

## ReVeALations

Recommendations from the  
EU ReVeAL project for cities  
considering access regulations



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 815008.

**About:**

This ReVeAL UVAR cities report has been developed with the framework of the ReVeAL project, co-funded under the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No. 815008.

This deliverable was finalised in November 2022.

<https://civitas-reveal.eu/>

**Authors:**

Bonnie Fenton, Ralf Brand and Fulvio Testaverde (Rupprecht Consult) and Juliette Thijs (POLIS) with input from all the ReVeAL partners who shared their insights and experience gained over three years of ReVeALing.

**Design and layout:**

Pitch Black Graphic Design, The Hague/Berlin

**Translations:**

LanguageLab, The Netherlands

**Cooperation & Funding:**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 815008.



ReVeAL is a project under the CIVITAS Initiative, an EU-funded programme working to make sustainable and smart mobility a reality for all. Read more – [civitas.eu](https://civitas.eu)

**Disclaimer:**

The views expressed in this publication are the sole responsibility of the authors named and do not necessarily reflect the views of the European Commission. All images used in this brochure are provided by the ReVeAL cities or by POLIS Network's Shutterstock license.

**Partners:**

## About ReVeAL

ReVeAL – Regulating Vehicle Access for Improved Liveability – is a CIVITAS project funded by the European Union's Horizon 2020 research and innovation programme. The goal of ReVeAL is to add Urban Vehicle Access Regulations (UVAR) to the standard range of urban mobility transition approaches of cities across Europe. The overarching mission of the project is to enable cities to optimise urban space and transport network usage through new and integrated packages of urban vehicle access policies and technologies. Such policies can lead to fewer emissions, less noise and improved accessibility and quality of life, which especially benefits the people living in these cities. These policies can also encourage more sustainable transport choices, enabling cities to become more liveable, ultimately healthier, and more attractive for every member of society. ReVeAL combines conceptual work and case study research with hands-on UVAR implementation in six pilot cities, as well as stakeholder interaction through professional communication activities.

Different UVAR measures were developed, implemented, and tested in the cities of Helmond (NL), Jerusalem (IL), London (UK), Padova (IT), Vitoria-Gasteiz (ES) and the project leader Bielefeld (DE). Apart from these cities, the project partners are Ghent University (BE), Università di Padova (IT), POLIS (BE), Rupprecht Consult (DE), Sadler Consultants (DE), Transport for London (UK), TRT (IT), V-Tron (NL) and WSP Sweden (SE). The project ran from June 2019 to November 2022.

## About Urban Vehicle Access Regulations

Urban vehicle access regulations come in many different shapes. As London's congestion charge is widely known, UVARs are often equated with congestion charging – which is politically very challenging to implement. This narrow perception may lead to an avoidance of access regulation. It also misses the many other options available.

UVARs are a large toolbox with many different tools that can be combined in countless ways to address different problems, including emissions or pollution levels, congestion, safety concerns or overall attractiveness of the city. ReVeAL identified three categories of UVARs:

- 1. regulation by pricing**, with a congestion charge being one example. Others include charging by the distance travelled or dynamic parking pricing where the price changes depending on demand.
- 2. physical interventions**, which can include installing moveable bollards to limit the volume of traffic in an area or reallocating space from cars to uses such as a mini-hub for logistics
- 3. regulatory measures**, including regulation by Euro standard emissions, regulation by vehicle type or dimensions (e.g., banning heavy-duty vehicles) or regulation by trip purpose (e.g., access for public transport only).

Within the ReVeAL project, these three categories of UVARs are made up of individual UVAR “building blocks”; some of them rely on high-tech approaches, others on low-tech solutions. The ReVeAL team identified 33 building blocks, most of which can be combined in different ways to form integrated strategies. In that way, an UVAR scheme can be tailored to each local context.

Local decision makers need to be aware of this broad palate of measures. An appreciation for the large number of fine-tuning options is the starting point to engage constructively in the search for a combination that suits each local context.

The following recommendations are intended for cities interested in putting access regulations in place. They have “ReVeALed” themselves to project partners over the course of 3½ years of studying and implementing access regulation measures in six cities in Europe and beyond.



## Understand the problems, formulate goals and pursue them with the simplest available measures

UVAR measures are not an end in themselves. They should serve a purpose that should be made explicit. This can include pollution, congestion or noise reduction or safety, for example. This means that a city should first develop a vision that puts people, their lives, health and happiness at the forefront. Then problems (i.e., what stands between the current reality and the vision) are identified. The mobility-related steps toward achieving the vision should spell out how people and goods (as opposed to vehicles) should move into and around the city in the future. Don't get caught up with sophisticated and expensive measures when a simple measure can achieve the same end.

The goals should determine the measures and not the other way round. This can help avoid the trap that “when you have a hammer, every problem looks like a nail.” It helps if this can be formulated as part of a wider strategy, such as a Sustainable Urban Mobility Plan (SUMP).



Young residents of Bielefeld spend time together in a new form of public space: a parklet.  
Credits: Stadt Bielefeld





## Be sure your UVAR is a means to achieve a goal, not to make money (and is communicated as such)

There can be a temptation to use UVAR schemes to generate revenues for the public coffers. This should not be your motivation – and you'll need to be sure it is not perceived as such. To avoid this perception, it is important to communicate clearly and often that the purpose is not to penalise people but to solve a common problem and to pursue a goal for the common good.

In fact, the most effective UVAR is one which generates no money at all: if everyone complies with the regulations, no fines or charges will need to be collected. Because this is an unlikely scenario, it is important to invest all income back into measures that further facilitate compliance, most typically public transport infrastructure – and to communicate this clearly.



Children cycle on a bicycle lane in Vitoria-Gasteiz.  
*Credits: Ayuntamiento de Vitoria-Gasteiz*



## Engage with those who will be affected

Early and regular participation and involvement of citizens and stakeholders is needed to create an UVAR scheme that is fine-tuned to the local conditions, effective and publicly accepted. This makes it necessary to identify all groups with a legitimate stake. This includes residents in the area, people with disabilities, shift workers, tradespeople, people with a limited income and others whose ideas and concerns must be heard and understood.

A well moderated participation process can also lead to a better appreciation of a city's intention among its residents, but the participation process requires mutual respect and a development of mutual trust. Any access regulation idea perceived as being imposed top-down risks being rejected outright.

A consultation with the "pioneer group" of future residents at the Brainport Smart District in Helmond.  
*Credits: Gemeente Helmond*



A box to drop off questionnaires on the superblock in the Guizza district, in Padova ("SuperGuizza")  
*Credits: Comune di Padova*







## Increase attractive mobility options

It's not realistic to expect people to change their habits when there are no good alternatives to their current travel habits. Ideally, attractive, safe and affordable public transport, walking and cycling options are created *before* an access regulation scheme kicks in. But experience shows that "carrots" alone may not be enough to encourage people to change old habits. A balanced combination of carrots and sticks make sustainable travel attractive while making unsustainable travel less convenient or more expensive. This balance also improves equity as the significant number of people who have no access to a private car will greatly benefit from improved public transport, walking and cycling facilities.

Residents of Vitoria-Gasteiz waiting for the electric bus.

*Credits: Quintas*



A cyclist commuting in Vitoria-Gasteiz, using segregated bicycle lanes side by side with the tram tracks.

*Credits: Centro de Estudios Ambientales, Vitoria-Gasteiz*



## Use incentives to enable compliance

In some cases, it may make sense to provide an incentive to specific groups or individuals to support their compliance with an access regulation. As an example, for drivers of certain vehicles, a low-emission zone means either exclusion or a fine. If the vehicle is needed by a tradesperson, this can create an existential problem. In such cases, an appropriate incentive could be a subsidy to enable such vehicles to meet the established requirements, for example through the installation of a particle filter. Thus, through a one-time (subsidised) investment, the vehicle's owner is able to contribute to solving the problem for which the UVAR was put in place and still maintain access. This underlines again that the purpose of an UVAR scheme is NOT to collect fines or fees from non-compliant vehicles but to – through collective effort – achieve a goal for the city and its residents. Creative use of incentives can address a range of legitimate concerns.

A ZEZ was tested in Beech Street in the City of London. Exemptions were made for vehicles accessing premises in that street, including off-street parking.

*Credits: City of London*



## Make exemptions clear, fair and limited

UVAR schemes should be easy to communicate. At the same time, they cannot ignore the many variations of people's physical, financial and other abilities. It would be unreasonable to expect people with disabilities, people who work in certain locations or people who need regular medical treatments to travel without a car or to purchase a different car. A fair and equitable UVAR does not create undue burdens on such people and therefore includes certain exemptions to avoid penalising those with legitimate concerns.

Important points to consider include:

- Introduce as few exemptions as possible but as many as necessary. A long list of exemptions can be confusing to the public, bureaucratic to organise and ultimately reduce the effectiveness of the scheme.
- Communicate exemptions and their rationale clearly. Make information about exemptions transparent and easily findable; and make the application process hassle-free; ideally online.
- It makes sense to tighten exemptions over time. This means that people who are not affected initially are also incentivised to rethink their travel routines and vehicle choices in the near future. If this is your plan, be sure to communicate the planned stages in advance so that those considering a new vehicle purchase can meet the upcoming standards.
- To ensure that exemptions truly reach the intended beneficiaries, develop them in a participatory process; people are the ultimate experts of their complex lives.

In establishing any exemptions, carefully consider the difference between legitimate concerns and a self-interested desire to avoid change. If able-bodied people oppose an UVAR scheme by arguing that it would disadvantage people with disabilities, the way forward is not to abandon the UVAR but to find a solution for the people with special needs.

## Practice open, ongoing and professional communication

It cannot be stressed enough how important it is to communicate the motivation, the technical details, the ways to comply, incentives, exemptions and the effects of an UVAR scheme clearly, regularly and widely. And every press release, tweet, speech or flyer should focus on the goals and on the positive vision to be achieved. Don't talk about the UVAR scheme without mentioning what is going to be better by doing it. This also has implications for the name of the scheme. Use terms like "liveable streets project" rather than "congestion charge" to focus on the end result. Emphasise how the UVAR scheme contributes to a wider urban vision, a city development strategy or the local SUMP.

Spend time and effort to explain the UVAR scheme to media representatives; they have enormous influence on people's understanding and acceptance. Do not forget to include people living in the wider metropolitan area in your communication strategy because they will also be affected by the UVAR scheme as commuters, tradespeople, shoppers or others. Think also about people who might need relevant information such as tourists or coach or lorry drivers.

Luckily, it is getting easier to convey the access regulations details to drivers through the UVARBox tool ([About – UVAR Box](#)); adding your city's data will let visitors know what to expect.



Jerusalem undertook a comprehensive media campaign to create awareness on the city's high air pollution levels and on the creation of a new LEZ to help solve the problem.  
*Credits: Jerusalem Municipality*



## Use data and measure the difference between before and after

As mentioned above, any UVAR scheme should serve to help solve specific problems. This requires knowledge about the severity of problems and their underlying reasons. For example, how much of a problem are heavy trucks for local air quality compared to private diesel cars? Reliable data makes it possible to decide how to effectively tackle the problem.

You also need to understand if you're getting close to achieving your goal. Critics, the media and the public have a legitimate interest in knowing whether the intended benefits are materialising. The only way to find this out is to compare the situation after the introduction of an access regulation with the situation before. To do this transparently and rigorously, you will need to identify indicators of success. These are measurable parameters that describe and capture the issues of interest. Examples are air quality, noise levels, the perceived quality of life<sup>1</sup>, depending on the identified problems and goals.

The best time to start monitoring is 10 years ago because it is important to contextualise any changes in a wider context of trends that are happening anyhow. If previous data is not available, the second-best time to start collecting data is now. Care must be taken to avoid mixing unrelated factors with the effects of your access regulation scheme. For example, if petrol prices drop after the introduction of an UVAR measure, the desired reduction in traffic volumes may not occur; however, without the UVAR scheme, the situation might have become worse.

When looking for data sources, don't forget to ask around, for example, the local transport operator or data collecting companies. Also consider various big data sources such as crowd-sourced bicycle trips, automatic vehicle counters, INRIX, Google, TomTom or others.

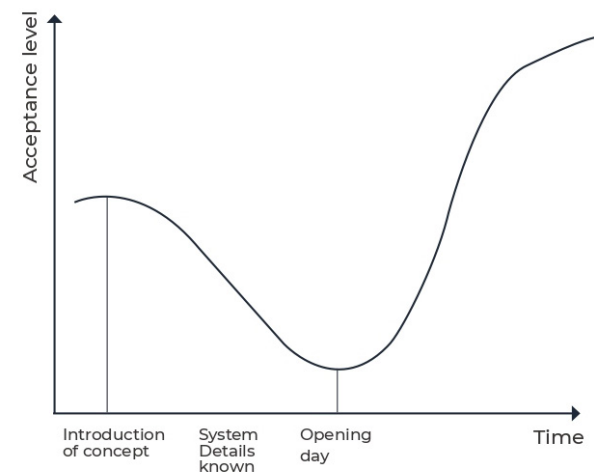
To sum up: Make sure you really know whether and how much the UVAR scheme has improved the situation. This knowledge is your best argument to justify the scheme and to defend it against critics. Knowledge about the impacts and underlying causes also serves as a basis to re-adjust and fine-tune the scheme (if necessary).

<sup>1</sup> Parameters like quality of life cannot be determined with a measuring device but require surveys and opinion polls. If done well, such methods are also able to produce objective and representative results.

## Don't panic if initial public acceptance isn't high

Experience from many UVAR schemes around the world shows that public acceptance is not easy to mobilise – at least not initially. Good communication, participation, incentives and exemptions can reduce the most severe headwind, but be prepared for opposition as soon as the discussion starts to get concrete, and people realise their own habits will need to change. But the degree of public acceptance generally follows an acceptance curve that is at a low point just before the start of the scheme and rises as people get used to it and start to experience the benefits. [GRAPHIC] And you may find that the people who benefit are not be the ones who have typically benefitted from car-focussed development of the past.

But a word of warning: even acceptance is not permanent. As external factors or public priorities change, new laws are introduced or new technologies enter the market, you may need to adjust your UVAR to keep it relevant.



Typical Dynamic Pattern of Acceptance.

*Credits: Goodwin, P. (2006). The gestation process for road pricing schemes. Local Transport Today, (444).*

*Schade, J., Seidel, T., Schlag, B. 2004. "Cross-Site-Evaluation of Acceptability Indicators". Working Paper.*

*WSP, 2018. Congestion Charging: Policy and global lessons learned*



## Look for champions

Champions (individuals who publicly promote the UVAR scheme) should be respected members of their community, be it, faith-based, social, business, sports, cultural, ability-based or simply a neighbourhood.

Making sure these champions understand the goals and benefits of your UVAR scheme allows them to carry your message to groups that are often not engaged and may not have confidence in local government. Champions can be important figures of trust who carry a message into communities that either react negatively or otherwise not be engaged at all. They can help to mobilise approval (or at least lower resistance) among those who are not already convinced. If you do not find allies to support your efforts, you may find that a loud minority dominates the discussion.



In Bielefeld, municipality officials distributed goodies to cyclists using a new bicycle road at the Waldhof to create awareness and share information.  
*Credits: Stadt Bielefeld*



## Experiment!

Although it is advisable to carefully plan and prepare an access regulation scheme, this does not mean that you have to get everything perfect the first time. Many successful UVAR schemes have begun as a temporary trial with the sincere promise to conduct a transparent evaluation after a given period of time and to discontinue or to adjust the scheme if (previously defined) parameters worsen more than is acceptable. Carrying out such a process transparently can even help to build trust and credibility among the public.

Experimentation is also justified because this is sometimes the only legal way to do something that is not 100% compatible with existing legal frameworks. In most countries, experimentation clauses can be invoked to run UVAR-style trials as long as they are accompanied by a rigorous evaluation process. In the meantime, such experiments can begin to show the public and political decision makers what a people-friendly city or neighbourhood can look and feel like. This brings us to the next point ...

The municipality of Helmond and V-tron tested Intelligent Speed Adaptation (ISA) technologies in the Brainport Smart District to assess their impact on safety and emissions.  
*Credits: Gemeente Helmond*



During the Covid-19 lockdown, the City of London created temporary cycling lanes to allocate more space to active mobility.  
*Credits: City of London*







## Don't be afraid to change the law – but only do it if really necessary

Obviously, the search corridor for a suitable UVAR scheme is the existing legal framework. It could be, however, that good ideas run up against the boundaries of what is legally possible. This can include issues around data protection, around the use of public space allowed in highway codes written many decades ago, the lack of a framework to limit vehicle access by emission standards or the inability to earmark UVAR income for mobility improvements. Getting legal changes can be a time and energy-consuming process, but if you are convinced that it is necessary, it can be worthwhile to push for changes to outdated regulations – ideally together with other cities – through your national government. At the same time, it may be necessary to consider (possibly less effective) alternative regulations while pushing forward the legal process.

And always keep an eye open for creative ways of regulating access. It may be that you can reach your goals by means other than the ones you first considered.



Bielefeld tested a range of physical interventions, including bollards, to prevent car access to some streets, during its ReVeAL pilot. These are planned to be made permanent in 2023.  
*Credits: Stadt Bielefeld*



## Plan for the future of your UVAR scheme

Legal frameworks and technological possibilities can change over time. You may need to adapt your UVAR measures to new situations. For example, an ultra-low-emission zone currently may also serve to reduce the overall number of vehicles in the area, but as the number of electric vehicles increases, this “positive side effect” will disappear. To achieve the same effect, you may want to add new measures (e.g., a limited-traffic zone or time or vehicle size restrictions for access).



Urban Vehicle Access Regulation Signage in Jerusalem.  
*Credits: Jerusalem Municipality*



## Play with the ReVeAL tool AccessRegulationsForYourCity

The ReVeAL project developed a [tool](#) to help cities consider what UVAR measures might be appropriate for their local context and how to work through the process of implementation. Try it out and see if it helps you in your decision-making processes.

### AccessRegulationsForYourCity

**ReVeAL**

**Regulating Vehicle Access  
for improved Livability**

**AccessRegulationsForYourCity**

AccessRegulationsForYourCity is a decision support tool to help cities that are considering putting urban vehicle access regulation (UVAR) measures in place. Measures may be aimed at the entire city or a single part of it.

You will be asked 14 questions that can be answered in roughly 10 minutes. Before starting, please indicate your country, your city and its population. If you are thinking about a specific part of your city, such as the central business district or a certain neighbourhood, please indicate its name.

your country      your city

What's the population of your city?  **Go!**

and, if you are thinking about a specific part of your city... (optional)



