Keeping Christchurch Connected

A Transformational Urban Rail System at Low Cost

Could rail play a useful, cost-effective role as a high-capacity arterial network within an integrated public transport system in Christchurch?

Rail Delivers Benefits to Modern Cities

- People like trains – boost public transport usage
- Rail needs to carry only a % of commuters to benefit all road users / builders / funders
- Enables and/or empowers the car-less lifestyle
- A powerful unifying force – to counter the dispersal to suburban centres
- "Transit-oriented development" – can focus development; boost property values and rates
- Greenhouse gas, particulates, energy-source diversity
- A key point of difference for any city aspiring to international competitiveness
- Note rail's critical importance to Auckland and Wellington

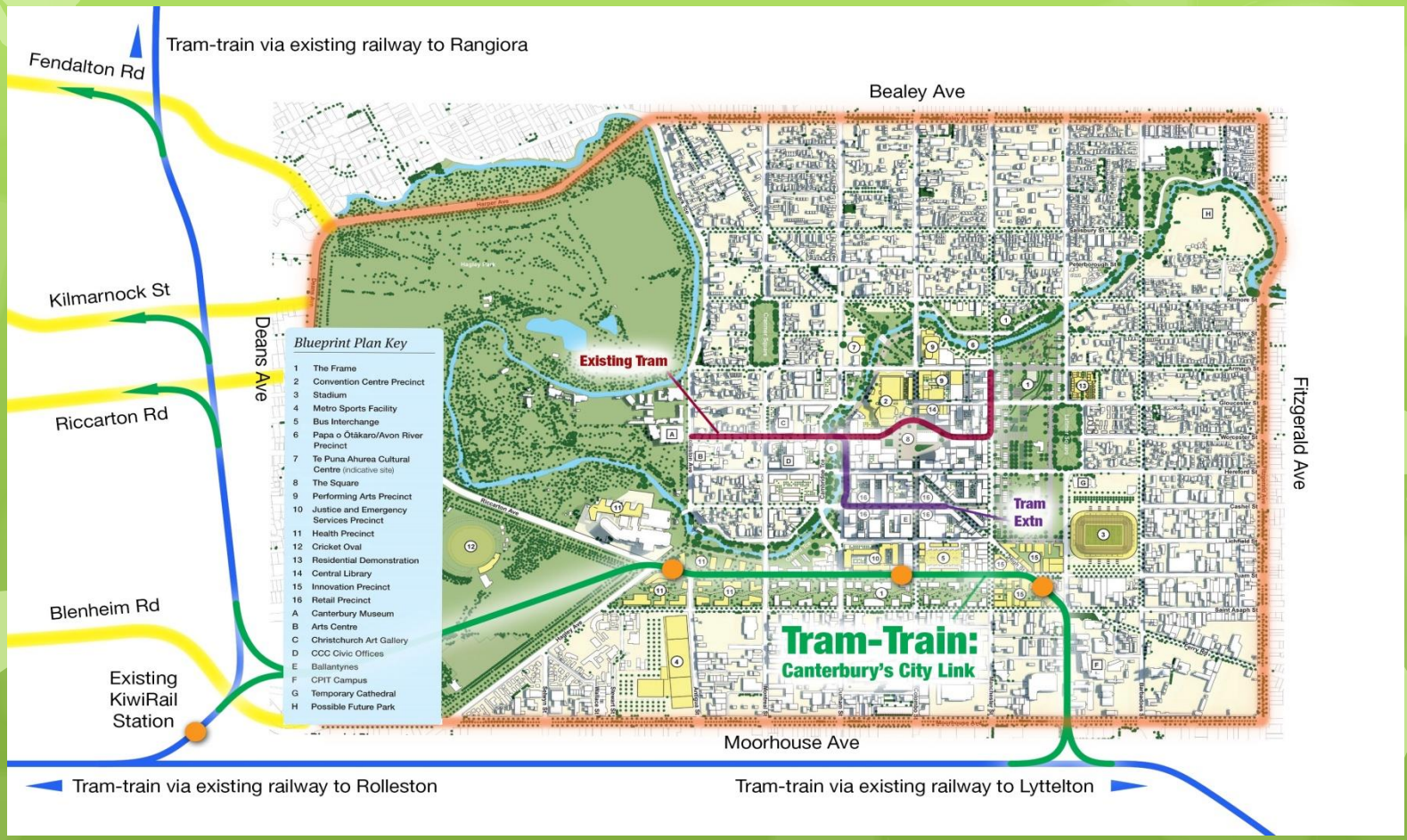
Rail's Relevance to Christchurch

- NZCID says Chch congestion was as bad as Aust. cities – surely set to worsen with growth and post-quake decentralization. Can the road network keep up?
- Chch needs to boost the appeal of the CBD, and of public transport. Can it do without rail?
- Ideal Chch network would involve existing rail corridors plus street-running – "light rail"
- But simply using the 3 existing radiating lines can make a cost-effective "conventional rail" system for starters
- BUT definitely need to access the CBD – otherwise rail a lost cause

Rail Must Reach the Central City!

- Christchurch once had an electrified, double-tracked suburban railway! But not to the CBD…
- Auckland urban rail all but died for lack of decent access to central city - Britomart Station saved the day
- Now prepared to spend billions on CRL – rail the saviour
- Wellington's secret – the rail terminus is close enough to the CBD to be viable for many commuters
- Scenic trains would benefit from a central Christchurch terminus also!
- How could this be achieved?

A New City – with Rail



So Easy to Do…

- Vacant former Saleyards site accommodates the MNL triangle connection
- South Hagley Park and south edge of “frame” gives a clear segregated route to CBD – no need for street-running – fast transit times
- New Transport Centre ideal as a rail station
- Makes a great terminus for Scenic / regional rail services
- Can trench the “city rail loop” for higher amenity value – like Auckland West Line
- Minimizes interference with rail freight operations

Infrastructure Cost-Sharing

- Rail corridor maintenance shared with freight operators (KiwiRail Freight, Scenic etc.)
- KiwiRail Infrastructure already maintains rail networks shared with Wellington and Auckland metro systems – sophisticated cost-sharing and joint planning methodologies exist
- Fleet maintenance facility (Waltham Depot) could be time-shared with KR Scenic– day/night operation
- Indicative cost for building urban rail ~ $100M per km
- So the proposed network is effective and particularly economical. What train services would it support?

Train Service Options

- Suggest a 30 min service on all lines, with peak “bursts”
- 20 or 15 min service possible with larger fleet and more double track reinstated
- Around 6 cars per trainset – 350 seats – 2 crew
- Stabling at outer termini allows a “burst” of 3 inbound trains to start the day
- Few stops; park and ride; feeder buses important
- Integrated smart ticketing
- 3 platforms – through-running

Key CBD Destinations

- Hagley Park and Cricket Oval
- Hospital and Health Services Precinct
- Indoor Sports Precinct
- Justice and Emergency Services Precinct
- Transport Centre/CBD
- Stadium
- Innovation Precinct

North Line

- Riccarton/GHS/BHS
- Papanui
- Redwood
- Northwood/Belfast
- Kaiapoi
- Rangiora

Lyttelton Line

- CPIT/Moorhouse Shopping Centre
- Philipstown/Waltham
- Linwood CPIT site
- Woolston/Heathcote
- Lyttelton

South Line

- Hornby
- Templeton
- Rolleston

A Metro Fleet on the Cheap?

- Everyone loves new trains…but Kiwis are cautious
- Auckland will soon be relinquishing its "good second-hand" fleet of metro carriages
- Just need better motive power
- Electrification is highly desirable: quick, quiet, regeneration is simple, energy can be renewable
- Could start "small" with diesel power but allow for later electrification – but could also kill the passion

Just Add Motive Power!

Passenger Locos for NZ

- Propose a light 4-axle locomotive at each end of the trainset to give optimum acceleration and reliability
- Each would cost the same a single new metro car
- Better resistance to level-crossing collisions than push-pull trains (with driving-trailer at one end)
- Electro-diesel (diesel + 750/1500v electric)
- Program could also be of interest to KiwiRail Scenic and GWRL (for regional train services) – joint procurement
- Technology-partner approach feasible
- Future “NIMT” all-electric variant (25kv + 1500v; no diesel)

Street-Running LRT Lines?

- Basic network facilitates adding street-running lines where dedicated corridors impracticable (but are slower)
- Need to deal with platform heights issue
- Limits electrification to 1500v? (750v is common)
- Could use diesel power on unwired sections
- Battery / inductive power supply systems now available

  - Riccarton - Ilam – Airport
  - Sydenham/Cashmere
  - Lincoln-Halswell
  - East to New Brighton

Dual-Mode is a la mode

Summary - Why It Makes Sense

- Meets real needs – maintain good links with fast-growing outer suburbs by de-stressing arterial roads
- Helps to maintain unity of city - harness the appeal of rail to restore focus on CBD
- Improves visibility of long-distance rail and enhances options for LRT
- Cuts future energy use, emissions, noise and congestion
- Uses existing assets - 3 great rail corridors – ad easy to connect them to the CBD
- A fleet of cheap trains happens to be available!
- Any city would love a metro train service at such an affordable price – unique factors work for Chch

Where To Begin?

- Designate a corridor from Riccarton along the south edge of the new CBD, then south to join Lyttelton line at Waltham
- Speak up for the Auckland car fleet
- Commission a feasibility study, assuming ECAN as the service sponsor, train operations by Contract, and KiwiRail as the infrastructure provider and vehicle maintainer
- Ask KiwiRail for motive power options

P.S. Why Has It Not Happened?

- Regional Councils plan and NZTA funds urban rail systems
- ECAN supposed to take the lead - has no institutional rail knowledge – and NZTA passive
- KiwiRail distracted, just trying to survive in freight market
- Situation supports the case for segregating rail infrastructure from commercial operations
- Make NZTA the “land transport agency” covering road and rail, genuinely advocating for rail where appropriate