2002)
- overpayment rules (WNR final determination September 2002)
- train management guidelines (WNR draft determination August 2002); and
- train paths policy (WNR draft determination August 2002).

NECG has proposed a range of KPIs as the basis for determining WNR's compliance with the regime including for each determination as well as for the Act and the Code.

To date, the Regulator has only issued a final determination on the segregation arrangements to apply to WAGR.² Nevertheless, the thrust of the KPI regime outlined in this paper can be expected to provide a starting point for WAGR's KPI arrangements.

¹ NECG would like to acknowledge the assistance of Rail Management Services in the preparation of this report.

The KPIs were selected on the basis of criteria developed from our examination of performance reporting theory and other performance reporting regimes. The KPIs consist of a mix of input, output, process and outcome measures.

The KPIs focus on those elements of the regime where performance information is readily available or obtainable to inform the assessment of whether railway owners are complying with the requirements of the access regime. KPIs have also been developed to assist the Regulator perform the Regulator's other functions under the regime, such as assessing whether amendments are required to the Act or the Code and as well as protecting the public interest.

This report is structured as follows:

- section 2 considers the rail network highlighting the diversity in traffic that traverses Western Australia;
- section 3 considers the theory behind performance monitoring and develops criteria to be applied for the development of KPIs for the Regulator;
- section 4 develops KPIs for WNR; and
- section 5 considers transitional issues.

² ORAR, (2002), "Segregation Arrangements to Apply to the Western Australian Government Railways Commission - Determination of the Western Australian Independent Access Regulator".

2 Background

2.1 The Rail Network

The railway networks in the South West (SW) of Western Australia controlled by WNR and WAGR supports railway operations involving passenger transport, general freight and bulk commodities. There are four distinct traffic types operating over the network:

- suburban passenger transport in the Perth metropolitan area as well as country and interstate passenger transport;
- intermodal freight on the main East-West corridor to the eastern states³;
- grain transport to four major sea ports; and
- bulk commodity transport.

The distinction between these traffic types is so pronounced that each type operates over separate portions of the network with little overlap. It is certainly possible to identify the dominant traffic type over every part of the network. Other minor traffics operate as well on these dominant routes but do so as a secondary operation. We consider these traffic types in turn.

2.1.1 Passenger Operation

A modernised and growing suburban passenger train service operates in the Perth metropolitan area. The network comprises 95kms of double track electrified route of narrow gauge⁴ extending East to Midland, South to Fremantle, North to Currambine and South West to Armadale. There are plans to construct a new route from the City and South to Mandurah approximately 82kms away. A northern route extension is underway.

³ South Australia, Victoria, New South Wales and Queensland

⁴ Rail gauge being nominally 1067mm

The Perth suburban system was electrified between 1990 and 1992 together with a line extension to the North and a refurbishment of the infrastructure. It is the 'newest' heavy rail passenger system in Australia. Passenger forecasts have been regularly exceeded and it has often been held up as a rail success story. In terms of passenger numbers and extent of network it ranks behind Sydney and Melbourne and is on a par with Brisbane carrying approximately 30 million passengers yearly. With the planned extension to Mandurah the system will increase in size by approximately 75%.

In addition, country and interstate passenger operations include the Australind (running between Perth and Bunbury, initially via the Armadale suburban line), the Prospector (operating between Perth and Kalgoorlie) and the Indian Pacific (linking Perth and the eastern States). There are also a number of heritage steam trains, including the Hotham Valley Steam train.

2.1.2 East West Intermodal Operation

The main East-West route extends from Perth to Kalgoorlie using heavy duty⁵ standard gauge⁶ track. The route supports the transport of intermodal trains⁷ to and from the Eastern states. The balance of tonnage is heavily in the east to west direction by a ratio of approximately 2 to 1.

Other traffics use this route including iron ore transport from Koolyanobbing to Esperance and grain from Merredin west to the port of Kwinana, 25kms SW of Perth. The route is essentially single track except for the section from Northam to Kwinana, a distance of approximately 120kms of double⁸ dual gauge⁹ track. At Northam the narrow gauge tracks branch to service the grain network.

⁵ Up to 25 tonne axle load

⁶ Rail gauge being nominally 1435mm.

⁷ Containers able to be lifted on and off trains to road trucks.

⁸ Two lines where two trains can move in each direction at the same time

⁹ Both narrow gauge and standard gauge trains can be operated.

This main line was upgraded in the early 1980's using concrete sleepers and 60kg/m rail and is suitable for the Prospector passenger service that operates between Kalgoorlie and Perth¹⁰. The Indian Pacific train service also operates on this route. The Prospector passenger service is the only operation undertaken by the government of Western Australia on this route. A number of private freight operators operate on this route including Australian Western Railroad (AWR), Pacific National (formerly National Rail), Specialised Container Transport (SCT) and Great Southern Railway (GSR).

2.1.3 Grain Network Operation

The grain network in SW Western Australia is extensive and consists of approximately 3000kms of narrow gauge lines. Some grain is carried on the standard gauge network from Merredin to Kwinana and on the Esperance line.

Essentially the narrow gauge grain network extends roughly radially from the ports of Albany, Kwinana and Geraldton although the geography of the lines has been somewhat constrained by the topography. The main topographic feature influencing the network is the North-South Darling Range which together with its periphery extends the entire length of the SW coast of Western Australia separating the hinterland from the coastal plain.

Due to the large grain storage and handling facilities, as well as the deepwater port and efficient rail access, Kwinana dominates the grain task. Approximately half of the grain task on rail is channelled into Kwinana, both with narrow gauge and standard gauge trains. The influence of Kwinana has extended further and further into the network and Albany and Geraldton have historically given up tonnage to Kwinana.

A program of track upgrading and storage and handling facility upgrading on the network has enabled very efficient train operations and a rationalisation of port operations and rollingstock utilisation. Western Australia is credited with having the most efficient grain transport and handling system in Australia. Bunbury and North Fremantle grain handling facilities have been disbanded over the last decade in the rationalisation of the system to produce efficiency.

¹⁰ The East Perth rail terminal.

Sections of the infrastructure have gradually been upgraded with the adoption of a 1 in 4 steel sleeper strategy as a minimal standard.

2.1.4 Bulk Commodity Operation

On the standard gauge network bulk mineral products comprise the Koolyanobbing Iron Ore task to Esperance port as well as the tasks associated with the goldfields mines around and to the north of Kalgoorlie.

In the goldfields, the rail network services the nickel tasks north of Kalgoorlie to Malcolm on the Leonora branch line and south on the Esperance line to Kambalda. General mining supplies are also provided from Perth/Fremantle/Kwinana port to the goldfields and consist of supplies such as sodium cyanide and milling balls for minerals processing. Nickel products from the goldfields are transported to Kwinana or Esperance.

Other bulk mineral operations are centred along the coast north and south of Perth but with the greatest concentration south of Perth. Four hundred kilometres north of Perth, mineral sands operations 150kms south of Geraldton at Eneabba require transport support to enable further processing and export through the port of Geraldton. A branch line between Eneabba and Dongara used solely for the purpose supports this task. Other tracks in the vicinity of Geraldton are part of the grain network.

This region also shows potential for iron ore mining and processing, and advanced planning has occurred for projects that involve rail transport both on existing and new tracks. Also approximately 60kms north of Perth at Muchea, a mineral sands operation is supported by rail for the transport of the product to Kwinana.

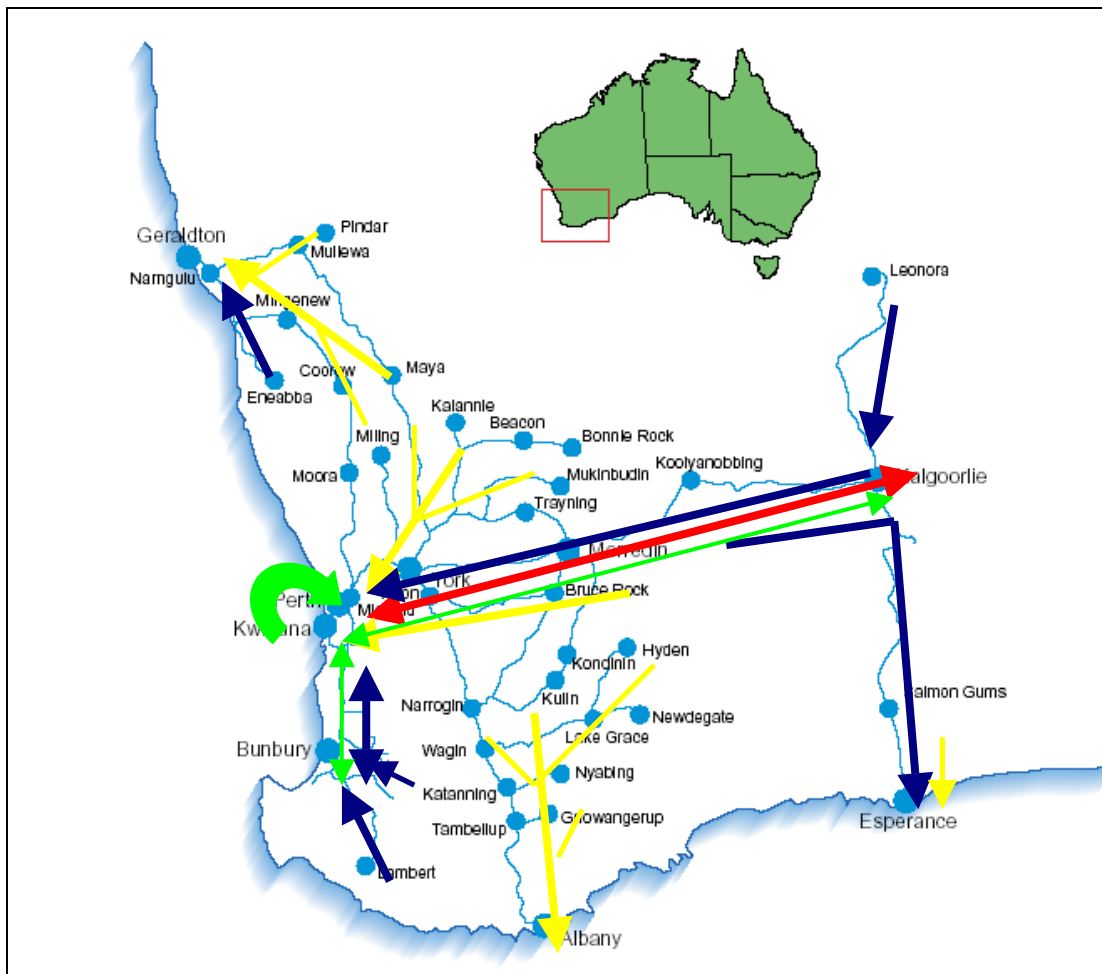
Along the Darling (Range) escarpment south of Perth significant bauxite mining and processing industry works are located on a number of fronts, which are operated either by Alcoa or Worsley. Trains transporting bauxite, alumina and caustic soda heavily use the main Perth to Bunbury line in order to bring the product to the ports of Bunbury and Kwinana for export.





The main Perth to Bunbury line has a number of branch lines servicing these needs. In addition the line supports the Australind passenger service between Perth and Bunbury as well as some minor bulk product and container hauls. The network around Bunbury also includes a branch line to Lambert near Manjimup used solely for woodchip trains exporting via Bunbury port.

A branch line that services the Worsley alumina operations also supports coal haulage from Collie. Coal is transported in relatively small amounts to various destinations including for electricity generation at Kwinana, energy at Worsley and for the mineral sands industry.

Figure 1 provides an outline of the rail network in Western Australia.

Figure 1: Overview of Rail Network Western Australia



-  Grain network operations
-  Bulk mineral and woodchip operations
-  East West Intermodal operation
-  Perth suburban and country passenger services

2.2 Rail access regime in Western Australia

The rail access regime in Western Australia is made up of the following elements:

- the Railways (Access) Act 1998 (the Act);
- the Railways (Access) Code 2000 (the Code);
- each of the Regulator's determinations, such as:
 - segregation arrangements;
 - costing principles;
 - overpayment rules;
 - train management guidelines; and
 - statement of train path policy.

The object of the Western Australian rail access regime is described by the section 2A of the *Railways (Access) Act 1998*, which states that the main object of this Act is:

“...to establish a rail access regime that encourages the efficient use of, and investment in, railway facilities by facilitating a contestable market for rail operations.”

This requires that the KPI regime achieve a balance between the needs of railway owners and access seekers. Areas where such a balance can be achieved is in the timing and transitional arrangements for the implementation of the arrangements (refer section 5 of this report) and minimising the reporting burden by avoiding duplication with other regulatory agencies where possible.

2.3 Role of the Regulator

The Regulator's primary role is to monitor access provider's compliance with the Act and Code.¹¹ In carrying this role the Regulator's responsibilities include to:

- review of the Act and the Code¹²;
- approve the segregation of access-related functions of the railway owners from their other functions¹³;
- approve the negotiation of an access proposal that may consume all available capacity on a route section and thereby preclude other entities from access¹⁴;
- provide an opinion as to whether or not the access price sought by the railway owner complies with the regime¹⁵;
- establish a panel of arbitrators to hear disputes and the appointment of an arbitrator upon receipt of a dispute notice, respectively¹⁶;
- register access agreements¹⁷;
- approve train management guidelines and train path policy¹⁸;
- approve the railway owner's costing principles and over-payment rules that relate to determination of floor and ceiling prices¹⁹;

¹¹ Section 20 of the Act.

¹² Section 12 of the Act and section 49 of the Code.

¹³ Sections 29 and 42 of the Code.

¹⁴ Section 10 of the Code.

¹⁵ Sections 21 of the Code.

¹⁶ Sections 24 and 25 of the Code.

¹⁷ Section 39 of the Code.

¹⁸ Sections 43, 44 and 45 of the Code.

¹⁹ Sections 46 and 47 of the Code

- approve the weighted average cost of capital of railway routes and infrastructure for the determination of floor and ceiling costs for each route;²⁰
- determine floor and ceiling costs of certain routes²¹;
- enquire into and report and make recommendations to the Minister on matters relating to the operation of the Act or the Code and how either instrument may be amended²²; and
- disseminate information that relates to the carrying out of the Act or the Code.

2.4 NEEG's Approach

In undertaking this consultancy, NEEG's approach was as follows:

- undertake a literature review covering general performance measurement theory and specific application within the regulatory setting;
- develop criteria to assess determinations using information generated from literature review;
- complete an environmental appraisal of the State's rail access regime, including a review of the rail determinations;
- identify KPIs for each significant component of the regime; and
- develop a data collection and measurement methodology.

²⁰ Clause 3, 7 and 8 of schedule 4 of the Code.

²¹ Clause 9 of schedule 4 of the Code.

²² Section 49 of the Code. Section 12 of the Act also requires the Regulator to carry out a review of the Code as soon as practical after the third anniversary of its commencement and the expiry of every five years thereafter.

3 Key Performance Indicators and Monitoring

In this section we review the literature covering performance monitoring, measurement and key performance indicators (KPIs). Performance monitoring needs to be considered in the context of the following:

- why measuring performance is important;
- what common characteristics are generally measured in performance monitoring regimes; and
- what criteria ought to be applied for the development of KPIs for the Regulator's use.

3.1 Why measure performance

3.1.1 Principal-agent theory

The activity of measuring performance of an enterprise or person stems from the inherent weakness in principal-agent relationships. Wherever there is a separation of ownership and control, the principals, who own the enterprise, require information to monitor, control and influence the actions of those they employ to run the enterprise, their agents. This permits principals to judge performance and to take corrective action.²³

In other words, principals must be able to ensure that agents act in a manner that is consistent with the pursuit of the principal's objectives rather than the objectives of the agent. Principals can achieve this by:

- structuring the incentives in a way that encourages compatible behaviour; and

²³ Dr Paul Moy (1993), "Why measure performance? Measuring the Economic Performance of Government Enterprises (Swan Consultants Pty Ltd Conference)," page 1.

- securing information to monitor the conduct and performance of agents.²⁴

Before considering these measures, we consider the nature of principal agent relationships in a regulatory environment, where they take on an additional layer of complexity, as the regulator acts as:

- an agent for Government by undertaking responsibilities independently from the current government; and²⁵
- a principal in its relationship with the railway owners (who are agents). This relationship is defined by the Act, the Code and other components of the access regime and is characterised by the regulator's significant information disadvantage relative to the railway owner.

In the regulatory setting, the principal's problem is that once subject to regulation, a regulated business will have incentives to act in a way that minimises the impact of the regime on its commercial success. This may be through delivering low service quality (or in some cases increasing service quality to socially undesirable levels by goldplating)²⁶ or conferring a competitive advantage upon a related business.²⁷

²⁴ Ibid, page 1.

²⁵ There is yet another layer of principal agent relationships by virtue of the Government acting as an agent for the electorate.

²⁶ Spence, Michael., (1975), "Monopoly, Quality and Regulation", Bell Journal of Economics, 6(2):417-429.

²⁷ In contrast, aligning incentives in the private sector is often more straightforward (although by no means perfect as recent accounting scandals have indicated). In private sector arrangements the use of explicit contracting supports the use of ongoing performance measurement with the subsequent use of incentives for adequate performance and penalties for poor performance. The measurement, monitoring and interpretation of performance is relatively easily applied and understood given the settled nature of the indicators used to measure performance and the commonality of the criteria used to interpret the findings.

3.1.2 Possible incentive arrangements

In dealing with this issue, regulators and governments have available four alternative mechanisms for quality regulation:²⁸

- publication of information on performance – where the regulated firm releases information and the regulation occurs as a by-product of community and political pressure in response to poor quality outcomes;
- adjusting prices – including a direct adjustment in the pricing formula based on a quality measure (service quality index), although this may mean that individual consumers are not compensated for inferior service;
- customer compensation schemes – the quality threshold payment and penalty arrangements which allow individual consumers to be compensated for inferior service;
- minimum quality standards – this approach penalises the regulated firm for failure to meet minimum levels of accepted service quality.²⁹

Utility regulation in Australia and overseas has at various times and in various jurisdictions applied each of these mechanisms. Indeed, the Act and the Code adopt each incentive mechanism - the first (information dissemination), the second (potentially adjusting asset values for poor service quality), the third (customer compensation for poor performance

²⁸ Rovizzi, L., and Thompson, David., (1995), "The Regulation of Product Quality in the Public Utilities", *The Regulatory Challenge*, Edited by Matthew Bishop, John Kay and Colin Mayer, page 350.

²⁹ A study by Besanko, Donnenfeld and White (1987) found that the minimum quality standard form of quality regulation was superior than the other forms of quality regulation providing the firm continued to serve all consumers after the standards have been enacted – ie universal service obligations in telecommunications or 'provider of last resort' in electricity (refer Besanko, David & Donnenfeld, Shabtai & White, Lawrence J, 1987. "Monopoly and Quality Distortion: Effects and Remedies," *The Quarterly Journal of Economics*, 743-67 Vol. 102 (4) pp. 743-67).

through changes in asset valuation approach) and the fourth (penalties for hindering access and not complying with the segregation arrangements).

3.1.3 Information for the monitoring process

Irrespective of the mechanism that is applied, it is necessary for principals to be able to measure, collect, collate and interpret data that provides an accurate idea of progress or performance towards the principal's objectives. Monitoring and performance measurement is an important aspect within principal-agent relations as it:

- encourages improved performance through incentives (rewards) or punishments;
- assists the future design of the regime and contracts made under it; and
- is necessary to ensure compliance with the terms and conditions of the relations.

3.2 What is measured in the regulation of utilities

The area of performance monitoring of utilities in regulatory environments has developed over recent years. In this subsection, we review some of the approaches adopted in the electricity, water, gas and rail sectors.

3.2.1 Rail

Regulator endorsed performance monitoring regimes are well established for ARTC in relation to the interstate network (refer Appendix 1) and QR (Appendix 2).³⁰

Another Australian performance monitoring regime for public transport can be found in Victoria for rail, trams and buses following privatisation in 1999. Under the performance regime, incentive based payments or penalties apply to the operators and the Government monitors:

³⁰ IPART developed KPIs for the then Rail Access Corporation in its report *Aspects of the NSW Rail Access Regime – Final Report* April 1999, page73. However, these KPIs relate principally to financial information rather than service quality or compliance with the regime.

- punctuality based on on-time running;
- reliability – percentage of cancellations;
- customer satisfaction – using passenger surveys to measure whether franchisees are providing the quality service their customers expect.³¹

The Australian Transport Council (ATC) has adopted the following set of performance indicators and targets for the interstate network track (refer Appendix 3):³²

- Less than 2% track length subject to temporary speed restriction;
- At axle loads up to 21 tonnes, 80kmph average, 115kmph maximum speed;
- For axle loads between 21 tonnes and 25 tonnes, 60kmph average and 80kmph maximum; and
- Train lengths of 1500m on the north-south corridor and 1800m on the east-west corridor;
- Reliability, within 15 minutes of schedule;
- Transit Time, average actual rail transit time;
- Service availability, service available to % of total market; and
- Service cut-off time for AM delivery (forward direction).

³¹ Victorian Government (2000), "Track Record – Quarterly Performance Bulletin April – June 2000", page 1-2.

³² These targets have been used for various purposes including the recent ARTC Interstate Rail Network Audit. See also Appendix 4.

3.2.2 Electricity

Jurisdictional regulators under the National Electricity Code have required electricity distributors to report quarterly and annually on a range of service quality performance indicators including:

- reliability measures – including System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI) and Customer Average Interruption Duration Index (CAIDI) by feeder;
- quality of supply data – complaints by symptom, that is, those that breach pre-determined thresholds and response;
- customer service – general customer service performance reporting, such as, network call centre performance across a range of common client service characteristics, speed of new connection, re-connection and repairs; and
- complaints management – aggregate data, by type and cause, speed of resolution and frequency of repeat complaints.

In addition, aggregate data for the network is reported, including total customers length of distribution lines, energy delivered (GWh), distribution losses (%), number and capacity of transformers (MVA), asset utilisation, and maximum demand.

3.2.3 Gas

The gas pipeline industry in Australia is required to measure performance on reliability, service quality, customer surveys and complaints management measures. However, the regulation of service quality in gas is dissimilar to electricity in the following ways:

- service quality and technical performance monitoring is not necessarily undertaken by a single regulator;
- access agreements will include explicit conditions relating to the quality of service provision; and
- in States where domestic reticulation dominates the service load, measuring the performance of the customer service interface will receive greater attention.

Despite these observations, the general approach to the setting of performance regimes for gas businesses will require regulated businesses to report against:

- aggregate data – total customers, disaggregated by type and level of consumption, asset length, consumption levels and unaccounted for gas or leakages;
- reliability measures – number of planned and unplanned interruptions, number of customers effected by interruptions, and number of low pressure incidents; and
- customer service interface – aggregate number of complaints and complaints by type or expected cause and categorised by resolution.

In some instances the gas business may be required to make penalty payments for breaches of agreed performance thresholds, which could be a part of individual access agreements or set down by the regulator in the form of minimum standards. Penalty payments may also be reported under the KPI regime.

3.2.4 Water

Every major urban (above 5,000 connections) and non-urban water supplier in Australia, including bulk water providers, provides information to the annual quality of service publication of the Water Services of Association of Australia (WSAA).³³ Product quality is often regulated as minimum standards which form license conditions.³⁴

3.3 Criteria for the development of KPI regime

The following criteria have been developed to assess the applicability of particular KPIs for the performance monitoring regime:

- effectiveness in identifying and communicating compliance with the regime and performance;
- relevance so that measures captured in individual contracts would not be caught under the KPI regime except in an aggregated form;

³³ WSAA*facts*.

³⁴ Essential Services Commission in Victoria for water and IPART for Sydney Water, Hunter Water etc.

- measurability so that the relevant KPIs are amenable to quantification. In a limited number of instances, qualitative measures may be appropriate;
- comparability with other regimes to provide a basis for benchmarking performance
- comprehensiveness of the KPI regime to provide a vehicle for the holistic assessment of compliance with the regulatory regime.

3.3.1 Effectiveness

Clearly a fundamental aspect of the KPI regime is to ensure that it reflects the principles and objectives of the regulatory environment. In other words, it is important that the KPIs considered as a whole provide a basis against which the regulator can properly assess compliance with the regime.³⁵

Whilst it is important for the KPIs *as a whole* to identify compliance with the regime, it is equally important the individual KPIs provide information relevant to particular performance measures in identifying compliance and performance. For example, the KPIs must be designed so that each critical aspect of the regime is addressed. Balanced against this is the need to keep to a manageable number of indicators so that they are informative.

KPIs must also communicate information to an audience in a way that is easily comprehended so that stakeholders are able to assess the characteristic of performance under consideration in absolute terms, but often also in relative terms. For example, whilst it is possible to closely examine several aspects of track condition, in practice track condition manifests itself principally in transit times and speed restrictions. Communicating track quality through KPIs based on transit times and speed restrictions not only allows network users to understand the information, as it is in a familiar and practical form, but also facilitates comparison with the service levels they have received.

Accordingly, presenting track condition on the basis of transit times and speed restrictions provides users with more relevant information than, say, measures such as the eccentricity or elasticity of the track. These latter measures may inform or assist in the optimisation of

³⁵ A separate consideration concerns the appropriateness of the regime and wider public interest considerations, which are considered below.

track maintenance management strategies, but are not appropriate for the KPI regime at this time.

Also, in order to be effective in communicating information, it is important that the KPIs be accompanied by explanations and justifications by service providers of their performance where divergence from benchmarks occurs.

3.3.2 Measurability

Sources of information, for the purposes of performance measurement, can be labeled as:

- output related measures – such as transit times and reliability;
- input related measures – such as costs of service, which is relevant to efficiency considerations;
- processes – which examines the integrity of the processes adopted. This is particularly relevant in the case of segregation arrangements;
- outcomes – relates to user perceptions and levels of satisfaction with aspects of the regime or conduct under the regime.

It is likely that a mix of these measures will be appropriate depending in part upon the characteristics of the available or readily obtainable information and the nature of the KPI being measured. As well, the availability of the information is likely to be a significant issue during the initial phase of KPI implementation, as systems of recording and consistency of recording will require development. For example, train controllers will be required to measure on-time running or train delays and these parameters will need to be apportioned by cause in the recording system. The consistency of recording this information is a key part in its integrity and it is likely that train controllers will need to be trained in certain methods of recording according to a robust set of procedures.

Whilst output and input related measures are amenable to quantification, and hence able to be verified, in some cases, qualitative measures may be appropriate, although regulatory regimes generally have found it more difficult to settle on qualitative measures of performance.

Indeed, the holistic approach recognised above needs to take into account that in some cases, a review of the processes that are being implemented properly forms part of the performance monitoring regime. For example, any assessment of compliance with the segregation

arrangements is likely to be qualitative in nature and focus on processes, and in some cases, outcomes (eg satisfaction with the outcomes of complaints on train control decisions).

3.3.3 Relevance

It is expected that individual access agreements will also contain KPI reporting frameworks.³⁶ It is therefore important that a distinction is drawn between the KPIs that are appropriate for individual contracts, and those that are appropriate for KPIs in the context of the regime as a whole.

In general, measures that could be expected to be captured in individual contracts would not be caught under the KPI regime except in an aggregated form. This highlights the fact that there is a clear distinction between the types of measures relevant for individual contracts, which are directed at compliance with the contract, and the KPI regime, which is directed at identifying performance against the regime as a whole.

Another important reason to draw the distinction between the “micro” level of individual contract and the “macro” level of the regime as a whole is that the former is likely to involve issues of commercial in confidence information that should be a matter for the contract itself whereas the latter will not.³⁷

By aggregating individual contractual information, it will be possible to develop a KPI regime that provides the necessary information without unduly compromising commercial in confidence information. However, in the early stages of the operation of the regime, there may be relatively few third party operators on parts of the network. Consequently, the Regulator may decide to aggregate reporting in a way that achieves a balance between the desired level of accountability and individual operator’s and railway owners’ confidentiality concerns.

³⁶ Refer to clause 11 of schedule 3 of the Code.

³⁷ Section 50 of the Code obliges the ORAR to have regard to the confidential nature of information that might be disseminated in pursuit of the regulator’s functions.

This also highlights a more subtle interaction between the contracts and the KPI regime – it is likely that the choice of KPIs for the regime will influence the choice of KPIs for individual contractual performance.

Finally, to be relevant, KPIs must be reported in a timely fashion.

3.3.4 Comparability

In the appendices the various approaches to performance reporting in other rail regimes are outlined. It is considered desirable that comparability be preserved to the extent that this is possible, particularly against other rail access regimes. It is noted that there are two rail regimes in Australia that have been endorsed by the relevant regulatory authorities, namely the ARTC Undertaking (ACCC) and the QR Undertaking (QCA). Both these regimes potentially provide measures of particular relevance to WNR on account of the fact that:

- like the WA access regime, the QR undertaking was developed for a vertically integrated railway; and
- the ARTC regime covers track with which there will be significant overlap with the WNR arrangements, particularly on the standard gauge line. This highlights the importance of compatibility and comparability between the regimes, particularly for traffics that will be subject to both in a single movement.

Another aspect of comparability involves aggregating the information in a way that is meaningful. The segmentation of the reporting regime occurs at several levels, including:

- frequency – which reflects the segmentation of reporting over time. It is proposed that the KPIs be reported quarterly or annually, depending upon the indicator;
- geographically – there is enormous diversity in the WNR and WAGR systems and in the traffics traversing those systems. Accordingly, an issue arises as to the appropriate aggregation of individual route sections for the purposes of the KPI regime. To some extent there is a natural separation by virtue of control of the network being separated between WAGR (suburban passenger transport in the Perth metropolitan area) and WNR. However, in addition, the geographic disaggregation on WNR's network generally reflects the predominant traffic type and accordingly, in many cases, it will be appropriate to segregate the reporting of KPIs on a regional basis where reporting is disaggregated to the level of the following individual regions:

- intermodal freight on the main East-West corridor to the eastern states³⁸;
 - bulk commodity transport; and
 - grain transport to four major sea ports.
- segregation by user – broadly, there are two categories of user, being AWR (the above rail operator which is also a related entity of WNR) and other third party operators. For many KPIs, it will be appropriate to separately report on KPIs affecting these customer groups as well as the aggregate.

3.3.5 Comprehensiveness

It is important that the KPI regime provide a vehicle for the holistic assessment of compliance with the regulatory regime with reference to the wider public interest considerations that underpin its existence. Particular issues of note include:

- safety considerations, and in particular that third party access does not contribute to an unacceptable safety risk, which is of particular relevance considering;
- section 20(4)(f) of the Act requires the Regulator to take account of the operational and technical requirements necessary for the safe and reliable use of the railway infrastructure; and
 - clause 6(4)(i)(vi) of the Competition Principles Agreement requires that the dispute resolution body when considering the terms and conditions for access should take into account the operational and technical requirements necessary for the safe and reliable operation of the facility;
- the Regulator’s responsibility under the regime to continually monitor and assess its efficacy, and in appropriate cases, recommend changes to the Minister.

Finally, it is important to recognise that reporting systems are likely to evolve over time with new developments and the increasing familiarity with the system.

³⁸ South Australia, Victoria, New South Wales and Queensland

3.4 Stakeholders

Finally, we consider the principal stakeholders for the KPI regime to be:

- the public;
- third party operators;
- end customers;
- the railway owners, WNR and WAGR;
- Parliament;
- the Safety Regulator;
- the Corridor Minister, the Treasurer and the Transport Minister;
- Commonwealth authorities, including the NCC and the Commonwealth Treasurer.

4 Appraisal and development of KPIs for WNR

To identify key performance indicators (KPIs) for WNR we undertook an appraisal of the regulatory regime consisting of the relevant parts of:

- the Act and the Code; and
- the Rail Access Regulator's determinations.

The primary purpose of the appraisal is to identify the KPIs to be measured, assessed and monitored through the reporting framework. The following areas are considered for the development of KPIs:

- network overview;
- negotiation framework;
- segregation arrangements;
- costing principles;
- over payment rules;
- train management guidelines;
- statement of train paths policies;
- service quality; and
- public interest considerations, including the efficacy of the regime.

4.1 Network overview

The purpose of the network overview is to gain an overview of the usage and service potential of the network, by the identification of the following in respect of each route section:

- length of track;
- gross tonnes;

- gross tonne kilometres;
- train kilometres;
- maximum axle load;
- maximum speed;
- average speed;
- maximum train length.

It is recommended that these KPIs be reported each quarter so as to provide contextual background to each report on KPIs (especially since several KPIs are derived from these variables, such as operating costs per train kilometre).

4.2 Negotiation framework

4.2.1 Background and legislative requirements

An important part of the access regime relates to the negotiation framework established under the Code. The main steps in the negotiation framework are as follows:

- a person may seek to be provided with preliminary information within 14 days of a request³⁹;
- in response to a written proposal seeking access, the railway owner must acknowledge receipt within 7 days and provide the proponent with certain information including the railway owner's requirements and costing information⁴⁰;
- the railway owner must observe certain obligations in negotiating access agreements, including not to unnecessarily delay the process or unfairly discriminate between proponents⁴¹;

³⁹ Section 7 of the Code.

⁴⁰ Section 9 of the Code.

- where the railway owner is dissatisfied with the proponent's managerial or financial ability or where there is insufficient capacity on the system, the railway owner must communicate this to the proponent within a defined period and provide reasons⁴²;
- once satisfied of the proponent's managerial and financial ability the railway owner is required to give a notice of its readiness and nominate a date to begin negotiations within a defined period and to set a negotiation period⁴³;
- the Regulator may be called upon to provide an opinion whether or not a price sought by the railway owner is consistent with the requirements of the Code⁴⁴; and
- the arbitration process in the event of a refusal to negotiate or negotiations have broken down⁴⁵.

4.2.2 Identification of KPIs

It is recommended that the following KPIs be adopted to assess compliance with the regime:

- the number and percentage of breaches of the negotiation timeframes outlined in the Code;⁴⁶
- where breaches of the negotiation timeframes have occurred, the average delay in days taken to complete the requirement that was breached (with the regulator retaining the discretion to require a further breakdown into specific breaches);

⁴¹ Section 16 of the Code.

⁴² Section 18 of the Code.

⁴³ Sections 19 and 20 of the Code.

⁴⁴ Section 21 of the Code.

⁴⁵ Sections 22 to 35 of the Code.

⁴⁶ In the event there are several breaches of the timeframes, it may be appropriate for a further breakdown to be provided.

- the number of negotiations commenced within the year;
- the number of negotiations completed resulting in an access agreement being negotiated;
- the number of access negotiations withdrawn from by the access seeker;
- the number of negotiations in dispute (refer section 25 (2) of the Code);
- the number of agreements reached “inside” the Code;
- the number of agreements reached “outside” the regime;
- the number of arbitrations commenced; and
- the number of arbitrations completed.

4.2.3 Reporting framework

It is recommended that the following framework be adopted in respect of these KPIs:

- reporting be undertaken annually;
- there be no geographic segregation;
- customers be separated according to whether or not they are related entities of the railway owner.

4.3 Segregation arrangements

4.3.1 Background and legislative requirements

Segregation, or “ring-fencing”, refers to the separation of access related functions from other activities, in particular train (or above rail) operations. There are several aspects to segregation:

- functional separation – where duties are assigned between above rail and below rail sectors;

- cost allocation – to ensure that there is no inappropriate allocation of above rail costs to the below rail part of the business; and
- confidential information - to manage confidential information, so that any associated “above-rail” company does not receive commercial information that would provide it with a competitive advantage.

The integrity and enforcement of segregation arrangements is critical to the efficacy of the regime – unless operators and potential operators have confidence in these arrangements, they will simply not invest the time and effort to attempt to enter the market.

The requirements of the Act for segregation are as follows:

- duty to segregate – a railway owner must make arrangements to segregate its access-related functions from its other functions, and have appropriate controls and procedures to ensure that the arrangements in place operate effectively and are being complied with;⁴⁷
- define the powers of the Regulator in relation to segregation – the railway owner must obtain the Regulator’s prior approval for its segregation arrangements or variations to such arrangements. The Regulator may provide written directions to the railway owner in relation to segregation and these directions are to be complied with;⁴⁸
- protection of access seekers or rail operators confidential information from improper use and disclosure by officers of the railway owner;⁴⁹
- avoidance of conflict of interest - officers must have no conflict in duties between the performance of access-related functions and other business of the railway owner;⁵⁰

⁴⁷ Section 28 of the Act.

⁴⁸ Section 29 of the Act.

⁴⁹ Section 31 of the Act.

⁵⁰ Section 32 of the Act.

- duty of fairness - in performing their functions relevant officers must not have regard to the interests of the railway owner in a way that is unfair to persons seeking access or to other rail operators;⁵¹ and
- maintenance of separate accounts and records – the railway owner is required to ensure that its accounts and records are in such form as to enable all income, expenditure, assets and liabilities relating to the carrying out of its access-related functions to be properly recorded and distinguished from the railway owner's other income, expenditure, assets and liabilities and in the case of common or shared costs that these are apportioned in a fair and reasonable manner.⁵²

4.3.2 Key aspects of the segregation arrangements

The Regulator has identified critical elements of the segregation arrangements as follows:

- provision of an annual Compliance Report detailing a Compliance Plan with specific procedures for ensuring segregation arrangement compliance and measures for monitoring compliance;
- a detailed annual independent external audit of compliance with other aspects of the Segregation Guidelines on a negative assurance basis, with the Regulator having the ability to select the auditor and the final audit report being made public;
- a compliance manual detailing the segregation arrangements including the types of behaviour which breach segregation requirements and the appropriate corrective action for each breach and notification procedure; and
- the requirement that the railway operators must report any breaches of the segregation arrangements to the Regulator in writing within 5 business days.⁵³

⁵¹ Section 33 of the Act.

⁵² Section 34 of the Act.

⁵³ ORAR, (2002), “Segregation Arrangements to Apply to the WestNet Rail – Determination of the Western Australian Independent Access Regulator”, page 34.

4.3.3 Identification of KPIs

The key goal of the KPIs for the segregation arrangements is to inform the Regulator, as well as prospective access seekers and operators, as to the integrity of the ring-fencing arrangements. In particular, it is important that all parties be assured that there are no inappropriate transmissions of confidential information and that there is no preferential treatment accorded to the railway owner's related entities. It is also important there be credible enforcement of identified breaches through remedial action, the levying of penalties or through the triggering of hindering access provisions.

There is little room for latitude for breaches of the segregation arrangements because of their seriousness. For instance, breaches of the confidential information protections can seriously damage an operator and significantly affect the perceptions of those who might consider becoming competitors in the above rail market.

Unlike other parts of the State's rail access regime, the effectiveness and compliance of WNR (and WAGR) can largely be measured by KPIs associated with process, and, to a lesser extent, outcomes. This is because performance is focused on the consistent application of a process – a breach of the segregation arrangements will normally be occasioned by a breach of the process set out in the Compliance Manual. Nevertheless, breaches of process can suggest actual breaches of the segregation arrangements and signal future breaches occurring and accordingly, it is important that they be recorded as KPIs.

Compliance manual and external audit

It is apparent from the Regulator's decision on the segregation provisions that the compliance manual that is to be developed by WNR will form a critical part of the regime. This is because the compliance manual will form an essential "how to" guide to compliance with the regime and with it, a basis for a compliance audits.

With this in mind, the key KPI to be considered is the audit report into compliance with the segregation arrangements and the Compliance Manual. It is expected that the audit would cover the following:⁵⁴

⁵⁴ Specific KPIs are being developed elsewhere in the regime to assess the requirement for the railway owner to act fairly.

- the treatment of confidential information, including:
 - the efficacy of controls over physical and electronic separation of data;
 - the effectiveness of RAS and RAMS protection;
 - the acknowledgement from employees who will perform prescribed duties about the need for maintaining confidentiality;
 - the signing of deeds for rotating employees;
 - the effectiveness of staff training on the Compliance Manual;
 - compliance with information disclosure protocols for the chief executive and board members of ARG;
- in relation to conflicts of interest, ensuring that rotations that occur in emergencies are notified to the Regulator.

It is therefore expected that the audit will not only provide advice as to the future improvement of the arrangements but also indicate the number of breaches identified through the audit process. The number of such breaches ought to have the status of KPIs under the regime.⁵⁵

Remaining KPIs

In addition, it is suggested that the following KPIs be developed:⁵⁶

⁵⁵ It may be appropriate for the Regulator to adopt a more detailed and formal approach to reporting of breaches of the segregation arrangements in the future – especially as a precursor to action being taken under the Act or the Code.

⁵⁶ In relation to WNR's requirements under section 34 of the Act, it is assumed that the regulator will separately enquire into the appropriateness of WNR's accounting practices and the timeliness and integrity of its financial statements, and that such reports will also be publicly available.

- number of breaches of the segregation arrangements notified to the Regulator by WNR within 5 business days of becoming aware of the breach and a description on the remedial action taken and the consequences of the breach;
- number of allegations of breaches of the segregation arrangements;
- number of breaches of the segregation arrangements substantiated by the Regulator and a description on the remedial action taken and the consequences of the breach; and
- number of complaints satisfactorily resolved by the parties.⁵⁷

4.3.4 Reporting framework

It is recommended that the following framework be adopted in respect of these KPIs:

- reporting be undertaken quarterly;⁵⁸
- there be no geographic segregation in reporting.

As all disputes are likely to involve entities external to WNR and any associated company, there is no reason to attempt to separate reporting by customer.

4.4 Statement of train path policy

4.4.1 Background and legislative requirements

Section 44 of the Code requires the railway owner to develop and have approved by the Regulator a train path policy (TPP) relating to the allocation of train paths and the provision

⁵⁷ The audit report will need to make it clear which of the breaches identified through the audit process have been reported through these KPIs to avoid double counting.

⁵⁸ Although it is proposed that the audit report be undertaken annually and accordingly quarterly reports will necessarily be incomplete in this respect.

of access to train paths that have ceased to be used. The TPP therefore addresses scheduling issues but not the real time management of train services, which is addressed in the Train Management Guidelines (TMG).

4.4.2 Key aspects of the train path policy

The key parameters that need to be measured from the TPP include:

- the initial allocation of train paths;
- the subsequent canceling or reallocation or removal of train paths by WNR;
- the use of conditional train path allocations for seasonal operations;
- the use of temporary variations to train path allocations by WNR and the reasons for the temporary variations;
- the use of permanent variations to train path allocations by WNR and the reasons for the permanent variations;
- the occurrence of services on train path allocations under section 3.8, such as mechanical failure of access user, failure in the access user's equipment, and repair, maintenance or upgrading of the network;
- the cancellation of services by access users; and
- the number and nature of disputes made by access users under the dispute resolution process.⁵⁹

The measurement of these parameters, by appropriate and reasonable KPIs, would provide the Regulator with the ability to determine the efficacy of WNR's TPP, when amended to align with the requirements of the Regulator.

⁵⁹ ORAR, (2002), "Train Path Policy to Apply to the WestNet Rail – Draft Determination of the Western Australian Independent Access Regulator", pages 26-33.

4.4.3 Identification of KPIs

In assessing the efficacy of the TPP, there are the following dimensions:⁶⁰

- the capacity of the network; and
- disputes concerning the scheduling process.

Capacity of the network

Section 10 of the Code provides that the Regulator may authorise the provision of access where it is likely to preclude other entities from accessing the infrastructure. The number of such determinations is likely to provide an indication of the availability of the network for new entrants and to highlight the route sections in which further investment in the network may be socially desirable. Accordingly, it is recommended that the number of determinations authorising negotiations under section 10 be reported as well as the critical bottlenecks identified in the review.

Disputes concerning the scheduling process

The effectiveness of the application of the TPP can also be measured by looking at the frequency of complaints made by access seekers and operators against the railway owner leading to the following KPIs:

- the number of disputes in relation to scheduling processes (including for temporary variations, permanent variations and reallocation of train paths);
- the number of complaints that are substantiated (which may be through a dispute resolution process);
- the number of complaints that are neither substantiated to WNR's satisfaction nor resolved to the operator's satisfaction; and

⁶⁰ Network availability is considered in the context of track quality below.

- the number of complaints that are resolved to the parties' satisfaction without further intervention.

4.4.4 Reporting framework

It is recommended that the following framework be adopted in respect of these KPIs:

- reporting be undertaken quarterly;
- reporting be undertaken on a regional basis for the WNR; and
- customers be separated according to whether they are related entities or not of the railway owner with reporting also for the network as a whole.

4.5 Train management guidelines

4.5.1 Background and legislative requirements

It is critical that operators and prospective operators have confidence in the non-discriminatory application of the real time management of train services on the network. Section 43 of the Code requires the railway manager to develop Train Management Guidelines (TMG) to apply to the real time management of train services and to have those guidelines approved by the Regulator.

4.5.2 Key elements of the TMG

In its draft determination on WNR's draft TMG, the Regulator identified, among others, the following areas as having received some concern from stakeholders:

- application of the TMG for operators outside the regime;
- terms and definitions used and relationship of the WNR Network Rules;
- broad powers of WNR in the management of trains due to the inclusion of "the exercise of reasonable care";
- lack of a completed train decision matrix within the TMG;

- need for a long range possession management process; and
- key performance indicators and frequency at which the TMG will be reviewed.

Ultimately, train control decisions that unjustifiably dispute train operations have the potential to result in claims of hindering access against railway owners.

4.5.3 Identification of KPIs

The effectiveness of the application of the TMG can be measured by looking at the frequency of complaints made by access seekers and operators against the railway owner leading to the following KPIs:

- the number of disputes in relation to train control decisions;
- the number of complaints that are substantiated (which may be through a dispute resolution process);
- the number of complaints that are neither substantiated to WNR's satisfaction nor resolved to the operator's satisfaction; and
- the number of complaints that are resolved to the parties' satisfaction without further intervention.

Another dimension of the operation of the TMG relates to the on-time performance of the network. However, delays can be occasioned by several factors other than train control decisions, including, for example, track quality. Accordingly, reliability related KPIs are considered separately in the service quality section below.

4.5.4 Reporting framework

It is recommended that the following framework be adopted in respect of these KPIs:

- reporting be undertaken quarterly;
- geographic segregation be undertaken on a regional basis; and
- customers be separated according to whether or not they are related entities of the railway owner.

4.6 Costing principles

4.6.1 Background and legislative requirements

The primary functions of the costing principles under the regime are to:

- keep and present the railway owner's accounts and financial records; and
- determine costs for the floor and ceiling price tests⁶¹.

Under Section 46 of the Code, the railway owner is required to obtain the Regulator's approval for the costing principles it is proposing to implement.

4.6.2 Key elements of the Costing Principles

In its draft determination on WNR's draft costing principles, the Regulator identified the following areas as having received the greatest concern from stakeholders:

- general principles;
- operating costs, including the definition of the different cost categories and the application of efficient costs;
- asset valuation issues, including the application of the GRV methodology as well as other costs to be included as part of the valuation; and
- issues associated with the quantification of total costs.

4.6.3 Identification of KPIs

In general terms, therefore KPIs in relation to compliance with the costing principles fall broadly into the following categories: ⁶²

⁶¹ ORAR, (2002), "Costing Principles to Apply to the WestNet Rail – Final Determination of the Western Australian Independent Access Regulator", page 2.

- information relating to the assessment and verification of floor and ceiling prices;
- efficiency related information; and
- information to inform decisions about track quality and asset valuation.

Assessment and verification of floor and ceiling prices

Under Schedule 4 of the Code, the Regulator is to make determinations about the level of floor and ceiling prices for a route section. It is therefore important that information is continuously provided to all parties to inform the accuracy and appropriateness of these determinations.

One of the challenges presented by the regime is the assumption of the “new” network for regulatory purposes. Effectively, this assumption requires a distinction be made between actual expenditure on the network (assuming it is efficient) and the levels of expenditure appropriate to “new” infrastructure. Only the latter is relevant for the purpose of price ceilings and floors, but only the former can be actually observed. Accordingly, this framework suggests that additional transparency is required relative to other reporting regimes and it is recommended that KPIs comprise a mixture of both actual and assumed values for expenditure with the following information being published annually in respect of each of the regions:

- actual infrastructure operating costs per train kilometre (TKM) and per gross tonne kilometre (GTK), for each route section identified by the Regulator and for each region;
- actual maintenance unit costs for infrastructure maintenance (\$/GTK) for each route section identified by the Regulator and for each region;

⁶² Section 34 requires a railway owner to maintain separate accounts for its access related functions. The requirements in relation to the integrity of this separation will be established through a separate auditing process and hence will not be considered in the context of the KPI regime (except in relation to failure to produce statements and the outcomes of the audit process).

- actual maintenance expenditure for each route section identified by the Regulator, and for each region;
- actual routine and cyclical maintenance per kilometre for each route section identified by the Regulator and for each region;
- actual expenditure on MPM per kilometre for each route section identified by the regulator and for each region; and
- specification of savings attributable to assumed condition relative to actual expenditure for each route section identified by the regulator and for each region.

In its final determination on the costing principles, the Regulator indicated the following operating cost drivers should be included⁶³:

- the frequency of services for passenger and other traffic;
- traffic density;
- average speed for freight and passenger services;
- actual average axle loads relative to maximum axle load;
- climate related factors such as the number of days of extreme heat and rainfall; and
- the safety, quality and reliability requirements of customers and other stakeholders.

These background factors ought to be determined on a route section basis for those route sections nominated by the Regulator as being of particular significance.

Efficiency

Efficiency for a railway infrastructure business is difficult to monitor precisely on an input or output basis due to the multi-dimensional nature of the expenditure over time. However, one indicator can be provided by the extent to which the maintenance work is competitively

⁶³ ORAR, (2002), "Costing Principles to Apply to the WestNet Rail – Final Determination of the Western Australian Independent Access Regulator", page 14.

outsourced. Whilst this is not an absolute measure of efficiency and it is possible that the maintenance task may be inefficiently conducted despite outsourcing, the propensity for outsourcing suggests a willingness to expose this major area of expenditure to competitive forces. Accordingly, the proposed KPI in respect of efficiency is the percentage of the maintenance work that is competitively outsourced.

Track quality⁶⁴

Fundamental to the access regime is the inclusion of the gross replacement methodology for asset valuation purposes. However, clause 13 of Schedule 4 makes it clear that the GRV approach is only to be applied to track that is of a suitable standard. Accordingly, the development of KPIs for track quality assumes particular significance in the regime. Suggested KPIs are as follows:

- track quality indices;
- the impact of speed restrictions; and
- track availability measures.

Track quality indices

One measure of track condition is a track quality index (TQI).⁶⁵ For example, both the ARTC and QR are required to provide a quarterly report on a TQI to be averaged over each

⁶⁴ The *Rail Freight System Act 2000* defines the functions of the Corridor Minister, which could extend to monitoring the railway infrastructure standards maintained by WNR. If KPIs or similar measures are established by the Corridor Minister under the *Rail Freight System Act 2000*, it is recommended that the Regulator consider their application under this regime to the extent they present a viable substitute for the KPIs contained in this report (ie to the extent such measures capture the essence of the KPIs suggested in this report). This could avoid requiring WNR to report on similar measures to different regulatory bodies.

⁶⁵ TQI is a statistical measure based on the standard deviation of variations from perfect railway track. It is the sum of deviations from perfect geometry of various parameters including the vertical alignment (top), line (horizontal alignment), twist (relative vertical

segment. It is also recommended that WNR produce a TQI for each of the relevant regions on an annual basis.

Impact of speed restrictions

In addition to the TQI, it is proposed that the Regulator require the following KPIs on a quarterly basis for each region:

- percentage of each region of the network subject to temporary speed restrictions;
- percentage of each region of the network subject to permanent speed restrictions;
- the average impact on transit time of speed restrictions over the period as a percentage of expected transit time with no speed restrictions; and
- the total and average number of Train Services in a region affected by speed restrictions.

Track availability

The Master Train Plan (MTP) will allude to the requirement for track to be available for services for certain periods throughout the day and year. Periods will occur where for maintenance reasons or other seasonal reasons the track will not be made available for train services. Track availability may also be affected by above rail operators.

Therefore it is necessary for the MTP to explicitly indicate when the track will not be expected to be open. It is proposed that the Regulator require the following performance indicators for each of the route sections being reported quarterly:

- periods on the MTP where the track will not be available to train services due to maintenance work;

position of each rail) and the gauge (distance between the rails). Some of the parameters are relevant for each rail making a total of 6 parameters.

- periods on the MTP where the track will not be available due to seasonal formation instability or other infrastructure related limitation;
- periods where the track is not available for train services where the MTP indicates it should be available; and
- number and percentage of Train Services scheduled in the master train plan cancelled due to a reason that can be attributable directly to the railway owner;
- number and percentage of Train Services scheduled in the master train plan cancelled due to a reason that can be attributable directly to an operator; and
- number and percentage of Train Services scheduled in the master train plan cancelled due to a reason that cannot be clearly assigned as directly attributable to an operator or to the railway owner.
- overall percentage of time of actual unavailability to actual availability.

4.7 Over-payment rules

4.7.1 Background and legislative requirements

Under Section 47(1) of the Code, WNR is required to obtain the Regulator's approval where breaches of the ceiling price test occur on the part of that railway owner that could not reasonably be avoided. The Over-payment Rules are designed to provide a mechanism in the regime to:

- calculate the amount by which revenue exceeds the total costs attributable to the route section and infrastructure; and
- reimburse operators where over-recovery occurs.

4.7.2 Key elements of the over-payment rules

In its final determination, the Regulator set out a detailed process to be applied where breaches of the ceiling occur.

The Regulator's required overpayment rules can be used to effectively identify where KPIs would be able to be applied.

4.7.3 Identification of KPIs

In establishing appropriate KPIs to measure WNR's compliance with overpayment rules it is recommended that the following be considered:

- WNR be required to produce a confidential spreadsheet listing revenue under each contract and apportioning it to each route section in accordance with the Final Determination and identify any percentage of over-recovery. The spreadsheet should separately record private contributions and government subsidies from access charges;
- the number of contracts negotiated outside the regime and a comparison of non-regime revenue against the total regime revenue;
- the quantum or size of carryover of overpayments each period, ie effectively a measure of annual overpayment balance;
- balance of the Trust Account and a statement of compliance with the rules, ie balance, reconciliation and appropriate application of interest;
- number of route sections that breached the ceiling;
- number of route sections that breached the ceiling by more than 10%;
- the number and quantum of overpayments proposed to be returned by WNR by September 30 in the year;
- the number and quantum of overpayments proposed to be returned by WNR in the previous 3 years;
- the number and quantum of overpayments actually returned by WNR in the previous period; and
- the number of breaches of ceiling prices tests by route and reason, that is, avoidable and unavoidable as defined by the Final Determination.

It is recommended that the Regulator consider publishing the results of its audit report on WNR's compliance with the over-payment rules.

4.7.4 Reporting framework

The nature of these KPIs is such that many will be confidential where they could reveal the access charges paid by a user of the network. Other KPIs, such as the number of contracts negotiated outside of the regime, the extent of compliance, the carryover of the Trust Account balance, the number of route sections that breached the ceiling and the number of payments made by WNR on a regional basis are unlikely to be confidential. The reporting for such measures should be performed annually for the period to 31 July each year.

4.8 Service quality

4.8.1 Background

Several aspects of the customer/railway owner interface either do not fall exclusively into any of the above areas or are not specifically addressed in the regulatory framework. These KPIs mainly concern service quality.

4.8.2 Identification of KPIs

Accordingly, it is proposed that the following KPIs be considered:

- reliability;
- transit time; and
- billing accuracy.

Reliability

The KPIs related to the reliability of the service being provided by WNR are closely linked with the TMG Guidelines:

- number and percentages of healthy⁶⁶ Services⁶⁷ that exit the Network within tolerance;⁶⁸
- number and percentage of unhealthy Services that do not deteriorate further, within tolerance;
- number and percentages of unhealthy Services that exit the Network within tolerance;
- number and percentages of Services which are operated in a healthy manner;
- number and percentage of Services which exit the Network no later than schedule, within tolerance;
- number and percentage of Services which enter the Network no later than schedule, within tolerance;
- number and percentage of Services which exit the Network no later than one hour⁶⁹ after schedule.

⁶⁶ For this purpose, a healthy service is one that has experienced no above rail related delay, within tolerance. Delays are attributed by ARTC personnel following advice from relevant sources (including the Operator). The attribution will determine the health or otherwise of the Service.

⁶⁷ Services include Scheduled and Conditional Train Paths and seasonal train paths once they have been agreed.

⁶⁸ For this purpose tolerance is to be set under the regime but is suggested to be 15 minutes (unless otherwise agreed). In some cases, an operator may request that a healthy train be delayed so that another of the operator's trains that is unhealthy can gain priority. In such a case, the agreed tolerance for the healthy train would increase accordingly.

⁶⁹ It may be appropriate to employ shorter or longer timeframes as appropriate depending on corridor transit times.

Transit times

For transit times, it is also recommended that histograms be developed indicating the delay as follows:

- for those trains that do not reach their destination within the agreed tolerance on account of a below rail delay the delay, in minutes per 100 kilometres, for each such delay;
- for those train services that do not reach their destination within agreed tolerance, on account of an above rail delay, the delay, in minutes, per 100 train kilometres for each such delay; and
- for those train services that do not reach their destination within agreed tolerance, on account of neither an above rail or below rail reason, the delay, in minutes per 100 train kilometres for each such delay.

Billing accuracy

Billing errors have the capacity to materially affect perceptions of service quality and accordingly it is recommended that a KPI be adopted providing information on billing performance, being the number of instances where an operator has made a complaint to WNR about an incorrectly calculated bill, and where WNR's investigation into the complaint identifies that the bill was incorrectly calculated.

4.8.3 Reporting framework

It is recommended that the following framework be adopted in respect of these KPIs:

- reporting be undertaken quarterly;
- geographic segregation be undertaken on a region basis for the WNR network as a whole;
- customers be separated according to whether or not they are related entities of the railway owner.

4.9 Public interest considerations

An important part of the ongoing regulatory arrangements involve ensuring that public interest considerations are adequately incorporated, not only into the regulator's decision making, but the regulator's duty to continuously monitor the efficacy of the regime.

The following issues have also been identified as being of particular relevance to the public interest considerations associated with the regime:

- safety; and
- review of the Act and the Code⁷⁰.

4.9.1 Safety

Regarding access issues and the operation of the network, a general concern relates to safety, particularly given the potential for third party access to affect safety outcomes. The impact of third party access on operational and technical safety of a railway route is a matter that the Regulator is required to take account of by:

- section 20(4)(f) of the Act, which requires the Regulator to take account of the operational and technical requirements necessary for the safe and reliable use of the railway infrastructure; and
- clause 6(4)(i)(vi) of the Competition Principles Agreement, which requires that the dispute resolution body when considering the terms and conditions for access should take into account the operational and technical requirements necessary for the safe and reliable operation of the facility.

⁷⁰ Another public interest criterion concerns compliance with the Competition Principles Agreement (CPA). The access regime is yet to be certified under Part IIIA of the Trade Practices Act 1974. Accordingly, a further consideration in the development of KPIs is to ensure that the regime itself is compliant with the requirements of the Competition Principles Agreement. Whilst this may not impact upon the identity of individual indicators, it does highlight the importance of the integrity of the arrangements as a whole.

NECG considers that the current Australian Standard for rail safety, AS4292 (which was specifically formulated to ensure that Rail Safety Regulators around Australia have a common base from which to administer their particular Rail Safety legislation) would provide the Regulator with a range of rail safety data that is suitable for assessing the safety performance of access providers and users.

The Standard calls for the reporting of incidents (where there has been a lack of control) by the accredited operator⁷¹ or infrastructure owner⁷² responsible for that operation or territory or where an incident occurred that had the potential to cause serious consequences. In general, all Australian jurisdictions use two classifications of incident. Those of a more serious nature where death or serious injury has occurred, Category A, and those of a less serious nature where lesser consequences have occurred or where the potential existed for more serious consequences, Category B, definitions are provided in the Standard.

The key purpose of reporting incidents under Category A and Category B is to discern whether the incidence of events indicates a trend over time. Whilst no single event and no single type of event would provide definitive proof of a sustainable trend in overall infrastructure performance, the information could be combined with information on speed restrictions and average speed could provide evidence of the trend. As this information is already collected, it provides a ready source of data for performance monitoring of infrastructure.

Safety related KPIs that could indicate the effectiveness of the rail access regime include:

- the number of Category A⁷³ incidents attributable to infrastructure related causes; and
- the number of Category B incidents attributable to infrastructure related causes.

NECG believes that such measures are likely to be readily available, as they are likely to be reported by the railway owner to the Western Australian Rail Safety Regulator. It is also

⁷¹ As defined in the Acts but generally the train operator and/or suppliers.

⁷² As defined but generally the infrastructure manager, that organisation in control of the infrastructure and/or suppliers to the owner (NSW).

⁷³ As defined in AS4292.1 Rail Safety Management

likely that the safety-related KPIs already reported to the Rail Safety Regulator would be useful for Regulator's purpose.

Providing the Regulator with a copy of the report that the railway owner submits to the Rail Safety Regulator is expected to allow an assessment of the effectiveness of the rail access regime in respect of safety matters. The provision of such information to the Regulator would be for information purposes only. Nevertheless, the Regulator should retain a discretion to implement further KPIs if it becomes clear it is necessary to do so in order to discharge the Regulator's statutory obligations.

4.9.2 Review of the Act and the Code

Section 12 of the Act requires the Regulator to carry out a review of the Code as soon as practicable after the third anniversary of the commencement of the regime (due on 1 September 2004) and every five years thereafter. The Regulator must prepare a report based on its review and provide it to the Minister that then becomes considered in the context of possible amendments to the Code. Moreover, section 49 of the Code states that it is the function of the Regulator to enquire into and report and make recommendations to the minister on matters relating to the operation of the Act or the Code or the manner in which it may even be amended.

It is difficult to develop KPIs for the regime, when in practice the most important consideration will be the satisfaction of those interacting with the regime that it is producing efficacious outcomes, having regard to the various interests of the parties. Accordingly, in practice, a survey and consultation could provide this information, although such an approach is unlikely to form a KPI on its own.

It is interesting to note however that the regime does adopt some specific roles for the Regulator that do not apply universally elsewhere in Australia, and it is thought that some measure of the outcomes produced by these provisions could warrant KPIs to inform future assessments of the Act. Accordingly, it is recommended that the Regulator consider KPIs in respect of:

- number of capacity determinations under section 10 of the Code;
- the number of opinions provided under section 21 of the Code on whether or not the price sought by the railway owner in negotiations for an access agreement meets the requirements of clause 13(a) of schedule 4;
- number of determinations by the Regulator under clause 9 of schedule 4;

- number of determinations of costs by the Regulator under clause 10 of schedule 4;
- number of determinations under clause 12 of schedule 4;
- number of agreements reached inside the regime;
- number of agreements reached outside the regime;
- number of agreements reached outside the regime that were commenced inside the regime;
- number of arbitrations commenced;
- number of arbitrations completed;
- average negotiation period for contracts.

It is recommended that these KPIs be reported annually for the network as a whole.

5 Timing and transitional issues

For reporting purposes, it is important that the cycle that is established conform to the requirements of the regime. In this regard, the most important cycle is established by the Over-payment Rules. Accordingly, it is recommended that reporting to the annual reporting cycle be completed in mid-August for each year. This allows time for the completion of the relevant sections of the Over-payment rules to be completed as well as providing WNR approximately 6 weeks to complete other reporting arrangements. Quarterly reporting could then follow this cycle (for example, reporting for the September quarter to be completed by mid-November and so on).

There is no doubt that the range of KPIs identified will present some challenges in data collection and analysis. In particular, the availability of the information is likely to be a significant issue during the initial phase of KPI implementation, as systems of recording and consistency of recording will require development. For example, train controllers will be required to measure on-time running or train delays and these parameters will need to be apportioned by cause in the recording system. The consistency of recording this information is a key part in its integrity and it is likely that train controllers will need to be trained in certain methods of recording according to a robust set of procedures.

Accordingly, it is recommended that the implementation of the KPI regime proceed in close consultation with WNR, both in terms of the latitude that may be allowed in respect of the more difficult KPIs as well as the potential for WNR to report on a “dry-run” basis in the initial periods of reporting, at least for identified parameters. Of course, there are likely to be parameters that are not appropriate for any latitude to be allowed. Compliance with reporting in respect of the Over-payment Rules is likely to fall into this later category.

Finally, issues of commercial confidentiality arise in relation to the reporting of KPIs, especially where it discloses issues relevant to above rail operations. In practice, the best way to approach the issue is likely to be to consult with the interested parties to ascertain key sensitivities in the implementation of the arrangements.

Appendix 1 – ARTC measures

The following is an extract of the KPIs and public reporting requirements for Australian Rail Track Corporation Limited (ARTC) under its approved access undertaking.

PART 8

8. PERFORMANCE INDICATORS

8.1 Commitment by ARTC

ARTC undertakes during the Term to maintain the Network in a condition that is fit for an Operator's purpose to use the Network to provide rail transport services having regard to the terms of the Access Agreements.

8.2 Reporting

- (a) Set out in tables 1 and 2 below are the Performance Indicators relating to the Network which ARTC shall publish on its website referred to in clause 2.7(b). The Performance Indicators shall be published at the frequency referred to in the table set out below and shall comprise the industry performance and not that of individual Operators.

Table 1 – Service Quality Performance Reporting

Performance Measure	Responsibility	Reporting Frequency
Reliability⁷⁴		
Number and percentages of health ⁷⁵ Services ⁷⁶ that exit the Network within tolerance ⁷⁷ .	ARTC	Quarterly
Number and percentage of unhealthy Services that do not deteriorate further, within tolerance.	ARTC	Quarterly
Number and percentages of unhealthy Services that exit the Network within tolerance	ARTC	Quarterly
Number and percentages of Services which are operated in a healthy manner.	Operator	Quarterly
Number and percentage of Services which exit the Network no later than schedule, within tolerance	Both	Quarterly
Number and percentage of Services which enter the Network no later than schedule, within tolerance	Operator	Quarterly
Number and percentage of Services which exit the Network no later than one hour ⁷⁸ after schedule.	Both	Quarterly

⁷⁴ All measures would not reflect Services materially affected by a Force Majeure event (as defined in the Indicative Access Agreement).

⁷⁵ For this purpose, a health service is one that has experienced no above rail related delay, within tolerance. Delays are attributed by ARTC personnel following advice from relevant sources (including the Operator). The attribution will determine the health or otherwise of the Service.

⁷⁶ Services include all Committed and scheduled Capacity (excludes ad hoc Services).

⁷⁷ For this purpose tolerance is to be 15 minutes (unless otherwise agreed).

⁷⁸ It may be appropriate to employ shorter or longer timeframes as appropriate depending on corridor transit times.

Performance Measure	Responsibility	Reporting Frequency
Transit Time⁷⁹		
Number and percentage of Services which transit ⁸⁰ the Network no later than schedule transit, within tolerance	Both	Quarterly
Sum of minutes delay (and minutes per hour transit) attributed to below rail cause by type of delay eg track, signals/communications, train management/control.	ARTC	Quarterly
Sum of minutes (and minutes per hour transit) attributed to above rail cause by type of delay eg late entry, yard/terminal, crew, locomotive, rollingstock, running.	Operator	Quarterly
Sun of minutes delay (and minutes per hour transit) unable to be attributed to a cause or beyond either party reasonable control.	Neither	Quarterly
Number of kilometres and percentage of track under temporary speed restriction at the beginning of a reporting period.	ARTC	Quarterly
Track Condition		
Track quality measured by index ⁸¹		

⁷⁹ All measures would not reflect Services materially affected by a Force Majeure event (as defined in the Indicative Access Agreement).

⁸⁰ Transit time is the difference between entry and exit times and so includes all time for all enroute activities (scheduled and actual).

⁸¹ To be measured by Track Quality Index (TQI) and averaged over each Segment. TQI is calculated over 200m section samples at 1 kms intervals. TQI is the sum of the standard deviations in each of rail surface (average over left and right rail), rail line (average over left and right rail), cross level and twist (over 14m base length).

Table 2 – Periodic Reporting of ARTC Unit Costs

Cost Area	Unit Cost	Frequency
Infrastructure Maintenance ⁸²	\$/track km, \$/GTK	Annually
Train Control ⁸³	\$/train km	Annually
Operations ⁸⁴	\$/train km	Annually

- (b) ARTC shall incorporate into its annual internal audit process a review of Performance Indicator reporting. The internal audit shall be conducted by ARTC's internal auditor, which will be an entity independent of ARTC. The auditor shall prepare a written report on the process and the reporting of the Performance Indicators together with a finding on the measurement of the Performance Indicators. ARTC shall publish the findings on its website and make the report available to the ACCC upon request. ARTC's obligations to audit under this clause shall not commence until the date that is six months after the date of the acceptance by the ACCC of this Undertaking and shall only relate to Performance Indicator reporting occurring after the audit obligation commences.

⁸² Total annual expenditure associated with outsourced infrastructure maintenance and associated ARTC maintenance contract management function.

⁸³ Total annual expenditure associated with ARTC train control and transit management function.

⁸⁴ Total annual expenditure associated with 2 above, and ARTC operations planning and management function.

Appendix 2 – Queensland Rail

Queensland Rail (QR) also reports on the basis of train transit times operating as scheduled. The quarterly reporting in this instance looks at train services that do not reach their destination within the Agreed Threshold, including the average above (below and unallocated) rail delay, in minute per 100 kilometres. In addition, QR is also required to report on network availability for train services as measured by the number and percentage of train services scheduled in the master train plan cancelled due to a reason attributable to QR or an access holder or that is unassignable in terms of cause.⁸⁵

QR's reporting on compliance with the master train plan and the reliability of operations allows the regulator, the QCA, and access holders and potential access seekers, the opportunity to examine QR's performance in meeting its train allocation policy and the performance of managing on time train running in the network. This is critical to a rail access regime as compliance with the master train plan and management of train operations signals the efficacy of the access regime as it demonstrates whether procedural arrangements controlling the use of the rail infrastructure are allowing users to realise their needs, ie it signals whether train management and operational control procedures are achieving greater utilisation of the network infrastructure in a manner that is equitable to all users.

An alternative approach, although somewhat similar in purpose and scope, is the performance reporting approach adopted by Queensland Rail's access undertaking. QR provides performance information against a suite of key performance indicators in determining the reliability, quality of service and compliance with train planning and allocation arrangements. For instance, QR reports quarterly on the reliability of train services that have operated as follows:

- number and percentage of Healthy Train Services that reach their destination within the Agreed Threshold; and

⁸⁵ Queensland Rail (December 2001), "Queensland Rail Access Undertaking", page 64.

- number and percentage of Unhealthy Train Services that do not deteriorate further, within the Agreed Threshold.⁸⁶

Requirements for Annual and Quarterly Reporting for Queensland Rail

The following is an extract of the public reporting requirements for Queensland Rail under its approved access undertaking.

PART 9. PUBLIC REPORTING

9.1 Quarterly Reports

- (a) QR will publicly release quarterly reports in relation to each complete Quarter within the term of this Undertaking and which contain the information set out in Paragraphs 9.1(c) to (i). QR will use reasonable efforts to ensure that the information contained in each quarterly report is accurate.
- (b) The quarterly reports will be publicly released within forty-five (45) days of the end of the subject Quarter.
- (c) Information on the reliability of Train Services that have operated in the subject Quarter, as follows:
 - (i) number and percentage of Healthy Train Services that reach their destination within the Agreed Threshold; and
 - (ii) number and percentage of Unhealthy Train Services that do not deteriorate further, within the Agreed Threshold.
- (d) Information on the transit time of Train Services that have operated in the subject Quarter, as follows:

⁸⁶ Queensland Rail (December 2001), "Queensland Rail Access Undertaking", page 64.

- (i) for those Train Services that do not reach their destination within the Agreed Threshold, the average Above Rail Delay, in minutes, per one hundred (100) train kilometres;
 - (ii) for those Train Services that do not reach their destination within the Agreed Threshold, the average Below Rail Delay, in minutes, per one hundred (100) train kilometres; and
 - (iii) for those Train Services that do not reach their destination within the Agreed Threshold, the average Unallocated Delays, in minutes, per one hundred (100) train kilometres.
- (e) For Quarters following 30 June 2003, information on the availability of the network for Train Services in the subject Quarter, as follows:
 - (i) number and percentage of Train Services scheduled in the MTP cancelled due to a reason that can be attributable directly to QR as Railway Manager;
 - (ii) number and percentage of Train Services scheduled in the MTP cancelled due to a reason that can be attributable directly to an Access Holder (which would include cancellations attributable to a Railway Operator appointed by the Access Holder); and
 - (iii) number and percentage of Train Services scheduled in the MRP cancelled due to a reason that cannot be clearly assigned as directly attributable to an Access Holder or to QR as Railway Manager;
- (f) Information on the safety of Train Services that have operated in the subject Quarter, being the number of major reportable incidents, as reported to the Safety Regulator;
- (g) Information on speed restrictions, being the average percentage of Track under temporary speed restriction;
- (h) Information on QR's billing performance, being the number of instances where an Access Holder has made a complaint to QR about an incorrectly calculated bill, and where QR's investigation into the complaint identifies that the bill was incorrectly calculated;

- (iv) For Quarters following 30 June 2003, where there is a Third Party Access Holder operating Train Services in competition with a QR operational Business Group, information on QR's impartiality in providing Train Control Services to the Third Party Access Holder and the QR Operational Business Group. This information will be provided by way of a performance indicator that will be agreed between QR and the QCA prior to the first Quarter for which the indicator is to be reported, or in the absence of such agreement, a performance indicator as reasonably specified by the QCA.
- (i) For the purposes of Paragraphs 9.1(c) to (i) other than Paragraph 9.1(g), the Train Services will be aggregated as follows:
- (i) Train Services operated for the purpose of transporting bulk coal and minerals products;
 - (ii) Train Services operated for the purpose of transporting freight products, other than those products referred to in Subparagraph 9.1(j)(i); and
 - (iii) Train Services operated for the purpose of providing long distance passenger transport.
- (j) For the purposes of Paragraph 9.1(g), information on speed restrictions will be reported in the following segments:
- (iv) The Central Queensland Coal Region; and
 - (v) The remainder of the network, with the exception of;
 - The Metropolitan Region; and
 - Standard Gauge Rail Infrastructure.

9.2 ANNUAL REPORTS

- (a) QR will publicly release annual reports in relation to each Year (either complete or partial) within the terms of this Undertaking containing the information set out in Paragraphs 9.2(c) to (f). QR will use reasonable efforts to ensure that the information contained in each annual report is accurate.

- (b) The annual reports will be publicly released within six (6) months of the end of the subject Year.
- (c) Financial Statements in relation to the subject Year, that have been prepared and certified by QR's Chairman and Chief Executive in accordance with Subclause 3.2.1 and which will be accompanied by the audit certificate prepared in accordance with Subclause 3.2.3.
- (d) Information in relation to QR's compliance with the Undertaking over the subject Year, or such part of the subject Year to which this Undertaking applies, as follows:
 - (vi) the number and percentage of requests for Preliminary Information received in accordance with this Undertaking and responded to within the applicable timeframe nominated in Paragraph 4.1(d);
 - (vii) for those requests for Preliminary Information received in accordance with this Undertaking not responded to within the applicable timeframe nominated in Paragraph 4.1(d), the average delay (in days) taken to provide the Preliminary Information;
 - (viii) the number and percentage of Access Applications acknowledged in accordance with this Undertaking and within the applicable timeframe nominated in Paragraph 4.2(a) or (b), the average delay (in days) taken to acknowledge the Access Applications;
 - (ix) for those Access Applications received in accordance with this Undertaking and that have not been acknowledged within the applicable timeframe nominated in Paragraph 4.2(a) or (b), the average delay (in days) taken to acknowledge the Access Applications;
 - (x) the number and percentage of Indicative Access Proposals provided in accordance with this Undertaking within the applicable timeframe nominated in Paragraph 4.2(a) or (c);
 - (xi) the number and percentage of Access Applications received in accordance with this Undertaking for which an extension of time for provision of an Indicative Access Proposal is sought by QR in accordance with Paragraph 4.2(c);
 - (xii) for those Indicative Access Proposals provided in accordance with this Undertaking but that have not been provided within the applicable

timeframe nominated in paragraph 4.2(a) or (c), the average delay (in days) taken to provide the Indicative Access Proposals;

- (xiii) the number, and percentage, of instances where an Access Seeker has notified QR in accordance with Paragraph 4.4(b) that it believes that an Indicative Access Proposal has not been prepared in accordance with this Undertaking;
 - (xiv) the number of instances where a non-ring fencing related issue has been referred to Dispute resolution in accordance with the process set out in Clause 4.7;
 - (xv) the number of instances where a non-ring fencing related issue has been referred to Dispute resolution in accordance with the process set out in clause 4.7 and QR was found to have committed a Procedural Breach of the Undertaking;
 - (xvi) the number of instances where a non-ring fencing related issue has been referred to Dispute resolution in accordance with the process set out in Clause 4.7 and QR was found to have committed a Substantive Breach of the Undertaking;
 - (xvii) the number of instances where QR has received a complaint from a Third Party that it has allegedly breached one or more of its obligations relating to the management of Confidential Information as set out in Clause 3.3;
 - (xviii) the number of instances where QR has received a complaint from a Third Party that it has allegedly breached one or more of its obligations relating to the management of Confidential Information as set out in Clause 3.3 and QR is found to have committed a Procedural Breach of those ring fencing obligations; and
 - (xix) the number of instances where QR has received a complaint from a Third Party that it has allegedly breached one or more of its obligations relating to the management of Confidential Information as set out in Clause 3.3 and QR is found to have committed a Substantive Breach of those ring fencing obligations.
- (e) Information in relation to the outcome of QR's negotiations with Access Seekers over the subject Year, or such part of the subject Year to which this Undertaking applies, as follows:

- (xx) the average length of the Negotiation Period (in days), where the Negotiation Period has commenced in accordance with this Undertaking and has ceased as the result of the execution of an Access Agreement, or variation to an existing Access Agreement, in respect of the Access sought by the Access Seeker;
 - (xxi) the average length of the Negotiation Period (in days), where the Negotiation Period has commenced in accordance with this Undertaking and has ceased as the result of any reason other than the execution of an Access Agreement, or variation to an existing Access Agreement, in respect of the Access sought by the Access Seeker; and
 - (xxii) the number of instances where a Negotiation Period commenced in accordance with this Undertaking has ceased as the result of the execution of an Access Agreement, or variation to an existing Access Agreement, in respect of the Access sought by the Access Seeker.
- (f) Information on network service quality most recently measured within the subject Year, being Track quality for the network measured by a quality index with component measures including gauge, top, twist and versine.
- (g) For the purpose of Paragraph 9.2(f), the network service quality will be reported in the following segments:
- (i) The Central Queensland Coal Region; and
 - (ii) The remainder of the network, with the exception of:
 - The Metropolitan Region; and
 - Standard Gauge Rail Infrastructure.

Appendix 3 – Australian Transport Council

Applicability of the Measures

In as much as the parameters and targets of the measures have been designed for the Interstate Network they are therefore an expression of the desirable features of the rail operation on the Network and in particular the transit times on various sectors. Each parameter will be considered in turn as to relevance and applicability in the Western Australian context.

Temporary Speed Restriction

The measure of (temporary) speed restriction provides information about the level of deterioration of the infrastructure and the impact those restrictions will have on transit time. Speed restrictions are not always caused only by deteriorated infrastructure since interfacing with road or other external/environmental feature can restrain rail from its maximum performance. However, where these issues cannot be fixed in a relatively short period the 'temporary speed restrictions' can become more permanent and are often converted into 'permanent speed restrictions'. Despite these short term variations in speed restriction for these 'external' reasons the longer term trend of temporary speed restriction will however indicate the trend of asset deterioration.

There are also occasions where temporary speed restrictions on a particular track sector are converted into a permanent speed restriction for the whole track sector. That is, the sector has become unsuitable as a whole for the type of traffic running on it. This can occur when heavier axle loads are prescribed but at a lower operating speed and there has been an engineering trade off between axle load and speed⁸⁷.

⁸⁷ Speed affects impact and stress in the components

The impact of speed restriction⁸⁸ on transit time can be calculated and ARTC in fact perform this calculation⁸⁹ to ensure that the priority of their works provides maximum benefit to the transit time.

The transit time target for a particular sector of track is entirely dependent on the operators' requirements in terms of their consignment and on the utilisation of the operators' rollingstock. Of course, the operators' transit time requirements will be a reflection of their clients' requirements.

The desire by the operator to maximise rollingstock utilisation will in many cases dominate the motivation to reduce speed restrictions. However there are situations where this will not be the case since client boundary conditions prevent the operator from maximising the efficiency of their operations. For instance, since grain is nearly always only loaded during daylight hours⁹⁰, the operator is bound by the need to operate their trains to meet this specific need. Similar boundary conditions apply to certain manufacturing processes where stockpile capacity restricts unfettered train operation such as in the manufacture and transport of alumina.

Therefore, whilst ATC have suggested 2% target for (temporary) speed restrictions, and this target has been set in recognition of clients and operators' needs on the interstate network, this target may not have relevance in other networks, particular those servicing specific commodities and manufacturing processes.

On the interstate network haul distance is typically greater than 700kms and the cumulative effect of speed restrictions makes the task of predicting arrival times difficult. There is a tendency for reliability to be low even if the speed restriction effect is pre-calculated and allowed for. On haul distances less than 200kms the impact of speed restrictions is less severe or at least more predictable since there are fewer other locations where the train may be delayed due to normal operating requirements such as at crossing loops.

⁸⁸ relative to 'open track' or maximum speed conditions

⁸⁹ Can be performed by manual calculation or by simulation

⁹⁰ To keep moisture under control.

Maximum Speed

Maximum speed is a parameter that provides information about the strength and geometric quality of the infrastructure since it defines the highest loading scenario (along with axle load) the track is likely to encounter. The adoption of a maximum speed parameter has a number of consequential infrastructure configuration effects such as the bending strength of the rail and depth of ballast as well as track geometry implications.

This is because increasing speed has the effect of increasing the dynamic load on the infrastructure and of making the rollingstock less stable in ride quality. A number of engineering 'rules' have been applied to the increase in impact that could be expected and theoretical maximum speeds could be calculated.

However, the adoption of a maximum speed cannot be determined in isolation from the adoption of a maximum axle load since (static) axle load and speed are somewhat interchangeable. An increase in speed could be permissible, for a given infrastructure configuration, if the axle load was lowered and vice versa.

For the interstate corridor the determination of the most desirable maximum speed has a complicated history. Essentially, the maximum speed corresponds to the maximum speed of diesel locomotives used on the routes. In other words, the infrastructure configuration should not impede the most common 'fast' freight locomotive, and since the haul distances are large on the interstate corridor the fastest transit time is thought to be beneficial to rail's market share. That is to reduce transit time as low as possible in order to compete with road transit times.

As with the discussion on temporary speed restrictions, the desired transit time is very dependent on customer requirements. On the interstate network, the haul distance is so great that the customers' requirement is to reduce transit time to at least that of road.

However this may not necessarily be a requirement for other than interstate customers where other boundary conditions may have a greater impact on the clients' actual needs.

Average Speed

Average speed in its broadest interpretation is a much more complicated parameter than maximum speed since it also encapsulates temporary speed restrictions, gradient of line, priority given at crossing loops and permanent speed restrictions. Therefore average speed is a measure of the overall management of the infrastructure rather than simply a condition report or design statement.

For ATC purposes, average speed is quoted for an undelayed train⁹¹ and therefore only reflects the condition and design of the infrastructure. In usual circumstances, speed characteristics caused by gradients and restrictions caused by curvature of the track are the most influential parameters. Naturally if the design of the line also limits the speed (and/or axle load) then this parameter will also play a dominant role in the absolute performance.

However, the trend in average speed over a period of time will negate the absolute effects of design including curvature and gradient, and concentrate attention on a deteriorating or improving condition of infrastructure reflected in the temporary speed restrictions. However the measurement of this parameter is complicated in the field by the effect of train crossing (on single line) and the congestion on the line, which could affect average train speed over time.

The measure of average speed for ATC purposes is a theoretical calculation or simulation based on the 'raw running time, excluding any form of delay'⁹². This approach could be useful for recording trends on temporary speed restrictions but is of little use in measuring train controller performance or congestion.

However, a more useful approach may be to record actual average speed, which also includes elements of train priority and congestion, and subtract the theoretical 'no delay' average speed. The result of these measures will be to provide information on the trend of temporary speed restriction and the management of trains by train controllers.

Axle Load

The determination of a design axle load is dependent on the structural characteristics of the infrastructure when operated at a certain speed. Since speed and axle load are interchangeable to a certain degree because speed imposes a dynamic impact to the infrastructure, any determination of axle load occurs with speed as well.

⁹¹ Attachment A, Appendix B, Audit of ATC Performance Targets, Interstate Rail Network Audit, April 2001, ARTC.

⁹² Note 1, *ibid*

For ATC, axle load was determined for a practical speed, which is a speed that could be reasonably used to operate on the network. It would have been no use for instance of determining an axle load where the implied speed was 20kmph because that type of train would block the normal operation of the network.

However, on other networks, where the haul distances are low and only one type of train operates a high axle load and low speed scenario is a possibility. The trend of permissible axle load is likely to be highly step-wise since decisions on axle load are more fundamental to the type of wagons and locomotives that can be used on the line. The main reasons for changes in axle load relate to upgrades occurring on the strength of the line or to deterioration.

A trend of permissible axle load (at a nominal speed) will provide information on the structural capacity of the line or one of its major components such as a bridge.

Train Length

This parameter is entirely dependent on the length of crossing loops and in the ATC instance was targeted in order to increase the capacity of the lines⁹³ and the load on a single train. Railway history indicates a trend toward lengthening of trains as locomotives have become more powerful and there has been a desire to increase rollingstock utilisation.

As shareholders in ARTC, ATC would be interested in ensuring the capacity of the network and the efficiency of operators was maximised. However the importance for an asset regulator is to ensure the network provider is not discriminating between operators and therefore that there is no difference in the availability of crossing loops and therefore train length capabilities.

⁹³ Whether or not train is short or long it occupies a 'path' on the network.

The parameters used by ATC and their applicability in WA regulation is summarised in the following table.

Table 1: Applicability of ATC regime to WA Access Regime

Parameter	ATC Target	WA Applicability	Usefulness
Temporary Speed Restrictions	Less than 2% length of corridor	Trend is more important than absolute measure.	Measure trend over specific line sectors
Maximum speed	At axle loads up to 21 tonnes, 80kmph average, 115kmph maximum speed	Variation in maximum speed indicates changes to track geometry quality, structural integrity or trade-off against axle load.	Little use except to monitor fundamental changes to the infrastructure configuration affecting all parties.
Average Speed	At axle loads up to 21 tonnes, 80kmph average, 115kmph maximum speed	Theoretical 'no delay' average speed identifies temporary speed restriction effect. Actual average speed indicates congestion effects, train control management and temporary speed restrictions.	Measure actual average speed over specific line sectors. Measure theoretical 'no delay' average speed over specific line sectors.

Parameter	ATC Target	WA Applicability	Usefulness
Axle load	At axle loads up to 21 tonnes, 80kmph average, 115kmph maximum speed	Variation in axle load indicates changes to structural integrity.	Little use except to monitor fundamental changes to the infrastructure configuration affecting all parties.
Train length			Applicable to all parties.
On-time Reliability	Reliability, within 15 minutes of schedule	Reliability is a statistical tool measuring the variation in average speed or transit time.	Could be useful to cross-check average speed trend. However it includes complex information about overall management of the network.
Transit time	Average actual	Inverse of actual average speed	Average speed expressed in suitable terms for clients.
Service availability		Measure of effectiveness of infrastructure to operators' clients.	Applicable to all parties.

Essentially, while the ATC framework and parameters have relevance, the specifications or targets are not applicable to any other network except the interstate network. Similar types of targets could be formulated for the WA (non-ARTC) network and these will depend on the clients' needs for rail services on particular routes.

Appendix 4 – Safety - Extract from Appendix C of AS4292.1

Appendix C of AS4292.1, General and Interstate Requirements, details INCIDENT DEFINITION AND RECORDING REQUIREMENTS. The definition of the various categories is reproduced hereunder.

“(a) Category A incidents

These constitute the minimum standard requirements for incidents and accidents to be recorded by an owner or operator, or both, for major incidents and accidents resulting in serious injury, death or significant damage.

(b) Category B incidents

This is an additional set of incident and accident types to be recorded, where applicable to their organizations, by an owner or operator to enable satisfactory monitoring and analysis of safety related occurrences. The items in this category are generally minor accidents or occurrences which constitute a breakdown in the normal safety defences but have the potential to cause a serious accident.”

In this series of incidents, certain events occur because the infrastructure has failed to perform. Those incident types for which this is applicable are:

“In C2 RECORDING OF CATEGORY A INCIDENTS, recording must include

(f) Broad classification of the cause, e.g.

(i) Operations failure.

(ii) Rolling stock defect.

(iii) Track defect.

(iv) Other infrastructure defect.

(v) Other party at fault.”

In section C3 RECORDING OF CATEGORY B INCIDENTS the following details about infrastructure are required if they are applicable to the particular incident.

“(l) *Track defects*—defects in the track which have the potential to cause derailment unless a speed restriction is imposed, as follows:

(i) Track defects involving horizontal misalignment.

(ii) Track defects involving vertical misalignment.

(iii) Broken rail.

(iv) Other track defects.

(m) *Structure defects*—defects in civil or electrical infrastructure items which have the potential to cause accidents unless urgent corrective action is taken.

(n) *Electric traction defects*—defects in electrical supply or overhead wiring sufficient to cause an electrical fault or derailment.”