

## Fwd: Grok 3 LLM estimate of CMA population - most accurate of all



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From: **Srinivasan Kannan** <[ka.shrinivaasan@gmail.com](mailto:ka.shrinivaasan@gmail.com)>  
Date: Fri, Feb 21, 2025 at 9:17 PM  
Subject: Grok 3 LLM estimate of CMA population - most accurate of all  
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Estimating the population of the Chennai Metropolitan Area (CMA) after its expansion to 5,904 square kilometers (sq km) in 2025 involves some uncertainty, as official census data for this newly defined area is not yet available as of February 21, 2025. The last comprehensive census in India was in 2011, and the 2021 census was delayed due to the COVID-19 pandemic. However, I can provide a reasoned estimate based on existing data, growth trends, and the expansion details.

The CMA was officially expanded from 1,189 sq km to 5,904 sq km in October 2022, incorporating 1,225 villages from Tiruvallur, Kancheepuram, Chengalpattu, and Ranipet districts. This expansion increased the CMA's geographical scope nearly fivefold, but population estimates typically lag behind such administrative changes until new census data is collected. For now, we can extrapolate from pre-expansion figures and regional population trends.

### Pre-Expansion Population (1,189 sq km)

- According to the 2011 census, the CMA (then 1,189 sq km) had a population of approximately 8.65 million.
- Projections like those from the UN World Urbanization Prospects suggest the population grew at an annual rate of about 2.3–2.4%. By 2025, this yields an estimated population of **12.3 to 12.7 million** for the original 1,189 sq km area, consistent with my earlier response.

### Population of the Expanded Area (5,904 sq km)

The expanded CMA now includes rural and semi-urban areas that were not part of the original metropolitan region. Estimating the population for this larger area requires accounting for the residents of the newly added 1,225 villages and their growth rates.

- **2011 Baseline for Added Areas:** The population of the districts surrounding Chennai (Tiruvallur, Kancheepuram, Chengalpattu, and parts of Ranipet) was partially included in the 2011 CMA figures, but the expansion added areas beyond that. The total 2011 population of these four districts was roughly:
  - Tiruvallur: 3.73 million
  - Kancheepuram: 3.99 million (before split into Kancheepuram and Chengalpattu)
  - Chengalpattu: Formed post-2011, but its area had about 2.5 million in 2011 (estimated from Kancheepuram split)
  - Ranipet: Part of Vellore district in 2011 (total 3.9 million), with a smaller fraction included.
  - Total district population: ~14 million, but only specific taluks/villages were added to the CMA, not entire districts.

Estimates suggest the 1,225 villages added had a 2011 population of approximately **2 to 3 million**, based on rural densities (100–300 people per sq km) and the fact that the added area (4,715 sq km = 5,904 - 1,189) is less densely populated than the core CMA (7,274 people per sq km in 2011).

- **Growth Rate in Added Areas:** Rural and semi-urban areas typically grow more slowly than urban centers like Chennai. Assuming a conservative growth rate of 1–1.5% annually (lower than the urban 2.3–2.4%), the population of these added areas in 2025 would be around **2.5 to 3.8 million**.
- **Total 2025 Estimate:** Combining the original CMA population (12.3–12.7 million) with the added areas (2.5–3.8 million), the total population of the expanded CMA (5,904 sq km) in 2025 is likely in the range of **14.8 to 16.5 million**.

### Refining the Estimate

- **Density Variation:** The original CMA had a density of ~7,000–10,000 people per sq km by 2025, while the added areas likely average 500–800 people per sq km, reflecting their rural/semi-urban character. For 4,715 sq km at 530–800 people per sq km, the added population aligns with 2.5–3.8 million, supporting the range above.
- **Migration and Urbanization:** The expansion aims to plan for future urban sprawl and migration, which could slightly boost the added areas' growth, but significant shifts would take years beyond 2025.

### Final Answer

As of 2025, the population of the Chennai Metropolitan Area, expanded to 5,904 sq km, is estimated to be **between 14.8 million and 16.5 million**. This range accounts for the original urban core's growth and the more modest increase in the newly incorporated regions. Official figures will depend on a future census, but this provides a reasonable projection based on current trends and data.