ReVeAL

UVAR building blocks
Pricing Aspects

Dynamic price (real time)

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

Dynamic price (real time)

Definition of the building block

Pricing of parking spaces is updated periodically during the day to match demand levels. This is done to ensure a better balance of available spaces between zones that are usually in high demand and zones that are usually empty.

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)
- Allowing seasonal vehicle access
- Triggered access restrictions (e.g., by pollution levels)

Enforcement options

- Cameras with automated number plate recognition (ANPR)
- Manual enforcement through visual inspection
- Physical barriers (if off-street)

Gender and equity

There are no specific concerns to be aware of.

Future considerations

In a future with dynamic signs (and related apps), it would be possible to more easily communicate these dynamic prices directly to the specific user, thereby making the pricing more transparent.

Further guidance

- Communicating the aim of the scheme
- Complementary sustainable mobility measures
- Transparency
- Enforcement options

Complementary measures

Exemptions

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

- Key exemptions for police, fire department, waste collection, etc.
- User needs exemptions, e.g. for people with disabilities with forced car dependency, taxis, classic car owners, residents, deliveries
- Exemptions for adapted vehicles (e.g., retrofitted or converted electric or hybrid vehicles)
- Limited numbers of purchased exemptions for entry (e.g., per day/ month/year) to a specific zone
- Specified maximum amount of kilometre "credits" allocated to individuals or businesses

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)

Consider combining with:

Pricing Aspects

Parking charge: From on-street to off-street parking

Regulatory Measures

Regulation by vehicle type and dimensions:
- Vehicle type
- Dimensions

Regulation by permit: Permit to travel

Parking meters in San Francisco, by Panchenks. Flickr. in Brooks, 2015

Example: SFpark, San Francisco, United States of America

Description

Pricing of parking spaces is updated periodically during the day to match demand levels. This is done to ensure a better balance of available spaces between zones that are usually in high demand and zones that are usually empty.
Smart meters and parking sensors are used to detect when a parking space is available, both on-street and in parking garages. Parking sensors are in-ground and self-powered wireless devices that send data to a sensor management system via a network of pole-mounted repeaters and gateways. The servers then transmit the data to the SFpark data warehouse.
Drivers can check availability and rates online, by text message and by smart phone before heading to their destination.

Enforcement methods

Enforcement officers

Time windows

Meters operate every day except for Thanksgiving Day, Christmas Day, and New Year's Day.

Most meters are enforced from 9:00 to 18:00, Monday through Saturday. Hours and rates vary.
Sunday meter operation:

- Fisherman's Wharf
- The Embarcadero
- Nine off-street parking lots
- Special Event Area around Oracle Park and Chase Center during special events

Phasing and upscaling

- Summer 2010. Meter and sensor installation in eight areas simultaneously across San Francisco
- 2011-2013. SFpark tested its new parking management system at 7,000 of San Francisco's 28,800 metered spaces and 12,250 spaces in 15 of 20 City-owned parking garages.
- December 2017. The programme was adopted at the city level

Other building blocks put in place

Pricing Aspects

Charge applied to a perimeter or an area (congestion charge). As of 2022 it is under consultation

Dynamic price (real time)

SFpark, San Francisco, United States of America

Complementary measures

Exemptions

- Permanent residents can buy a permit that exempts from the posted time limit
- New or short-term residents and visitors can buy either one-day permits (up to 20) or weekly permits (32 cumulative weeks maximum)
- Business owners can buy a residential permit that exempts from the posted time limit. Businesses may obtain one parking permit for a personal vehicle per postal address and up to three permits for delivery vehicles with commercial license plates.

Additional information

Once a month, the San Francisco Municipal Transportation Agency adjusts pricing on metered on-street and city owned garage spaces to encourage parking in underused blocks and garages. In busy areas, rates increase until at least one space is available most of the time, whereas rates in less busy areas are decreased until most of the empty spaces fill up or until rates bottom out at as little as 25 cents per hour.

Recorded benefits of the pilot were:

- Over 35% increase of sales tax revenues for local businesses compared to less than 20% in the other parts of the city.
- 4% reduction of average rates at parking meters
- 12% reduction of average rates at city-owned garages
- 43% decrease in parking search time
- 30% decrease in daily vehicle miles travelled

References

Panchenks. (n.d.) *Parking meters in San Francisco.* Flickr. in Brooks, J. (2015). Presidents Day Parking Enforcement in San Francisco, San Jose, Oakland. KQED. https://www.kqed.org/news/10434571/presidents-day-parking-enforcement-in-san-francisco-san-jose-oakland

SFCTA. (n.d.). *Downtown Congestion Pricing*. Retrieved April 19, 2022, from https://www.sfcta.org/downtown

SFMTA. (n.d.). *Demand-Responsive Parking Pricing*. Retrieved April 19, 2022, from https://www.sfmta.com/demand-responsive-parking-pricing

SFMTA. (n.d.). *Parking Meters*. Retrieved June 24, 2022, from https://www.sfmta.com/getting-around/drive-park/parking-meters

SFMTA. (n.d.). *Residential Parking Permits (RPP)*. Retrieved July 6, 2022, from https://www.sfmta.com/permits/residential-parking-permits-rpp

SFMTA. (2013). *Parking Sensor Data Guide*. https://www.sfmta.com/sites/default/files/reports-and-documents/2018/08/sfpark_dataguide_parkingsensordata.pdf

SFMTA. (2014) *SFpark Putting Theory Into Practice*. https://www.sfmta.com/sites/default/files/reports-and-documents/2018/08/sfpark_pilot_overview.pdf

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