City of Bayside: social needs, gaps in transit

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This note explores social needs for transport, and transit provision in the City of Bayside, using the Currie and Sendbergs (2007) methodology[1]. In Victoria, public transport is managed by the state government, although Local Government Authorities (LGAs) may have influence through planning processes, advocacy etc. However, it is unclear how much transit is supplied or how well social needs are met for each LGA. This note examines the City of Bayside in 2021 and 2023, and is part of a series on LGAs in Greater Melbourne[2].

Methods:

Scores for transit supply and transport needs were calculated based on Australian Bureau of Statistics (ABS) data and the Victorian GTFS feed[3] 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).

Results: Social needs for transport in Bayside in 2021 and comparison with the Rest of the Inner South and South East SA4s[6] and the rest of Greater Melbourne by population are shown in Figure 1.

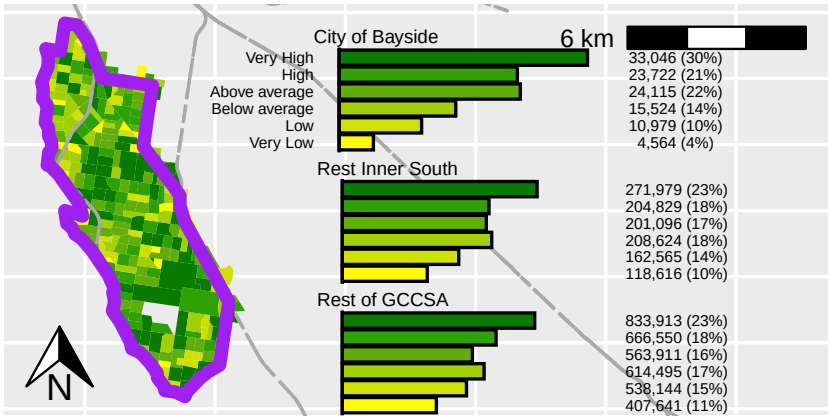

Figure 1: Needs in 2021 by population

Social needs for transport were higher than the Melbourne average for 72.2% of the Bayside population, a greater share than for rest of the Inner South SA4 (58.1%)[7] or elsewhere in Melbourne (57.0%)[8].

Figure 2 shows the distribution of transit service in 2021 and 2023. Transit service levels were below the Melbourne average for 66.9% of

[1] 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.

[2] See `https://github.com/James-Reynolds/gtfssupplyindex_melbounre_LGA_2024` but lookout, I misspelled "Melbourne"

[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] LGAs: Glen Eira, Bayside, Dandenong, Kingston, Casey, (almost all of) Cardinia, part of Stonnington.

[7] Differences were statistically significant ($\chi^2(5) = 31.14$, $p < .001$).

[8] Differences were statistically significant ($\chi^2(5) = 40.48$, $p < .001$).

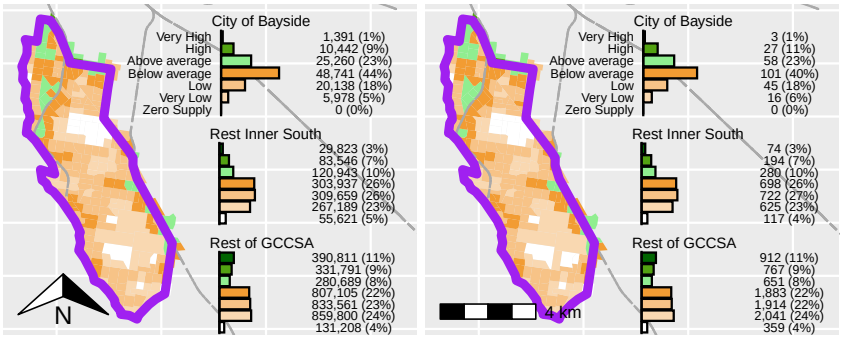

Figure 2: Transport Supply 2021 (left, by population) and 2023 (right, by SA1)

Bayside residents in 2021, which is less than for the rest of the Inner South SA4 (80.0%)[9] or the rest of Melbourne (72.4%)[10]. 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 transit service levels.

[9] Differences were statistically significant ($\chi^2(6) = 104.23$, $p < .001$).

[10] Differences were statistically significant ($\chi^2(6) = 173.53$, $p < .001$).

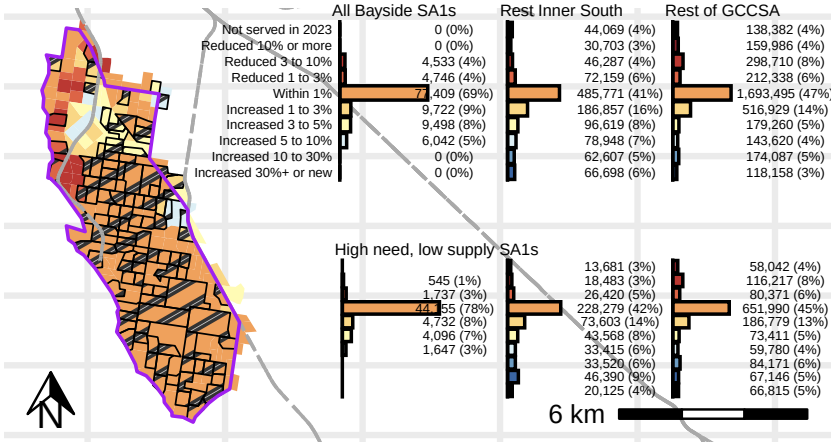

Figure 3: Transit service change 2021 to 2023. SA1s with needs above, but supply below, average highlighted in black.

Transit levels increased by 1% or more for 22.6% of Bayside residents between 2021 and 2023. compared to 42.0% of those in the rest of the Inner South SA4[11] and 31.1% of those in the rest of Melbourne[12]. 50.8% of the Bayside population lived in SA1s with *needs above, but supply below* the Melbourne averages in 2021[13]. However, for 18.4% of this cohort service levels increase 1% or more, a higher proportion than for the similar cohorts in the rest of the Inner South SA4 (42.9%)[14], and elsewhere (32.6%)[15].

Overall, Bayside residents appear less likely to have had transit service levels below Melbourne's average, and more likely to have seen increases, including for those with larger needs-gaps.

[11] Differences were statistically significant ($\chi^2(5) = 31.14$, $p < .001$).

[12] Differences were statistically significant ($\chi^2(5) = 40.48$, $p < .001$).

[13] Shown with black in Figure 3. This compares to 45.9% of Inner South SA4 residents and 39.7% of those elsewhere in Melbourne.

[14] Differences were statistically significant ($\chi^2(9) = 55.57$, $p < .001$).

[15] Differences were statistically significant ($\chi^2(5) = 40.48$, $p < .001$).