

Objectives of the measure

- **At measure level:**
 - Obtain indirect impact evaluation of the implementation of the Low-Emissions Zones (LEZ) by the region.
 - Define prospective scenarios concerning the implementation of restricted traffic zones on the territory.
 - Obtain scenarios evaluation on Versailles Grand Parc's inhabitants' mobility, as well as greenhouse gas emissions and pollutant emissions.
- **Contributing to city level objectives of:**
 - Make a step forward in the creation of new low emission zones.
 - Reduce the use of private vehicles and promote sustainable transport modes.

Description of the measure

- **Situation before:**

A low emission zone is already in place in the Ile de France region with a progressive implementation schedule. The VGP territory is not included for the moment in this zone. Comprehending the impact of LEZ is a not a straightforward process, yet it is crucial to carefully consider the restrictions imposed on specific vehicles and quantify the potential shift to public transport.

- **General description:**

Many residents of Versailles Grand Parc frequently commute or travel within the perimeters of the low-emission zones (ZFE) for work or other activities. Scenarios evaluation is crucial to understand the impact of ZFE-m on the VGP inhabitants vehicle fleet and modal shift. Simulating scenarios can be a powerful tool for policymakers to understand the potential impacts of vehicle restrictions and to make informed decisions regarding financial aid. The objective of this action is to use the digital twin set up in IDF_02 as well as the data collected to observe the impact of the implementation of the low emission zone on the neighbouring territories and conduct a study on scenarios of implementing future new policies (LEZ, ZEZ, financial aid, ...) on the territory. In analysing the results, particular attention will be paid to determining how public transport can be strengthened to guarantee accessibility to the new low-emission zones. By creating simulations and simulating prospective scenarios, policymakers and researchers can analyse various scenarios and assess their implications before implementing any actual restrictions.

Impact Assessment: Simulations allow policymakers to evaluate the consequences of different vehicle restriction strategies. They can analyse factors such as reduced traffic congestion, improved air quality, and changes in transportation patterns. By quantifying these impacts, policymakers can make informed decisions and identify potential unintended consequences.

Resource Allocation: Simulations can assist in determining the allocation of financial aid to affected inhabitants. By considering various scenarios and their outcomes, policymakers can identify the segments of the population most likely to be negatively impacted by vehicle restrictions. This information can guide the development of targeted financial aid programs to mitigate any adverse effects.

Policy Optimization: Simulations can aid in optimizing vehicle restriction policies. By running simulations with different parameters, policymakers can identify the most effective and efficient strategies to achieve their goals. This process allows for fine-tuning of policies to maximize the benefits while minimizing any negative consequences.

Public Engagement: Simulations can be used as educational tools to engage the public and stakeholders in discussions about vehicle restrictions. Visualizing the potential impacts through simulations can help individuals understand the necessity and benefits of such policies. This approach can foster transparency, trust, and collaboration in decision-making processes.

- **Sub-measures description:**

- **IDF_03_01: Implementation of LEZ simulation on the neighbouring territories in the digital twin:**
To assess the impact of the introduction of a schedule of restrictions on vehicle categories in the LEZ, which does not include the Versailles Grand Parc territory, the following action will be performed:

- Integration of traffic restriction modelling in the digital twin.
- Modelling of different scenarios for modifying the behaviour of agents no longer able to use their vehicles (vehicle replacement, modal shift, change of route, etc.).
- Realization of various simulations and analysis of impacts on Versailles Grand Parc inhabitants.
- **IDF_03_02: Evaluation of future design of low emission zones and restricted traffic zones in the digital twin:** To evaluate different proposals for restricting access to the territory in order to reduce pollutant emissions, the following action will be performed:
 - Identification of several proposed access restrictions on the territory.
 - Modelling of these proposals in the digital twin.
 - Realization of various simulations and analysis of impacts on Versailles Grand Parc inhabitants.
- **IDF_03_03: Analyse the needs of PT for LEZ demand fulfilment:** Based on the above scenarios, we will analyse the role that public transport can play in the decision not to replace a vehicle (modal shift from car to public transport).

The current model needs to be updated by the recent data. Here are the resulting actions:

- Integrate new data sources (EGT 2018, BDTOPO).
- Improve the locations of the activities.
- Recover transport mode flows with dynamic data.
- Simulate and calibrate the model of Ile-de-France actual population.

- **Measure outputs:**

This measure will deliver:

- Quantification of the impact on GHG and local pollutant emissions.
- Analyse of the impact on the public transport shift.
- Comparison of the different prospective scenarios.

- **Supporting activities:**

Connexion and support of U-SIM group.

- **Interaction with other city measures: UPPER and non-UPPER measures**

This measure is related to other measures in Ile de France to:

- **IDF_02:** Use the digital twin set up to evaluate the different scenarios.
- **IDF_06:** Benefit from the collected data of the mobility observatory.

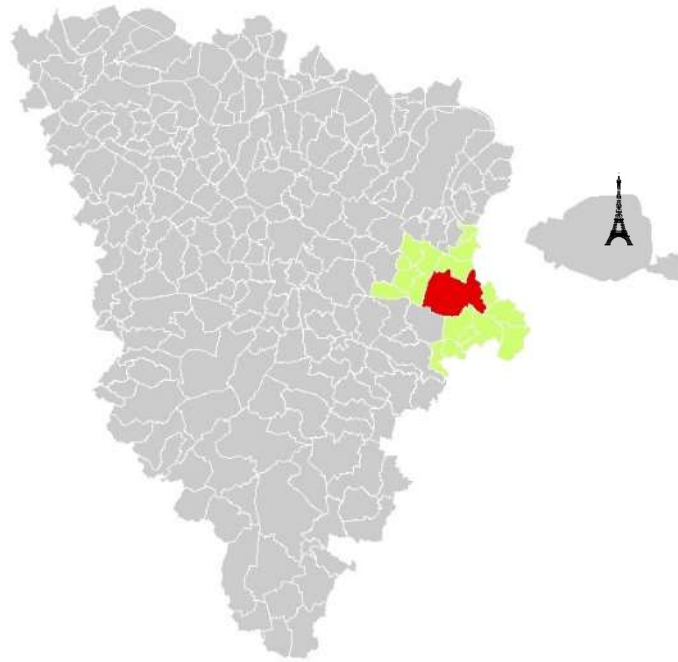
Target groups and/or geographical impact areas

- **Target groups:**

- Local authorities (Mayors and Deputies)
- Municipal teams (security, traffic, urban planners)

- **Geographic implementation area:**

The whole urban community of Versailles Grand Parc. Hereafter is a map of the Yvelines department in Île-de-France Region. In red is the city of Versailles, and in green, the other cities that, together with Versailles, represent the urban community of Versailles Grand Parc. Versailles is located 18 km from Paris as a crow flies.



Stakeholders

The following stakeholders will be required for the implementation of this measure:

- **Versailles Grand Parc:** Decision maker which define the different prospective scenarios.
- **IFP Energies Nouvelles:** In charge of realisation of the simulation.
- **MGP (Métropole du Grand Paris):** Can support to develop access restriction scenarios.
- **Ile de France Mobilité (PTO on the region) :** Provide public transport flow measurement.
- **Other transport operators:** All these transport operators can also provide data for mapping the citizens mobility patterns.

U-tools support

The implementation of this measure will be actively supported by one IT tool from the UPPER toolkit:

- **U.SIM.plan**

Link to other UPPER measures

This measure is similar to UPPER measures implemented in other cities, especially:

- **ROM_01:** To reduce private vehicles by implementing a “pollution charge” scheme in the core part of Rome Zone 2.
- **ROM_02:** Promoting modal shift towards PT with the implementation of a LEZ in Rome Zone.
- **OSL_01:** Evaluate the development of zero-emission zones in the city to determine how to increase modal split in favour of active modes of transport.
- **TES_02:** To simulate and analyse the needs of PT for LEZ demand fulfilment.

- **TES_04:** To influence modal shift through congestion sensitive Parking pricing.

Process of implementation of the measure

Stages	Description	Intermediate milestones
Design	Define prospective scenarios with actors	<ul style="list-style-type: none"> - Predictive passenger car fleet model - List of prospective scenarios of car restrictions
Preparation	Discussion to set up the scenario's details	<ul style="list-style-type: none"> - Parameters of each scenario
Evaluation	Scenarios simulation with digital twin and analysis	<ul style="list-style-type: none"> - Analyse of the result obtained with the simulation tool - Analyse of the PT needs for LEZ demand fulfilment

Sub-measures and preliminary indicators

Measure	Sub-measure (if applicable)	Impact indicators
IDF_03	Simulation of prospective mobility scenarios (e.g., LEZ)	<ul style="list-style-type: none"> - Modal shift - Route change - Emissions assessment