

City of Yarra: social needs, gaps in transit

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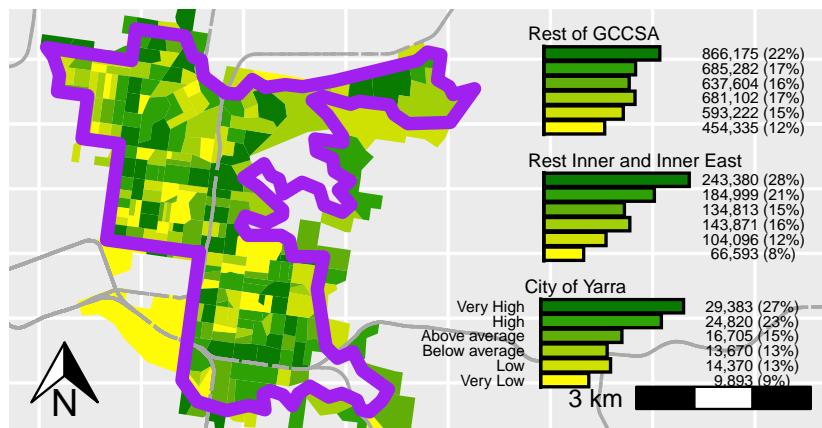
This note is part of a series examining transit social needs-gaps in Greater Melbourne¹. In Victoria, public transport is the responsibility of state government, although Local Government Authorities (LGAs) may have some influence through planning processes and advocacy. However, it is unclear how much transit is supplied or how well social needs for transport are met for each LGA. Using the Currie and Sendbergs (2007)² methodology, this note explores needs for transport, and transit provision in 2021 and 2023, in the City of Yarra.

METHODS:

Scores for transit supply and transport needs were calculated based on Australian Bureau of Statistics (ABS) data and the Victorian GTFS feed³ 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 transport in the Rest of the Inner and Inner East SA4s⁶ and for the rest of Greater Melbourne with those for the City of Yarra.



Needs were higher than the Melbourne average for 65% of the Yarra population, more than elsewhere in Melbourne (56%)⁷.

Figure 2 shows the distribution of transit service in 2021 and 2023. Transit service levels were below the Melbourne average for 11% of

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 LGAs: City of Melbourne, Port Phillip, Boorondara, and parts of Moonee Valley, Merri-Bek, Darebin, Stonnington, Whitehorse and Manningham.
Figure 1: Needs in 2021 by population

⁷ Differences between Yarra and the rest of the Inner and Inner East SA4s were not statistically significant ($\chi^2(5) = 3.80, p = .579$). Differences with the rest of Greater Melbourne were statistically significant ($\chi^2(5) = 15.00, p = .010$).

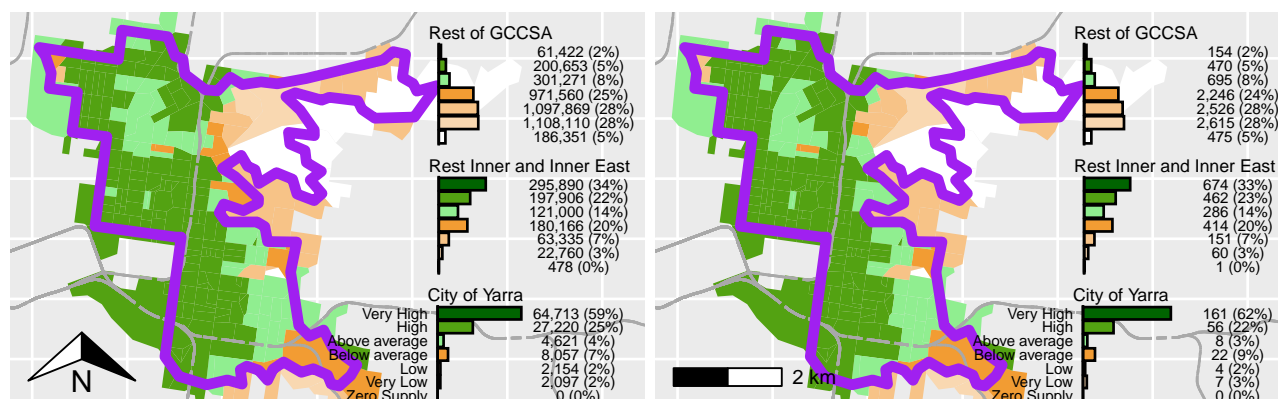


Figure 2: Transport Supply 2021 (left, by population) and 2023 (right, by SA1)

Yarra residents in 2021, which is less than for the rest of the Inner and Inner East SA4s (30%)⁸ or the rest of Melbourne (86%)⁹. 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.

⁸ Differences were statistically significant ($\chi^2(6) = 104.60, p < .001$).

⁹ Differences were statistically significant ($\chi^2(6) = 2996.30, p < .001$).

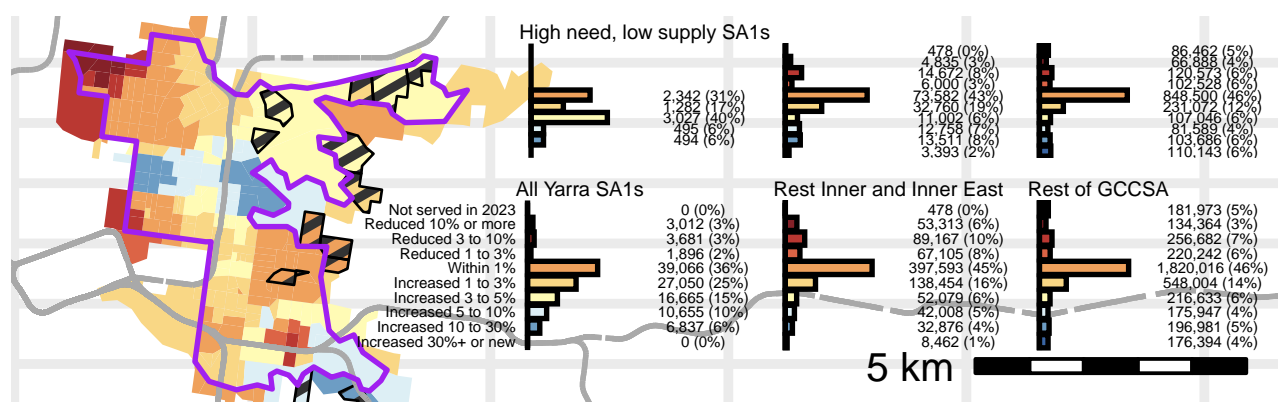


Figure 3: Transit service change 2021 to 2023. SA1s with needs above, but supply below, average highlighted in black.

Transit levels increased by 1% or more between 2021 and 2023 for 56% of Yarra residents, which is a great proportion than in the rest of Inner and Inner East SA4s (33%)¹⁰, and the rest of Melbourne (33%)¹¹. 7% of the Yarra population lived in SA1s with *needs above, but supply below* the Melbourne averages in 2021¹². However, for 69% of this cohort service levels increased 1% or more, a higher proportion than for the similar cohort in Greater Melbourne living *outside* the Inner and Inner East SA4 (74%)¹³.

Overall, Yarra 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.

¹⁰ Differences were statistically significant ($\chi^2(9) = 102.66, p < .001$).

¹¹ Differences were statistically significant ($\chi^2(9) = 138.01, p < .001$).

¹² Shown with black in Figure 3. This compares to 20% of Inner and Inner East SA4s residents and 47% of those elsewhere in Melbourne.

¹³ Differences with 'the rest of the GCCSA' were statistically significant (Fisher test $p = 0.0104$), but not with 'the rest of Inner and Inner East SA4s' (Fisher test $p = 0.148$).

##	ratio_binned	population	perc
## 1	Increased 30%+ or new	0	0.00000000
## 2	Increased 10 to 30%	6837	0.06280428
## 3	Increased 5 to 10%	10655	0.09787621
## 4	Increased 3 to 5%	16665	0.15308372
## 5	Increased 1 to 3%	27050	0.24847973
## 6	Within 1%	39066	0.35885800
## 7	Reduced 1 to 3%	1896	0.01741655
## 8	Reduced 3 to 10%	3681	0.03381345
## 9	Reduced 10% or more	3012	0.02766806
## 10	Not served in 2023	0	0.00000000

##	ratio_binned	population	perc
## 1	Increased 30%+ or new	8462	0.009599165
## 2	Increased 10 to 30%	32876	0.037294038
## 3	Increased 5 to 10%	42008	0.047653241
## 4	Increased 3 to 5%	52079	0.059077632
## 5	Increased 1 to 3%	138454	0.157060128
## 6	Within 1%	397593	0.451023499
## 7	Reduced 1 to 3%	67105	0.076122899
## 8	Reduced 3 to 10%	89167	0.101149699
## 9	Reduced 10% or more	53313	0.060477463
## 10	Not served in 2023	478	0.000542236

##	ratio_binned	population	perc
## 1	Increased 30%+ or new	176394	0.04491556
## 2	Increased 10 to 30%	196981	0.05015767
## 3	Increased 5 to 10%	175947	0.04480174
## 4	Increased 3 to 5%	216633	0.05516170
## 5	Increased 1 to 3%	548004	0.13953936
## 6	Within 1%	1820016	0.46343433
## 7	Reduced 1 to 3%	220242	0.05608066
## 8	Reduced 3 to 10%	256682	0.06535945
## 9	Reduced 10% or more	134364	0.03421338
## 10	Not served in 2023	181973	0.04633615

##	ratio_binned_less	population	ratio_binned	perc
## 1	Increased 10 to 30%	494	Increased 10 to 30%	0.06465969
## 2	Increased 5 to 10%	495	Increased 5 to 10%	0.06479058
## 3	Increased 3 to 5%	3027	Increased 3 to 5%	0.39620419
## 4	Increased 1 to 3%	1282	Increased 1 to 3%	0.16780105
## 5	Within 1%	2342	Within 1%	0.30654450

##	ratio_binned_less	population	ratio_binned	perc
## 1	Increased 30%+ or new	3393	Increased 30%+ or new	0.01961374
## 2	Increased 10 to 30%	13511	Increased 10 to 30%	0.07810233

## 3	Increased 5 to 10%	12758	Increased 5 to 10%	0.07374950
## 4	Increased 3 to 5%	11002	Increased 3 to 5%	0.06359868
## 5	Increased 1 to 3%	32760	Increased 1 to 3%	0.18937401
## 6	Within 1%	73582	Within 1%	0.42535161
## 7	Reduced 1 to 3%	6000	Reduced 1 to 3%	0.03468389
## 8	Reduced 3 to 10%	14672	Reduced 3 to 10%	0.08481366
## 9	Reduced 10% or more	4835	Reduced 10% or more	0.02794943
## 10	Not served in 2023	478	Not served in 2023	0.00276315

##	ratio_binned_less population	ratio_binned	perc
## 1	Increased 30%+ or new 110143	Increased 30%+ or new	0.05926488
## 2	Increased 10 to 30% 103686	Increased 10 to 30%	0.05579054
## 3	Increased 5 to 10% 81589	Increased 5 to 10%	0.04390076
## 4	Increased 3 to 5% 107046	Increased 3 to 5%	0.05759847
## 5	Increased 1 to 3% 231072	Increased 1 to 3%	0.12433340
## 6	Within 1% 848500	Within 1%	0.45655418
## 7	Reduced 1 to 3% 102528	Reduced 1 to 3%	0.05516746
## 8	Reduced 3 to 10% 120573	Reduced 3 to 10%	0.06487697
## 9	Reduced 10% or more 66888	Reduced 10% or more	0.03599057
## 10	Not served in 2023 86462	Not served in 2023	0.04652279

[1] 1

##	transit_supply City of Yarra Rest Inner and Inner East
##	Zero Supply 0 1
##	Very Low 7 60
##	Low 5 151
##	Below average 20 420
##	Above average 12 285
##	High 59 458
##	Very High 155 673

[1] 2

##	transit_supply City of Yarra Rest Inner and Inner East
##	Zero Supply 0.111882 0.888118
##	Very Low 7.496097 59.503903
##	Low 17.453599 138.546401
##	Below average 49.228101 390.771899
##	Above average 33.228968 263.771032
##	High 57.843018 459.156982
##	Very High 92.638335 735.361665

[1] 3

transit_supply City of Yarra Rest of Greater Melbourne

##	Zero Supply	0	488
##	Very Low	7	2625
##	Low	5	2535
##	Below average	20	2251
##	Above average	12	678
##	High	59	457
##	Very High	155	147

[1] 4

##	transit_supply	City of Yarra	Rest of Greater Melbourne
##	Zero Supply	13.338701	474.6613
##	Very Low	71.941519	2560.0585
##	Low	69.426846	2470.5732
##	Below average	62.074160	2208.9258
##	Above average	18.860049	671.1400
##	High	14.104036	501.8960
##	Very High	8.254688	293.7453

[1] 5

##	transit_supply	City of Yarra	Rest Inner and Inner East
##	Zero Supply	0	1
##	Very Low	7	60
##	Low	4	151
##	Below average	22	414
##	Above average	8	286
##	High	56	462
##	Very High	161	674

[1] 6

##	transit_supply	City of Yarra	Rest Inner and Inner East
##	Zero Supply	0.111882	0.888118
##	Very Low	7.496097	59.503903
##	Low	17.341717	137.658283
##	Below average	48.780572	387.219428
##	Above average	32.893322	261.106678
##	High	57.954900	460.045100
##	Very High	93.421509	741.578491

[1] 7

##	transit_supply	City of Yarra	Rest of Greater Melbourne
##	Zero Supply	0	475
##	Very Low	7	2615
##	Low	4	2526

##	Below average	22	2246
##	Above average	8	695
##	High	56	470
##	Very High	161	154

[1] 8

##	transit_supply City of Yarra Rest of Greater Melbourne	
##	Zero Supply	12.983367 462.0166
##	Very Low	71.668185 2550.3318
##	Low	69.153512 2460.8465
##	Below average	61.992160 2206.0078
##	Above average	19.215383 683.7846
##	High	14.377370 511.6226
##	Very High	8.610022 306.3900

[1] 9

##	ratio_binned City of Yarra Rest Inner and Inner East	
##	Increased 30%+ or new	0 21
##	Increased 10 to 30%	15 72
##	Increased 5 to 10%	27 98
##	Increased 3 to 5%	39 117
##	Increased 1 to 3%	70 312
##	Within 1%	84 932
##	Reduced 1 to 3%	4 162
##	Reduced 3 to 10%	12 200
##	Reduced 10% or more	7 133
##	Not served in 2023	0 1

[1] 10

##	ratio_binned City of Yarra Rest Inner and Inner East	
##	Increased 30%+ or new	2.349523 18.650477
##	Increased 10 to 30%	9.733738 77.266262
##	Increased 5 to 10%	13.985256 111.014744
##	Increased 3 to 5%	17.453599 138.546401
##	Increased 1 to 3%	42.738942 339.261058
##	Within 1%	113.672160 902.327840
##	Reduced 1 to 3%	18.572420 147.427580
##	Reduced 3 to 10%	23.718994 188.281006
##	Reduced 10% or more	15.663487 124.336513
##	Not served in 2023	0.111882 0.888118

[1] 11

##	ratio_binned City of Yarra Rest of Greater Melbourne	
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##	Increased 30%+ or new	0	389
##	Increased 10 to 30%	15	450
##	Increased 5 to 10%	27	413
##	Increased 3 to 5%	39	485
##	Increased 1 to 3%	70	1277
##	Within 1%	84	4276
##	Reduced 1 to 3%	4	508
##	Reduced 3 to 10%	12	598
##	Reduced 10% or more	7	310
##	Not served in 2023	0	475

[1] 12

##	ratio_binned	City of Yarra	Rest of Greater Melbourne
##	Increased 30%+ or new	10.632694	378.3673
##	Increased 10 to 30%	12.710033	452.2900
##	Increased 5 to 10%	12.026698	427.9733
##	Increased 3 to 5%	14.322704	509.6773
##	Increased 1 to 3%	36.818095	1310.1819
##	Within 1%	119.173641	4240.8264
##	Reduced 1 to 3%	13.994703	498.0053
##	Reduced 3 to 10%	16.673376	593.3266
##	Reduced 10% or more	8.664689	308.3353
##	Not served in 2023	12.983367	462.0166

[1] 13

##	composite_needs	City of Yarra	Rest Inner and Inner East
##	Very Low	36	269
##	Low	45	318
##	Below average	35	372
##	Above average	38	305
##	High	50	361
##	Very High	47	370
##	NA	7	53

[1] 14

##	City of Yarra	Rest Inner and Inner East
## 1	34.08504	270.9150
## 2	40.56679	322.4332
## 3	45.48397	361.5160
## 4	38.33170	304.6683
## 5	45.93099	365.0690
## 6	46.60151	370.3985

[1] 15

```
## composite_needs City of Yarra Rest of Greater Melbourne
##      Very Low      36      1731
##      Low          45      1672
##      Below average 35      1628
##      Above average 38      1335
##      High         50      1266
##      Very High    47      1260
##      NA           7       289
```

```
## [1] 16
```

```
## City of Yarra Rest of Greater Melbourne
## 1 48.50891      1718.491
## 2 47.13628      1669.864
## 3 45.65383      1617.346
## 4 37.69255      1335.307
## 5 36.12775      1279.872
## 6 35.88067      1271.119
```

```
## ratio_binned_less City of Yarra Rest Inner and Inner East
## Increased 30%+ or new      0      6
## Increased 10 to 30%      1      25
## Increased 5 to 10%      1      25
## Increased 3 to 5%      5      21
## Increased 1 to 3%      2      62
## Within 1%      5      139
## Reduced 1 to 3%      0      12
## Reduced 3 to 10%      0      29
## Reduced 10% or more      0      10
## Not served in 2023      0      1
```

```
## ratio_binned_less City of Yarra Rest Inner and Inner East
## Increased 30%+ or new 0.24418605      5.7558140
## Increased 10 to 30% 1.05813953      24.9418605
## Increased 5 to 10% 1.05813953      24.9418605
## Increased 3 to 5% 1.05813953      24.9418605
## Increased 1 to 3% 2.60465116      61.3953488
## Within 1% 5.86046512      138.1395349
## Reduced 1 to 3% 0.48837209      11.5116279
## Reduced 3 to 10% 1.18023256      27.8197674
## Reduced 10% or more 0.40697674      9.5930233
## Not served in 2023 0.04069767      0.9593023
```

```
## ratio_binned_less City of Yarra Rest of Greater Melbourne
## Increased 30%+ or new      0      182
## Increased 10 to 30%      1      179
```


##	Increased 5 to 10%	1	143
##	Increased 3 to 5%	5	190
##	Increased 1 to 3%	2	407
##	Within 1%	5	1499
##	Reduced 1 to 3%	0	179
##	Reduced 3 to 10%	0	213
##	Reduced 10% or more	0	118
##	Not served in 2023	0	152

##	ratio_binned_less	City of Yarra	Rest of Greater Melbourne
##	Increased 30%+ or new	0.7777778	181.2222
##	Increased 10 to 30%	0.7692308	179.2308
##	Increased 5 to 10%	0.6153846	143.3846
##	Increased 3 to 5%	0.8333333	194.1667
##	Increased 1 to 3%	1.7478632	407.2521
##	Within 1%	6.4273504	1497.5726
##	Reduced 1 to 3%	0.7649573	178.2350
##	Reduced 3 to 10%	0.9102564	212.0897
##	Reduced 10% or more	0.5042735	117.4957
##	Not served in 2023	0.6495726	151.3504