



Monitoring, Evaluation and Reporting of LEZs

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Overview of MER processes

What is MER and why is it important?

“A process for tracking the performance of the Low Emission Zone which provides stakeholders with transparency about the process, inspiring trust in the decision makers and their commitment to improving air quality.”

Presents data and analysis to stakeholders for knowledge sharing

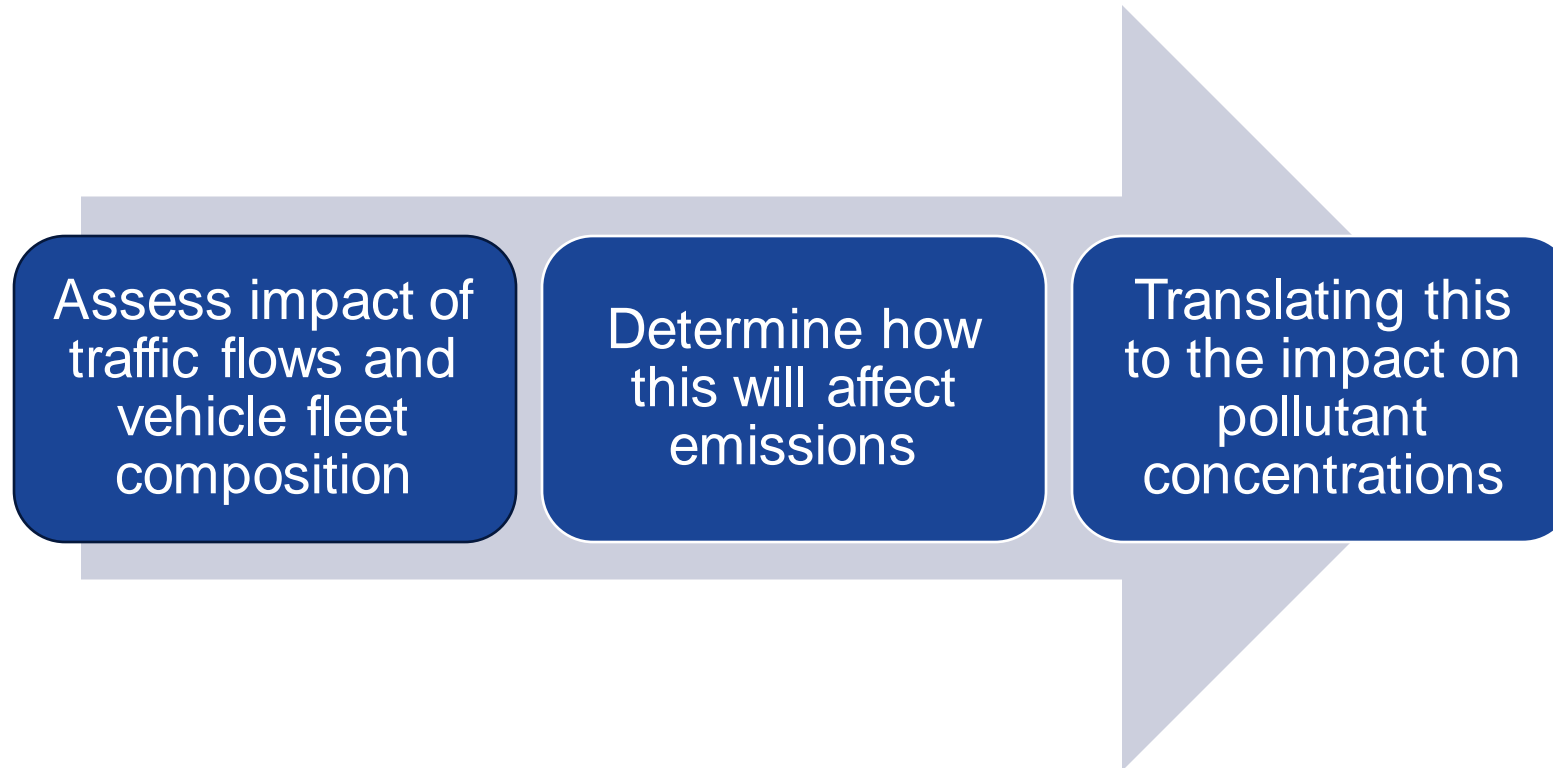


Systematic collection of data on specified indicators to measure progress of the LEZ against a baseline

Helps understand changes over time, for chosen indicators, against the baseline

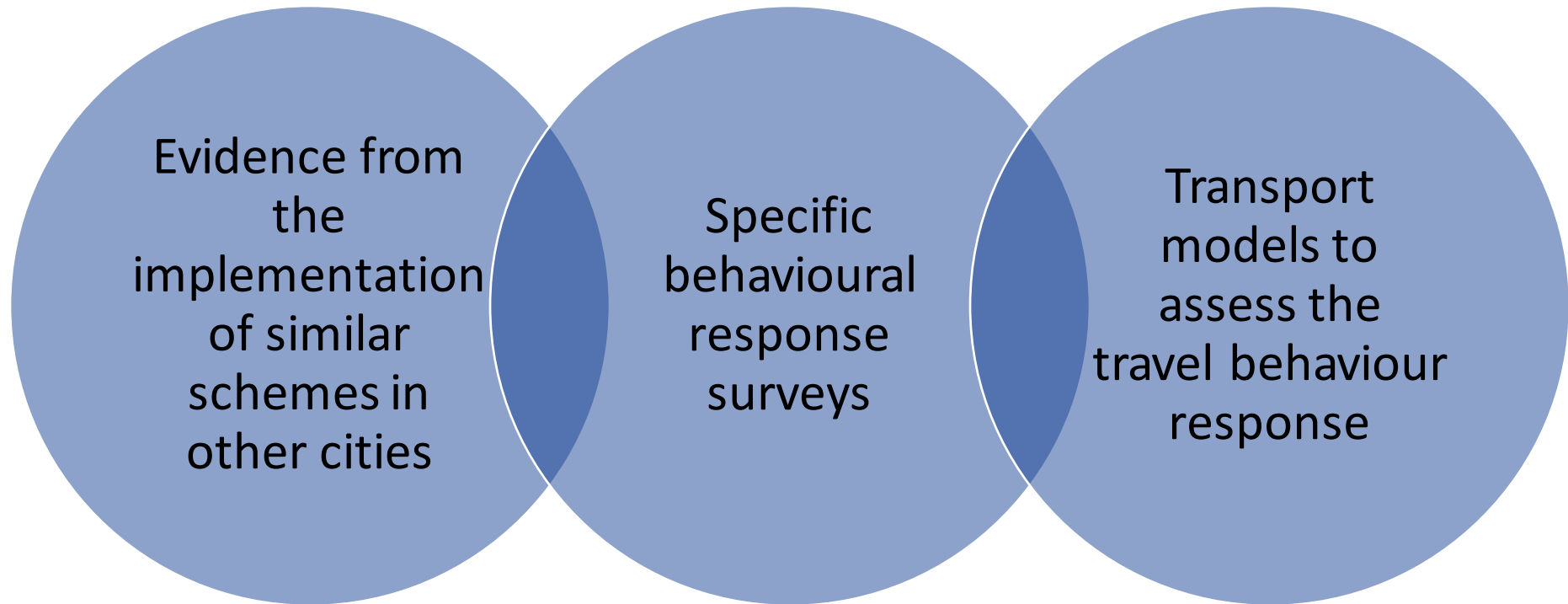
Initial Impact Assessment Study

Supports the case for the LEZ but also provides the baseline and basis for building the MER framework.

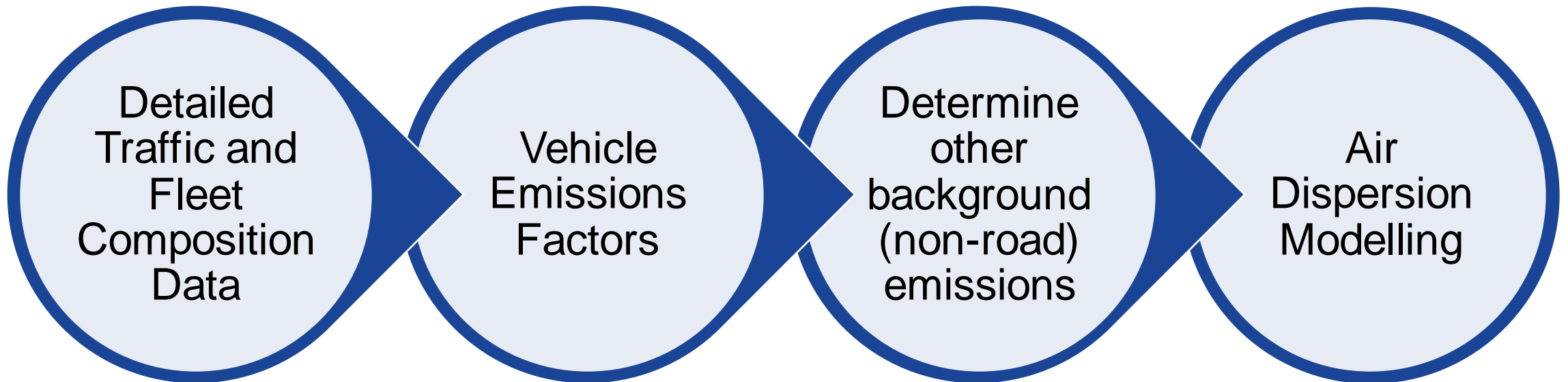


Traffic Flows and Vehicle Fleet Composition

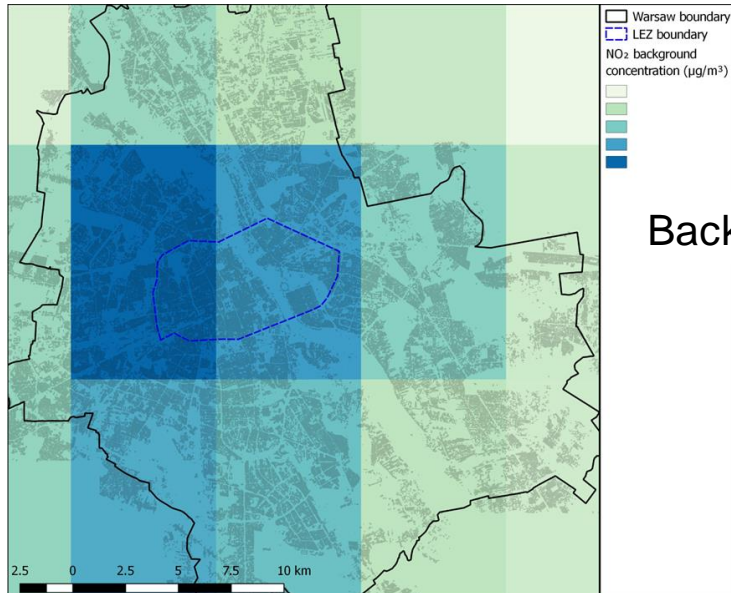
Understanding how many people would upgrade their vehicles or change their travel patterns in response to the scheme.



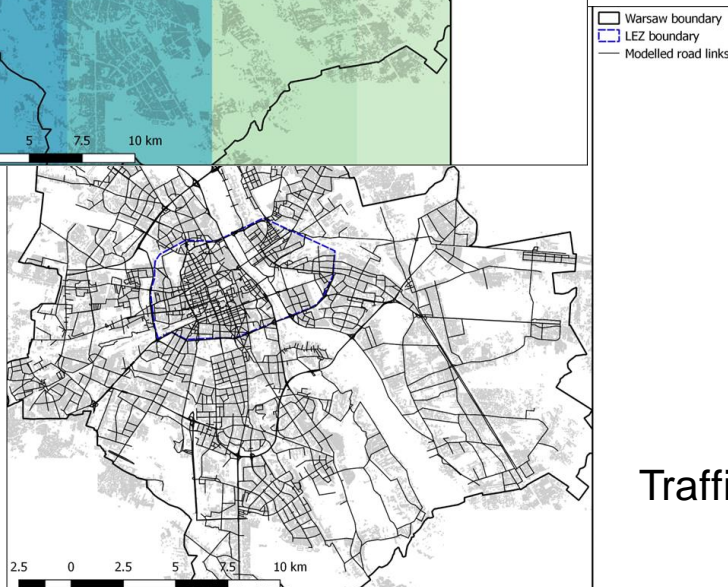
Determine the impact on emissions and air quality



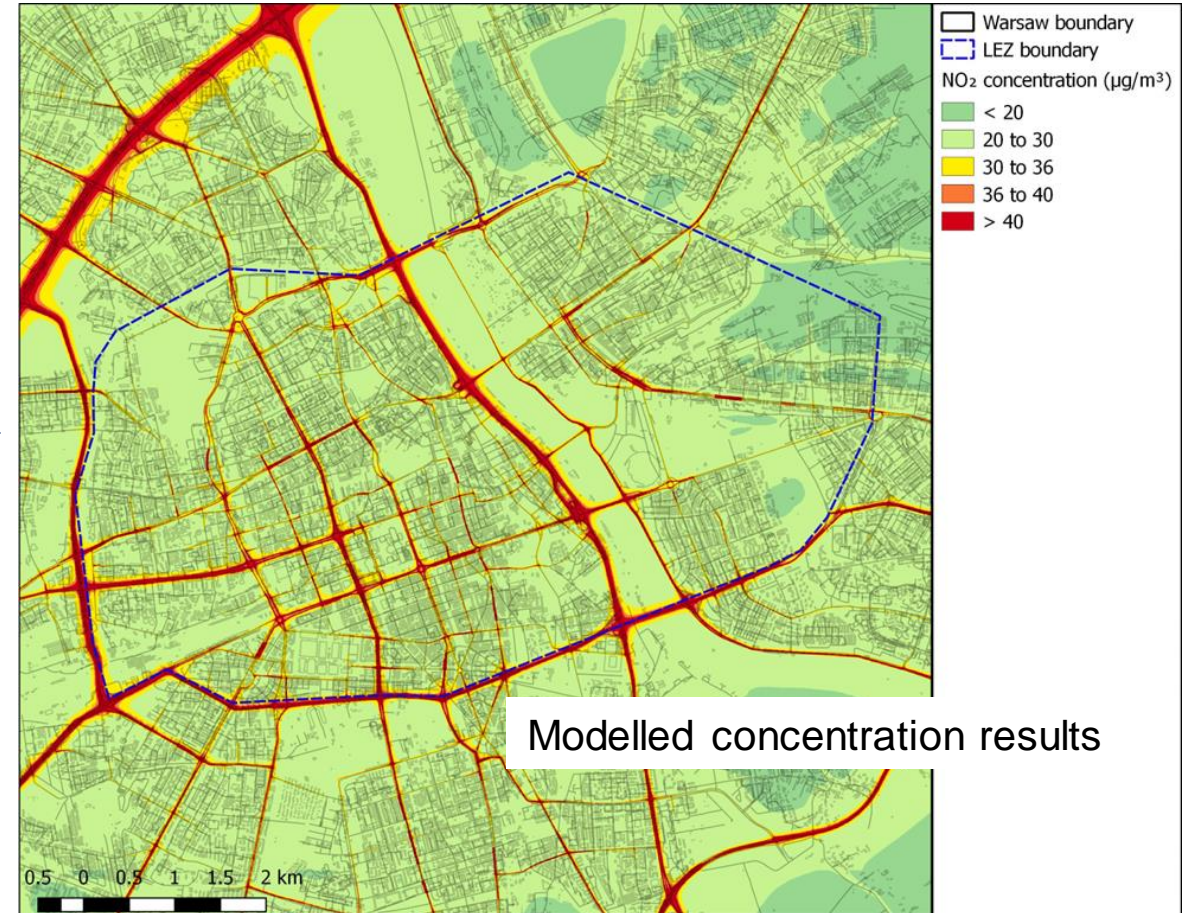
Modelling the Low Emission Zone in Warsaw



Background concentrations



Traffic model data

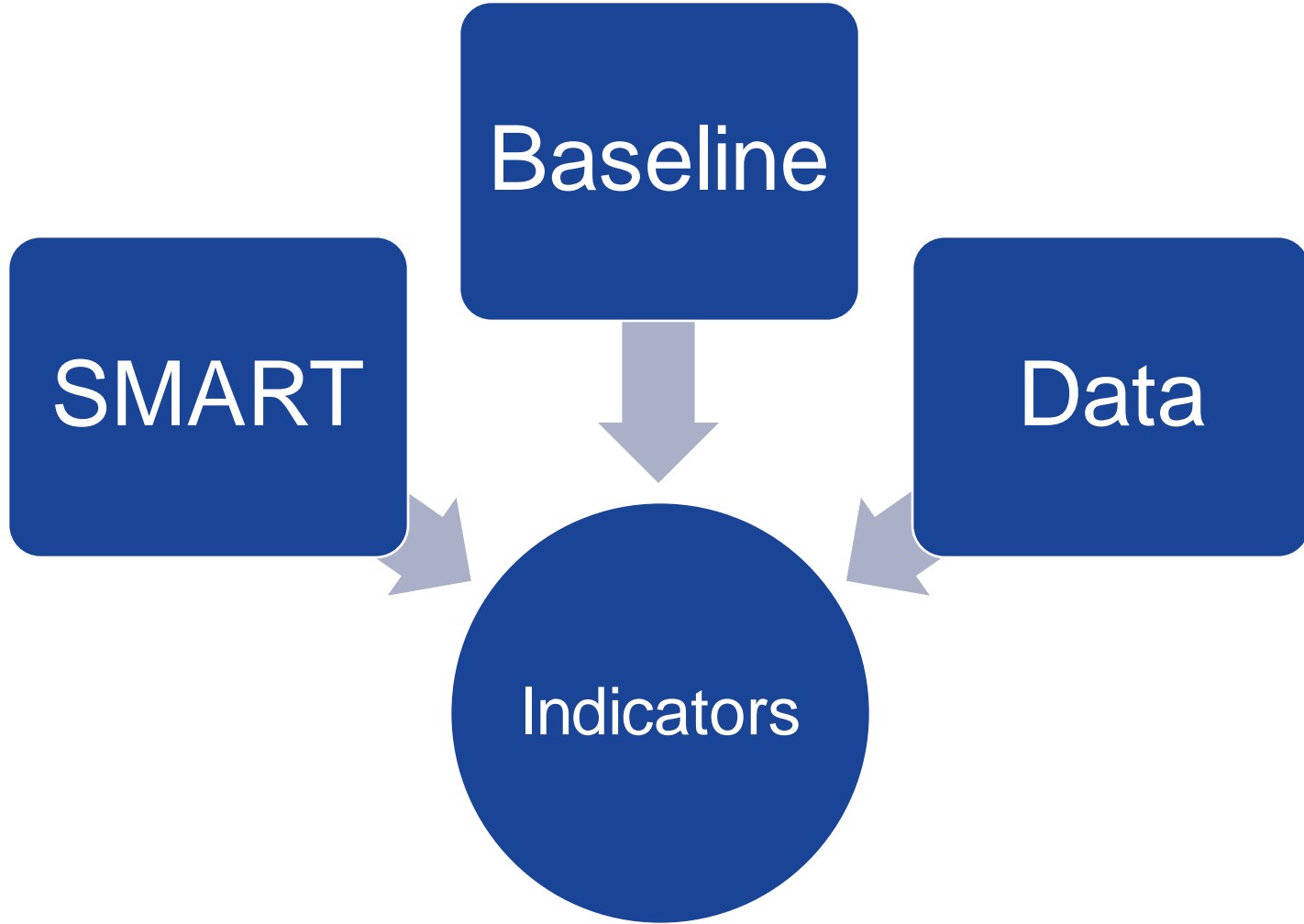


Modelled concentration results

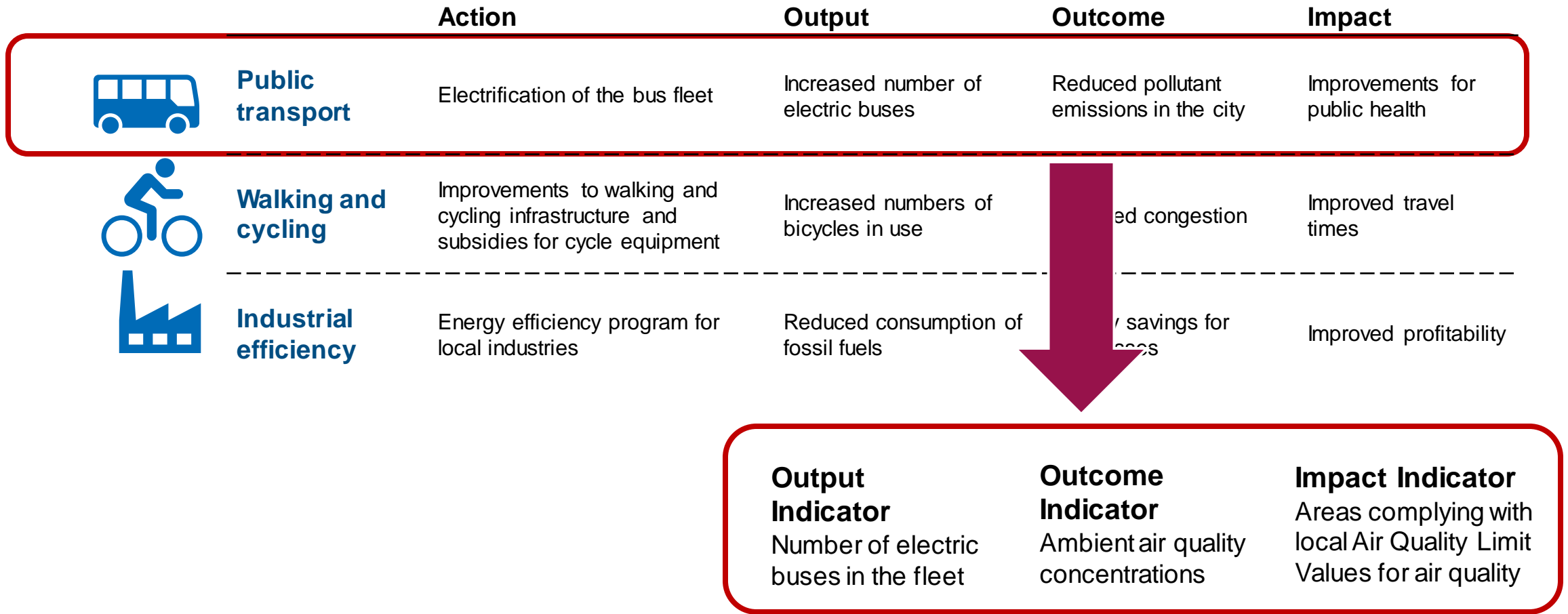
Monitoring

Monitoring Framework

Specific
Measurable
Achievable
Relevant
Time-bound



Monitoring – defining indicators



Monitoring – defining indicators - LEZ



Action	Output	Outcome	Impact
Introduction of a Low Emission Zone	Reduction of the number of higher polluting vehicles in the demarcated zone	Reduced pollution	Improvements to public health
		Reduced congestion	Reduced journey times

Output

- Reduction of x% of non-compliant vehicles by x month/year

Outcome

- Emissions reduced by x amount by x month/year
- Improvement in vehicle speed by x km/h by x month/year

Impact

- Reduction in journey times by x% by x month/year
- Reduction in health impacts as estimated from the air pollution concentration changes

Monitoring different indicators

The performance of a LEZ can be continuously tracked through:

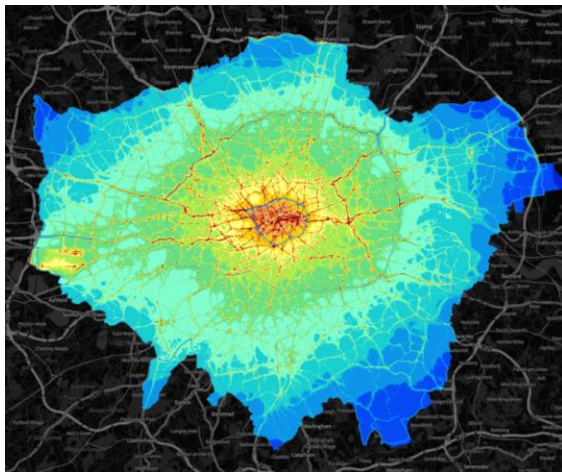
Air quality monitoring



Number of vehicles and compliance rates



Modelling of vehicle emissions



Traffic flow data and vehicle fleet composition



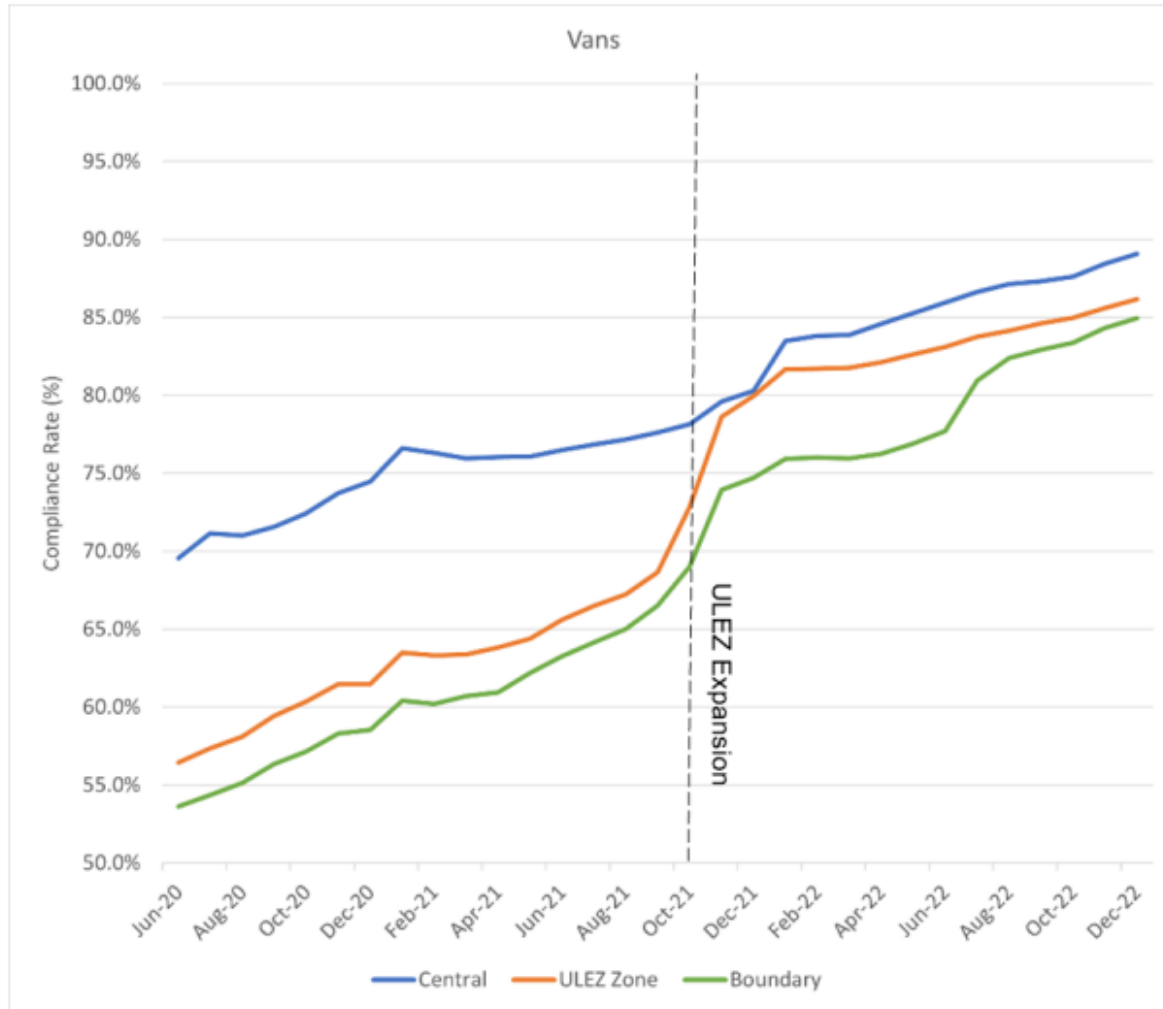
Evaluation

Evaluation questions and criteria

- What changes have occurred (from the baseline)?
 - When and how did these changes occur (e.g. all in one go / at a steady pace over time)?
 - Have the targets been met? If not, how large is the gap to achieve them?
 - Are the observed effects actually caused by the actions taken? If not, what were the real causes?
-
- Evaluation may **lead to changing / improving the monitoring indicators as well as the actions themselves**
 - There must be a **commitment to regularly evaluate** the LEZ



Evaluation – examples from the London LEZ



Monthly average ULEZ compliance rates split by zone, for vans

- ULEZ compliance rates (as percentages and based upon the numbers of unique vehicles detected in the zone each day, as with the tables above)
- Shows a sharp increase in the compliance rate for the ULEZ zone (orange line) from September to October 2021, when the ULEZ was expanded.

Reporting

Reporting

- The objective is **information / knowledge sharing**
- Consider the **target audience** and **tailor** reporting to them:

Level of
detail

Metrics
reported

Type of
media

What do they
care about?

Language

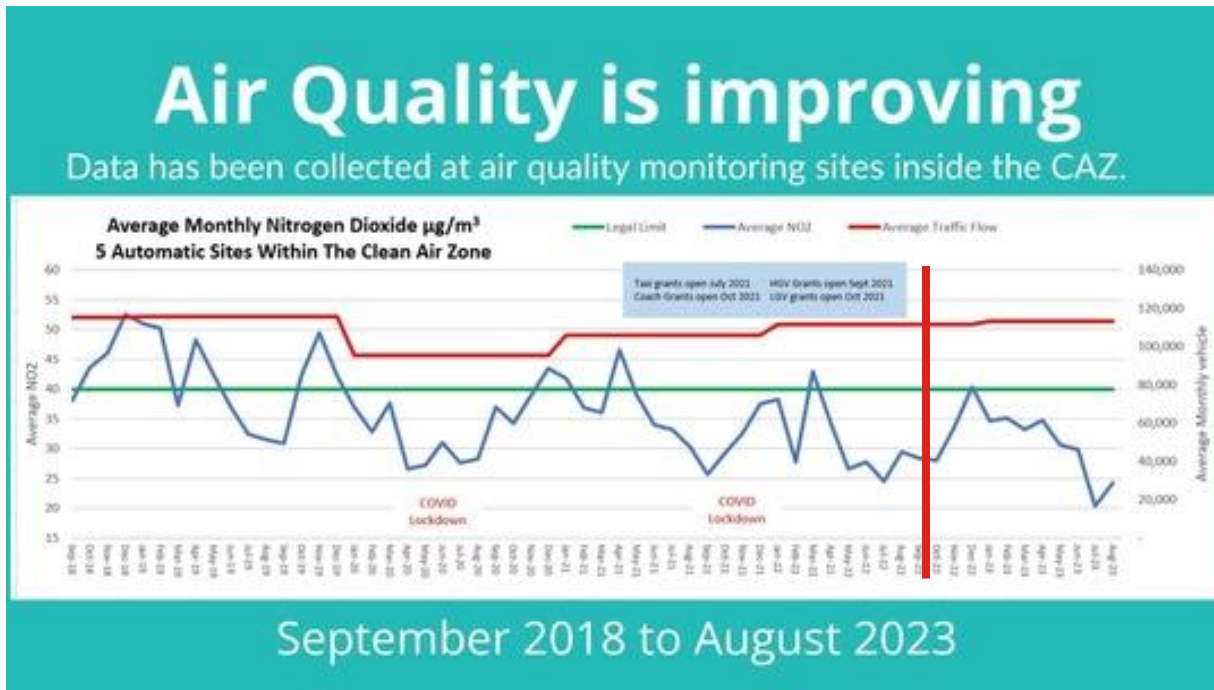
- **Public reporting:**

- Communicates **progress on air quality** in the city, making the city **accountable** for its activities towards the public
- Can allow for **knowledge sharing** between cities and with experts

- **Private reporting:**

- Informs city stakeholders (e.g. other city departments)
- Can facilitate **cross-department exchange** and collaboration on air quality actions
- Stimulates **institutional learning** and improvement

Bradford Clean Air Zone



Evaluation

- Air quality monitoring data shows some of the lowest levels of nitrogen dioxide recorded.
- Non-compliant vehicle journey rate has dropped from 3.6% in 2022 to 1.5% in 2023. Only 1.5% of 7 million vehicle journeys into the CAZ are chargeable
- The Bradford taxi fleet is 99% compliant, the cleanest fleet in the country, mainly comprising of hybrid electric vehicles.

Reporting

- The results of the Bradford CAZ are easily available online so key stakeholders, businesses and residents can understand the following points:
 - What the problem is and why a CAZ is needed
 - The options considered and why the preferred scheme was chosen
 - The benefits and the costs of the CAZ
 - Who could be impacted and how this is being mitigated

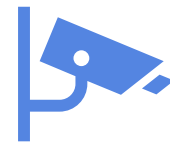
Enforcement mechanisms

Enforcement of the LEZ

- Essential to achieve the objectives of the LEZ – an LEZ that is not complied with is not worth implementing
- Guarantee fairness towards those that are complying e.g. have switched to cleaner modes of transport or vehicles.
- BUT ensuring compliance also requires
 - Communication - drivers can't comply with something they are not aware of.
 - Flexibility, as can be achieved by well-focussed complementary measures – such as improving alternative transport options within the LEZ




Manual
Enforcement




Licence Plate
Recognition

Manual Enforcement

	Pros	Cons
	<ul style="list-style-type: none">• Low upfront costs• Less prone to privacy and data protection issues• Easier with low vehicle numbers	<ul style="list-style-type: none">• Higher training and operational costs (personnel)• Usually results in lower compliance than other options• Often requires a windscreen sticker/permit to facilitate optical check• Relies on third party (e.g., police or traffic wardens) willingness and motivation to enforce• Incomplete datasets for MER

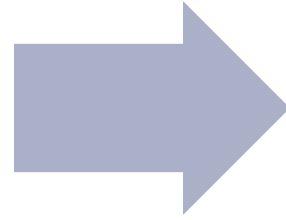
Licence Plate Recognition Cameras

	Pros	Cons
	<ul style="list-style-type: none">• Suitable for both high and low speed traffic• Suitable for high traffic volumes and large areas• No equipment or action is needed on the vehicle side• Non-compliant vehicle identification: 90%+• Generally lower running costs per penalty than e.g., manual enforcement• Provides data for MER	<ul style="list-style-type: none">• May raise privacy and data protection issues that need to be addressed• Higher upfront costs than manual enforcement (equipment rental may assist with this issue)• Maintenance costs

Summary

Initial Scheme Assessment

- Supports the case for the LEZ
- Provides the Baseline for MER



MER

- Framework for assessing performance of the LEZ
- Provides processes for informing stakeholders



Thank you for listening

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