



People Near Transit: Chennai



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Supported by



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List of Abbreviations

CMA	Chennai Metropolitan Area
CMRL	Chennai Metro Rail Limited
CUMTA	Chennai Unified Metropolitan Transport Authority
GCC	Greater Chennai Corporation
GIS	Geographical Information System
LULC	Land Use Land Cover Change
MAWS	Municipal Administration and Water Supply Department
MTC	Metropolitan Transport Corporation
NMT	Non-Motorised Transport
PNT	People Near Transit
PT	Public Transport
TAZ	Traffic Analysis Zone
TN	Tamil Nadu
TOD	Transit Oriented Development



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01

**What is People
Near Transit?**

People Near Transit (PNT) is a methodology used to measure the proportion of a city's population that can access public transit services within a 5 to 10 minute walkable distance (400m to 800m). It is an effective proxy indicator to measure how well a city provides public transport connectivity to its residents. It aids in assessing urban transport systems and services while highlighting the accessibility gaps in the existing systems.

A critical factor to enhance the experience of using public transport and increase the ridership is to improve the service quality of public transport and its network coverage. The lack of first and last mile connectivity, along with the other factors like frequency and reliability, often result in people shifting towards unsustainable transport modes like personal vehicles.

This results in increased dependency on private vehicles causing traffic congestion, longer travel times, and higher emissions. Identifying underserved zones is thus critical for prioritising enhancements that foster multimodal integration and equitable access.

1.1 Key Objectives

The PNT analysis for Chennai pursues three interconnected goals:

1

Measure Transit Accessibility: Quantify the percentage of urban residents within walking distance of public transport services, establishing a baseline for coverage.

2

Inform Planning Decisions: Provide data-driven insights to guide connectivity improvements and supporting initiatives.

3

Identify Accessibility Gaps: Pinpoint areas and demographics underserved by existing networks.



1.2 Why is PNT Study Important?

- **Quantifies spatial equity of transit access:** PNT allows measurement of how evenly transit access is distributed across the city based on demand.
- **Aligns transit supply with built-up density:** By overlaying the walkable area(walking shed) with built-up density according to traffic analysis zones (TAZ), planners can identify mismatches between population concentration and transit frequency and coverage. This is critical to optimise service allocation.
- **Supports mode integration planning:** PNT helps estimate catchment overlaps (bus-metro-suburban rail), enabling data-driven decisions for multimodal integration, feeder routing, and corridor prioritisation.
- **Enables walkability and NMT intervention planning:** PNT maps highlight where targeted pedestrian and NMT infrastructure upgrades are required.

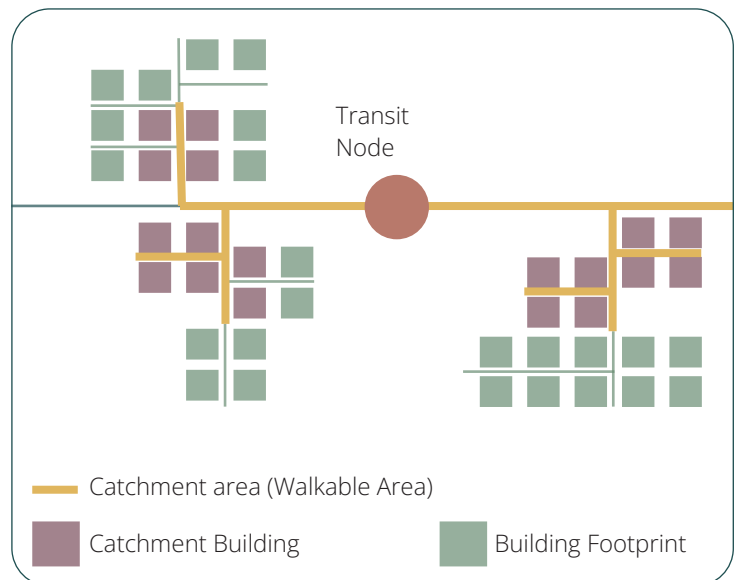
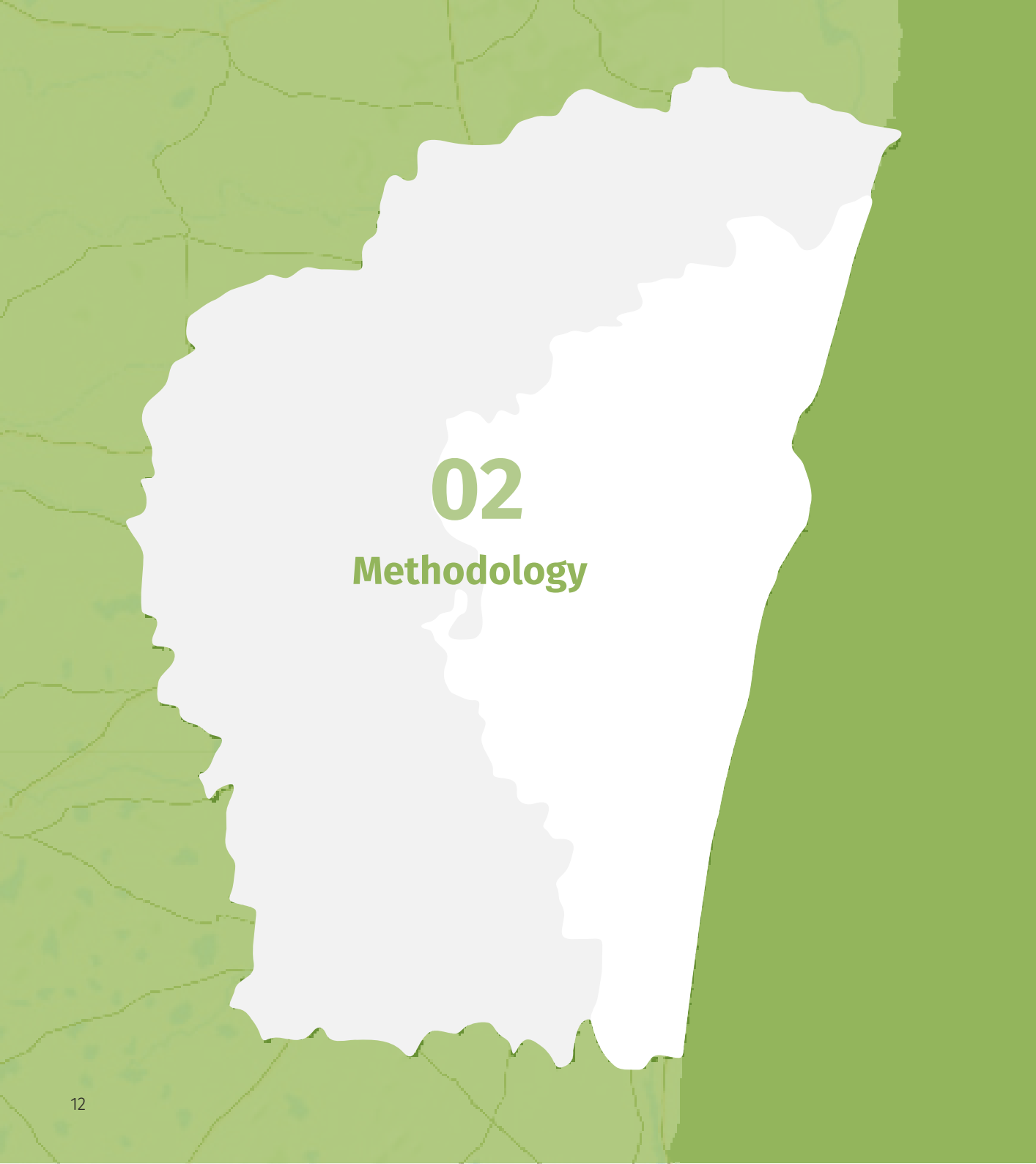


Figure 1: Graphic representation of People Near Transit analysis.



02

Methodology

The PNT assessment for Chennai employs a meticulous, GIS-driven spatial analysis framework to evaluate transit accessibility. This methodology integrates transit network geometries, building footprints, and demographic data to compute the population within walkable catchments of public transport nodes. By simulating real-world walking distances along road networks, it ensures effective coverage.

This evidence-based approach not only benchmarks current accessibility but also highlights the service gaps across the Chennai Metropolitan Area. It supports planners in aligning transit investments with population distributions, Transit Oriented Development planning, facilitating multimodal enhancements and sustainable urban growth.



Figure 2: People waiting for a bus

2.1 Step-Wise Approach

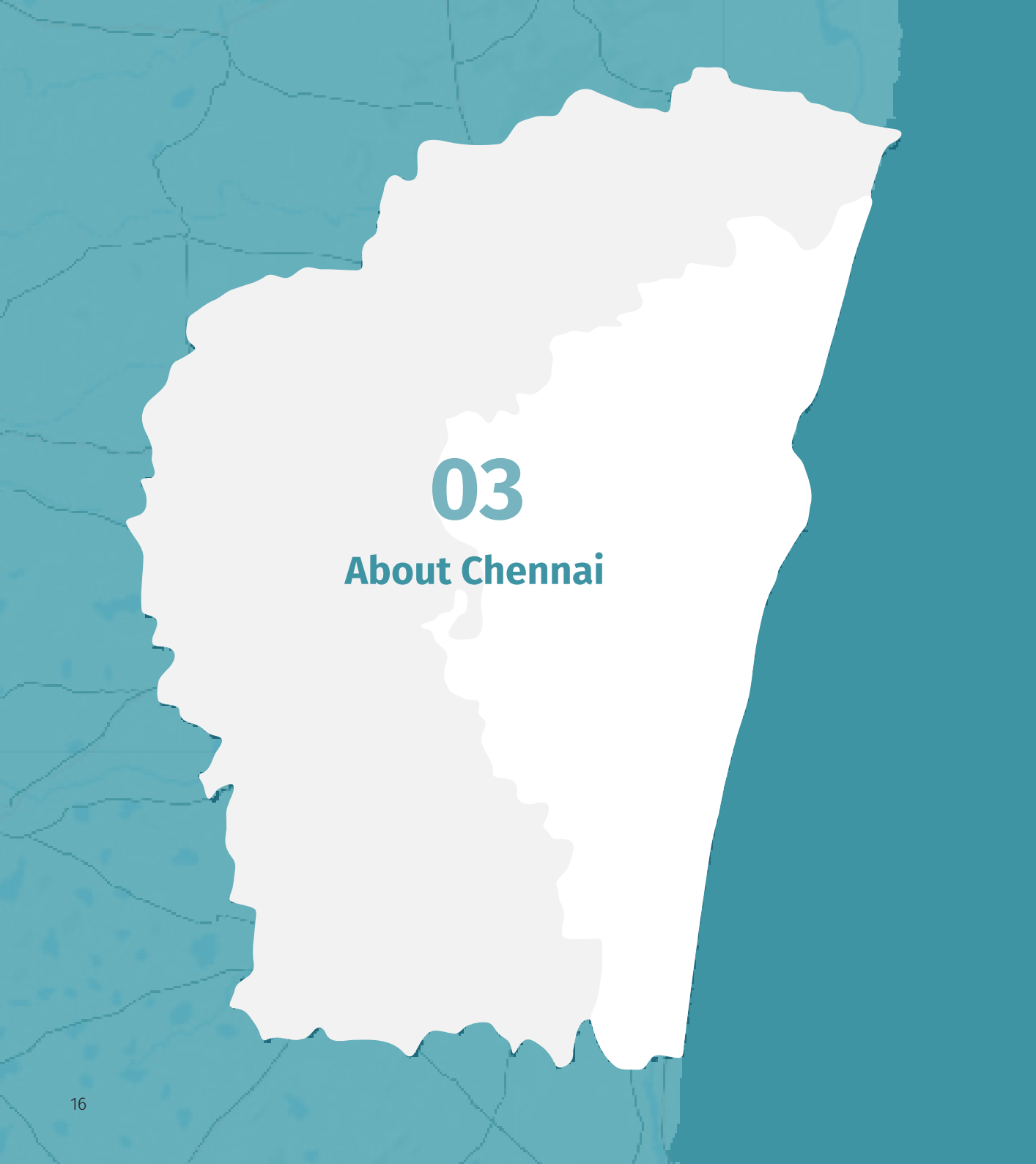
- **Identification of Public Transport Service Points:** Key public transport nodes such as bus stops, metro stations, and suburban rail stations are mapped to establish the foundational network for accessibility analysis.
- **Creation of Walkable Catchment Areas:** Using GIS tools, walkable catchments are delineated by defining 400m walking distances for bus services and 800m distances for metro and suburban rail nodes.
- **Development of a 50m Buffer:** A 50m buffer is generated along the walkable network to capture buildings that are easily reachable from these pedestrian routes.
- **Integration with Building Footprints:** Building footprint data is overlaid on the buffered network to identify structures that fall within accessible zones.
- **Overlay with Population Data:** TAZ data, containing information on total population and land area, is incorporated to derive population density within each zone.
- **Estimation of Accessible Population:** Using the built-up area within the accessible buffer and the population density of the corresponding TAZs, the population residing within walking distance of public transport is estimated.

2.2 Base Data

The study utilised a range of spatial datasets covering transport infrastructure, demographic layers, and urban built form to support the PNT analysis. Data was sourced from government agencies, open-source platforms, and institutional databases to ensure reliability and spatial accuracy. This comprehensive dataset enabled detailed mapping of accessibility sheds across Chennai.

Category	Data	Sources
Transport data sets	Public bus routes and frequency	MTC Chennai (2024)
	Bus stop locations	MTC Chennai (2024)
	Metro corridors and stations	Google maps
	Suburban rail network and station	Open street maps
Demography and spatial data	Water bodies	ERSI - Sentinel 2 (2024)
	List of schools	Greater Chennai Corporation
	List of slums and location	TN slum clearance board
	TAZ - wise population (2023)	CUMTA, 2025
	TAZ - wise population (2023)	Open buildings

Table 1: Base data for PNT analysis



03

About Chennai

Chennai, a rapidly growing metropolitan centre and key economic hub of Tamil Nadu, relies heavily on an efficient transport system to support its diverse workforce and expanding urban footprint. Public transport forms the backbone of this mobility ecosystem, with the **Metropolitan Transport Corporation (MTC Chennai) operating 687 routes every day.**

The city's network is complemented by the expanding Chennai Metro, which recorded 1.03 crore passengers in July 2025, along with extensive suburban rail and MRTS services that together manage millions of daily trips. Recent advancements including the introduction of electric buses, deployment of Singara Chennai cards and digital travel cards through the Chennai One app, expansion of electronic ticketing machines, launch of the Bus First Campaign, and the rollout of Chennai Unified Metropolitan Transport Authority's 25-year comprehensive mobility plan reflect Chennai's ongoing efforts to strengthen integrated, sustainable and equitable public transport for its growing population.

3.1 Population Density

The Greater Chennai Corporation (GCC) exhibits a high average population density of 19,711 persons per sq. km, indicating compact settlement patterns and concentrated urban habitation. In comparison, the Chennai Metropolitan Area (CMA) records a lower density of 9,886 persons per sq. km, reflecting more dispersed development in its peripheral zones.

3.2 Chennai Public Transport Ridership

To understand the overall public transport ridership share in Chennai, daily ridership numbers were compiled from the major transit modes. Together, these datasets give a reliable picture of how Chennai’s population depends on different transit modes and help in analysing overall public transport share, usage trends, and modal preferences across the city.

Transport Mode	Ridership Per Day	Share of Public Transport (%)
Metro	2.91 lakh	6.8
Suburban	9 lakh	20.8
MTC	31.27 lakh	72.4
Total	45.18 lakh	100

Table 2: Ridership per day across transport modes

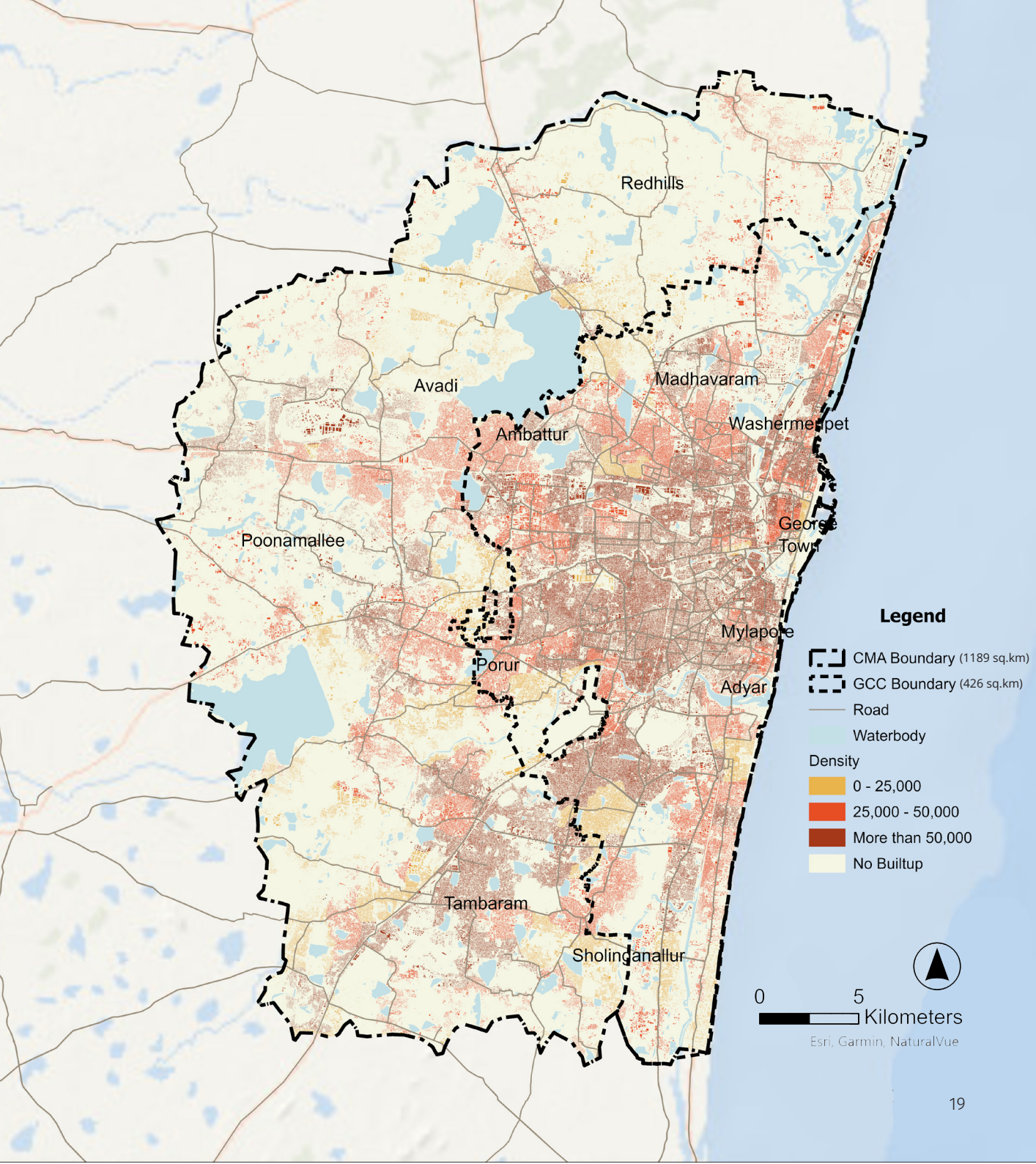
- Buses form the backbone of Chennai’s public transport, offering extensive coverage across urban and suburban areas.
- Metro ridership is poised for significant growth, that will be substantially strengthened through the upcoming Phase 2 development.
- Suburban rail remains crucial for long-distance commuters, easing pressure on city roads and buses.

Sources:
¹ CMRL
Annual Report for Financial Year
2023 - 2024

² Hindu Article published on July
2025

³ MTC Website

(right)
Figure 3: Map of Chennai



Legend

- CMA Boundary (1189 sq.km)
- GCC Boundary (426 sq.km)
- Road
- Waterbody
- Density
 - 0 - 25,000
 - 25,000 - 50,000
 - More than 50,000
 - No Builtup

0 5 Kilometers

Esri, Garmin, NaturalVue

3.3 Public Transport in Chennai

Bus Network

Chennai's bus network spans a total route length of 2114.8 km through 687 routes, supported by 4,690 bus stops.



(right)
Figure 4:
Public transport
in Chennai



Legend

- CMA Boundary
- GCC Boundary
- Road
- Waterbody
- Bustop
- Bus Route

0 5 Kilometers

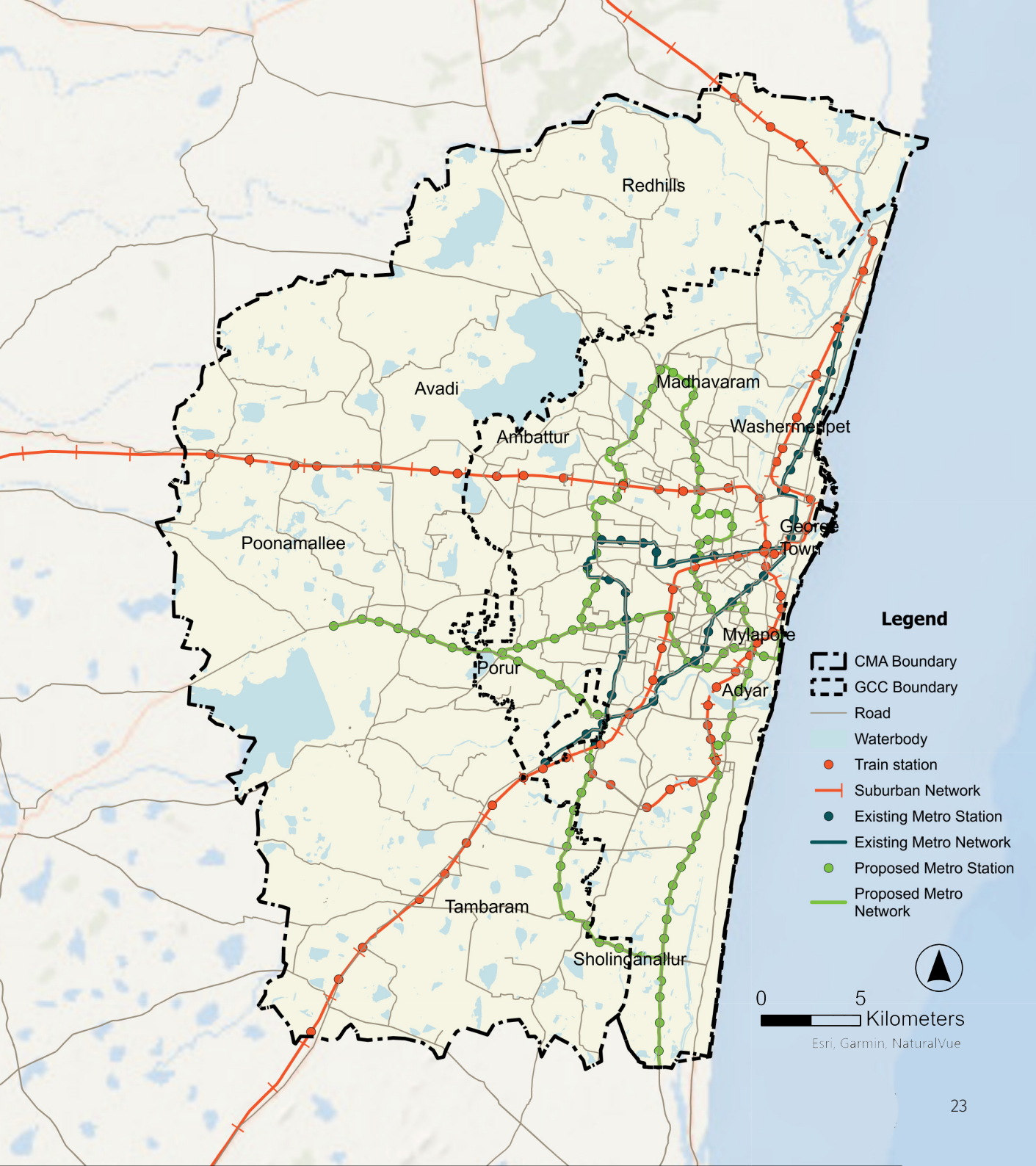
Esri, Garmin, NaturalVue

Metro and Suburban Network

Chennai's metro network extends 54 km and is served by 41 stations, while the suburban rail network spans 112 km with 70 stations across the metropolitan region.



(right)
Figure 5: Metro and
suburban network in
Chennai



3.4 Existing Public Transport Coverage in Chennai

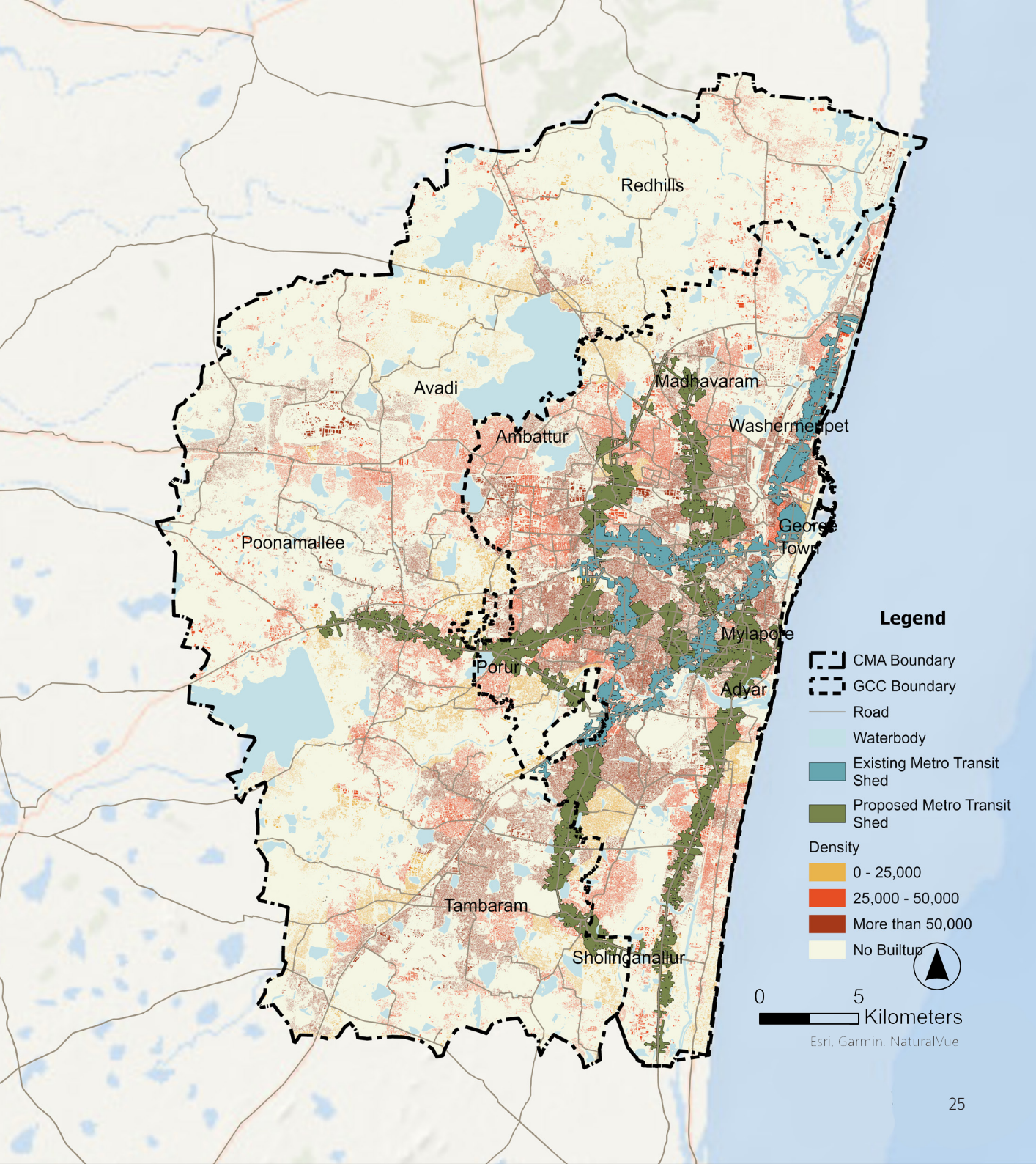
Metro Transit Shed

Chennai Metro Rail Limited currently provides high-capacity transit service along the Phase 1 corridors. An 800m (10-minute) walkability buffer around existing stations indicates that approximately **9.5%** of the CMA population falls within accessible catchments. With the addition of 118.9 km of new corridors and 128 stations under Phase 2, the proportion of the population with access to metro transport is projected to increase to **23%**, significantly enhancing intra-city connectivity and network reach.



(right)

Figure 6: Metro transit shed in Chennai

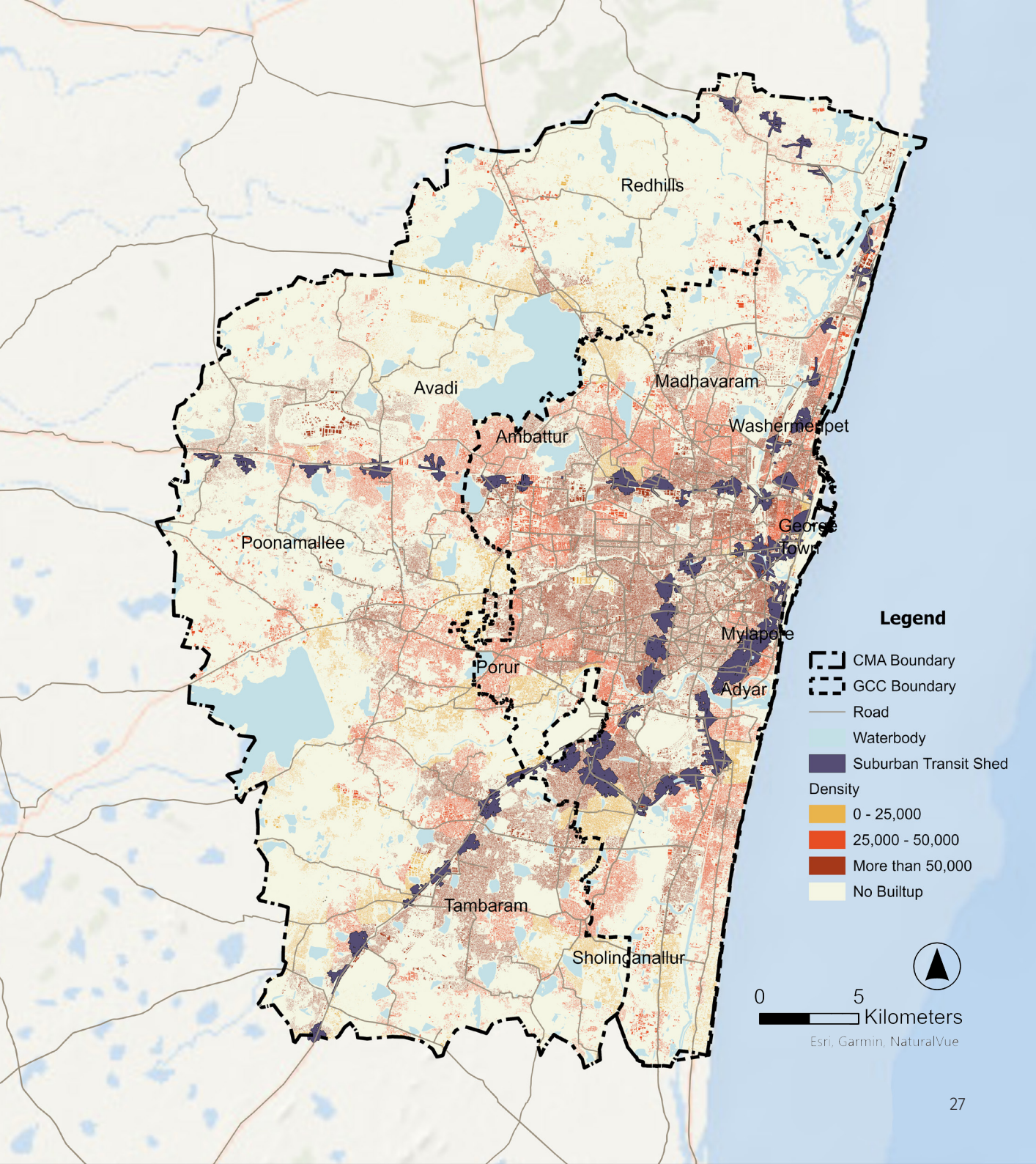


Suburban Transit Shed

Southern Railway provides vital radial connectivity for long-distance commuters, linking Chennai Central with peripheral destinations such as Tambaram and Gummidipoondi. An 800m (10-minute) walkability buffer around suburban rail stations shows that approximately **8%** of the population falls within accessible catchments, underscoring the suburban line's role in easing pressure on major arterial corridors. Enhancements to station access and multimodal integration could further strengthen its impact and improve its interface with the urban bus network.



(right)
Figure 7: Suburban
transit shed in
Chennai

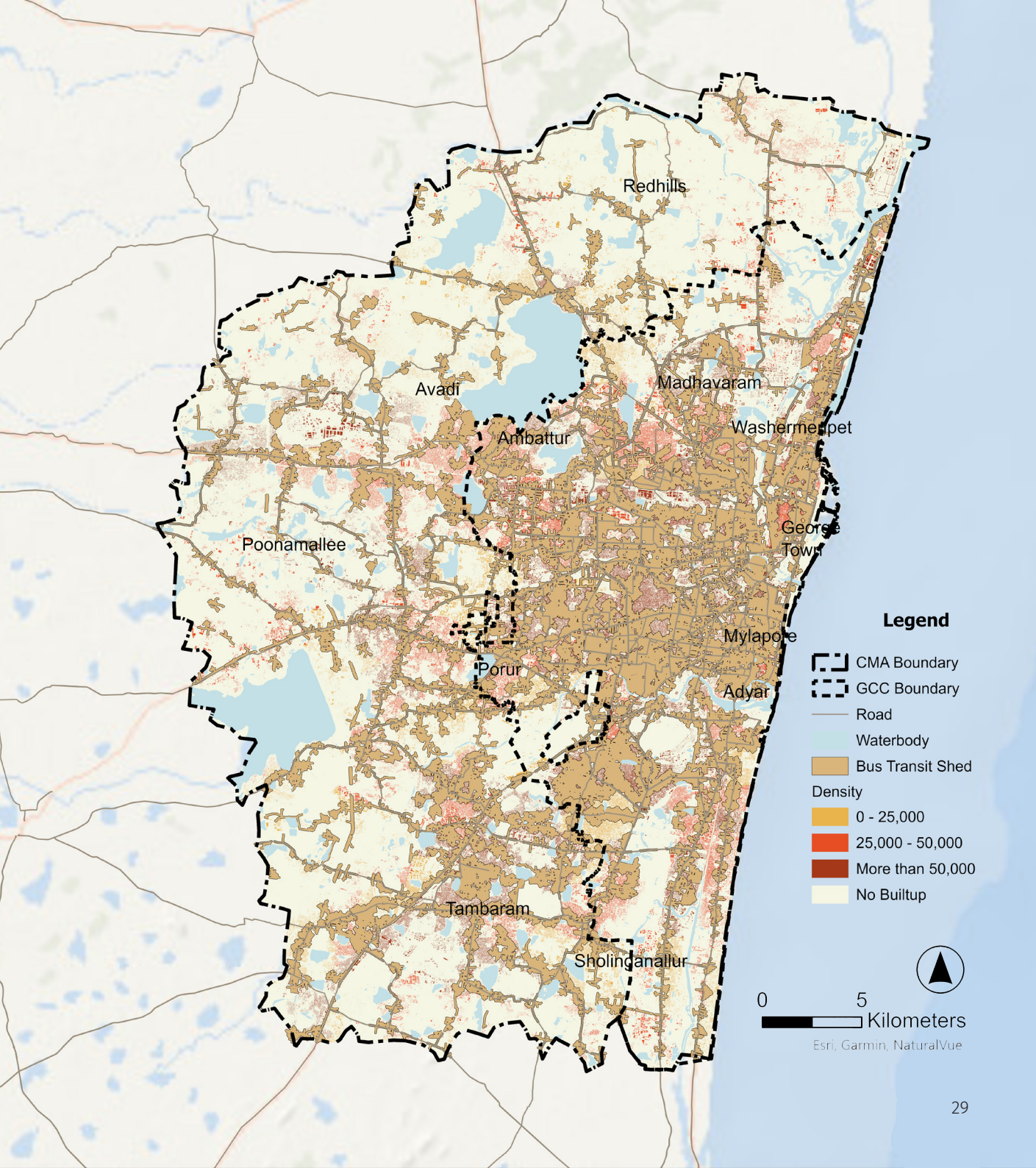


Bus Transit Shed

As the most widely used public transport mode, MTC buses provide extensive spatial coverage, with a 400m (5-minute) walking buffer encompassing **56.5%** of Chennai's population. This broad reach is supported by a network of 4,690 bus stops and closer stop spacing within GCC areas, enabling convenient short-distance travel. In contrast, peripheral CMA zones show comparatively lower coverage due to reduced service density. Targeted optimisation strategies could further strengthen overall bus accessibility and improve service equity across the metropolitan area.



(right)
Figure 8: Bus transit
shed in Chennai

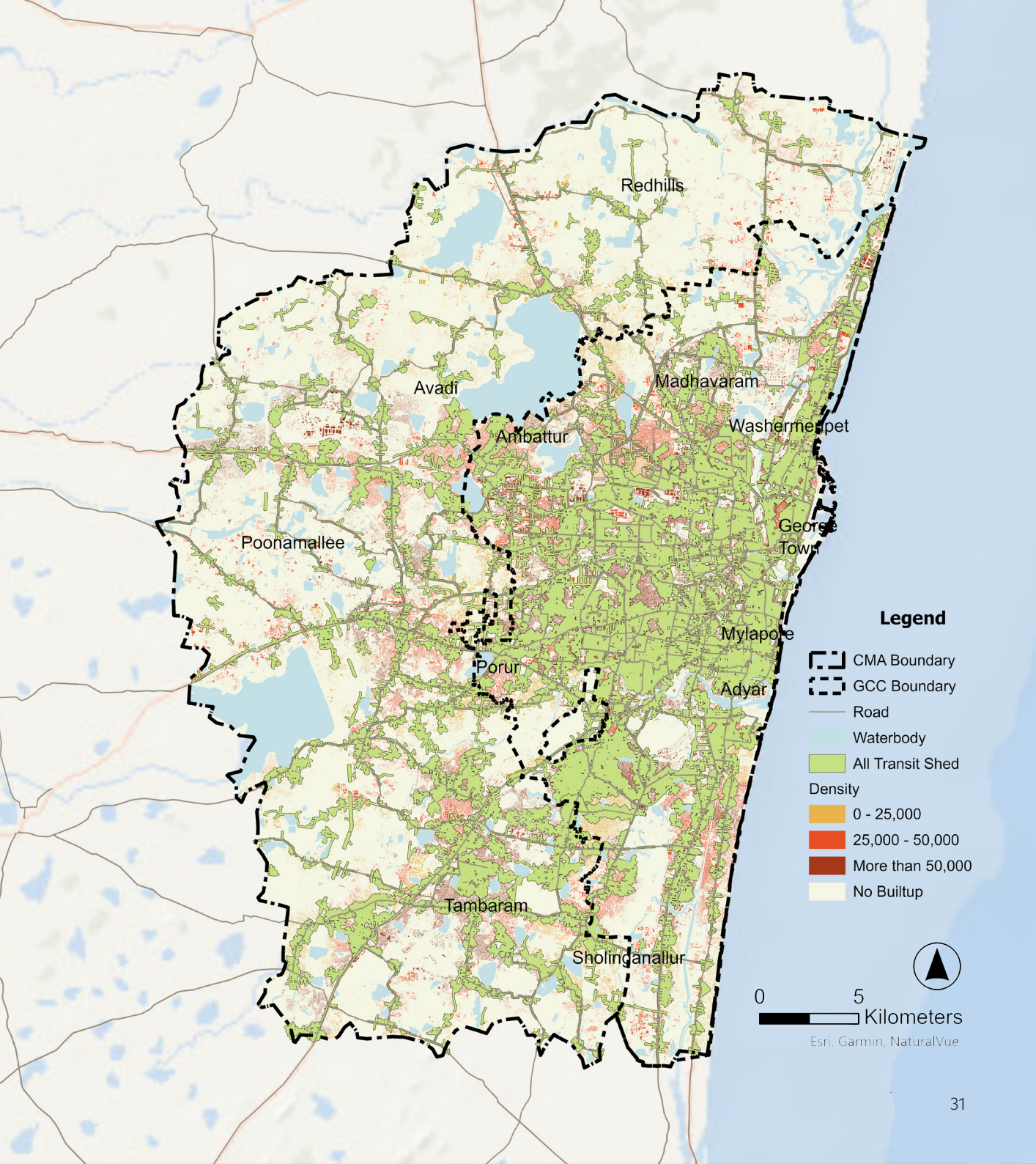


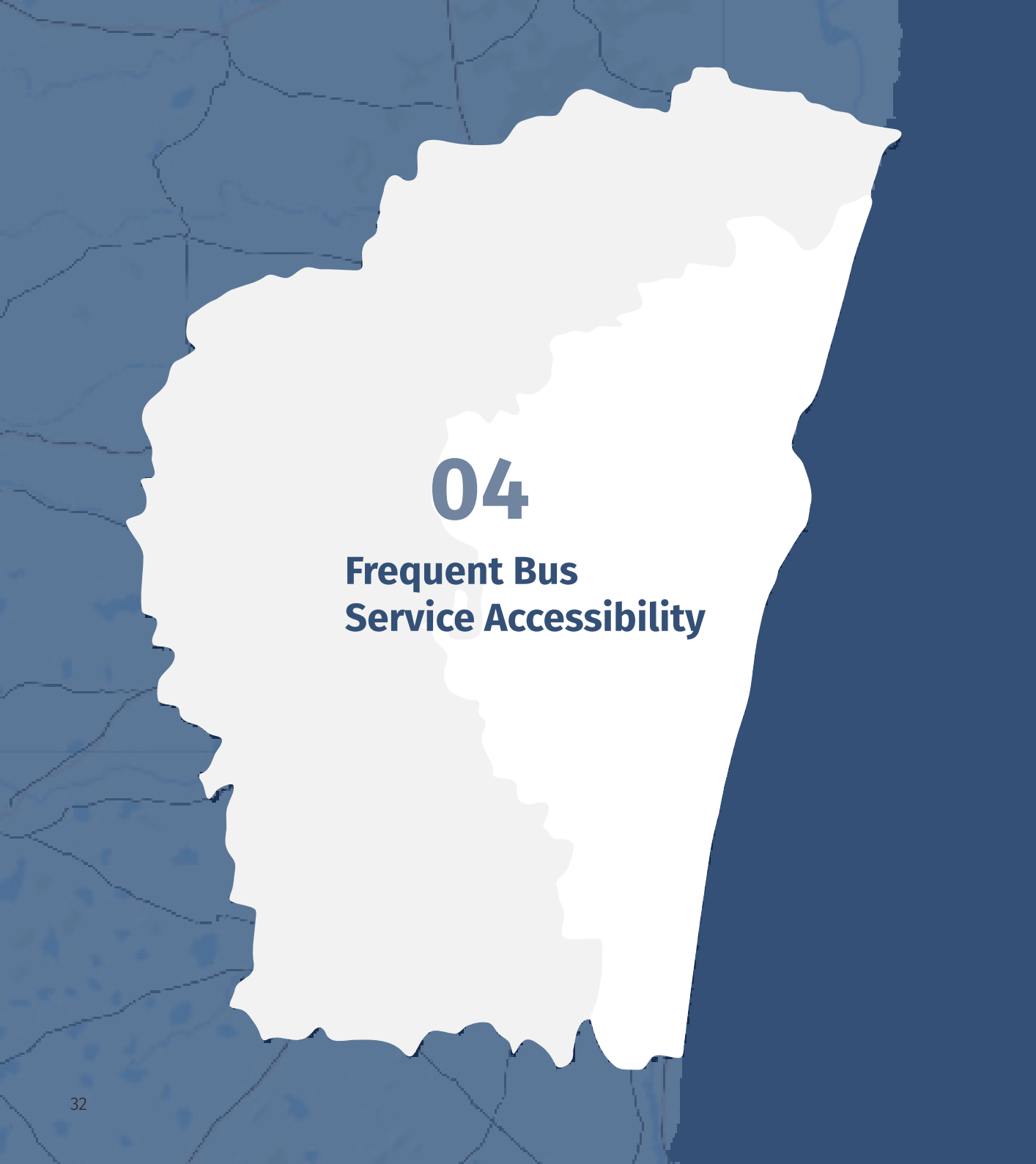
Combined Transit Shed

The metric combines walkable catchments from buses, metro, suburban rail, and MRTS, identifying areas served by at least one mode while avoiding double-counting in overlapping zones. In Chennai, the integrated analysis shows that **61%** of the population can access public transport within standard walking distances. This citywide perspective highlights well- served core areas particularly within central GCC while also revealing pockets of limited accessibility in outward-growing suburban regions.



(right)
Figure 9: Combined
transit shed in
Chennai





04

**Frequent Bus
Service Accessibility**



MTC

2-BADASAN NAGAR
- REGAL -

YK5047

மின் MTC பேருந்து

SWITCH

TN01BY4369



A bus stop is considered part of the frequent bus network if it is served by at least **one bus every 5 minutes**. Incorporating the Frequent Bus Network into the PNT analysis ensures that accessibility reflects not only the physical proximity to a bus stop but also the operational quality of service. Stops with a minimum frequency of one bus every 5 minutes represent reliable transit, offering short waiting times and consistent service availability. By isolating these high-frequency corridors, the PNT analysis can more accurately measure effective transit access, distinguish between low and high-quality service areas, and identify zones where frequency upgrades are necessary to strengthen overall accessibility.

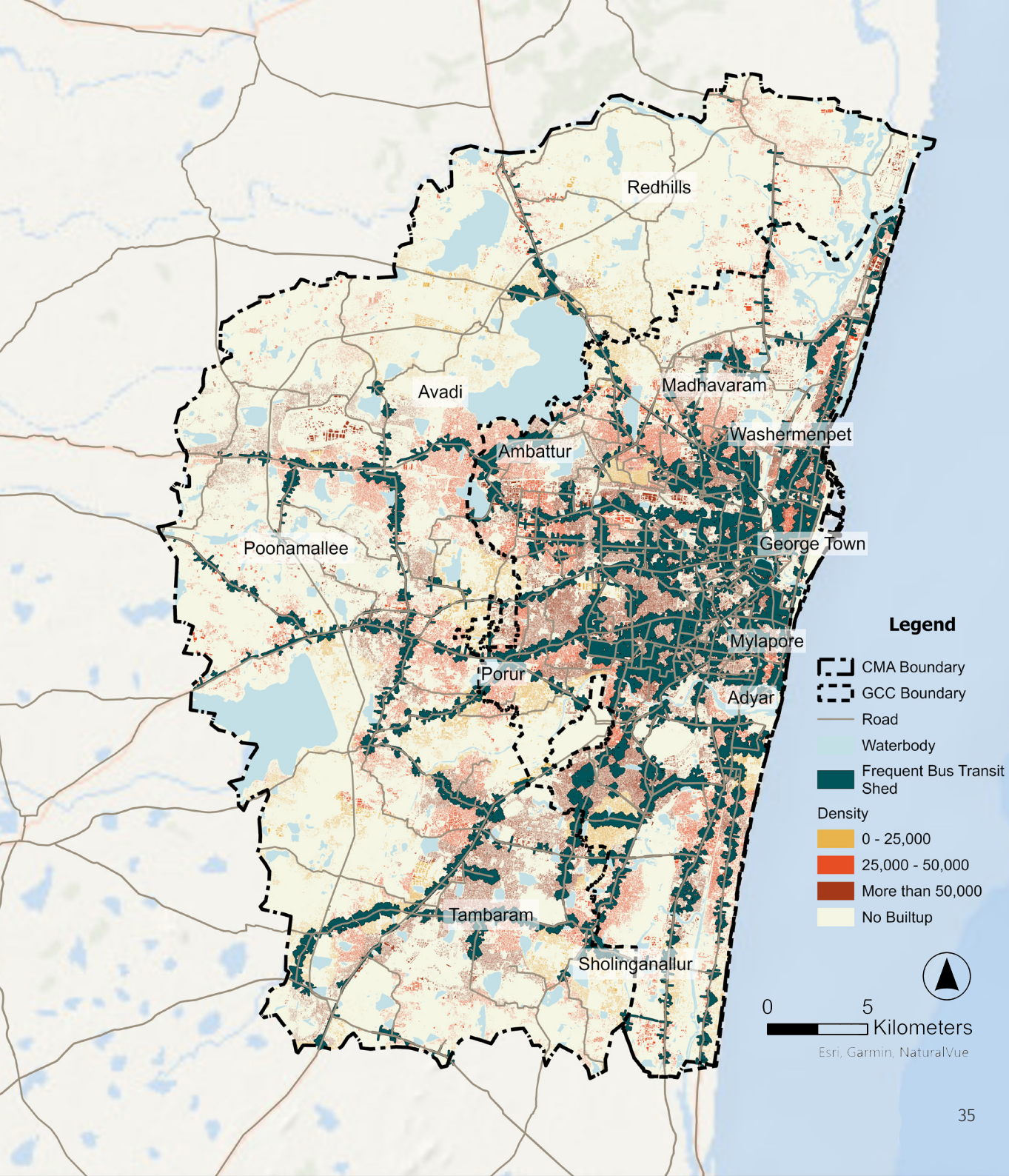
4.1 Frequent Bus Transit Shed

The coverage, though significant, remains below the overall bus shed extent of 56.6%. This indicates that the physical reach of the network often exceeds the reliability of service, particularly in suburban parts of CMA. High-frequency service zones are largely concentrated along major arterial corridors such as Anna Salai and Mount Road, where they effectively cater to peak-hour travel demand.

36% of Chennai's population can access frequent bus network within a 5-minute walk.



(right)
Figure 10: Frequent
bus transit shed.



4.2 Frequent Bus Transit Shed - Gap Analysis

The frequent bus transit shed gap analysis highlights areas in Chennai that remain under-served by high-frequency bus network. By identifying localities beyond a 5-minute walk from frequent transit stops, the analysis pinpoints priority zones where service improvements or new services are needed. These areas also help identify first and last-mile connectivity gaps, where solutions such as small buses or feeder services can be prioritised to strengthen overall accessibility.

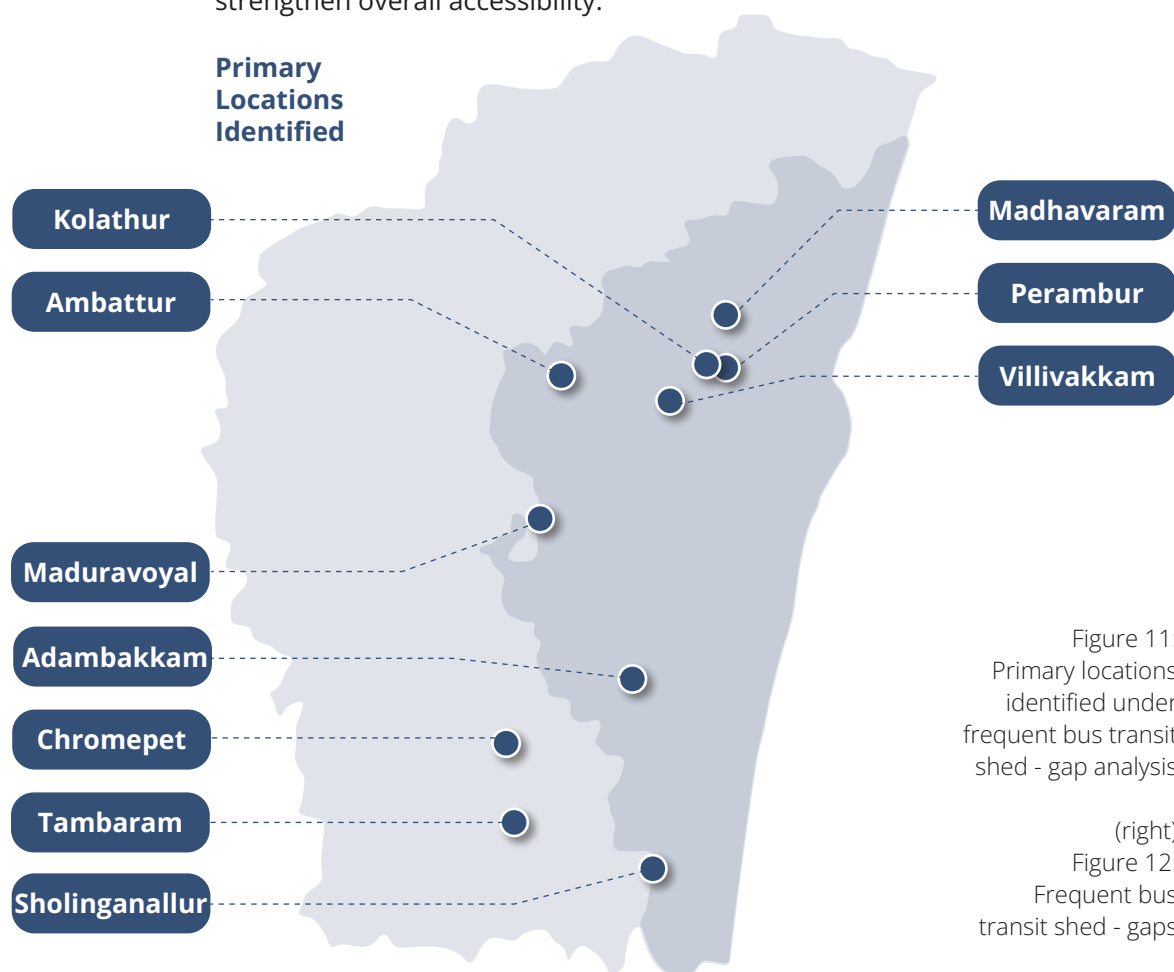
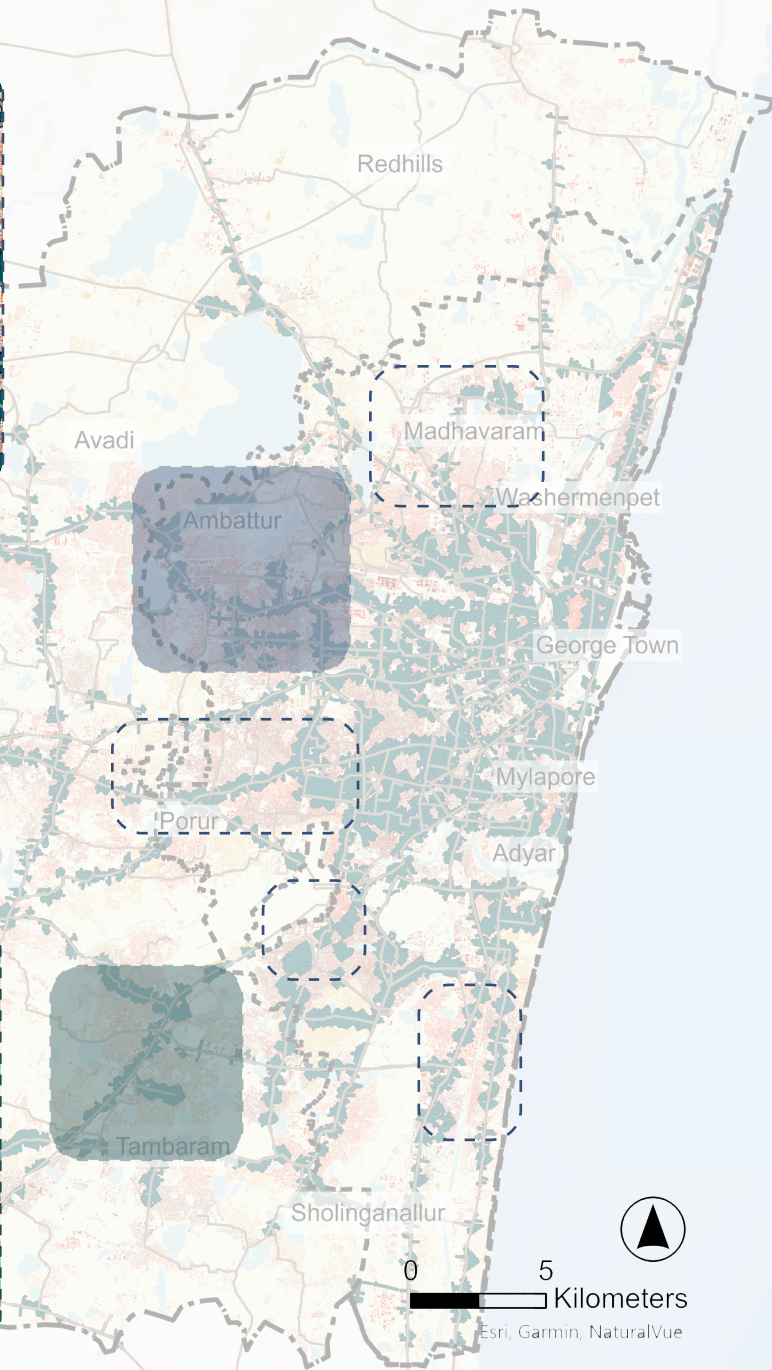
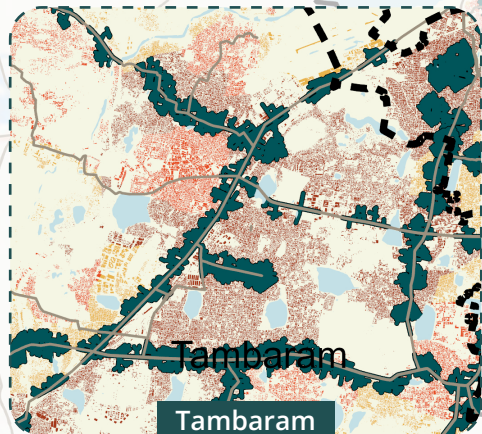
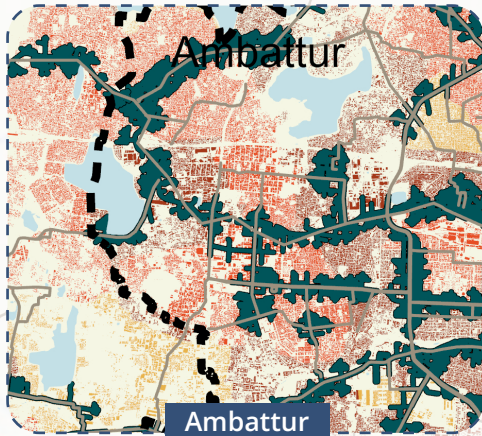


Figure 11:
Primary locations
identified under
frequent bus transit
shed - gap analysis

(right)
Figure 12:
Frequent bus
transit shed - gaps



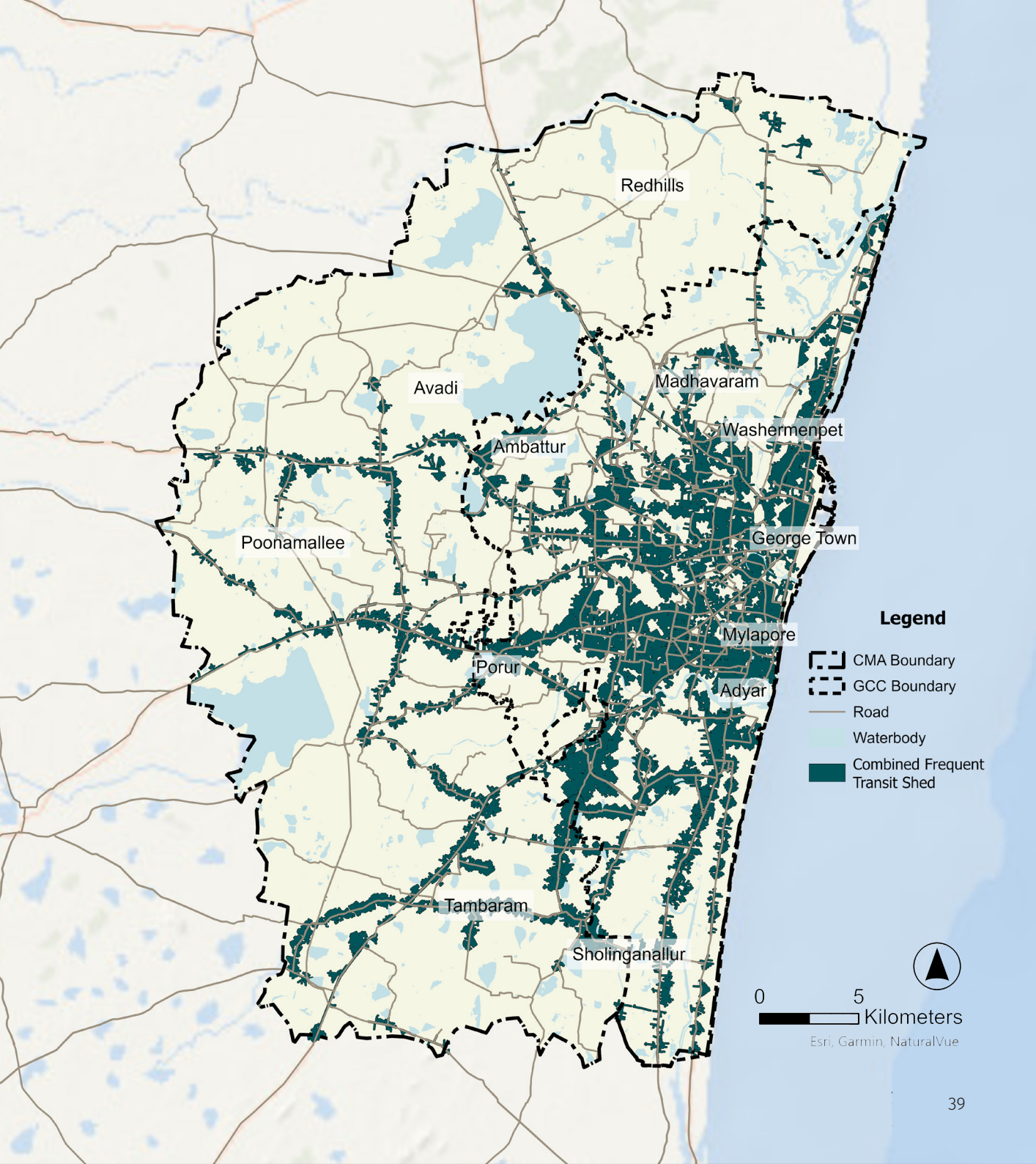
4.2 Combined Frequent Transit Shed

The walking catchments of frequent bus services, metro stations, and suburban rail stations were integrated to evaluate citywide access to high-quality public transport in Chennai. Since all three modes offer reliable and frequent services, they were consolidated into a single 'frequent transit shed' representing the combined high-frequency catchment area.

46% of Chennai's population can access combined frequent service within a 5 to 10 minute walk



(right)
Figure 13: Combined frequent transit shed.



Legend

- CMA Boundary
- GCC Boundary
- Road
- Waterbody
- Combined Frequent Transit Shed

0 5 Kilometers

Esri, Garmin, NaturalVue



05

**Accessibility to
Activity Centres**

This analysis evaluates how well frequent bus services support major urban activity zones within the GCC area, including high-demand destinations such as workplaces and educational institutions. By mapping frequent transit access around these zones, it highlights areas with strong connectivity as well as locations where service gaps exist. These insights help guide targeted improvements to ensure reliable and efficient mobility for daily city activities.



5.1 Frequent Bus Transit Access: Employment Centres

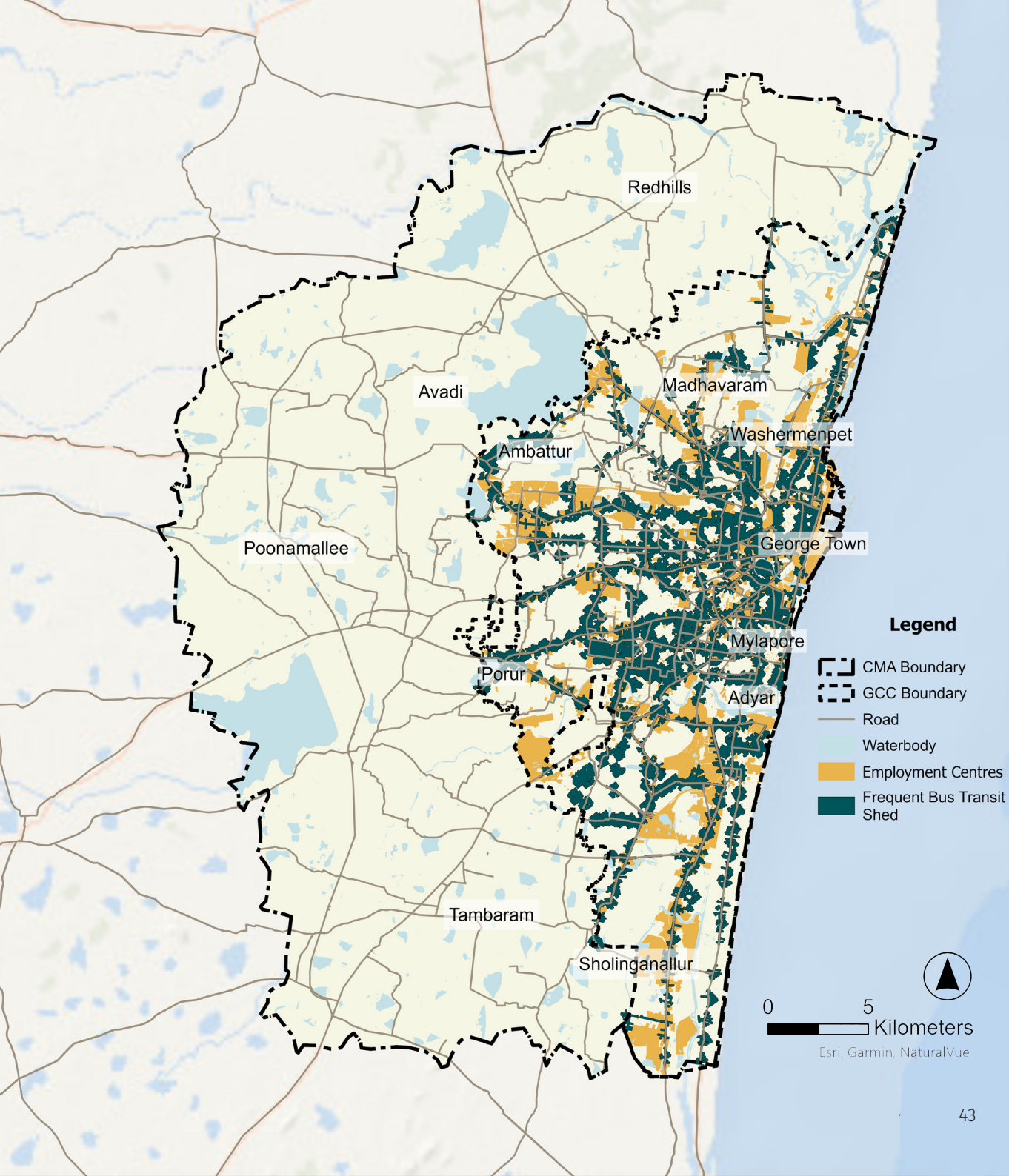
Understanding how well frequent bus services connect to employment-generating areas is essential for supporting daily commuter movement in the GCC region. These zones attract large travel demand and play a crucial role in shaping mobility patterns.

Within the GCC, 14% of the area comprises employment-generating centres, including commercial, industrial, and institutional land uses.

In the zones that are distant from frequent routes, some disparities emerge. Workers face issues such as long walking distances and unreliable public transport, often leading to increasing private vehicle use.



(right)
Figure 14: Frequent
bus transit access:
employment centres.



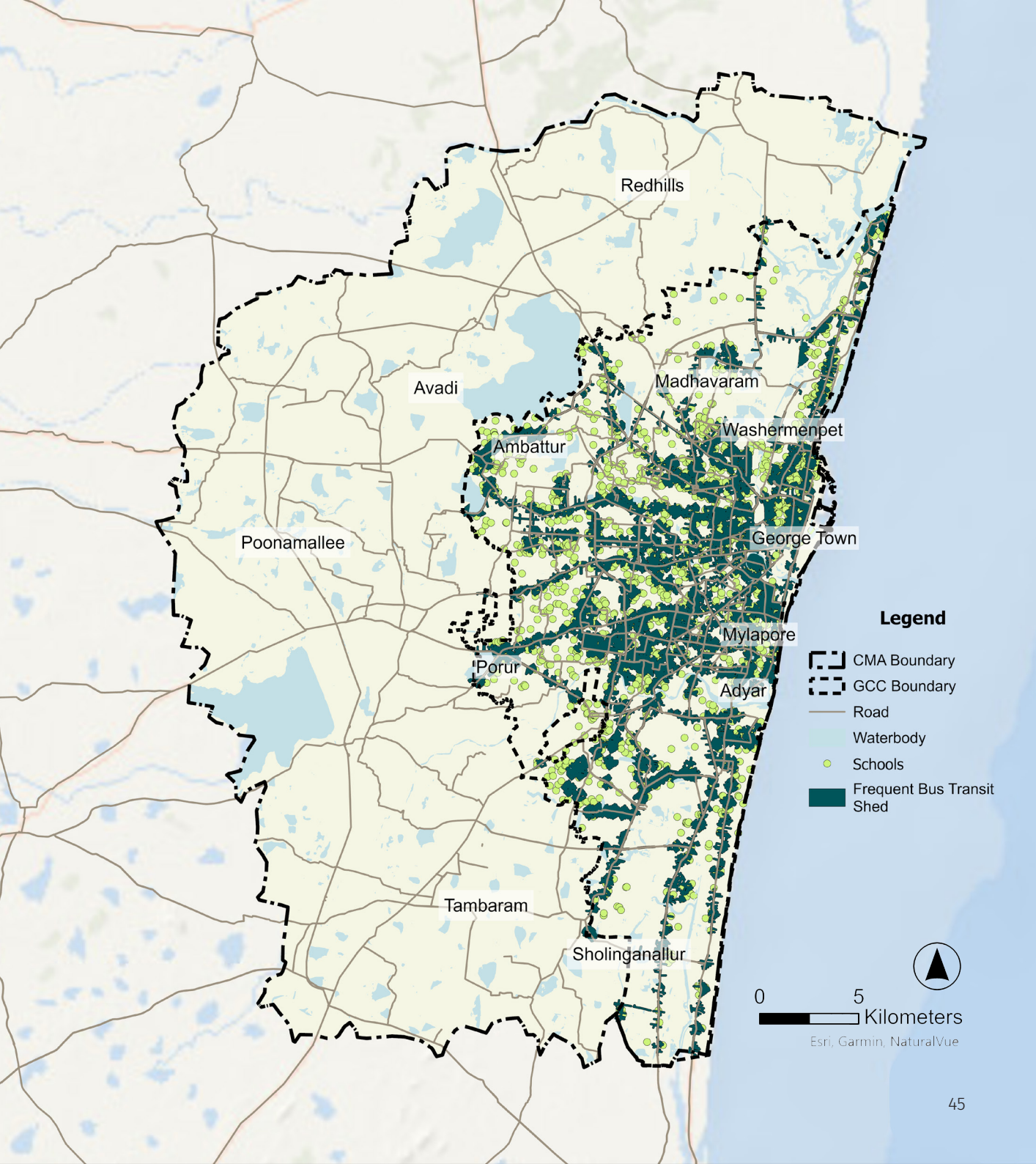
5.2 Frequent Bus Transit Access: Schools

Frequent bus connectivity to schools is essential for ensuring safe, reliable, and convenient travel for students across the GCC region. These institutions generate high trip volumes during peak hours and strongly influence the city's mobility patterns.

The gap analysis identifies school locations in the GCC that lack adequate access to frequent bus services. These areas highlight priority zones where route improvements, service additions, or last-mile solutions are needed to ensure safe and reliable student travel. The analysis also pinpoints locations with the greatest need, thereby supporting planning for dedicated bus service schemes for school students, operated by MTC.



(right)
Figure 15: Frequent
bus transit access:
schools





06

**Accessibility to
Footpath**



The adoption of the Non-Motorised Transport (NMT) Policy in 2014 marked a step towards improving walkability and creating safer streets for all users in Chennai. Between 2013 and 2019, the city developed around 170 kilometres of footpaths along Bus Route Roads, improving accessibility to bus stops, schools, and other key destinations.

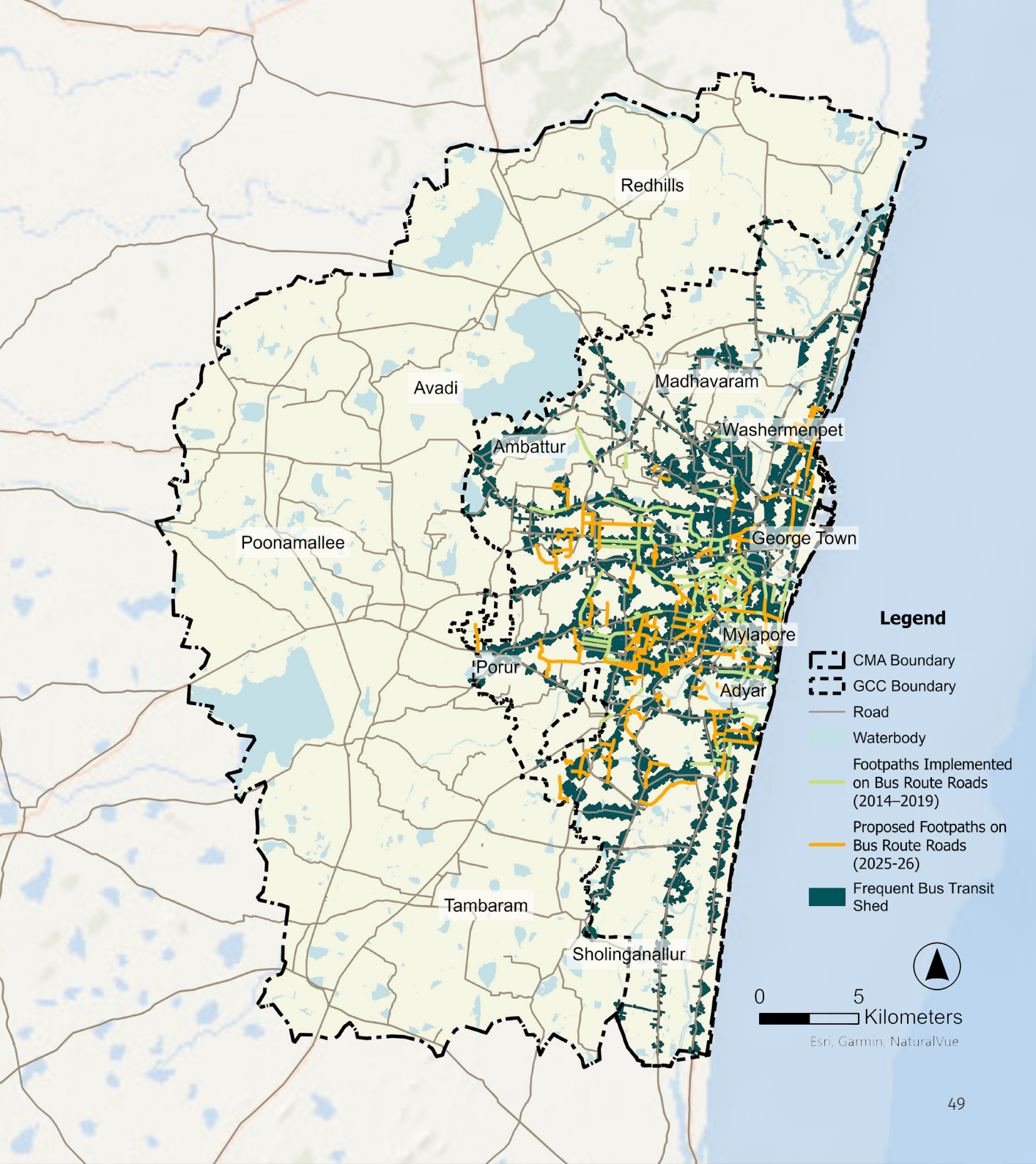
6.1 Proposed Footpath on Bus Route Roads

Building on these efforts, the Hon'ble MAWS Minister, in the 2025–26 Budget announcement, allocated Rs. 200 crore for the development of new footpaths to further strengthen the city's pedestrian network. Under this initiative, around 100 km of streets have been identified for footpath development, as indicated on the map. When the completed and proposed corridors are combined, about 77% of the total corridors fall within the Frequent Transit Shed, indicating strong integration between pedestrian infrastructure and high-frequency public transport routes.

77% of total corridors fall within frequent bus transit service.



(right)
Figure 16:
Proposed footpath
on bus route roads.





07

**Priority Areas For
Implementation**

This analysis identifies priority areas within the CMA where improvements in bus transit access are most needed. By combining gaps observed in frequent transit coverage, employment centres, and school locations, the study provides a comprehensive view of locations requiring targeted interventions. These areas represent the strongest opportunities for enhancing service reliability, connectivity, and accessibility across the city.

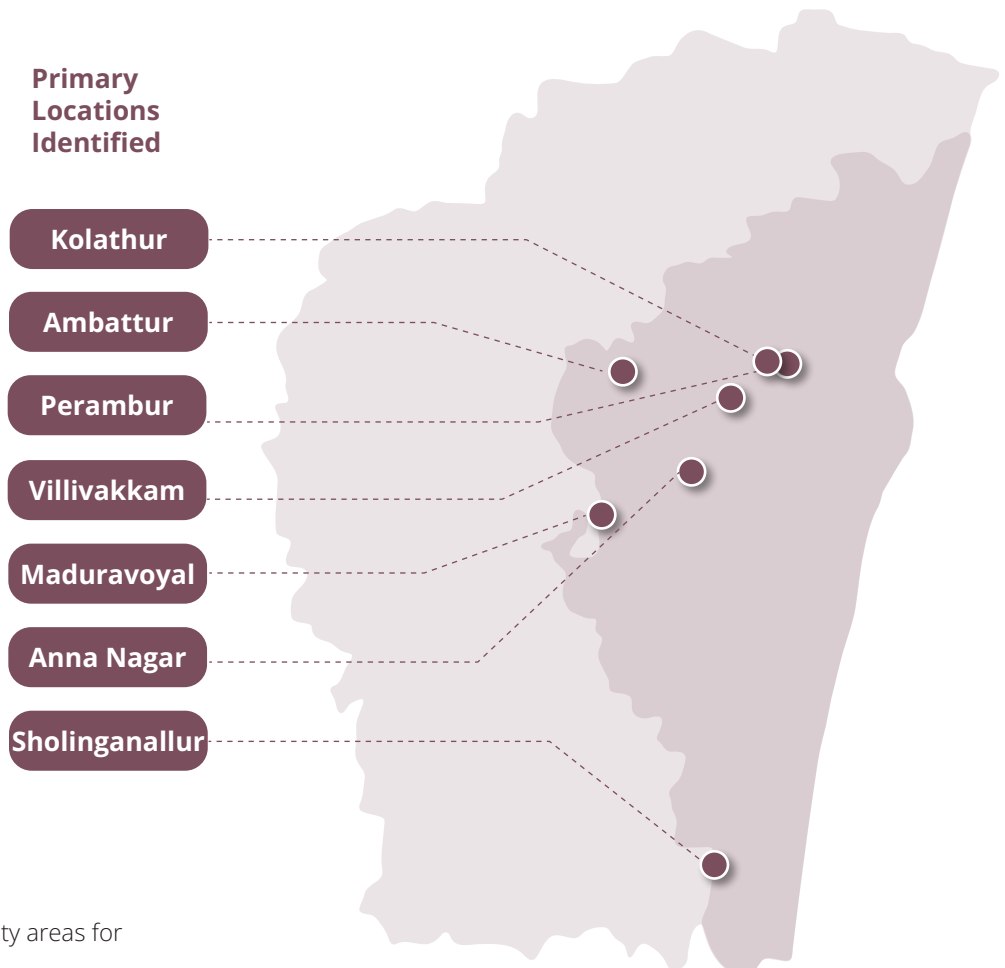
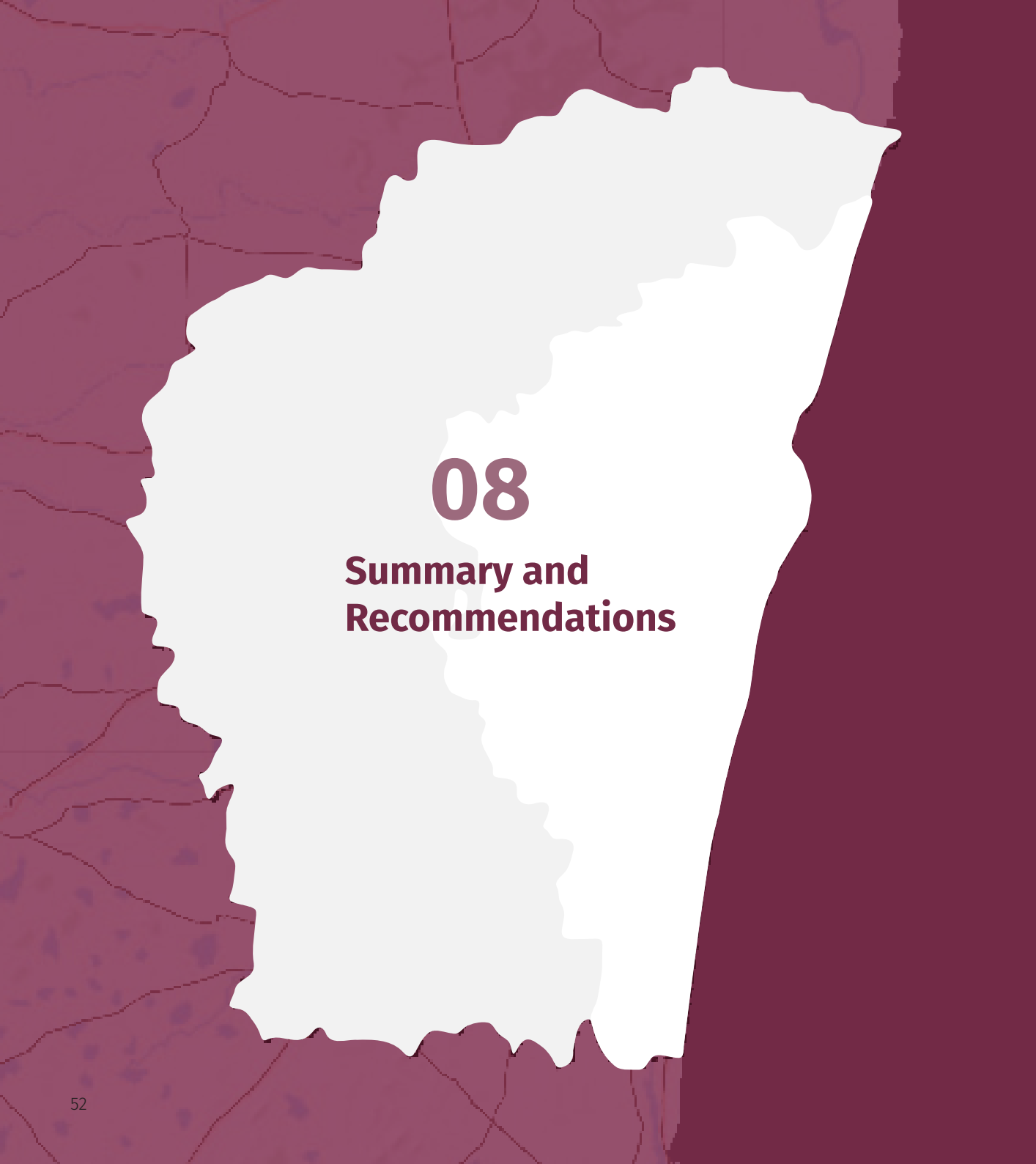


Figure 17: Priority areas for implementation



08

Summary and Recommendations

The PNT assessment presents a clear picture of Chennai's public transport landscape, highlighting strong foundational coverage but clear opportunities for improvement in network design, service frequency, and multimodal integration. Citywide, 61% of residents live within walking distance of at least one public transport mode, largely driven by the bus network's 56.5% coverage. Metro and suburban rail currently serve 9.5% and 8% of the population respectively, with metro accessibility expected to rise significantly to 23% after the completion of Phase 2. When considering service quality, 36% of the population benefits from frequent bus services, reflecting a solid backbone, but revealing gaps that limit seamless connectivity. Within the GCC region, 44% of employment centres and 52% of school-going children fall within frequent-service zones, underscoring the need to strengthen both first and last mile connectivity.



8.1 Strategic Recommendations

Based on PNT insights, the following strategies can strengthen system-wide public transport accessibility:

1

Bus Network Enhancement:

Redesigning routes, adding stops, and optimising headways to extend frequent-service coverage into underserved area.

3

Improved Multimodal Integration:

Developing feeder services, cycling links, and prioritising stronger pedestrian access to improve accessibility around multimodal transit nodes.

2

First and Last Mile Initiatives:

Improving pedestrian and cycling infrastructure and targeted feeder services to strengthen connectivity between neighbourhoods and major transit stations, particularly in low-access areas.

4

Monitoring and Evaluation:

Integrating PNT indicators into public transport planning and decision making helps track progress alongside urbanisation and transit expansions.

