

Hawthorn (Southern Metropolitan) State Electoral Division: social needs, gaps in transit

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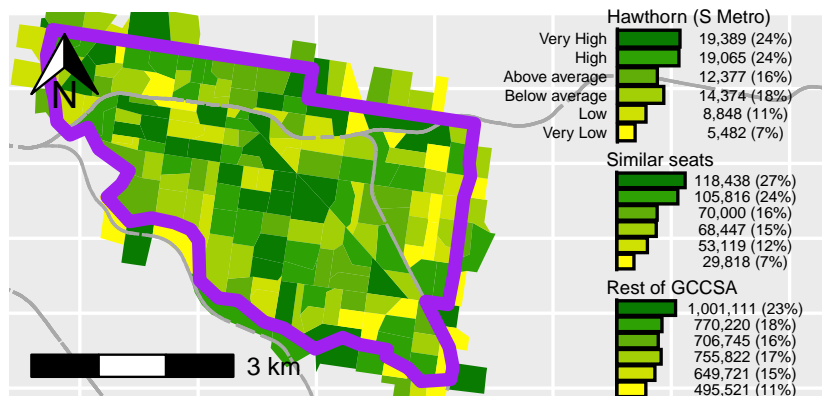
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This note is part of a series examining transit social needs-gaps in Greater Melbourne¹. In Victoria, public transport is the responsibility of the state government, which is formed from among Members of Parliament elected to represent individual State 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) methodology², this note explores social needs for transport, and transit provision in 2021 and 2023, in the Hawthorn (Southern Metropolitan) State Electoral Division.

METHODS:

Scores for transit supply and transport needs were calculated based on the Victorian GTFS feed³ and Australian Bureau of Statistics (ABS) data using the *gtfssupplyindex* R package⁴ 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).

RESULTS: Figure 1 compares social needs for surrounding seats⁶, and for the rest of Greater Melbourne with those for the Hawthorn (Southern Metropolitan) State Electoral Division.



Needs were higher than the Melbourne average for 64% of the seat of Hawthorn's population. Differences between the seat of Hawthorn and the surrounding seats were not statistically significant

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.

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.

⁶ Richmond, Kew, Box Hill, Burwood, Malvern and Prahran

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

($\chi^2(5) = 1.02, p = .961$). However, there was a stistically significant difference with the rest of Greater Melbourne (beyond Hawthorn and the surrounding streets, $\chi^2(5) = 11.60, p = .041$), across which only 57% of residents had above average needs.

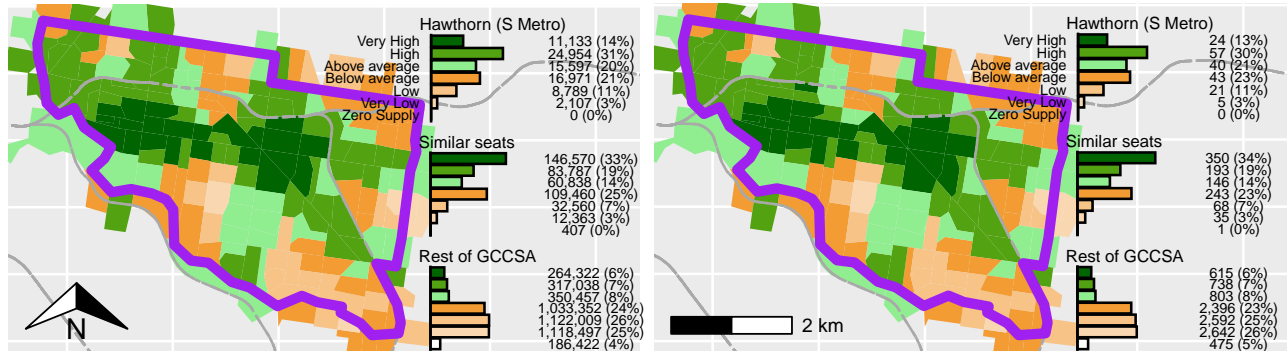


Figure 2: Transport Supply 2021 (left, by population) and 2023 (right, by SA1)

Figure 2 shows the distribution of transit service in 2021 and 2023. Service levels were below the Melbourne average for 35% of Hawthorn (S Metro) residents in 2021⁷, which is a lower share than for parts of Melbourne beyond the surrounding seats (79%)⁸. The distribution of transit supply, categorised with respect to the Melbourne average, appears similar in 2023 (Figure 2, right). Figure 3 directly compares 2021 and 2023 service levels.

⁷ This is similar to surrounding seats (35%), but difference in the shares in each of the seven supply categories were statistically significant ($\chi^2(6) = 43.82, p < .001$).

⁸ Differences were statistically significant ($\chi^2(6) = 257.21, p < .001$).

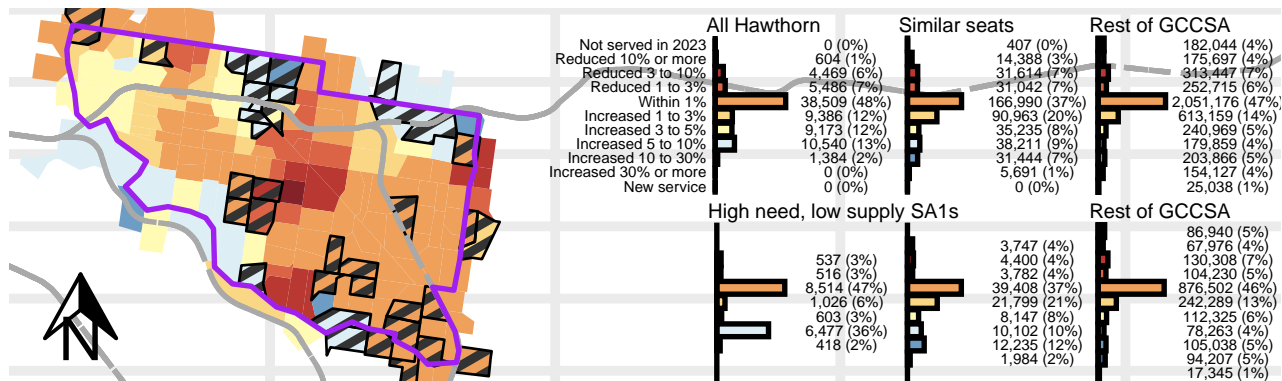


Figure 3: Transit service change 2021 to 2023, by population. SA1s with needs above, but supply below, average highlighted in black.

Transit levels increased by 1% or more by 2023 in SA1s that were home to 38% of Hawthorn (S Metro) residents in 2021, which is a lower share than across the surrounding seats (45%)⁹, but higher than for the rest of Greater Melbourne (32%)¹⁰. 23% of the Hawthorn (S Metro) population lived in SA1s with *needs above, but supply below* the Melbourne averages in 2021¹¹. However, for 47% of this cohort service levels increased 1% or more¹².

⁹ Differences were statistically significant ($\chi^2(9) = 32.88, p < .001$).

¹⁰ Differences were statistically significant ($\chi^2(10) = 83.78, p < .001$).

¹¹ Shown with black in Figure 3. This compares to 24% of residents of similarly located seats and 44% of those elsewhere in Melbourne.

¹² Differences were not statistically significant with the surrounding seats (Fisher test $p = 0.961$), but they were significant with the rest of Greater Melbourne (15%, Fisher test $p = 0.0407$).