Dandenong (South-Eastern Metropolitan) State Electoral Division: social needs, gaps in transit

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2024-11-25

This note is part of a series examining transit social needs-gaps in Greater Melbourne[1]. In Victoria, public transport is the responsibility of the state government, which is formed from among Members of Parliament elected to represent individual State Electoral Divisions (seats). However, it is unclear how much transit is supplied or how well social needs for transport are met within each seat. Using the Currie and Sendbergs (2007) methodology[2], this note explores social needs for transport, and transit provision in 2021 and 2023, in the Dandenong (South-Eastern Metropolitan) State Electoral Division.

[1] See `https://tinyurl.com/4rctaxfc`

[2] Graham Currie and Zed Senbergs, "Identifying Spatial Gaps in Public Transport Provision for Socially Disadvantaged Australians: The Melbourne 'Needs Gap' Study," 2007; Graham Currie, "Quantifying Spatial Gaps in Public Transport Supply Based on Social Needs," *Journal of Transport Geography* 18, no. 1 (2010): 31–41.

Methods:

Scores for transit supply and transport needs were calculated based on the Victorian GTFS feed[3] and Australian Bureau of Statistics (ABS) data using the *gtfssupplyindex* R package[4] as per Reynolds, Currie and Qu (in drafting)[5]. Results are shown for the ABS' Statistical Area 1s (SA1s), categorized based on averages across the Melbourne Greater Capital City Statistical Area (GCCSA).

[3] Results are based on GTFS feeds for August 2021 and 2023, so may not match services run.

[4] See `https://github.com/James-Reynolds/gtfssupplyindex`

[5] James Reynolds, Graham Currie, and Yanda Qu, "Social Needs for Transport and Gaps in Transit Service: New GTFS Tools," *In Drafting*, 2024.

Results: Figure 1 compares social needs for similarly located seats[6], and for the rest of Greater Melbourne with those for the Dandenong (South-Eastern Metropolitan) State Electoral Division.

[6] Mulgrave, Rowville, Narre Warren North, Narre Warren South, Cranbourne, Carrum, Mordialloc and Keysborough

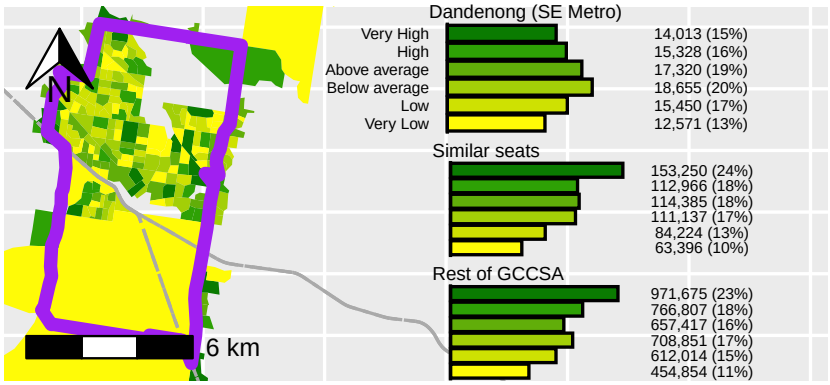

Figure 1: Needs in 2021 by population, with suburban railways shown in grey

Needs were higher than Melbourne's average for 50% of Dandenong's residents[7].

Figure 2 shows the distribution of transit service in 2021 and 2023. Service levels were below the Melbourne average for 84% of Dan-

[7] Differences between the seat of Dandenong and similarly located seats, or with the rest of Greater Melbourne were not statistically significant ($\chi^2(5) = 8.62$, $p = .125$)($\chi^2(5) = 7.10$, $p = .214$)

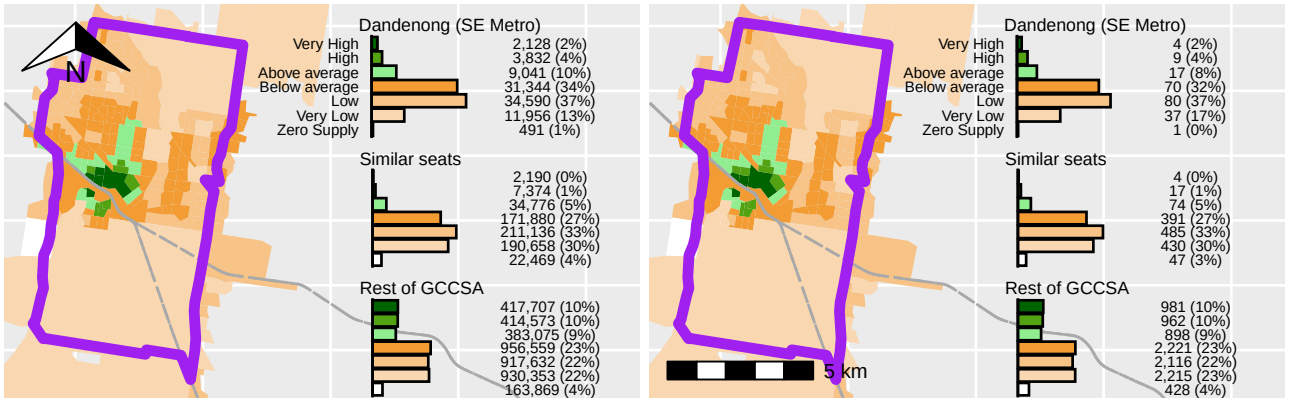

Figure 2: Transport Supply 2021 (left, by population) and 2023 (right, by SA1)

denong residents in 2021, which is lower than for surrounding seats (93%)[8] but higher than for elsewhere in Greater Melbourne (71%)[9]. The distribution of transit supply[10] appears similar in 2023 (Figure 2, right). Figure 3 directly compares 2021 and 2023 service levels.

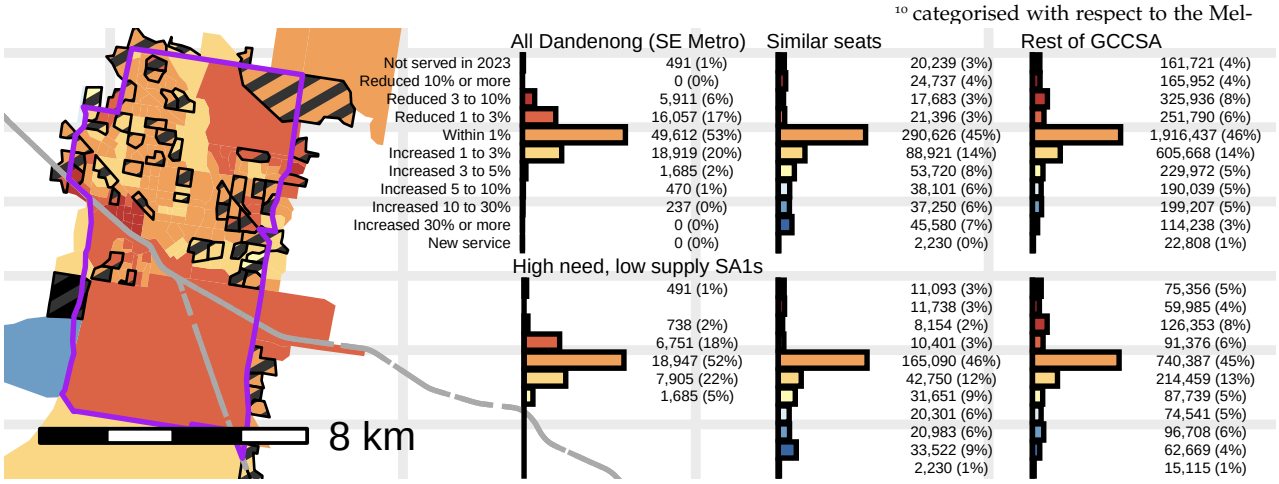

Figure 3: Transit service change 2021 to 2023, by population. SA1s with needs above, but supply below, average highlighted in black.

Transit levels increased by 1% or more by 2023 in SA1s that were home to 23% of Dandenong's residents in 2021, which is a lower share than for similarly located seats (42%)[11] or elsewhere (33%)[12]. 39.1% of Dandenong's population lived in SA1s with *needs above, but supply below* the Melbourne averages in 2021[13]. However, for 26% of this cohort service levels increased 1% or more by 2023[14].

Overall, Dandenong residents appear less likely to have less transit supply than Melbourne's average than those in surrounding seats, but more likely that those elsewhere in Greater Melbourne. They were less likely than those elsewhere to have seen transit supply increase by 1% or more between 2021 and 2023.

[8] Differences were statistically significant ($\chi^2(6) = 41.10$, $p < .001$

[9] Differences were statistically significant ($\chi^2(6) = 68.09$, $p < .001$).

[10] categorised with respect to the Mel-

[11] Differences were statistically significant ($\chi^2(10) = 156.00$, $p < .001$).

[12] Differences were statistically significant ($\chi^2(10) = 112.51$, $p < .001$).

[13] Shown with black in Figure 3. This compares to 55.9% of residents of similarly located seats and 39.3% of those elsewhere in Melbourne.

[14] Differences were not statistically significant with similarly located seats (Fisher test p = 0.125). or rest of Greater Melbourne were not statistically significant (Fisher test p = 0.214).