A TRAM PLAN FOR MELBOURNE

Helping shape Melbourne for 8 million people

Part of Rail Futures Plan for a 21st Century Metropolitan Public Transport network

(a work in progress – for release 09/18)

Discussion with Melbourne City Council – 4 July 2018

The twin challenges for Melbourne's Public Transport

Retrofitting an integrated PT network into the existing built form in ways that will significantly reduce car dependency

- Completing heavy rail links to the CBD and providing cross-city trunk routes
- Maximising potential of the tram network to provide inner suburbs - CBD connections, cross-suburban journeys and links to rail interchanges
- Protecting and developing medium capacity cross-suburban transit corridors
- Redesigning the bus network to effectively complement rail and trams
- Creating a multi-modal grid network of high frequency services

Maximising opportunities for PT to still be a significant city shaping influence on Melbourne's future development

- Incentivising transit-oriented developments (TODs) around key rail stations
- Boosting the role of National Employment and Innovation Clusters
- Getting the most out of the tram network
- Developing future corridors for medium capacity transit

Rail Futures' Public Transport Hierarchy

A specific role for each Transport Mode as part of a fully integrated and connected network:

- **Heavy Rail** – in high demand corridors focussed on CBD, cross-town and contra-flow journeys
- **Medium capacity transit** - medium demand corridors - particularly non-radial routes linking key activity centres
- **Tram** – for frequent, quality service in CBD, higher density inner and middle suburbs, also for local suburban access
- **SmartBus** – completes the principal network where rail modes are unsuitable or unviable
- **Local Bus** – providing local feeder services to rail or major activity centres
- **Active Transport** – safe walking and cycling

RFI's Metro Strategy

ACHIEVING IMPROVED CONNECTIVITY

Current rail and tram network is largely RADIAL in nature:

- 8 existing cross-suburban tram routes
- Only 1 cross-city rail route

THE FUTURE GRID NETWORK

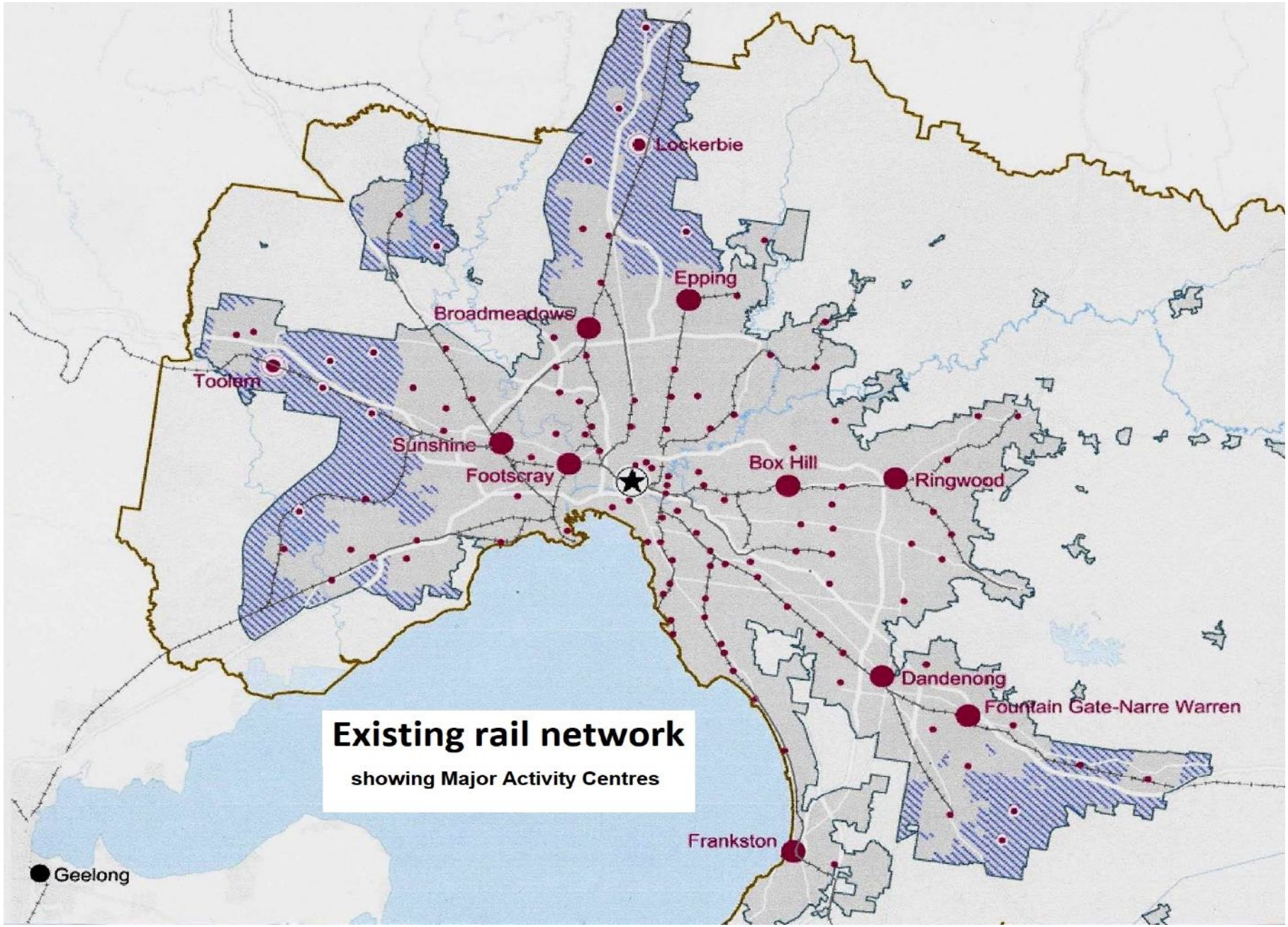
OFFERING HUNDREDS OF NEW TRIP OPTIONS

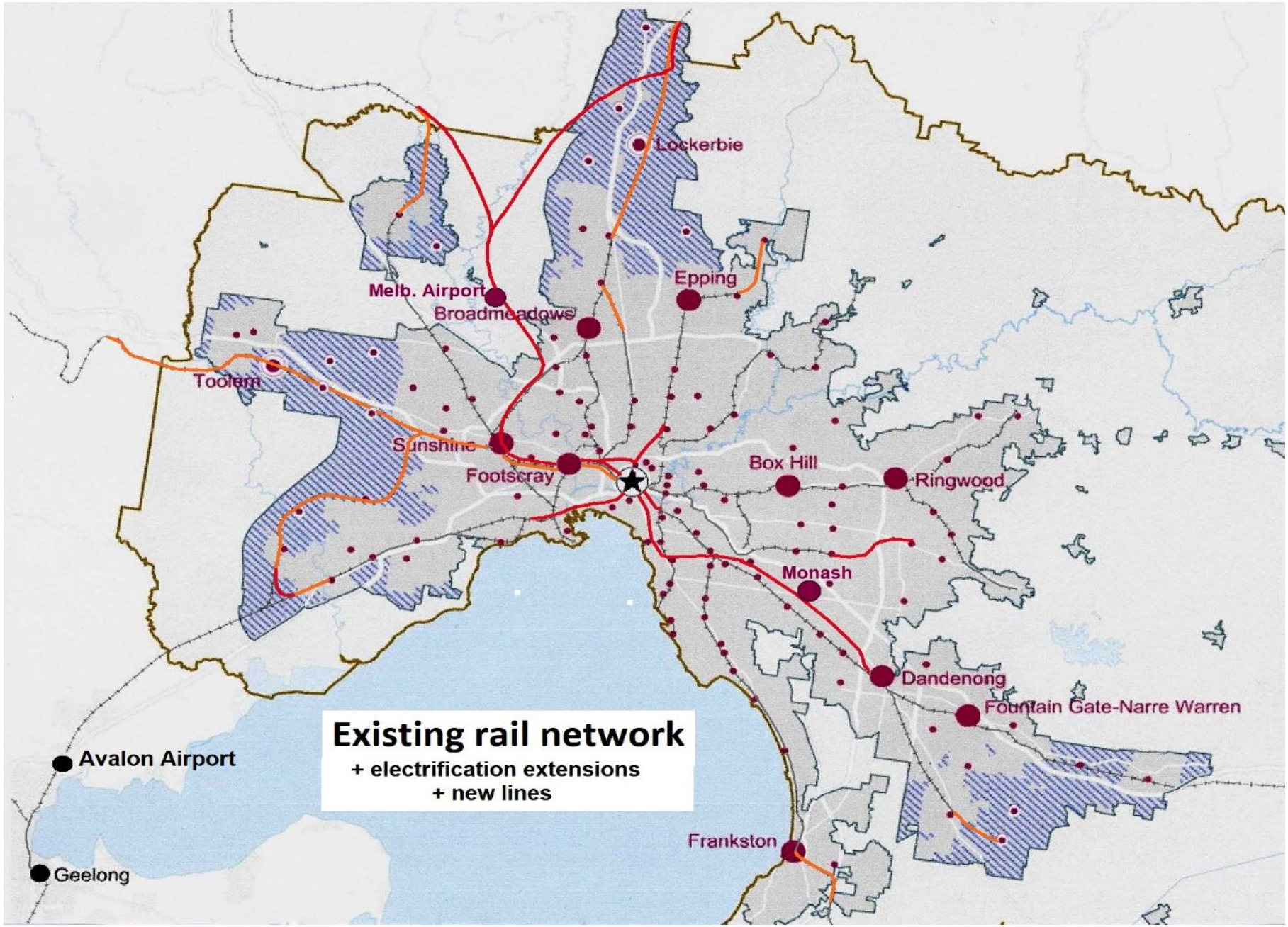
- 5 cross-city rail routes
- 10 new cross-CBD tram routes
- 16 cross-suburban tram routes
- 5 short extensions of existing tram routes
- 7 longer distance extensions of existing tram routes
- 12 potential medium capacity transit routes

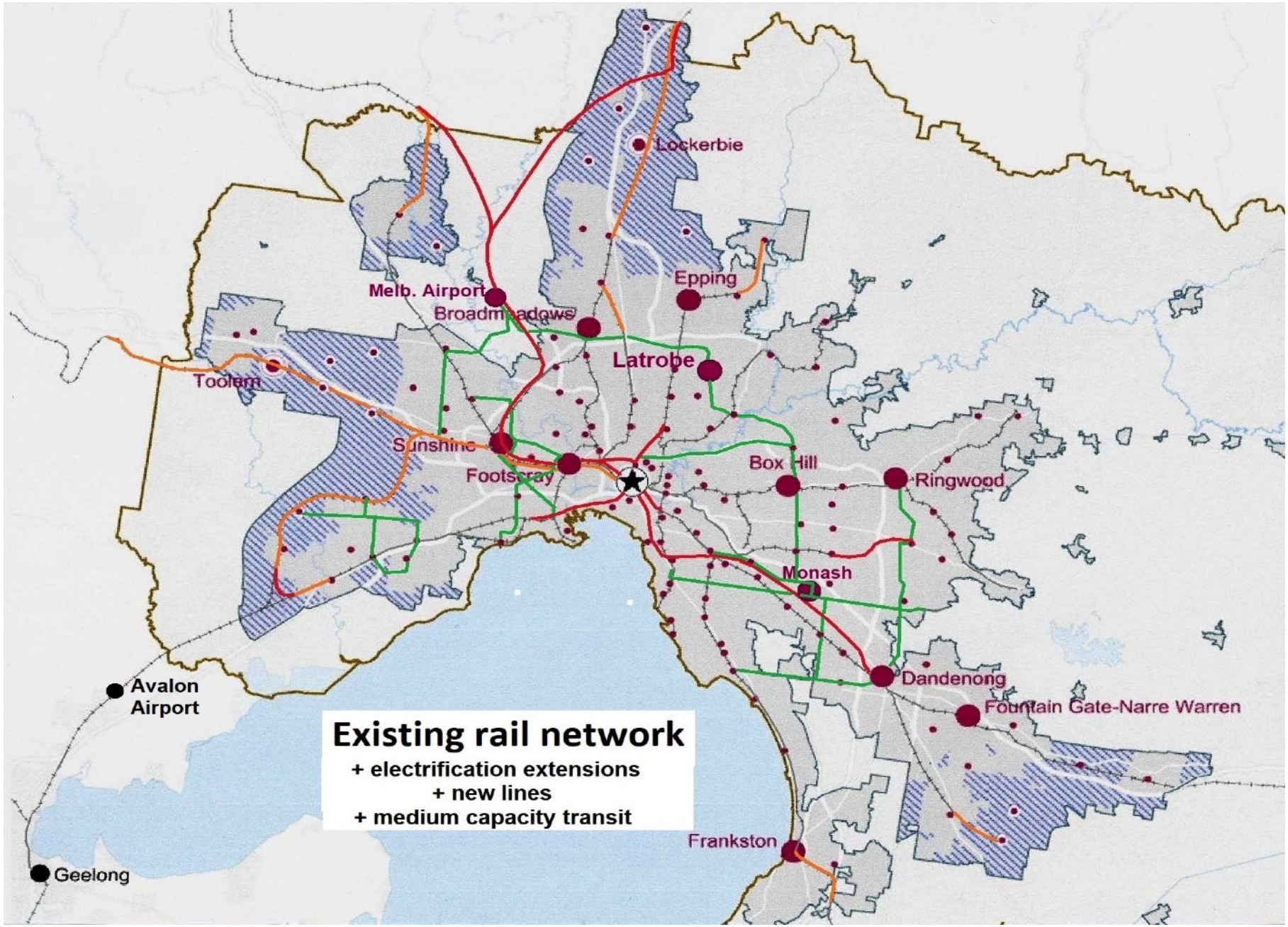
RFI's Metro Strategy

COMMENCING DEVELOPMENT OF A MEDIUM CAPACITY METRO NETWORK

- Preferred solution for 12 potential major routes which cannot justify heavy rail investment – others may follow
- Priority for "transport poor" parts of Melbourne
- Routes segregated from other vehicular traffic and with traffic light priority at intersections
- Not necessarily conventional light rail
- Technology undergoing rapid development including wireless, hybrid and rubber-tyred guided systems
- Much higher average speeds than conventional trams
- Initial high frequency by SmartBus to prove up demand
- Universal success in stimulating property development


Lockerbie
Epping
Broadmeadows
Toolern
Sunshine
Footscray
Box Hill
Ringwood
Dandenong
Fountain Gate-Narre Warren
Frankston
Geelong
Existing rail network
showing Major Activity Centres


Lockerbie
Epping
Melb. Airport
Broadmeadows
Toolern
Sunshine
Footscray
Box Hill
Ringwood
Monash
Dandenong
Fountain Gate-Narre Warren
Frankston
Avalon Airport
Geelong
Existing rail network
+ electrification extensions
+ new lines


Lockerbie
Epping
Melb. Airport
Broadmeadows
Latrobe
Toolern
Sunshine
Footscray
Box Hill
Ringwood
Monash
Dandenong
Fountain Gate-Narre Warren
Avalon Airport
Frankston
Geelong
Existing rail network
+ electrification extensions
+ new lines
+ medium capacity transit

RFI's Metro Strategy

ADJUSTING AN ICONIC TRAM NETWORK TO BETTER SUIT THE CITY'S FUTURE NEEDS

- NEW and ALTERED routes to better serve an extended CBD
- NEW supplementary Peak CBD and inner suburban services
- NEW routes Clifton Hill- Parkville - West Coburg & Clifton Hill – Parkville - West / North Melbourne & Carlton North – Parkville - Southbank
- NEW routes to FB Lorimer/Employment Precinct & Sandridge/Wirraway
- Minor route extensions linking to rail stations and activity centres
- Route 11 extended West Preston to Reservoir and Latrobe University
- Route 82 extended from Moonee Ponds to Melbourne Airport
- NEW CBD / Inner Eastern suburbs circular route

* NEW Cross-Suburban routes linking the radial train and tram network

MELBOURNE CBD TRAM NETWORK - EXISTING

- Focussed primarily on Flinders St Station, Swanston St & Melbourne University
- Trip opportunities largely North / South & East West
- Western end of City poorly serviced both routes and frequency
- No permanent service in Latrobe Street
- Continuous journeys along Spencer St are NOT possible
- Poor frequency of service in William St and through SOUTHBANK
- Route structure historical – does NOT reflect the needs of a changing CBD
- SLOW average speeds owing to poor traffic separation
- Traffic signals largely do not give priority to trams
- Road traffic obstructing intersections blocks tram movements – enforcement
- Insufficient tram terminal capacity Port Melbourne on Cruise Boat days
- Currently Government sees it as an issue of moving trams and cars
- Gross peak overcrowding in CBD and inner suburbs
- Legacy fleet old style small Z & A class totally unsuited to today's traffic task

THE CBD NETWORK OF THE FUTURE

- Focussed on whole Hoddle Grid, immediate inner areas & 15 inner rail stations
- NEW CBD access route via Domain, Park, Clarendon & Spencer Streets
- NEW cross CBD routes offering extra trip choices introduced
- Major boost to frequencies in Latrobe, Spencer & William Streets
- Continuous service along Spencer Street
- Continuous in Victoria St from Dryburgh St to Latrobe St.
- NEW route linking Clifton Hill RS to Parkville & West/North Melbourne via Smith St, Alexandra Pde, Barkly, Grattan, Wreckyn & Chetwynd St to Victoria St
- Two platform tram terminal at Station Pier for Cruise Boat traffic
- Improved traffic separation between trams & cars – solid kerbs replacing paint
- Signals cycles giving better priority to trams
- Traffic signals triggered by approaching trams
- Hook turns at ALL CBD intersections on tram streets
- The issue becomes one of moving people and freight
- NEW large capacity fleet DDA compliant standardized to 3 tram types

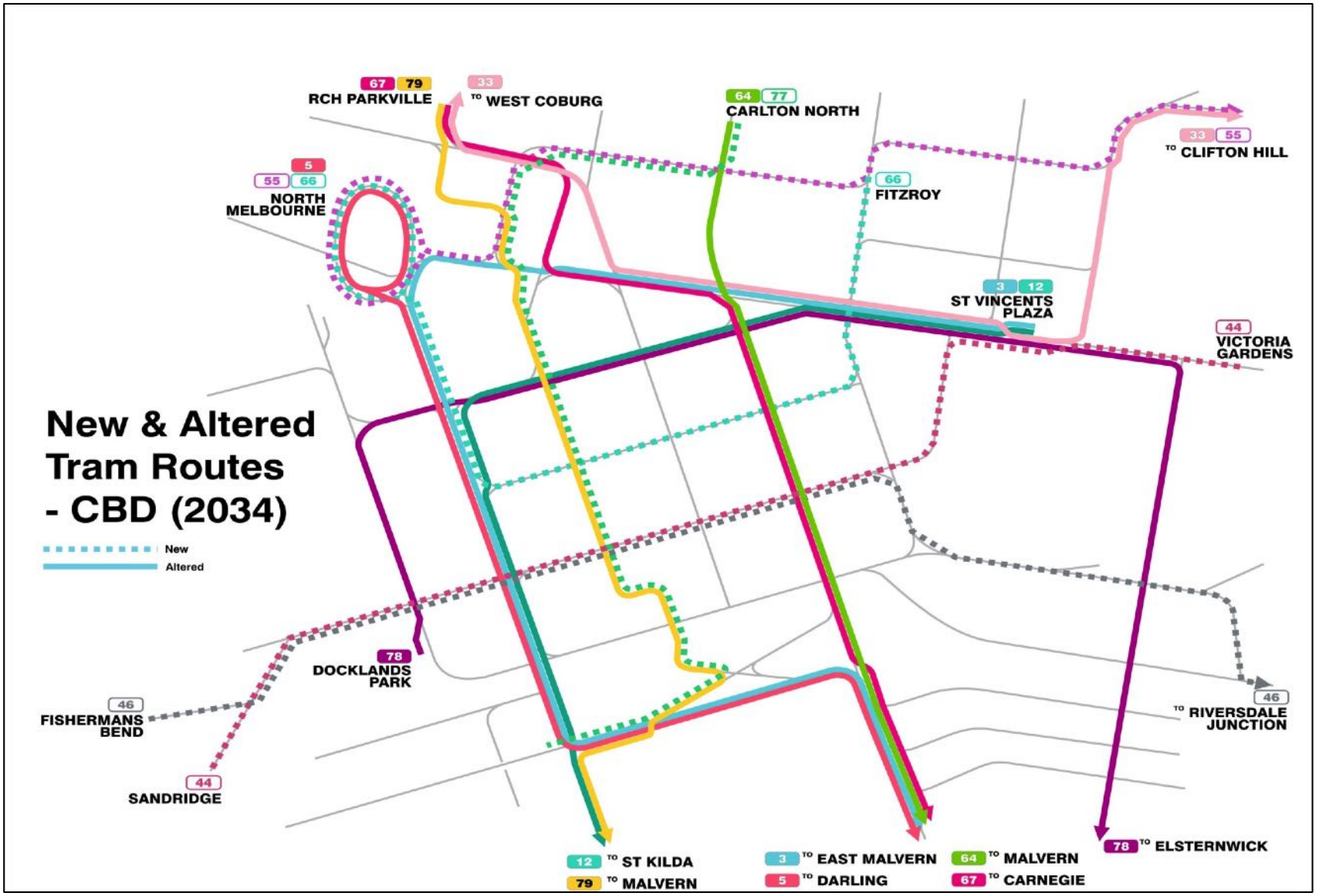
CBD ROUTE STRUCTURE OF THE FUTURE

PRINCIPAL NEW ROUTES & ROUTE CHANGES

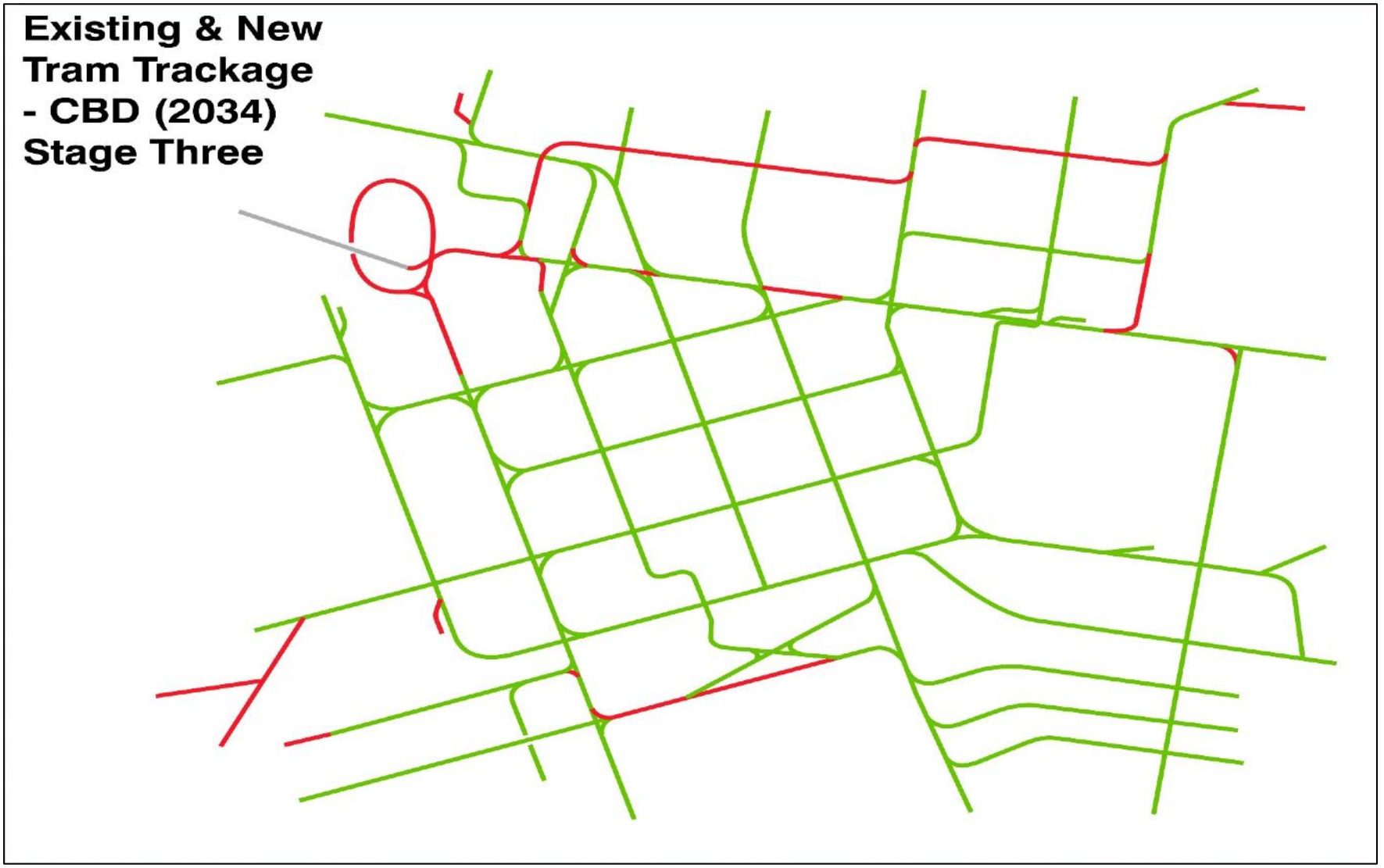
- Route 78 Docklands – Latrobe St – St Vincents Plaza – North Richmond – Cremorne – South Yarra – Prahran – Balaclava
- Route 12 St Vincents Plaza – Latrobe St – Spencer St – Southbank – St Kilda
- Route 33 Clifton Hill RS – St Vincents Plaza – City Baths – Vic Market – Parkville
- Route 55 Clifton Hill RS – Fitzroy – Parkville - North Melb – West Melb RS
- Route 77 Carlton North - Parkville – Vic Market – CBD – Southbank – Sth Melb
- Route 79 St Kilda – Southbank – William St – Vic Market – Nth Melb – Parkville
- Routes 44 & 46 to Sandridge & West Gate Park (Fishermans Bend precincts)
- Supplementary peak hour short services to Moonee Ponds Junction, Carlton North, North Fitzroy, Clifton Hill RS, Victoria Gardens & Riversdale Junction
- Booming West End serviced by these routes by street:

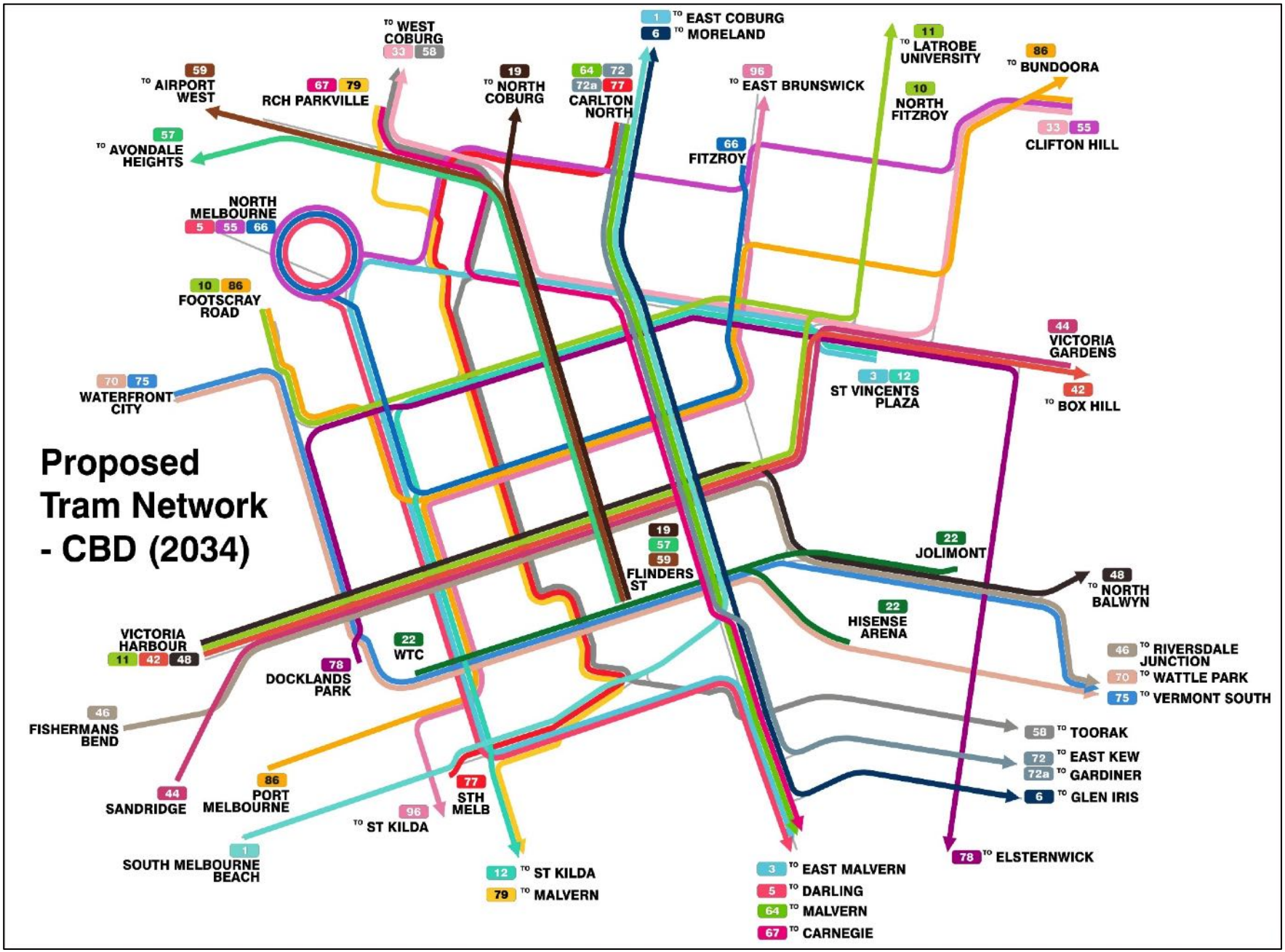
  Harbour Esplanade 3 routes , Spencer 5, William 3, Latrobe 2, Bourke St 3

Melbourne CBD new and altered tram routes

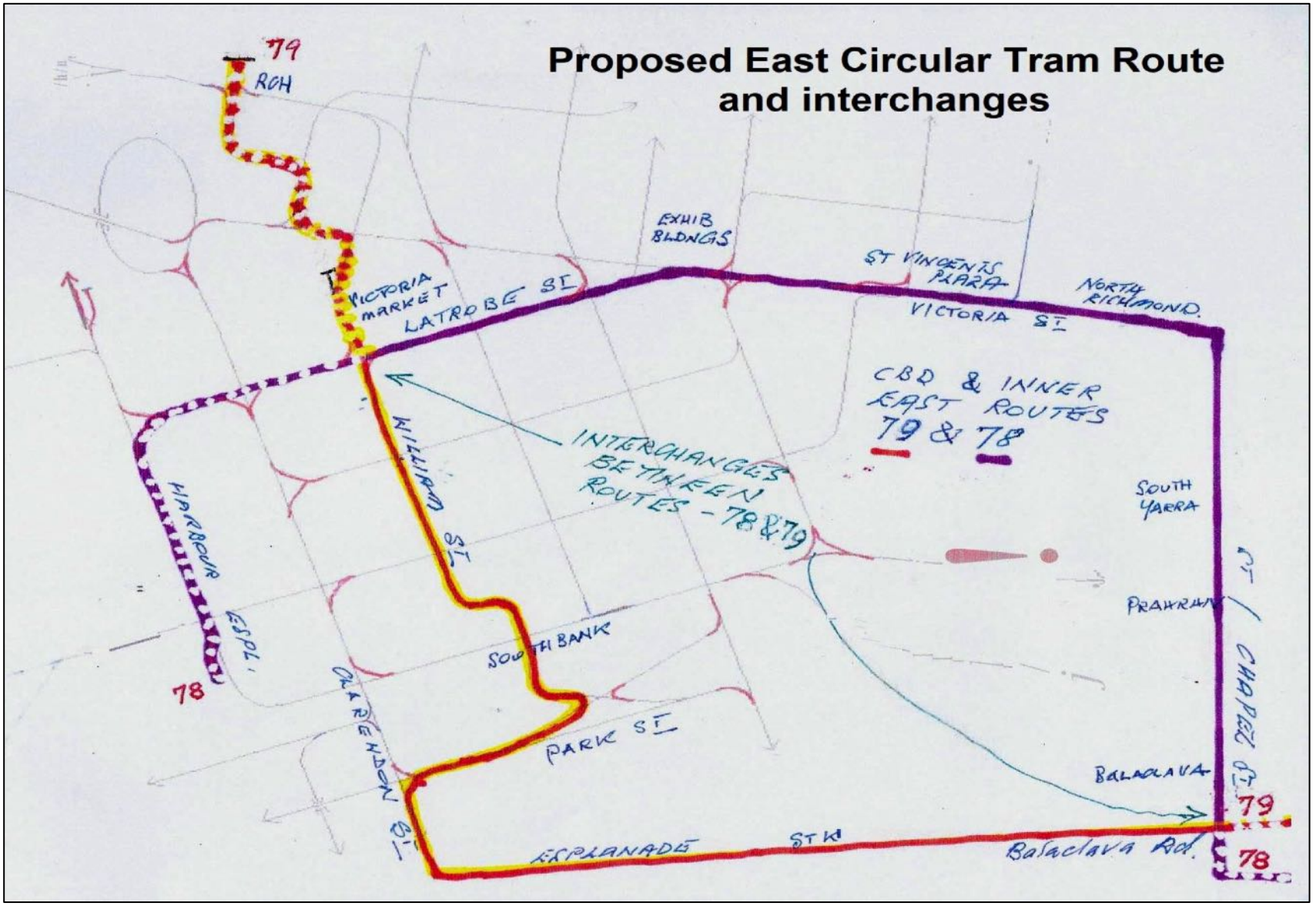


Melbourne CBD new and altered tram trackage

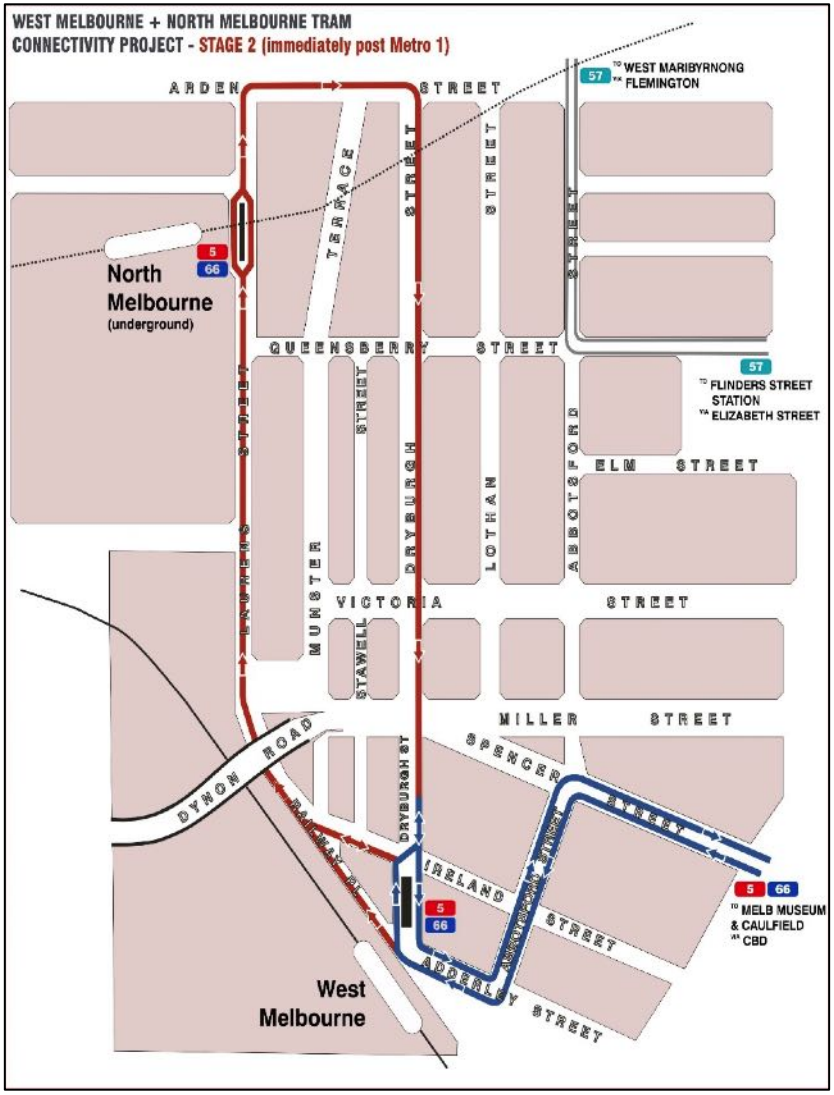


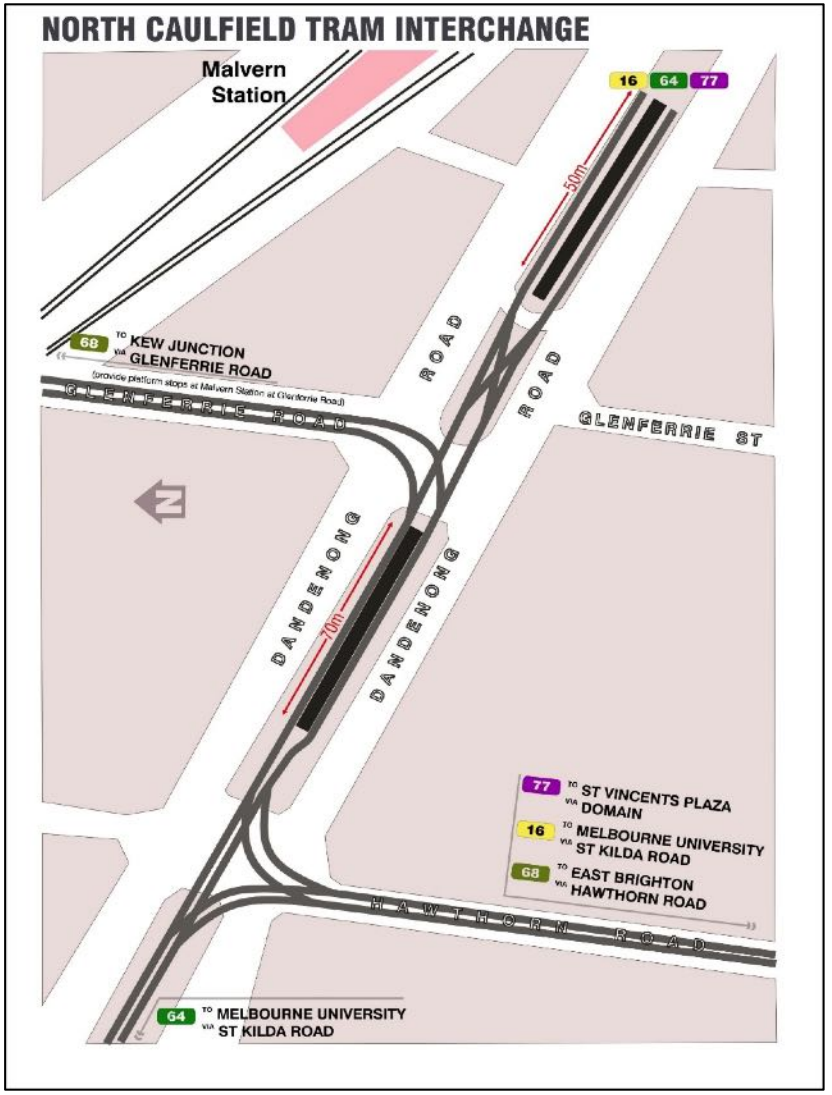

Proposed Tram Network - CBD (2034)
59 TO AIRPORT WEST
57 TO AVONDALE HEIGHTS
67 79 RCH PARKVILLE
TO WEST COBURG 33 58
19 TO NORTH COBURG
64 72 72a 77 CARLTON NORTH
1 TO EAST COBURG
6 TO MORELAND
96 TO EAST BRUNSWICK
66 FITZROY
11 TO LATROBE UNIVERSITY
10 NORTH FITZROY
86 TO BUNDOORA
33 55 CLIFTON HILL
NORTH MELBOURNE 5 55 66
10 86 FOOTSCRAY ROAD
70 75 WATERFRONT CITY
44 VICTORIA GARDENS
3 12 ST VINCENTS PLAZA
42 TO BOX HILL
19 57 59 FLINDERS ST
22 JOLIMONT
48 TO NORTH BALWYN
22 HISENSE ARENA
VICTORIA HARBOUR 11 42 48
22 WTC
78 DOCKLANDS PARK
46 TO RIVERSDALE JUNCTION
70 TO WATTLE PARK
75 TO VERMONT SOUTH
46 FISHERMANS BEND
58 TO TOORAK
72 TO EAST KEW
72a TO GARDINER
6 TO GLEN IRIS
44 SANDRIDGE
86 PORT MELBOURNE
77 STH MELB
96 TO ST KILDA
1 SOUTH MELBOURNE BEACH
12 TO ST KILDA
79 TO MALVERN
3 TO EAST MALVERN
5 TO DARLING
64 TO MALVERN
67 TO CARNEGIE
78 TO ELSTERNWICK

Proposed Inner East Circular tram route

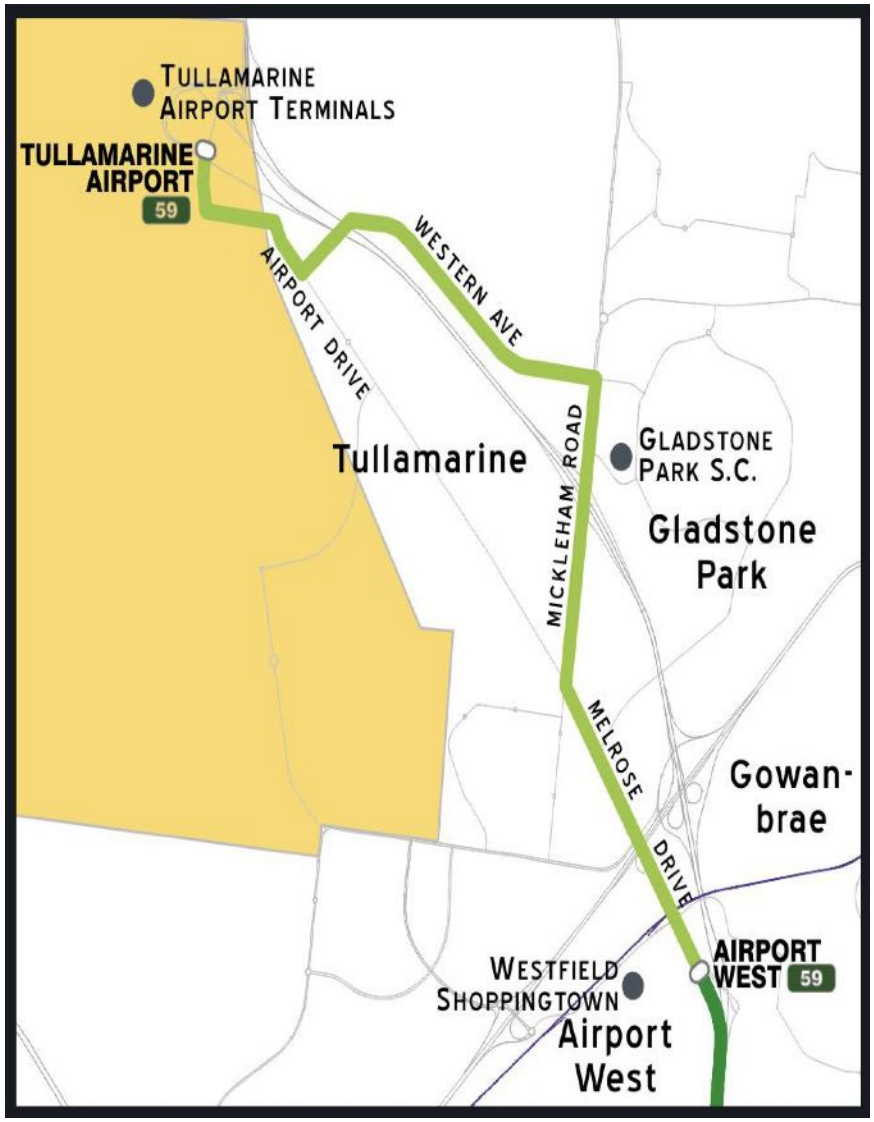


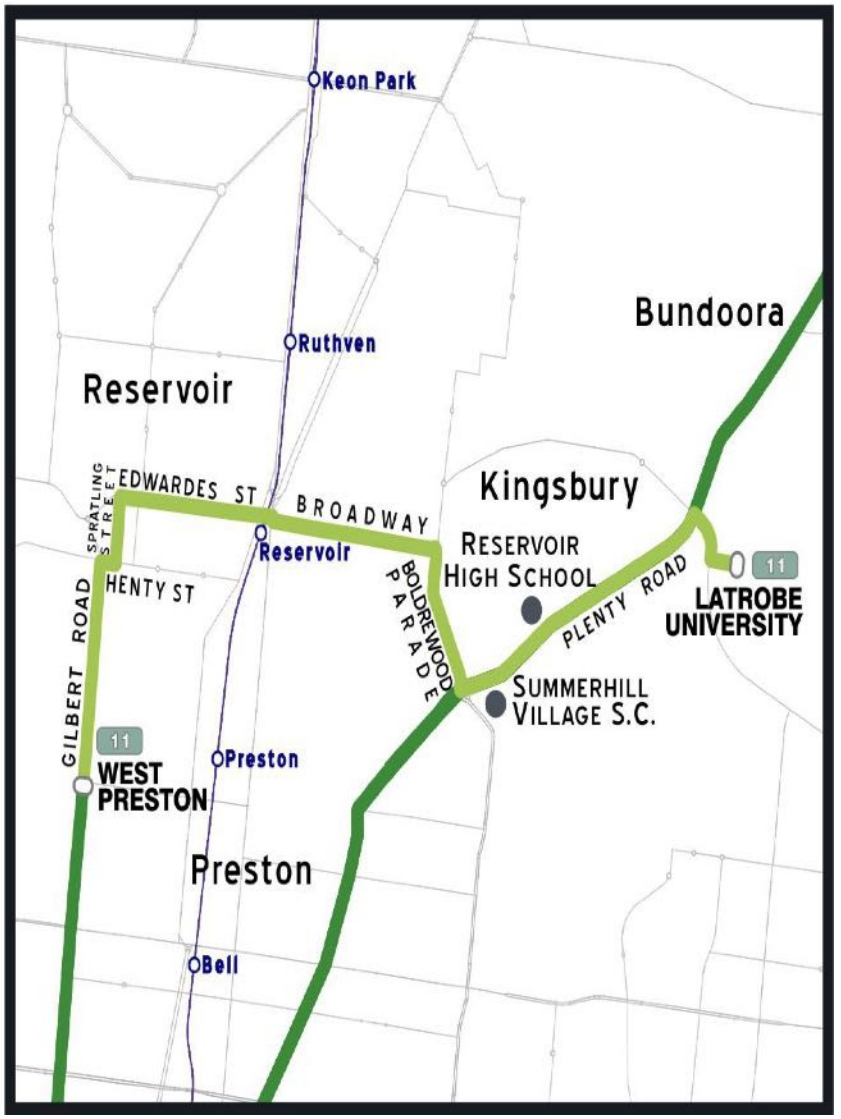
New tram interchange examples





Tram route extension examples





Where trams and trains connect

NOW (32)

- Footscray
- Flemington Bridge
- Royal Park
- Moreland
- Newmarket
- Essendon
- Jolimont
- North Richmond
- East Richmond
- Hawthorn
- Glenferrie
- Camberwell
- Box Hill
- Riversdale
- Southern Cross
- Melbourne Central
- Kooyong
- Gardiner
- Glen Iris
- Richmond
- South Yarra
- Toorak
- Armadale
- Malvern
- Caulfield
- Glenhuntly
- Windsor
- Balaclava
- Elsternwick
- * Flinders St
- * Flagstaff
- * Parliament

+

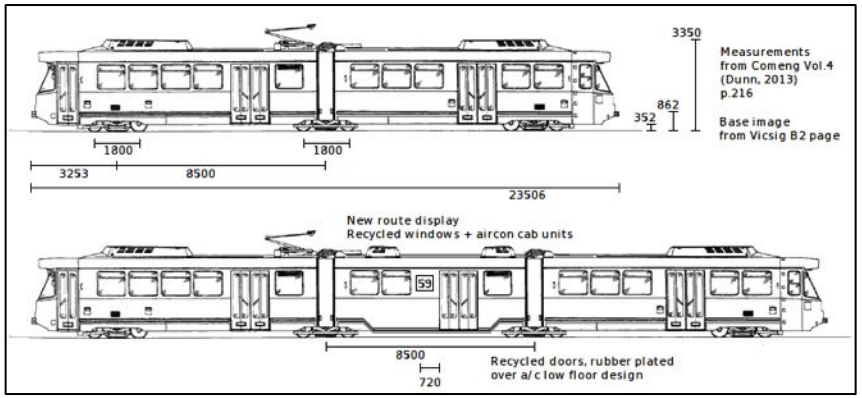
FUTURE (45)

- Parkville
- Fitzroy
- West Melbourne
- Anzac
- Fishermans Bend (Employment Precinct)
- Melbourne Airport
- Clifton Hill
- Reservoir
- Darling
- East Malvern
- Carnegie
- Chadstone
- Moorabbin

Trams – more investment desperately needed

- Only current order is for 80 E class – 66 already in service
- DDA compliance legal requirement by 2032 – already granted 10 year extension
- Over 300 trams non-compliant and 180 are not air-conditioned
- Only 10 pa presently being delivered. On present trajectory DDA compliance will overshoot 2032 by around 20 years
- At least 100 additional E class needed to 2024 to allow replacement of 40-year old Z3 class and then A class by 2027
- Some routes need larger trams – proposed F class is 45m long approx. 280 passenger capacity

- Proposed B2 to B3 conversion would quickly add 130 DDA compliant trams
- Proposal made previously from 1994 onwards but always rejected in favour of more new trams
- Technically feasible – scope for re-use of components released from withdrawn Z3 class
- B2 class now being given major life extension work – likely to run for another 20 years



Questions and Discussion

Rail Futures Institute
www.railfutures.org.au