



**Proposed Floor and Ceilings for Mainline, Worsley  
line and Terminal End Bits**

August 2006 Review

### Document History

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# **1 Introduction**

This document is being submitted by WestNet Rail (WNR) to the Economic Regulatory Authority (ERA) as WNR's submission on Ceilings and Floors as required by Clause 9 of the Access Code for the following lines:

- Kwinana to Bunbury;
- Terminal "end bits" of the Kwinana to Bunbury line;
- Brunswick to Premier;
- Forrestfield to Kalgoorlie;
- Kalgoorlie to Leonora; and
- Kalgoorlie to Esperance

This process has previously been undertaken by WNR and determinations of Ceilings and Floors for the bulk of these lines were made by the ERA on September 24, 2003, except for the Brunswick to Premier line which was determined on October 15, 2003 and the Terminal "end bits" which were determined on July 8, 2004.

To calculate the Ceilings and Floors in WNR's first submission, WNR developed an Access Pricing Model (APM) based on the approved Costing Principles to undertake the complex calculations. This model was audited and accepted by the ERA. Appendix One to this document summarises the structure of the APM. An electronic version of the APM will be submitted to the ERA on a confidential basis to support this submission.

This same model has been used by WNR to undertake the calculations in this submission with one change to the model to support the direct allocation of the cost of centralised train control. Previously this cost had been allocated on the overhead allocation methodology and this issue is discussed later in the document.

This document contains sections on:

1. The process WNR has undertaken to calculate the new Ceilings and Floors;
2. The key assumptions in calculating the new Ceilings and Floors;
3. The new Ceilings and Floors;
4. A variance analysis between the new and old Ceilings (as at June 2005);
5. A variance analysis on the unit prices for capital and maintenance.

This document considers sections three and four above on a "line by line" basis.

## **2 Process Overview**

WNR has recalculated the Floor and Ceilings by adjusting the elements of the ERA approved Access Pricing Model (APM) outlined in Appendix One of this document to reflect current costs.

### **2.1 Asset Capital and Maintenance base**

An independent external consultant, WorleyParsons (WP), was engaged to “market test” all unit prices of capital and maintenance costs per kilometre in WNR’s asset base. This was done by WP obtaining quotes from multiple suppliers in the market and then making a recommendation as to what the current market rates are. WNR has then used the output of this report to update the unit rates for capital and maintenance in the APM. This report has been made available as a part of WNR’s non-confidential submission to the ERA.

### **2.2 Annual Costs**

With regards to Overheads, Operating Costs and Network Management Costs WNR has used its actual board approved 2006/07 budget as the basis of its submission for these costs. This budget has been compiled using a zero-based budgeting process and reflects the costs of WNR as a standalone organization. WNR’s 2006/07 budget has been made available to the ERA on a confidential basis.

### **2.3 Additions to the asset and cost base to support anticipated traffic growth**

The additional operating cost and capital cost below has been added to support reasonably projected demand.

#### ***2.3.1 Train Control***

Additional train control costs have been added to reflect reasonably expected growth in traffic on the Forrestfield to Kalgoorlie line and Kalgoorlie to Esperance line.

#### ***2.3.2 Crossing Loops on Kwinana to Bunbury line***

Three and a half kilometres of additional crossing loops have been assumed on the Kwinana to Bunbury line to manage anticipated growth.

## **3 Key Assumptions**

This section is intended to outline the key assumptions behind the Floor and Ceiling calculations in the APM.

### **3.1 Capital**

#### ***3.1.1 Weighted Average Cost of Capital (WACC)***

The WACC determined by the ERA on July 12, 2006 of 6.7% has been used.

#### ***3.1.2 Modern Equivalent Asset (MEA)***

The same MEA approved by the ERA in September 2003 has been used in the calculation of the Ceilings and Floors in this submission, with the exception of the additional crossing loops on the Kwinana to Bunbury line included to support reasonable projected demand.

#### ***3.1.3 Gross Replacement Value***

##### ***3.1.3.1 Asset Population***

The same asset population approved by the ERA in September 2003 has been used in the calculation of the Ceilings and Floors in this submission, with two exceptions. Additional crossing loops on the Kwinana to Bunbury line are included to support anticipated future growth and Communications Backbone infrastructure previously omitted is now included in the Kwinana to Bunbury and Forrestfield to Kalgoorlie routes.

##### ***3.1.3.2 Unit Prices***

The unit prices in the WorleyParsons (WP) report have been used.

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

#### ***3.1.4 Economic Lives of assets***

The same economic lives of assets approved by the ERA in September 2003 have been used in the calculation of the Ceilings and Floors in this submission.

#### ***3.1.5 Remoteness Factors***

The same remoteness factors approved by the ERA in September 2003 have been used in the calculation of the Ceilings and Floors in this submission.

### 3.1.6 Transport Costs

The transport cost approved by the ERA in September 2003 was \$0.01 per net tonne kilometre.

In this submission WNR has escalated this cost by the movement in the Transportation Index (Australian Bureau of Statistics reference 6401.0) between December 2002 and June 2006 of 13.5%, resulting in a cost of \$0.114 per GTK (Gross Tonne Kilometre) being used in the APM.

### 3.1.7 Construction Costs

The same assumptions regarding design, project management, construction financing costs and construction margins that were approved by the ERA in September 2003 have been used in this submission

## 3.2 Operating Costs

### 3.2.1 Working Capital

The methodology in the current Costing Principles has been adopted by WNR in calculating the cost of working capital.

### 3.2.2 Overheads

WestNet has used the following per annum values for overheads in the APM;

#	Item	2003 Determination	APM – June 2005	Proposed July 2006	Allocation Methodology
1	WNR Overheads and insurance	9,648,446	10,063,433	11,701,868**	50/50 GTK / Train No
2	WNR Corporate Support Services	2,678,204	2,793,396	3,629,500	50/50 GTK / Train No
4	WestNet Group Overheads	862,158	899,240	862,158	50/50 GTK / Train No
	Total Overheads	13,188,808	13,756,069	16,193,526	

\*\* Overheads include some costs previously captured in Network Management.



### 3.2.3 Gross Tonne Kilometres (GTKs) and Train Movement Numbers

GTK's and Train Movement Numbers are used to allocate overheads and operating costs on the basis indicated in the sections above and below. The APM has been updated to use the GTKs and Train Movement Numbers for 2005 calendar year.

### 3.2.4 Operating Costs

WestNet has used the following per annum values for operating costs in the APM;

#	Item	2003 Determination	APM – June 2005	Proposed– July 2006	Allocation Methodology
1	Civil & C&CS Head office and Regional	5,377,680	5,608,978	6,477,000	GTK 100%
	Total Operating	5,377,680	5,608,978	6,477,000	

The Control and Signaling (C&S) Head Office and Regional administrative support is included in the July 2006 submission. The ERA's first determination excluded the C&S costs.

### 3.2.5 Network Management Costs

WestNet has used the following values for Network Management in the APM;

#	Item	2003 Determination	APM – June 2005	Proposed– July 2006	Allocation Methodology
1	Centralised Train Control	3,877,573	4,044,350	4,751,368	Direct allocation
2	Network Management Overhead	1,804,291	1,881,895	1,140,990**	Train numbers
	Total Network Management	5,681,864	5,926,245	5,892,358	

\*\* Some costs reclassified to Overheads in line with WNR Budget.

Centralised Train Control has been directly allocated to the six main routes based on the number of train controller's required to manage each Route. This analysis has been undertaken by the Network Management team and is detailed in Appendix Two of this document.

The train control system which manages the entire system is allocated on route section train numbers divided by the system wide train numbers which is consistent with the ERA previous determination.

### 3.2.6 Maintenance

WestNet has used the following values for maintenance in the APM:

#	Line	2003 Determination Cost per km	APM – June 2005 Cost per km	Proposed– July 2006 Cost per km
1	Kwinana to Bunbury;	15,000	15,645	17,610
2	Terminal “end bits	8,000	8,141	9,392
3	Brunswick to Worsley	15,000	15,645	17,610
	Worsley to Premier	8,000	8,344	9,392
4	Forrestfield to Kalgoorlie	16,000	16,688	18,784
5	Kalgoorlie to Leonora	8,000	8,344	9,392
6	Kalgoorlie to Esperance	10,000	10,430	11,740

Maintenance includes both routine and cyclical maintenance for track, signaling and communications infrastructure. Routine maintenance is the corrective action taken as follow up to routine inspections. Cyclical maintenance represents tasks that are undertaken at regular intervals which are necessary to achieve the expected asset life. Maintenance excludes Major Periodical Maintenance (MPM) which is deemed as activities undertaken which extend the life of the asset. Maintenance activities included are consistent with those prescribed in Schedule 4 of the Railways (Access) Code 2000 and the approved Costing Principles.

# 4 Kwinana to Bunbury Inner Harbour

## 4.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation SWM @ June 30, 2005								
	SectLength	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
Kwinana to Mundijong Jn	29.107	3,422,935	2,292,555	436,821	294,581	398,977	258,771	29,028,056
Mundijong Jn to Pinjarra	47.726	5,750,059	3,433,522	767,113	648,493	900,931	540,690	44,174,586
Pinjarrato Pinjarra East	1.471	588,963	126,387	74,365	180,508	207,703	117,360	1,596,352
Pinjarra East to Alumina Jn	0.233	686,007	69,627	89,184	244,877	282,318	159,230	757,323
Pinjarra East to Pinjarra South	1.06	247,496	68,098	32,453	68,552	78,394	44,396	849,695
Pinjarra to Wagerup	33.523	2,865,099	2,059,861	321,466	221,329	262,444	141,306	27,763,157
Wagerup to Brunswick Jn	41.623	4,396,021	3,097,215	556,720	315,071	427,016	274,039	39,957,030
Brunswick Jn to Picton Jn	20.983	2,790,358	1,672,738	363,086	331,034	423,500	282,079	21,263,160
Picton Jn to Bunbury Inner Harb	3.522	1,355,141	585,515	163,157	278,206	328,263	203,693	7,098,433
<b>Section Ceiling</b>		<b>22,102,080</b>	<b>13,405,519</b>	<b>2,804,364</b>	<b>2,582,651</b>	<b>3,309,546</b>	<b>2,021,564</b>	<b>172,487,792</b>
Revised Ceiling @ July 2006								
	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
<b>Route Section</b>								
Kwinana to Mundijong Jn	29.107	\$4,122,772	\$2,852,189	\$511,309	\$254,596	\$504,678	\$306,908	\$36,951,012
Mundijong Jn to Pinjarra	48.826	\$6,073,151	\$4,290,540	\$758,888	\$328,654	\$695,070	\$466,409	\$56,715,426
Pinjarrato Pinjarra East	1.471	\$689,231	\$194,011	\$110,921	\$134,890	\$249,410	\$109,174	\$2,310,330
Pinjarra East to Alumina Jn	0.233	\$788,122	\$124,933	\$135,034	\$187,582	\$340,573	\$136,962	\$1,311,123
Pinjarra East to Pinjarra South	1.06	\$311,767	\$99,241	\$49,342	\$58,384	\$104,800	\$42,700	\$1,211,948
Pinjarra to Wagerup	33.523	\$3,420,218	\$2,545,649	\$367,437	\$194,353	\$312,779	\$155,911	\$35,197,956
Wagerup to Brunswick Jn	42.968	\$5,302,980	\$3,845,148	\$627,763	\$299,999	\$530,069	\$345,837	\$51,219,656
Brunswick Jn to Picton Jn	22.083	\$3,503,197	\$2,217,207	\$449,281	\$296,323	\$540,386	\$344,031	\$28,706,611
Picton Jn to Bunbury Inner Harb	3.522	\$1,512,097	\$702,248	\$209,009	\$215,340	\$385,500	\$189,931	\$8,703,167
<b>Total</b>	<b>182.79</b>	<b>\$ 25,723,536</b>	<b>\$ 16,871,166</b>	<b>\$ 3,218,985</b>	<b>\$ 1,970,122</b>	<b>\$ 3,663,264</b>	<b>\$ 2,097,863</b>	<b>\$222,327,228</b>
Variance from 2005								
	SectLength	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
<b>Route Section</b>								
Kwinana to Mundijong Jn	-	\$699,838	\$559,634	\$74,489	-\$39,985	\$105,700	\$48,137	\$7,922,955
Mundijong Jn to Pinjarra	1.10	\$323,092	\$857,017	-\$8,225	-\$319,839	-\$205,861	-\$74,281	\$12,540,840
Pinjarrato Pinjarra East	-	\$100,269	\$67,625	\$36,556	-\$45,618	\$41,707	-\$8,186	\$713,979
Pinjarra East to Alumina Jn	-	\$102,115	\$55,306	\$45,849	-\$57,295	\$58,254	-\$22,268	\$553,800
Pinjarra East to Pinjarra South	-	\$64,271	\$31,143	\$16,889	-\$10,168	\$26,406	-\$1,695	\$362,252
Pinjarra to Wagerup	-	\$555,118	\$485,788	\$45,972	-\$26,975	\$50,335	\$14,605	\$7,434,799
Wagerup to Brunswick Jn	1.35	\$906,958	\$747,933	\$71,043	-\$15,071	\$103,053	\$71,798	\$11,262,626
Brunswick Jn to Picton Jn	1.10	\$712,839	\$544,468	\$86,195	-\$34,711	\$116,886	\$61,952	\$7,443,451
Picton Jn to Bunbury Inner Harb	-	\$156,955	\$116,732	\$45,852	-\$62,867	\$57,238	-\$13,762	\$1,604,734
Ceiling Increase \$	3.55	\$3,621,456	\$3,465,647	\$414,621	-\$612,529	\$353,717	\$76,299	\$49,839,436
Ceiling Increase %		16%	26%	15%	-24%	11%	4%	29%

## 4.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report and the inclusion of the Communications Backbone capital.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance.
- Operating cost reduced by 21% primarily resulting from the direct allocation of the train control function.
- Overheads have increased based on the WNR stand-alone budget.

# 5 Terminal End Bits

## 5.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation Terminals @ June 30, 2005								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Inner Harbour 485 Pt to Alcoa (Inbound)	0.512	271,491	37,291	4,168	106,152	123,880	75,991	486,278
Inner Harbour 486 Pt to ALCOA (Outbound)	0.38	181,900	37,350	3,094	65,989	75,467	47,224	482,184
Inner Harbour 487 Pt to Worsley (Outbound)	0.328	146,553	34,325	2,670	51,182	58,376	36,783	442,505
Inner Harbour 485 Pt to 486 pts	0.081	326,010	11,499	659	145,381	168,470	99,633	113,377
Inner Harbour 486 Pt to 487 pts	0.055	180,966	6,797	448	80,485	93,236	55,217	69,298
Inner Harbour 487 Pt to Woodchips	3.183	335,405	234,627	25,915	38,085	36,779	46,834	3,536,567
Kwinana no3 points to bauxite junction	1.853	536,990	108,420	15,086	188,385	225,099	145,222	1,460,954
Alcoa Bauxite Jn - Alcoa Bauxite Sdg	1.297	401,856	62,449	10,560	150,392	178,455	112,317	883,429
Alcoa Bauxite Jn - Alcoa Caustic Sdg Pts	1.893	165,938	80,747	15,412	33,170	36,609	34,488	1,210,826
Alcoa Caustic Sdg Pts -Alcoa Alumina Sdg Pts	0.94	86,577	40,206	7,653	18,447	20,271	18,490	602,089
<b>Total</b>	<b>10.522</b>	<b>2,633,687</b>	<b>653,710</b>	<b>85,666</b>	<b>877,668</b>	<b>1,016,643</b>	<b>672,198</b>	<b>9,287,506</b>
Revised Ceiling @ July 2006								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Inner Harbour 485 Pt to Alcoa (Inbound)	0.512	\$515,754	\$82,449	7,858	70,914	\$354,534	\$20,344	\$864,067
Inner Harbour 486 Pt to ALCOA (Outbound)	0.38	\$334,228	\$68,373	3,032	44,514	\$218,307	\$12,132	\$754,239
Inner Harbour 487 Pt to Worsley (Outbound)	0.328	\$219,120	\$54,830	2,517	27,765	\$134,008	\$7,531	\$631,563
Inner Harbour 485 Pt to 486 pts	0.081	\$471,925	\$49,699	572	69,816	\$351,837	\$18,694	\$408,448
Inner Harbour 486 Pt to 487 pts	0.055	\$180,928	\$20,138	352	26,602	\$133,836	\$7,145	\$173,927
Inner Harbour 487 Pt to Woodchips	3.183	\$308,268	\$271,860	24,732	9,507	\$2,169	\$5,596	\$4,097,735
Kwinana no3 points to bauxite junction	1.853	\$477,046	\$150,235	26,499	50,433	\$249,878	\$27,006	\$1,877,640
Alcoa Bauxite Jn - Alcoa Bauxite Sdg	1.297	\$317,211	\$86,959	15,632	35,721	\$178,899	\$12,723	\$1,145,613
Alcoa Bauxite Jn - Alcoa Caustic Sdg Pts	1.893	\$198,203	\$103,242	12,003	16,052	\$66,907	\$5,240	\$1,492,691
Alcoa Caustic Sdg Pts -Alcoa Alumina Sdg Pts	0.94	\$89,188	\$50,434	5,625	6,699	\$26,429	\$2,150	\$734,898
<b>Total Route</b>	<b>10.52</b>	<b>3,111,869</b>	<b>938,219</b>	<b>98,823</b>	<b>358,023</b>	<b>1,716,805</b>	<b>118,562</b>	<b>\$12,180,820</b>
Variance from 2005								
Route Section		Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Inner Harbour 485 Pt to Alcoa (Inbound)		244,263	45,158	3,690	35,238	230,654	55,646	377,789
Inner Harbour 486 Pt to ALCOA (Outbound)		152,327	31,023	61	21,475	142,840	35,093	272,056
Inner Harbour 487 Pt to Worsley (Outbound)		72,566	20,506	153	23,418	75,631	29,252	189,058
Inner Harbour 485 Pt to 486 pts		145,915	38,200	87	75,564	183,367	80,938	295,071
Inner Harbour 486 Pt to 487 pts		38	13,341	96	53,883	40,600	48,071	104,628
Inner Harbour 487 Pt to Woodchips		27,137	37,234	1,182	28,579	34,610	41,238	561,168
Kwinana no3 points to bauxite junction		59,944	41,815	11,413	137,951	24,779	118,215	416,686
Alcoa Bauxite Jn - Alcoa Bauxite Sdg		84,645	24,510	5,073	114,672	444	99,594	262,184
Alcoa Bauxite Jn - Alcoa Caustic Sdg Pts		32,266	22,495	3,409	17,118	30,298	29,248	281,865
Alcoa Caustic Sdg Pts -Alcoa Alumina Sdg Pts		2,610	10,229	2,028	11,749	6,158	16,339	132,809
Ceiling Increase \$		478,182	284,509	13,157	519,646	700,162	553,635	2,893,313
Ceiling Increase %		18%	44%	15%	-59%	69%	-82%	31%

## 5.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance as supported by the WorleyParsons Report.
- Operating cost reduction by 60% is primarily resulting from the direct allocation of the train control function.
- Overheads have increased based on the WNR stand-alone budget and the increased train numbers allocating the cost.

# 6 Brunswick to Premier

## 6.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation Worsley @ June 30, 2005								
Long	Section Length	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
Brunswick North - East	0.911	176,189	76,106	17,517	39,241	43,324	25,132	997,321
Brunswick - Brunswick East	1.025	480,184	194,906	59,603	106,378	119,296	82,611	2,260,400
Brunswick East - Worsley	22.001	2,274,140	1,637,562	297,358	154,707	184,512	126,677	22,028,044
Worsley - Worsley North	2.316	457,235	195,204	32,765	106,029	123,237	68,972	2,463,618
Worsley North - Hamilton	8.584	797,663	465,720	75,590	115,091	141,261	77,377	6,227,547
Worsley East - Worsley North	1.067	143,281	76,900	15,253	19,006	32,122	11,595	957,354
Worsley - Worsely East	1.885	143,197	85,059	10,621	23,375	24,142	14,747	1,179,906
Worsley East - Ewington Jn	28.24	2,138,227	1,666,015	216,350	126,010	129,852	80,621	22,055,782
Ewington Jn - Premier	2.385	373,257	262,142	20,540	45,809	44,766	26,043	3,212,702
<b>Total</b>	<b>68.414</b>	<b>6,983,373</b>	<b>4,659,614</b>	<b>745,598</b>	<b>735,647</b>	<b>842,513</b>	<b>513,775</b>	<b>61,382,674</b>

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

Variance from 2005								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Brunswick North - East		-\$7,512	\$14,077	\$4,119	-\$27,632	\$1,924	-\$19,773	\$163,060
Brunswick - Brunswick East		\$15,126	\$59,208	\$6,887	-\$70,204	\$19,235	-\$68,689	\$797,638
Brunswick East - Worsley		\$471,749	\$365,474	\$84,314	-\$51,563	\$73,525	-\$36,496	\$4,660,014
Worsley - Worsley North		\$36,753	\$43,642	\$31,699	-\$68,639	\$30,051	-\$38,847	\$348,000
Worsley North - Hamilton		\$165,449	\$101,803	\$16,885	-\$54,110	\$100,871	-\$26,632	\$1,311,970
Worsley East - Worsley North		-\$9,652	-\$3,794	-\$1,398	-\$9,823	\$5,362	-\$2,950	-\$25,978
Worsley - Worsely East		\$110,595	\$25,235	\$9,230	\$313	\$75,817	-\$5,423	\$267,639
Worsley East - Ewington Jn		\$18,057	\$91,259	-\$1,734	-\$52,417	-\$19,052	-\$18,183	\$1,402,964
Ewington Jn - Premier		-\$54,492	\$5,717	-\$3,733	-\$32,709	-\$23,767	-\$21,713	\$87,537
Ceiling Increase \$		\$746,072	\$702,621	\$146,269	-\$366,783	\$263,966	-\$238,706	\$9,012,844.12
Ceiling Increase %		11%	15%	20%	-50%	31%	-46%	15%

## 6.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance as supported by the WorleyParsons Report.
- Operating cost reduction of 50% is primarily resulting from the direct allocation of the train control function.
- Overheads have increased based on the WNR stand-alone budget and the increased train numbers allocating the cost.

# 7 Forrestfield to Kalgoorlie

## 7.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation EGR @ June 30 , 2005								
Long	SectLength	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
F'Field Sth to Midland	25.711	4,722,441	3,126,204	939,829	335,585	320,823	322,154	39,637,670
Midland to Millendon Jn	28.25	4,704,837	3,080,506	959,939	320,163	344,228	322,249	38,589,880
Millendon Jn to Toodyay West	125.138	14,198,779	10,925,365	2,122,681	557,770	592,964	927,742	140,841,509
Toodyay West to Avon Yard	51.827	6,701,540	4,804,434	1,169,802	350,804	376,499	432,538	61,965,723
Avon Yard to West Merredin	190.939	23,300,343	18,574,908	2,983,969	780,931	960,536	884,728	240,871,554
West Merredin to Koolyanobbing	191.981	21,381,250	17,141,545	2,690,765	697,490	851,450	735,436	225,322,228
Koolyanobbing to West Kalgoorlie	204.329	21,599,740	16,532,745	2,898,674	702,626	1,465,695	918,124	217,936,313
West Kalgoorlie to Border	6.21	1,612,213	1,011,624	356,674	123,679	120,236	69,719	12,368,137
Avon to West Merredin Sidings	18.049	1,240,563	1,105,423	98,108	37,032	-	11,082	14,314,319
West Merredin to Koolyanobbing Sidings	9.605	698,842	625,717	52,164	20,962	-	5,854	8,110,448
Koolyanobbing to W Kal Sidings	4.745	314,072	279,164	25,556	9,352	-	2,687	3,613,604
<b>Total</b>	<b>856.784</b>	<b>100,474,618</b>	<b>77,207,636</b>	<b>14,298,159</b>	<b>3,936,392</b>	<b>5,032,431</b>	<b>4,632,315</b>	<b>1,003,571,384</b>

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

Variance from 2005								
Route Section	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV	
F'Field Sth to Midland	\$1,135,946	\$899,906	\$36,140	\$94,539	\$105,361	\$215,621	\$10,173,914	
Midland to Millendon Jn	\$1,255,710	\$924,609	\$99,317	\$101,430	\$130,354	\$285,381	\$9,954,410	
Millendon Jn to Toodyay West	\$3,709,654	\$2,887,879	\$367,044	\$171,320	\$283,412	\$641,387	\$32,990,937	
Toodyay West to Avon Yard	\$1,798,183	\$1,393,738	\$145,048	\$108,329	\$151,068	\$335,023	\$15,646,615	
Avon Yard to West Merredin	\$4,445,811	\$3,566,374	\$314,681	\$167,657	\$397,099	\$439,411	\$43,959,609	
West Merredin to Koolyanobbing	\$3,889,484	\$3,137,414	\$250,958	\$150,956	\$350,157	\$324,319	\$38,735,853	
Koolyanobbing to West Kalgoorlie	\$4,537,148	\$3,161,432	\$637,922	\$146,641	\$591,153	\$513,703	\$38,134,666	
West Kalgoorlie to Border	\$100,865	\$154,133	-\$53,854	-\$4,363	\$4,949	\$39,335	\$1,604,791	
Avon to West Merredin Sidings	\$320,007	\$310,509	-\$904	\$10,402	\$0	-\$672	\$3,867,060	
West Merredin to Koolyanobbing Sidings	\$157,823	\$153,166	-\$475	\$5,131	\$0	-\$358	\$1,899,326	
Koolyanobbing to W Kal Sidings	\$75,267	\$73,025	-\$204	\$2,446	\$0	-\$178	\$903,626	
Ceiling Increase \$	\$ 21,425,897	\$ 16,662,183	\$ 1,795,672	\$ 954,490	\$ 2,013,553	\$ 2,792,972	\$197,870,807	
Ceiling Increase %	21%	22%	13%	24%	40%	60%	20%	

## 7.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report and inclusion of Communications Backbone.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance as supported by the WorleyParsons Report.
- Operating cost increase of 24% is primarily resulting from the direct allocation of the train control function.
- Overheads have increased based on the WNR stand-alone budget and the increased train numbers allocating the cost.

# 8 Kalgoorlie to Leonora

## 8.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation Leonora @ June 30, 2005								
Revised Ceiling @ August 2006								
Long	Section Length	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
Kalgoorlie to Malcolm	237.498	17,048,489	14,342,748	1,901,755	522,467	281,519	295,465	201,219,066
Malcolm to Leonora	24.54	2,091,976	1,675,764	285,548	84,447	46,217	44,397	23,376,420
Menzies sidings	0.325	18,928	16,499	1,876	553	-	143	233,668
<b>Total</b>	<b>262.363</b>	<b>19,159,394</b>	<b>16,035,011</b>	<b>2,189,180</b>	<b>607,468</b>	<b>327,735</b>	<b>340,005</b>	<b>224,829,154</b>
Revised Ceiling @ July 2006								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Kalgoorlie to Malcolm	237.498	\$20,533,476	\$17,460,112	\$2,113,791	\$666,942	\$292,630	\$287,966	\$242,226,407
Malcolm to Leonora	24.54	\$2,660,233	\$2,081,813	\$348,250	\$151,769	\$78,401	\$99,512	\$28,593,082
Menzies sidings	0.325	\$23,759	\$20,984	\$2,071	\$703	\$0	\$126	\$292,864
<b>Total</b>	<b>262.36</b>	<b>23,217,467</b>	<b>19,562,909</b>	<b>2,464,113</b>	<b>819,414</b>	<b>371,031</b>	<b>387,605</b>	<b>271,112,353</b>
Variance from 2005								
Route Section	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
Kalgoorlie to Malcolm		\$3,484,986	\$3,117,364	\$212,036	\$144,475	\$11,112	-\$7,499	\$41,007,341
Malcolm to Leonora		\$568,257	\$406,049	\$62,702	\$67,322	\$32,184	\$55,115	\$5,216,661
Menzies sidings		\$4,831	\$4,485	\$195	\$150	\$0	-\$17	\$59,196
Ceiling Increase \$		\$ 4,058,073	\$ 3,527,898	\$ 274,934	\$ 211,946	\$ 43,296	\$ 47,600	\$ 46,283,198
Ceiling Increase %		21%	22%	13%	35%	13%	14%	21%

## 8.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance as supported by the WorleyParsons Report.
- Operating cost increase of 35% is primarily resulting from the direct allocation of the train control function.
- Overheads have increased based on the WNR stand-alone budget and the increased train numbers allocating the cost.

# 9 Kalgoorlie to Esperance

## 9.1 Floor and Ceilings Summary by Route Section

ERA agreed Ceiling Calculation Esperance @ June 30, 2005								
Long	SectLength	Total	Capital	Maintenance	Operating	Overhead	Floor	GRV
West Kalgoorlie to Hampton	17.882	2,042,965	1,404,766	322,355	145,376	170,469	106,924	18,739,388
Hampton to Kambalda	38.25	3,204,163	2,392,091	459,558	150,813	201,701	128,928	32,998,312
Kambalda to Salmon Gums	229.595	18,296,899	14,814,614	2,193,507	552,118	736,661	541,549	204,204,035
Salmon Gums to Esperance	111.598	8,829,598	6,988,018	1,180,136	290,359	371,086	276,259	96,188,496
Kambalda siding	0.609	35,383	30,883	3,465	1,035	-	254	430,313
Norseman Siding	0.524	32,529	28,590	2,982	958	-	219	396,792
Salmon Gums Siding	1.275	75,921	66,440	7,255	2,226	-	533	921,575
<b>Total</b>	<b>399.733</b>	<b>32,517,458</b>	<b>25,725,401</b>	<b>4,169,258</b>	<b>1,142,883</b>	<b>1,479,917</b>	<b>1,054,665</b>	<b>353,878,912</b>
Revised Ceiling @ July 2006								
	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
<b>Route Section</b>								
West Kalgoorlie to Hampton	17.882	\$2,500,679	\$1,714,398	\$319,912	\$229,320	\$237,049	\$219,260	\$22,340,303
Hampton to Kambalda	38.25	\$4,094,623	\$2,960,937	\$526,470	\$271,079	\$336,137	\$278,489	\$39,882,479
Kambalda to Salmon Gums	229.595	\$22,071,889	\$17,767,465	\$2,518,907	\$680,881	\$1,104,636	\$912,974	\$240,668,582
Salmon Gums to Esperance	111.598	\$11,005,869	\$8,769,988	\$1,314,778	\$379,465	\$541,638	\$545,575	\$117,268,011
Kambalda siding	0.609	\$43,804	\$39,252	\$3,237	\$1,315	\$0	\$226	\$539,171
Norseman Siding	0.524	\$39,959	\$35,969	\$2,785	\$1,205	\$0	\$195	\$492,797
Salmon Gums Siding	1.275	\$95,592	\$85,936	\$6,777	\$2,879	\$0	\$473	\$1,175,055
<b>Total Route</b>	<b>399.73</b>	<b>39,852,414</b>	<b>31,373,945</b>	<b>4,692,865</b>	<b>1,566,143</b>	<b>2,219,461</b>	<b>1,957,193</b>	<b>422,366,398</b>
Variance from 2005								
	Section Length	Total Ceiling	Capital	Maintenance	Operating	Overhead	Floor	GRV
<b>Route Section</b>								
West Kalgoorlie to Hampton		\$457,713	\$309,632	-\$2,444	\$83,944	\$66,581	\$112,336	\$3,600,915
Hampton to Kambalda		\$890,460	\$568,846	\$66,911	\$120,266	\$134,436	\$149,562	\$6,884,167
Kambalda to Salmon Gums		\$3,774,989	\$2,952,851	\$325,400	\$128,763	\$367,975	\$371,425	\$36,464,547
Salmon Gums to Esperance		\$2,176,271	\$1,781,970	\$134,642	\$89,107	\$170,552	\$269,316	\$21,079,515
Kambalda siding		\$8,422	\$8,369	-\$228	\$280	\$0	-\$28	\$108,858
Norseman Siding		\$7,430	\$7,379	-\$196	\$247	\$0	-\$24	\$96,005
Salmon Gums Siding		\$19,671	\$19,496	-\$478	\$653	\$0	-\$59	\$253,480
Ceiling Increase \$		\$ 7,334,956	\$ 5,648,544	\$ 523,607	\$ 423,260	\$ 739,544	\$ 902,527	\$ 68,487,486
Ceiling Increase %		23%	22%	13%	37%	50%	86%	19%

## 9.2 Variance Analysis

- Capital increases are attributable to increases in all unit rates as supported by the WorleyParsons Report.
- Maintenance increases are attributable to increases in the per Kilometre rate for infrastructure maintenance as supported by the WorleyParsons Report.
- Operating cost increase of 37% is primarily resulting from the direct allocation of the train control function recognizing reasonable projected growth.
- Overheads have increased based on the WNR stand-alone budget and the increased train numbers allocating the cost.



# 10 Unit Pricing Analysis

## Track Cost Comparison

RowID	Category	Sub Category	CostDescription	CostID	APM Cost 2002	Worley Parsons Revised @ June 2006	Increase since determination	Source 2006 update	
1	Capital	Culverts	Culvert Walls \$ per tonne	CulWalls_CV	\$950.00	\$1,174.00	24%	WorleyParsons report	
2	Capital	Structures	Fencing Cost per KM (where used)	Fence_CK	\$70,000.00	\$72,000.00	3%	WorleyParsons report	
3	Capital	Structures	Signs Costs \$ per km	Signs_CK	\$2,000.00	\$2,348.00	17%	WorleyParsons report	
4	Capital	Track	Ballast Cost \$ per tonne, Bunbury	Blst_Bnb	\$14.60	\$25.00	71%	WorleyParsons report	
5	Capital	Track	Ballast Cost \$ per tonne, Esperance	Blst_Esp	\$14.60	\$25.50	75%	WorleyParsons report	
6	Capital	Track	Ballast Cost \$ per tonne, Kalgoorlie	Blst_Kal	\$14.60	\$20.00	37%	WorleyParsons report	
7	Capital	Track	Ballast Cost \$ per tonne, Kwinana	Blst_Kwi	\$14.60	\$25.00	71%	WorleyParsons report	
8	Capital	Track	Ballast Cost \$ per tonne, Midland	Blst_Mid	\$14.60	\$25.00	71%	WorleyParsons report	
9	Capital	Track	Cost per 41 kg/m Rail \$ per tonne	R41	\$1,138.00	\$1,600.00	41%	WorleyParsons report	
10	Capital	Track	Cost per 50 kg/m Rail \$ per tonne	R50	\$1,173.20	\$1,500.00	28%	WorleyParsons report	
11	Capital	Track	Cost per 60 kg/m Rail \$ per tonne	R60	\$1,101.87	\$1,440.00	31%	WorleyParsons report	
12	Capital	Track	Timber sleeper cost for NG 19TAL	SLPT1_19TAL	\$89.40	\$103.00	15%	WorleyParsons report	
13	Capital	Track	Steel sleeper cost for NG 19TAL	SLPS1_19TAL	\$56.00	\$65.35	17%	WorleyParsons report	
14	Capital	Track	Concrete sleeper cost for NG	SLPC1	\$72.00	\$85.00	18%	WorleyParsons report	
15	Capital	Track	Timber sleeper cost for SG	SLPT2	\$64.00	\$117.80	84%	WorleyParsons report	
16	Capital	Track	Steel sleeper cost for SG	SLPS2	\$67.00	\$75.35	12%	WorleyParsons report	
17	Capital	Track	Concrete sleeper cost for SG	SLPC2	\$81.00	\$95.00	17%	WorleyParsons report	
18	Capital	Track	Timber sleeper cost for DG	SLPT3	\$71.00	\$147.20	107%	WorleyParsons report	
19	Capital	Track	Steel sleeper cost for DG	SLPS3	\$74.00	\$288.50	290%	WorleyParsons report	
20	Capital	Track	Concrete sleeper cost for DG	SLPC3	\$111.00	\$140.00	26%	WorleyParsons report	
21	Capital	Track	Timber Bearers	Turnout47_1	\$90,000.00	\$206,418.00	129%	WorleyParsons report	
22	Capital	Track	Cost per 47 kg/m Turnout for SG	Turnout47_2	\$85,000.00	\$192,872.00	127%	WorleyParsons report	
23	Capital	Track	Cost per 47 kg/m Turnout for DG	Turnout47_3	\$85,000.00	\$412,726.00	386%	WorleyParsons report	
24	Capital	Track	Timber Bearers	Turnout60Timber_1	\$161,200.00	\$186,000.00	15%	WorleyParsons report	
25	Capital	Track	Concrete Bearers	Turnout60Concrete_1	\$168,000.00	\$207,000.00	23%	WorleyParsons report	
26	Capital	Track	Timber Bearers	Turnout60Timber_2	\$162,000.00	\$173,000.00	7%	WorleyParsons report	
27	Capital	Track	Concrete Bearers	Turnout60Concrete_2	\$170,000.00	\$205,000.00	21%	WorleyParsons report	
28	Capital	Track	Timber Bearers	Turnout60Timber_3	\$254,150.00	\$385,000.00	51%	WorleyParsons report	
29	Capital	Track	Concrete Bearers	Turnout60Concrete_3	\$280,000.00	\$454,000.00	62%	WorleyParsons report	
30	Capital	Track	Catchpoint Cost \$ per item	CtchPnt_CK	\$15,000.00	\$46,000.00	207%	WorleyParsons report	
31	Capital	Track	Road Access Cost \$ per km	AccRd_CK	\$5,000.00	\$5,870.00	17%	WorleyParsons report	
32	Capital	Track	Shunters Path Costs \$ per km	ShntPth_CK	\$3,150.00	\$3,700.00	17%	WorleyParsons report	
33	General	Null	Where Null required for matrix	Nil	\$1.00	\$1.00	0%		
59	Capital	Track	Timber sleeper cost for NG 16TAL	SLPT1_16TAL	\$49.72	\$103.00	107%	WorleyParsons report	
60	Capital	Track	Steel sleeper cost for NG 16TAL	SLPS1_16TAL	\$56.00	\$65.35	17%	WorleyParsons report	
61	Capital	Track	Concrete sleeper cost for NG 16TAL	SLPC1_16TAL	\$72.00	\$85.00	18%	WorleyParsons report	
62	Capital	Track	Concrete sleeper cost for NG 19TAL	SLPC1_19TAL	\$72.00	\$85.00	18%	WorleyParsons report	
63	Capital	Track	Curve	SLPT1_16TAL_Crv	\$86.08	\$103.00	20%	WorleyParsons report	
<b>Earthworks Cost</b>					% of SG rate	\$250.00		per metre	
Collie East					57%	\$125,611	\$142,094	13%	WorleyParsons report
South West Main					64%	\$141,374	\$159,925	13%	WorleyParsons report
Grain Region					64%	\$141,374	\$159,925	13%	WorleyParsons report
EGR Dual Gauge track					73%	\$161,500	\$182,692	13%	WorleyParsons report
Brunswick to Worsley					87%	\$191,236	\$216,330	13%	WorleyParsons report
EGR Avon to Kalgoorlie						\$221,000	\$250,000	13%	WorleyParsons report
Kalgoorlie to Leonora						\$221,000	\$250,000	13%	WorleyParsons report
Kalgoorlie to Esperance						\$221,000	\$250,000	13%	WorleyParsons report
<b>Tracklay cost</b>									
Collie East						\$94,000	\$117,510	25%	WorleyParsons report
South West Main						\$94,000	\$117,510	25%	WorleyParsons report
Grain Region						\$93,000	\$116,260	25%	WorleyParsons report
EGR Dual gauge track						\$126,000	\$144,300	15%	WorleyParsons report
Brunswick to Worsley						\$94,000	\$117,510	25%	WorleyParsons report

Communications Unit Rates Comparison

CostCode	Category	Subcategory	Name	Price	Worley Parsons Revised @ June 2006	Percent Increase from base 2002	Source 2006 update
Coms1	Cables	Internal	2 pairs	\$0.30	\$0.35	16.66%	WorleyParsons report
Coms10	Cables	External	20 pairs	\$4.00	\$4.67	16.66%	WorleyParsons report
Coms11	Cables	External	50 pairs	\$10.00	\$11.67	16.66%	WorleyParsons report
Coms12	Cables	External	Carrier cable SQC	\$4.00	\$4.67	16.66%	WorleyParsons report
Coms13	Ducts & Pits	Ducts	Ducts	\$30.00	\$35.00	16.66%	WorleyParsons report
Coms14	Ducts & Pits	Pits	Pits	\$450.00	\$524.96	16.66%	WorleyParsons report
Coms15	Cables	Install	DirectBury	\$15.00	\$17.50	16.66%	WorleyParsons report
Coms16	Cables	Install	Ducts and cables	\$25.00	\$29.16	16.66%	WorleyParsons report
Coms17	Carrier Equip	Carrier Equip	Terminal	\$40,000.00	\$46,662.84	16.66%	WorleyParsons report
Coms18	Carrier Equip	Carrier Equip	Repeater	\$4,500.00	\$5,249.57	16.66%	WorleyParsons report
Coms19	Phones	Phones	300 ext PABX	\$110,000.00	\$128,322.81	16.66%	WorleyParsons report
Coms2	Cables	Internal	6 pairs	\$0.70	\$0.82	16.66%	WorleyParsons report
Coms20	Phones	Phones	100ext PABX	\$50,000.00	\$58,328.55	16.66%	WorleyParsons report
Coms21	Phones	Phones	Phones	\$300.00	\$349.97	16.66%	WorleyParsons report
Coms22	Phones	Trackside	Trackside	\$2,500.00	\$2,916.43	16.66%	WorleyParsons report
Coms23	MDF systems	Major	Major	\$20,000.00	\$23,331.42	16.66%	WorleyParsons report
Coms24	MDF systems	Minor	Minor	\$7,500.00	\$8,749.28	16.66%	WorleyParsons report
Coms25	Radio	Radio	Base stations	\$30,000.00	\$34,997.13	16.66%	WorleyParsons report
Coms26	Radio	Radio	ControlEquip	\$50,000.00	\$58,328.55	16.66%	WorleyParsons report
Coms27	Radio	Radio	Tower	\$40,000.00	\$46,662.84	16.66%	WorleyParsons report
Coms28	Power	Major	Dual rectifier and Batteries	\$25,000.00	\$29,164.28	16.66%	WorleyParsons report
Coms29	Power	Minro	Single rectifier and batteries	\$12,000.00	\$13,998.85	16.66%	WorleyParsons report
Coms3	Cables	Internal	10 pairs	\$1.00	\$1.17	16.66%	WorleyParsons report
Coms30	Radio	terminals	Microwave terminals	\$120,000.00	\$139,988.52	16.66%	WorleyParsons report
Coms31	Radio	UHFlink terminals	UHFlink terminals	\$20,000.00	\$23,331.42	16.66%	WorleyParsons report
Coms32	Radio	Radio building	Radio building	\$45,000.00	\$52,495.70	16.66%	WorleyParsons report
Coms33	Train Order	Cabin	Per building	\$6,765.00	\$7,891.85	16.66%	WorleyParsons report
Coms34	Radio	GrainLine	Allowance	\$4,994.00	\$5,825.86	16.66%	WorleyParsons report
Coms4	Cables	Internal	20 pairs	\$2.00	\$2.33	16.66%	WorleyParsons report
Coms5	Cables	Internal	50 pairs	\$4.00	\$4.67	16.66%	WorleyParsons report
Coms6	Cables	Internal	category 5/type 1	\$1.00	\$1.17	16.66%	WorleyParsons report
Coms7	Cables	External	2 pairs	\$1.00	\$1.17	16.66%	WorleyParsons report
Coms8	Cables	External	6 pairs	\$2.50	\$2.92	16.66%	WorleyParsons report
Coms9	Cables	External	10 pairs	\$3.00	\$3.50	16.66%	WorleyParsons report

Signalling Unit Rates Comparison

ID	category	item	APM Cost 2002	Worley Parsons Revised @ June 2006	Percent Increase from base 2002	Source
SP1	Cables	Conduits, cables and trenching	\$72.00	\$83.99	16.66%	WorleyParsons report
SP10	Interlocking	Microlok EOS	\$41,628.00	\$48,562.02	16.66%	WorleyParsons report
SP11	Interlocking	Microlok Large	\$53,378.00	\$62,269.23	16.66%	WorleyParsons report
SP12	Interlocking	Microlok Small	\$41,628.00	\$48,562.02	16.66%	WorleyParsons report
SP13	Misc	Slot interface	\$34,000.00	\$39,663.41	16.66%	WorleyParsons report
SP14	Misc	Gantries	\$25,000.00	\$29,164.28	16.66%	WorleyParsons report
SP15	Misc	Installation labour	\$564.00	\$657.95	16.66%	WorleyParsons report
SP16	Misc	Insulated Joints	\$5,000.00	\$5,832.86	16.66%	WorleyParsons report
SP17	Misc	Mounting rack	\$1,400.00	\$1,633.20	16.66%	WorleyParsons report
SP18	Misc	Out Of Gauge Equipment	\$30,000.00	\$34,997.13	16.66%	WorleyParsons report
SP19	Points	Points with rodding	\$18,380.00	\$21,441.57	16.66%	WorleyParsons report
SP2	Cables	OF cable 12core	\$4.00	\$4.67	16.66%	WorleyParsons report
SP20	Power	Power connection	\$4,500.00	\$5,249.57	16.66%	WorleyParsons report
SP21	Power	Power supply1	\$9,865.00	\$11,508.22	16.66%	WorleyParsons report
SP22	Power	Power supply2	\$8,740.00	\$10,195.83	16.66%	WorleyParsons report
SP23	Power	Solar power supply	\$18,500.00	\$21,581.56	16.66%	WorleyParsons report
SP24	Relays	Interface Relays	\$583.00	\$680.11	16.66%	WorleyParsons report
SP25	Signals	Additional route Indicator	\$3,250.00	\$3,791.36	16.66%	WorleyParsons report
SP26	Signals	Signals ground shunt 2 aspect	\$4,230.00	\$4,934.60	16.66%	WorleyParsons report
SP27	Signals	Signals ground shunt 3 aspect	\$7,650.00	\$8,924.27	16.66%	WorleyParsons report
SP28	Signals	Signals Mast 2 aspect	\$7,070.00	\$8,247.66	16.66%	WorleyParsons report
SP29	Signals	Signals shunt subsidiary	\$2,000.00	\$2,333.14	16.66%	WorleyParsons report
SP3	Cables	Pits	\$480.00	\$559.95	16.66%	WorleyParsons report
SP30	Signals	Signals standard	\$8,090.00	\$9,437.56	16.66%	WorleyParsons report
SP31	Signals	Signals with route indicator	\$11,340.00	\$13,228.92	16.66%	WorleyParsons report
SP32	Signals	Standby plant & control system1	\$28,800.00	\$33,597.24	16.66%	WorleyParsons report
SP33	Signals	Standby plant & control system2	\$36,900.00	\$43,046.47	16.66%	WorleyParsons report
SP34	Signals	Switchlock with rodding	\$17,000.00	\$19,831.71	16.66%	WorleyParsons report
SP35	Signals	Telemetry equipment	\$2,300.00	\$2,683.11	16.66%	WorleyParsons report
SP36	Structures	Fencing	\$3,400.00	\$3,966.34	16.66%	WorleyParsons report
SP37	Structures	Location cases and terminals1	\$6,415.00	\$7,483.55	16.66%	WorleyParsons report
SP38	Structures	Location cases and terminals2	\$6,620.00	\$7,722.70	16.66%	WorleyParsons report
SP39	Structures	Signals equipment room	\$31,240.00	\$36,443.68	16.66%	WorleyParsons report
SP4	Cables	TDB's	\$220.00	\$256.65	16.66%	WorleyParsons report
SP40	Structures	Standby Hut	\$12,000.00	\$13,998.85	16.66%	WorleyParsons report
SP41	Track Circuits	Track circuit Coded	\$13,714.00	\$15,998.35	16.66%	WorleyParsons report
SP42	Track Circuits	Track circuits AF	\$6,822.00	\$7,958.35	16.66%	WorleyParsons report
SP43	Track Circuits	Track circuits dc	\$2,382.00	\$2,778.77	16.66%	WorleyParsons report
SP44	Crossings	Crossing1	\$176,763.00	\$206,206.59	16.66%	WorleyParsons report
SP45	Crossings	Crossing2	\$175,743.00	\$205,016.69	16.66%	WorleyParsons report
SP46	Crossings	Crossing3	\$142,045.00	\$165,705.58	16.66%	WorleyParsons report
SP47	Crossings	Crossing4	\$141,025.00	\$164,515.68	16.66%	WorleyParsons report
SP48	Crossings	Crossing5	\$129,878.00	\$151,511.91	16.66%	WorleyParsons report
SP49	Crossings	Crossing6	\$86,000.00	\$100,325.11	16.66%	WorleyParsons report
SP5	Cables	Undertrack crossings	\$2,750.00	\$3,208.07	16.66%	WorleyParsons report
SP50	Interlocking	Microtrax EOS unit	\$34,568.00	\$40,326.03	16.66%	WorleyParsons report
SP51	Interlocking	Microtrax Repeater	\$23,834.00	\$27,804.05	16.66%	WorleyParsons report
SP52	misc	Invertor	\$1,850.00	\$2,158.16	16.66%	WorleyParsons report
SP53	Misc	Misc control equipment	\$2,500.00	\$2,916.43	16.66%	WorleyParsons report
SP54	misc	Plant	\$774.00	\$902.93	16.66%	WorleyParsons report

Humes  
Material  
Price 2006

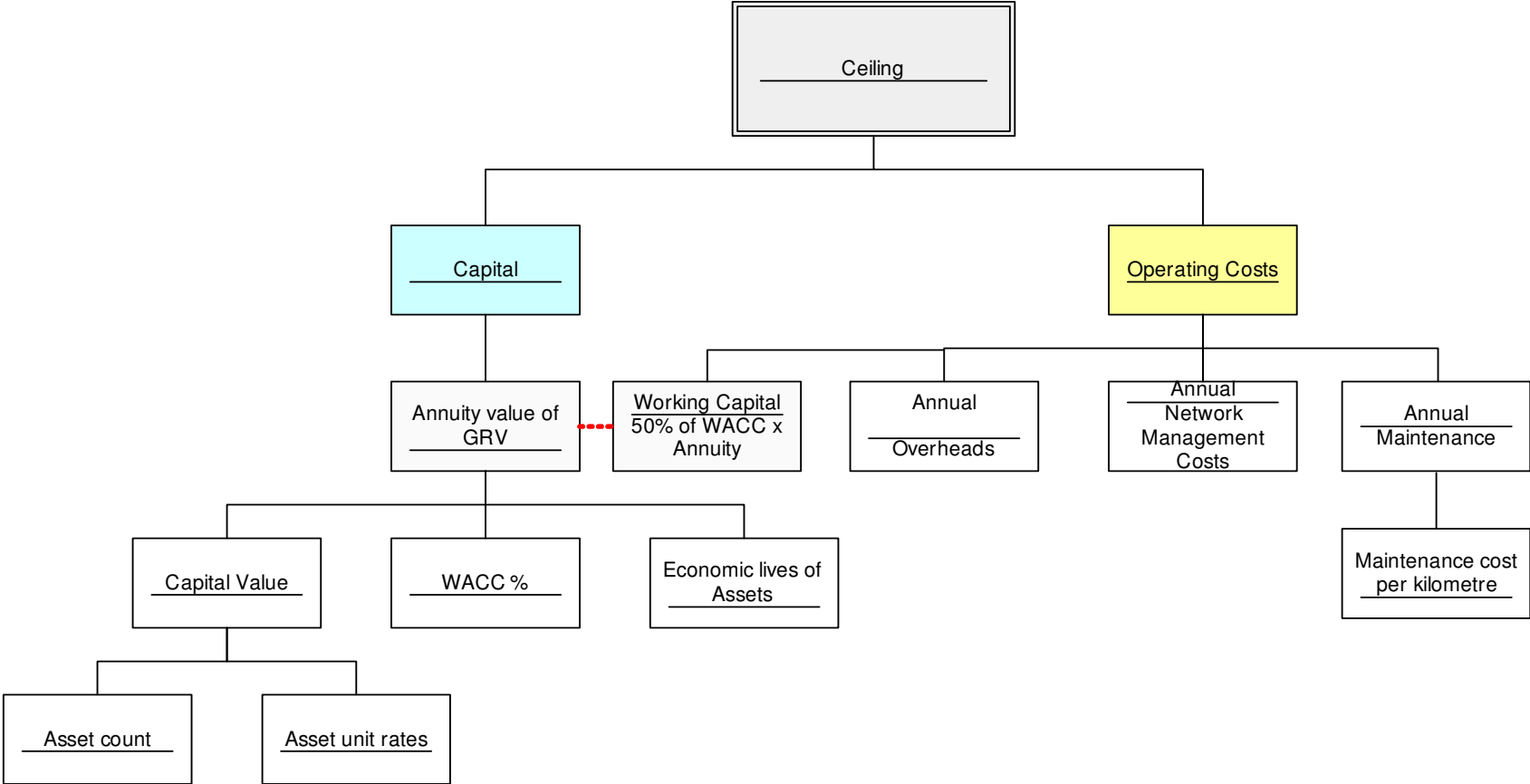
Culvert Unit rates Comparison

ID	Type	StandardSize	MatCost	InstallCost	Worley Parsons Revised @ June 2006	Worley Parsons Revised @ June 2006	Percent Increase from base 2002	Source
					MatCost	InstallCost		
1	RCB	300X150	\$107.26	\$85.81	\$117.45	\$93.96	10%	WorleyParsons report
2	RCB	375X225	\$133.00	\$106.40	\$145.64	\$116.51	9%	WorleyParsons report
3	RCB	450X150	\$149.15	\$119.32	\$163.32	\$130.66	10%	WorleyParsons report
4	RCB	450X225	\$156.75	\$125.40	\$171.64	\$137.31	10%	WorleyParsons report
5	RCB	450X300	\$170.05	\$136.04	\$186.20	\$148.96	10%	WorleyParsons report
6	RCB	450X450	\$189.05	\$151.24	\$207.01	\$165.61	10%	WorleyParsons report
7	RCB	600X225	\$183.35	\$146.68	\$200.77	\$160.61	10%	WorleyParsons report
8	RCB	600X300	\$196.65	\$157.32	\$215.33	\$172.27	10%	WorleyParsons report
9	RCB	600X375	\$205.20	\$164.16	\$224.69	\$179.76	10%	WorleyParsons report
10	RCB	600X450	\$215.65	\$172.52	\$236.14	\$188.91	10%	WorleyParsons report
11	RCB	600X600	\$233.70	\$186.96	\$255.90	\$204.72	10%	WorleyParsons report
12	RCB	750X300	\$324.58	\$259.67	\$355.42	\$284.34	10%	WorleyParsons report
13	RCB	750X375	\$332.50	\$266.00	\$364.09	\$291.27	10%	WorleyParsons report
14	RCB	750X450	\$340.42	\$272.33	\$372.76	\$298.21	10%	WorleyParsons report
15	RCB	750X600	\$354.67	\$283.73	\$388.36	\$310.69	9%	WorleyParsons report
16	RCB	900X300	\$609.58	\$487.67	\$520.80	\$416.64	-15%	WorleyParsons report
17	RCB	900X375	\$617.50	\$494.00	\$676.16	\$540.93	10%	WorleyParsons report
18	RCB	900X450	\$625.42	\$500.33	\$665.00	\$532.00	6%	WorleyParsons report
19	RCB	900X600	\$639.67	\$511.73	\$690.00	\$552.00	8%	WorleyParsons report
20	RCB	900X750	\$657.08	\$525.67	\$575.00	\$460.00	-12%	WorleyParsons report
21	RCB	900X900	\$672.92	\$538.33	\$600.00	\$480.00	-11%	WorleyParsons report
22	RCB	1200X300	\$1,076.67	\$861.33	\$1,178.95	\$943.16	10%	WorleyParsons report
23	RCB	1200X375	\$1,092.50	\$874.00	\$1,196.29	\$957.03	10%	WorleyParsons report
24	RCB	1200X450	\$1,104.38	\$883.50	\$766.60	\$613.28	-31%	WorleyParsons report
25	RCB	1200X600	\$1,137.63	\$910.10	\$812.50	\$650.00	-29%	WorleyParsons report
26	RCB	1200X750	\$1,159.79	\$927.83	\$1,000.00	\$800.00	-14%	WorleyParsons report
27	RCB	1200X900	\$1,204.13	\$963.30	\$887.50	\$710.00	-26%	WorleyParsons report
28	RCB	1200X1050	\$1,211.25	\$969.00	\$1,150.00	\$920.00	-5%	WorleyParsons report
29	RCB	1200X1200	\$1,219.17	\$975.33	\$1,240.00	\$992.00	2%	WorleyParsons report
30	RCB	1500X900	\$1,188.29	\$950.63	\$1,220.00	\$976.00	3%	WorleyParsons report
31	RCB	1500X1200	\$1,258.75	\$1,007.00	\$1,370.00	\$1,096.00	9%	WorleyParsons report
32	RCB	1500X1500	\$1,335.54	\$1,068.43	\$1,540.00	\$1,232.00	15%	WorleyParsons report
33	RCB	1800X900	\$1,256.38	\$1,005.10	\$1,510.00	\$1,208.00	20%	WorleyParsons report
34	RCB	1800X1200	\$1,325.25	\$1,060.20	\$1,530.00	\$1,224.00	15%	WorleyParsons report
35	RCB	1800X1500	\$1,374.33	\$1,099.47	\$1,700.00	\$1,360.00	24%	WorleyParsons report
36	RCB	1800X1800	\$1,459.04	\$1,167.23	\$1,860.00	\$1,488.00	27%	WorleyParsons report
37	RCB	2100X1200	\$1,491.50	\$1,193.20	\$1,940.00	\$1,552.00	30%	WorleyParsons report
38	RCB	2100X1500	\$1,565.13	\$1,252.10	\$2,140.00	\$1,712.00	37%	WorleyParsons report
39	RCB	2100X1800	\$1,658.54	\$1,326.83	\$2,330.00	\$1,864.00	40%	WorleyParsons report
40	RCB	2100X2100	\$1,748.79	\$1,399.03	\$2,530.00	\$2,024.00	45%	WorleyParsons report
41	RCB	2400X1200	\$1,618.96	\$1,295.17	\$2,090.00	\$1,672.00	29%	WorleyParsons report
42	RCB	2400X1500	\$1,700.50	\$1,360.40	\$2,280.00	\$1,824.00	34%	WorleyParsons report
43	RCB	2400X1800	\$1,794.71	\$1,435.77	\$2,480.00	\$1,984.00	38%	WorleyParsons report
44	RCB	2400X2100	\$1,875.46	\$1,500.37	\$2,680.00	\$2,144.00	43%	WorleyParsons report
45	RCB	2400X2400	\$1,962.54	\$1,570.03	\$2,890.00	\$2,312.00	47%	WorleyParsons report
46	RCB	2700X1500	\$1,797.88	\$1,438.30	\$2,420.00	\$1,936.00	35%	WorleyParsons report
47	RCB	2700X1800	\$1,872.29	\$1,497.83	\$2,620.00	\$2,096.00	40%	WorleyParsons report
48	RCB	2700X2100	\$1,979.17	\$1,583.33	\$2,820.00	\$2,256.00	42%	WorleyParsons report

**Bridge cost per metre squared comparison**

				17.4%
BridgeTypeCode	Bridgecostperm2	Worley Parsons Revised @ June 2006	Source	Percent Increase from base 2002
Complex_DT	\$3,300.00	\$3,874.20	WorleyParsons report	17.4%
Complex_NG	\$3,200.00	\$3,756.80	WorleyParsons report	17.4%
Complex_ST	\$3,400.00	\$3,991.60	WorleyParsons report	17.4%
Footbridge	\$1,800.00	\$2,113.20	WorleyParsons report	17.4%
Medium_DT	\$2,700.00	\$3,169.80	WorleyParsons report	17.4%
Medium_NG	\$2,600.00	\$3,052.40	WorleyParsons report	17.4%
Medium_ST	\$2,800.00	\$3,287.20	WorleyParsons report	17.4%
Simple_DT	\$2,200.00	\$2,582.80	WorleyParsons report	17.4%
Simple_NG	\$2,200.00	\$2,582.80	WorleyParsons report	17.4%
Simple_ST	\$2,300.00	\$2,700.20	WorleyParsons report	17.4%

# 11 Appendix 1 – APM structure



# 12 Appendix Two – Centralised Train Control – cost allocation

## WestNet Centralised Train Control Function

	\$	FTE's
Approved Budget 2006/07	4,751,368	37
<b>Total</b>	<b>4,751,368</b>	
Average per FTE	128,415	

Region	FTE's	Resource Budget	APM Route							Balance of grain	Perenjori Geraldton	Total	check
			SWM	Terminals	Worsley	EGR	K-L	K-E	Grain 4 line determined				
South West	4.6	593,921	92%	8%									100%
Picton	4.6	593,921	83%	7%	10%								100%
Central (Miling)	4.6	593,921				90%			10%				100%
Great Southern & MR	4.6	593,921							10%	90%			100%
Mid West	4.6	593,921								30%	70%		100%
Central (Goomalling branches)	4.6	593,921				65%			10%	25%			100%
Merredin EGR East	4.6	593,921				90%			10%				100%
Leonora to Esperance	4.6	593,921					25%	75%					100%
<b>Total Centralised Train Control</b>	<b>37</b>	<b>4,751,368</b>											

## Budget Allocation

Region	FTE's	Resource Budget	APM Route							Balance of grain	Perenjori Geraldton	Total
			SWM	Terminals	Worsley	EGR	K-L	K-E	Grain 4 line determined			
South West	4.6	593,921	546,407	47,514	-	-	-	-	-	-	-	593,921
Picton	4.6	593,921	492,954	41,574	59,392	-	-	-	-	-	-	593,921
Central (Miling)	4.6	593,921	-	-	-	534,529	-	-	-	59,392	-	593,921
Great Southern & MR	4.6	593,921	-	-	-	-	-	-	-	59,392	534,529	593,921
Mid West	4.6	593,921	-	-	-	-	-	-	-	-	178,176	415,745
Central (Goomalling branches)	4.6	593,921	-	-	-	386,049	-	-	-	59,392	148,480	593,921
Merredin EGR East	4.6	593,921	-	-	-	534,529	-	-	-	59,392	-	593,921
Leonora to Esperance	4.6	593,921	-	-	-	-	148,480	445,441	-	-	-	593,921
<b>Total Centralised Train Control</b>	<b>37</b>	<b>4,751,368</b>	<b>1,039,362</b>	<b>89,088</b>	<b>59,392</b>	<b>1,455,106</b>	<b>148,480</b>	<b>445,441</b>	<b>237,568</b>	<b>861,185</b>	<b>415,745</b>	<b>4,751,368</b>

## Train Control Function

SWM	1,039,362
Terminal	89,088
Worsley	59,392
EGR	1,455,106
K-L	148,480
K-E	445,441
Grain 4 line determined	237,568
Balance of grain	861,185
Perenjori Geraldton	415,745
<b>Total train control allocation</b>	<b>4,751,368</b>

Note