



CIVITAS INSIGHT

Developing less congested and safer roads by managing parking

Strategic management of parking can dissuade some car users from driving to highly congested places or during peak times and encourage the use of more sustainable modes. Considering the needs of residents, ensuring that quality travel options exist, and providing education on the benefits of parking management are crucial to the measure's success.





Strategic parking management can make for a better urban environment

A great architect of the last century, Ludwig Mies van der Rohe, is quoted as saying, 'Less is more' when referring to his building designs. This concept can also apply to our cities. Fewer cars clogging streets and parking lots can make for a better urban environment. Fewer cars allow more people to walk, ride their bicycles, sit in cafes, play, or just relax and watch the world go by in our public spaces. Fewer cars also mean cleaner air and fewer worries about finite energy resources.¹

Since private cars are used for only one hour per day on average, it is easy to understand why stationary traffic needs special attention. But constructing large parking lots at destinations is expensive and often environmentally damaging. The smarter approach is to deal with parking in a more efficient way through parking management. There are few areas in urban development and transport that could bring as many benefits for quality of life, behaviour change and modal shift as parking space management. But parking is seldom discussed rationally in public debate. It is much more often a purely emotional judgment by residents and journalists that prevents decision makers from implementing an intelligent and sustainable urban transport policy.²

Parking facilities (whether on-street or off-street) are a major cost to society, and parking conflicts are among the most common problems facing designers, operators, planners and other officials. Such problems can be often defined either in terms of supply (too few spaces are available and more should be built) or in terms of management (available facilities are used inefficiently and should be better managed).

Parking is an essential component of the transportation system. Vehicles must park at every destination. The average car is parked for 23 hours each day, and uses several parking spaces each week. Parking convenience affects how easy it is to reach destinations and therefore overall accessibility.

Parking management refers to policies and programs that result in more efficient use of parking resources. When appropriately applied, these policies and programs can significantly reduce the number of parking spaces required in a particular situation, providing a variety of economic, social and environmental benefits. Taking all impacts into account, improved management is often the best solution to parking problems.³

1 Dotter et al, 2009, CIVITAS II Final Brochure

2 Robert Pressl, co-ordinator of the PUSH&PULL project, <http://www.push-pull-parking.eu>

3 Todd Alexander Litman, 2013, Parking Management - Strategies, Evaluation and Planning



Image © Emotions

PUSH&PULL's sixteen good reasons for parking management

The PUSH&PULL project is named for an expression in English that refers to offering a combination of rewards or incentives and punishment to influence behaviour. The project, which is co-funded by the Intelligent Energy Europe Programme of the European Union runs from 2014 to 2017, aims to improve urban mobility by means of parking space management combined with mobility management measures.

By introducing paid parking, increasing parking fees, reducing or restraining parking supply or implementing comparable measures, car drivers will be pushed to use more sustainable transport. At the same time, some of the income generated from parking space management can be used for incentives to promote alternatives, thus pulling or attracting users towards public transport, walking, cycling and other sustainable modes. This is known in the project as the 'core-funding mechanism'.

The project includes implementation sites in eight locations with parking space management and mobility management measures. All implementers set up the core-funding mechanism to use money gained from parking to finance mobility management. Furthermore, training sessions are organised in 16 European countries.⁴

The PUSH&PULL project has produced 16 arguments in favour of parking management⁵, which should help politicians, decision makers and multipliers to make the case for what may be, at first glance, unpopular, but in fact rational and sustainable decisions to manage on- and off-street parking.

1 Parking management is key to managing urban mobility | Parking management does not usually require large investments, such as new roads or the extra public transport supply, and it can thus be implemented in a relatively short time. Some kind of parking management can already be found in almost all larger towns and cities in Europe.

2 Public space has a high value and therefore should be paid if used for parking | Public space in densely built-up areas has a higher value from a social, economic and environmental point of view if it is used for something other than free parking for cars.

3 Parking management contributes to a better modal choice and therefore quality of life | Excessive parking supply contributes to traffic congestion and hinders accessibility for all, whether pedestrians, cyclists, public transport users or car drivers. Effective parking management strategies are the smart way to deal with limited accessibility and scarce public space.

4 Parking management leads to fewer drivers looking for parking spaces | Traffic caused by looking for parking not only leads to additional costs for drivers themselves, but it also has negative impacts for wider society such as increased pollution, noise and accidents. Kodransky and Hermann, ITDP, 2011 estimate that up to 50 percent of traffic congestion is caused by drivers searching for cheap parking spaces.

5 Parking management has a good impact – acceptance ratio | Paid parking - a crucial component of parking space management - has the best impact – acceptance ratio when a range of different measures to cut transport energy consumption and save fuel are compared.

6 Despite initial resistance to new parking management policies, opposition turns to support when they realize the impacts | Parking management improves quality of life in cities and though residents might resist planned changes, the measure's potential for creating better cities tends to convince them of its benefits.

⁴ PUSH&PULL project, accessed August 03, 2015, <http://www.push-pull-parking.eu>

⁵ PUSH&PULL: 16 good reasons for Parking Management, 2015, accessed August 03, 2015, <http://www.push-pull-parking.eu>



7 Parking management protects historic European cities from too many parked cars | In addition to access restrictions, clear regulations and management of where to park, who may park, for how long and how much parking is allowed are essential to protect historical cities from having too many parked cars on their streets and develop rational use of scarce, high quality urban public space.

8 Parking management will support the local economy | Parking in an attractive area is less important to good trading than shop-owners think. People choose where to shop based on the range and quality of shops, and the atmosphere of the location. Parking plays a role, but it is not the main factor.

9 User-friendly parking areas within walking distance of key locations are acceptable | To achieve a balance between parking needs and available spaces in shopping areas, reasonable walking distances to parking is key to effective solutions. Surveys show that well designed routes to walk from parking garages to city centre destinations are well accepted.

10 Parking management won't reduce investment in your city | For example, the City of Amsterdam has been reducing the number of parking places in the city centre since the 1990s and has some of the highest on-street parking fees in Europe. In spite of this, Amsterdam is still one of the best places to do business according to CEOs of the largest European companies⁶.

11 Guaranteed parking spaces at workplaces influence modal choice significantly | Employees who have guaranteed parking spaces at their workplace use their car to travel to work far more than those who have no or limited parking. Limitation of free parking, only making paid parking spaces available, or any other method of parking space management will lead to a significant change in the travel behaviour of car users.

12 Parking management contributes to road safety | Parking management and the enforcement of regulations and laws make a major contribution to

road safety by ensuring good visibility for pedestrians at crossings and all road users at junctions. In high density urban neighbourhoods, where the streets are often crowded by parked cars, services such as fire brigades argue for proper enforcement to ensure access when there is a fire.

13 Enforcement of parking violations is necessary | Enforcement of parking regulations is highly accepted by wider society. Placing physical obstacles in streets (such as bollards) to prevent parking violations is a second-best solution because it wastes public space. Parking enforcement is necessary to guarantee that car users follow the parking regulations set by the municipalities.

14 Parking standards can have a positive impact on housing and other real estate projects | Maximum parking standards should take the place of minimum standards, especially in areas where there is effective control of on-street parking. Parking standards could be related to accessibility of the area by public transport. If an area is well served by public transport less people using the development area need a car.

15 Correct rates, prices and appropriate fines are key to the success of parking management | Higher on-street parking fees – compared to off-street – can lead to reduced traffic congestion and make garages more competitive. This is an important strategy when negotiating with private investors regarding building garages.

16 Parking management can raise municipal revenue that can be used to encourage sustainable mobility | Parking management can contribute to raising municipal revenues without increasing – or even reducing – the fiscal pressure on residents and at the same time, improve the quality of alternatives to car use. These revenues should, at least in part, be earmarked for funding sustainable mobility measures.

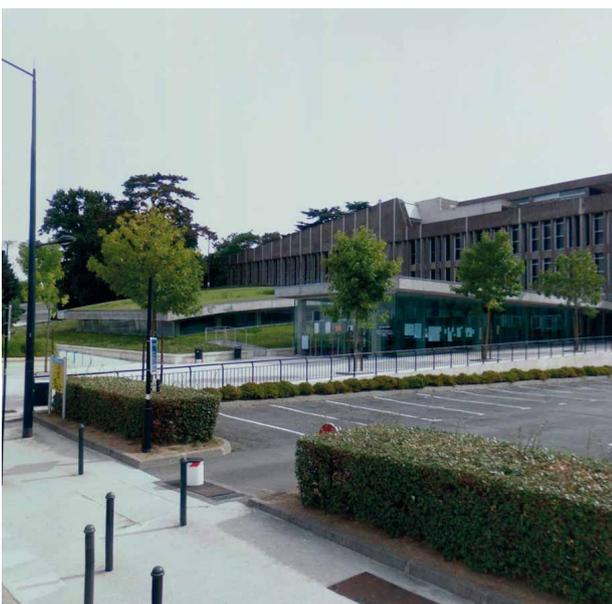


CIVITAS strategies to place and promote parking in more sustainable ways

CIVITAS I | Nantes (France): Introducing park and ride facilities and parking standards

In response to high traffic volumes in the centre of Nantes, this measure was designed to improve mobility management in order to achieve a balance between the various modes of transport, ensure user-friendly and safe spaces for pedestrians, give priority to public transport vehicles and reduce congestion and pollution. The city also needed to tackle the problem of illegal parking: cars regularly blocked pavements requiring pedestrians to step into the road, and commuters occupied parking spaces needed by service vehicles or residents in the city centre. The objectives were to create car-free public spaces, enhance access to the city centre for visitors, discourage commuters from using cars, and allow city-centre residents to park their cars more easily near their homes. All these effects would therefore increase use of alternative modes of transportation within the

city. Parking standards were also introduced for new buildings that are accessible by the public transport network in order to reduce the number of private parking spaces needed. In 2003, the Nantes–Vertou railway link opened with park and ride facilities at the Vertou, Frene Rond and Pas Enchantes stations offering a total of 372 parking spaces. The Vertou park and ride was then extended with 100 new parking spaces. In 2004, a new park and ride facility opened in Orvault-Morliere in connection with the extension of tram line 3. In 2005, several more facilities were opened: 460 parking spaces in the southeast of the city (along the new priority bus route), 170 parking spaces in the southwest (tram line 2), and 155 parking spaces for people using the Nantes–Trentemoult river shuttle. This meant a total of 5,803 parking spaces in 39 park and ride facilities in 2011.



The measure improved the flow of traffic in the city, allowing visitors, service, and delivery vehicles to find a parking space more quickly. It also enhanced the quality of the city's public spaces by eliminating illegal parking. With the reduction of long-stay parking demand and the resulting removal of on-street parking spaces, pedestrian areas could be enlarged and cycle lanes and bus corridors developed. The rate of occupancy of the park and ride facilities grew quickly; some of the facilities were overcrowded in their first week of operation and required immediate extension. However, traffic levels in the city remain high because of the private car parks provided by the main employers in the city centre. This can be tackled by increasing their awareness on parking space management through company mobility plans.⁷



CIVITAS II | Malmö (Sweden): Subsidised parking for clean vehicles

Up until October 2007, Malmö had only offered free parking to drivers of electric vehicles. In 2005, less than ten percent of new cars purchased were classified as clean vehicles and the aim was to increase this proportion by changing public perceptions. The ultimate objectives of the new parking policy were to decrease levels of nitrogen oxides, particulates and CO₂, and to increase the proportion of clean vehicles among new cars purchased. Part of the measure was the development and maintenance of the website www.miljofordon.se, created jointly by Malmö, Gothenburg and Sweden, which focuses on topical issues in the field of clean vehicles and alternative fuels.

In 2005, a questionnaire was distributed to 700 citizens of Malmö in order to gauge public opinion regarding subsidised parking and willingness to purchase a clean vehicle. A total of 90 percent were in favour of proposals to increase the proportion of clean cars, and 80 percent were in favour of offering free or subsidised parking to drivers of clean cars prior to the measure's

implementation. Subsidised parking for clean vehicles was introduced in October 2007. The subsidy applies to vehicles that are no more than three years old and that comply with Malmö's definition of clean vehicles (i.e. fueled by ethanol, hybrid or pure electric vehicles). Drivers of clean vehicles can purchase a permit allowing them to park for one hour free of charge in parking spaces administered by the city. After the first hour, parking is charged at the normal rate.

Within seven months of implementation, 5.5 percent of the public were taking advantage of the subsidies (1,031 permits issued). A survey carried out in spring 2008 showed that only 3 percent of respondents did not know what was meant by a 'clean vehicle'. The level of awareness of the subsidised parking fees was 39 percent. Between October 2007 and April 2008, approximately 1,700 new clean cars were registered in Malmö. Estimated emissions reductions were a maximum of 190,828 kg of CO₂, 151kg of NO and 10.3 kg of PM₁₀.⁸

CIVITAS PLUS | Perugia (Italy): Implementation of the city parking strategy

The City of Perugia decided to implement a new Parking Action Plan (PAA). The main objective of the measure was to implement parking strategies to support the improvement of the public transport network and to encourage a shift from cars to public transport. The chosen area was the Filosofi area, which starts on the edge of the medieval walls and the escalator system, and passes through a mixed area of shops and radial access roads, with residential streets. In this area, unpaid parking along the main road was considered quite simple for car drivers, who would access the city centre via public escalators after parking their cars. However, this parking method caused traffic congestion, in large part due to drivers searching for free parking in the area. In addition, another category of users were drivers parking for extended periods, who were generally people working in the area and in the city centre. Under these conditions it

was almost impossible for the residents to find a parking space close to their houses and for the shopkeepers to offer any parking spaces for their customers.

The implementation phase started after the chosen area was defined and all the elements of the system established (paid parking, parking for a limited time, spaces reserved for disabled drivers and delivery vehicles). Installation of 16 parking meters in the area followed. The fare policy was decided based on an analysis of the elements of the main parking strategy. Before starting the demonstration phase, the ex-ante scenario was assessed defining a) the parking supply level (number and type of available parking spaces supplied along roads, free parking with or without road markings); b) the type of demand for parking (surveying the license plate numbers of parked vehicles and processing this data, which defines the

⁸ Subsidised parking for clean vehicles, CIVITAS Initiative, accessed July 31, 2015, <http://www.civitas-initiative.eu/content/subsidised-parking-clean-vehicles>



Image: © Emotions

average length time cars are parked and the user groups using parking areas); and c) levels of public awareness and acceptance level, and attitudes of drivers and the public using questionnaires. All outputs were compared with the ex-post scenario.

The measure met its ambitious objective and had additional benefits by reducing cruising traffic in the selected area and contributing to better traffic flows. Moreover, the satisfaction of the residents in the selected area increased by limiting on-street parking for non-residents and discouraging long-term parking in key areas. An area close to the city centre was chosen for the implementation of the plan. Other locations for implementation of similar PAAs have already been identified. Criteria to determine where to develop a

PAA relates to available parking spaces, general traffic conditions, the presence of an efficient public transport network and comfortable pedestrian paths to reach the city centre.

The demonstration measure was the first PAA to be set up after the opening of Perugia's mini-metro and provided the perfect opportunity to see what could be achieved with stronger restrictions on parking. The restraint measures introduced mainly resulted in: a) a reduction in the number of free parking spaces by 40 percent; b) a fivefold increase in the number of residential and disabled reserved spaces; and c) an increase the enforcement of illegal parking in the area with fines for illegal parking. The impacts of the measure have been striking and a major benefit for the city's mobility management policy.⁹

Examples beyond CIVITAS: Amsterdam, Nottingham, Vienna and Zürich

The Mobility Fund in Amsterdam (The Netherlands)

Amsterdam is in some respects a world-leading city when it comes to solutions for urban transport, mobility and cycling. One of their policies, the Amsterdam Mobility Fund, supports this well recognised success in cycling levels and sustainable urban mobility. A key focus of the Mobility Fund is to manage on-street car parking in the city, a vital resource making use of a considerable amount of urban land. The overall purpose of the Amsterdam Mobility Fund is to contribute to the transport policy of the city, which aims to enable Amsterdam residents and visitors to move safely and efficiently around in an accessible, attractive and clean city. City-wide the gross revenue from paid parking for 2012 was nearly EUR 160m. Some 38 percent of this sum was spent on the management of paid parking and some general costs. About one quarter of the money (EUR 37m., 23 percent) goes into the Mobility Fund. A considerable part (about 31 percent) of the Mobility Fund is spent on bicycle projects, 18 percent is spent on improvement of public transport and 13 percent on road safety. Hence a large proportion of car parking fees (considered to be a tax on land use) goes towards improvements for walking, cycling and public transport infrastructure. A reason for this is that by offering good services more people will chose to come by bike, public transport or with park and ride services. This in turn can help to reduce congestion and allow car users that really need to travel by car to effectively reach their destinations.¹⁰

7

⁹ Implementation of the city parking strategy, CIVITAS Initiative, accessed July 31, 2015, <http://www.civitas-initiative.eu/content/implementation-city-parking-strategy>
¹⁰ Marjolijn de Lange, on behalf of TUB Trafikutredningsbyrån AB. 2014, The Amsterdam Mobility Fund



The Workplace Parking Levy scheme in Nottingham (United Kingdom)

The Workplace Parking Levy (WPL) scheme in Nottingham levies a charge on occupied private non-domestic off-street parking places i.e. those occupied by vehicles used by employees, regular business visitors or school pupils or university students. These are referred to as Workplace Parking Places (WPP). The scheme covers the entire Nottingham City Council area. Currently the charge per WPP is GBP 362.00 (April 2014 to March 2015) per year although this is set to rise above the rate of inflation up to 2016. This increase aims to coincide with the completion of the public transport improvements which the levy partly funds. Employers apply for a licence for each of their premises which states the number of WPP they wish to use and they then pay the appropriate levy. Frontline health and emergency services, as well as employers with 10 or fewer workplace parking places may be entitled to a 100 percent discount and will not have to pay a charge. Target groups are employers with more than 10 staff, and staff members themselves if they commute by car. The scheme has been implemented successfully and without systematic non-payment or other complaints from employers affected by it. The scheme is inexpensive to run (about five percent of revenue is used to operate it). In terms of impacts, the scheme is very recent, so congestion monitoring shows little change so far in traffic levels. The local economy has fared similarly to that in other similar cities in the UK since scheme implementation.¹¹

Plan for parking space management in Vienna (Austria)

The increase of motorised individual traffic and the scarcity of parking spaces in Vienna forced the city to develop a plan for parking space management. The aims were to reclaim public space and improve residential and short-term parking facilities as well as urban freight traffic. As a result, more people switch to public transport facilities or bicycles and an improvement of the overall traffic situation and quality of life in terms of better environment can be achieved. In 1994, the Vienna City Council adopted a 'Traffic concept' and in 2003 this was developed further in a 'Transport Master Plan Vienna 2003' in order to promote public transport, pedestrian and bicycle traffic and to change the modal split. Parking management is one of the strategies for managing stationary traffic aside from a garage programme (for promoting the building of collective garages) and the development of park and ride systems. During the work on the traffic concept 1994, a City Commission developed a parking management concept with the terms of operation and exceptions for large short-term parking zones, and a pilot project was started in the form of a short-term parking zone that was implemented across the whole of District 1. The Commission was composed of concerned interest groups, district councils and representatives of business, residents and trade. At the core of parking space management in Vienna was the transformation of entire districts or large connected parts of districts into short-term parking zones. The area-wide short-term parking now covers Districts 1 to 9, 15 and 20 as well as parts of Districts 12, 14, 16, and 17. In District 15 the area around the Stadthalle (the main fairground) is subject to special parking regulations. In the short-term parking zones there are restricted parking times and special parking fees.¹²



The Fahrtenmodell in Zürich (Switzerland)

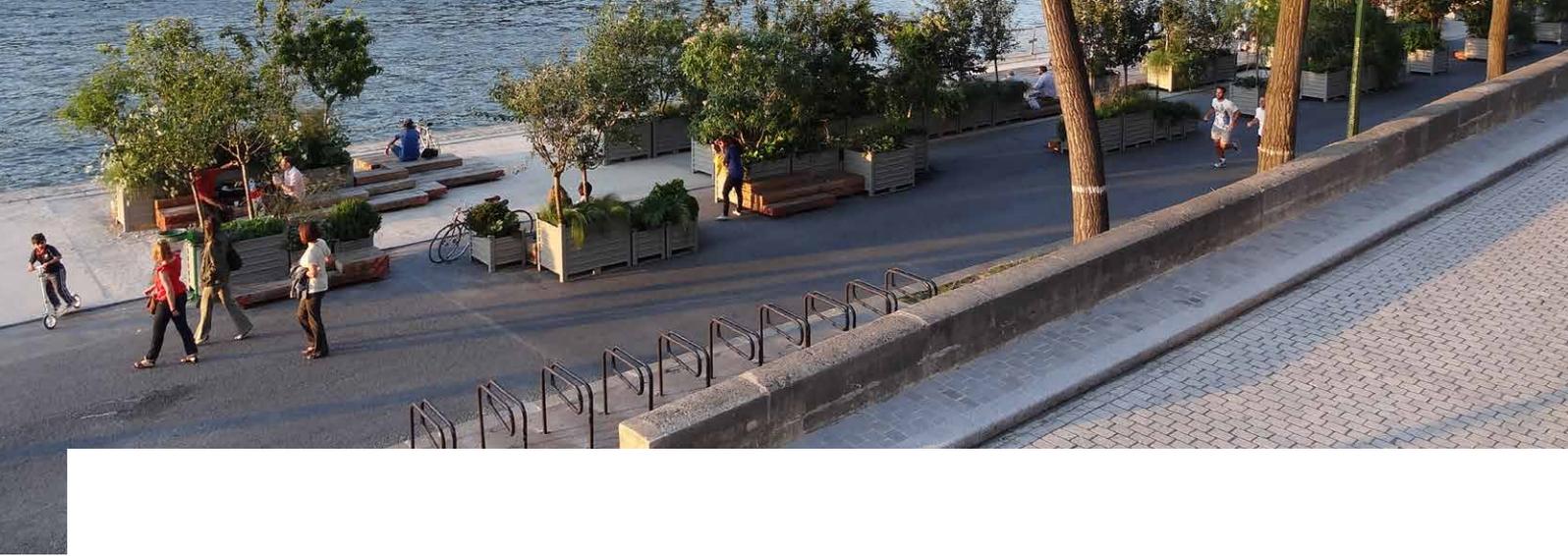
The City Canton of Zürich adapted its own flexible parking regulation in order to reduce inefficient use of urban space and as well as a reduction in traffic from a new urban development that would be undesirable for neighbouring housing areas. The mechanism was first used to save money for investors where high parking demand is not expected in urban areas. A specific regulation, combined with monitoring and an obligation to develop mobility management measures was developed for this specific location. In this case the issue of heavy traffic and its direct impact on the residential neighbourhood was the main motivation. The Fahrtenmodell (trip contingent model) is a tool which helps to develop better traffic planning in busy areas and to use parking in a more efficient way. The Fahrtenmodell regulation allows more flexible private parking management, compared to parking standards and parking limits (minimum or maximum numbers of parking spaces to provide) in building legislation. The model calculates the traffic generation of short-term and long-term parking dependent on the land use at the location, and using this defines a threshold of permitted traffic. If maximum traffic volume is exceeded, mobility management measures become mandatory for the operator of the garage to get reduce traffic levels to the maximum level.¹³

Parking management and planning is undergoing a revolution

In the last two decades parking management has been universally recognised as one of the most important ways to manage car traffic in metropolitan areas. It is essential to mobility management both in the public and private sector, and can encourage the use of alternatives to cars. If parking management is not introduced, this means more congestion, dissatisfied residents, less efficient use of public space, and a threat to the local economy, as valuable parking spaces are used by commuters instead of shoppers. After decades of being considered a minor theme both in urban planning and transportation, parking is now recognised as one of the most important and effective instruments to manage car use. Or, as former US Secretary of Transportation Ray LaHood said, 'It is necessary and forward-looking to integrate parking policy and transportation policy in urban planning projects.'

Current parking planning practices are inefficient, resulting in excessive parking supply, increased car traffic, and more dispersed destinations, contributing to various

economic, social and environmental problems. There are many reasons to use management strategies that result in more efficient use of parking resources, in order to address parking problems without expanding supply. Parking facilities that serve multiple destinations and are efficiently regulated or priced to favour higher value users (for example, delivery vehicles and customers over commuters and residents) tend to be efficiently used. On-street metered parking and commercial parking are particularly suitable for this type of management, and so should be favoured over unpriced, off-street parking that serves a single destination. Most parking management strategies have modest individual impacts, typically reducing parking requirements by 5-15 percent, but these impacts can act together to deliver further benefits. A comprehensive parking management program that includes an appropriate combination of cost-effective strategies can usually reduce the amount of parking required at a destination by 20-40 percent, while providing additional social and economic benefits.



Management solutions represent a change from current practices and so various obstacles must be overcome for parking management to be implemented as effectively as possible. Current planning practices are based on the assumption that parking should be abundant and provided for free, with costs borne indirectly, incorporated into building construction costs or subsidised by governments. Current parking standards tend to be applied inflexibly, with little consideration of demographic, geographic and management practices that may affect parking requirements. Parking management requires changing current development, zoning and design practices. This requires public officials and planners, as well as the public, change the way they think about parking problems and solutions, and become familiar with all of the parking management strategies available and the benefits they can provide. It requires institutions and organisations working together, such as in transportation management associations, and activities to improve enforcement and address potential impacts.

Parking planning is undergoing a fundamental change in how the problem is perceived and solutions evaluated. The old model assumes that parking should be abundant and free at most destinations. It strives to maximise supply and minimize price. This model assumes that parking lots should almost never be full, that parking facility costs should be incorporated into the costs of buildings or subsidised by governments, and that every destination should satisfy its own parking needs. The new model strives to provide optimal parking supply and price. It considers too much supply as harmful as too little, and prices that are too low as harmful as those that are too high. It also strives to use parking facilities efficiently, considering full lots to be acceptable, provided that additional parking is available nearby, and that problems related to parking are addressed. It emphasises sharing parking facilities between different destinations. It favours charging parking facility costs directly to users, and providing financial rewards to people who reduce their parking demand.

The old model tends to resist change, placing a heavy burden of proof on innovation. The new one recognises that transport and land use conditions evolve so parking planning practices need frequent adjustment. It shifts the burden of proof, allowing new approaches to be tried until their effectiveness is proven. Additionally, the old model results in 'predict and provide' planning, in which past trends are extrapolated to predict future demand, which planners then try to satisfy. This often creates a self-fulfilling prophecy, since abundant parking supply increases vehicle use and urban sprawl, causing parking demand and parking supply to continually increase.

10

It is important to define parking problems carefully. For example, if people complain about a parking problem, it is important to determine exactly what type of problem it is, as well as where, when, and to whom it occurs. Increasing supply helps to reduce parking congestion, but increases most other problems. Management solutions tend to reduce most problems, providing a greater range of benefits and so are supported by more comprehensive planning.¹⁴





www.civitas.eu

CIVITAS Insight N°4, November 2015

Author:

Fred Dotter (Mobiel 21)

Edited by

Lewis Macdonald (ICLEI)

Design by

Nadine Maes (Mobiel 21)

The CIVITAS Insights are produced by the CIVITAS CAPITAL team. Any query about the content or frequency of the Insights can be directed to jan.christiaens@mobiel21.be

Do you have ideas for future Insights or want to share you expertise? Please contact us!

The content of this publication does not reflect the official opinion of the European Union. Responsibility for the information and views expressed in the publication lies entirely with the author(s).



THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION