Ivanhoe (Eastern Metropolitan) State Electoral Division: social needs, gaps in transit

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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 Ivanhoe (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 show social needs for the Ivanhoe (Eastern Metropolitan) State Electoral Division, with comparisons to those of similarly located seats[6], and elsewhere in Greater Melbourne.

[6] Northcote, Bundoora, Preston, Kew and Bulleen

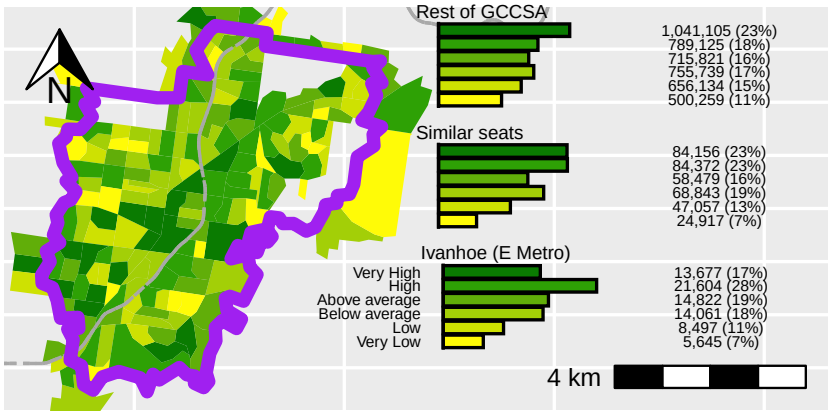

Figure 1: Needs in 2021 by population, with suburban railways shown in grey

Needs were higher than the Melbourne average for 64% of the seat of Ivanhoe's population. This was similar to the similarly located seats (62%), but higher than for the rest of Greater Melbourne (57%)[7].

[7] Differences between the seat of Ivanhoe (E Metro) and similarly located seats were not statistically significant ($\chi^2(5) = 3.55$, $p = .615$. Differences with the rest of Greater Melbourne were statistically significant($\chi^2(5) = 16.44$, $p = .006$)

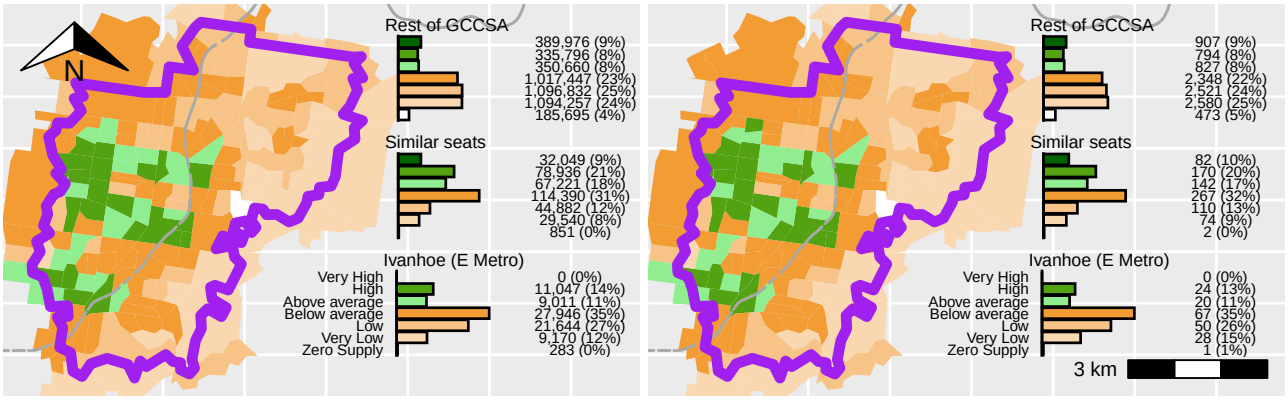

Figure 2: Transport Supply 2021 (left, by population) and 2023 (right, by SA1)

Figure 2 shows the distribution of transit service in 2021 and 2023. Service levels were below the Melbourne average for 75% of Ivanhoe (E Metro) (S Metro) residents in 2021. This share was higher than for those living within the surrounding seats (52%)[8] but less than for those living elsewhere in Greater Melbourne (76%)[9]. The distribution of transit supply in 2023 (Figure 2, right) appears largely similar to that in 2021. Figure 3 compares 2021 and 2023 service levels.

[8] Differences were statistically significant ($\chi^2(6) = 51.53$, $p < .001$

[9] Differences were statistically significant ($\chi^2(6) = 55.42$, $p < .001$).

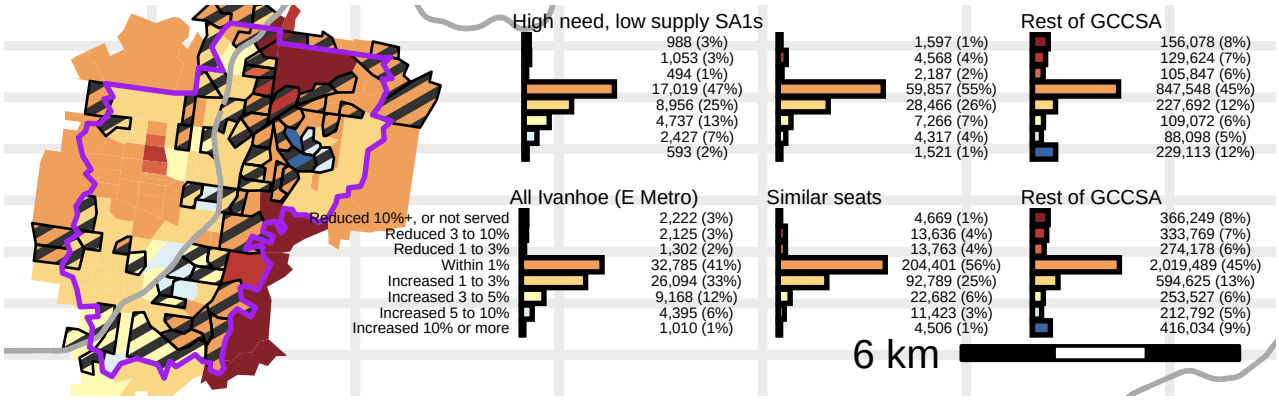

Figure 3: Transit service change 2021 to 2023, by population. SA1s with needs above, but supply below, average highlighted in black.

Transit levels increased by 1% or more by 2023 in SA1s that were home to 95% of Ivanhoe's residents in 2021, which is a similar share as for the nearby seats (95%)[10], but a higher share than for the rest of Greater Melbourne (84%)[11]. 46% of the Ivanhoe population lived in SA1s with *needs above, but supply below* the Melbourne averages in 2021[12], but for 46% of this cohort service levels increased 1% or more by 2023[13].

Overall, Ivanhoe resident appears to have less transit than those nearby, but more likely to have seen service increases between 2021 and 2023 than those living elsewhere in Melbourne.

[10] Differences were statistically significant ($\chi^2(7) = 33.55$, $p < .001$).

[11] Differences were statistically significant ($\chi^2(7) = 93.21$, $p < .001$).

[12] Shown with black in Figure 3. This compares to 30% of residents of similarly located seats and 42% of those elsewhere in Melbourne.

[13] This is a higher share than for parts of Greater Melbourne beyond Ivanhoe and the similar surrounding seats (35%, differences were statistically significant (Fisher test p = 0.0057), but not for the similarly located seats (Fisher test p = 0.615))