Session 1

LEZ Maturity Assessment Toolkit

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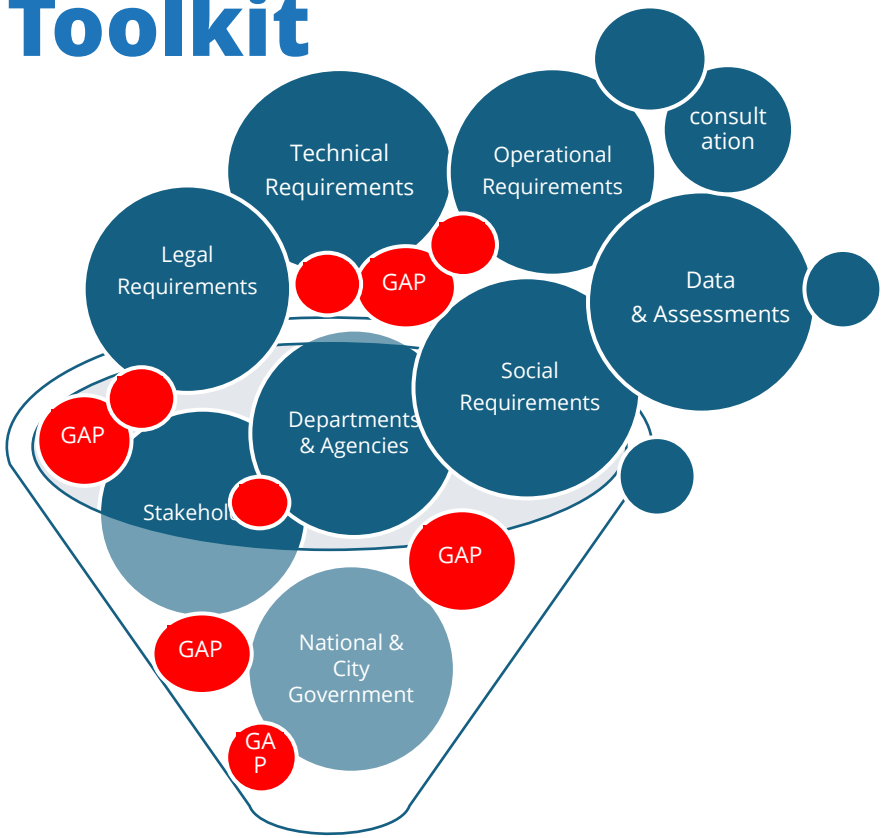
The Purpose of The LEZ Maturity Toolkit

Developing LEZ involves multiple policy, regulatory, technical, and institutional requirements, often managed by different departments and stakeholders.

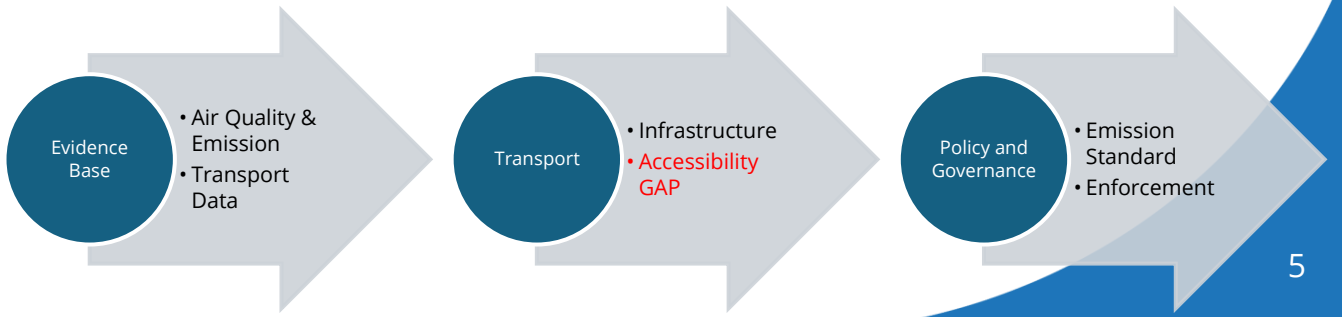
The LEZ Maturity Assessment Toolkit provides a structured framework to help ADB staff and city authorities understand their current position on the LEZ development journey.

The toolkit helps to:

- Assess the current level of readiness and institutional capacity
- Identify gaps in policy, regulation, technical capacity, and governance
- Highlight priority actions needed to progress toward implementation
- Determine the type of support, coordination, or investment required



LEZ Maturity Tool



Who Should Use the LEZ Maturity Assessment Toolkit ?

Successful LEZ design requires coordination across transport, environment, planning, health, legal and financial authorities, as well as sector stakeholders such as ports, airports and industrial operators.

Ref: AI-generated for presentation purposes

Government authorities (city or national level, depending on jurisdiction)

- The assessment should be led by the authority responsible for developing and implementing the LEZ, with input from a cross-departmental team of agencies involved in or affected by LEZ implementation.

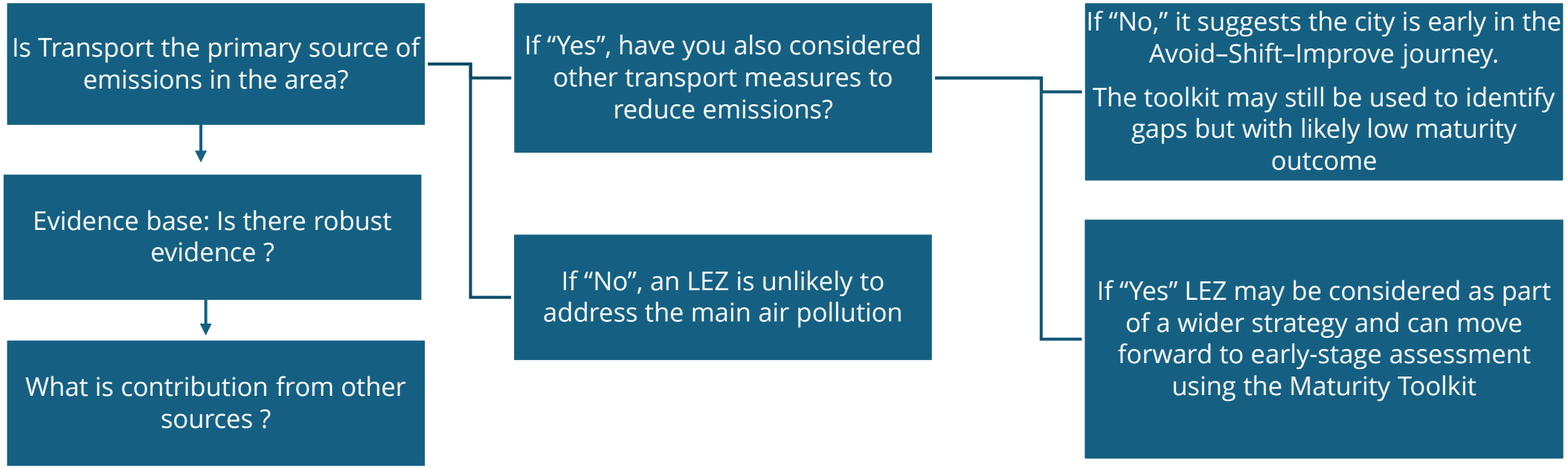
ADB teams

- ADB project officers and specialists as part of their internal due diligence and screening process.
- To assess city readiness and determine the appropriate level and sequencing of ADB support

Determining Whether an LEZ Is Appropriate (Pre-Assessment)

Step 1 – Confirm whether an LEZ is the right solution

Before applying the LEZ Maturity Assessment Toolkit, authorities should first assess whether LEZ is appropriate for addressing the local air-quality problem.



Determining Whether an LEZ Is Appropriate (Pre-Assessment)

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Selecting the Appropriate LEZ Maturity Assessment Tool

Two options of assessment

- **City LEZ Maturity Assessment Tool** for schemes targeting urban transport in affected parts of the (e.g. city centre city- centre or mixed-use areas).

Source: VNA

- **Industrial LEZ Maturity Assessment Tool** for industrial zones, ports, or airport areas where road transport emissions—especially freight—are locally significant or represent a key citywide source.

Source: iStock/Thinkstock

Industrial Areas Challenges

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- **High traffic intensity**
  - Industrial areas generate **significant vehicle movements**, including freight transport, service fleets and employee commuting
- **Large share of heavy-duty vehicles**
  - Traffic is often dominated by **HDVs, diesel vans, buses and older vehicles**, which typically produce higher emissions
- **Wider impact beyond the site**
  - Traffic generated in these areas **extends across the wider road network**, affecting air quality in surrounding neighbourhoods and contributing to congestion in city centres.
  - Many older industrial zones are located **close to residential areas**, exposing nearby populations to higher levels of air pollution

Opportunities from Introducing LEZ in Industrial Areas

Implementation & Management

- **Easier implementation** – traffic is often generated by company-owned fleets, allowing engagement with a limited number of operators
- **Targeted industry support** – incentives and programmes can support companies in transitioning to cleaner fleets
- **Simpler enforcement and infrastructure** – industrial zones often have controlled access points, making monitoring and compliance easier
- **Supply-chain impact** – LEZ requirements influence logistics providers and contractors, extending compliance beyond the zone itself.
- **Alignment with corporate net-zero strategies** – many companies already have decarbonisation commitments that support LEZ implementation

Fleet Improvement

- **Fleet modernisation** – collaboration with companies can accelerate vehicle upgrades, electrification, and cleaner fuels
- **Accelerates fleet transition** – supports adoption of new emission standards and cleaner technologies.
- **Targets high-emitting vehicles** – industrial fleets often include HGVs and older diesel vehicles, enabling policies to focus on the largest emission sources

Emissions Reduction & Air Quality Improvement

- **Improved local air quality** – particularly important where industrial zones are located near residential communities.
- **Wider emission reductions** – industrial fleets operate across regional road networks, reducing emissions beyond the industrial zone.
- **Health and workplace benefits** – cleaner fleets improve air quality for workers and occupational health conditions

Examples

Beijing, China – Freight Low Emission Zone

Policy Action

- Freight Low Emission Zone introduced in 2017.
- Heavy-duty freight vehicles below National IV emission standard restricted from entering the city.
- Policy supported by World Resources Institute (WRI) China.

Impact

- Improved urban air quality and reduced exposure to pollution.
- Estimated 43 lives saved annually.
- Approximately $37 million per year in social cost savings.

Shanghai Port, China – Emissions Controls

Policy Action

- Domestic Emission Control Area (DECA) introduced for port waters and the Yangtze River Delta
- Stricter marine fuel standards and shore power to reduce emissions from vessels at berth.
- Measures to reduce freight emissions, including restrictions on high-emitting trucks and modal shift to rail and waterways
- Port equipment modernisation and operational improvements to lower emissions

Impact

- Reduced emissions from both marine and land-based port activities
- Improved local and regional air quality in surrounding urban area
- Integrated port, shipping, and freight policies reduced emissions while maintaining logistics efficiency

Heathrow Airport, UK – Airside Ultra LEZ / Clean Vehicle Policy

Policy Action

- Airside Ultra Low Emission Zone introduced by 2025 through Heathrow's Clean Vehicle Policy.
- Vehicle standards aligned with London ULEZ and NRMM requirement.
- Policy integrated into existing airport access systems (VAP) to manage compliance
- Higher VAP fees for non-compliant vehicles to encourage cleaner fleets, with exemptions for emergency and specialist vehicles

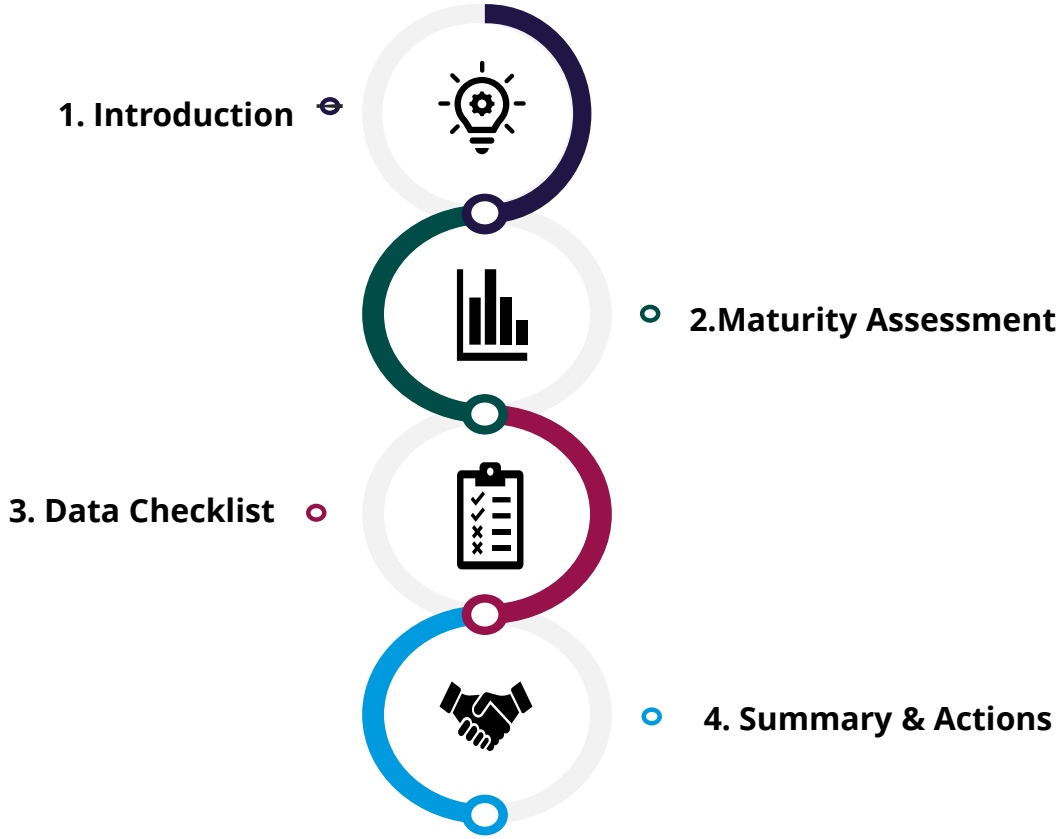
Impact

- Over 90% of airside vehicles already compliant, allowing focus on the highest-emitting vehicles
- Accelerates replacement of non-compliant vehicles (2025–2030), reducing NOx emissions
- Supports electrification and cleaner fuels (e.g. HVO), aligning with Heathrow's goal of a zero-emission ground fleet by 2030

LEZ Maturity Assessment Process

The LEZ Maturity Assessment Toolkit follows a four-step process.

- **Step 1 Introduction:**
  - Introduces the tool and provides guidance on how to complete the assessment.
- **Step 2 Maturity Assessment**
  - Evaluates maturity across three core criteria:
    - Evidence Base
    - Transport Systems
    - Policy/Governance
- **Step 3 Data Checklist**
  - Documents all data used, including sources, dates, assumptions, and gaps, ensuring transparency and continuity.
- **Step 4 Summary & Actions**
  - Presents the overall readiness summary and identifies priority actions required to progress toward LEZ implementation.



LEZ Assessment Criteria

During the assessment, maturity is scored against three different assessment criteria:

Criteria 1:

Evidence Base - Do you have the evidence to assess and justify an LEZ?

Low scores here would suggest Technical Assistance to help a city build the evidence

Criteria 2:

Transport System - Can the transport context in the city support an LEZ?

Low scores here would suggest perhaps the city is not ready for an LEZ yet and would need support on other transport areas first.

Criteria 3:

Policy, Regulation and Communications - Do you have the mechanisms in place to implement an LEZ?

Low scores here would point to specific implementation Technical Assistance projects

Scoring Matrix – City LEZ Maturity Level

Maturity Level	Meaning
Low	Little to no evidence, data, plans, or systems in place. Limited understanding of LEZ requirements. Fragmented or outdated information. No clear policy direction
Medium	Some evidence or initial steps in place. Basic understanding of requirements. Early discussions, limited datasets, small pilots, or initial assessments. Progress is happening but coverage is still patchy. LEZ could be implemented with considerable support.
High	Good level of evidence, planning, and system development. Most core datasets exist; modelling, engagement, and policy discussions underway. Frameworks developing but still require strengthening. LEZ can be implemented with minor support.
Advanced	Strong, comprehensive, and integrated evidence base and systems. Clear policy commitments, legal frameworks, and governance structures in place. No further assistance is needed to implement an LEZ.

Example: Assessment Criteria 1: Evidence Base

Criteria	Capability level			
	Low	Medium	High	Advanced
Vehicle Fleet Data	No information on HDV, service vehicle, or contractor fleets.	Registration data available but limited emissions or fuel detail.	Detailed data on HDVs, vans, buses, and service vehicles serving industrial areas.	Comprehensive fleet database including contractor fleets, real-world emissions, and regular updates.
Non-Road Mobile Machinery (NRMM)	No NRMM inventory or emissions controls	Partial NRMM inventory for major sites, limited controls	NRMM inventory linked to permitting or site management, emissions standards referenced	Full NRMM register with emission standards, compliance checks and integration into LEZ scope.
Health Data	No assessment of exposure for workers or nearby communities.	Limited use of health or exposure-related data, such as proximity to sensitive receptors (e.g. workers, nearby residential areas, schools or hospitals).	Site- or area-specific exposure assessment undertaken for key pollutants, using local air quality monitoring, modelling, or emissions data. Health evidence is used to identify priority locations or populations	Robust health-impact assessments informing LEZ boundaries and stringency.
Social and Economic Data	No consideration of economic/business impact	Initial studies on costs to fright operators or industrial tenants	Policy development considers competitiveness and employment	Full cost-benefit analysis integrated into LEZ decision making
Previous LEZ Studies	No assessment of industrial or freight-focused restrictions.	Initial scoping of port, airport, or industrial access restrictions.	Detailed feasibility or pilot design under development.	Completed feasibility and design studies with scenarios, enforcement, and implementation roadmap.

LEZ City vs Industrial Maturity Evaluation

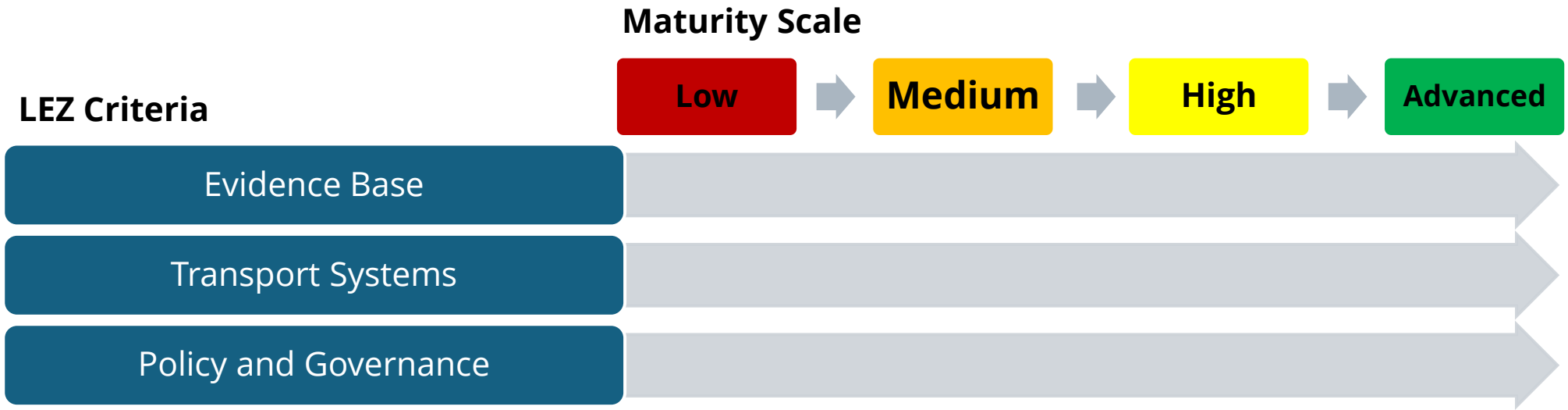
Industrial

- Freight
- NRMM Emissions controls
- Operator responsibilities/ governance
- Passenger mobility not primary determinant determinant

Urban

- Public transport
- Walking and Cycling
- Road Traffic monitoring and vehicle mix
- Evaluates how travel behaviour can shift after an LEZ

Understanding Where a City is on Its LEZ Journey



What It Delivers ?

- Readiness profile by domain and criterion (clear view of where we are now)
- Target state definition (clarifies where we need to be for a viable LEZ)
- Priority improvement areas based on maturity gaps
- Actionable next steps to move up one level (Low→Medium, etc.)
- Better alignment with ADB support (screening, feasibility/modelling, pilots/implementation)
- Confidence in effective delivery (implementation feasibility, enforcement pathway)

Assessment Criteria 1: Evidence Base - Priority Actions

Criteria	Maturity level		
	Low to Medium	Medium to High	High to Advanced
Air Quality (AQ) Monitoring	Install basic indicative or low-cost monitoring within the industrial site, focusing on key activity areas and boundaries	Expand monitoring coverage, improve QA/QC, and introduce co-located sensors to better identify hotspots	Optimise and densify the monitoring network to provide hyperlocal, decision-ready data.
Air Quality Modelling and Emissions Inventories (EI) and Source Apportionment	Develop a basic site-specific emissions inventory for key transport and industrial sources using available activity data	Expand the inventory using local data and higher-tier emission factors and undertake recent source apportionment to identify dominant sources	Establish a comprehensive, regularly updated inventory and routine, spatially resolved source apportionment to prioritise interventions
Transport Data	No source apportionment or clear understanding of dominant emission sources within the industrial zone, port, or airport	Simple source identification or screening-level source apportionment, or studies older than 5 years. Little spatial differentiation across the site.	Recent (within 5 years) source apportionment or equivalent analytical work used to identify dominant emission sources and hotspots within the zone.
Transport Data	Undertake basic counts of freight and industrial traffic on key access routes	Establish regular freight flow, vehicle class, and time-of-day data linked to emissions analysis.	Integrate freight datasets (routing, dwell times, gate activity) into a shared data system