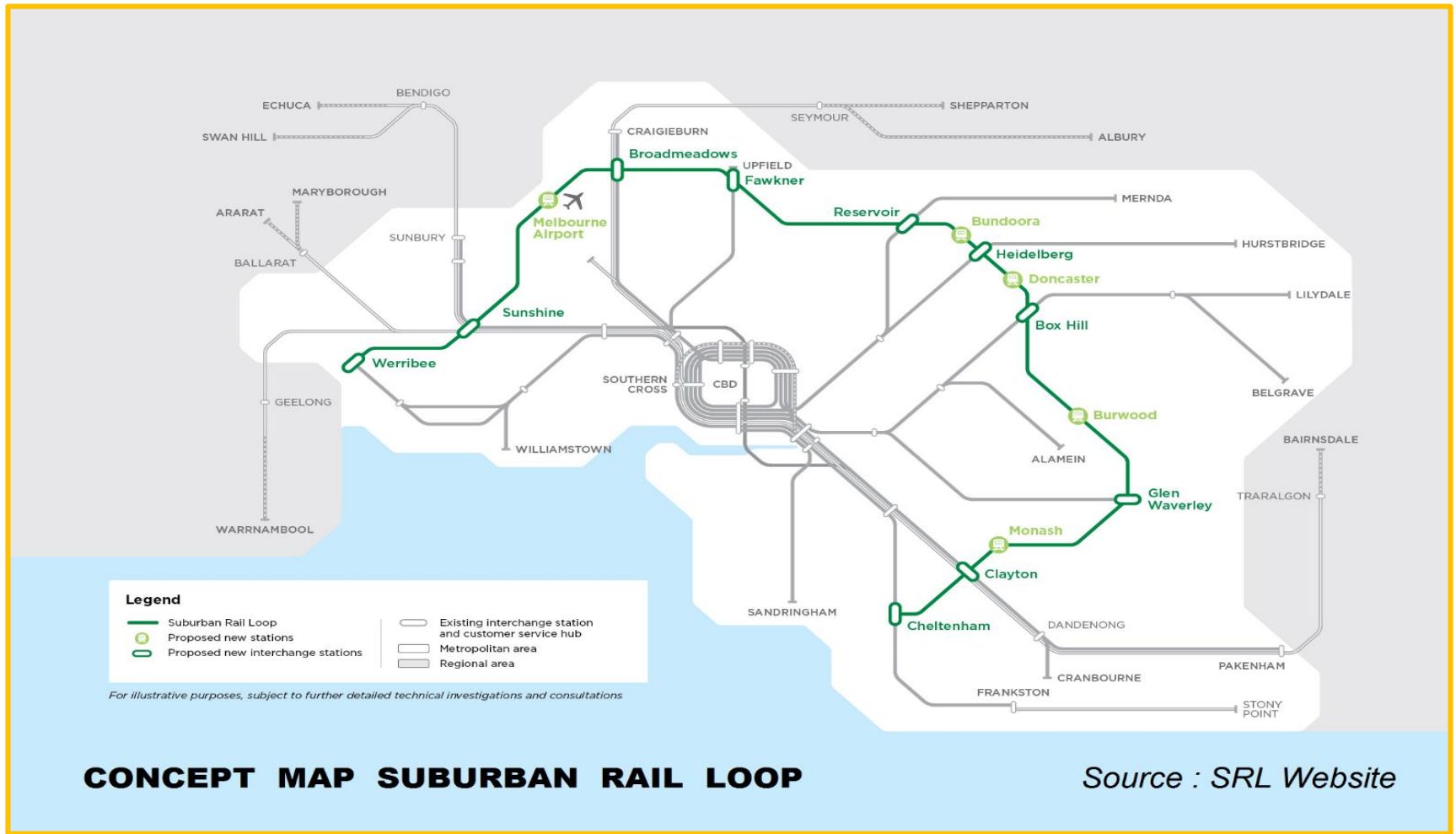
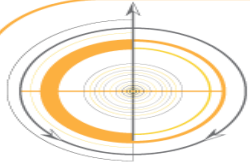


# Perspectives on Melbourne's Suburban Rail Loop Project



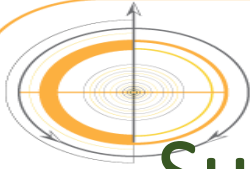


## ***WHAT IS RAIL FUTURES INSTITUTE ?***

***The Rail Futures Institute (RFI) is an independent non-partisan group.***

***RFI was formed in 2013 to advocate cost-effective rail and intermodal solutions for public transport and freight problems based on sound commercial, economic and social reasoning.***

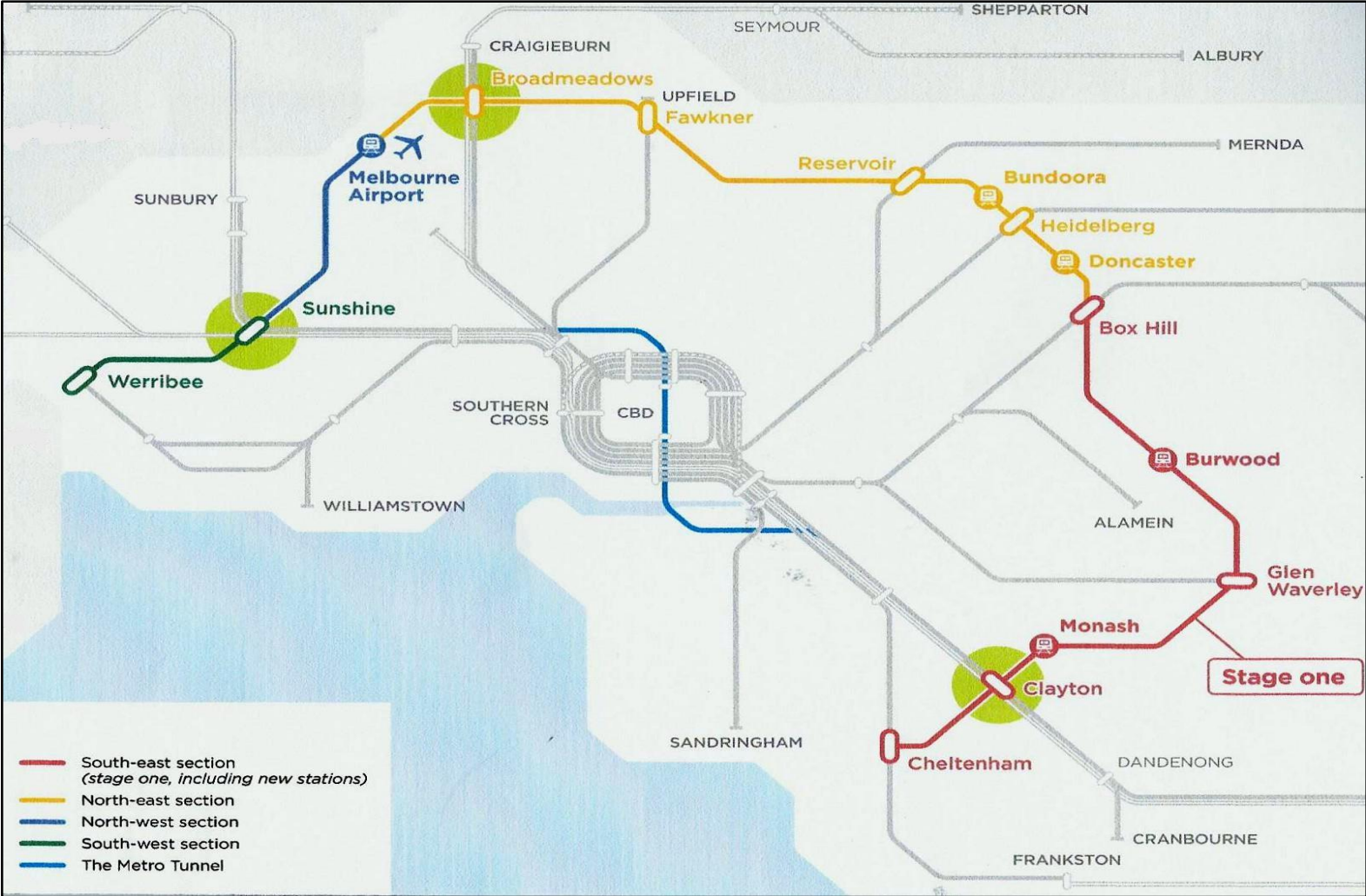
***Rail Futures members include experienced rail professionals, urban planners, engineers and economists.***

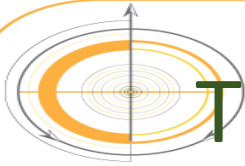


# Suburban rail Loop (SRL) – what is it?

- Announced by the State Government in August 2018
- SRL is a proposed circumferential, standalone underground railway from Cheltenham to Melbourne Airport via Clayton, Glen Waverley, Box Hill, Doncaster, Heidelberg, Bundoora and Broadmeadows.
- It would link to existing and/or proposed surface lines from Melbourne Airport to Sunshine, Wyndham Vale and Werribee.
- It would interchange with the existing radial rail network at ten locations with “super-hubs” proposed at Clayton, Broadmeadows and Sunshine.
- SRL’s total length is around 90 km, stated as costing \$50+ billion and taking 30 years to build.

# SRL is proposed to be delivered in stages over several decades



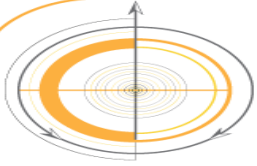


# The underlying rationale for non-radial transit corridors is sound

RFI supports the key principles on which the SRL is premised, namely:

- Moving Melbourne's rail network from a purely radial system towards a more balanced cross-city network.
- Enabling a wider range of journeys by public transport instead of by car.
- Supporting the *Plan Melbourne* polycentric city model and distribution of jobs to the suburbs.
- Linking key economic clusters, activity centres and education precincts.
- Making more jobs and job choices accessible to more people.
- Providing a long-term pipeline of economic activity and employment.

**It may also help reduce ongoing outer growth sprawl by facilitating residential densification at key nodes along the route, assuming appropriate planning policies.**



# However .....

- SRL's projected costs are massive, largely because:
  - The south-east (Stage One) and north-east sections are proposed to be wholly underground, reportedly at depths between 20m and 40m.
  - Construction of underground stations in highly developed urban centres like Box Hill and Doncaster is challenging and very disruptive.
- Consequently, any additional stations are likely to be cost prohibitive.
- Long distances between stations will limit access to the corridor.
- Melbourne can't wait 30 years to achieve just one non-radial transit corridor when its growth and liveability will drive a need for multiple new transit corridors – both cross-town and orbital.
- There are other alternatives which can provide much better value for money, arrive sooner and have a greater city shaping impact.

**Collectively, the alternatives can be categorised as Medium Capacity Transit (MCT).**



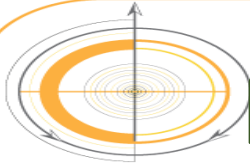
# What is Medium Capacity Transit (MCT)?

- An intermediate step between street-based trams and heavy rail
- Typical cost around 1/3rd of heavy rail
- Hundreds of new MCT networks being added worldwide – all operate on segregated corridors
- Can be various technologies e.g.
  - Light Rail (LRT)
  - Bus Rapid Transit (BRT)
  - Light Metro (e.g. Paris Metro, London Docklands)
  - Large guided tram-type buses
  - Hybrid electric/battery power
- Not necessarily “one size fits all”



# Examples of MCT Worldwide



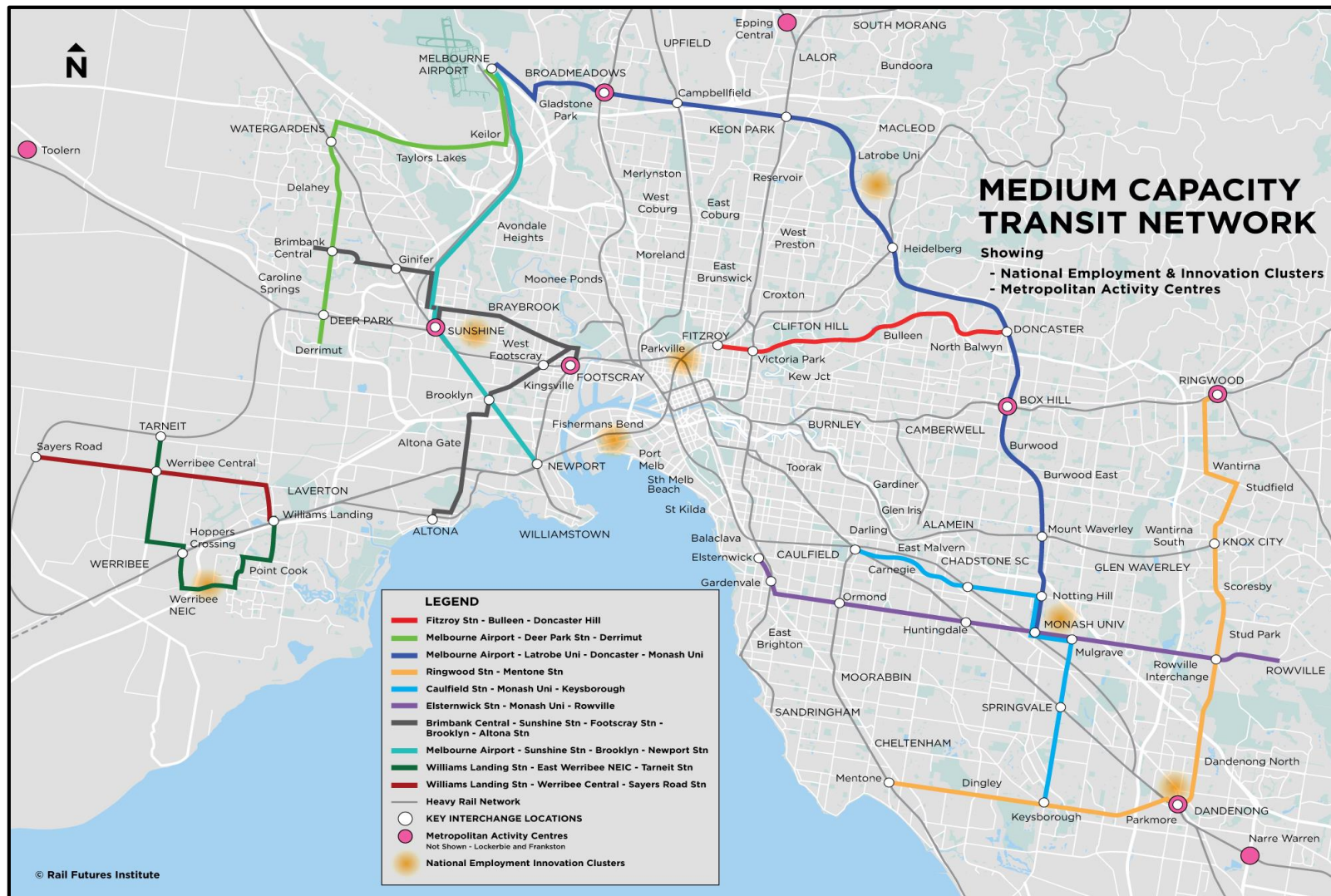


# MCT / Light Rail Advantages

- Light Rail / MCT solutions can potentially deliver greater benefits than deep underground and/or heavy rail at **far less cost and earlier implementation.**
- Can handle from around 3,000 to 13,000 passengers per hour per direction.
- Much higher operating speeds than buses. (Melbourne bus patronage is declining, mainly due to poor service levels and road traffic congestion.)
- Can climb steeper gradients and negotiate tighter curves than heavy rail, so routes are more flexible and require less land.
- Has stations which are much smaller in scale than heavy rail, therefore can be more readily “inserted” into the urban fabric.
- Easier to board and disembark: less walking in and out compared to large or deep underground stations.
- Good for elderly and disabled passengers, with abundant large doors and full low floor access.
- Typically run at high frequencies, providing more efficient connectivity with other public transport services.

# RFI's Melbourne Rail Plan 2020-2050

A 30-year plan for Melbourne's Public Transport includes a major MCT component





# Suburban Rail Loop v MCT Proposals (1)

## Coverage and Travel Options:

- There are **15 points** (stations) at which one can board SRL, including the two termini (Cheltenham and Werribee).
- Rail Futures' proposed MCT corridors (excluding the radial Doncaster corridor) total 230 km in length, compared to 90 km for SRL. Around 200 km of MCT would be on the surface or elevated, and about 30 km underground.
- Rail Futures' proposed MCT corridors (excluding the Doncaster corridor) include over **120 stops** based on current plans (8 times SRL), enabling much greater network connectivity and potential trip options by public transport.



## Suburban Rail Loop v MCT Proposals (2)

**The proposed MCT routes collectively serve:**

- Over 25 significant shopping centres
- 9 University and TAFE campuses
- Many large activity centres
- Five of seven planned NEICs
- 31 railway stations
- Melbourne Airport
- Several health precincts

Overall, the **MCT network is more comprehensive, enabling a more detailed grid pattern and journey combinations.** For example, in Melbourne's South-East there are two East-West and two North-South corridors.

# Suburban Rail Loop v MCT Proposals (3)

## Comparative Cost (2019 dollars excluding escalation):

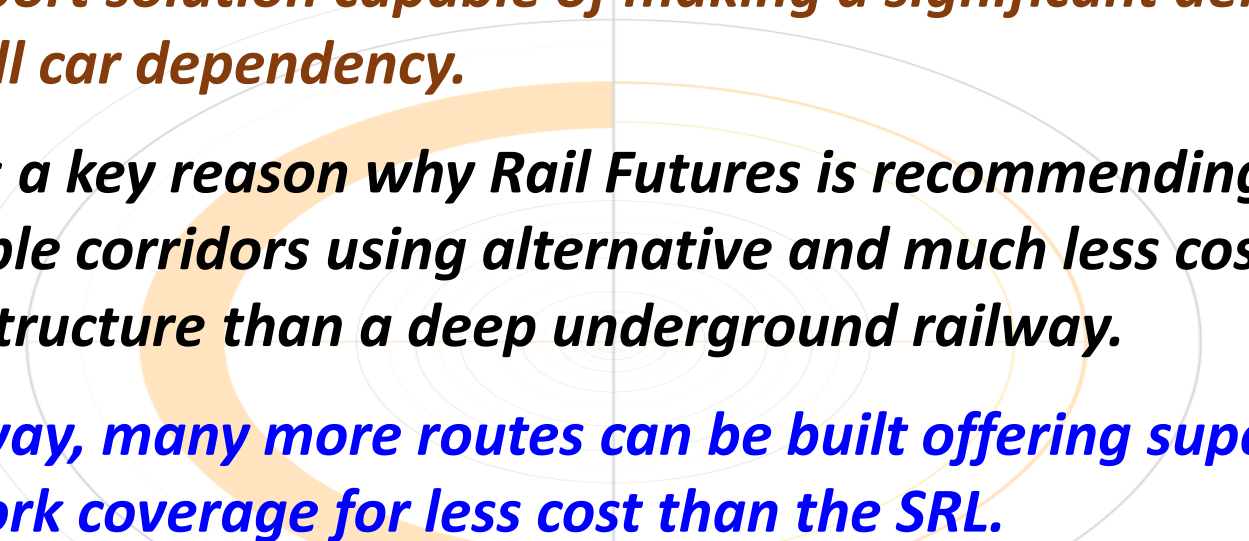
Typical Light Rail system infrastructure construction costs	
Infrastructure components (incl. power supply)	Typical cost/route km
At grade in segregated corridor (incl. signalised crossings)	\$60-100 million
On elevated structure 8-10m high	\$100-150 million
In cuttings or trenched 8-10m depth	\$120-170 million
In cut and cover or bored tunnels	\$150-250 million
	<b>Per item</b>
Stations at grade	\$10-20 million
Stations on elevated structure	\$30-40 million
Stations in tunnels	\$100-120 million
Depots and stabling facilities (subject to scope & site conditions)	\$100-200 million

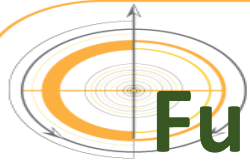
- Our proposed network of around 250 route km (including Doncaster radial route) averages approximately \$140 million/route km.
- This equates to total infrastructure cost of approximately \$35 billion.
- Rolling stock and depots add a further \$4 billion.

**This compares with \$50 billion plus for the 90 km SRL (= \$555m/route km).**



# One orbital railway will have little impact on road congestion

- *Given Melbourne's massive geographical spread, a single orbital corridor cannot alone provide an adequate public transport solution capable of making a significant dent in overall car dependency.*
  - *This is a key reason why Rail Futures is recommending multiple corridors using alternative and much less costly infrastructure than a deep underground railway.*
  - *This way, many more routes can be built offering superior network coverage for less cost than the SRL.*
- 



## Further, SRL is NOT a substitute for Melbourne Metro 2

It has been suggested that SRL will obviate the need for further major investment in the radial heavy rail network, based on the notion it will avoid travel to the CBD and out again on another line for those who undertake cross-suburban journeys.

**The reality is that, except for journeys where transit through the CBD is both convenient and logical, cross-suburban journeys are overwhelmingly by private car, and a very small percentage by bus.**

**Conversely, MM2 will provide critically important South-West to North cross-metropolitan connectivity, joining rapid growth areas in the Western and Northern suburbs with inner job-rich areas in Fishermans Bend, the CBD, Parkville and Fitzroy.**



# Suburban Rail Loop v an MCT Network

## Going forward, important questions to consider

- What are the comparative costs and benefits?
- Which approach provides the greatest range of travel options?
- Which approach is likely to provide the strongest incentives for achieving reduced car dependency?
- Which approach is likely to have the largest and most positive city shaping impact, and in what way?
- Will SRL take pressure off the radial train network, or is the opposite likely to eventuate?
- Which best contributes to environmental sustainability?
- Where does SRL fit into the broader transport plan?

# In conclusion .....

**Whichever option is chosen, complementary policies are essential:**

1. An appropriate suite of **funding mechanisms** such as value capture, congestion pricing, special levies etc.
2. **Complementary detailed land use planning** to ensure integrated land use and transport outcomes along the new transport corridors.

Look for our  
**MELBOURNE RAIL PLAN 2020-2050**  
on the Rail Futures Institute website at  
[www.railfutures.org.au](http://www.railfutures.org.au)



Much more on our website – [www.railfutures.org.au](http://www.railfutures.org.au)