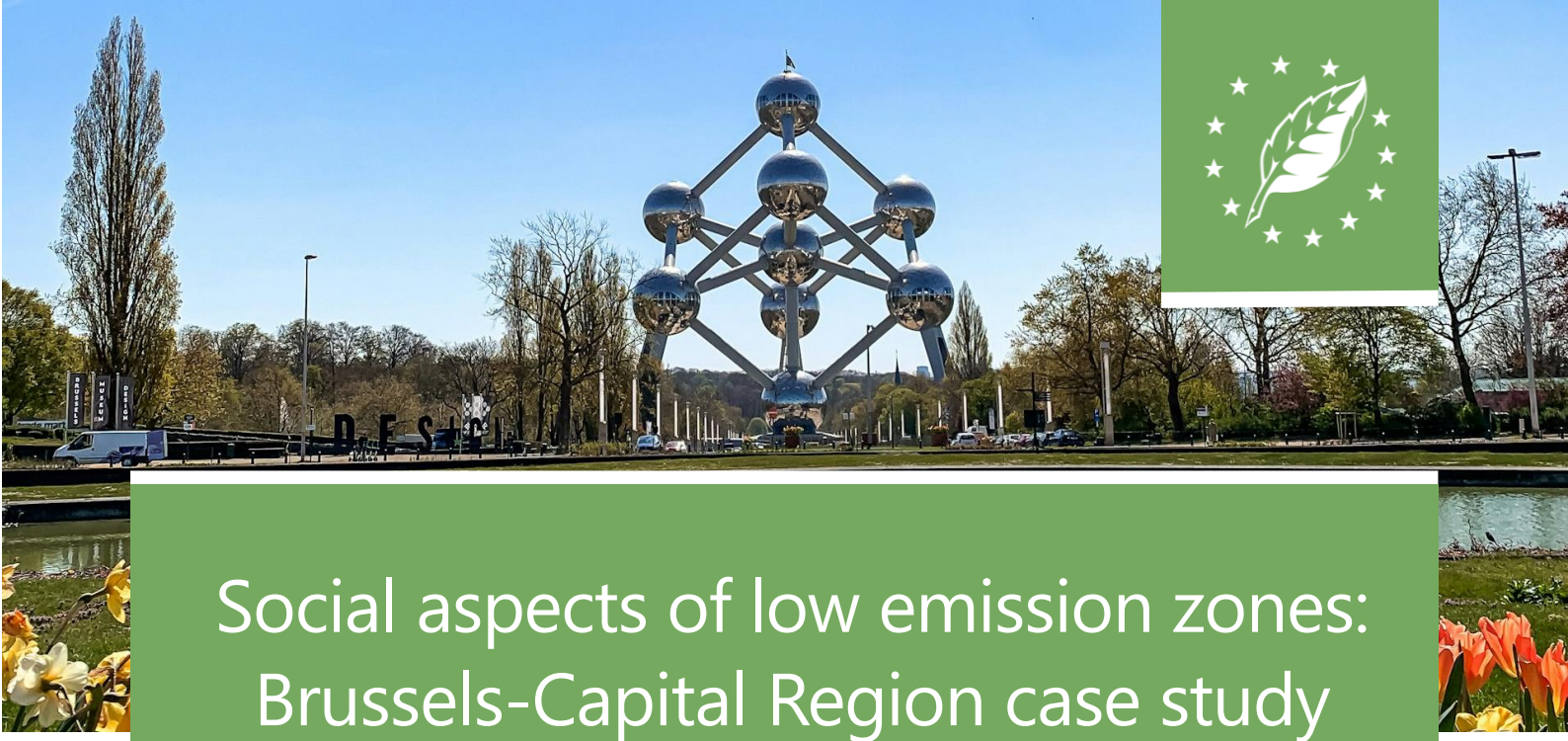

Social aspects of low emission zones: Brussels-Capital Region case study

This is one of a set of five city case studies prepared as part of a study by the Institute for European Environmental Policy for the Clean Air Fund. The study investigates the social impacts of low emission zones (LEZ) and looks at how they can be deployed in a socially acceptable way, gathering support from the local population. The other case studies cover Stockholm, Milan, Warsaw and Sofia.

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About the Brussels-Capital Region

The Brussels-Capital Region comprises 19 communes (municipalities) and is the capital of Belgium. The Region covers 162 km^2 and has around 1.2 million inhabitants (Eurostat, 2024). The average population density is around 7,528 inhabitants per km^2, but is as high as 16,000 inhabitants per km^2 in 5 communes (Institut Bruxellois de Statistique et d'Analyse, 2024a). 22.1% of the population is 0-17 years old, 64.8% between 18-64, and 13% are 65 years or over (Institut Bruxellois de Statistique et d'Analyse, 2024b). The average age is 37 years and 9 months (Institut Bruxellois de Statistique et d'Analyse, 2024a). GDP per inhabitant in the region is 196% of the EU-27 average (Eurostat, 2022), at just over EUR 78,000 in 2022 (Institut Bruxellois de Statistique et d'Analyse, 2024d). The average gross income in 2021 was around EUR 4,600 per month (Statista, 2024).

The average household spent around 7.3% of the household budget on transport (purchase and use of vehicles and transport services), lower than both the Flanders and Wallonia regions and Belgium as a whole (Institut Bruxellois de Statistique et d'Analyse, 2024c). Around 3.3 million journeys are made each day by the Brussels population: 35.9% on foot, 27.3% by car (20% drivers and 7% passengers), 22.2% by metro, tram or bus, 8.5% by bicycle, 1.6% by train, 1.2% by motorcycles or mopeds, 1.2% by electric scooter, and 0.5% by taxi (or equivalent) (Bruxelles Mobilité, 2023).

It is estimated that in 2020 there were 5,530 premature deaths in Belgium attributable to air pollution (European Environment Agency, 2022), and that road traffic emissions contribute to around 1,000 premature deaths per year in Brussels (Brussels Environment, 2022). Road traffic generated 27% of the region's CO_2 emissions in 2020 (Brussels Environment, 2022) and 24% in 2022 (Brussels Environment, 2024c).

About the Low Emission Zone

The Brussels-Capital Region LEZ was introduced on 1 January 2018. The stated aim was to "improve air quality by gradually banning the most polluting vehicles from being driven in the Brussels-Capital Region" (Bruxelles Mobilité et al, 2019). Key motivations to introduce the LEZ included the European Commission launching infringement proceedings based on the exceedance of EU air quality limit values (Demuelenaere, 2024), and the region's objective to become climate-neutral by 2050 (Brussels Environment, 2022). In addition, there was support from the general public, with several air associations created in 2016, and parents asking for better air quality in streets around schools (Gérard, 2024).

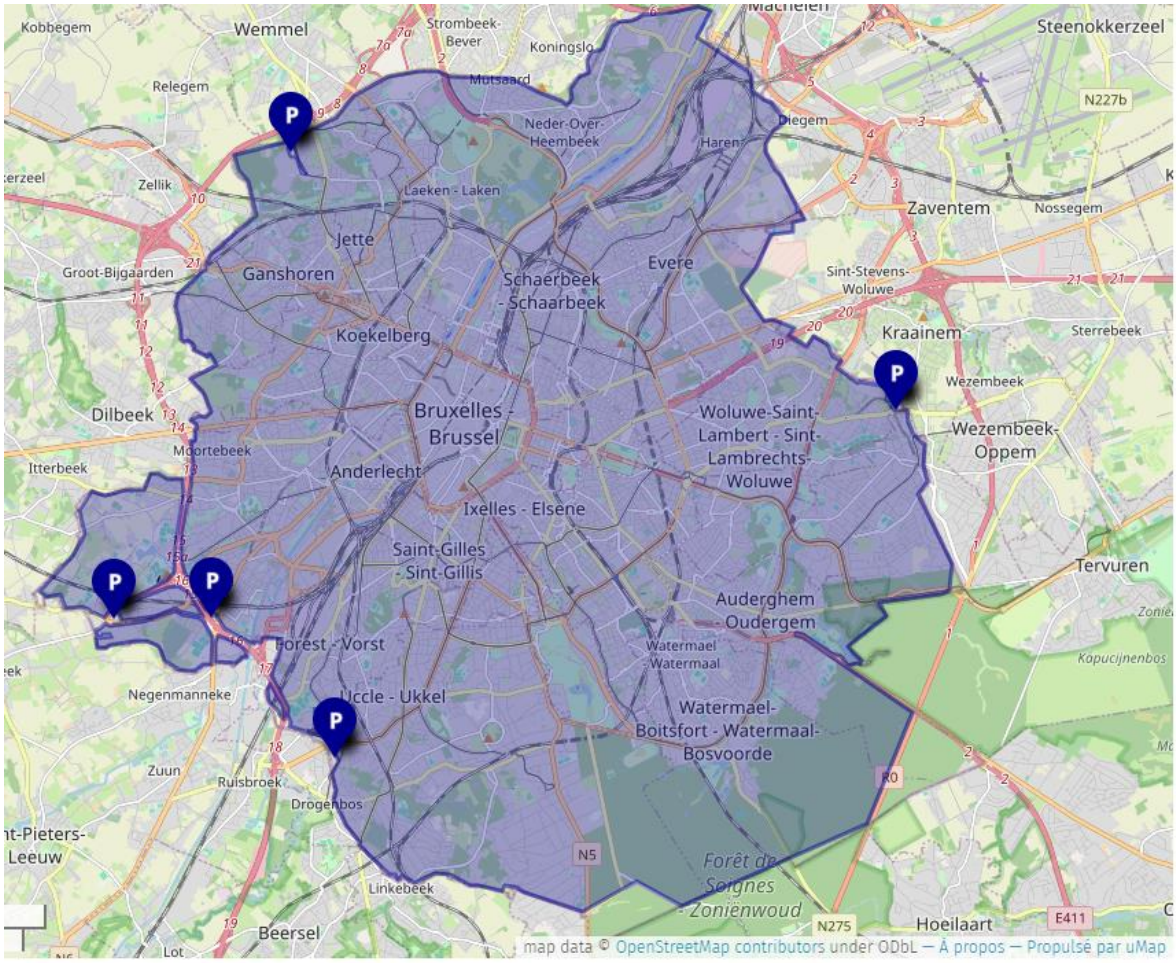
The LEZ covers the whole area of the city, including all 19 communes (see Figure 1 below) (Low Emission Zone Brussels, 2024). The main ring road around the city and a small number of access roads to reach the ring road are excluded. So are five 'Park and Ride' (P+R) transit car parks on the LEZ boundary, where owners of non-LEZ compliant vehicles can park their car for free if they take public transport links into the city (Low Emission Zone Brussels, 2024).

The LEZ periphery is marked by around 300 signs (Low Emission Zone Brussels, 2024). In 2022, an average of 364,468 vehicles entered the LEZ each day, 87.2% of which were cars, 10.5% vans, 1.2% HGVs, 0.4% buses and coaches, 0.4% mopeds, motorbikes and scooters, and 0.2% other types (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022).

Entry to the LEZ is dependent on the Euro emissions standard and vehicle type. There is a planned timeline for gradually more stringent restrictions, eventually leading to a complete ban on many diesel vehicles from 2030 and many petrol/LPG/CNG vehicles from 2035, which will effectively create a zero-emission zone (ZEZ) (see Table 1 below for details). From 1 January 2025, the entry requirement is due to be raised to diesel Euro 6 (b, c) and petrol Euro 3, and also extended to HGVs, mopeds and motorbikes. These new requirements will impact 11% of the vehicles currently in circulation (98% of which are diesel Euro 5 and 2% petrol Euro 2; and 79% cars, 18% light commercial vehicles and 1.6% heavier commercial vehicles) (Brussels Environment, 2024a). However, it should be noted that following the Belgian Federal

elections in June 2024, there is a possibility that the new governing parties will delay this next phase for one year, to begin in 2026 (Demuelenaere, 2024). Other future impacts on implementation of the zone as a result of the change in government remain to be seen.

Figure 1 The location of the Brussels-Capital Region LEZ (Low Emission Zone Brussels, 2024)



There are a range of automatic and on-application exemptions (see detailed list in Annex 1). This includes automatic exemptions for hydrogen and electric vehicles and emergency vehicles, and exemptions on application for vehicles for disabled people, school vehicles, vintage vehicles, and armed forces vehicles. In addition, non-compliant vehicles may enter the LEZ with an electronic day pass, purchased either in advance or during the 5 days after entering the LEZ. A maximum of 24 day passes can be purchased per year per vehicle (Low Emission Zone Brussels, 2024). In 2022, 47,610 day passes were purchased, with around a third applied to vehicles that only entered the LEZ on one day. This represented a significant annual increase in the number of day passes: from the beginning of the LEZ to the end of 2022, 68,906 day passes were purchased in total (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022). In 2023, 33,616 day passes were purchased (Gérard, 2024).

The main design features of the LEZ are summarised in Table 1 below.

Table 1 Key design features of the Brussels LEZ (Low Emission Zone Brussels, 2024)

<table>
<tr><th></th><th>Brussels-Capital Region LEZ</th></tr>
<tr><td>Date of implementation and changes</td><td>Introduced 1 January 2018.
Planned timeline of gradually more stringent restrictions, based on Euro emissions standards and fuel, with next change on 1 January 2025.
Further key changes will come in 2030, 2035 and 2036, to effectively create a zero emission zone (see ‘Requirements’ below).</td></tr>
<tr><td>Vehicles included</td><td>Currently: cars, vans, (mini)buses and coaches (Belgian and foreign-registered).
From 1 January 2025: the vehicles above, plus HGVs, mopeds and motorbikes.
Exemptions (automatic or on application) for various specific vehicle types (see Annex 1 for full list).</td></tr>
<tr><td>Requirements</td><td>Until end 2024: Euro 5 for diesel/diesel hybrid cars, (mini)buses, buses and coaches, vans; Euro 2 for petrol / LPG / CNG / petrol hybrid / bioethanol cars, (mini)buses, buses and coaches, vans.
From 1 January 2025: Euro 6 (b, c) for diesel, Euro 3 for petrol/gas.
From 2030: all diesel cars and small vans banned.
From 2035: all petrol, LPG and CNG cars and small vans, plus all combustion engine larger vans and minibuses banned.
From 2036: diesel urban buses banned.</td></tr>
<tr><td>Compliance and sanctions</td><td>99.2% compliance by mid-2023. Non-LEZ compliant vehicles with a valid exemption accounted for only 0.1% of entries (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022).
Compliance checks based on vehicle licence plate, using around 350 fixed and mobile cameras (used both for the LEZ and by the police).
EUR 350 fine for non-compliance, capped at 1 fine per vehicle every 3 months.
From 1 January 2025: warning (no fine) issued to owners of newly prohibited vehicles for first entry to the LEZ; EUR 350 fine thereafter. Payment plans of up to 4 monthly payments can be requested by individuals who find it difficult to pay the fine.</td></tr>
<tr><td>Financial costs and gains</td><td>No charge to enter the LEZ, other than for day passes purchased by owners of non-compliant vehicles (regular EUR 35, mopeds/motorbikes EUR 20, HGVs EUR 50).
Administrative costs: small team at Brussels Environment working on accompanying measures and communications, a couple of dozen at Brussels Fiscalité working on fines (in particular dealing with contested fines), day passes and derogations, and a small team at Paradigm managing the camera network (which is also used for police purposes) (Demuelenaere, 2024). Each new change (e.g. new vehicle type added, new derogation) creates some additional administrative cost (Demuelenaere, 2024).
LEZ revenues vary each year. In 2022 they were around EUR 6 million (EUR 4.3 million from fines and EUR 1.7 million from day passes) (Gérard, 2024). Recent figures on fines issued, payment plans requested and fines contested are summarised below (Gérard, 2024).
<table>
<tr><th></th><th>Fines issued</th><th>Payment plans requested</th><th>Fines contested</th></tr>
<tr><td>2023</td><td>30,499</td><td>1,783</td><td>7,674</td></tr>
<tr><td>2024 (Q1)</td><td>3,577</td><td>459</td><td>944</td></tr>
</table>
</td></tr>
<tr><td>Environmental impact</td><td>Significantly lower emissions of road transport-related air pollutants due to changes in the vehicle fleet (including almost 50% reduction in diesel vehicles). Between 2018 and 2022 (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022):</td></tr>
</table>

	• NOx emissions reduced by 31%, NO_2 concentrations reduced by around 30% along major roads in the city and NO_2 levels kept below the annual EU legal limit value of 40 µg/m³ (although they remain well above the WHO recommended value of 10 µg/m³) • Black carbon emissions reduced by 62% • PM10 emissions reduced by 19% • PM2.5 emissions reduced by 30%

Social Aspects – Investigations and Stakeholder Consultations

In June 2018, the Brussels-Capital Region government took the political decision to ban diesel vehicles from 2030 and petrol vehicles in a subsequent phase. The government held two phases of stakeholder consultations between September 2018 and April 2019 to support future planning for the LEZ (Brussels Environment, 2019). During the first phase, a written questionnaire was sent to around 120 stakeholders (public, private, automotive, academic, energy and associations), with 64 responses received. The second phase involved nine thematic round tables and three focus groups1, with around 60 organisations taking part (Brussels Environment, 2019). Some of the key views obtained during the consultations included:

- 82% of stakeholders responding to the questionnaire totally (52%) or fairly (30%) agreed with the need to move towards a zero-emission fleet to improve air quality and achieve climate objectives; 10% agreed a little, none totally disagreed (8% did not reply);

- Concerns raised over socio-economic impacts, particularly the risk of social exclusion of vulnerable groups, problems for those who rely most on private vehicles (e.g. people with reduced mobility, senior citizens, shift workers), and specific groups such as large families, self-employed and (small) businesses;

- The need for accompanying measures, including access to alternative urban mobility (e.g. shared and active transport modes, taxis), changes to energy production (developing renewable energy sources), a review of car taxation, and soft support (e.g. advice) for the general public and businesses; and

[1] The thematic round tables addressed the following topics: energy infrastructures (charging stations and impact on energy infrastructures), expected development sin vehicle technologies, economic impact (in general and on the logistics sector in particular), social impact, environmental impact (air quality and end-of-life vehicles), and mobility impact. The focus groups were as follows: one with Brussels businesses' mobility and fleet managers on their role in shifting away from fossil fuels, one sharing experiences from around 20 European cities and regions on the transport policies needed to improve urban air quality, and one on the use of remote sensing technology for obtaining accurate vehicle emissions data.

- Calls for a coherent long-term vision for the LEZ, to enable businesses to make informed investment decisions.

Considerable stakeholder engagement has also been undertaken around the Brussels-Capital Region's Low Emission Mobility Roadmap (in which the LEZ plays an important role). In 2021, the draft LEZ roadmap and timetable was sent to various official bodies2 for consultation and notified to the European Commission (Brussels Environment, 2022). Feedback from stakeholders during this consultation process (Brussels Environment, 2022) highlighted the need to:

- Adequately account for the impact on low-income households, including through financial and fiscal support and reinforcement of public transport, cycling and shared mobility;
- Minimise the administrative burden for disabled people, in particular related to applications for vehicle exemptions;
- Involve stakeholders from target groups, to identify acceptable solutions;
- Focus on (re-)training in sectors where jobs are threatened;
- Ensure that increasing the provision of electric vehicle charging infrastructure doesn't cause unnecessary congestion, that densely populated neighbourhoods are provided with enough charging points, and that municipalities are involved in infrastructure deployment; and
- Communicate with the public well in advance, stressing the positive impact of the transition to low-emission mobility.

Around 10 stakeholder sessions were held with specific target groups to gather feedback on the draft roadmap in late 2021 and early 2022. Topics such as car-sharing, taxis, urban logistics and company cars, and support for small businesses, the non-profit sector and vulnerable households were discussed. The outcome of the sessions informed the final roadmap, including general measures and measures specific to certain target groups.

Communication efforts around the LEZ continue (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022). In 2022 (the latest year for which a report is available), the focus was to inform and remind the public about the ban on Euro 4 vehicles, and to promote measures accompanying the LEZ (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022). This included sending warning letters to motorists who had contravened the LEZ, through press, media and social media campaigns, and through promotion of accompanying measures (see Table 2 below), and sending information letters to all car-owners affected by the Euro 4 ban (Gérard,

[2] The roadmap and timetable were sent to: the Interministerial Conference on the Environment and Ministers for Mobility, the Regional Mobility Commission, Brupartners (the region's main body for socio-economic consultation between employers', trade unions and the Government), the Council for the Environment, and Brulocalis (a not-for-profit organisation representing the local authorities of the Brussels-Capital Region).

2024). In addition, call centres responded to numerous calls and e-mails from citizens about the LEZ (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022). From May to December 2024, communication will focus on publicising the new requirements for 2025, via an email to stakeholders and press with a communication kit, plus a wider national campaign and further promotion of Mobility Coach and the Bruxell'Air bonus (Brussels Environment, 2024b).

Broader awareness-raising initiatives on air pollution have also been undertaken, such as the citizen science CurieuzenAir project (CurieuzenAir, 2022), which for one month in 2021 gave 3,000 citizens tubes to place on their homes to measure NO2 levels, revealing significant air quality differences between socio-economically vulnerable neighbourhoods and richer, greener ones. The project cost around EUR 300,000 and significantly raised citizens' awareness of air quality issues (Demuelenaere, 2024). Another project in 2020 used remote-sensing to measure the real emissions of vehicles in 8 Brussels locations (Brussels Environment, 2023b), with the results helping to demonstrate to citizens the importance of stricter LEZ limits for 2022 and 2025 (Gérard, 2024).

When the LEZ was first introduced, there were rather few vehicles of the affected lower Euro standards in circulation (Demuelenaere, 2024). As the restrictions gradually apply to higher Euro standard vehicles, it is more important (both in socio-economic and political terms) to have accompanying measures (Demuelenaere, 2024). A number of complementary measures are currently in place (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022). The main ones are summarised in Table 2 below.

Table 2 Complementary measures to the Brussels-Capital Region LEZ

Name of measure	Description / main features	Uptake / impacts
Bruxell'Air bonus (Brussels Environment, n.d. a)	Introduced 2006, relaunched March 2022. Bonus to Brussels residents who permanently give up (deregister) their car. Since 2022: EUR 1,010 for lower incomes (and any household with a person eligible for a disabled person's parking card), EUR 705 for middle incomes, EUR 505 for higher incomes. Bonus valid for 2 years, to be spent on mobility related purchases, e.g. public transport passes, cycle purchases, cycle and car sharing, (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022).	2018-2021: between 700-1,300 applicants per year (Wappelhorst, Bui, & Morrison, 2023). 2022: 2,102 Bruxell'Air bonuses awarded. 2023: 1,203 bonuses awarded. 2024 (to May): 664 bonuses awarded. 59% to lower income households, 26% to middle income, 11% to higher income, 4% to households that include a disabled person. (Gérard, 2024)
'Mobility Coach' campaign (Brussels Environment, n.d. b)	Free advice (online information, personalised online / in-person sessions) to citizens on sustainable mobility options. 'Mobility Tests' for citizens to trial an electrically-assisted bicycle for 2 weeks. 'Mobility Visits' to present different transport options and allow citizens to test scooters, electric bikes, cargo bikes and car-sharing	2022: 644 requests dealt with, 96% linked to the Bruxell'Air bonus; 11 mobility visits involving 95 people; 17 mobility tests (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022) (Gérard, 2024). 2023: 874 requests dealt with, 63% linked to the Bruxell'Air bonus; 8 mobility visits; 22 mobility tests (Gérard, 2024).

	(Dehouck, Gerard, Hollander, Goor, & Briffault, 2022).	
Electrify.brussels plan and website (Electrify.Brussels, 2024)	Launched 2022. Aims to install 22,000 public EV charging points by 2035, ensuring one within 150m of every household in Brussels by 2024. Website with information on EV charging infrastructure, including how to request installation.	2020: 836 charging points in place. 2021: 1,323 charging points in place. 2022: 2,311 charging points in place. (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022) 2022: EUR 500,000 funding from Brussels Environment supported 11 projects to install 125 new recharging points. 2023: EUR 500,000 funding from Brussels Environment supported 11 projects to install 78 new recharging points. (Brussels Environment, 2023a)
Low-emission mobility allowances (Bruxelles Économie et Emploi, n.d. a)	Introduced 1 December 2018. Grants (up to 3 per year per business, 5-40% of purchase price) for micro, small and medium-sized enterprises to replace non-LEZ compliant vehicles. Micro & small enterprises: • Max. EUR 15,000 to replace with an electric vehicle (or EUR 3,000 for LEZ-compliant petrol / natural gas vehicle) • Max. EUR 7,500 to repower non-LEZ compliant van to electric. Medium enterprises: • Max. EUR 10,000 to replace with an electric vehicle (or EUR 2,000 for LEZ-compliant petrol / natural gas vehicle) • Max. EUR 5,000 to repower non-LEZ compliant van to electric. (Wappelhorst, Bui, & Morrison, 2023) Grants (up to 3 per year per business, 40-70% of purchase price) of max. EUR 4,000 to support purchase of a cargo bike or max. EUR 2,000 for a bike trailer designed to transport goods. (Bruxelles Économie et Emploi, n.d. b)	2022: 16 grants (total value EUR 143,311) awarded, 11 to micro enterprises and 5 to small enterprises (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022).

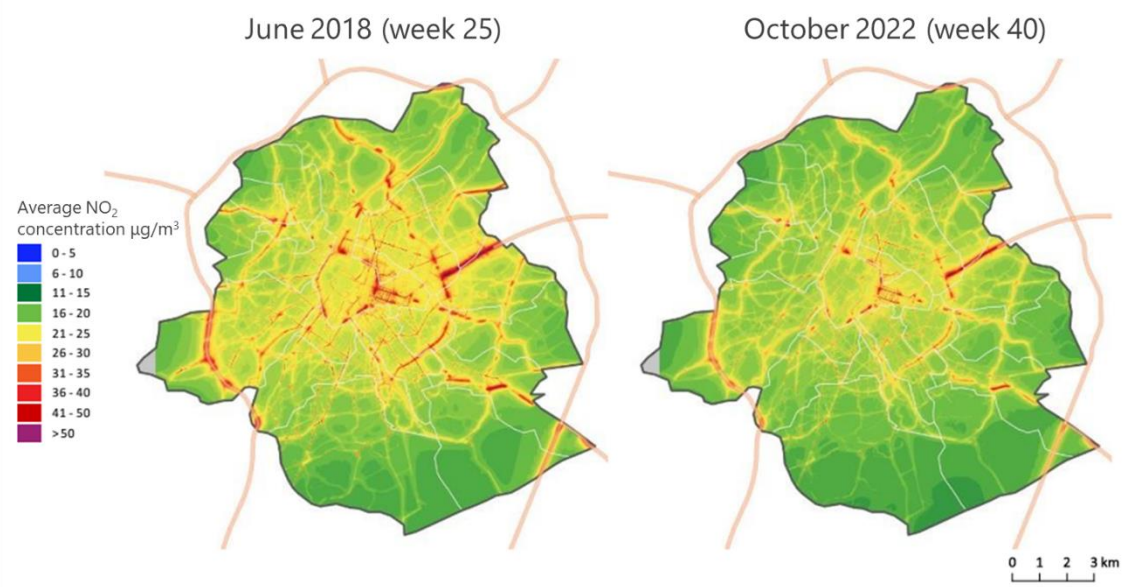
In addition to the stakeholder consultations during 2018-2019, the Brussels-Capital Region government carried out implementation studies on the potential impacts of phasing out combustion engine vehicles and other measures in the Good Move plan. This included studies related to health, transport emissions, socio-economic impacts, and mobility of people and goods (Brussels Environment, 2019). The headline findings and forecasts are summarised in Table 3 below, together with information found on actual observed/measured impacts.

Table 3 Forecasts of implementation studies (2018-2019) and actual impacts (where available)

Topic	Key findings / forecasts	Actual impacts
Health impacts	By 2030: • Prevent 100-110 premature deaths per year due to PM2.5 and NO2 exposure • Reduce NO2-related illnesses by at least 25%, including preventing 440 new cases of asthma in adults • Reduce PM2.5 and PM10-related illnesses by 7.5% • 21 fewer hospital admissions for respiratory infections in children aged 0-4 due to PM2.5 • Save between EUR 100 and 350 million in healthcare costs (Brussels Environment, 2023a)	No specific figures found on health. The LEZ has contributed to significant reduction in transport emissions (see below) and associated air quality improvements, therefore likely contributing to anticipated positive health outcomes (Brussels Environment, 2022).
Impact on transport emissions and air quality	Possible 75% reduction in direct transport-related CO2 emissions in the Brussels-Capital Region by 2030. (Brussels Environment, 2023a)	Between 2018 and 2022 (Dehouck, Gerard, Hollander, Goor, & Briffault, 2022) : • NOx emissions reduced by 31%, and NO2 levels kept below the annual EU legal limit value of 40 µg/m³ (although they remain well above the WHO recommended value of 10 µg/m³) • Black carbon emissions reduced by 62% • PM10 emissions reduced by 19% • PM2.5 emissions reduced by 30% In 2023 (Cheymol, 2024): • All current EU limit values met (for NO2, PM10, PM2.5 and O3) • Proposed EU limit values for 2030 met for NO2 (hourly), PM10 (daily and annual), PM2.5 (daily) and O3 (daily) • WHO recommended limits met only for NO2 (hourly), all others exceeded
Socio-economic impacts	Transition to electric vehicles will stimulate innovation in certain sectors. Some SMEs with commercial vehicles may need support. Little overall negative impact expected for private individuals, but support measures should be put in place to ensure a fair and inclusive transition. (Brussels Environment, 2023a)	• Areas with lowest household income also most affected by air pollution (Verbeek & Hincks, 2022). • More deprived areas tend to have a higher proportion of non-LEZ compliant cars, but also better public transport provision (Verbeek & Hincks, 2022). • Lower income households and those with more children more likely to own non-LEZ compliant cars (Bruxelles Mobilité, 2024).
Impact on mobility of people and goods	LEZ is not seen as a major lever for modal shift. A small proportion of Brussels residents affected by the LEZ plan not to buy a new car; most commuters would like to buy an LEZ-compliant car. (Brussels Environment, 2023a)	Car ownership rate has slowly declined from 0.608 cars/household in 2017 to 0.566 in 2022 (overall number of cars declined from 331,644 to 319,288). 53.5% of households do not own a car. (Bruxelles Mobilité, 2024) NB It is not clear to what extent this is directly due to the LEZ.

As noted in Table 3 above, the LEZ has directly contributed to reductions in transport-related emissions and associated air quality improvements. Figure 2 below shows the change in average NO2 concentration from 2018 to 2022, during the first four years of the LEZ.

Figure 2 Change in average NO2 concentration (2018-2022) (adapted from **(Dehouck, Gerard, Hollander, Goor, & Briffault, 2022)***)*



Source: SIRANE model as part of a project by the Université Catholique de Louvain, funded by Bloomberg Philanthropies (2023)

Transferable lessons and recommendations

The key lessons and recommendations emerging from the Brussels-Capital Region case study with regards to the social impacts and social acceptability are as follows:

1. **Develop a coherent plan with future steps specified in advance**

The Brussels LEZ has had a clear and transparent timeline since its introduction, with future restrictions announced several years in advance. This can allow for 'pre-compliance' (e.g. businesses and citizens getting rid of affected vehicles in advance of new restrictions) (Azdad, Müller, & Stoll, 2022) and for investments in relevant new infrastructure (e.g. expansion of the network of EV charging points in Brussels). Grace periods are provided when new restrictions enter into force (e.g. first-time offenders driving newly prohibited vehicles receive a warning, not a fine); this can help to increase public acceptance (Azdad, Müller, & Stoll, 2022). The Brussels LEZ also drew on lessons from existing LEZ in Ghent and Antwerp, aligning as much as possible with the provisions of LEZ in Flanders (Demuelenaere, 2024).

a. **Lay out the implementation timeline for the LEZ in advance.** Planned, predictable steps in the development and ongoing implementation of a LEZ allow time for citizens and businesses to prepare for upcoming changes.

b. **Seek coherence with neighbouring areas and take lessons from existing measures.** Cooperation with other regions and national authorities helps to ensure coherent mobility policies (Brussels Environment, 2022) and to simplify the rules for citizens.

2. Ensure stakeholders are consulted and that communication is continuous

Significant consultations were held when planning successive restrictions in the Brussels LEZ, including written questionnaires and in-person sessions with stakeholders. In addition, communication efforts are ongoing, particularly when new restrictions are due to begin. Broader communication efforts (notably the CurieuzenAir citizen science project) have also raised awareness on the links between air pollution and health, helping to increase acceptance of the decarbonisation of transport (Demuelenaere, 2024), including through the LEZ.

a. **Consult stakeholders during the design of the LEZ.** Consultations should take place both prior to the initial introduction of the LEZ, and during the consideration of changes (e.g. additional restrictions) to the LEZ.

b. **Carry out early and continuous communication.** Communicate as early as possible with citizens, highlighting the positive impacts of mobility policies (Brussels Environment, 2022), and continue to communicate, in particular when changes to the LEZ are approaching.

3. Put in place complementary accompanying measures, including to address socio-economic impacts and equity

Brussels has several measures that complement the LEZ, including financial support for citizens (the Bruxell'Air bonus) and businesses (Low-emission mobility allowances), including higher levels of support for lower-income households and SMEs. Payment plans allow payment of fines over several months. Communication (see above) and advice (through Mobility Coach) are provided to support the take-up of alternative mobility options. Limited and specific exemptions are allowed, including for limited numbers of trips by non-LEZ compliant vehicles and transport for certain vulnerable groups. Investment is being made to improve EV infrastructure, to support the future phase-out of combustion engine vehicles.

a. **Address socio-economic impacts through financial support to those most affected.** Quickly introduce support measures, particularly for vulnerable households and SMEs (Brussels Environment, 2022). Financial support can help to address equity issues, achieve a more socially fair LEZ (Wappelhorst, Bui, &

Morrison, 2023); to ensure fairness, this should be linked to income (Dornier, 2024).

b. **Allow limited and specific exemptions.** Day passes mean occasional entrants to the LEZ do not need to replace their vehicle for just a small number of trips (Azdad, Müller, & Stoll, 2022). Specific exemptions mean that mobility of vulnerable groups (e.g. disabled people) is not unfairly impacted.

c. **Provide alternative mobility options.** Ensure and support the provision of alternatives e.g. through public transport improvements (around 20% of the Brussels-Capital Region budget is invested in public transport, including new vehicles and new routes (Gérard, 2024)), shared bikes, car-sharing and investment in EV charging infrastructure, and provide communication and advice to citizens on the available options.

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Annex 1 – Exemptions from the Brussels-Capital Region LEZ

Source: (Low Emission Zone Brussels, 2024)

Automatic exemptions:

- Electric vehicles (battery and fuel cell powered)
- Vehicles running on hydrogen
- Vehicles used for emergencies
- Motorised two-wheelers: mopeds, motorbikes and scooters (until 31 December 2024)
- Heavy Goods Vehicles of over 3.5 tonnes (until 31 December 2024)
- Trailers and semi-trailers, agricultural or forestry trailers, wheeled agricultural or forestry tractors, tracked agricultural or forestry tractors, and interchangeable towed machinery

Exemptions granted on application / on-demand:

- Non-LEZ compliant vehicles in possession of an electronic day pass
- Vehicles adapted for the transport of handicapped persons
- Vehicles for persons with a disability benefiting from an increased intervention
- Vehicles equipped with a wheelchair lift
- Vehicles for persons with a disability who hold a disabled parking card
- Vehicles for school transport and collective transport of people with disabilities
- Vehicles of recognised caregivers with social security rights
- Vehicles of divorced parents with a disabled child living with one of the parents
- Vehicles with a valid exceptional transport permit
- Armed forces vehicles
- Vehicles especially equipped for the maintenance and inspection of public installations and infrastructures
- Priority vehicles (equipped with flashing blue lights and a special horn)
- Mobile cranes
- Fair / market / film production vehicles
- Vintage vehicles over 30 years old
- Motor homes

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