

New Zealand Heavy and Light Rail

Market Sector Report

JANUARY 2019



Map of New Zealand's Rail Network



Note: does not include reinstated Napier—Wairoa line
Source: KiwiRail Statement on Corporate Intent 2017-2019

Front cover image: www.greatjourneysofnz.co.nz

Overview of the Market

According to the EY “Value of Rail” Report commissioned in 2016, rail delivers \$1.5B NZD (approx £790m GBP) in benefit to New Zealand’s economy each year,¹ supporting 25% of the nation’s exports through rail services.² After decades of underinvestment in the New Zealand rail sector, the last 12 months have seen a renewal in central government interest and corresponding investment in the industry. The current new coalition government is more focused on environmentally-friendly transport and freight mediums. There is a new appreciation within this government of rail’s existing and potential contribution to the national economy. With Auckland’s growing population, increasing imports and exports, along with mounting congestion on New Zealand roads, rail offers a sustainable alternative.

This shift in favour of rail can be compared to a time in the early 2000s when there was a strong push towards dismantling the entire national interconnected network. Although this did not occur, there has been a subsequent reduction in funding which has stifled the maintenance and improvement of New Zealand’s rail infrastructure. Moving forward, the current government has indicated (in its recent 10-year Government Policy Statement (GPS) on Land Transport) that up to \$815M (£425M) will be invested in rail in New Zealand over the next 7 years.³ This modernisation of the rail network provides many commercial opportunities for contractors, facilitated by two new funding classes—rapid transit and transitional rail—both of which indicate targeted government expansion.

Luxury rail tourism is another targeted growth area.⁴ Experiencing higher consumer demand, the Government have invested in this area in the last year, and are openly collaborating with global companies to grow this part of the market.



Image source: www.greatjourneysfnz.co.nz

1. Ernst & Young “The Value of Rail in New Zealand 2016 Report” (2 September 2016) <<https://www.kiwirail.co.nz/uploads/Publications/The%20Value%20of%20the%20Rail%20in%20New%20Zealand.pdf>>.

2. KiwiRail Annual Integrated Report 2018 <<https://www.kiwirail.co.nz/uploads/Publications/KiwiRail%20Integrated%20Report%202018.pdf>>.

3. Ibid.

4. See Lorna Thornber “Company behind luxury train plan says Kiwirail has been ‘hugely constructive’” Stuff (7 December 2017) <www.stuff.co.nz/travel/news/99579696/luxury-train-to-travel-length-of-new-zealand-needs-government-help-expert-says>.

Key Stakeholders

Given New Zealand's geography and population, there are only a handful of core players in the rail sector.

KiwiRail Holdings Limited

KiwiRail is owned by the New Zealand Government and is operated as a State-Owned Enterprise as a standalone business with an independent board of directors. In the government's 2018 Budget, KiwiRail were allocated \$230M (£120.6M) for FY2019 to finance capital expenditure on the national freight network. David Gordon, KiwiRail's GM of investment, has stated that there is a longer-term strategic focus in regard to rail under the new government which is creating a greater calibre and number of projects.⁵



Notably, KiwiRail own all the core rail infrastructure within New Zealand, including the network that is used by the independent Metro passenger services within Wellington and Auckland. The key assets and services that KiwiRail own and operate include:

- 4,000 kilometres of Track, 1,656 Bridges and 98 Tunnels and other Earth Structures
- Communications and Signalling (note: KiwiRail are responsible for all train control, even on Metro lines)
- Traction and Power
- Stations – however, for some of the Auckland and Wellington Metro lines the stations are owned by the operator client
- Freight and Passenger Rolling Stock, including maintenance and operations
- Mainline freight yards and handling facilities – (note: there are a number of private sidings and associated freight handling facilities)
- The Great Journeys of New Zealand scenic services:
 - Northern Explorer – Auckland to Wellington
 - Coastal Pacific – Picton to Christchurch
 - TranzAlpine – Christchurch to Greymouth
- Capital Connection – Palmerston North to Wellington (Daily Commuter Train)
- Proposed Hamilton to Auckland Daily Commuter Service Planned for 2020
- Interislander Ferry Services (subsidiary of KiwiRail) – three ferries (2 owned, 1 leased) operating freight by rail, freight by commercial vehicles, and passenger/tourist services between Wellington and Picton.

Metro line services

- Access to the network for New Zealand's two urban Metro rail services is negotiated under a Track Access Agreement between KiwiRail and either Auckland Transport (AT) or Greater Wellington Regional Council (GWRC) for their respective networks. These contracts provide for a yearly fixed fee for the use of the network infrastructure including train control.

KiwiRail's 2018 Financials

KiwiRail's financial successes of FY2018 provide a glance at the trends of asset investment and service expansion occurring. Some notable figures include:

- \$171M (£90M) (including contributions from other parties) capital expenditure targeted on key freight lines and improving resilience and operational capacity to meet increasing freight volumes
- Bulk freight revenue up 6% with strong dairy and coal volumes
- Forestry revenue up 12% with strong export demand
- \$49M (£26M) contract to improve the Wellington metro network overhead traction lines
- Regional investment investigations began in 2018 indicating new development is upcoming.

5. David Williams "KiwiRail faces future with its hand out" Newsroom (11 July 2018) <<https://www.newsroom.co.nz/2018/06/11/117458/kiwirail-faces-future-with-its-hand-out>>.

6. KiwiRail Annual Integrated Report 2018.

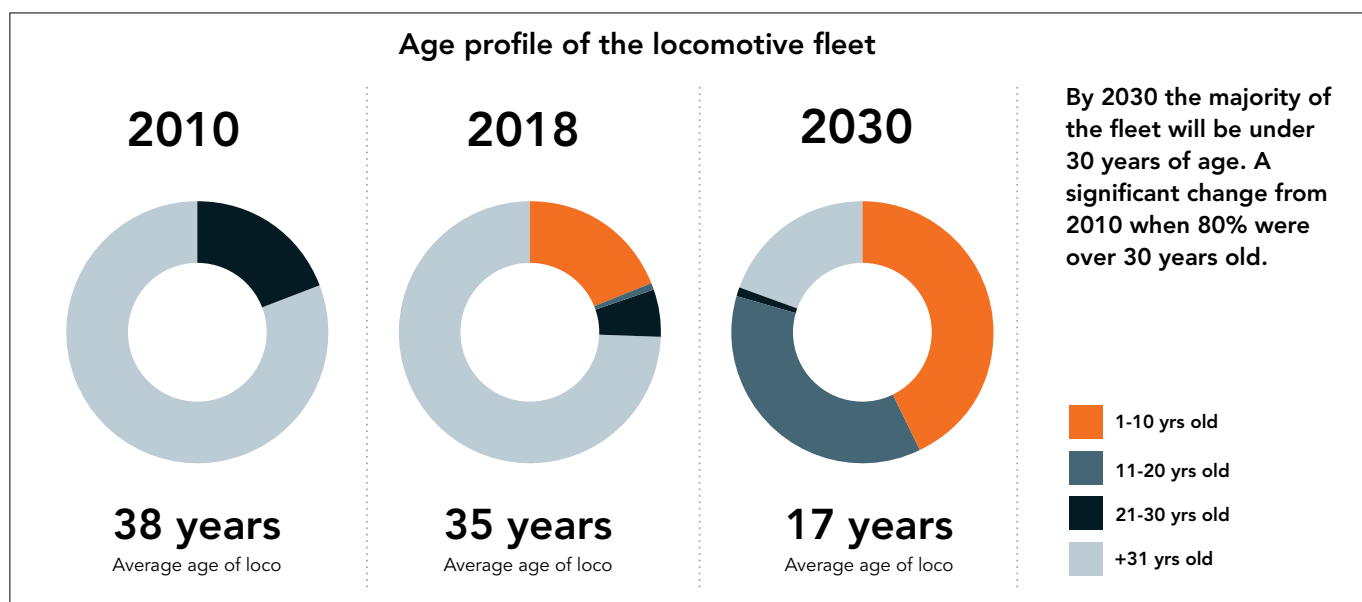
Central Government’s Regional Economic Development

The new coalition’s Provincial Growth Fund (PGF) is also of note, as it specifically funded a number of KiwiRail projects in 2018 to better support New Zealand’s regional economies. Along with three feasibility studies looking into future investment areas, several projects that implicated the productivity of export logistics and tourism commenced, namely:

- Reinstating the Napier—Wairoa line for forestry (\$5M) (£2.6M)
- Upgrading the Whanganui—Castlecliff line for dairy and other customers (\$3M) (£1.6M)
- In the central North Island, \$40M (£21M) has been dedicated from the Fund to a new central freight port at Bunnythorpe in Palmerston North
- Investment into the Great Journeys of New Zealand services (\$80M) (£42M) is enabling the TranzAlpine and Coastal Pacific services in the South Island to expand and create a premium, internationally marketable tourist rail experience.

KiwiRail’s Rolling Stock and Future Revenue

KiwiRail’s ageing rolling stock are forecast to undergo significant replacement in the coming decades as shown in the graphic below:

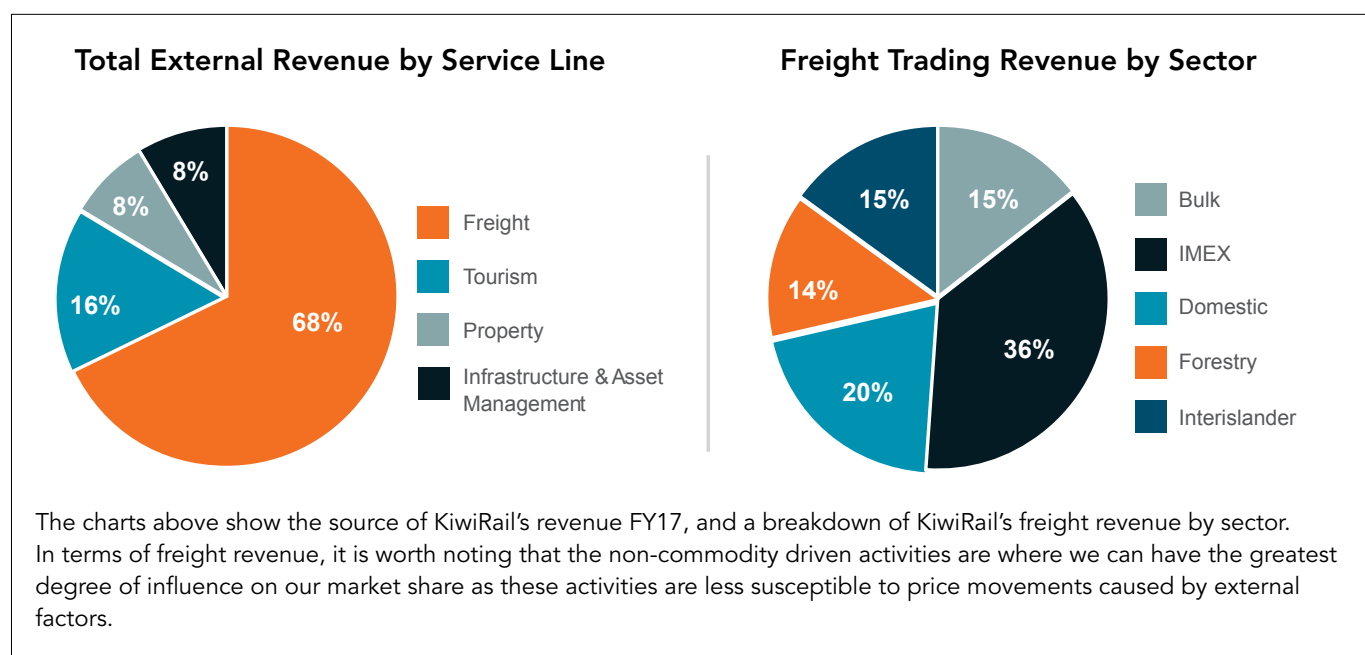


Source: KiwiRail Annual Integrated Plan 2018

Investment in new and replacement rolling stock will support the domestic and import/export (IMEX) segments of KiwiRail's freight business that are both forecast to grow, in part due to numerous shipping lines bringing larger vessels to New Zealand.

This will require further projects to ensure opportunities for revenue are capitalised upon, such as further standardisation of carriages and freight yard facilities to optimise export efficiencies. A breakdown of KiwiRail's revenue sources (as seen below) shows the significance of these segments to KiwiRail's revenue margins.

In addition to ageing rolling stock, KiwiRail has been burdened by numerous adverse events like the Kaikoura earthquake which has impacted asset management planning and revenue goals.



Source: KiwiRail Statement of Corporate Intent 2019-2021



Image source: KiwiRail Integrated Report 2018

7. KiwiRail Statements of Corporate Intent 2017-2019 and 2019-2021 <<https://www.kiwirail.co.nz/uploads/Publications/KR%20SCI%202017-2019.pdf>> and <https://www.kiwirail.co.nz/uploads/Publications/KR_SCI_2019-2021.pdf>.

Auckland Transport (AT)

AT is responsible for the strategic planning and provision of all public passenger transport (bus, ferry and rail) and the construction and maintenance of non-NZTA roading and cycleways within the Auckland region. AT provides some funding for rail projects in Auckland and is responsible for the development of core rail infrastructure and investment on the Auckland network, including:

- City Rail Link (CRL) (in conjunction with central government and KiwiRail valued at \$3.4B (£1.8B))
- Network infrastructure upgrades (in conjunction with central government and KiwiRail)
- Station upgrades (43 stations across Auckland)
- Auckland Metro Rolling Stock Procurement and Maintenance (via Construcciones y Auxiliar de Ferrocarriles (CAF)) (57 electric and 10 diesel trains)
- Auckland Metro operations including station staff (via Transdev)
- Light Rail Operations (NZTA is responsible for the capital expenditure delivery).

Notably, most infrastructure upgrades on the KiwiRail Auckland Metro network are funded by AT. Generally, the results of those upgrades are vested back to KiwiRail.



Auckland Transport's Rail Network Budgeted CAPEX and OPEX spend relates to AT's existing infrastructure.⁸

(\$ millions)	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	TOTAL
Rail Network Renewals budgets (inflated)	2.6	6.1	10.4	13.7	19.1	24.1	27.2	27.5	27.0	157.6 (£82.7M)
Rail Network O/M budgets (inflated)	41.2	42.6	38.7	38.7	38.9	39.3	39.2	39.0	39.4	357.1 (£187.3M)

Auckland Regional Land Transport Plan – Funded Projects

There are numerous rail infrastructure capital projects within the Auckland Metro network scheduled for delivery over the next 10 years that have secured funding. These are available in the Auckland Regional Land Transport Plan 2018-2028 and include:⁹

Project	Value	Duration
Tranche 1 - Road Level Crossing Grade Separation	\$239.1M (£125.8M)	2018/19—2027/28
Pukekohe to Papakura Electrification on the main rail line, including traction power supply	\$232M (£122M)	2018/19—2022/23
Third Main Line Wiri to Quay Park – completion of third Main Line, joining sidings and relief lines, new tracks, freight facilities	\$172.5M (£90.1M)	2018/19—2022/23
Rail Network Resilience and Performance Catch-up Renewals – historic formation, drainage and track issues	\$125.5M (£66M)	2018/19—2025/26
Onehunga Rail Line Upgrade – improvements to accommodate higher frequency, and longer services	\$69.2M (£36.4M)	2022/23—2023/2024
Rail Network Resilience and Performance Programme – Crossovers, Line Speed Increases, Infill Signals, Independent Feed, Infill Balises, and Sidings	\$42.4M (£22.3M)	2018/19—2023/24
Britomart East End Remodelling – reconfiguration of tunnel throat and platform access	\$31.4M (£16.5M)	2026/27
Additional Traction Feed Western Line	\$30.5M (£16M)	2018/19—2022/23
Auckland Train Control and Rail Network Management Centre – communications, control systems, and all necessary equipment	\$23.7M (£12.5M)	2018/19—2022/23
Pedestrian Crossing – Grade Separation	\$23.3M (£12.3M)	2018/19—2021/22
Southern Rail Lines Upgrades for Regional/Express Services – the construction of fourth Main Line	\$1.091B (£570M)	TBC: yet to be funded

8. Auckland Transport 2018 Asset Management Plan at 207-208 <<https://at.govt.nz/media/1978839/amp-2018-2021-approved-by-at-board-2-october.pdf>>.

9. Auckland Regional Land Transport Plan 2018-2028 <<https://at.govt.nz/media/1977374/rllp-consultation-single-pages-small.pdf>>.

Greater Wellington Regional Council (GWRC)

The GWRC is responsible for most aspects of the strategic planning and provision of all public passenger transport (bus, ferry and rail) and construction and maintenance of non-NZTA roading and cycleways within the wider Wellington region, working in conjunction with Metlink and EastbyWest Ferries.

Compared to the levels experienced in Auckland, growth on the GWRC Metro network has remained relatively static, and as such, the rail network has not seen a comparable level of investment regarding stations and network upgrades. GWRC tend to rely more on KiwiRail and NZTA to plan and fund upgrades as part of their Track Access Agreement. GWRC are primarily responsible for:

- Metro Station upgrades in the Wellington region
- Metro Operations and Maintenance including station staffing (via Transdev)
- Metro Services including the Wairarapa Connection from Masterton to Wellington (a daily commuter train that travels to the Wairarapa region, owned and operated by Transdev Wellington – O/M subcontracted to KiwiRail)
- New Rolling stock of 131 Hyundai Rotem EMUs known as the 'Matangi' fleet

Despite GWRC having acquired new EMUs in recent years, there are several significant improvements required on the network and to parts of the fleet. Notable challenges include:

- Ageing rolling stock used on the Wairarapa Connection Line – a non-specified number of rolling stock require mid-life refurbishment of their old British carriages between 2019-2021, with the ultimate replacement scheduled around 2032.
 - The preferred option according to the recent GWRC Strategy (early estimate \$300M (£158M)) is to replace fleet early with Electro/Diesel Multiple (E/DMU) units. It is intended that both the Wairarapa stock, and ageing rolling stock used on GWRC's Capital Connection line will be simultaneously replaced to take advantage of economies of scale
 - There are affordability issues projected for the upgrade of this stock and so a PPP could be prepositioned to GWRC.
- Rail station seismic strength upgrades and level of service improvements required at stations on all five lines
- Completion of historically deferred maintenance and renewals on Wairarapa line (~\$96M) required to allow GWRC to increase their desired level of service.



New Zealand Transport Agency (NZTA)

NZTA is the central government agency primarily responsible for planning, investment, maintenance and operations of New Zealand's state highway roading network, as well as providing ongoing funding to the rail sector. Interestingly, NZTA have been tasked with delivering the planned light rail network on Auckland Transport's roading network. In terms of rail and light rail NZTA is responsible for:

- Auckland Light Rail CAPEX delivery (in partnership with Auckland Council, Auckland Transport, and Hobsonville Land Company) (\$1.8B (£950M));
- The five-year trial of the Hamilton—Auckland daily commuter service set to begin in 2020. NZTA will provide KiwiRail with \$68.4M (£36M) of the estimated \$78.2M (£41.1M) to carry out this trial.

It is uncertain at this stage whether NZTA will have any further involvement in the development of wider rail solutions in conjunction with KiwiRail. There has been speculation for some time that NZTA may take a more strategic approach to the planning and management of movement of people and freight around New Zealand on behalf of central government.



10. Greater Wellington Regional Council Infrastructure Strategy 2018.

11. Auckland Transport "Auckland Light Rail Industry Briefing" <<https://www.nzta.govt.nz/assets/Roads-and-Rail/docs/auckland-light-rail-tender-brochure.pdf>>.

Key Suppliers

Given the relatively low number of new projects undertaken in New Zealand’s rail sector, the key stakeholders tend to engage with fewer suppliers. While past governments have restricted funding, the replacement of ageing rolling stock has still occurred in the past decades from the likes of Hyundai Rotem and CRRC Dalian. There is significant replacement and refurbishment to take place in the coming decades.

Hyundai Rotem

In December 2006, the GWRC placed an initial tender for the replacement of the DM/D English Electric EMUs and then subsequently the legacy Ganz-Mavag EMUs rolling out in 2015. Progressively over a period of 6 years, a total of 48 2-car Hyundai Rotem FP class ‘Matangi’ EMUs were purchased and installed to replace the entire old legacy fleet and are now fully operational for an initial purchase price of \$430M (£226M). Rotem has also provided ongoing maintenance of the fleet for the operators of the GWRC Rail Metro contracts and are currently in a subcontract agreement to provide these maintenance services.



More detail about the FP class EMUs can be found here:

<https://www.kiwirail.co.nz/uploads/Publications/Matangi%20Fact%20Sheet1.pdf>

CAF

(CAF) is a Spanish publicly-listed company which manufactures railway vehicles and equipment. By 2015, CAF had supplied Auckland Transport with 171 EMUs which completed a full overhaul of the mixed-unit fleet.



More detail about the units CAF have delivered to AT can be found here:

<https://at.govt.nz/media/imported/4678/AT-electric-trains-technical-summary.pdf>

Transdev

Transdev, formerly Veolia Transdev, is a French-based, privately-owned public transport operator. They are currently the metro operator for both the AT and GWRC networks. The fleet maintenance for GWRC is undertaken by their partner Rotem, and on the AT network, maintenance is managed by CAF under a separate contract. It is estimated that Transdev’s turnover within the NZ market is approximately \$80M-95M (£49.5M) per annum, which also includes the ongoing cost of the Rotem maintenance.



CRRC Dalian

CRRC and KiwiRail have a very close relationship for the supply of diesel-electric rolling stock and in 2017 signed a letter of intent to expand their co-operation. In 2018, CRRC delivered 15 diesel-electric DL locomotives, bringing the existing fleet to 63. That was the fourth order since 2009. This contract entails the training of New Zealand workers by CRRC to maintain the fleet by a team of engineers. Future projects could involve the passenger rolling stock sector, and Northland Regional Council also discussed possible Chinese participation in the development of new road and rail links by extension of this relationship.



Useful links regarding the DL class locomotives provided by and relationship with CRRC can be found below:

<https://www.kiwirail.co.nz/uploads/Publications/DL%20Class%20Locomotive%20Fact%20Sheet.pdf>

<https://www.kiwirail.co.nz/news/425/128/KiwiRail-and-CRRC-sign-deal-for-new-locomotives-and-new-relationship.html>

<https://www.railjournal.com/locomotives/crrc-orders-15-mtu-engines/>

Key Suppliers (continued)

Siemens AG

Siemens, a German-based industrial manufacturing company, provided and installed European Train Control System signalling equipment into Auckland electric passenger trains prior to their introduction in 2015. Since then, Siemens have combined with Alstom SA (French-based) to provide signalling projects and supply of point machines for railways throughout New Zealand.



Useful links regarding Siemens:

<http://www.infrastructurenews.co.nz/siemens-acquires-leading-rail-data-company/>

<https://www.kiwirail.co.nz/news/421/78/Auckland-rail-project-wins-prestigious-award.html>

Civil Infrastructure Providers

The majority of core track, signals and structures maintenance is currently undertaken internally by KiwiRail crews. There are some outsourced maintenance works that are procured on an as-needed basis, as well as to generally supplement KiwiRail crews. There are a number of civil infrastructure partners that have previously or currently provided both capital works and maintenance services. Of note are:

- Downer Group – New Zealand's largest integrated services company that designs/builds/sustains assets and infrastructure, based in Sydney, Australia
- Fulton Hogan – large infrastructure construction business
- Fletcher Construction
- John Holland Group (Australian)
- CPB Contractors (CIMIC Group)

Relevant Industry Body

Australian Rail Association - <https://ara.net.au/>



Image source: <http://www.infrastructurenews.co.nz/siemens-acquires-leading-rail-data-company/>

Key Opportunity Pipeline

City Rail Link (CRL) – The City Rail Link is worth \$3.4B (£1.79B) and is New Zealand’s largest rail infrastructure project. It is made up of nine separate principal and secondary contracts relating to various aspects or sections of the line. The procurement timeline for Contracts 3-9 is shown below (Contracts 1 & 2 are already let). While most of them are either awarded or in the later stages of procurement, there is still a significant outlying opportunity with regards to C5:

- C5: Civil construction on the Western Line at Mt Eden Station (\$200M) (£105M) – includes the civil elements of reconstructing the existing line.

Contact number and name	Pre Qual	EOI	RFT/RFP	Contact award date
Contact 3 - Stations and Tunnels	Feb 2017 completed	June 2018 completed	September 2018	Mid 2019
Contact 5 - Western Line	N/A	TBC	TBC	TBC
Contact 6 - Mt Eden Stormwater Main Relocation	N/A	N/A	May 2017 completed	Awarded December 2017
Contact 7 - Systems, Integrations, Testing and Commissioning	N/A	January 2018 completed	March 2018 completed	Mid 2019
Contact 8 - Wider Network Improvements (Otahuhu and Strand)	Now being delivered by KiwiRail and Auckland Transport			
Contact 9 - Britomart East	Now incorporated into C7			

Source: City Rail Link website <<https://www.cityraillink.co.nz/crl-procurement/>>.

Auckland Network Non-City Rail Link Upgrades:

- Third Main Line (\$172.5M) (£90.7M)
- Pukekohe to Papakura Electrification (\$232M) (£122M)
- Non-CRL Rail and Road Grade Separation (\$239.1M) (£125.8M)

Auckland Transport Rail Metro Operations Contract – estimated to be \$30-40M (£21M) per annum for rail operations only, planning to come to market 2019-2021 pending.

Auckland – Hamilton Daily Commuter Project – \$78.2M (£41.1M) to carry out the five-year trial.

Greater Wellington Regional Council Operations Contracts – estimated to be \$60-70M (£36.8M) per annum coming to market 2026, this includes rail operations, provision of station staff and maintenance of rolling stock.

Light Rail – the Government has already committed \$1.8B (£950M) in funding to progress the network within the next ten years under the Auckland Transport Alignment Project (ATAP). In Q4 of 2018/2019 FY, market sounding on preferred procurement model(s) will occur.

KiwiRail Rolling Stock Procurement – Project Nexus – Initial stage of market research was completed in the 2018 FY to ascertain necessary and most viable options for improvement. In 2019 FY, it is expected that tendering will begin followed by the development of contracts. 15 new DL class locomotives have already been delivered in 2018 and will undergo testing in 2019.

KiwiRail wider network upgrades – \$8M (£4.2M) from the PGF is the beginning of regional rail investment from central government. Additionally, KiwiRail’s intended redevelopment of maintenance facilities, investigation into next-generation technologies, and continued standardisation of assets will see increased investment into the rail sector.

A little bit about Height

Height is Australasia's leading technical tendering and procurement specialist. This 2019 New Zealand rail sector report is written to provide a snap shot of the key stakeholders, existing competitors, and future opportunities within the market. Our team at Height have an in-depth knowledge and expertise of the infrastructure, engineering, and defence sectors both in Australia and New Zealand, with expertise of particular note in:

- Road maintenance and capital construction
- Rail operations and maintenance, and capital construction
- Water capital construction and water operations and maintenance
- Power generation and transmission
- Open spaces and facility management
- Civil infrastructure construction and maintenance
- Defence estate management and capital construction
- Defence major acquisition and maintenance – aviation, land and sea.

Please contact us today for a no obligation discussion on what you do and how we can help.



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