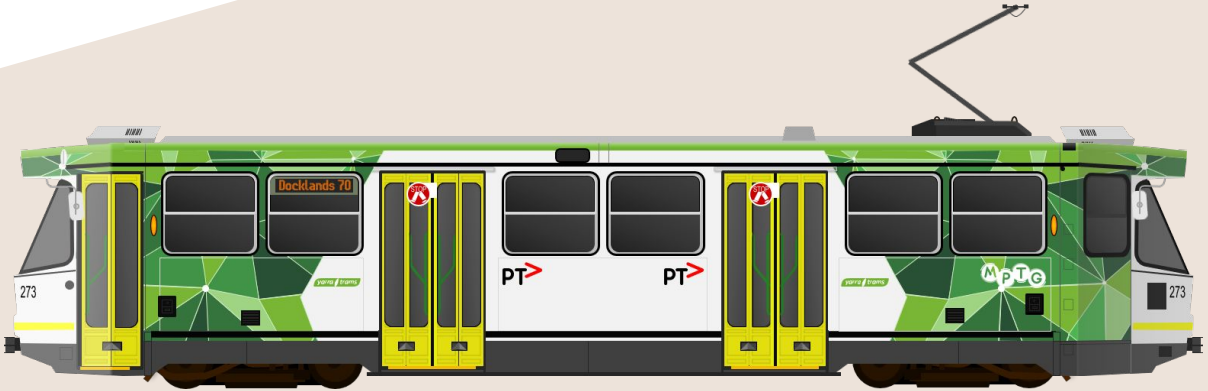
Analysis Of Public Transport and Demand Management of Growing Population in Melbourne



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Background

- Demand
- Growth
- Find a correlation
- What can be done
- Suburban Rail Loop evaluation

https://independentsportsimaging.com.au/public-transport/

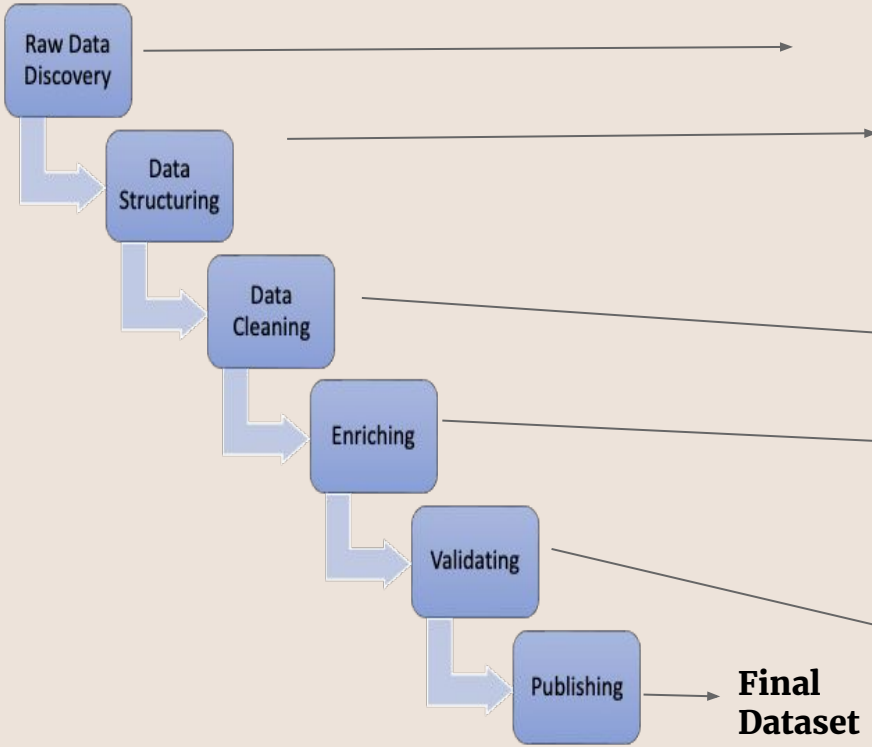
Methodology

- Analyse PTV Data
- Analyse Victoria’s Growth Data
- Find Correlation (if any)
- Analyse the results of trip/stop per suburb
- Compare these areas of growth to the SRL (Suburban Rail Loop)

Data Sources

1. Population Growth Data from VIC Planning Data
2. Public Transport Victoria (PTV) GTFS DATA
3. GeoApify

Data Analysis Process



PTV's GTFS data consists of a set of 8 files for each mode of transport for Melbourne Metropolitan and Regional Area.

In Python, Calendar, Trips, Stop_times, and Stops csv files were read, for loops with .loc, concatenation functions were used to combine the file data and arrive at trips per stop data in each suburb.

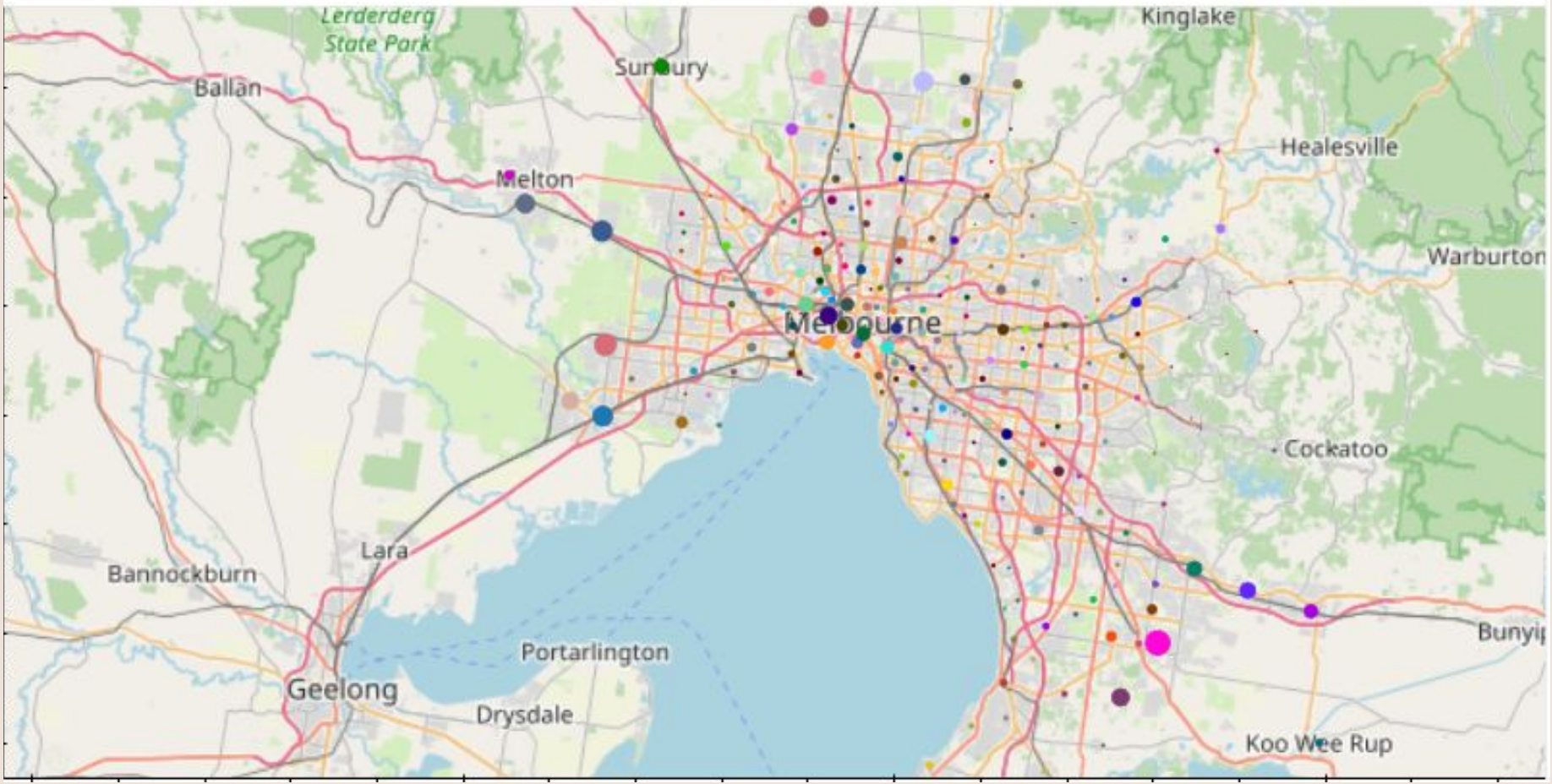
Prior to combining data sources, a box plot was used to identify and then remove outliers from each data source.

Rather than eliminating transport and populations data that could not be matched together, using the unmatchable suburb and area fields of each data source, a cross reference file was created to maximise the useable data for the comparison and planning recommendation.

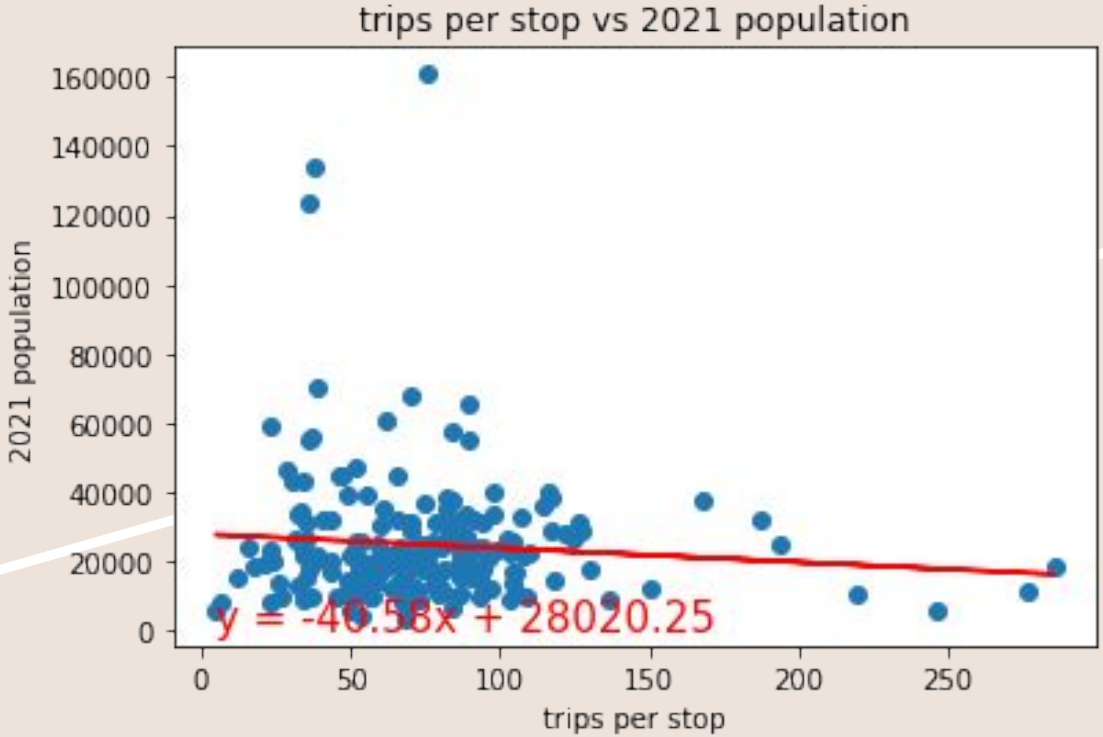
Geoapify data was used to identify GPS coordinates for the areas (base suburb name). During the investigation suburbs were checked on a map, which to correct API request (e.g. where auburn query provided an alternate location)

Map of growth in greater Melbourne

size of dots relates to the total growth by 2036

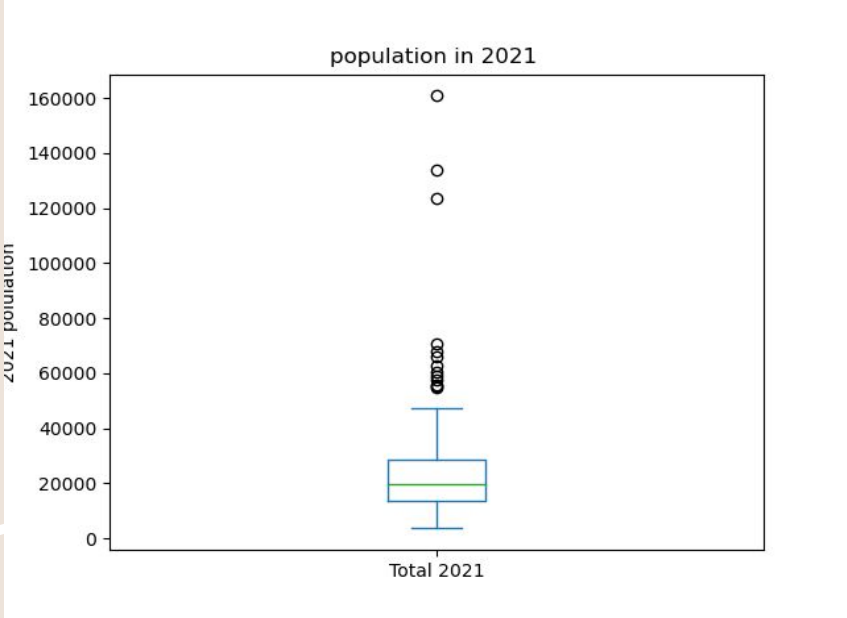


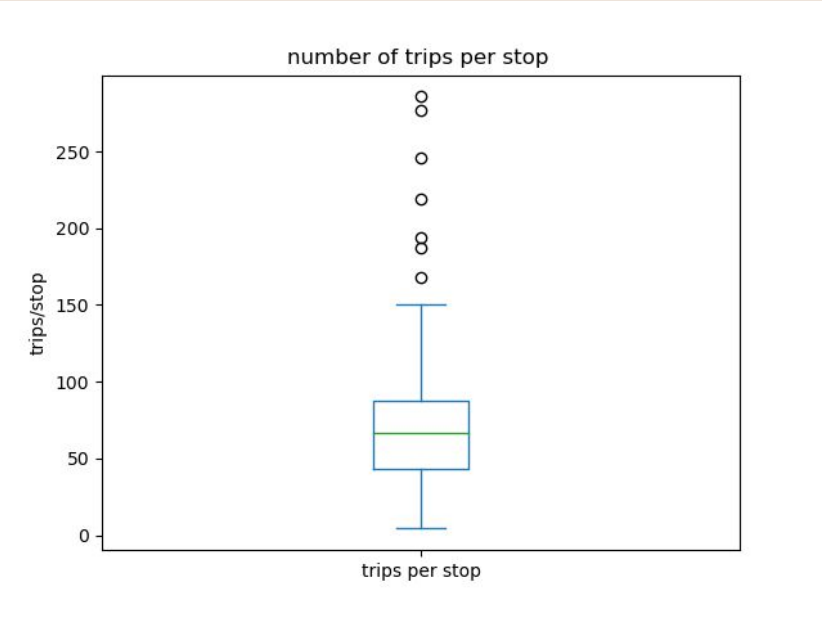
What is the current correlation between public transport availability and population?



R value of -0.09

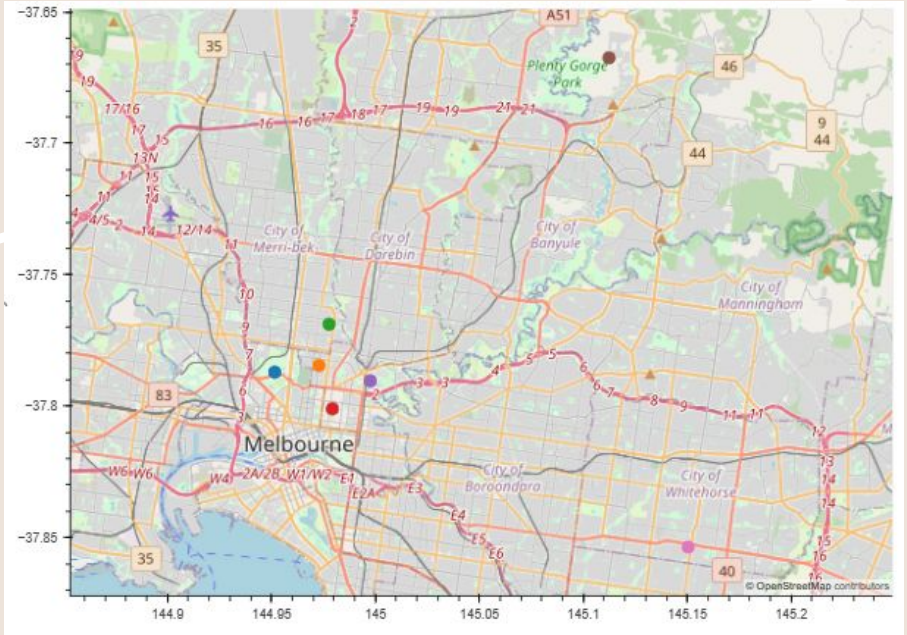
Box plot of outliers





High population, low transport areas

Low population, high transport areas

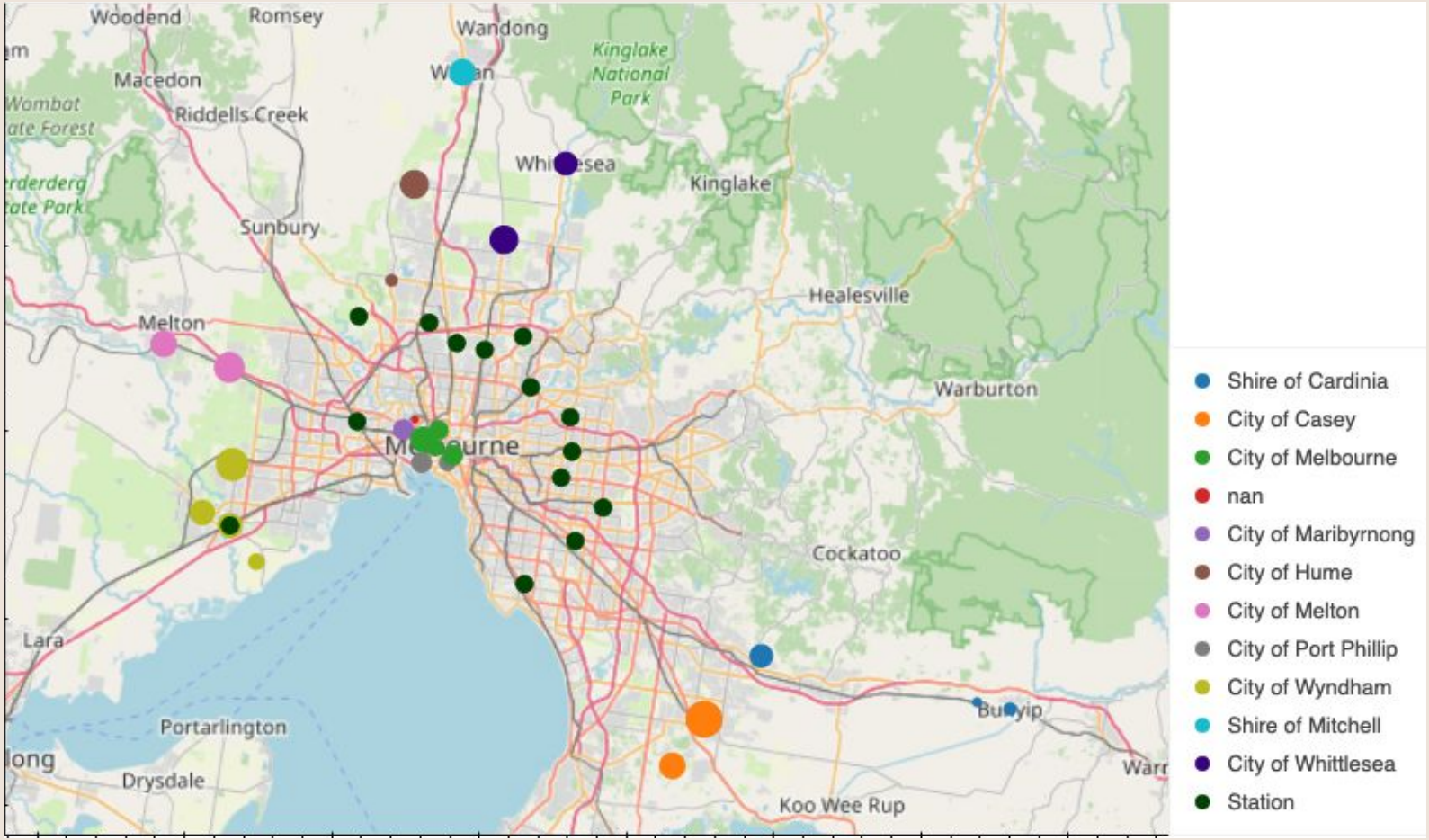


Q2) What are the top 5 areas/suburbs that will require the highest level of development?

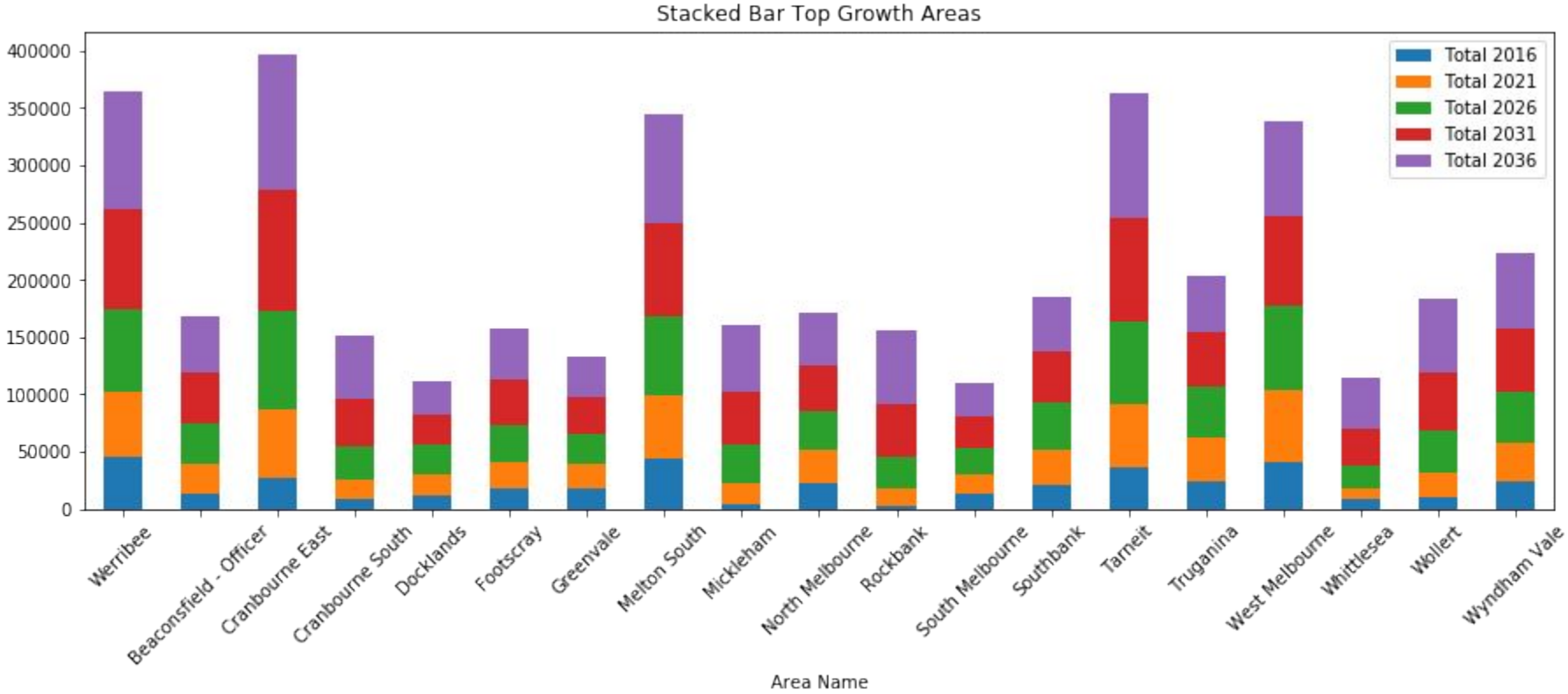
- North West
- West (3 areas)
- South East (Cranbourne and Cranbourne South)
- Central Melbourne (sufficient infrastructure)

Top Growth Areas in Melbourne

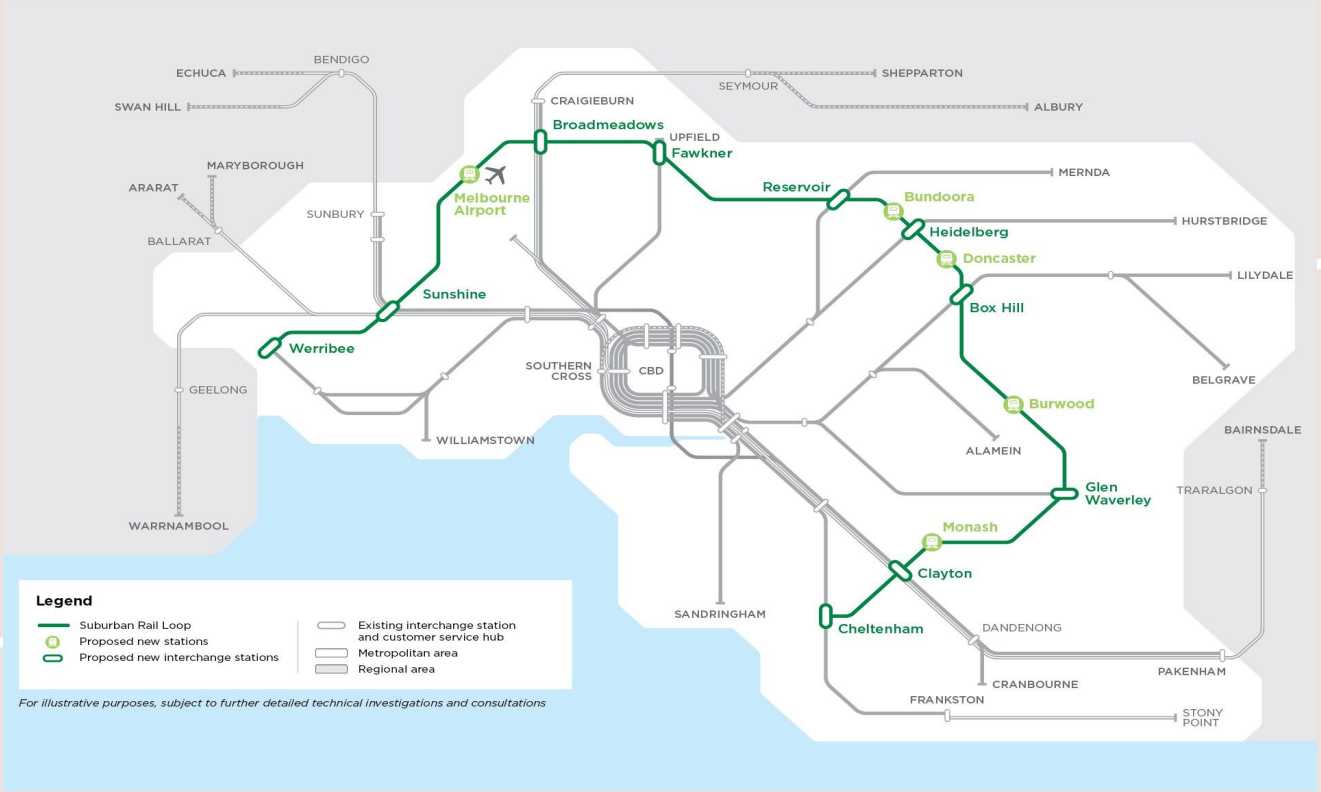
(green dots are Dan Andrews' proposed stations)



Top Growth Areas By Year

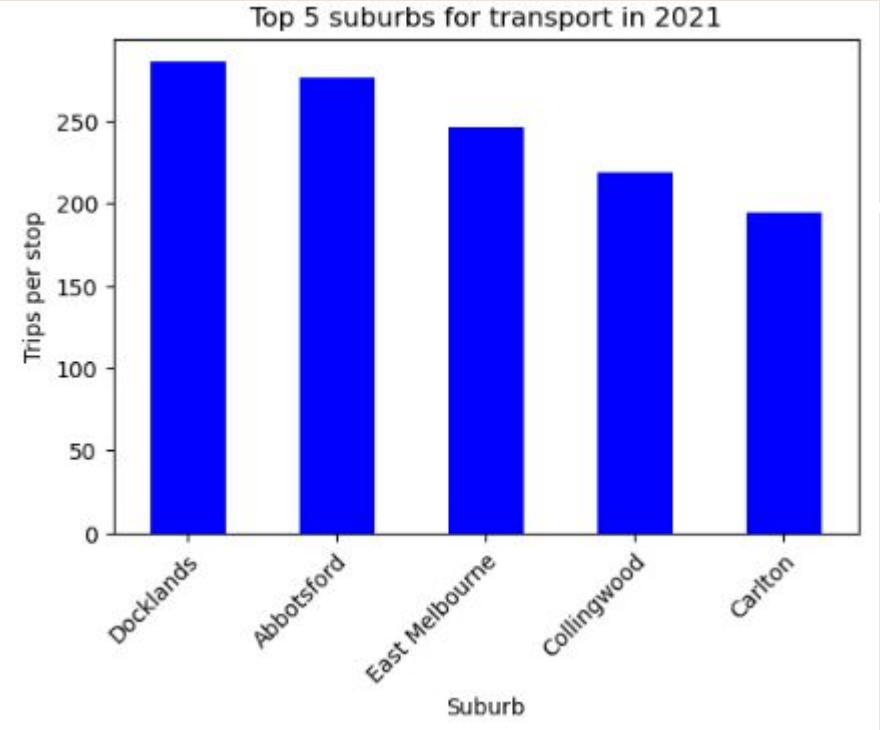


Q3) Will the new suburban rail loop impact that areas of high growth?



Q4) What are the top three suburbs in 2023 for public transport availability?

- **Docklands**
- **Abbotsford**
- **East Melbourne**



Relative stops per person

Lower value means smaller access to transport