



From Commitment to Implementation: Hanoi's Collaborative Pathway to Low-Emission Zones and Clean Air Delivery

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Hanoi's Rapid Urban Growth and Air Pollution

8.5M

Resident Population

Total population of Hanoi City

7M+

Motorcycles

Over 7 million motorcycles registered

740K+

Cars

Over 740,000 cars on Hanoi roads

40-50

Annual PM2.5 ($\mu\text{g}/\text{m}^3$)

2-3x WHO guidelines of 15 $\mu\text{g}/\text{m}^3$



Traffic accounts for approximately **58-74% of PM2.5 emissions** in Hanoi – making transport the single largest contributor to the city's hazardous air quality. Transport sector alone accounts for 66% of emissions, with industry at 18%.



Seasonal Air Pollution and Urban Exposure

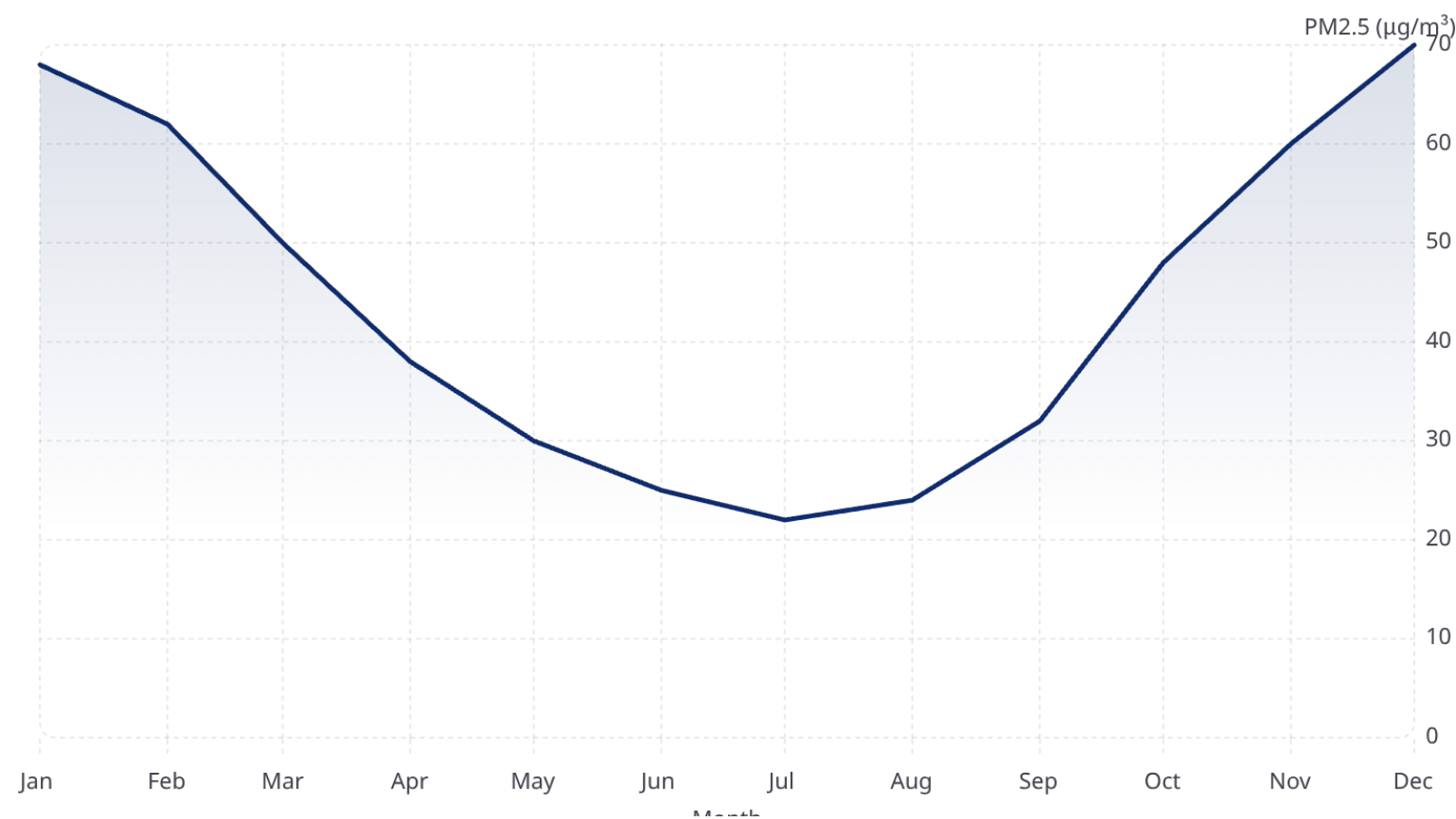


Key Highlights

- Winter pollution episodes
- AQI frequently at "Unhealthy - Very Unhealthy" levels
- High exposure in densely populated inner districts

Estimated Impact

An estimated 2,000 to 4,000 premature deaths annually are linked to air pollution.



Monthly PM2.5 trend: Pollution dramatically increases during winter (November-February), with exposure particularly severe in Hanoi's densely populated inner districts. *Source: Hanoi LEZ Feasibility report, Hanoi DAE, 2025*

A Robust Policy Framework for LEZ Action

Hanoi's Low-Emission Zone development is backed by a layered and mutually reinforcing set of legal instruments – from national legislation to city-level resolutions.



Capital Law 2024

Establishes the legal basis for Hanoi's LEZ development at the national legislative level



PM Directive 20/2025

Prime Minister's directive to accelerate clean air action across Vietnamese cities



Hanoi Resolution 57/2025

City-level resolution providing implementation guidelines for Hanoi's LEZ rollout



LEZ Implementation

Commencement of Low-Emission Zone operation, restricting entry of high-polluting vehicles

Low Emission Zone (LEZ) Definition: A geographically defined area where entry of polluting vehicles is restricted or prohibited to improve local air quality and protect public health.

Transportation Transition Already Underway

Public Transportation Network

154

Bus routes in operation

2

Operating metro lines

2

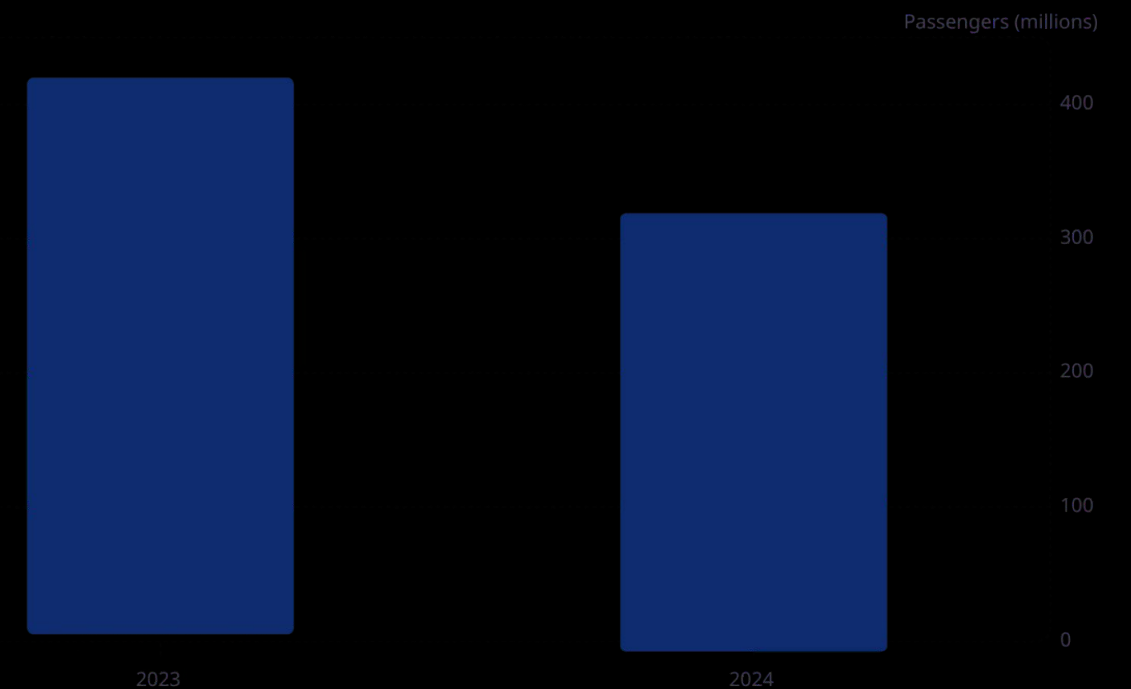
Metro lines under construction

Clean Mobility

Trends

- 246 electric buses now in operation
- 47% of taxis are now electric
- Rapid and growing adoption of electric vehicles (EVs) citywide

Public Transport Ridership Growth



Public transport ridership is steadily increasing – from **384 million passengers in 2023** to **410 million in 2024** – demonstrating growing public confidence in Hanoi's transit system as a viable alternative to private vehicles.

Why start with Ring Road 1?

Ring Road 1 Characteristics

- Central historic district
- **625,000** residents
- Extremely high population density

Population Density Examples

- Hoan Kiem District: **36,900/km²**
- Cua Nam: **39,800/km²**

Key Challenges

Narrow Roads

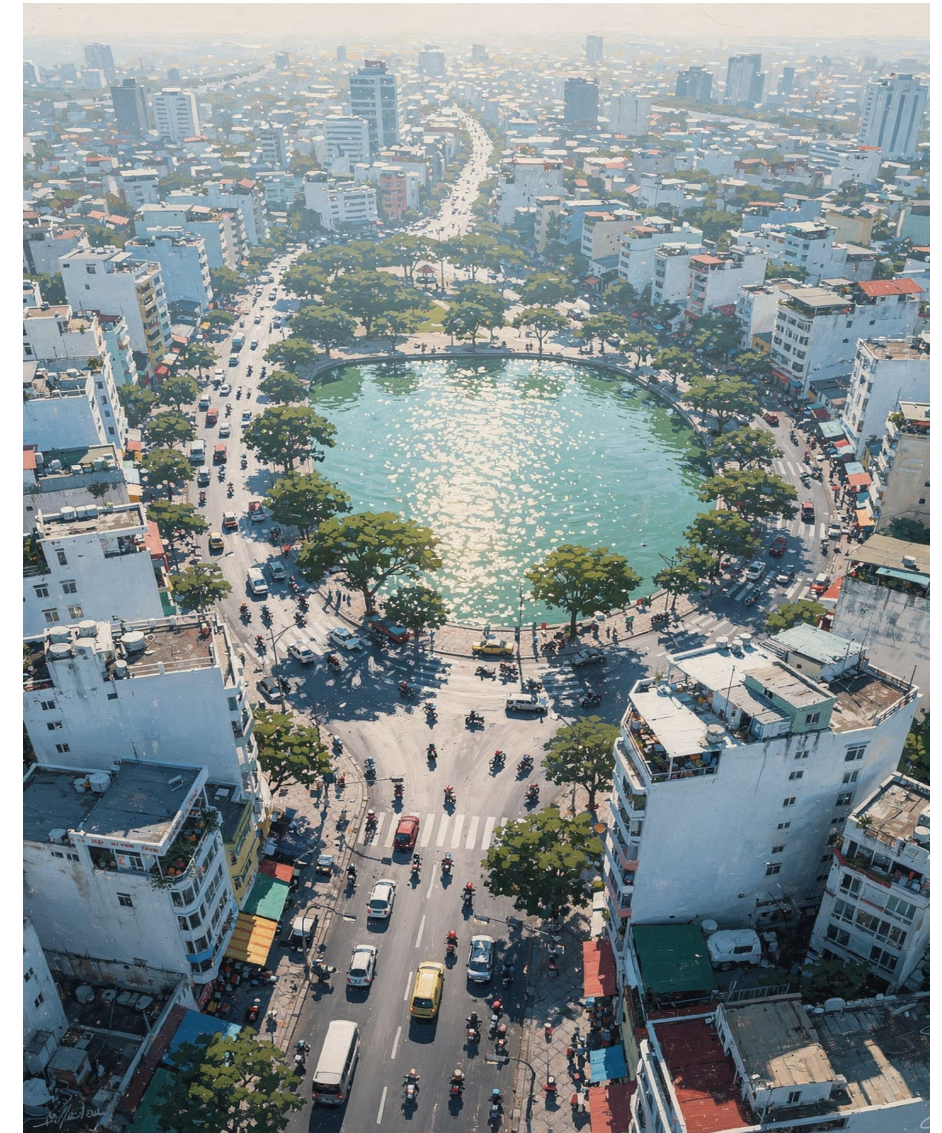
Road width is very narrow due to historic district characteristics

High Tourist Traffic

Increased traffic burden due to high concentration of tourists

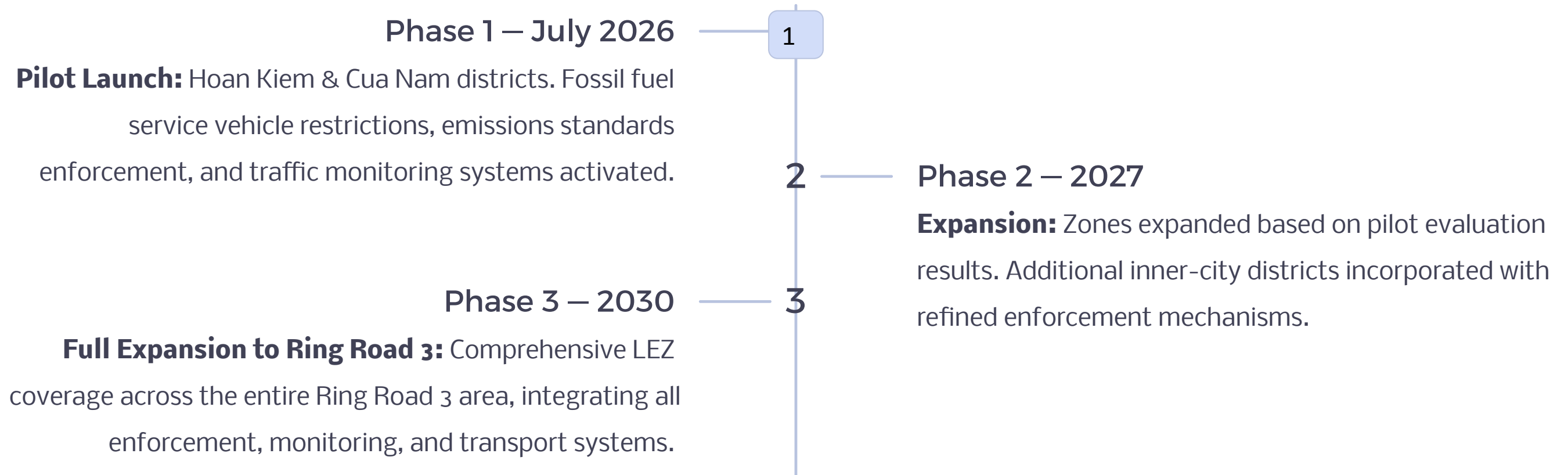
Congestion Level D-F

Severe traffic congestion corresponding to service levels D-F



Hanoi LEZ Phased Implementation

The LEZ rollout follows a deliberate three-phase strategy – beginning with a focused pilot in Hanoi's most congested historic core, then expanding citywide by 2030.



Each phase is designed to build institutional capacity, public acceptance, and technical infrastructure – ensuring a smooth and credible scale-up toward full city coverage.

Inter-Agency Cooperation for Implementation

Key Stakeholders

Hanoi People's Committee
Central coordination and political leadership for the entire LEZ program

Department of Environment
Emissions inventory, monitoring network management, and regulation enforcement

Department of Transport
Executing traffic emission reduction policies and public transport expansion

Public Security
Field enforcement, safety management, and ANPR camera operations

Research Institutions & International Partners
Technical analysis, monitoring support, and knowledge exchange

Key Implementation Tools

- ✓ **Emissions Inventory** – comprehensive baseline data across all sectors
- ✓ **Monitoring Network** – real-time air quality stations across the city
- ✓ **ANPR Traffic Enforcement** – Automatic Number Plate Recognition for LEZ compliance
- ✓ **Public Transport Expansion** – providing viable alternatives before restrictions take effect

Effective LEZ delivery depends on all agencies working as a unified system – not in silos.

Key Lessons from Hanoi

1 Start with data-driven planning

Build a credible emissions inventory and monitoring baseline before designing any LEZ. Data legitimizes decisions and builds public trust.

2 Pilot in the high-impact urban core

Launching in the most congested, densely populated areas maximizes visible health and air quality benefits early – building political momentum.

3 Combine LEZ with transport transition

Restrictions must be paired with genuine alternatives – expanded bus networks, metro lines, and EV incentives – to ensure social acceptance.

4 Ensure social acceptance and public support

Engage communities, traders, and residents early. Transparent communication about health benefits and transition support is essential.

5 Build strong cross-agency collaboration

No single agency can deliver a LEZ alone. Governance structures that align environment, transport, and enforcement agencies are non-negotiable.

❏ Clean air delivery requires **policy + data + partnerships**. Hanoi's experience shows that all three must move together.

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