

# *Social needs for transport and gaps in transit service: Enniscorthy, Ireland*

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## *Introduction*

The CONUNDRUM project relates to sustainable transport, community mobility and co-creation, and is using Enniscorthy in County Wexford, Ireland, as a test bed. However, assessments and mapping of social needs for transport, and public transport supply provided in Enniscorthy, and how these compare to other places in Ireland, do not appear to be publically available.

Currie et alGraham Currie<sup>1</sup> developed a methodology for assessing spatial gaps between social needs and transit supply An R package<sup>2</sup> has recently been developed that facilitates the calculation of the transit supply levels from General Transit Feed Specification (GTFS) datasets.

This note presents results obtained by applying the gtfssupply index R package to Ireland's GTFS dataset, with an emphasis on Enniscorthy in county Wexford.

<sup>1</sup> "Quantifying Spatial Gaps in Public Transport Supply Based on Social Needs," *Journal of Transport Geography* 18, no. 1 (2010): 31–41.

<sup>2</sup> See <https://github.com/James-Reynolds/gtfssupplyindex>

## *Background*

### *Transit supply*

The social needs-gap analysis methodology involves calculating a Supply Index (SI) based on the number of transit service arrivals at stops in and around each area of interest. Adjustments are made for the amount of each area that is within a typical walking distance of each stop, according to the following formula:

$$SI_{area,time} = \sum \frac{Area_{Bn}}{Area_{area}} SL_{n,time}$$

where:

- $SI_{area,time}$  is the Supply Index for the area of interest and a given period of time;
- $Area_{Bn}$  is the buffer area for each stop (n) within the area of interest<sup>3</sup>;
- $Area_{area}$  is the area of the area of interest; and
- $SL_{n,time}$  is the number of transit arrivals for each stop within the given time period.

<sup>3</sup> In Currie, "Quantifying Spatial Gaps in Public Transport Supply Based on Social Needs" this was based on a radius of 400 metres for bus and tram stops, and 800 metres for railway stations. The same definition is used here.

As such, the SI combines coverage (accessibility to transit) and service frequency (accessibility by transit). The SI is a relative index, allowing comparison between different areas of interest, based on transit supplied over a specific time period. In the results reported in Currie<sup>4</sup> transit supply was assessed based on an entire week, and compared across Census Collection Districts (CCDs) within Greater Melbourne. CCDs were classified into seven groups based on SI scores<sup>5</sup>.

<sup>4</sup> Ibid.

<sup>5</sup> being those with: zero supply; very low, low, or below average supply; and above average, high or very high supply. CCDs with above and below average SIs were evenly split into each of the three sub-groups, respectively.

### *Transport needs*

Transport needs were similarly assessed using an index score, based on various metrics available from the Australian Bureau of Statistics (ABS). These included the Index of Relative Socio-Economic Advantage/Disadvantage (IRSAD), which is reported directly by the ABS based on 31 weighted indicators and data collected during the census. A transport-specific need index, based on eight weighted indicators<sup>6</sup> was also included, with scores categorised based on three groups below and three groups above the average score across all of Melbourne.

<sup>6</sup> Adults without cars (0.19), distance to the Melbourne Central Business District (0.15), persons aged over 60 years (0.14), persons on a disability pension (0.12), low income households (0.10), adults not in the labour force (0.09), students (0.09) and persons 5-9 years (0.12).

Clearly, the approach used to assess social needs for transport might need to be adjusted to reflect different data availability in different locations or from different editions of a census.

### *Needs-gaps*

The final step was to compare social needs for transport with the amount of transit supplied in each area of interest. A key finding was that “8.2% of Melbourne residents ha(d) ‘very high’ needs but ‘zero’, ‘low’ or ‘very low’ public transport supply”, reflective of areas of greater need often being in places on urban fringes or otherwise often remote from transit infrastructure and services.

More broadly, it was suggested that the developed methodology might be “substantially more useful than the presentation of anecdotal evidence which is the most common means of identifying transport needs in local transport studies throughout the world”<sup>7</sup>.

<sup>7</sup> Currie, “Quantifying Spatial Gaps in Public Transport Supply Based on Social Needs.”

### *Methodology*

#### *Supply Index*

This analysis used the all-Ireland GTFS dataset, downloaded on April 23, 2025 and reporting scores for transit services provided on that same date (the first Wednesday after Easter). The “Small Area” National Statistical Boundaries from 2022 were adopted as the areas

of interest, with the indexing of supply based on the average score across the County of Wexford.

### *Needs*

### *Results*

The distribution of transit supply by population across County Wexford is shown in Figure 1. Figure 2 shows the distribution of transit supply by Small Area.

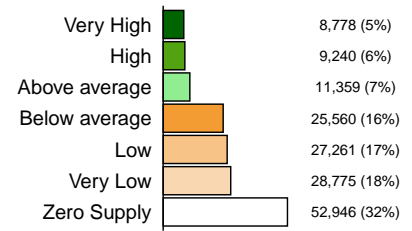
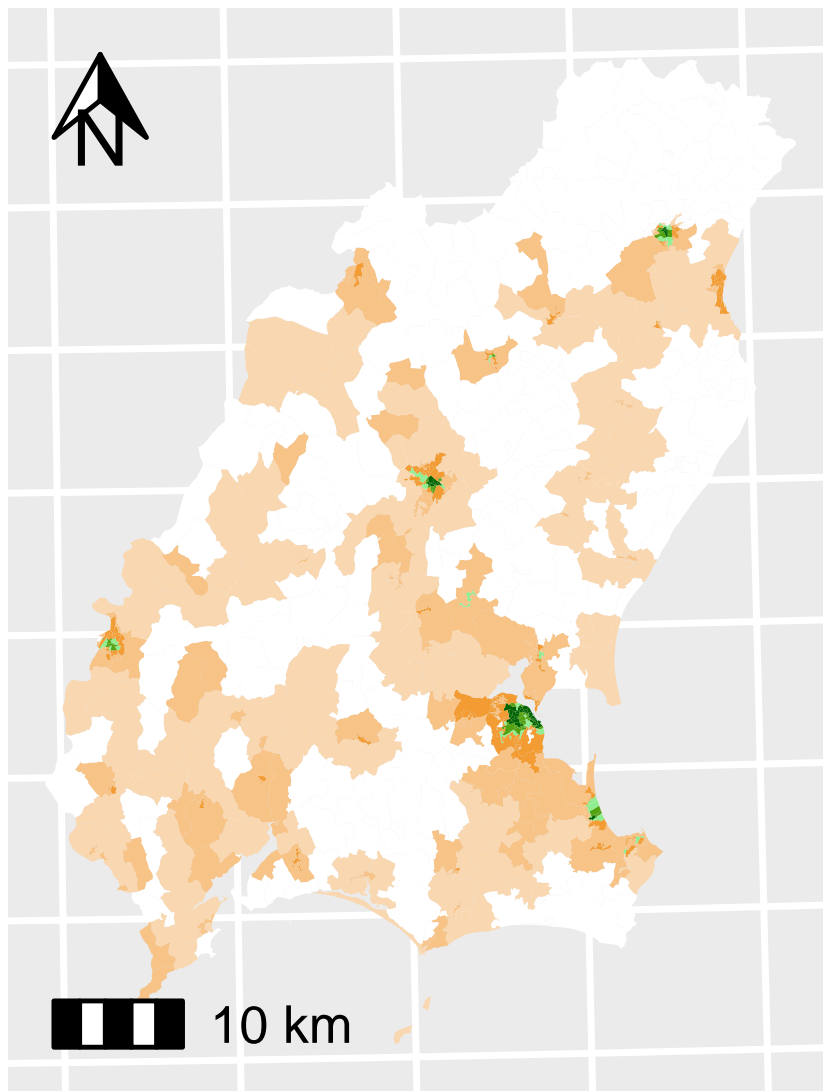


Figure 1: Transit Supply across County Wexford, by population

Figure 2: Transit Supply across County Wexford, by Small Area



32% of County Wexford residents live in Small Areas that have no transit service at all, while 50% live in areas with lower than the

average supply level. In general, and as might be expected, transit supply appears to be focused most in the urban areas of Wexford (town), Enniscorthy, Gorey and New Ross,

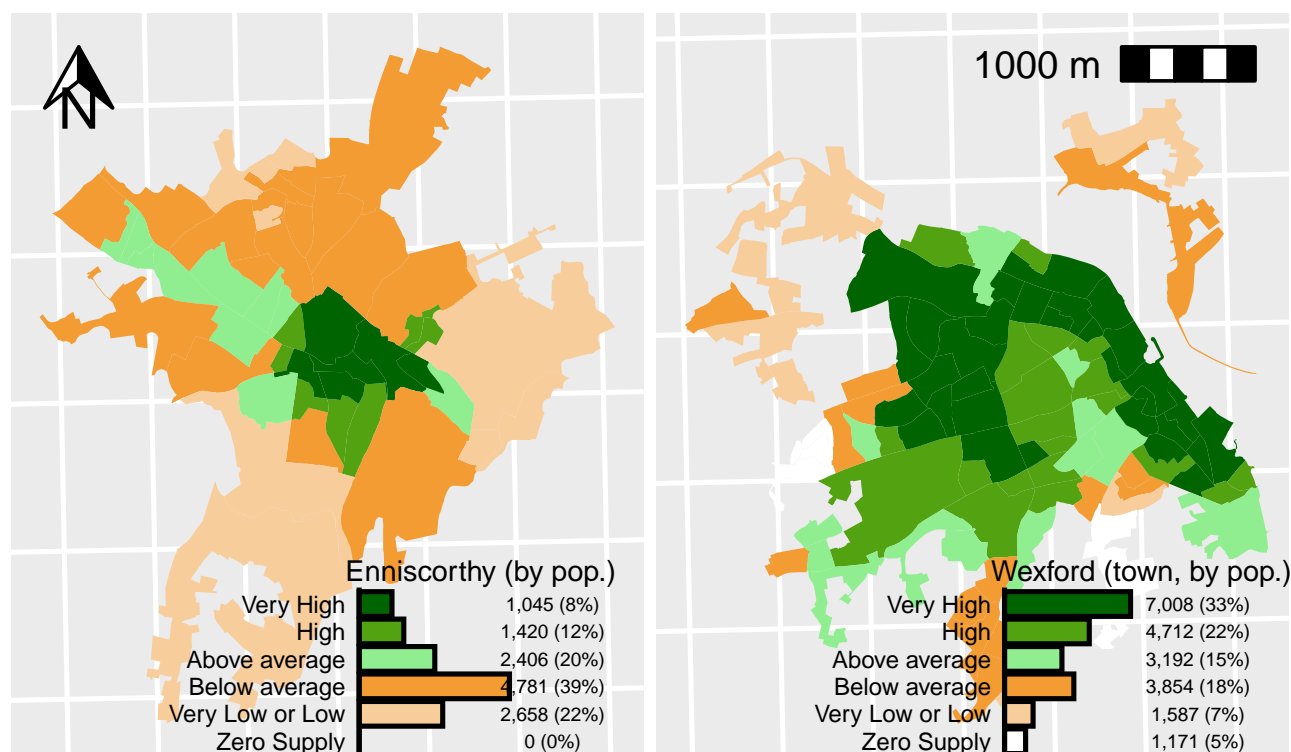


Figure 3 compares transit supply in Enniscorthy and Wexford (town).

In Enniscorthy 60% of residents live in Small Areas with less than the (County-Wexford-wide) average transit supply. This compares to only 31% in Wexford (town)<sup>8</sup>.

Figure 4 shows transit supply in Gorey and New Ross. Differences between Enniscorthy and Goery were statistically significant<sup>9</sup>. In Goery 68% of residents live in Small Areas with less than the (County-Wexford-wide) average transit supply, which is a greater proportion than in Enniscorthy (60%) Differences between Enniscorthy and New Ross were not statistically significant<sup>10</sup>, with 66% of New Ross residents living in Small Areas with less than the (County-Wexford-wide) average transit supply.

Figure 3: Transit Supply across Enniscorthy (left) and Wexford (right), by Small Area (maps) and population (charts)

<sup>8</sup> Differences between Enniscorthy and Wexford (town) are statistically significant ( $\chi^2(5) = 17.17, p = .004$

<sup>9</sup> ( $\chi^2(5) = 18.82, p = .002$

<sup>10</sup> ( $\chi^2(3) = 1.76, p = .624$

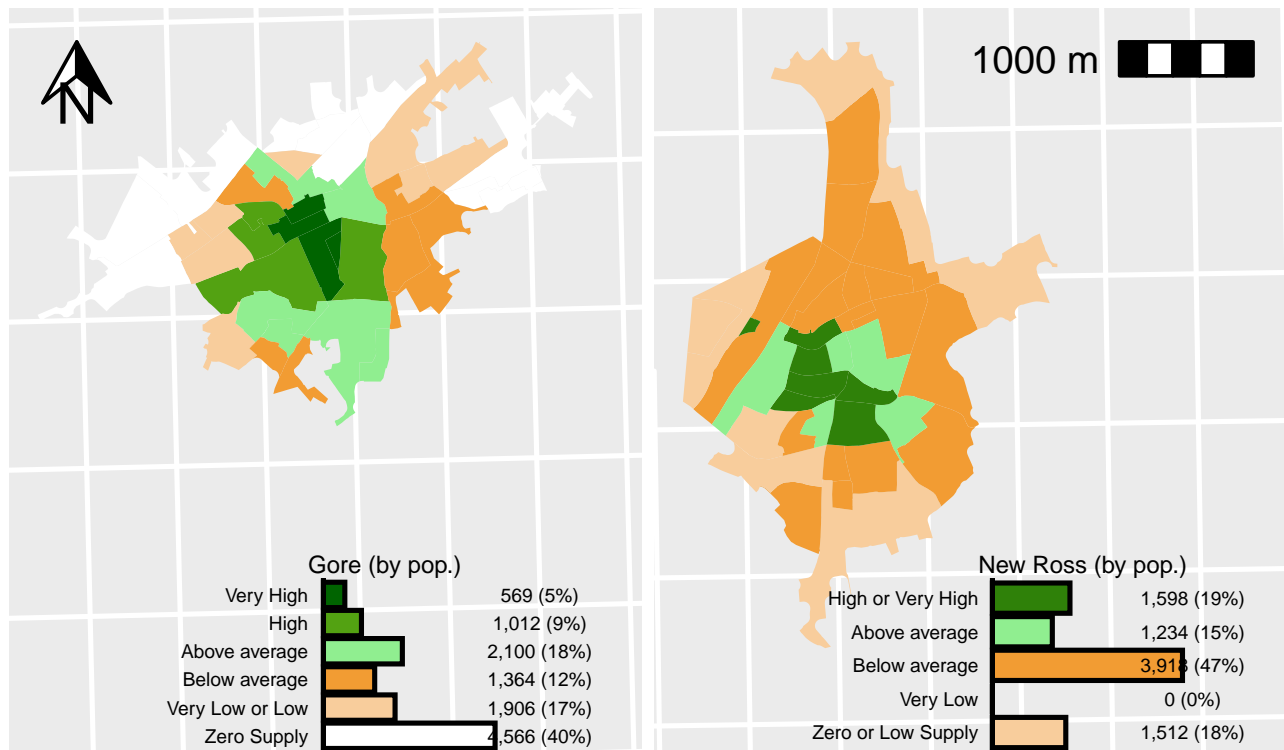


Figure 4: Transit Supply across Gorey (left) and New Ross (right), by Small Area (maps) and population (charts)