

City of Yarra: social needs, gaps in transit

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In Victoria, public transport is managed by the state government, although Local Government Authorities (LGAs) may have some influence on service levels through planning processes, advocacy etc. However, not much is known about how much transit is supplied or whether social needs for transport are being met within each LGA's boundaries. This note explores social needs-gaps in the City of Yarra, using the Currie and Sendbergs (2007) methodology¹. It is part of a series examining each LGA in Greater Melbourne².

Methods

This note maps transport supply and a composite needs indicator based on Australian Bureau of Statistics (ABS) data. The methodology is as per Reynolds, Currie and Qu (in drafting)³. The Transit Supply Indication (SI) scores are based on the frequency of service and how much of an area is within walking distance of stops/stations⁴, are reported for the ABS' Statistical Area 1s (SA1s), and are categorized into seven groups based on the average scores for SA1s across the Melbourne Greater Capital City Statistical Area (GCCSA).

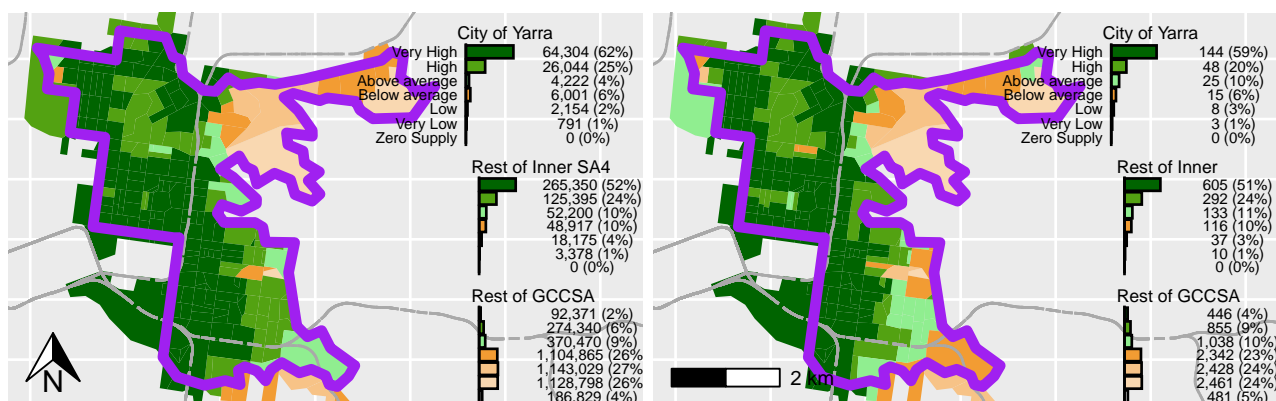
Results

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_melbourne_LGA_2024 but lookout, I misspelled "Melbourne"

³ Forthcoming hopefully, but using the *gtfssupplyindex* R package (see <https://github.com/James-Reynolds/gtfssupplyindex>) to process the Victoria GTFS feed. Note that results represent what is in the GTFS feed for August 2021 and October 2024, which may not match services provided.

⁴ 400m for tram and bus, 800m for train.



In 2021 most of the City of Yarra's population lived in SA1s with Very High levels of transit (Figure 1, left)⁵. However, as shown in Figure 2⁶, the coverage and frequency of transit service appears to

Figure 1: Transport Supply 2021 (left, by population) and 2024 (right, by SA1)

⁵ Differences between the City of Yarra and the Rest of the Inner SA4, by SA1, are statistically significant in 2021 ($\chi^2(5) = 18.89, p = .002$) and 2024 ($\chi^2(8) = 21.34, p = .006$). Differences with the rest of Melbourne are also statistically significant (2021: $\chi^2(6) = 2771.13, p < .001$, 2024: $\chi^2(10) = 837.36, p < .001$).

⁶ Differences are statistically significant (rest of the Inner SA4: $\chi^2(8) = 21.34, p = .006$, & rest of GCCSA: $\chi^2(10) = 837.36, p < .001$)

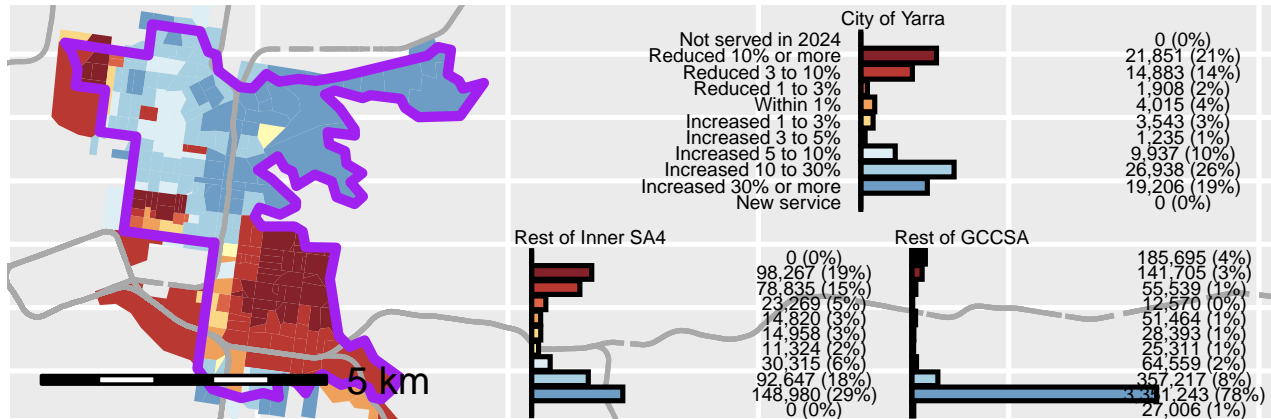


Figure 2: Change in SI score between 2021 and 2024 by SA1 and population

have reduced by 2024 more for those in the City of Yarra.

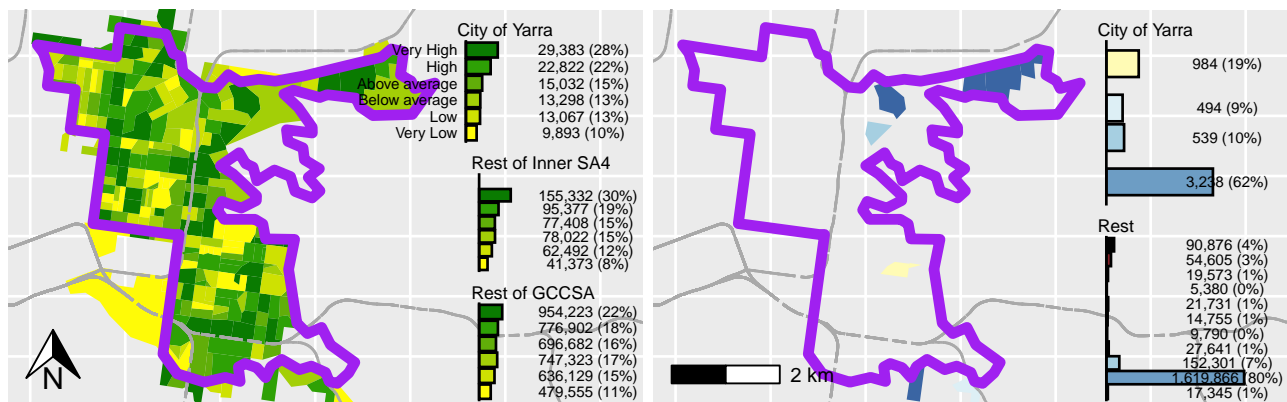


Figure 3: 2021 needs (left) and change in SI to 2024 for those SA1s with needs above average, but below average supply (by 2021 populations, right)

⁷ Statistically significant for City of Yarra vs rest of Inner: $\chi^2(5) = 2.64$, $p = .756$, and vs rest of GCCSA $\chi^2(5) = 11.96$, $p = .035$.

⁸ Fisher's tests show no significant differences between the City of Yarra and the rest of the Inner SA4 ($p = \text{NaN}$) or the Rest of the GCCSA ($p = 0.0103$).

⁹ Only 5.1% of City of Yarra residents had above average social needs for transport but below average transit supply, compared with 9.0% in the rest of the Inner SA4 and 46.2% across the rest of Melbourne.

##	transit_supply	City of Yarra	Rest of Inner SA4
##	Very Low	3	10
##	Low	5	43
##	Below average	14	116

##	Above average	11	126
##	High	56	289
##	Very High	154	609

##	transit_supply	City of Yarra	Rest of Inner SA4
##	Very Low	2.199861	10.80014
##	Low	8.122563	39.87744
##	Below average	21.998607	108.00139
##	Above average	23.183148	113.81685
##	High	58.380919	286.61908
##	Very High	129.114903	633.88510

##	transit_supply	City of Yarra	Rest of Greater Melbourne
##	Zero Supply	0	489
##	Very Low	3	2679
##	Low	5	2643
##	Below average	14	2561
##	Above average	11	838
##	High	56	629
##	Very High	154	212

##	transit_supply	City of Yarra	Rest of Greater Melbourne
##	Zero Supply	11.54333	477.4567
##	Very Low	63.31125	2618.6888
##	Low	62.50865	2585.4914
##	Below average	60.78541	2514.2146
##	Above average	20.04148	828.9585
##	High	16.17010	668.8299
##	Very High	8.63979	357.3602

##	transit_supply	City of Yarra	Rest of Inner SA4
##	Very Low	3	10
##	Low	8	37
##	Below average	15	116
##	Above average	25	133
##	High	48	292
##	Very High	144	605

##	transit_supply	City of Yarra	Rest of Inner SA4
##	Very Low	2.199861	10.80014
##	Low	7.614903	37.38510
##	Below average	22.167827	108.83217
##	Above average	26.736769	131.26323
##	High	57.534819	282.46518
##	Very High	126.745822	622.25418

```
## transit_supply City of Yarra Rest of Greater Melbourne
## Zero Supply 0 481
## Very Low 3 2461
## Low 8 2428
## Below average 15 2342
## Above average 25 1038
## High 48 855
## Very High 144 446
```

```
## transit_supply City of Yarra Rest of Greater Melbourne
## Zero Supply 11.35448 469.6455
## Very Low 58.16514 2405.8349
## Low 57.50418 2378.4958
## Below average 55.63930 2301.3607
## Above average 25.09316 1037.9068
## High 21.31620 881.6838
## Very High 13.92753 576.0725
```

```
## ratio_binned City of Yarra Rest of Inner SA4
## Increased 30% or more 45 340
## Increased 10 to 30% 63 216
## Increased 5 to 10% 23 73
## Increased 3 to 5% 3 28
## Increased 1 to 3% 9 33
## Within 1% 9 38
## Reduced 1 to 3% 6 54
## Reduced 3 to 10% 37 187
## Reduced 10% or more 48 224
```

```
## ratio_binned City of Yarra Rest of Inner SA4
## Increased 30% or more 65.149721 319.85028
## Increased 10 to 30% 47.212396 231.78760
## Increased 5 to 10% 16.245125 79.75487
## Increased 3 to 5% 5.245822 25.75418
## Increased 1 to 3% 7.107242 34.89276
## Within 1% 7.953343 39.04666
## Reduced 1 to 3% 10.153203 49.84680
## Reduced 3 to 10% 37.905292 186.09471
## Reduced 10% or more 46.027855 225.97214
```

```
## ratio_binned City of Yarra Rest of Greater Melbourne
## New service 0 66
## Increased 30% or more 45 7759
## Increased 10 to 30% 63 846
## Increased 5 to 10% 23 155
## Increased 3 to 5% 3 61
```

##	Increased 1 to 3%	9	65
##	Within 1%	9	139
##	Reduced 1 to 3%	6	29
##	Reduced 3 to 10%	37	125
##	Reduced 10% or more	48	325
##	Not served in 2024	0	481

##	ratio_binned	City of Yarra	Rest of Greater Melbourne
##	New service	1.5579949	64.44201
##	Increased 30% or more	184.2210997	7619.77890
##	Increased 10 to 30%	21.4578395	887.54216
##	Increased 5 to 10%	4.2018652	173.79813
##	Increased 3 to 5%	1.5107830	62.48922
##	Increased 1 to 3%	1.7468428	72.25316
##	Within 1%	3.4936856	144.50631
##	Reduced 1 to 3%	0.8262094	34.17379
##	Reduced 3 to 10%	3.8241694	158.17583
##	Reduced 10% or more	8.8050321	364.19497
##	Not served in 2024	11.3544783	469.64552

##	composite_needs	City of Yarra	Rest of Inner SA4
##	Very Low	36	169
##	Low	41	189
##	Below average	34	202
##	Above average	34	175
##	High	46	186
##	Very High	47	229
##	NA	5	43

##	City of Yarra	Rest of Inner SA4
## 1	35.15130	169.8487
## 2	39.43804	190.5620
## 3	40.46686	195.5331
## 4	35.83718	173.1628
## 5	39.78098	192.2190
## 6	47.32565	228.6744

##	composite_needs	City of Yarra	Rest of Greater Melbourne
##	Very Low	36	1831
##	Low	41	1805
##	Below average	34	1799
##	Above average	34	1469
##	High	46	1445
##	Very High	47	1401
##	NA	5	301

```
## City of Yarra Rest of Greater Melbourne
## 1      44.48799      1822.512
## 2      43.98759      1802.012
## 3      43.67781      1789.322
## 4      35.81438      1467.186
## 5      35.52843      1455.472
## 6      34.50380      1413.496
```

```
##          ratio_binned City of Yarra Rest of Inner SA4
##          New service      0      0
## Increased 30% or more      5      67
## Increased 10 to 30%      0      14
## Increased 5 to 10%      0      1
## Increased 3 to 5%      1      1
## Increased 1 to 3%      0      0
##          Within 1%      1      0
## Reduced 1 to 3%      0      0
## Reduced 3 to 10%      0      1
## Reduced 10% or more      2      1
## Not served in 2024      0      0
```

```
##          ratio_binned City of Yarra Rest of Inner SA4
##          New service  0.00000000  0.00000000
## Increased 30% or more  6.89361702  65.1063830
## Increased 10 to 30%  1.34042553  12.6595745
## Increased 5 to 10%  0.09574468  0.9042553
## Increased 3 to 5%  0.19148936  1.8085106
## Increased 1 to 3%  0.00000000  0.00000000
##          Within 1%  0.09574468  0.9042553
## Reduced 1 to 3%  0.00000000  0.00000000
## Reduced 3 to 10%  0.09574468  0.9042553
## Reduced 10% or more  0.28723404  2.7127660
## Not served in 2024  0.00000000  0.00000000
```

```
##          ratio_binned City of Yarra Rest of Inner SA4
##          New service      0      0
## Increased 30% or more      5      67
## Increased 10 to 30%      0      14
## Increased 5 to 10%      0      1
## Increased 3 to 5%      1      1
## Increased 1 to 3%      0      0
##          Within 1%      1      0
## Reduced 1 to 3%      0      0
## Reduced 3 to 10%      0      1
## Reduced 10% or more      2      1
## Not served in 2024      0      0
```

##	ratio_binned	City of Yarra	Rest of Inner SA4
##	New service	0.00000000	0.00000000
##	Increased 30% or more	6.89361702	65.1063830
##	Increased 10 to 30%	1.34042553	12.6595745
##	Increased 5 to 10%	0.09574468	0.9042553
##	Increased 3 to 5%	0.19148936	1.8085106
##	Increased 1 to 3%	0.00000000	0.00000000
##	Within 1%	0.09574468	0.9042553
##	Reduced 1 to 3%	0.00000000	0.00000000
##	Reduced 3 to 10%	0.09574468	0.9042553
##	Reduced 10% or more	0.28723404	2.7127660
##	Not served in 2024	0.00000000	0.00000000