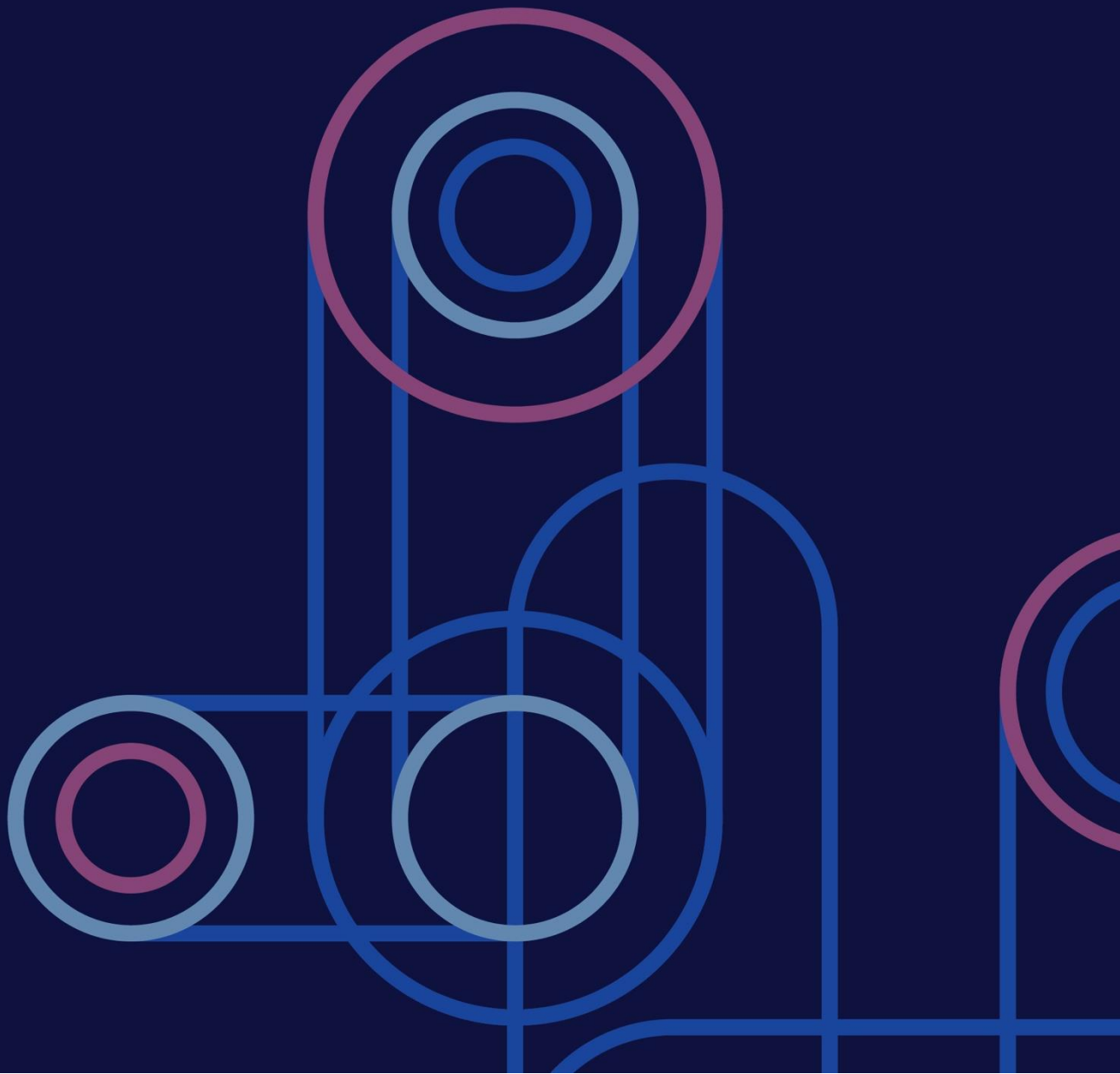
World Health Organization

CASE STUDY

The Real Urban Emission (TRUE) Initiative supports the city of Warsaw, Poland with reducing emissions from transport

2025



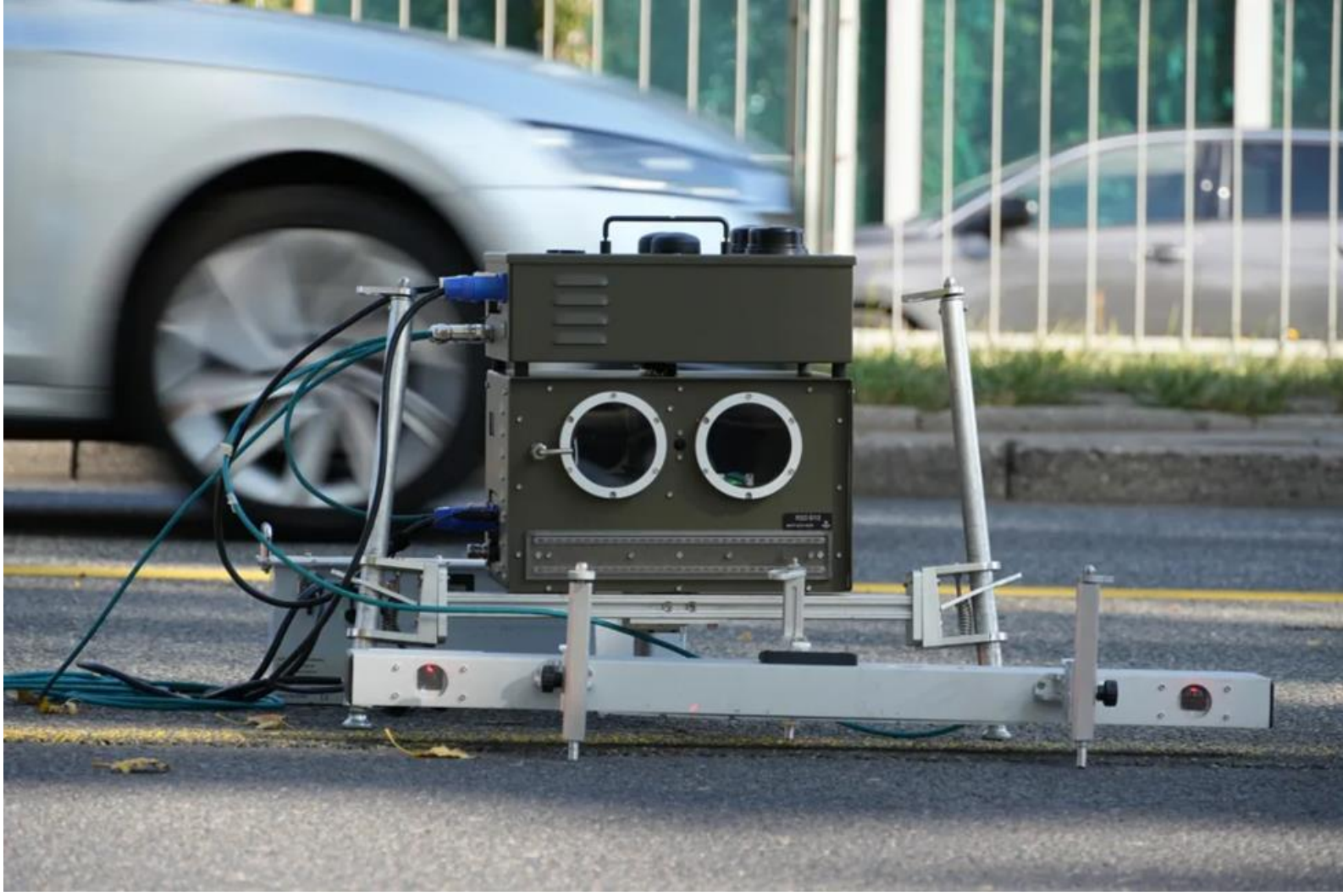
Basic information	
WHO Region	EURO
City or Country	Warsaw, Poland
Timeline	2020 – ongoing
Type of intervention	Policy; evidence generation
Primary level of implementation	City
Primary sectors involved	Transport; air quality
Primary health outcomes or challenges	Urban air pollution; cardiopulmonary risks

Case description

Like many other regional cities, Warsaw, Poland experiences significant transport-related air pollution, with nitrogen dioxide (NO_2) concentrations that exceed WHO guideline values. In 2018, Poland's Act on Electromobility and Alternative Fuels established a legal basis for city low emissions zones (LEZs). Drawing on this mandate, Warsaw partnered with The Real Urban Emissions (TRUE) initiative to generate city-specific evidence on real-world vehicle emissions as a basis for policy design. In September–October 2020, TRUE conducted remote-sensing measurements covering 148,000 vehicles to characterize the fleet and identify high-emitting cohorts. Older diesel passenger cars were found to have disproportionate impacts, with average NO_x emissions exceeding regulatory limits by ~1.6–4.3× – thus illustrating the singular contribution of a relatively small share of vehicles to air quality challenges.

Using these data, TRUE modeled the potential impact of different LEZ designs, finding that restricting the highest-emitting groups of vehicles could rapidly cut emissions while affecting a small portion of the fleet. An assessment led by the International Council on Clean Transportation, TRUE's technical partner, estimated that a Warsaw LEZ could reduce NO_x by ~30% and particulate matter (PM) emissions by ~57% by 2025, depending on scheme design and phasing. Complementary work produced concentration maps and cost-benefit insights to inform decision-making and facilitate public inputs.

Following an extensive period of public consultations, Warsaw's City Council approved the LEZ in 2023, to be initiated in 2024. Under the LEZ, access restrictions by vehicle age and type are phased in, with specific transitional arrangements for registered taxpayers and certain exemptions. Civil society actors and a local PR firm supported the city's



Roadside testing equipment measuring real-world emissions. Warsaw, Poland. 2025.

communications and engagement around the LEZ, helping to explain evidence and address equity concerns during policy development.

This case combined:

- evidence generation through large-scale remote sensing and registry linkage;
- impact modeling to align the design of the LEZ with the city's emission profile;
- design of governance and legal arrangements to align with national provisions; and
- participatory processes to navigate the political uncertainties typical for first-in-region schemes.

The LEZ is the first in Central and Eastern Europe to be implemented in a capital city at this scale; it is designed to tighten standards progressively through 2027 and beyond, with staged thresholds to minimize undue burden on residents while maximizing health gains.

Early results will be tracked through continued monitoring, with TRUE and city partners planning follow-up measurement campaigns and evaluation to assess real-world effects

on emissions and, over time, ambient NO_2 and PM exposure. A new measurement campaign was conducted in October 2025 that will monitor the progress made to reduce emissions from transport and assess associated health benefits.

Strategic Highlight

Warsaw's LEZ illustrates how high-quality, local evidence can create a practical entry point for strategic urban health action. Rather than starting from a broad aspiration to "improve air quality," the city anchored its approach in city-specific, real-world measurements that revealed where emissions were concentrated, and which vehicle groups were most consequential. This allowed decision-makers to select targeted restrictions with strong expected benefits and limited disruption, a combination that helped build political viability in a setting where LEZs were uncommon.

Indeed, a pilot LEZ introduced in Krakow, Poland in 2019 was discontinued after only nine months, due to a lack of detailed data on the key sources of transport-related pollution, a weak legal framework, and public unfamiliarity with the project – as well as design deficiencies. This setback underscored the fragility of legal and political backing for LEZs in Poland. Warsaw's TRUE-informed implementation benefitted from that precedent by emphasizing locally relevant evidence and early stakeholder engagement to mitigate similar reversals.

Key transferable lessons for decision-makers from this case include the value of investing early in fit-for-purpose local evidence that reveals leverage points; the importance of pairing measurement with transparent modeling of locally feasible options and trade-offs; and the potential benefits of leveraging communications and civil society partners to socialize results and address equity. In this context, evidence structured political discussion around concrete, locally credible choices – opening an impactful entry point for strategic urban health action on air quality.

Further Information

- Evaluation of real-world vehicle emissions in Warsaw
- Warsaw will have Poland's second ever low emission zone
- Warsaw LEZ announcement supported by TRUE real-world emissions data models
- Targeting older diesel vehicles brings real air quality and climate benefits says new TRUE report ahead of Warsaw LEZ announcement
- Delivering Warsaw's first Low Emission Zone

- Warsaw low emission zone (LEZ)
- Breathe Warsaw Low Emission Zone Assessment Final Report
- New TRUE emissions testing begins across the Warsaw LEZ