AGENZIA MOBILITÀ AMBIENTE TERRITORIO

Public Transport Governance Model and LTZ in Milan

Comune di Milano

Milan, May 27th 2026

OVERVIEW ON MILAN’s PUBLIC TRANSPORT GOVERNANCE

Milan's PT Governance: A multi-level metropolitan system

FROM MUNICIPAL CONTROL TO METROPOLITAN GOVERNANCE

Milan's public transport system has evolved **from a municipal model to a multi-level metropolitan governance system**. The system is based on the **separation** between:

- **Political direction**
- **Planning and regulation**
- **Service operations**

This transformation derives from:

- **EU liberalization** and competition principles in public transport
- **Italian national TPL reforms**
- Lombardy Regional Reform introducing the **"Basin Agencies" model**

KEY GOVERNANCE PRINCIPLE

The regulator is no longer the same actor as the operator

Credits: ATM

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Roles and Responsabilities

Lombardy Region
Strategic and regulatory level
Responsibilities:
•Defines the regional regulatory framework
•Allocates financial resources
•Coordinates regional mobility policies
•Oversees regional rail transport
•Manages strategic relations with:
- Trenord
- Railway infrastructure managers

Regione Lombardia

TPL Basin Agency
Metropolitan coordination level
Responsibilities:
•Planning and regulation
•Service integration
•Contract management
•Coordination between territories and operators

Agenzia TPL
Milano Monza e Brianza Lodi Pavia

Municipality of Milan
Urban mobility and infrastructure level
Responsibilities:
•Urban mobility policies
•Road space regulation
•Sustainable mobility measures
•Infrastructure investments
•Urban planning integration
Examples:
•Metro expansions
•Tram priority corridors
•Low Emission Zones (Area C / Area B)
•Cycling infrastructure

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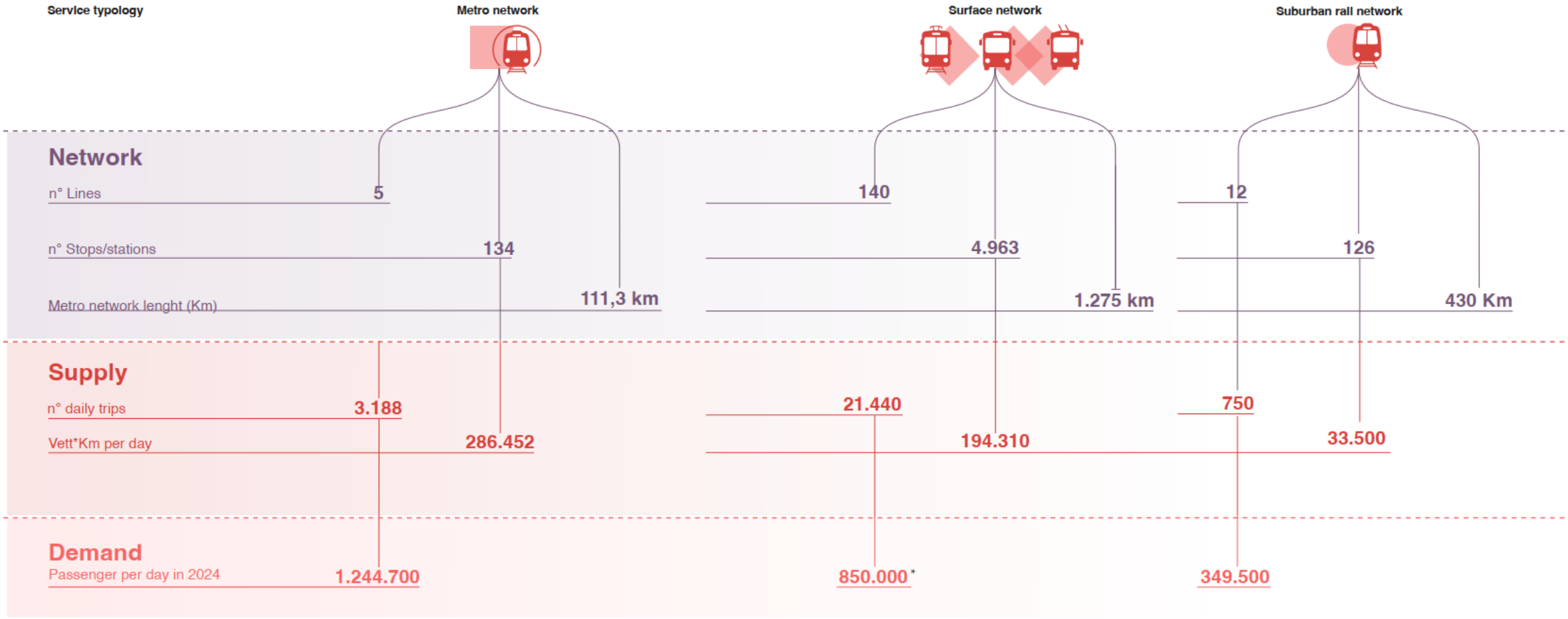
Operators
Operational level
Main actors:
•ATM → metro, tram, bus, trolleybus
•Trenord → regional and suburban rail
•Private and contracted bus operators

ATM

TRENORD

...

PT Key Figures



* Estimated data

In 2024, total revenue from ticket sales amounted to **€431 mIIIIons**, of which **46,4%** derived from travel pass subscriptions

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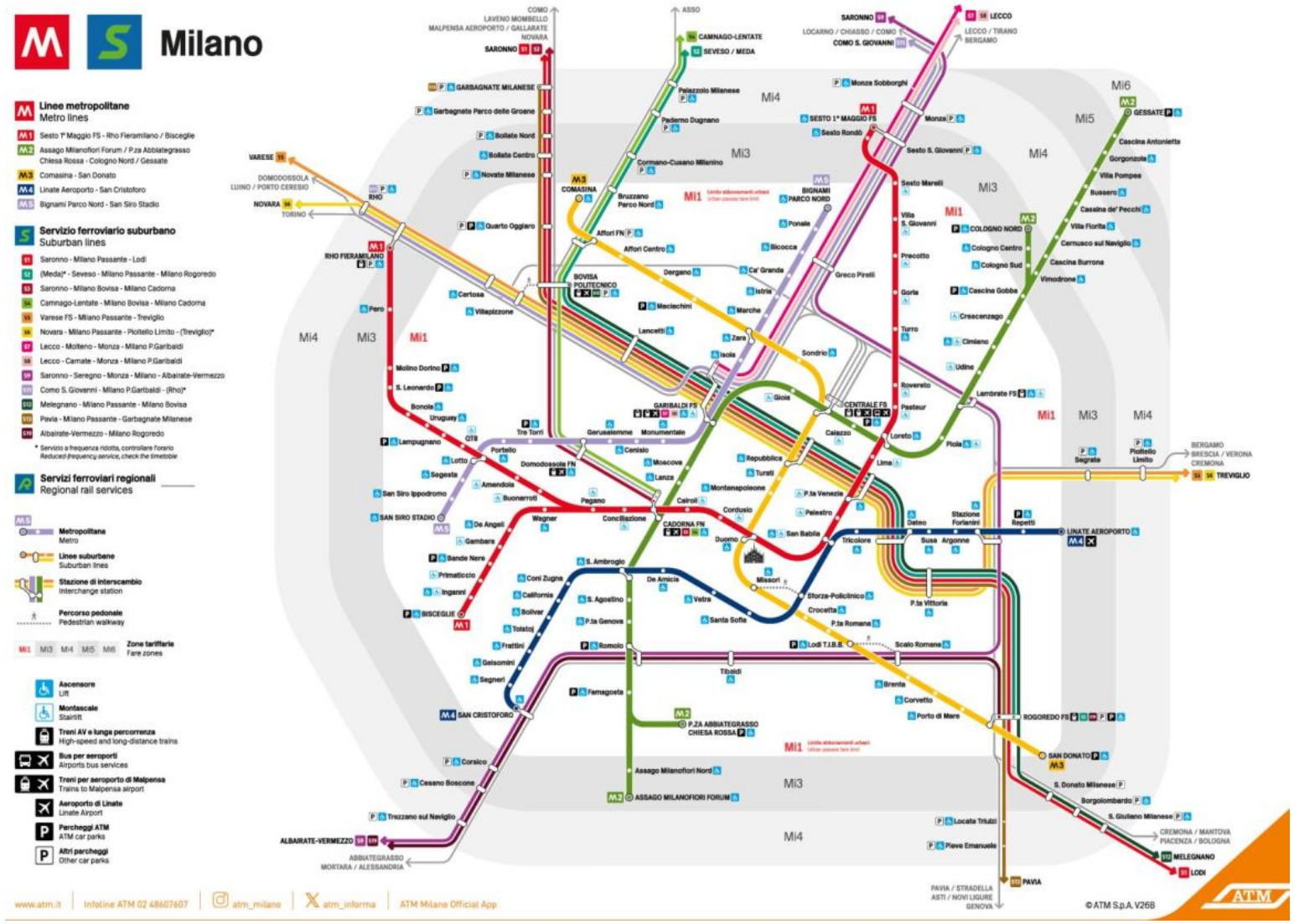
PT Network integration



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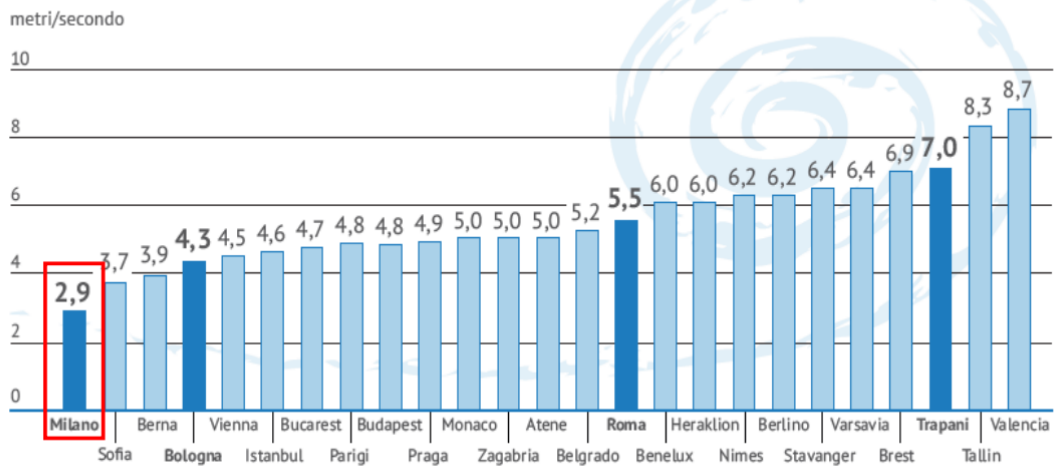
LTZ: OVERVIEW ON AIR POLLUTION
Health and environmental protection

The context

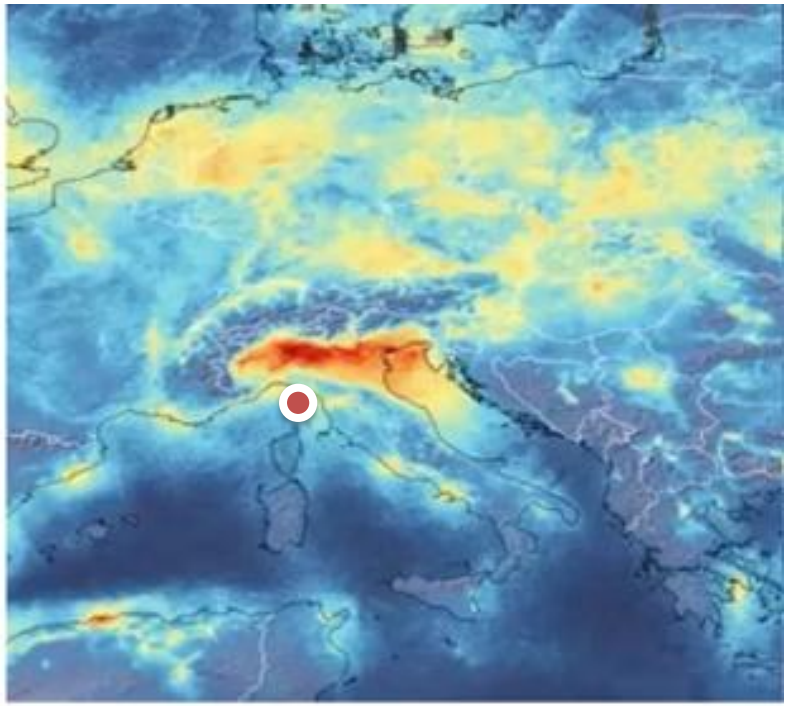
Milan is located in the center of the Po Valley, an orographic basin that is particularly disadvantaged for atmospheric circulation, with European-wide records of low wind speeds and calms and major winter thermal inversions, which produce **persistent stagnation in the lower atmospheric layers of pollutants produced by different emission sources.**

Wind speed at 250 m



Ref: Progetto Life Prepair - elaborazioni Arpa Emilia Romagna su dati WMO anno 2016- 2017

Source: Arpa Emilia Romagna, mentioned Arpa Lombardia- Forum Ambiente 2022

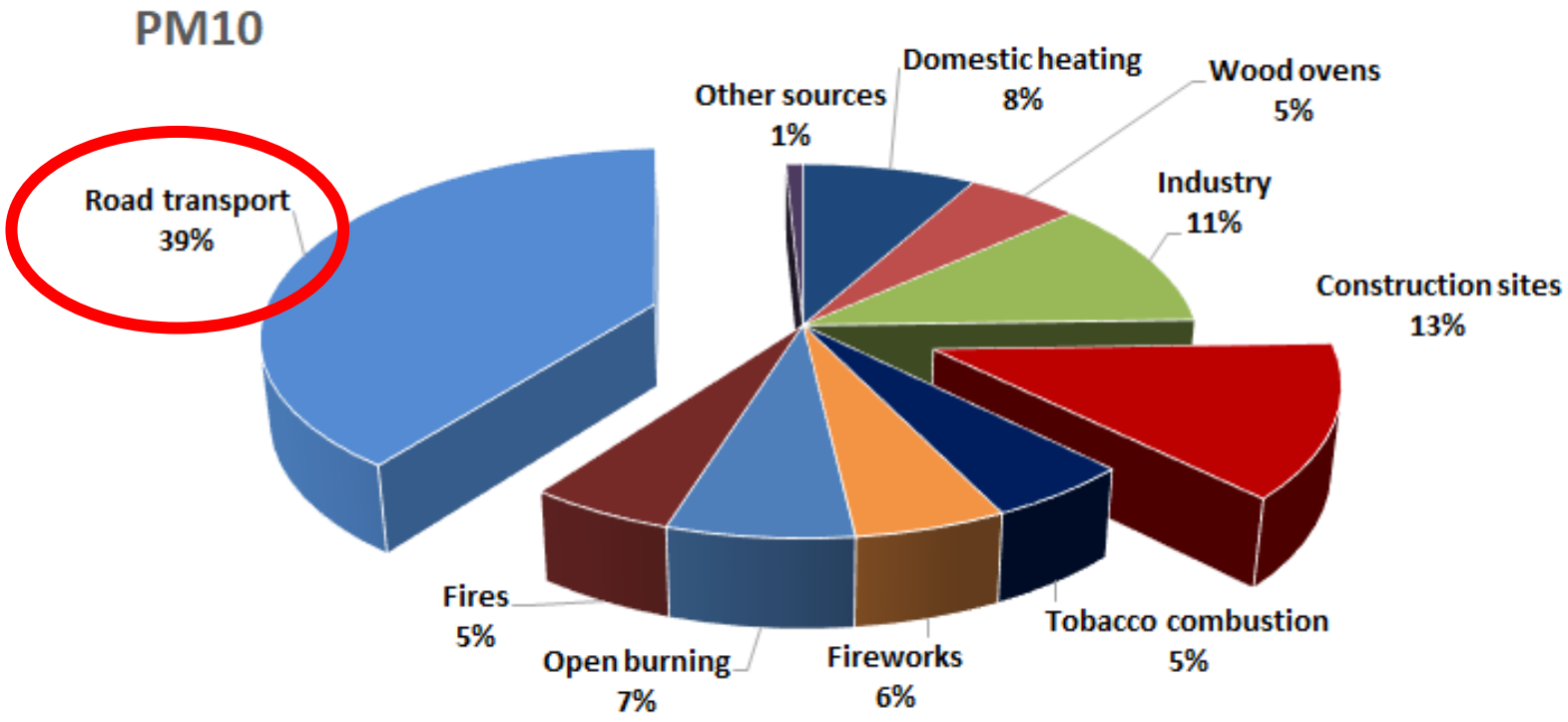


NO_2 concentrations in Europe (Source: ESA)

It is estimated **2-3 years** of life lost for residents in the Po Valley due to air pollution

What are the sources of pollution in Milan

According to official data from ARPA Lombardia, **road traffic** is the main local emission source of both primary PM10 and nitrogen oxide (NOx)



Source: INEMAR Lombardia 2023

Cars in Milan (2025): 706.764
Motorization rate (2025): 505/1000 inhab.

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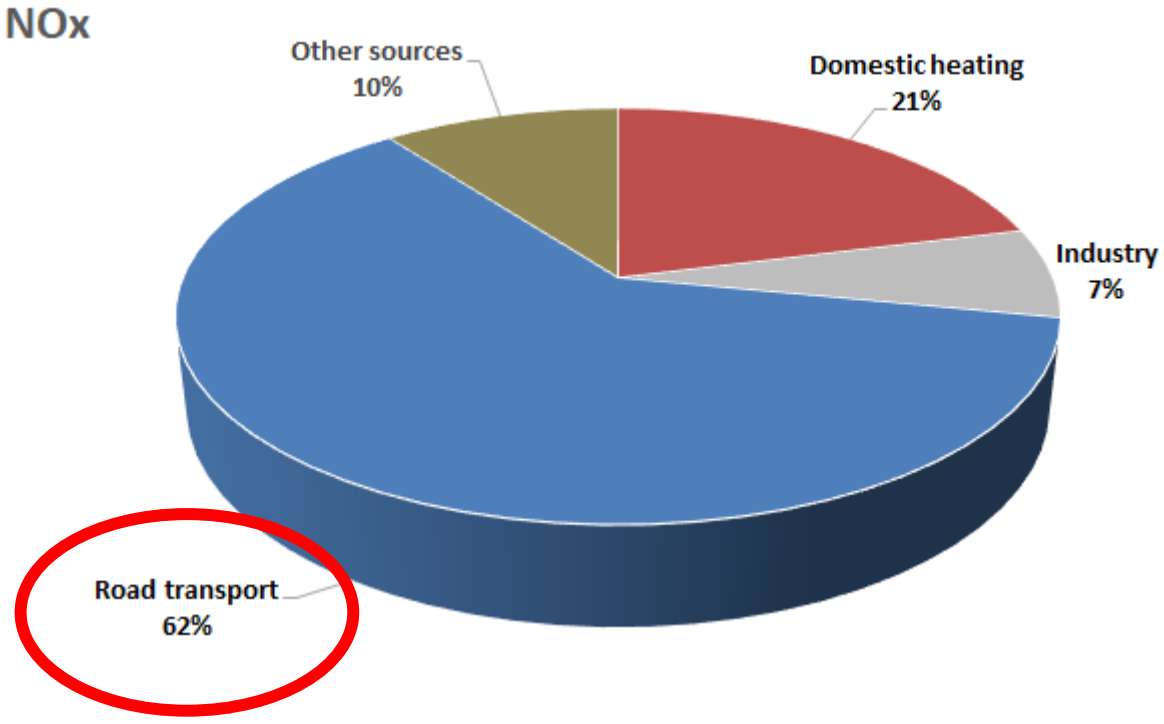
What are the sources of pollution in Milan

For the previous reasons, **the current environmental rules for circulation in Area B are aimed at reducing nitrogen oxide emissions.**



However, under two European Projects, it has been shown that:

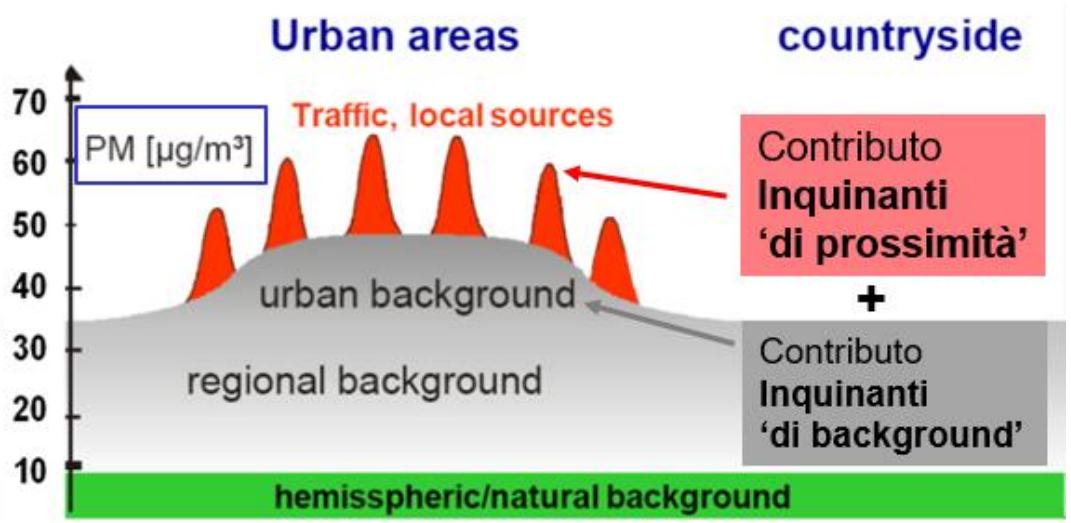
1) nitrogen oxide emissions from **domestic heating plants** with natural gas condensing boilers are **lower** than expected;
2) nitrogen oxide emissions from **pre-Euro 6 petrol and LPG/natural gas vehicles** are **higher** than expected.

Therefore, the **role of road transport** on nitrogen oxide emissions in Milan is actually **greater** than assumed.

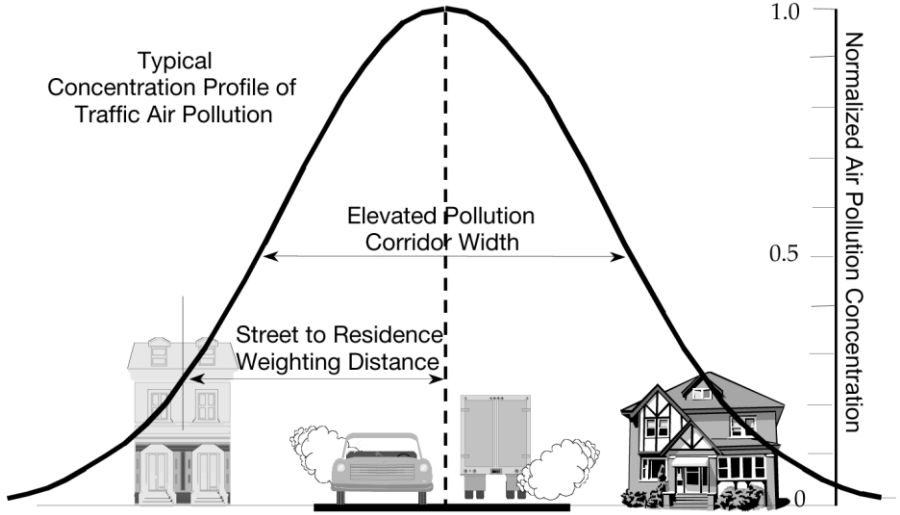
Source: INEMAR Lombardia 2023

Why is it necessary to reduce PM10 and NO_2 pollutants?

‘Proximity traffic’ role



Source: adapted by Lutz, 2005



Source: Pearson, 2008

'Additional' external costs related to proximity traffic:
more than 300 Million Euros/year for onset of chronic diseases caused by living near densely busy roads, plus 10 Million Euros/year attributable to exacerbation of these diseases (source: European study on 10 cities)

Protection of 'sensitive areas' from proximity traffic:
schools,
hospitals,
nursing homes,
sports facilities, etc.

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Why is it necessary to reduce PM10 and NO_2 pollutants?

The European Court of Justice has condemned Italy for the systematic and continued failure to comply with the limit values set for **PM10** and **nitrogen dioxide-NO2** in some Italian zones and urban agglomerations, including the Milan agglomeration.

The Member State concerned must comply with the ruling without delay.

Non-compliance with the provisions leads to **financial penalties**, which contribute to an aggravation of the economic consequences of the environmental impacts of road transport.

Currently Limit Values for **NO2** in Milan are totally accomplished, but not yet for PM10**.**

Legal Framework – Art. 7, Italian Road Traffic Code

“Regulation of traffic in urban areas”

“Municipalities, by **resolution** of the city council, shall provide for the delimitation of pedestrian areas and **restricted traffic zones**, **taking into account the effects on traffic safety, health, public order, environmental and cultural heritage and territory.** In case of urgency, the measure may be adopted by order of the mayor.

Municipalities **may also make the entry or circulation of motor vehicles,** within the restricted traffic zones, **subject to the payment of a sum.** A decree of the Minister of Infrastructure and Sustainable Mobility identifies the types of municipalities that may avail themselves of this option, the manner of collecting the payment, the categories of exempted vehicles, as well as,…, the maximum fees, to be defined **taking into account the pollutant emissions of vehicles** and the types of permits”.

Area C (Congestion Charge) and Area B (Low Emission Zone)

A congestion charge (Area C) is a fee or toll imposed on vehicles for entering or driving within a certain area or zone, typically in a city center.

The primary goal of a congestion charge is to:

- **Reduce traffic congestion**
- **Improve traffic flow in busy urban areas**
- **Promote the use of public transportation or alternative modes of transport**

A Low Emission Zone (Area B) is an area or zone in which only vehicles meeting specific emission standards are allowed to enter or operate.

These zones are primarily designed to:

- **Reduce air pollution and emissions from vehicles, especially those that produce high levels of pollutants**
- **Improve air quality**

In summary, **a congestion charge focuses on reducing traffic congestion** and improving traffic flow by charging vehicles to enter certain areas, while **a low emission zone aims** to limit the entry of high-polluting vehicles into specific zones **to reduce air pollution**.

AREA C:
Introduction and Operating scheme

Area C: Ecopass Background

Ecopass (2008-2011) was part of the Municipality of Milan's overall sustainable mobility strategy.

Objective: To discourage the use of private vehicles within Milan's central area, the Cerchia dei Bastioni (8.2 km²), by applying an entry fee based on vehicle emission levels (PM10).

Area C: Ecopass Rules

Pollution class	Euro category	Daily fee
CLASSE I	LPG – liquefied natural gas, compressed natural gas – electric – hybrid vehicles	FREE ACESS
CLASSE II	EURO 3 – EURO 4 petrol vehicles EURO 4 diesel vehicles with particulate filter Light commercial vehicles EURO 2 - EURO 3 - EURO 4 petrol Light commercial vehicles EURO 4 diesel with particulate filter	FREE ACCESS
CLASSE III	Euro 1 - EURO 2 petrol vehicles (people and freight)	€2
CLASSE IV	Pre-EURO petrol vehicles EURO 3 - EURO 4 diesel vehicles without particulate filter	€5
CLASSE V	Pre-EURO – EURO 1 – EURO 2 diesel vehicles Pre EURO – EURO 1 – EURO 2 light commercial vehicles diesel Pre-EURO – EURO 1 – EURO 2 – EURO 3 commercial vehicles 3.5 t diesel	€10

Area C: Ecopass Results

Results:

- **Reduction in traffic**, both private and commercial, within the Ecopass Area (-21%)
- **Increase in public transport commercial speed** (+13% for trams, +20% for buses and trolleybuses)
- **Increase in passengers on metro lines** accessing the Ecopass Area (+23,000 passengers/hour daily average)
- **Reduction of pollutants** within the Ecopass Area:

  PM: -20% CO_2: -15% NOx: -16% Ammonia: -45%

However, over time, the increasing number of exempt vehicles (which reached 75% in the first year of implementation and rose to 90% by 2010) drastically reduced the initial deterrent effect of Ecopass.

Area C: From pollution to congestion

2008 - Ecopass scheme (pollution charge)

Area C (congestion charge) - 2012

Milan is the **only city in the world** that has experienced **2 type of road pricing measures.**
The scheme was upgraded following the results of a **referendum asking a plan of action to enhance public transport and alternative mobility, the extension the road charge to all vehicles (except those with zero emission) and the progressive widening of the area subjected to the pricing.**

The referendum was approved **by 79%** of voters, **in stark contrast with the experience of other cities**, where voters have turned down charging schemes (e.g. **Edinburgh**, **Manchester**) or been barely decisive (in **Stockholm**, only 51% of voters were in favour of introducing a congestion charge scheme). **London's** congestion charge was introduced in 2003 without referendum.

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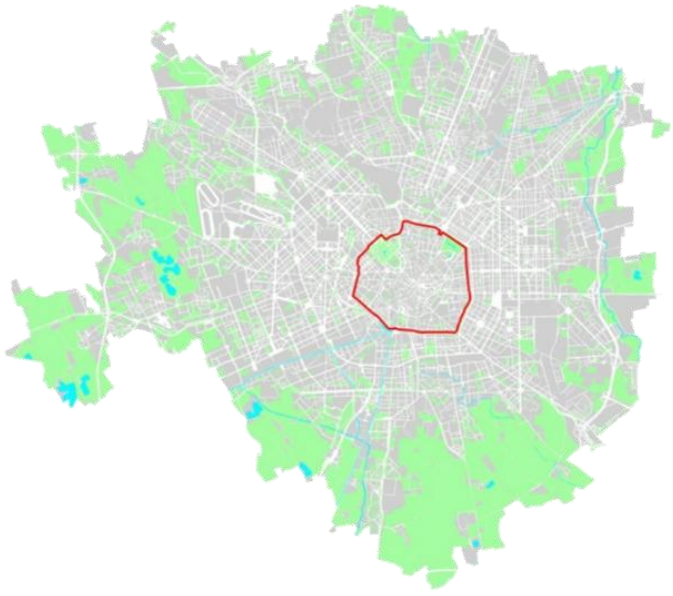
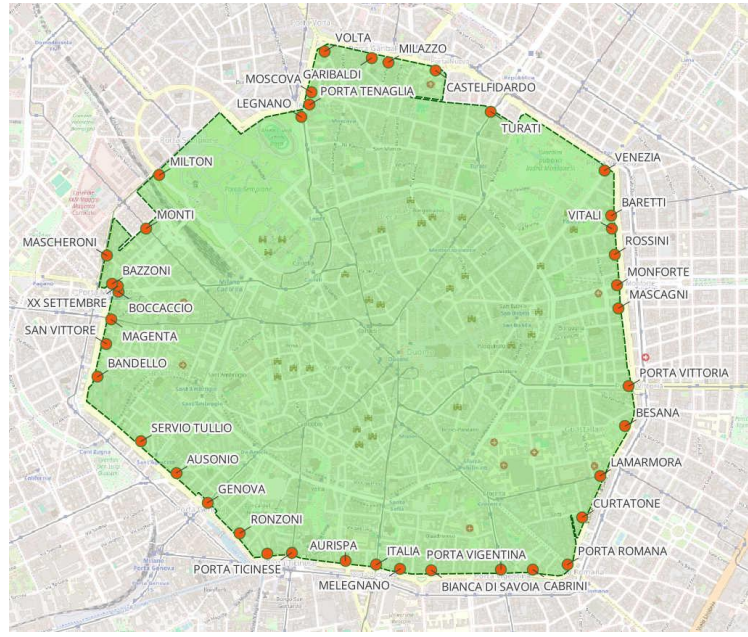
Area C: The congestion charge in Milan

- The area = **8.2 km²**, **4.5% of the whole territory** of the Municipality of Milan

- **Outstanding attractiveness**



Every day, about **500,000 people** travel into the area from outside.



There are **40 access points**, monitored by cameras. The charge applies **Monday to Friday, from 7:30 a.m. to 7:30 p.m.** The entry fee (€7.50) must be **activated on the day of access or by midnight of the following day**. Once activated, it allows **unlimited circulation within the zone and multiple entries and exits on the same day**.

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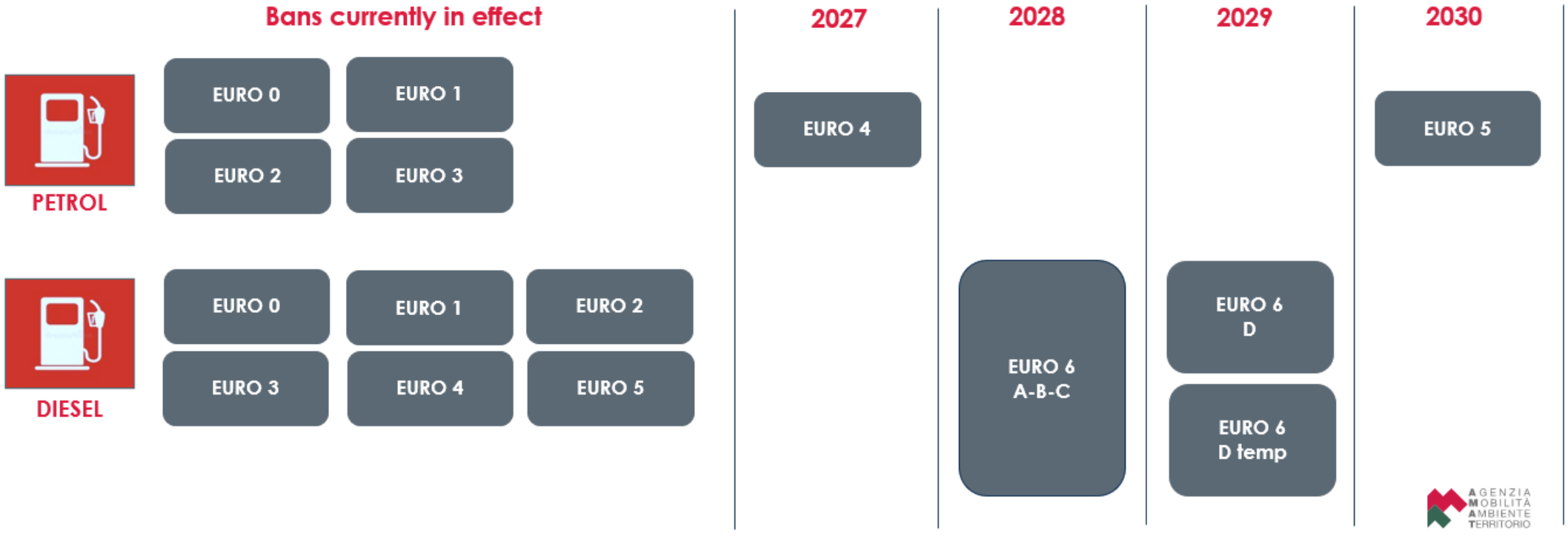
Area C: Rules and roadmap

Residents in the Area C: From 1 January 2024, **50 annual free transits** are granted. From the 51st transit the daily charge is **€ 3.00**.
Access is **free** of charge for **electric vehicles**, **mopeds** and **motorbikes** and **M1 hybrid vehicles** (electric-thermal propulsion) with an **emission contribution ≤ 100 g/km.** Access is **always permitted for Euro 6 petrol vehicles**.

Access is progressively prohibited to personal transport vehicles cat. M1 (Vehicles designed and constructed for the carriage of passengers, with no more than eight seats in addition to the driver's seat):



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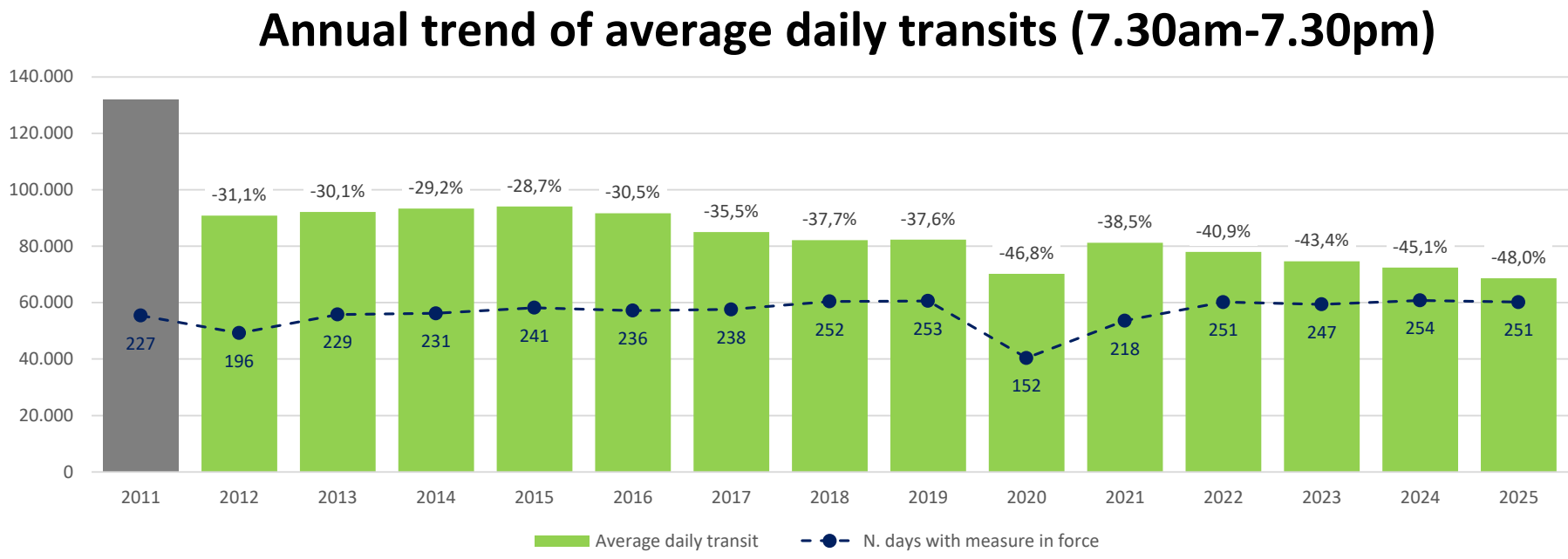
AREA C:
Results

Area C: Annual trend of average daily transits (7.30am to 7.30pm)

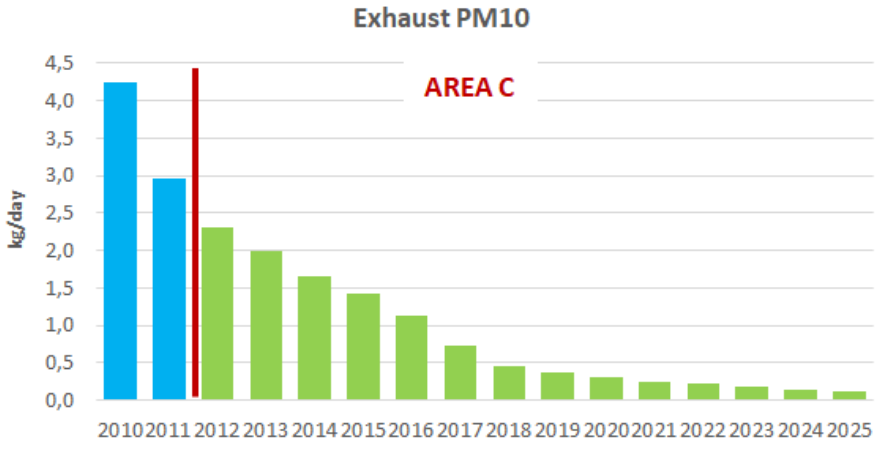


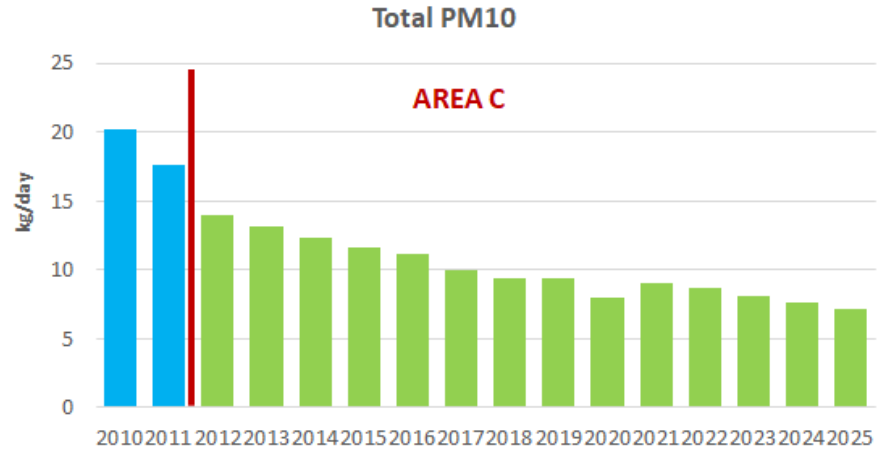
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Average daily transit	131.898	90.849	92.175	93.342	94.033	91.687	85.049	82.140	82.306	70.195	81.181	77.940	74.673	72.381	68.646
Variation compared to 2011	0,0%	-31,1%	-30,1%	-29,2%	-28,7%	-30,5%	-35,5%	-37,7%	-37,6%	-46,8%	-38,5%	-40,9%	-43,4%	-45,1%	-48,0%
N. days with measure in force	227	196	229	231	241	236	238	252	253	152	218	251	247	254	251

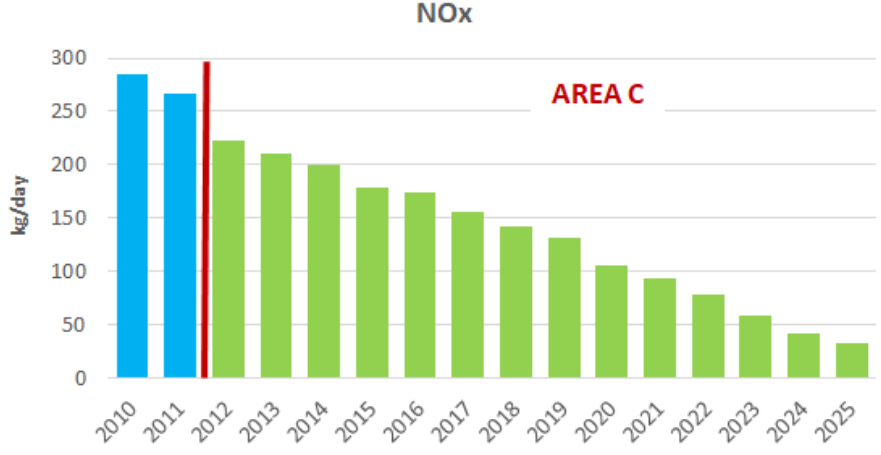
In order to allow comparison between years with different operating hours, the accesses from 7.30 am to 7.30 pm on weekdays with an active measure have been taken into account.

Area C: Daily emission trends (motorcycles excluded)

Trends of daily average emissions in "Area C" of exhaust PM10, total PM10 (i.e. exhaust + non exhaust) and total nitrogen oxides (NOx) from road transport (motorcycles excluded). Emission values (kg/day) relate to the daytime (7:30 a.m. to 7:30 p.m.) of weekdays, i.e. when Arae C is activated.







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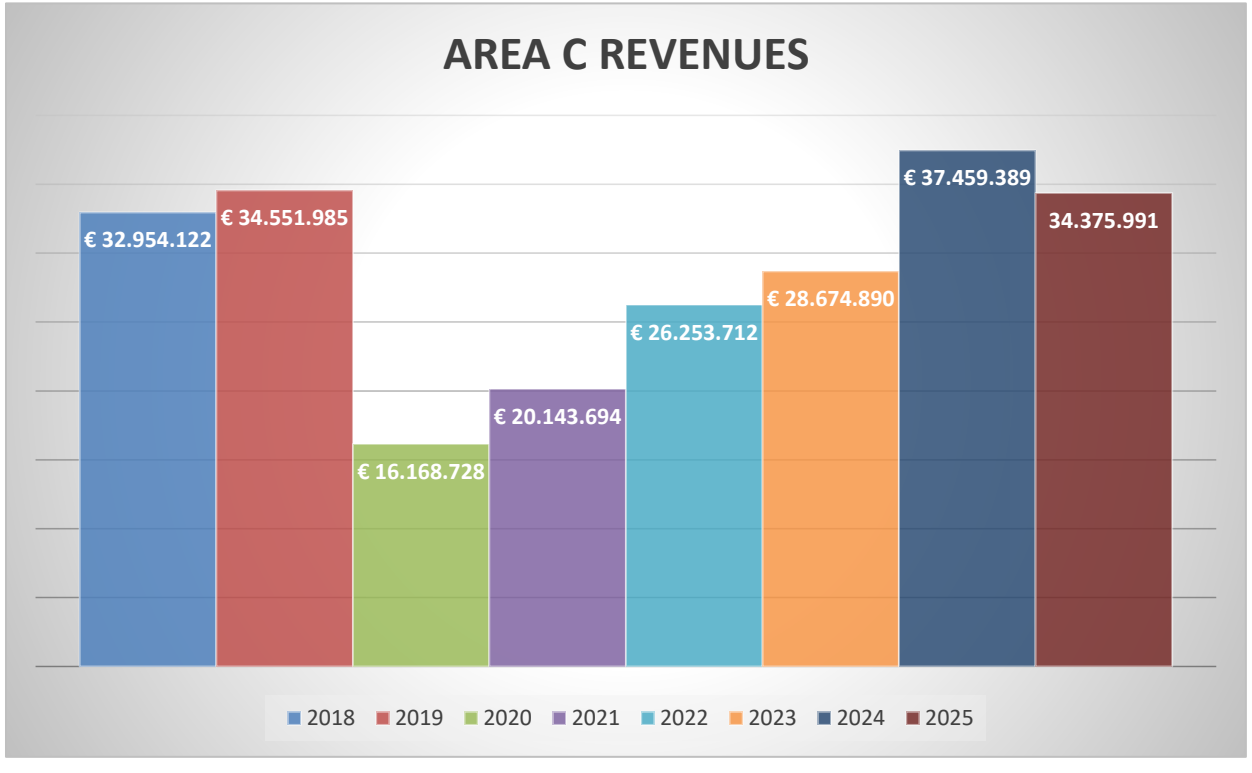
Area C: Revenues

Area C was established with the purpose of also funding, trough its revenues, projects for sustainable mobility. Revenues have been reinvested **to finance**:

- **Public transport enhancement**
- **Service management**
- **Innovative and sustainable mobility projects** (e.g. to promote active mobility, sharing mobility)



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Area C: Economic and social results

Area C achieved important results not only in terms of **environment**, but also about **economic** and **social sustainability**. As to the economic aspects, as a counterweight to the charge, several are the benefits enjoyable by users.

For instance, thanks to Area C, the **traffic reduction generated benefits to the whole transport systems**. In fact, according to some logistics operators, the Area C has resulted in an **increase in productivity of 10% on freight deliveries in the city.**

The reduction of the cars circulating in the city center enables the **reuse of the public spaced** once reserved to the parking. For instance, **an area of approximately 15.000 sqm near Castello Sforzesco was turned into a pedestrian area**, and new bike sharing stations and car sharing services were set up in the city.

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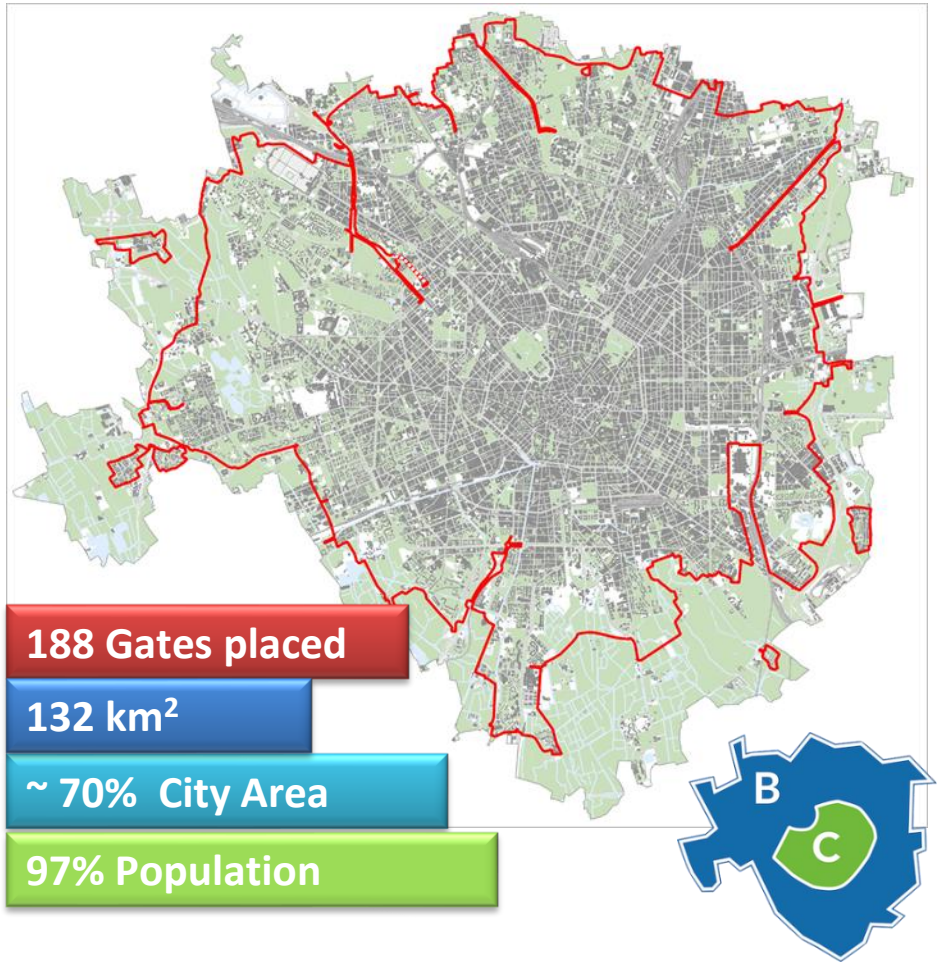
AREA B:
Introduction and Operating scheme

Area B: Introduction of the measure

As outlined in the Sustainable Urban Mobility Plan, in February 2019 the City of Milan introduced **Area B**, Italy's largest Limited Traffic Zone and **one of Europe's largest Low Emission Zones**. It consists of a network of electronic gates along the municipal boundary, **designed to restrict the most polluting vehicles and regulate heavy and hazardous-goods transport.**

Area B is in force **Mon-Fri 7:30am – 7:30pm**



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Area B: Rules and roadmap

Access is generally permitted for **petrol Euro 5 and Euro 6, electric, and hybrid vehicles**, while **diesel Euro 5 vehicles are currently subject to restrictions and cannot freely enter the area**. Vehicles subject to access bans are granted **50 days of entry during the first year** the restriction applies. From the second year onward, additional exemptions are available upon registration, regardless of vehicle type: **25 days per year for residents and 5 days per year for non-residents**.

Access is progressively prohibited to personal transport vehicles cat. M1 (Vehicles designed and constructed for the carriage of passengers, with no more than eight seats in addition to the driver's seat):

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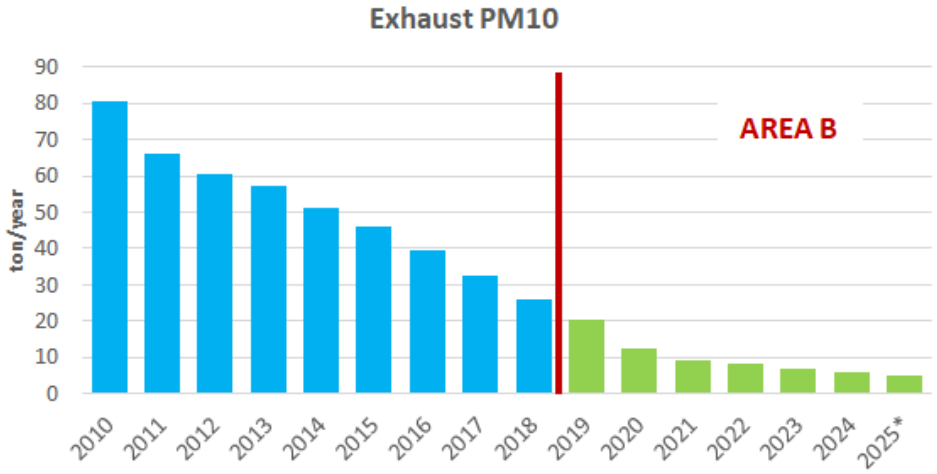
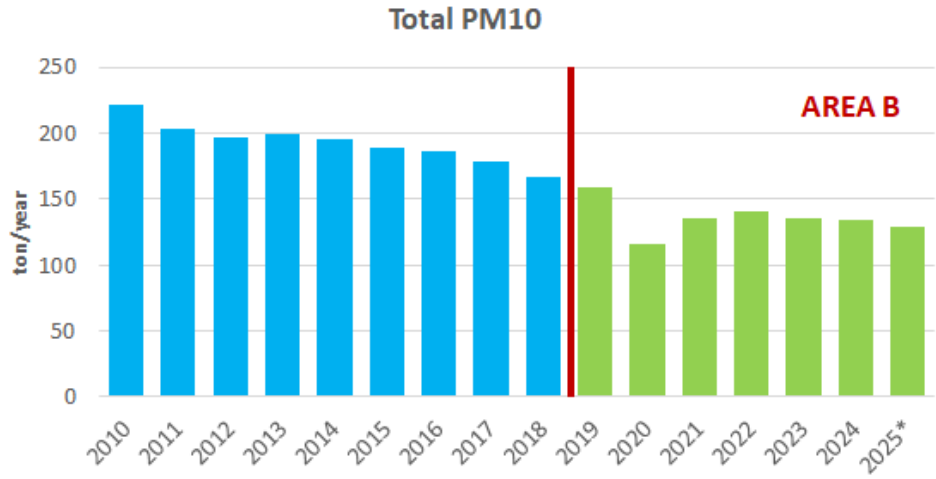
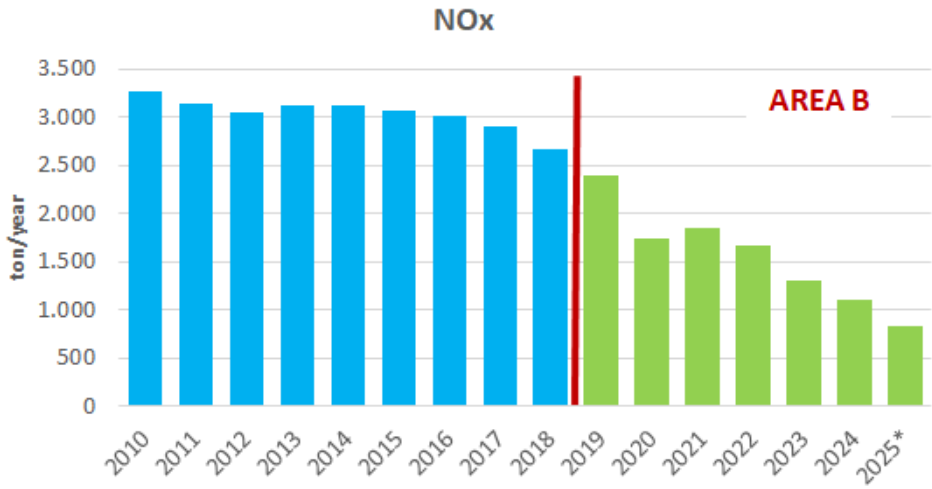
AREA B:
Results

Area B: Annual emission trends

Trends of annual emissions in "Area B" of exhaust PM10, total PM10 (i.e. exhaust + non exhaust) and total nitrogen oxides (NOx) from road transport (ton/year). *Preliminary data for 2025







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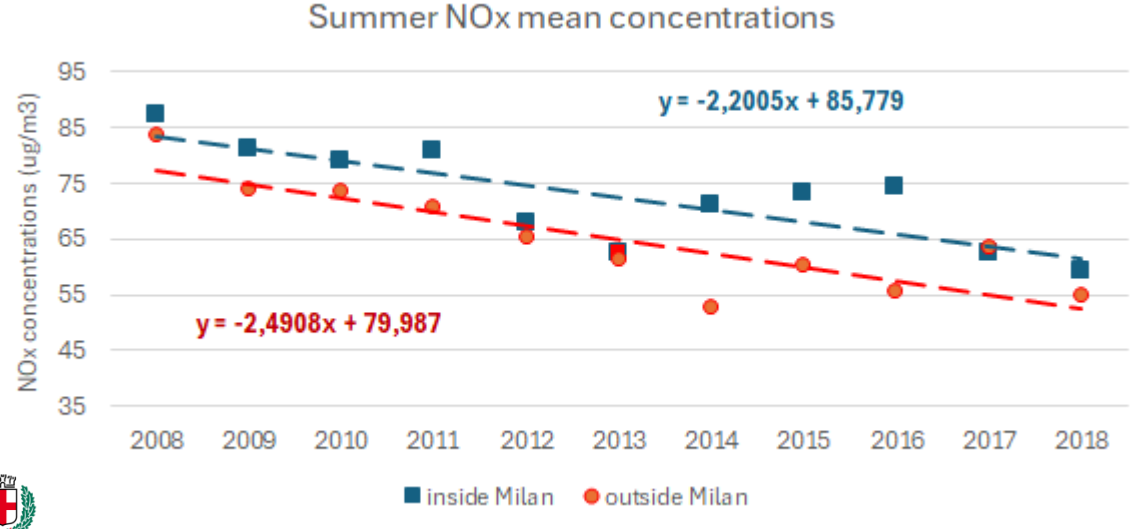
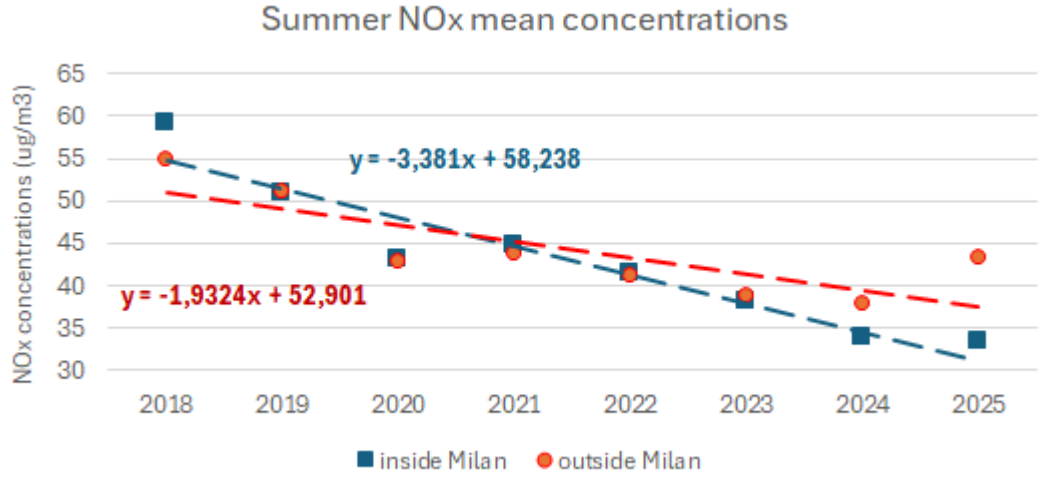
Area B: Results from field measurements

SUMMER NOx MEAN CONCENTRATIONS IN AND OUT OF MILAN 2008 - 2025

Comparison of the historical series of summer (15 April-15 October) NOx mean concentrations measured by the four traffic stations in Milan (viale Marche, viale Liguria, via Senato, via Verziere) and the three traffic stations in the Metropolitan City outside Milan (Cinisello Balsamo, San Giuliano, Sesto San Giovanni) shows that, until 2018, average summer NOx concentrations in Milan and outside Milan decreased at essentially the same rate.

Since 2018 (the year Area B was approved), **summer NOx concentrations within Milan have decreased at a faster rate**, and **from summer 2023 are lower than those measured outside Milan.**





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LTZ: FINAL REMARKS

What have we learned?

- **STRONG POLICAL COMMITMENT:** Strong leadership of the Major is fundamental to communicate, raise awareness and support the traffic regulation measures by public meetings with citizens, stakeholders and associations
- **CITIZEN/STAKEHOLDERS:** Engage citizens/stakeholders from the beginning (Public Debates, Online consultations, etc.)
- **LONG TERM VISION:** A long-term view is needed to allow users time to adapt to the changes triggered by the measure and the administration to evaluate the effectiveness of the measure and take appropriate corrective measure
- **TECHNOLOGICAL AND LEGAL CONTRAINTS:** often technology is faster than the law
- **COMMUNICATION** must be enhanced: 88% of the fines involve non-Milanese users. New institutional channels need to be explored to reach those users

THANKS FOR LISTENING

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