

BHP Billiton Iron Ore Railroad

Presentation to Analysts June 2005



Mike Darby, Vice President Rail

Iron Ore



Rail System Location Map

The Nelson Point - Newman Railway is 426km

Port Hedland-Yarrie Railway is 208km

Yandi spur line is 30km

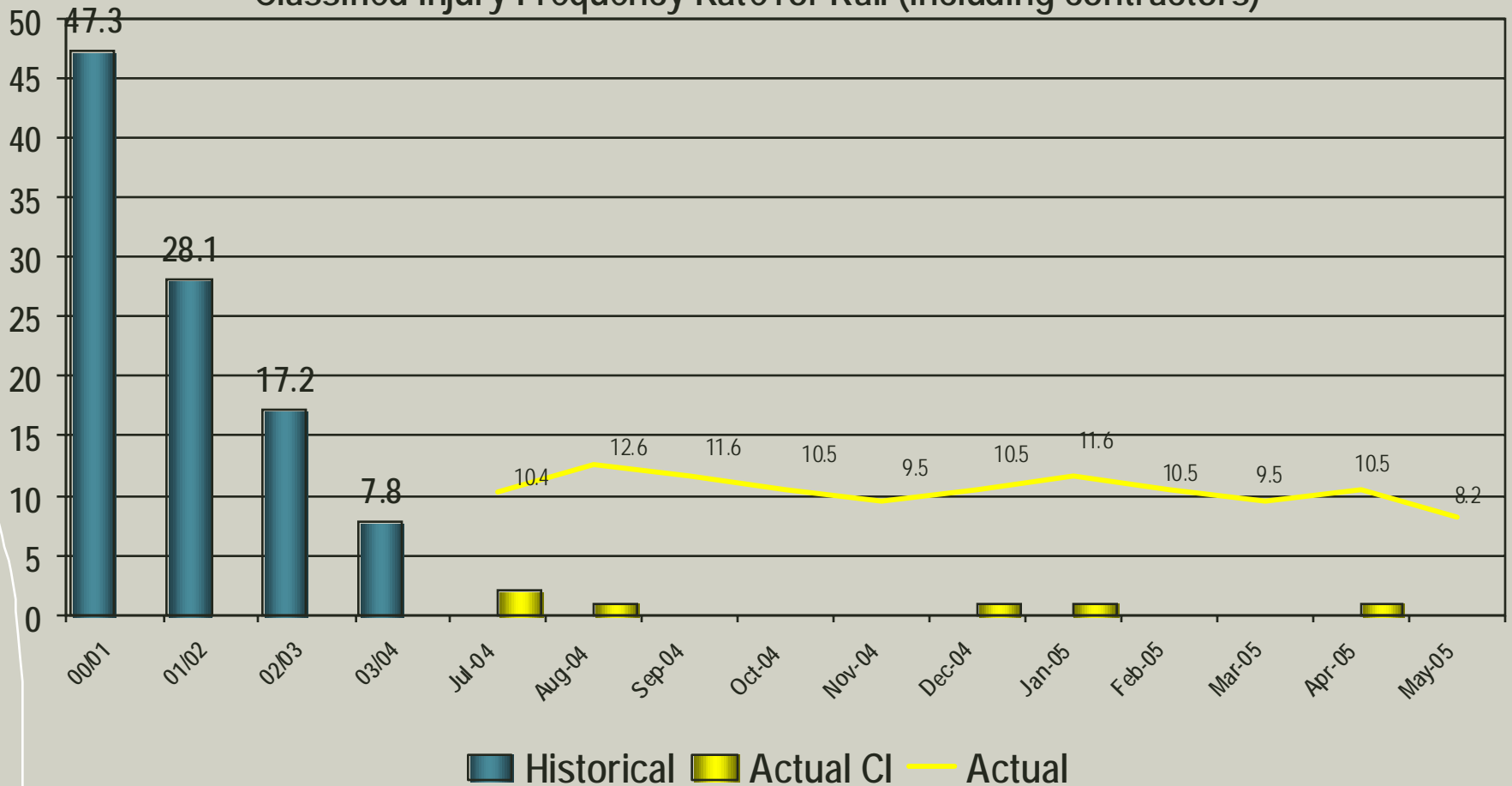
Area C spur line extension from Yandi is 38km

Jimblebar spur line is 32km

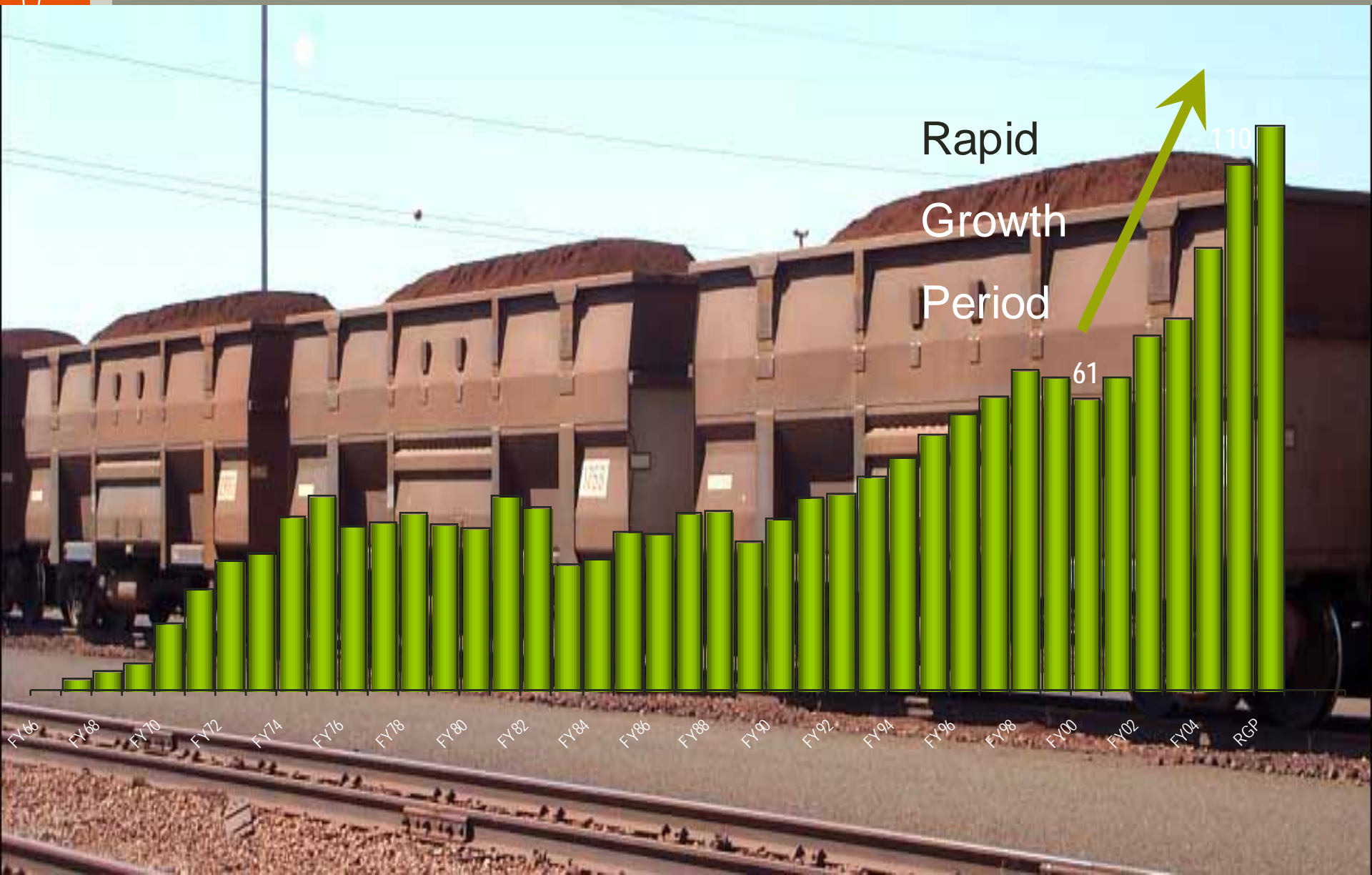


Safety Performance - Rail Classified Injuries

Classified Injury Frequency Rate for Rail (including contractors)



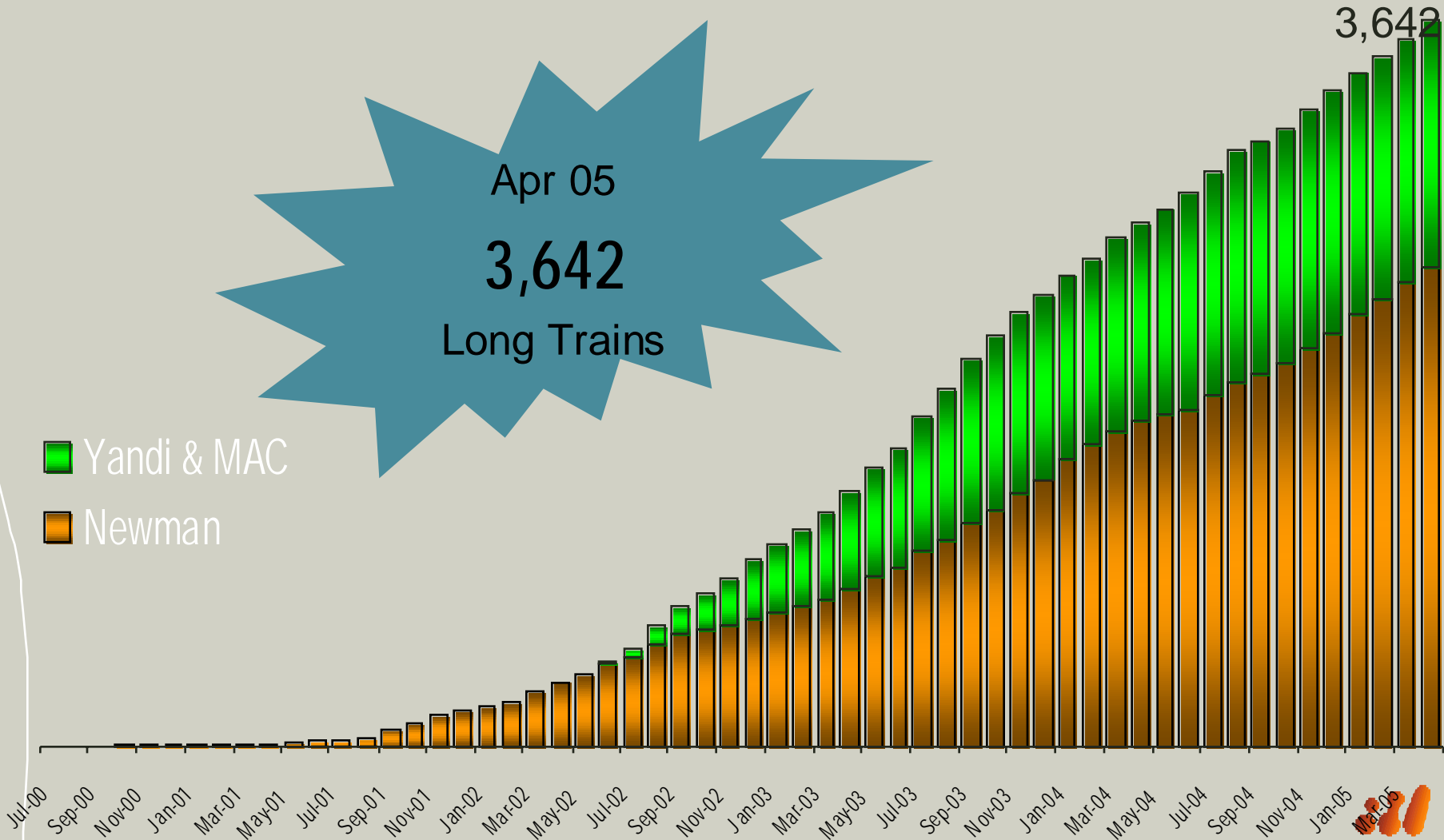
Tonnes Railed



Rail KPI's - Long Trains (300-336 Cars)

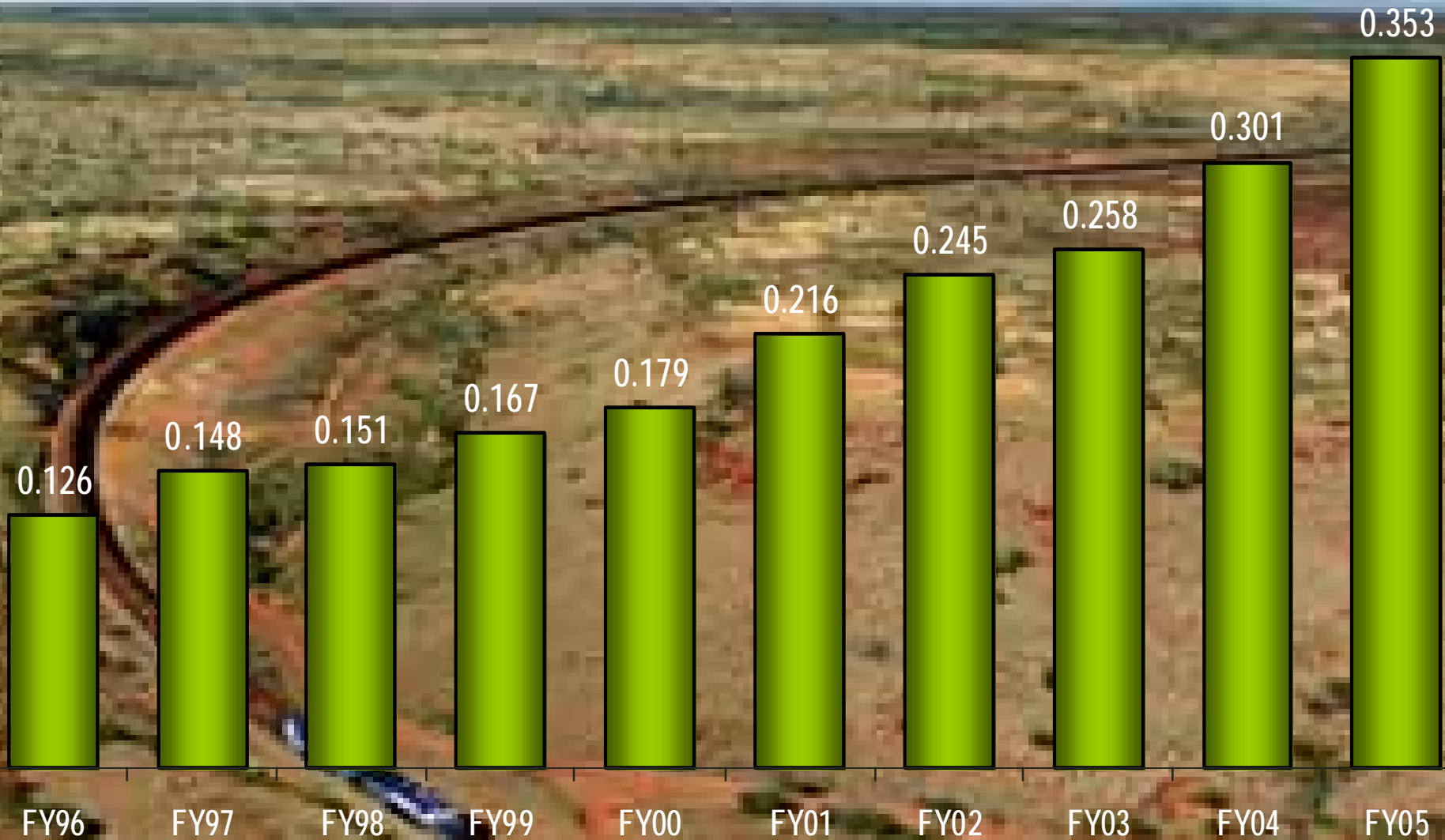
Apr 05
3,642
Long Trains

Yandi & MAC
Newman

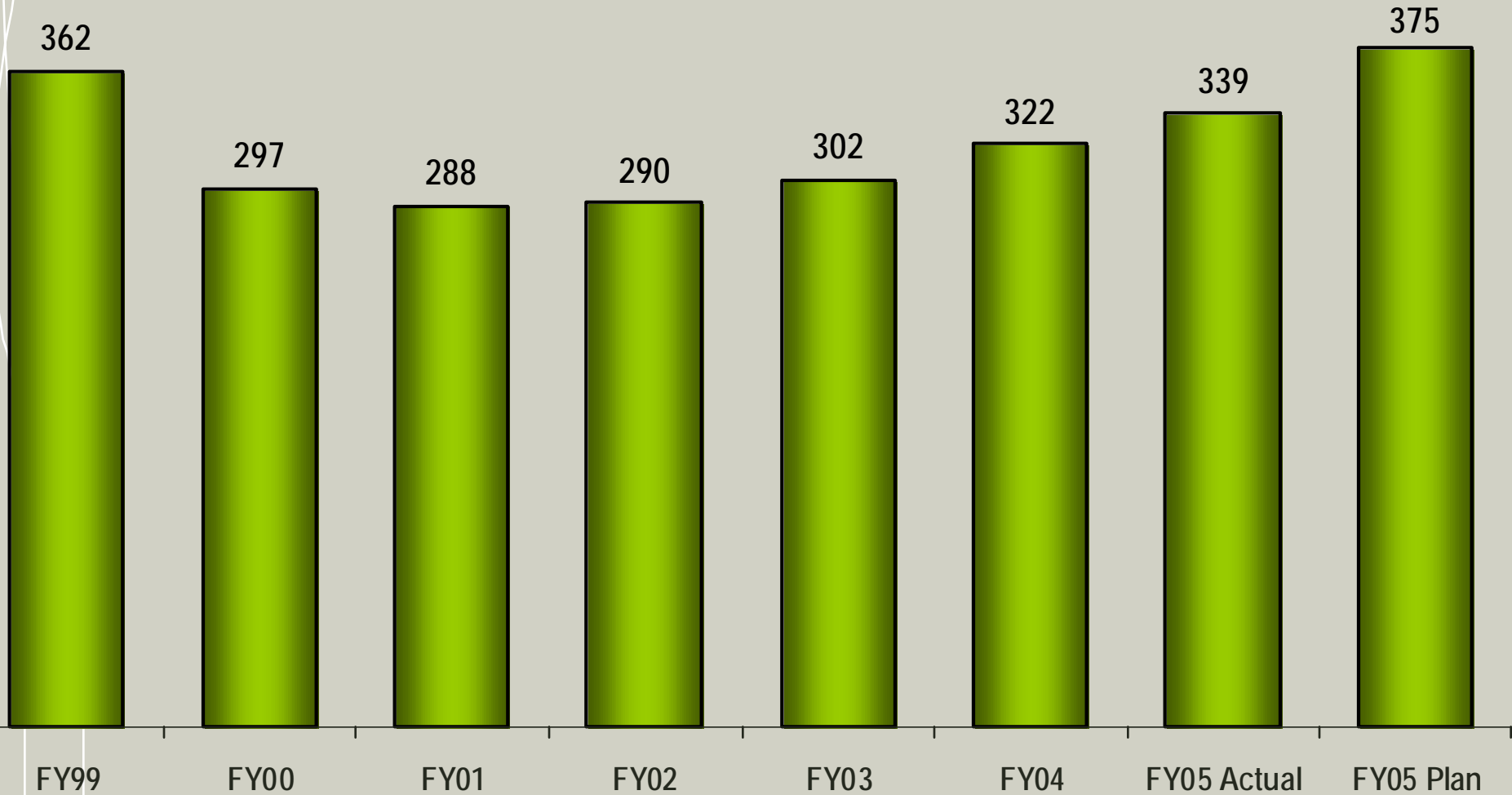


Million Tonnes Railed Per Employee

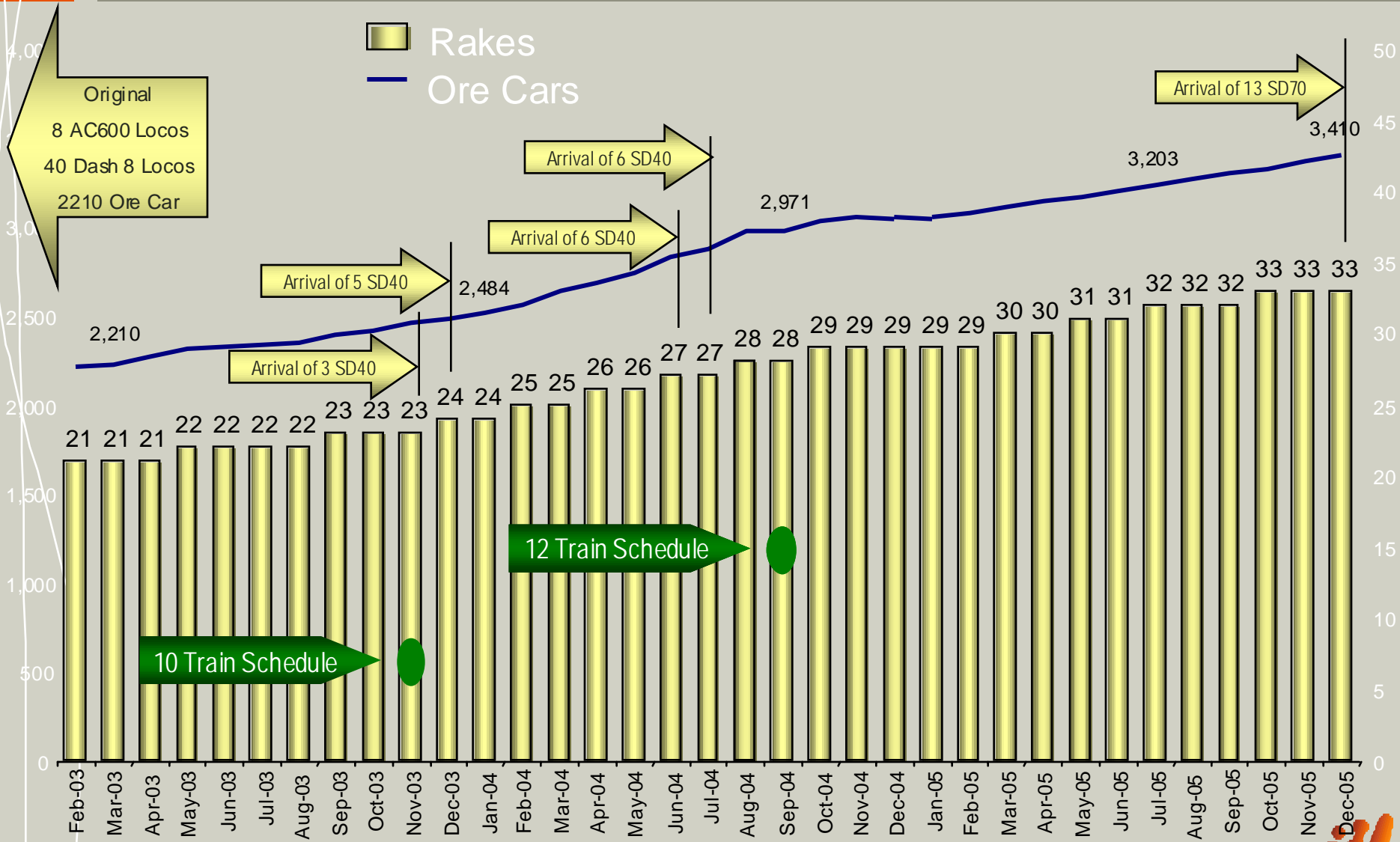
Employee Productivity Tripled in the last 10 years



Railroad Manning

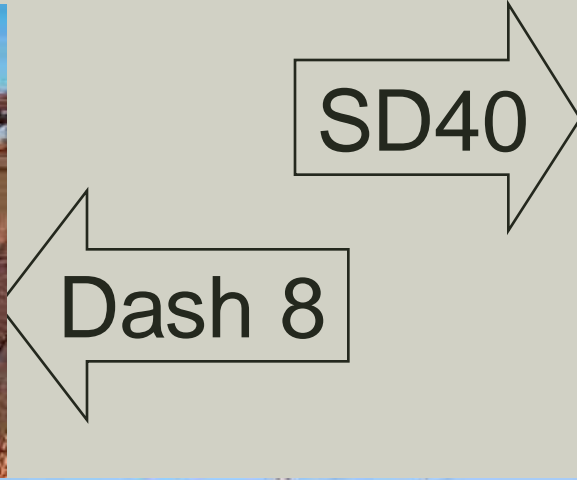


Rolling Stock Fleet Expansion Program



Locomotive Fleet

	Dash 8	AC6000	SD40	SD70ace
Number	40	8	20	13 (Oct05)
Traction Horsepower	4,000	6,000	3,000	4,300



SD40

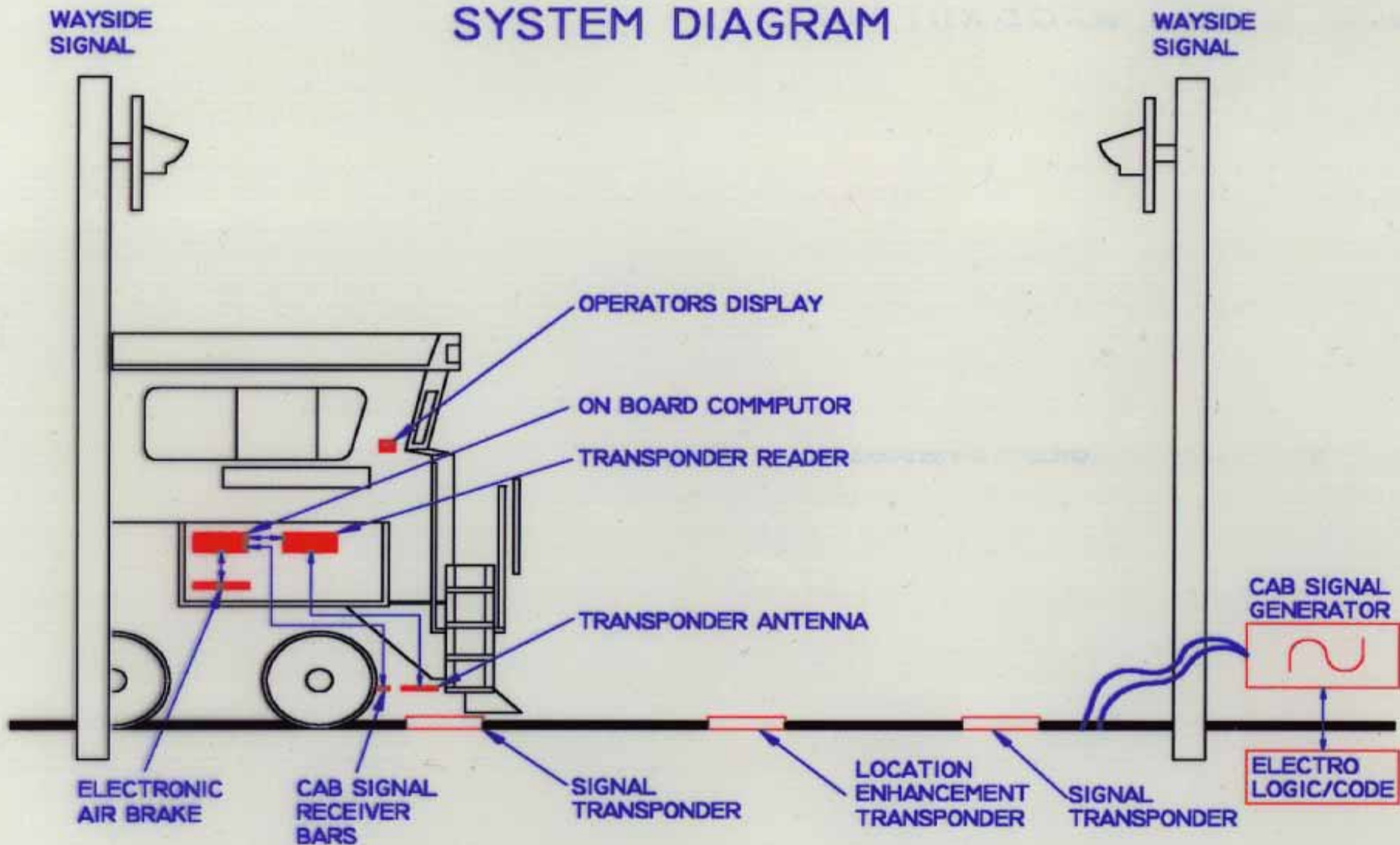
Dash 8



AC6000



Automatic Train Protection - ATP System



Current Train Operations

Newman Line

- 12 ore trains per day / 14 trains 1 July 05
- Flexibility of One / Two / Three Rake Trains
- Train configuration:
 - 1 rake = 104 ore cars = 12,480 tonnes of ore
 - 2 rakes = 208 ore cars = 24,960 tonnes of ore
 - 3 rakes = 312 ore cars = 37,440 tonnes of ore

- **Goldsworthy Line**

- 4 ore trains per day
- Train configuration:
 - 90 ore cars = 7,650 tonne of ore

Asset Protection

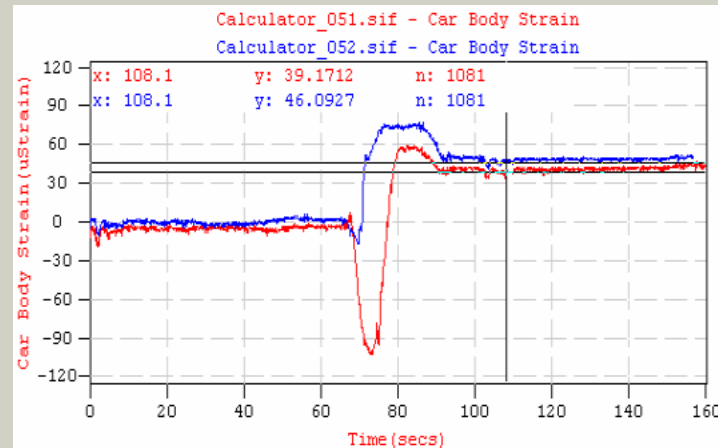
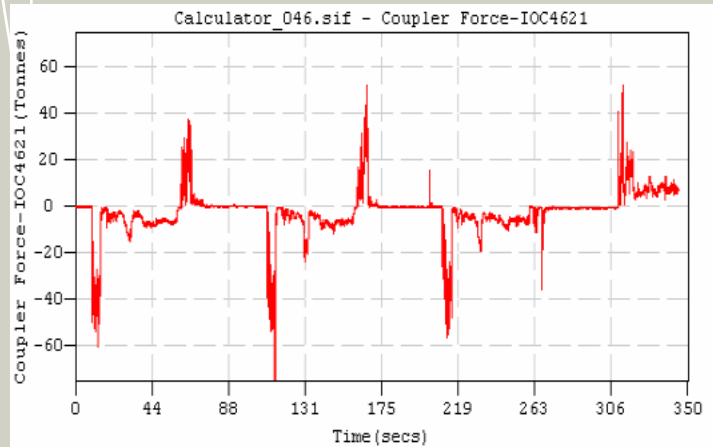
- ✓ 12 Hotbox / Hot Wheel Detectors
- ✓ 1 Cold Wheel Detector
- ✓ 1 Wheel Impact Monitor
- ✓ 3 in Motion Weighbridges
- ✓ Acoustic Bearing Detection
- ✓ Dragging Equipment Detectors
- ✓ Auto Locomotive Downloads
- ✓ Video Imaging

Instrumented Ore Cars (IOC)

- Vertical suspension travel (ride quality)
- Wheel-rail acceleration (rail condition)
- In-train forces
- Lateral stability (hunting)
- Longitudinal acceleration
- Car body / draft gear pocket strains
- Temperature
- Brake pipe pressure



IOC Reporting



Car side wall strains

Dumping Forces Measured

IOC Other Applications

- Bearing Temperature & Brake Pressure
- Track Assessment Sensors
- Improve Car Body Life
 - Strain Gauge on Sidewalls
 - Measure Car Body Dumping Strains
 - Control Service Dumping Peaks

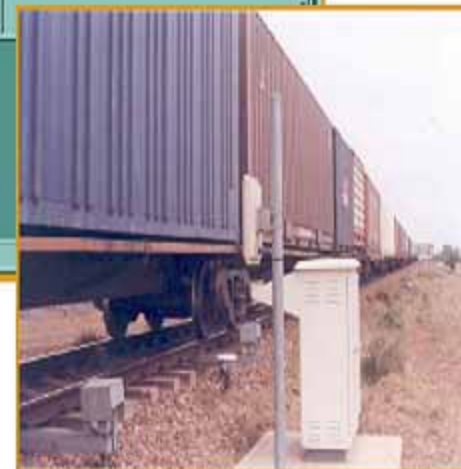


Strain Gauge on Draft Gear Pocket
Measure Longitudinal Train Forces
Control Service Loading
Peaks & In Train Forces

Acoustic Bearing Detection

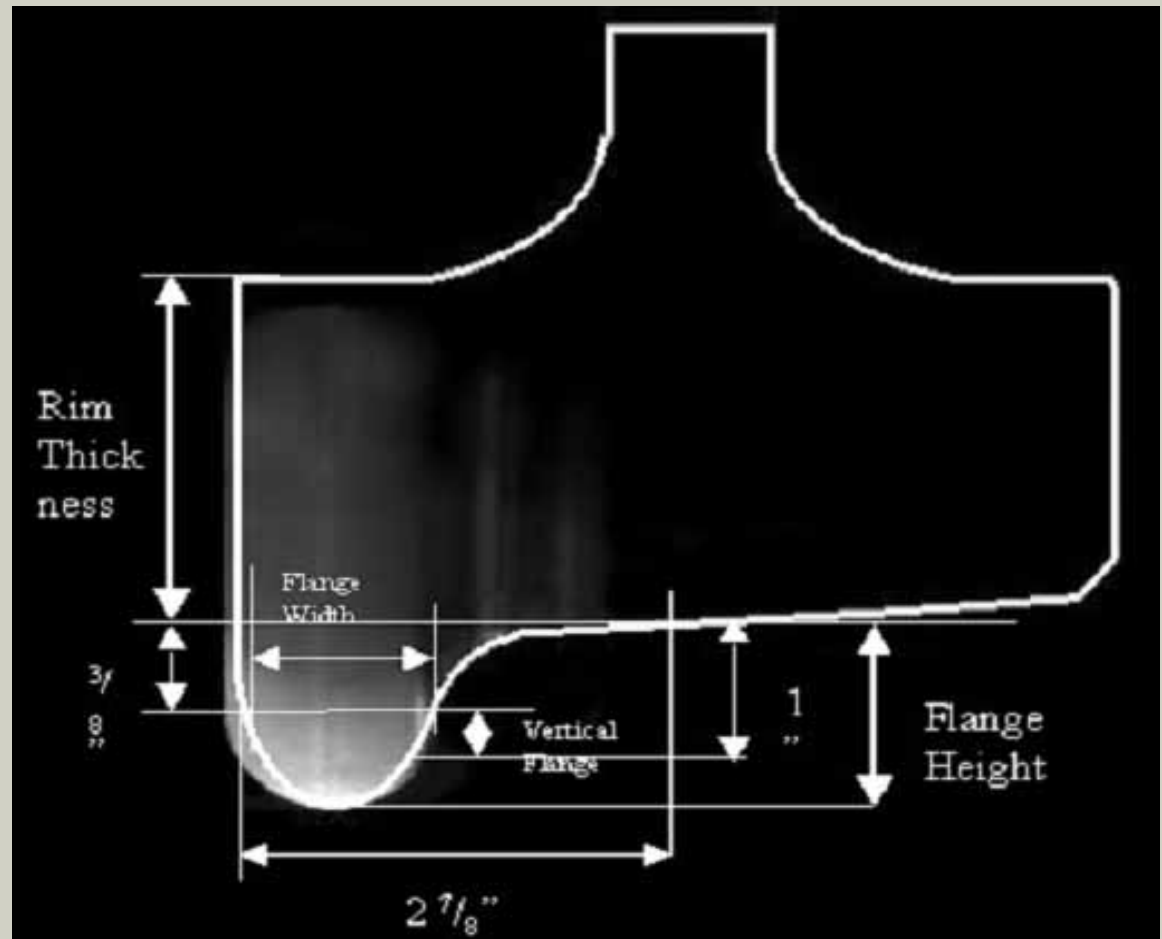
The following bearing faults are detected:

- Cone Faults
- Roller Faults
- Audible Wheel Flats
- Cup Faults
- Looseness / fretting
- Noisy Wheel sets (flanging)



Video Imaging Technology

- Flange Height
- Flange Width
- Vertical Flange
- Hollowing Depth
- Rim Thickness
- Wheel Diameter

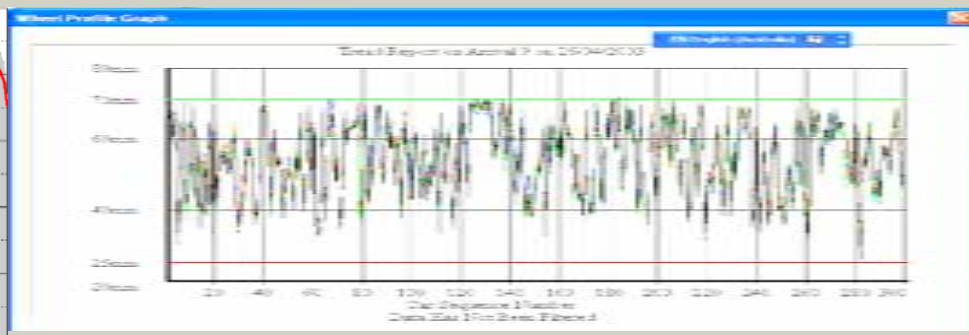
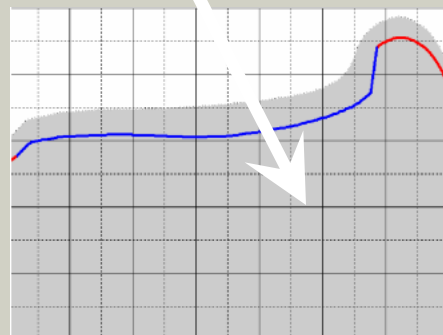
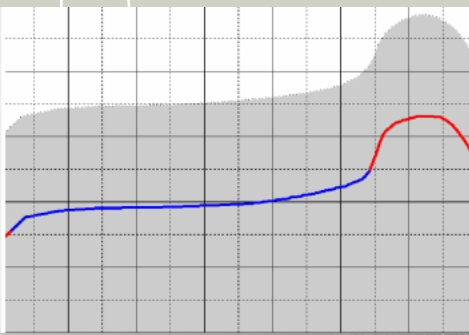
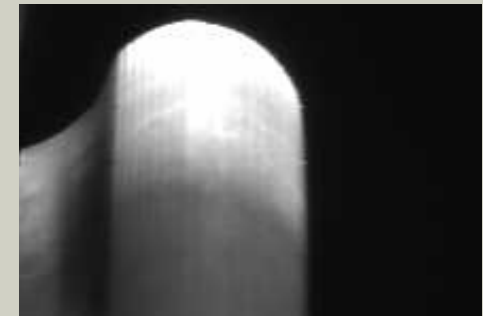
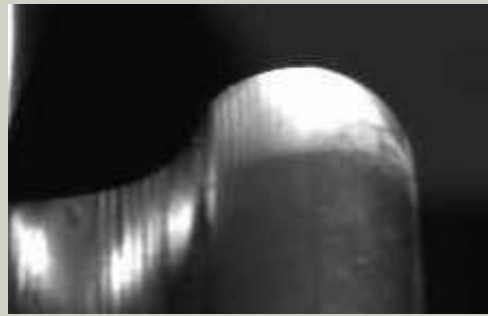
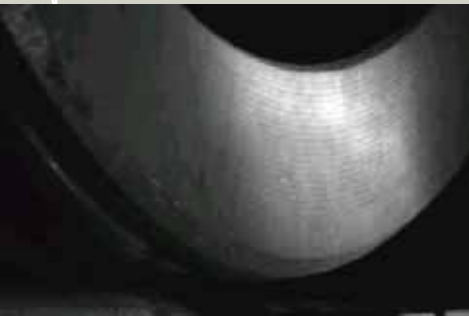


Video Imaging Reporting

1. Tabulated
2. Pictorial
3. Graphical

Hollowing Depth Report on Train 7 on 30/10/2002

Car Seq	Car ID#	L1	L2	L3	L4
36 [2] Dep	1391	0.40mm	2.16mm	0.00mm	0.30mm
43 [2] Dep	1181	2.88mm	1.57mm	0.00mm	0.00mm
63 [2] Dep	4313	0.82mm	0.00mm	0.00mm	0.00mm
72 [2] Dep	1301	0.01mm	0.00mm	0.43mm	0.40mm
100 [2] Dep	2323	0.35mm	0.00mm	0.82mm	0.35mm
125 [1] Dep	1761	0.00mm	1.08mm	1.73mm	0.97mm
159 [1] Dep	1412	1.30mm	0.67mm	3.46mm	0.67mm
181 [1] Dep	1711	1.73mm	0.78mm	3.98mm	1.44mm
197 [1] Dep	1701	0.78mm	0.59mm	3.98mm	3.98mm
207 [1] Dep	2573	0.59mm	2.19mm	3.24mm	1.08mm



Wheels Ultrasonic Testing



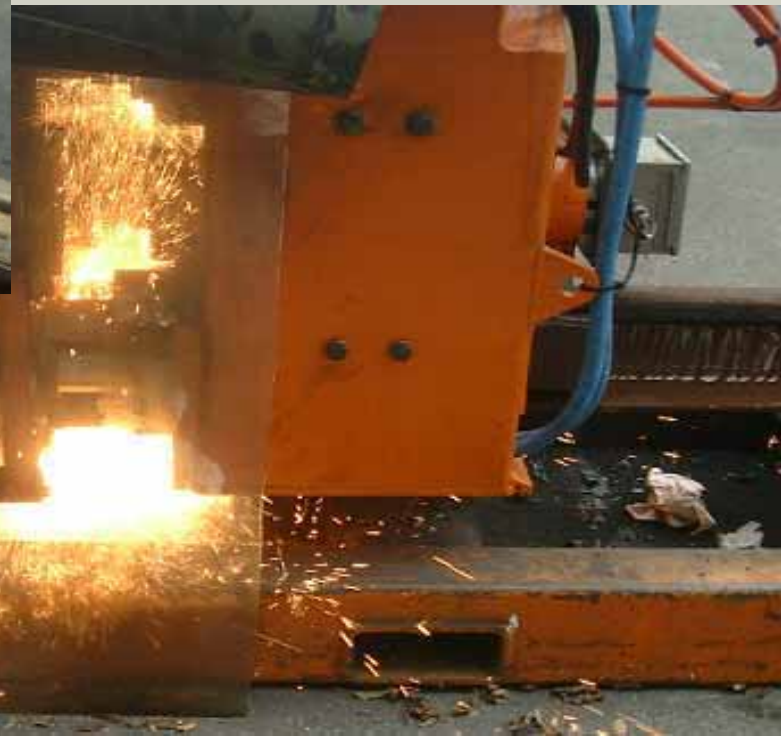
Train Driving Simulator



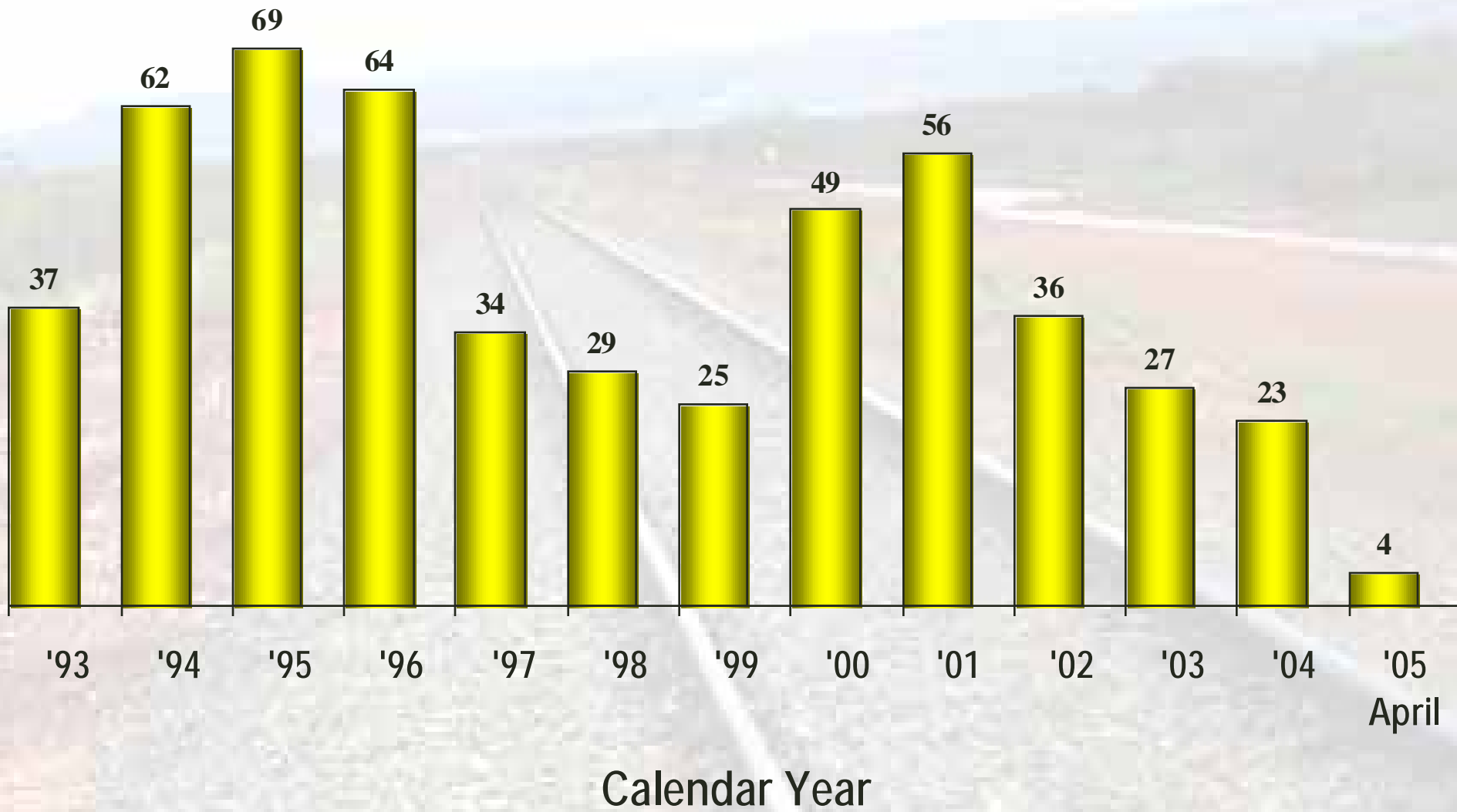
Aluminothermic / Flash Butt



In Track Flash Butt Welder



Rail KPI's Broken Rails



Best Practice

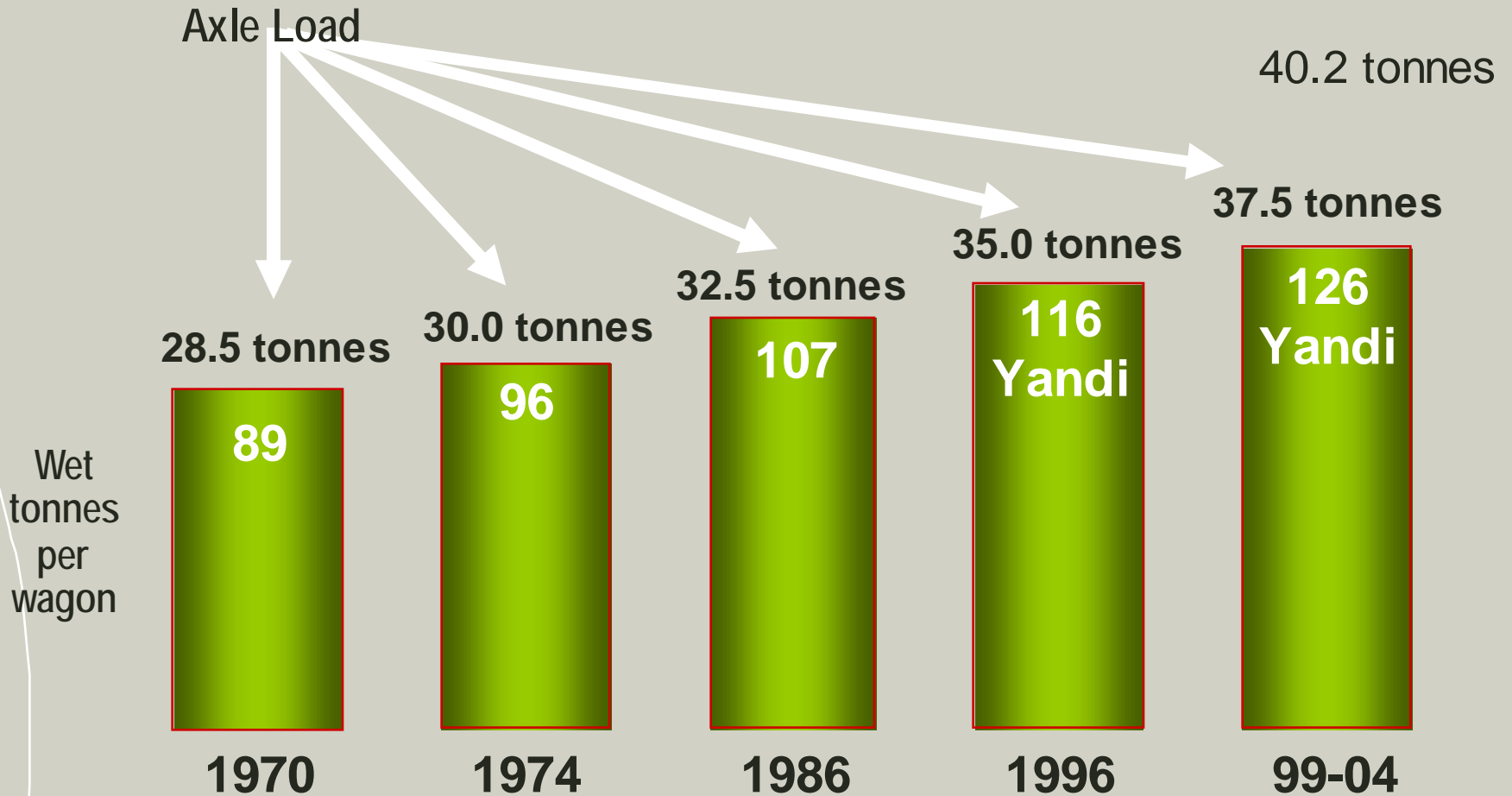
R&D programme since 1970, combination of 'in-house & Monash University

It focuses on four main areas:-

- Rail / Wheel Interface
- Higher Axle Load
- Train Lengths / Cycle Time
- Components Life

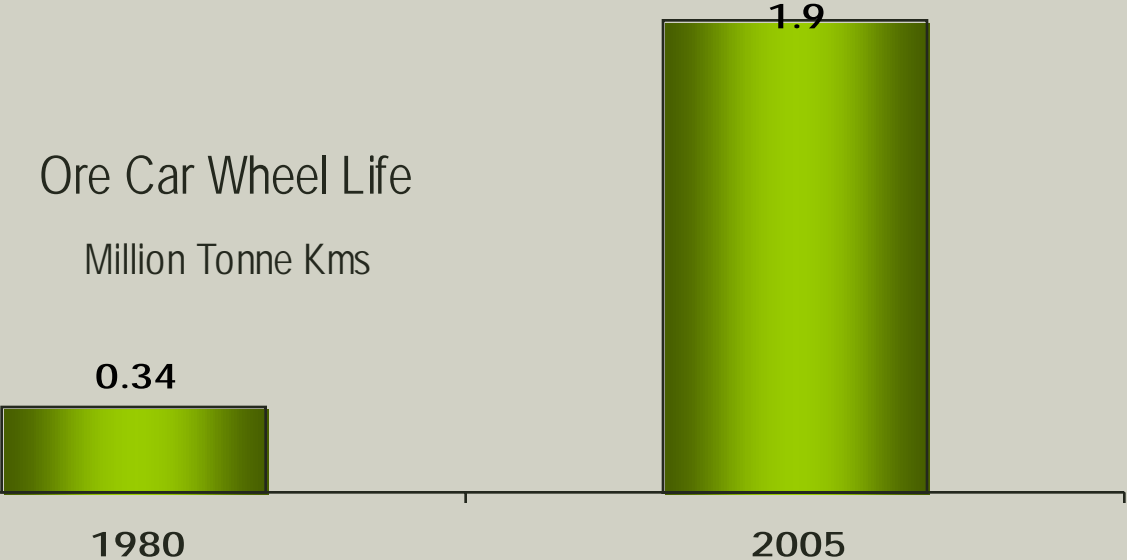
Higher Axle Load

Operating Improvements

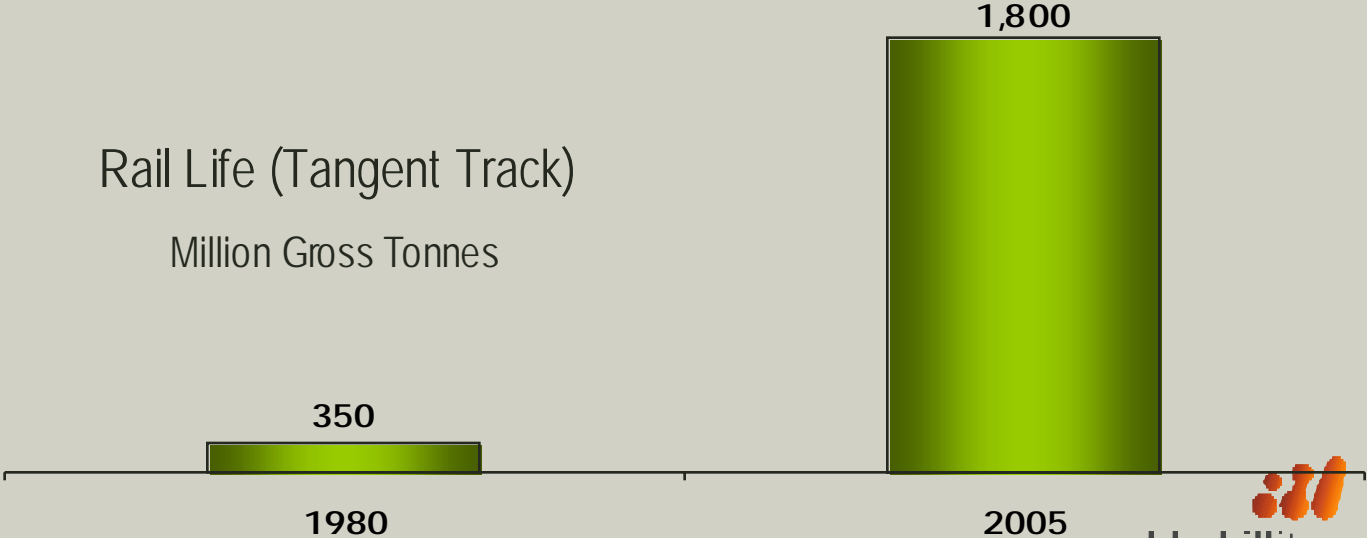


Rail / Wheel Interface

Ore Car Wheel Life
Million Tonne Kms

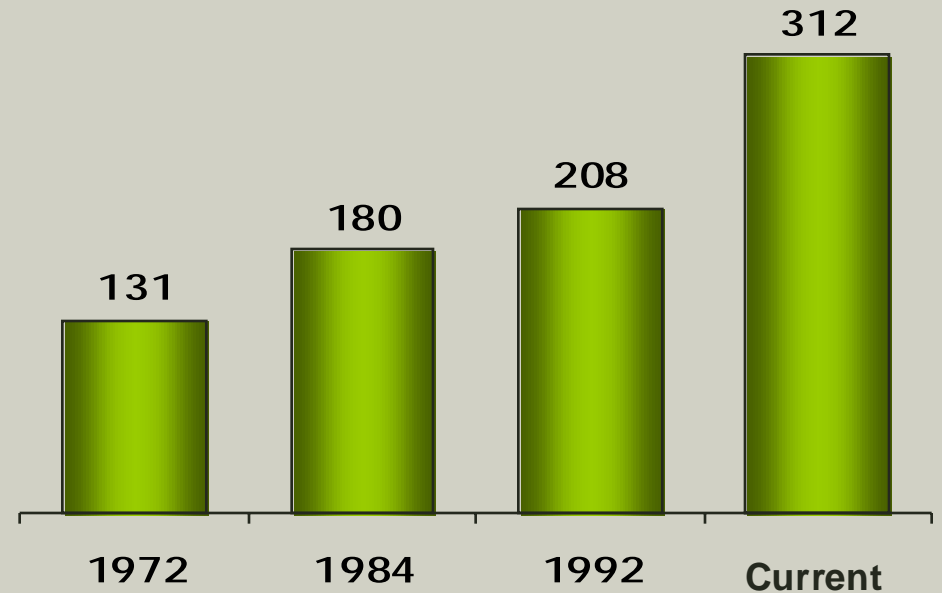


Rail Life (Tangent Track)
Million Gross Tonnes

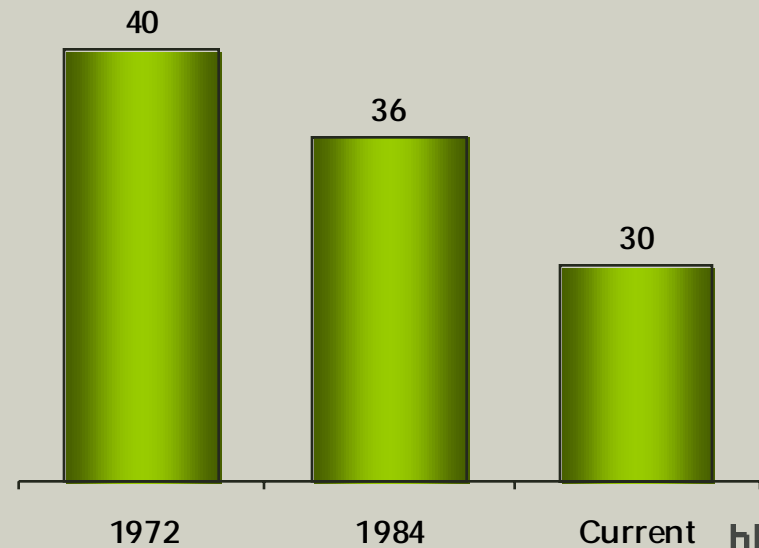


Train Lengths / Cycle Time

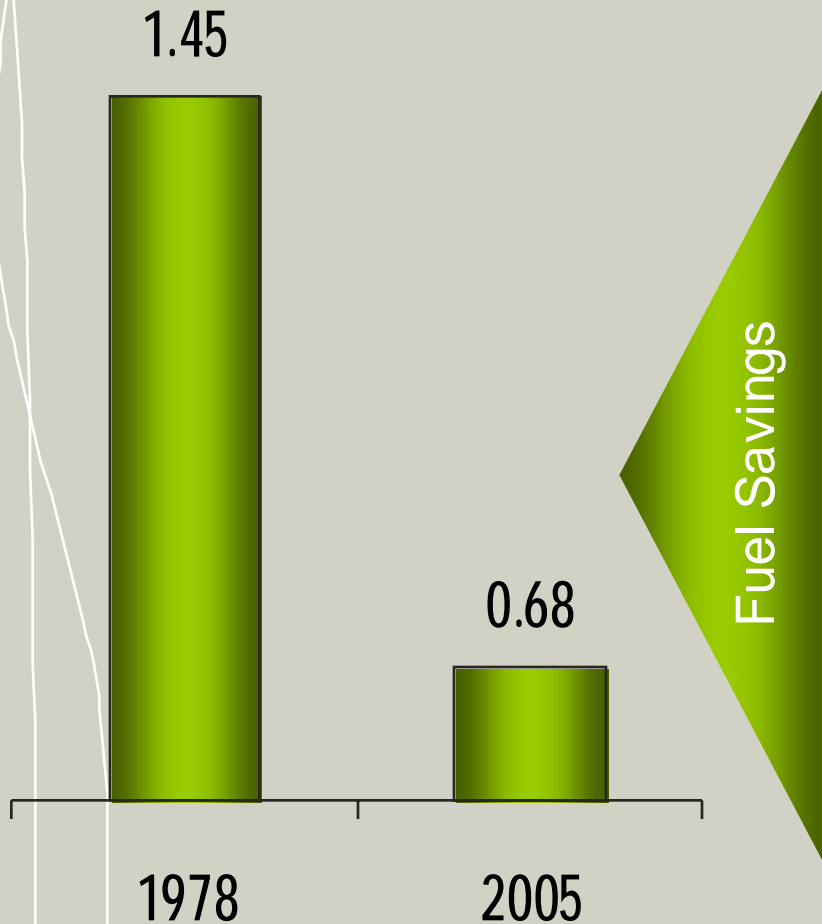
Train Length
Cars / Train



Train Cycle Time
Hours



Environmental & Efficiency



Contributing Factors

- Rail / Wheel profile
- Aerodynamic Ore Cars
- Efficient Locomotives
- Distributed Power
- Higher Axle Load
- Longer Trains
- Driver Strategy

What's in the "Future"

- Continued Safety Focus
- 40 tonne axle loading
- "Cruise Control"
- Train Automation
- Electric Brake Trials
- Increased Tonnage (16 train schedule arrival based)

