CASE STUDY

Superblocks
| Barcelona

The Superblocks have not only helped enhance mobility outcomes within the neighbourhoods but also delivered wide-ranging health and social benefits with more public spaces dedicated for gathering, play and connection.

Barcelona is widely recognised as one of Europe's leading cities for sustainable urban mobility. The city's compact urban form, combined with its extensive multimodal land transport network—such as its metro, trams, buses and bike-share system—enable strong connectivity, supporting over 80% of trips made by walking, cycling or public transport today.[32]

This was, however, not always the case. As one of Europe's densest cities, Barcelona grappled with a complex urban paradox in the 2000s. While its dense urban fabric supported walking and vibrant street life, cars occupied approximately 50% to 70% of its roads, which led to fewer green and public spaces being accessible for recreational activities. Interconnected challenges such as air and noise pollution, road safety issues and limited opportunities for physical activity prompted the city to rethink how its street space was allocated.[33]

The Barcelona City Council introduced the Superilles, or Superblocks, programme in 2016 to reclaim its streets for public use and to enhance mobility, environmental and social outcomes in the city.

Barcelona
in numbers

Area (2025)
101.4 km²

Population (2025)
1.71 million

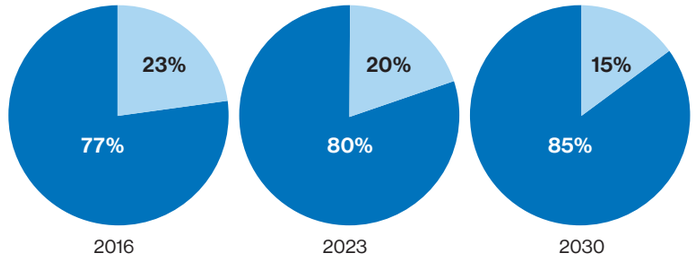
Population Density (people per km²) (2025)
~16,900

Average Green Space per Capita (2016)
7 m²
(below the World Health Organization's recommendation of 9 m² per capita)

Cars per km² (2021)
5,844
(highest car density in Europe)

Noise Pollution Resulting from Road Traffic (2020)
>86%

Modal Share



* Sustainable mobility modes include walking, cycling, public transport and personal mobility devices.

Note: Figures are rounded off to the nearest decimal

Urban Mobility Plan 2025–2030

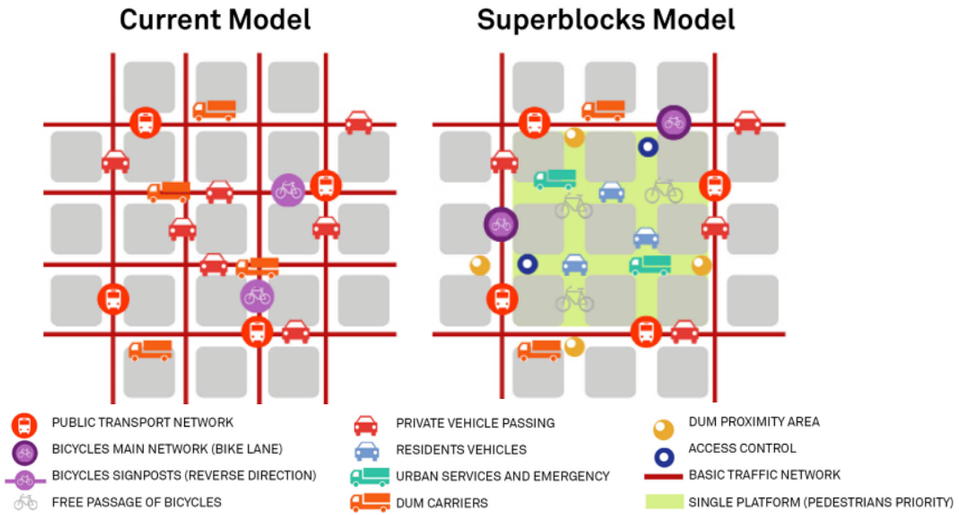
The plan sets out a roadmap to transform the city's transport system towards a more sustainable and people-centric model. Building on a sustainable mode share of over 80%, it targets 85% of all journeys to be via sustainable modes by 2030, while reducing private vehicle use and increasing public transport, cycling and personal mobility trips.[34]

The main goals of the Urban Mobility Plan are to:

- Reduce private car use
- Improve air quality
- Expand liveable public space
- Address urban inequalities

Sources: Instituto de Estadística de Cataluña (Area,[35] Population,[36] Population Density[37]), Barcelona City Council (Modal Share[38]), Ajuntament de Barcelona (Green Space per Capita,[39] Cars per km²,[40] Noise Pollution,[41] Urban Mobility Plan[42]) (see endnotes for citations in full)

RECLAIMING STREETS FOR THE PEOPLE



Road space within the Superblocks is reclaimed to prioritise pedestrians and active mobility modes, and to introduce more public spaces for the community.

A Superblock typically consists of a group of nine city blocks, on a three-by-three grid, aggregated into a larger unit. Within each Superblock, through-traffic is restricted by design, with only local access permitted for residents, deliveries and emergency services. Motorised vehicles must enter and exit in the same direction, eliminating shortcutting traffic and calming vehicle speeds. Major through-traffic is redirected to perimeter arterial roads designed to absorb the redistributed flows.[43] This design reclaims up to 70% of former road space for pedestrians, cyclists, urban greenery, play areas and community use.[44]

At its core, the Superblocks programme aims to:

- Improve air quality
- Reduce noise pollution
- Expand accessible public space
- Promote health and well-being
- Improve road safety

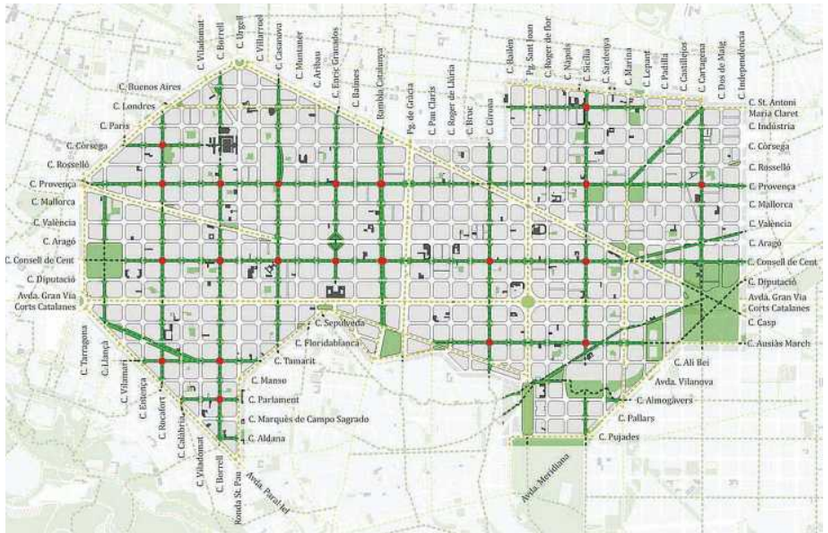
EARLY IMPLEMENTATION AND ITERATION

Between 2016 and 2019, Barcelona launched its first three Superblocks under the city's "Omplim de vida els carrers" ("Let's fill the streets with life") campaign in the neighbourhoods of Poblenou, Sant Antoni and Horta.

The first Superblock in Poblenou faced considerable resistance due to its ad hoc rollout, limited community input and concerns about gentrification and displacement. In response, the City Council revised its approach, making citizen consultation and participation one of the core elements in the planning and design of subsequent Superblocks. This early experience underscored the importance of strong local governance, iterative design and meaningful participation to legitimise the project and secure long-term support, resulting in much better reception in Sant Antoni and Horta.

The Superblocks helped reclaim streets for play, recreation and social life—vital elements in a city with limited green space.

ADAPTING THE MODEL TO THE GREEN AXES IN EIXAMPLE



Planned network of Superblocks and Green Axes in the Eixample district.

Building on lessons from the pilots, Barcelona adapted the Superblocks concept to introduce the Green Axes plan for the Eixample district—one of the city's most congested and polluted areas. The revised strategy aims to rebalance Eixample's car-dominated grid by improving active mobility infrastructure, expanding tree cover, improving sustainable drainage and transforming intersections into public spaces. The Green Axes initiative is estimated to create 21 green corridors and 21 urban squares, adding nearly 0.4 km² of pedestrian space and greenery to the district.[45]

The concept has inspired a broader shift towards integrating Superblocks with complementary urban initiatives such as safer school streets, new cycling lanes, major avenue redesigns and new public parks. These demonstrate that the Superblocks programme is not a static blueprint but a flexible, evolving toolkit that can be adapted and scaled to the local context to realise mobility, environmental and social benefits citywide.

INTERPRETING SUPERBLOCKS THROUGH A CROSS-DOMAIN LENS

The framework was applied to the Superblocks in Sant Antoni and Poblenou, retrospectively, to reveal the cross-domain impacts of the initiative at the neighbourhood level.

Qualitative and quantitative sources, as well as published studies, were drawn upon to conduct the analysis. The Prioritisation Tool was applied to determine the outcome priorities for the Superblocks programme. While these weightings were not used in the original planning process, they serve to demonstrate how the framework can reflect local priorities in future applications.

PILLAR	PRIORITY	RATIONALE
MOBILITY	Medium	The Superblocks programme aimed to reorganise street space, improve walking and cycling infrastructure, and introduce traffic calming measures as a means of achieving broader goals around liveability.
ENVIRONMENTAL	High	Improving air quality, reducing noise pollution and introducing urban greenery were key outcomes of the Superblocks programme, particularly in dense areas with limited public space.
SOCIAL & HEALTH	High	A primary goal of the Superblocks programme was to improve safety, well-being, social cohesion and public health outcomes.
ECONOMIC	Low	Improving economic outcomes was not a primary focus of the Superblocks programme, although improved public space and increased footfall may support local activity and neighbourhood vitality over time.

The outcome priorities for the Superblocks programme, as determined by the application of the Prioritisation Tool.

MOBILITY PILLAR OUTCOMES

- Traffic calming measures in the Sant Antoni Superblock led to a 17% decrease in traffic.[46]
- A significant increase in active travel was observed, with more residents feeling safer within the Superblock, and choosing to walk or cycle, especially in areas where improvements in street design were accompanied by green space enhancements and traffic calming measures.
- However, there were concerns about displaced traffic causing increased congestion on boundary roads.[47] This highlights the importance of considering system-level impacts or externalities outside the project boundary for place-based or neighbourhood-scale interventions.

ENVIRONMENTAL PILLAR OUTCOMES

- The Poblenou Superblock was reported to have added 193 new trees and created 7,608 m^2 of space for greenery in the neighbourhood,[48] enhancing environmental outcomes of the area.
- In Sant Antoni, there were reported improvements in air pollution, with nitrogen oxide (NO_2) levels falling by 25% and PM10 levels by 17%, alongside reductions in noise.[49] In Poblenou, measured changes were limited, but residents provided qualitative feedback that there was a reduction in both air and noise pollution.[50]
- However, recent air pollution modelling suggests that these gains may not be uniform across the city. Studies caution that reductions in NO_2 concentrations within the Superblocks may be offset by increases in surrounding areas due to traffic re-routing.[51] This highlights the need to be cognisant of unintended trade-offs to areas outside of the project's boundary.

Mapping the cross-domain outcomes associated with the Superblocks.

The Sant Antoni and Poblenou Superblocks have not only improved the safety of the neighbourhoods, but have provided more public spaces to support stronger social cohesion.

SOCIAL & HEALTH PILLAR OUTCOMES

- The Sant Antoni and Poblenou Superblocks have not only improved the tranquillity and safety of these neighbourhoods, but have also provided more public spaces for social cohesion, enhancing the mental well-being of their users.[52]
- In Sant Antoni, it was reported that there was a diverse mix of users in the area, alongside longer dwelling times. In Poblenou, families and office workers, in particular, have been observed to use the repurposed spaces for play and informal gatherings. Where co-creation processes were embedded, residents have described stronger social ties and a deeper sense of community ownership.[53]
- A citywide health impact assessment found that full implementation could prevent 667 premature deaths annually, primarily through reductions in air pollution, traffic noise and heat exposure, alongside increased physical activity and access to green space. This translates to an average life expectancy gain of nearly 200 days and €1.7 billion in annual savings.[54]
- Early resistance in the Poblenou Superblock underscored concerns over gentrification, prompting later pilots to adopt stronger community participation frameworks.

ECONOMIC PILLAR OUTCOMES

- While not a primary objective of the Superblocks programme, improved street environments and reclaimed public space have supported local foot traffic and retail vitality in Sant Antoni and Poblenou.
- At the same time, enhanced liveability has raised concerns over gentrification which would lead to the risk of rising rents and displacement,[55] highlighting the importance of coupling urban design with housing and equity safeguards.

Repurposed street space for play and community life in the Poblenou Superblock.

When viewed through the framework, Barcelona's Superblocks programme delivers co-benefits far beyond mobility alone, redefining how well-designed urban spaces can contribute to better public health, environmental resilience and social equity. The city's latest Urban Mobility Plan 2025–2030 further reflects this recognition and continues to prioritise active mobility infrastructure, expand public transport, improve accessibility and safety, and reduce dependency on cars.