



Capacity restraint

This ReVeAL building block fact sheet is one of a series of 33, each describing one Urban Vehicle Access Regulation (UVAR) building block and providing an example of its use in a city. The ReVeAL building blocks can be combined with one another to create a structured UVAR package for a city. Try out the ReVeAL online tool, www.AccessRegulationsForYourCity.eu, to receive suggestions of appropriate UVAR building blocks for your city as well as guidance in their implementation.

The EU-funded research and innovation project, CIVITAS ReVeAL, aims to add Urban Vehicle Access Regulations and associated policies and technologies to the standard range of urban mobility measures in cities across Europe. The project mission is to enable cities to optimise urban space and transport networks use to improve urban accessibility, sustainability, and liveability.

For more information, please visit: www.civitas-reveal.eu.

Spatial Interventions

Spatial interventions are where the road layout has been altered to favor more sustainable mobility and prevent vehicles entering. Examples of these are removing road and parking space taken for vehicles and using the space for sustainable mobility or amenities (bus lanes, logistics hubs, parklets, restaurants and more)

Speed reduction

Traffic filter:

- Recirculation of traffic
- Road block
- Capacity restraint

Reallocating parking space:

- Parklet
- Drop-off zone shared mobility
- Logistics bay (mini-hub)
- Kiss & Ride (K&R)

Reallocating road space for pedestrians:

- Widen pavement
- Pedestrian priority street or zone

Reallocating road space for cycling:

- Cycle lane
- Cycling street

Reallocating road space for public transport:

- Bus or tram priority lane

Pricing Aspects

Pricing aspects are when the entry to an area or to the entirety of the city is given a price tag to encourage more sustainable transport. Pricing aspects also include the (differential) levels of penalty fees to encourage (and enforce) compliance.

Road charges / tolls:

- Charge applied to a perimeter or an area (congestion charge)
- Charge applied to specific points
- Distance-based charge
- Time-based charge
- Permit charge
- Charge based on emission standards (pollution charge)

Parking charge:

- Dynamic price (real time)
- Fixed price
- Charge based on emission standards (pollution charge)
- Workplace levy
- From on-street to off-street parking

Regulatory Measures

Regulatory measures are those where there is a legal instrument that states who can and cannot enter an area. They could often also be called "bans" and include Zero Emission Zones, Low Emission Zones, and Limited Traffic Zones.

Regulation by emissions:

- Euro standard
- Zero-emission vehicles

Regulation by vehicle type and dimensions:

- Vehicle type
- Dimensions

Regulation by trip purpose:

- Delivery and logistics
- Through traffic ban

Regulation by permit:

- Permit to travel
- Parking permit
- Planning permit conditions



Capacity restraint

Definition of the building block

Barrier to limit the volume of (certain types of) motor vehicles passing through (and stopping in) the designated area (e.g., bus or car trap, retractable bollards).

Timing, phasing, scaling and replication

This building block has no-timing related issues requiring specific attention.

Time windows

- Allowing vehicle access at particular times of day
- Allowing vehicle access on given days of the week (e.g., weekends)
- Having no time differentiated vehicle access

Enforcement options

- Physical barriers
- Road sign



Speed bumps and road narrowing
(Bristol City Council, 2015)

Gender and equity

There are no specific concerns to be aware of.

Future considerations

No specific effects are foreseen for this building block from future technologies.

Further guidance

- Communicating the aim of the scheme
- How to communicate the scheme

Complementary measures

Increased mobility options

The types of increased mobility options will be different depending on the scheme type, but some examples are:

- Creation of mobility hubs
- Increasing/improving walking or cycling facilities
- Increasing/improving public transport
- Facilitating vehicle hire and/or car sharing
- Providing parking spaces in alternative locations (e.g., Park & Ride)

Capacity restraint

Consider combining with:

Spatial Interventions

Speed reduction

Traffic filter:

- Recirculation
- Road block

Reallocating road space for pedestrians:
Pedestrian priority street or zone

Reallocating road space for cycling:

- Cycle lane
- Cycling street

Reallocating road space for public transport: Bus or tram priority lane

Pricing Aspects

Road charges/tolls: Charge applied to a perimeter or an area (congestion charge)

Parking charge: Workplace levy

Regulatory Measures

Regulation by permit: Permit to travel



Road narrowing at a junction and 20mph speed limit in Bristol.
Traffic Choices, City of Bristol. (n.d.)

Capacity restraint

*Example: Bristol, United Kingdom*Description

The city of Bristol has a 20mph (approx. 30 km/h) speed limit in residential areas. It started as a signage-only intervention, relying on driver adherence to the posted signs on the access points and within the limit area. Later 20mph zones were created with some forms of traffic calming including measures for capacity restraint, such as road narrowing and chicanes.

Road narrowing is done by extending the curbs at a junction entrance, with bollards placed on each side of the street. This prevents vehicle parking, makes pedestrian crossing easier but lets emergency vehicles pass without slowing down.

Chicanes require vehicles from one direction to give way to oncoming traffic (hence, the alternative name "priority narrowing") and most of them allow cyclists to bypass them. They consist of a raised curb on one side of the road and when in groups, they alternate direction priority.

These measures contribute to the objectives of Bristol's Road Safety Plan (2015-2024).

Enforcement methods

- Police officers
- Citizens' Speed Watch

Time windows

In effect at all times

Phasing and upscaling

- 2010. The 20mph speed limit roll out starts with 2 pilot areas
- 2012-2014. Introduction of the 20mph limit through the city
- 2019. The 20mph limit stays in place

Other building blocks put in placeSpatial Interventions

Speed reduction

Traffic filter: Recirculation of traffic

Reallocating road space for pedestrians:
Pedestrian priority street or zone

Reallocating road space for cyclists:
Cycle lane

Pricing Aspects

Parking charge:

- Fixed price
- From on-street to off-street parking

Regulatory Measures

Regulation by emissions: EURO standard

Capacity restraint

Bristol, United Kingdom

Complementary measures

Increased mobility options

Training and funding:

- Behaviour change programmes
- Training for children on how to cross the roads
- Funding support for safety at junctions for cyclists
- Local safety schemes

Mobility Improvements:

- Bus network
- Cycle infrastructure

Additional information

The program called Traffic Choices launched by the City of Bristol is meant to aid local districts in selecting minor traffic schemes for their areas. A related web page describes alternatives for safer, inclusive and more sustainable mobility.

According to their figures, chicanes and road narrowing reduce accidents by 29%. Evaluations conducted by the University of Bristol indicate that on over 94% of the roads surveyed, the recorded speed has been on average less than 24mph.



Chicane with a sign of giving way to oncoming vehicles.
Traffic Choices, City of Bristol. (n.d.)

References

- Bristol City Council. (2015). *A Safe Systems Approach to Road Safety in Bristol*. <https://www.bristol.gov.uk/documents/20182/34140/A+Safe+System+Approach+to+Road+Safety+in+Bristol.pdf/ca0c58b3-2e14-4325-88dd-fd12f4627a02>
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