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AT Rail Infrastructure (Assets) – Deep Dive Report

Recommendation

That the Board:

- i. Receive the report.

Executive summary

The following report provides information on AT's rail infrastructure assets. It discusses underlying drivers of growth in rail infrastructure, planned capital investment and current asset base. The analysis excludes CRL, AT HOP and Park & Rides.

AT Metro Rail operates four main routes, runs 3.8 million train kilometres annually and the system carries approximately 17 million customers per annum. Patronage has risen partly due to consistent improvements in the reliability of the rail network (punctuality in August was 98.1%) as well as improvements in frequency, timetables, capacity and effective engagement with customers. It also reflects a social change in the use of public transport.

Operational performance is delivered via almost \$1 billion of AT assets, comprising rolling stock, stations and associated amenities. Not included in the following analysis is KiwiRail assets (track, signalling and the electrified network) which are paid for via the Auckland Network Access Agreement. Also not included is the AT HOP system as the rail component of the overall system is not readily separable.

There has been significant investment in passenger rail in the past 15 years including electrification and development of Britomart Station. This will continue with the CRL and Government consideration of required investment in the KiwiRail network following the Auckland Transport Alignment Programme (ATAP).

Strategic context

The original context for upgrading of the rail network was the Rail Development Plan (2006). This mandated major changes including electrification and the purchase of the EMUs, network and signalling upgrades, better connections to the wider public transport network (e.g. Panmure Station) and significant service improvements.

Subsequently, Government support for the CRL and the development of ATAP forms the strategic underpinning for the next stage of development. ATAP posits an additional \$3 billion of required rail investment over 30 years including EMU rolling stock, additional depot, at grade

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crossing separation, electrification to Pukekohe and additional tracks to accommodate both freight and passenger requirements. Attachment 1 lists only \$150 million of future work currently funded within the Long Term Plan.

The implementation of previous changes has resulted in increased patronage, especially following the full implementation of electric services in July 2015 and the full “10-minute” timetable from May 2016.



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Assets

AT Currently owns and manages the following rail infrastructure. Net book value is shown in the Table below.

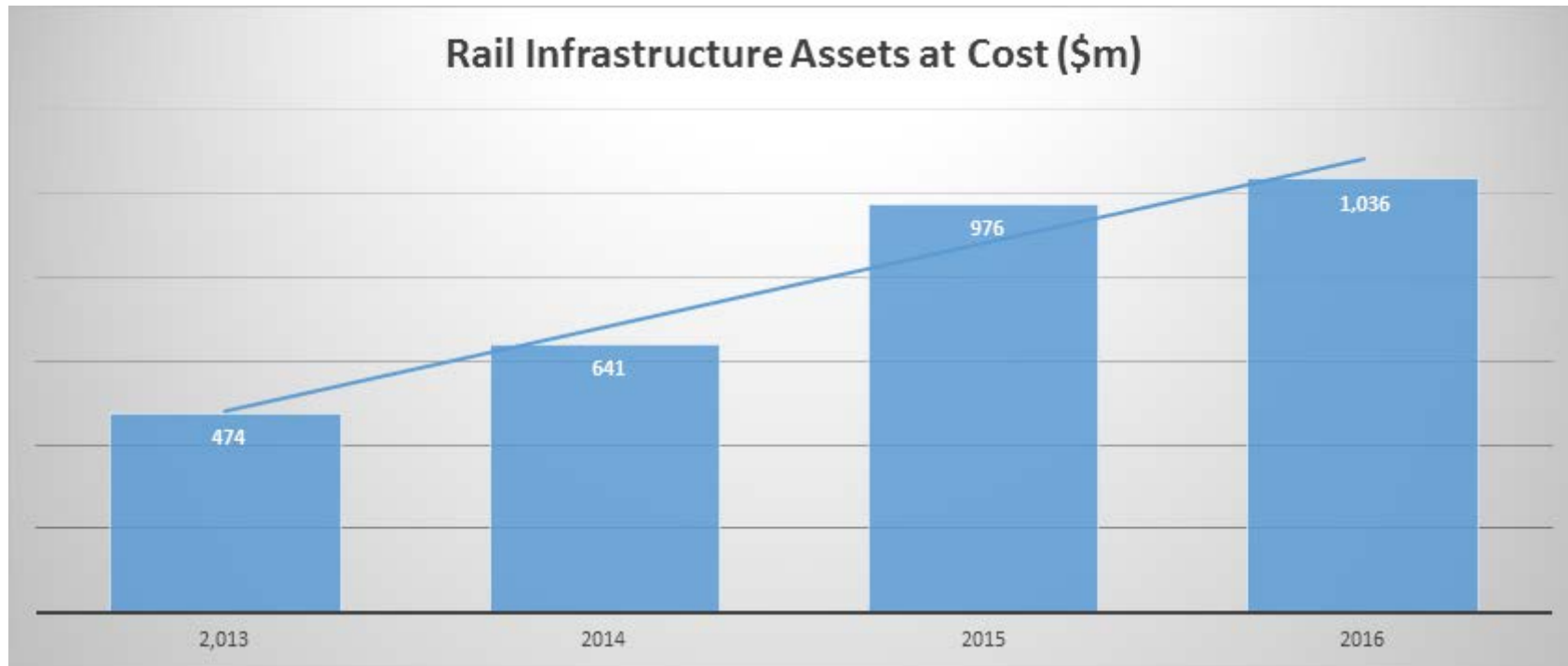
Number of stations	40 operational (Swanson to Pukekohe)
Platform configuration	Varies; many are “island” platforms with tracks on each side, some are “side” platforms with two platforms along each track. There are also some mixed e.g. Britomart and Newmarket.
Number of gates	There are currently 55 individual gates on four stations with a further 34 on order.
Number of EMUs	57 (54 available for weekday operations plus 3 maintenance spares); 10 DMUs for the Pukekohe to Papakura diesel shuttle service.

Asset description	June 2013 Net Book Value	June 2014 Net Book Value	June 2015 Net Book Value	June 2016 Net Book Value
DMU	67,279,203	13,896,644	3,683,884	368,422
EMUs	-	128,967,381	408,769,761	434,492,228
EMUs - other equipment including signalling	-	-	-	12,352,707
	67,279,203	142,864,025	412,453,645	447,213,357
Fibre Optic Cable	883,696	783,655	5,089,614	5,062,345
Stations	126,485,501	139,741,091	151,039,240	145,886,264
Stabling	3,919,565	3,666,348	4,546,003	4,292,386
EMU Depot	-	58,730,576	86,984,127	84,341,430
Britomart	260,604,772	255,414,700	294,508,348	286,510,371
	391,893,534	458,336,370	542,167,331	526,092,796
	459,172,737	601,200,396	954,620,976	973,306,153

Assets excluding the EMUs were revalued in 2015. The EMUs will be revalued at end of 2017 with the next cycle starting for stations in 2018.

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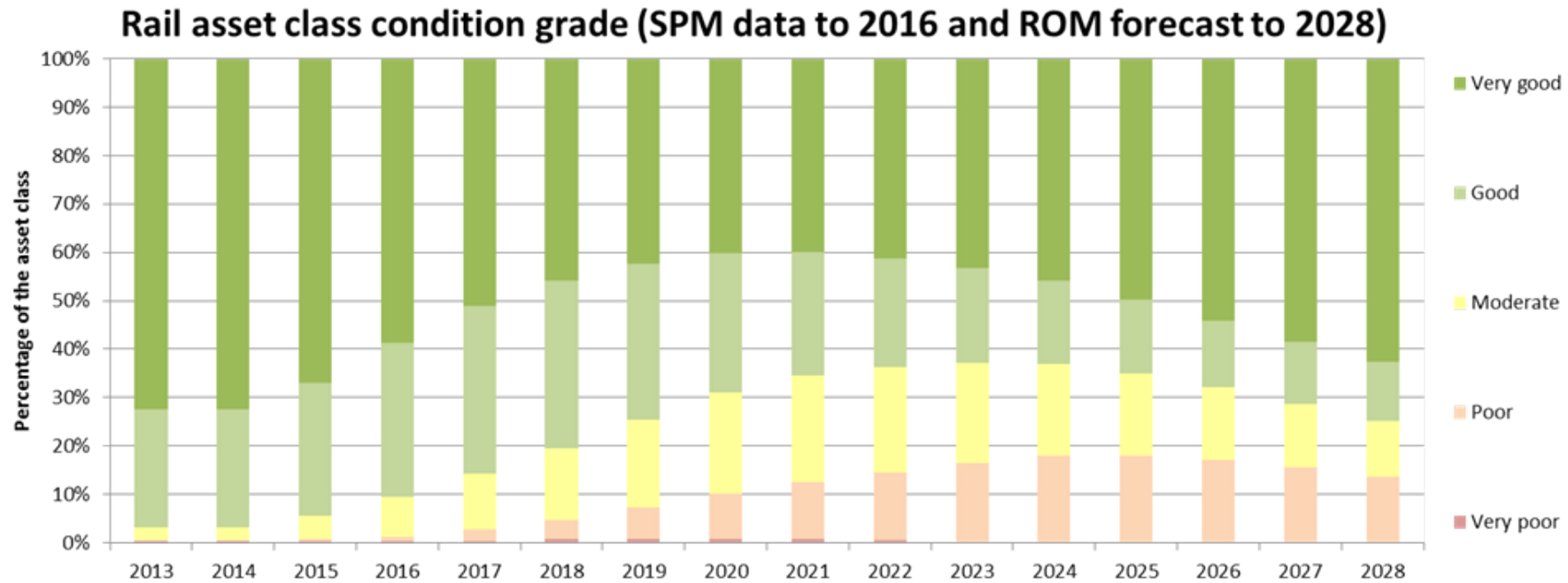
The following gross value (the Table above is net) indicates the investment in recent years. This mostly reflects EMUs and the depot but also reflects other investment including Panmure Station, Parnell Station and station amenities. The relatively small difference between gross and net values reflects the newness of investment.



Asset condition is generally good, although many older railway stations while functional, lack the amenity value expected of modern platforms. In particular, there is limited protection from the weather on or approaching most stations.

The modelled future state for stations below, reflects the more normal expectation of aged assets in a mix of conditions rather than the somewhat artificial “as new” state currently enjoyed. Renewals begin from 2021. Station cost for older stations is limited to cleaning and minor maintenance (approximately \$150,000 pa) while platforms containing escalators / lifts, glass finishes and on-platform amenities (such as Panmure) rise to approximately \$750,000 pa. Total station maintenance cost is approx. \$3 million pa.

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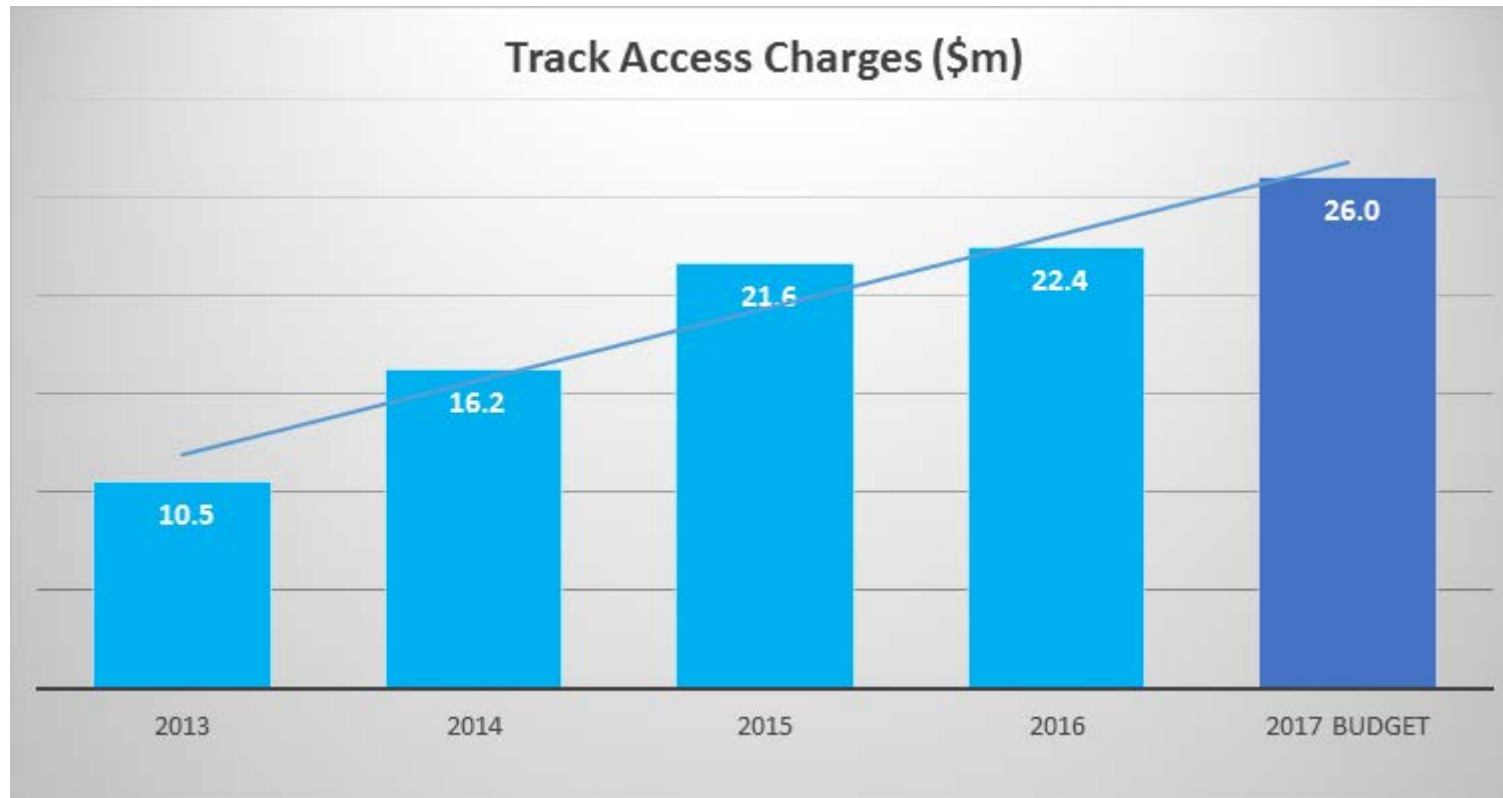
Maintenance cost for EMUs is within the initial EMU purchase document and is the responsibility of CAF. It is based on a rate per train/ kilometre. Maintenance cost for EMUs was \$12 million last year rising to \$13.5 million in 2016/17 with additional services.

Annual depreciation, the rate at which our assets wear out, is \$42.5 million.

KiwiRail provides much of the infrastructure required for rail operations and recovers the cost through an annual charge. The charge reflects their overall cost plus our portion based on the relative share of track usage. AT's share of total track kilometres has increased as more frequent services and longer trains are run. The Table below also includes electricity charges which partially explain recent increases. Currently:

- **Track use split** – based on kilometres per annum, changed to 89.5% AT / 10.5% KiwiRail (was previously 88% / 12%)
- **Track maintenance split** – based on gross tonne kilometres per annum, changed to 66.3% AT / 33.7% KiwiRail (was previously 56% / 44%)
- **Overhead Lines Maintenance** 100% AT, KiwiRail do not operate electric locomotives in Auckland

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IT and Communication Systems

In common with virtually everything AT does, rail service delivery is increasingly reliant on technology. There have been system-wide changes such as the HOP ticketing system which saw the ticket transactions on stations (platforms) rather than on-board trains. Vending machines, card validators and ticket gates have been installed at stations. Ticket gates at stations are also seen as a means of controlling access to the network and reducing the potential for fare evasion. The provision for ticket gates will be included in the design for all new station interchanges. Consequential opex of around \$500,000 pa arises from gating a station as gates then need to be manned.

CCTV is another feature of rail stations intended to improve passenger safety.

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The EMUs are installed with ETCS, a computer based electronic on-board driver advisory / supervision system installed primarily to prevent overspeed and train collision incidents and reliable operation of such equipment is a prerequisite to operating a modern, safe and reliable railway. The system is deeply integrated with both the train and the trackside signalling system and is certified to high safety integrity levels that restrict competition for supply and service. The ongoing support costs for the system are expected to be \$1 million per year.

Planned Development

The purpose of this report is to discuss the stewardship of those assets managed by AT. However, it is impossible to do justice to the topic without a discussion of the wider network. Issues which are currently under consideration include:

- The third main required to provide network resilience and enable freight services to be maintained in conjunction with more frequent passenger services
- General network condition given a backlog in maintenance, Peruvian sleepers and a need for higher quality track-work for smooth and cost-effective passenger operations
- At grade crossings
- New bus/rail interchanges such as those at Manukau, Otahuhu and Pukekohe
- Infrastructure such as station gating and other items required for project SAFE
- Customer amenity such as toilets, retail, bike racks, improved lighting, Park & Rides, etc.

These issues have previously been the subject of a Board strategy session and will be developed further in future planning. AT and KiwiRail have jointly prepared the Auckland Rail Development Programme which sets out the programme of investment required for the Auckland rail system over the next 30 years to deal with passenger and freight growth.

ATAP has addressed future investment requirements although these are not currently funded and will require business cases and inclusion in future Long Term Plans and Regional Land Transport Programmes.

Next Steps



AT Metro is looking to the future with the construction of City Rail Link. This will herald significant opportunities to the rail network, standards and has potential to further grow patronage above organic rates. Many of the changes in the next few years will be to support the service patterns that will be operating following the completion of the CRL. Increased focus on safety and customer experience will also drive investment decisions.

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Attachments

Attachment Number	Description
1	Rail Related Capital Project Details

Document ownership

Submitted by	Grant Smith AT Metro Finance Manager	
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Recommended by	Richard Morris Chief Financial Officer	
Approved for submission	David Warburton Chief Executive Officer	

Glossary

Acronym	Description
CRL	City Rail Link
DMU	Diesel passenger trains
EMU	Electric passenger trains

AT Rail Infrastructure Capital Expenditure (\$ 000s)

Project Name	Programme	What we have spent so far from Nov 2010 to June 2016	Forecast remaining to 2025	Total
Manukau Bus/ Rail Interchange	Bus/ Rail Interchange	25,725	32,779	58,504
Otahuhu Bus/ Rail Interchange	Bus/ Rail Interchange	20,103	10,035	30,138
EMU Procurement	EMU	481,914	10,499	492,413
EMU Depot	EMU	91,500		91,500
Panmure Station	AMETI	35,467		35,467
Rail Crossing Separation	Rail Improvements	113	25,705	25,818
PT Safety Security & Amenity	Rail Improvements	2,918	20,500	23,418
Pukekohe Station Upgrade	Rail Improvements	1,459	13,100	14,559
Parnell Train Station	Rail Improvements	7,528	3,995	11,523
Parnell Train Station (Track works)	Rail Improvements	9,720		9,720
Mt Albert Train Station Upgrade	Rail Improvements	8,564		8,564
Diesel Train Refurbishment	Rail Improvements		8,117	8,117
Distributed Stabling	Rail Improvements	7,650		7,650
Newmarket Crossing	Rail Improvements	1,759	5,271	7,030
Papakura Train Station Upgrade	Rail Improvements	6,416		6,416
Rail Bridge Improvements (KiwiRail)	Rail Improvements	5,153		5,153
Rail Station Minor Capex	Rail Improvements	1,511	3,217	4,728
Manukau Double Tracking	Rail Improvements	3,605		3,605
Platform Extensions	Rail Improvements	2,909		2,909
Kingsland Canopies	Rail Improvements	2,078		2,078
Baldwin Ave Station	Rail Improvements	1,875		1,875
Newmarket Station	Rail Improvements	10	1,200	1,210
Greenlane Station Upgrade	Rail Improvements	1,119		1,119
Penrose Station Upgrade	Rail Improvements	1,114		1,114
Platform Train Interface	Rail Improvements	1,057		1,057
Projects < \$1m		15,924	15,884	31,808
Total		737,191	150,303	887,494