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# Milan's regulatory approach to reducing logistics vehicles emissions

September 19, 2024



## **AGENDA**

**01 Milan's territorial context and traffic regulations**

**02 C40 ZE Freight project - Cycle logistics pilot**

**03 Technical working group**

# 01

## City of Milan territorial context

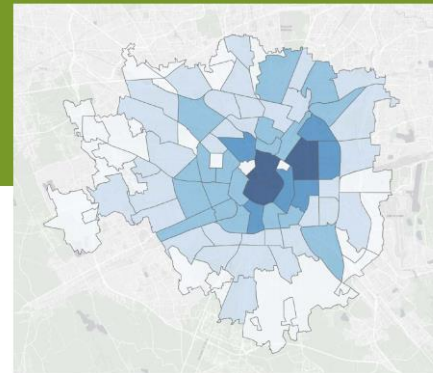


1,4 million inhabitants

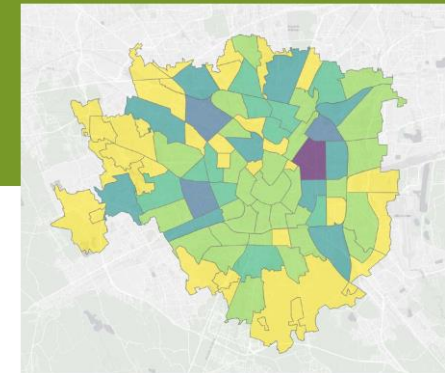
181,8 km<sup>2</sup> surface

40,000 commercial establishments and businesses

Commercial activities distribution



Population distribution



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## Milan's SUMP: 4 macro-areas



PIANO URBANO  
MOBILITÀ SOSTENIBILE  
**MILANO**

**Milan Metropolitan City**

Urban accessibility by public transport

Urban space as a common good

Freight and people mobility demand management



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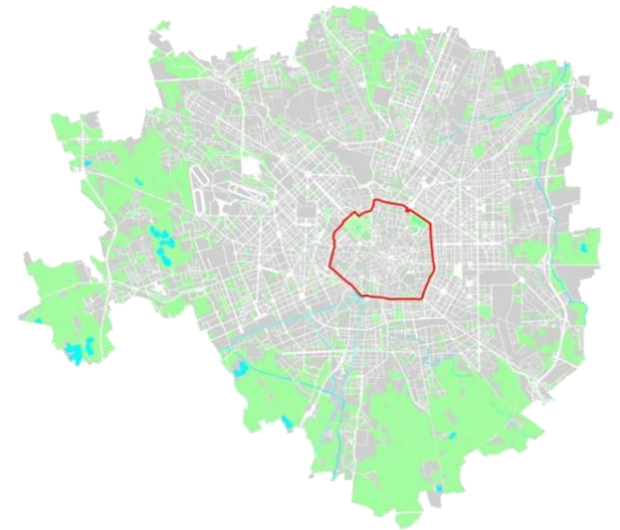
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# Traffic management – Area C

**Area C - Congestion charge area** in the historic center of Milan, implemented in 2012, to improve life conditions of those who live, work, study and visit the city. The access points, monitored by cameras, are 43, including 7 for exclusive use of public transport.

The charge is active Monday to Friday, from 7:30 am to 7:30 pm.

The access ticket price for commercial vehicles is €7.50 and for those registered as service vehicles is €4.50.





## Access forbidden:

- the most **polluting vehicles**, according to the restriction calendar below
- freight vehicles limited to the **time slot 08:00-10:00 am, exception for electric vehicles** and some specific categories
- freight vehicles exceeding **7.5 meters in length**

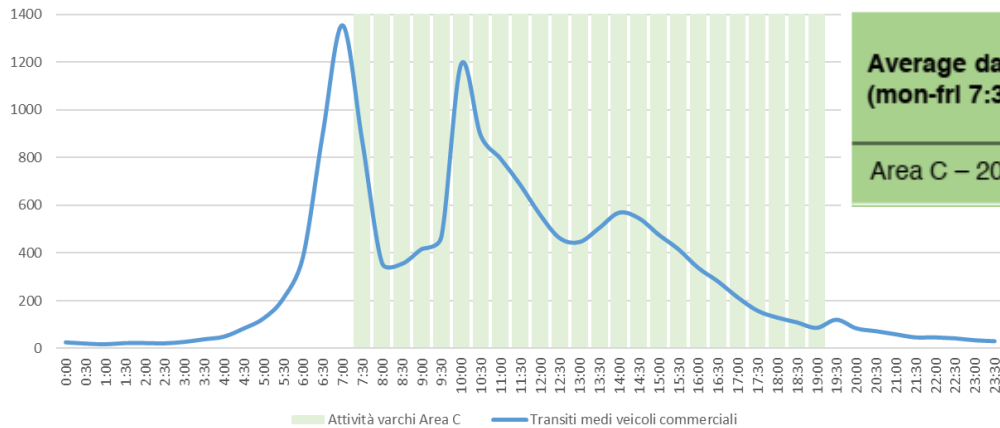
## Free Access:

- electric vehicles, hybrid vehicles (electric-thermal propulsion) with an emission contribution  $\leq 100$  g/km, motorcycles and some special categories

	2019		2022	2024	2027	2028	2029	2030
 PETROL	EURO 0	EURO 1	EURO 2	EURO 3	EURO 4			EURO 5
 DIESEL	EURO 0	EURO 1	EURO 4			EURO 6 A-B-C	EURO 6 D	
	EURO 2	EURO 3	EURO 5				EURO 6 D temp	

# Traffic management – Area C

## Average trend of freight vehicles transits in Area C - Working days



**Average daily access  
(mon-fri 7:30-19:30)**

Area C – 2022

Commercial  
vehicles transits

11.351

Commercial  
vehicles and cars  
transits

77.940

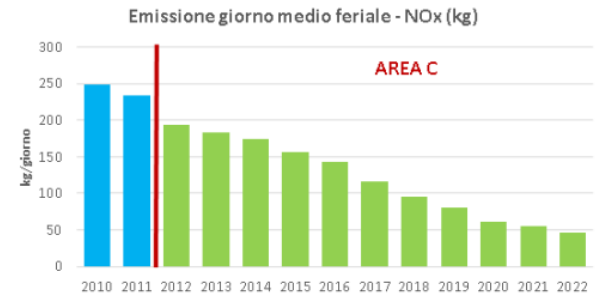
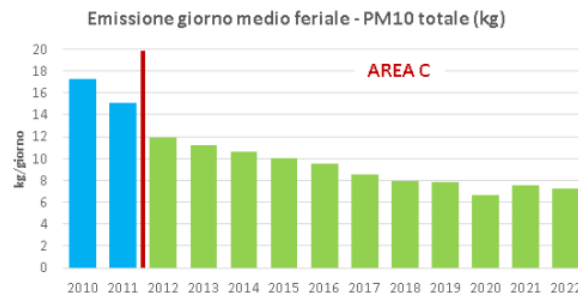
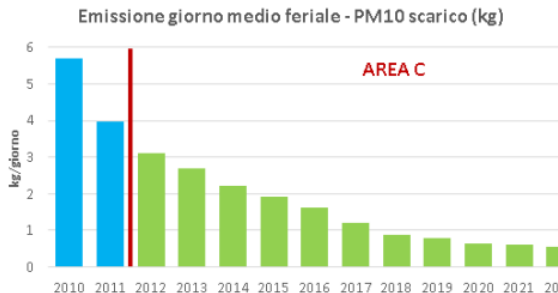
Commercial  
vehicles  
percentage

14%

**Freight vehicles** account for approximately **14% of the total daily transits in Area C**, and over the last three years (2021-2023), an average **annual reduction of 4%** in the number of transits has been recorded.

**Electric freight vehicles** grew from **2.5% in 2019 to 5.9% in 2023**. The most significant increase was seen in **hybrid vehicles** (petrol/diesel), which rose from **0.6% in 2019 to 4.8% in 2023**.

Historical series of daily average atmospheric emissions of PM10 exhaust, total PM10 (i.e., exhaust + non exhaust) and total nitrogen oxides (NOx). The emission values relate to the daytime (7:30 a.m. to 7:30 p.m.) of weekdays during which Ecopass and Area C were active and are expressed in kg/day.



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# Traffic management – Area B

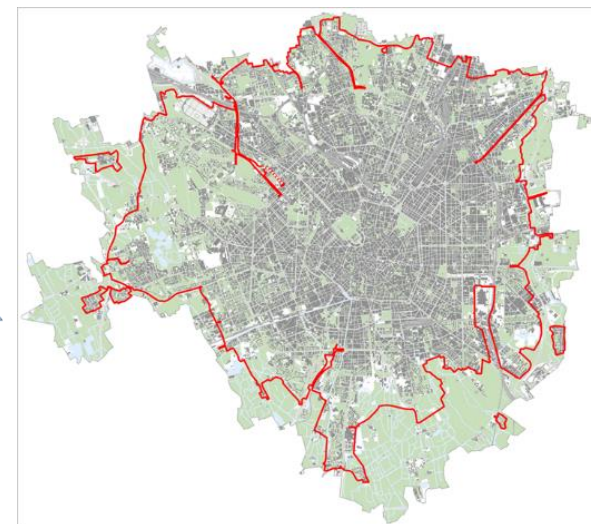
**Area B - Low Emission Zone** covering **70% of the territory** and **97% of Milan's population** is one of the largest Low Emission Zone of Europe.

## Access forbidden:

- the most **polluting vehicles**, according to the restriction calendar below
- freight vehicles exceeding **12 meters in length**

## Always allowed:

- petrol Euro 5 and Euro 6, electric, LPG, methane and hybrid vehicles

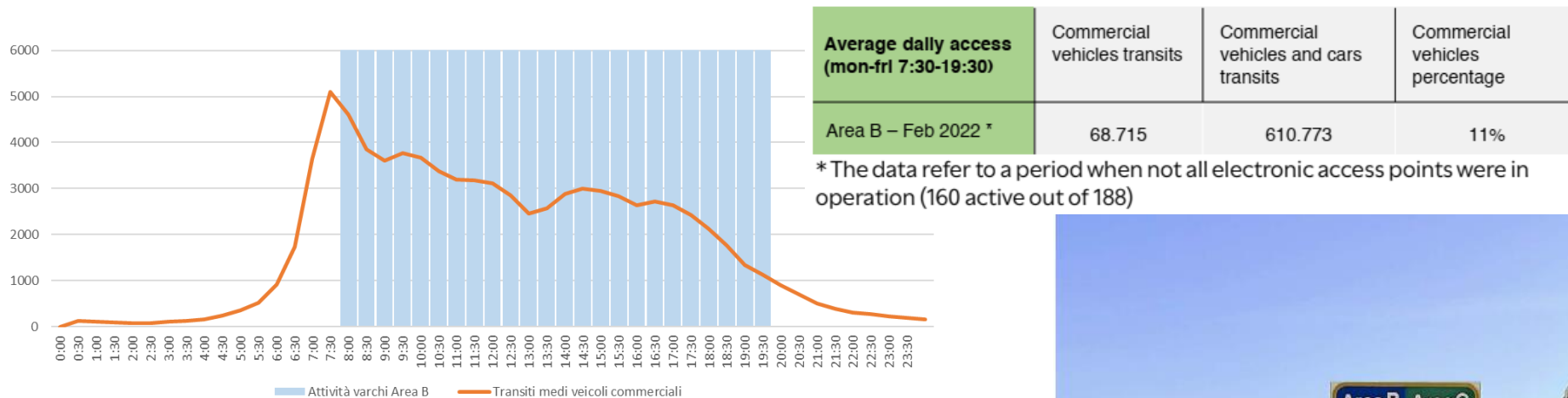


In 2022, the **Move-In project** was launched, granting annual distance allowances to vehicles not complying with the emission ban through an OBU (On-Board Unit) device installed on the vehicles, depending on the type of vehicle (carrying people or goods), its size (number of seats or tons) and its emission class (Petrol or Diesel, Euro class).

**Exemptions granted between 200 and 2000 km depending on the emission class of the vehicle.**



## Average trend of freight vehicles transits in Area B - Working days



### Freight vehicles Emission contribution (INEMAR - INventario EMissioni ARia Regione Lombardia 2019)

- Light goods vehicles account for : 18% on PM10, 21% on NOx and 14% on CO2
- Heavy goods vehicles (GVW > 3.5 tonnes) account for: 12% on PM10, 20% on NOx and 8% on CO2







## C40 Zero Emission Freight Programme – Cycle logistics pilot project

AMAT, in partnership with C40 Cities, the Ingka Group (IKEA Retail), and the Municipality of Milan, coordinated a two-year project (*August 2021 – July 2023*) with the goal of supporting in the transition towards zero-emission urban goods distribution, in line with the commitment to define a major area of the city as a zero-emission zone by 2030.

A **pilot project** was implemented to test cycle logistics in e-commerce last-mile deliveries within a central area of the city of Milan and verify the sustainability of the solution (time for activities, costs, emissions), through the implementation of a micro-hub within the city where to change the mode of delivery from van to cargo bike.



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From 19 Oct 2022 to 15 Dec 2022: 4.117 deliveries tracked



## KPI results



Time	5,5 min/parcel	4,2 min/parcel	- 23%
Costs*	2,35 €/parcel	1,4 €/parcel	- 40%
CO2 emission	67 gCO2eq/parcel	6 gCO2eq/parcel	- 92%
PM10 emission	9,5 mg/parcel	0,7 mg/parcel	- 92%
PM2,5 emission	5 mg/parcel	0,38 mg/parcel	- 92%
Nox emission	323 mg/parcel	24 mg/parcel	- 92%

\* The estimation only takes into account the out-of-pocket costs of personnel assigned to deliveries and handling activities, and the cost of the vehicle; it does not include the general and organisational costs of the facility.



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## Technical working group

In March 2024, a working group was established under the guidance of the Mobility Department of the Municipality of Milan, together with AMAT and the Politecnico di Milano. Through a "data-driven" approach, the current urban logistics system was analyzed, and strategies and distribution solutions are being defined to reduce the impact of transportation on:

- ❖ Congestion
- ❖ Accidents
- ❖ Pollutant emissions

The work has been structured into four phases:

- Definition of the **current framework** for logistics flows and circulating vehicles (*completed*)
- Analysis of the negative **impacts of logistics** on the city (*completed*)
- Identification of **solutions** to mitigate the impacts and estimation of their effects (*in progress*)
- Chosen **solutions** will be compared with stakeholder needs, tested, implemented, and monitored for their effects (*to be developed*)



Thank you for the  
attention!

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