

## Auckland Rail Upgrade



Overhead Catenary, Perth, W.A.



Modern electric train set, Perth, W.A.

### Project Outline

The Auckland Rail Upgrade is a group of projects to be completed in 2013 or 2014 at which time 10-minute service headways will be achieved during weekday peak periods. It includes:

- Project DART
- The re- opening of the Onehunga Branch Line
- Station upgrades
- Provision of the 25KV AV overhead electricity supply from Papakura in the south to Swanson in the west and including the Onehunga Branch Line and future Manukau Rail Link.
- New rolling stock consisting of electric multiple units (EMUs)

Project DART is the \$600m upgrade of the Auckland rail network being carried out by ONTRACK. ONTRACK is part of the KiwiRail Group and is the owner and manager of New Zealand's rail network. Its responsibilities include track work, signalling and basic platforms.

ARTA is responsible for station improvements (excluding the basic platforms). The upgrading of the region's stations is to be largely complete by 2012, although some upgrades will not be completed before electrification (2013/14). A total of 43 existing and new stations are involved.

## **Project Status**

### **Project DART (source: ONTRACK website)**

Project DART includes the Western Line duplication, redevelopment of the Newmarket Station and junction, the Manukau Rail Link, Eden Park upgrade, and Quay Park junction improvements.

#### *Western Line*

Construction of the Whau Creek to Titirangi Road section including the New Lynn trench and station platforms is to be completed in mid-2010. At the same time the duplication of the Avondale to Whau Creek section will be brought into use. Construction of the Whau Creek bridges and Titirangi to Swanson sections is complete.

#### *Newmarket station*

The project is nearing completion. Work on replacing the Remuera Road bridge will be complete and work on the station will be almost complete by the end of November. The commissioning of the new track layout is to take place over Christmas and New Year 2009-10.

#### *Manukau Rail Link*

Work on the new 2km rail link to the Manukau city centre from the Southern Rail Line at Puhinui and the new Manukau Station is currently underway. The new station will be in a 7m deep 300m long trench and will include two platforms. An escalator will lead to a covered bus interchange on Davies Avenue with capacity for about 8 bus bays. The new station is due to open in early 2011. It will be integrated with a campus being developed by the Manukau Institute of Technology which will be open to its first students at the start of the 2012 academic year.

### **Onehunga Branch Line**

Passenger rail services are to recommence operation on the Onehunga branch line, which is currently being re-constructed, during the first half of 2010. The re-opened line will have stations at the Onehunga Town Centre, Te Papapa and Penrose and later at Mt Smart. The Onehunga Station will be located at the old ITM site at the corner of Onehunga Mall and Princes Street. A 30 minute service frequency will be provided during peak periods.

### **Electrification Infrastructure**

ONTRACK was given the task of building the infrastructure required for electrification (overhead catenary etc) in 2007, with completion in 2013. Electrification is being planned in stages, and installation of the first sections is to commence in 2010.

In order to provide sufficient clearance for the overhead catenary, work is required on over 40 sites around the network. Projects include replacement of the railway overbridges at Remuera Road, Khyber Pass Road, Park Road and St Marks Road. Track levels are being altered at other locations.

Westinghouse has been awarded a contract for upgrading the signalling prior to commencement of electric train services. This includes signalling improvements to support a greater number of train movements (20 per hour) in and out of Britomart to accommodate the planned service levels.

### **Rolling Stock**

ARTA called for Expressions of Interest in December 2008 for the supply of electric trains for the Auckland network and received several responses. The intention had been to call for formal tenders and award a contract for new fleet (140 cars) of EMUs by the end of 2009. However, funding issues were not resolved.

The electrification project is currently the subject of a Ministry of Transport review. Among other things this is looking at the number of train sets required, the size of the trains and their configuration. The Ministry of Transport's report is expected to go to the Minister of Transport by the end of October 2009.

The Minister of Transport has recently stated that KiwiRail will procure and own the new rolling stock, most likely through a rolling stock ownership company (ROSCO). The ROSCO will lease the rolling stock to the region. It is expected that the government will take decisions on the supply of new rolling stock before the end of 2009.

### **Electrification Indicative Costs & Benefits**

The 2007 budget allocated \$500m to build the infrastructure and implement the track signalling upgrade required for electrification of the rail network including the Manukau link and Onehunga branch line.

The estimated cost of acquiring new rolling electric train rolling stock including maintenance and stabling facilities is approximately \$500m.

The benefits of electrification include the following:

- New electric trains (EMUs) cost less than new diesel trains (DMUs), are more reliable and have lower maintenance costs
- Electric trains are quieter, produce less vibration and do not emit smoke or fumes
- Electric trains are much less reliant on imported fuels
- The better performance characteristics (acceleration and braking) will result in a reduction in travel times compared to diesel trains, improve the service offered and enable the rail system to carry more passengers. The patronage forecast for 2016 assuming 10-minute headways, the network extensions, and additional rolling stock is 17.3m passengers a year which is more than double the current patronage.
- Electrification is virtually an essential prerequisite for construction of the proposed CBD rail loop. Diesel trains cannot operate in long tunnels without significant investment in ancillary

facilities (e.g. ventilation). In addition fire risk is always an issue in long tunnels and is higher with diesel trains.

## **Issues**

The key issues are resolving funding of the new rolling stock and awarding a contract in time to enable delivery during 2013 and 2014.