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EPA

How can we make on-street parking a success?

Third EPA-Polis policy paper on parking - 2013

www.europeanparking.eu
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The EPA-Polis Partnership – focus of 2013 activities

Parking is important for the redefinition of the role of cities, between the "motorway" culture and re-urbanisation. Centralised parking in cities has been proven to decrease the dependency on car trips and improve the urban public space. However, implementing integrated parking strategies is a challenging task, for both local authorities and parking operators.

To create a better understanding between the different actors in parking activities, the European Parking Association (EPA) and Polis have established a partnership to discuss the interaction of urban transport and parking activities. Both organisations regularly exchange information and expertise about making parking in cities better. As part of their creating an interchange of ideas, Polis and EPA organised a successful seminar in Stuttgart, on the 16th of May 2011, and in Helsinki on the 17th of September 2012. A third event took place on the 10th of September 2013 in Dublin.

As a result of this partnership, two policy papers were issued. The 2011 document focused on the relation between parking and Sustainable Urban Mobility Planning. The 2012 document highlighted challenges for quality improvement in urban parking policies and practices.

The 2013 activities focused on on-street parking. Through a combination of interviews and desk research[1], Polis gathered good practice in planning, operating and enforcement of on-street parking. Aspects such as information and data management were addressed as well. In this regard, it is important to mention that Polis members Gent and Rotterdam initiated a Polis workshop on the use of open parking data. This workshop took place on the 9th of October 2013 and results are reflected in this paper.

[1] Cities interviewed: Bratislava, Brno, Gent, Flanders Region, Lille, Madrid
Information gathered in writing from Utrecht, Trondheim, Stuttgart, Perugia, Milano, Budapest, Brussels, Bologna and Amsterdam.

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On-street parking: the biggest challenge in town!

On-street parking management can create policy paradoxes at city level. Often, the local parking policy is aimed at promoting the use of off-street parking facilities in order to keep the on-street parking reduced to a minimum. Increasing the service aspects of on-street parking could create ambiguity about the actual objectives of the local parking policy. Why to invest in the on-street parking client, if you actually would want to promote off-street parking?

Examplatory cities such as Barcelona prove that systems based on the integral management of on-street parking can perfectly compete with other solutions (such as urban road user charging) to tackle congestion – bringing many added value to the cities and its citizens.

On-street parking planning and management is for all European city a high-profile activity. On-street parking management affects different target groups, with different needs. It is also a field of activity in which the local authority needs to balance public interest (street regulation and revenue raising) with service aspects. Actions are scrutinised by local media and stakeholders.

On-street parking user groups and their needs

On-street parking strategies affect the daily life of all city dwellers:

- **Residents** are interested in attractive neighbourhood, with a good quality urban space. They might also be interested in finding on-street parking close to home for short-stay use (loading and unloading) or for longer-stay use (night-time parking). Private parking space at home or close to home is not always used for car parking, creating additional pressure on the street parking capacity.
- **Visitors** are interested in affordable parking close to destination. Visitors can be shoppers, commuters, people engaging in leisure activities, etc. Commuters in unregulated situations can occupy a major part of the parking capacity, thus blocking the use of it for other visitors, arriving later in the day.
- Professional 'kerb space' users such as **urban logistics** and deliveries companies who need reassurance about availability of free spaces in order to conduct their activities in an efficient way.
- **Specific user groups** such as drivers with disabilities will need to be accommodated on-street in order to be able to reach destinations of their choice.

The challenge for local authorities is increased as these user groups do not share the same expectations and needs towards the on-street parking system in terms of cost, (assured) availability and capacity.

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Balancing areas of public interest

A proper on-street parking policy envisages a balanced approach of different objectives: street regulation, service provision and revenue raising.

1. **Street regulation**
   From the interviews conducted, we can see that on-street parking strategies in their basic form share a simple but important objective: cities want to **prevent chaos** in their streets. Street regulation is applied to establish an orderly use of the available urban space. In addition, the street regulation can lead to **improved public spaces**, where more space can be given to walking, cycling and other forms of living streets. In addition, street regulation can search to achieve a **functional differentiation** of the use of on-street capacity, thus enabling the preferred user group (residents, visitors, urban delivery) to use the available space.

2. **Service provision**
   Making use of the on-street parking offer will come at a cost for the parking client. This cost can be financial (paying the parking fee or resident's pass) or psychological (restriction in time and space). This cost can be compensated with a provision of services. The most obvious service to the parking client is the fact that **he/she can use public space** in a private manner. In addition, information can be an important service to parking clients. **Information** can address the (expected) total cost of the parking time and the maximum allowed parking time. On-street parking is often limited to 1, 2 or 4 hours. More controversial is the provision of information about available on-street spaces. Interesting new services are **reservation** of parking spaces/urban delivery docks. The service provision can consist of **easy payment** options – for instance post-payment (a monthly parking bill). Information and payment services can be rendered by apps on mobile devices but also by innovative use of the parking kiosks. Third parties can be involved by means of open data policies.
   A secondary service (to all citizens) is that the managed on-street parking scheme increases the quality of the urban realm.

3. **Revenue raising**
   As in road user charging, revenue raising from parking is the means (the price impulse initiates a change of behaviour that improves the system performance) to an end (a tangible tax base – the car driver - that creates on average a stable revenue stream). Revenues can be raised from **residential parking permits**, or from **parking charges**. Residential parking permits are usually very low cost (for political reason) and tend to only cover administrative costs. Non-compliance combined with enforcement can add **parking fines** to the revenue. A secondary source of revenue is the fact that stricter on-street parking management can help to **increase the revenue from off-street facilities**. In the future, additional revenue could be found in **Value Added Services** building on the parking ITS.

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If these three elements are out of balance, the parking policy will not be effective (e.g. due to lack of compliance), nor efficient. It will be too costly for the organising authority and/or for the parking client.

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Shaping the transition

From the interviews and information gathering, one essential conclusion can be drawn: all cities contacted are currently in a process of transition with regards to on-street parking.

The transition is taking place in several areas: planning, services to parking clients, technology and management. The next sections describe innovations that are currently taking shape in European cities.

Planning the on-street parking offer

The transition towards better, more efficient on-street parking strategies is an essential part of over-all parking management (thus including measures to better coordinate the on- and off-street parking offer). In this regard, it is difficult to draw conclusions that are limited to on-street parking management. We noticed the following commonalities amongst the cities interviewed:

Innovation in Planning

The city of Perugia limits the number of on street parking spaces in function of access to public transport.

- Cities move away from an ad hoc approach to solving parking problems and install common guidelines for the whole territory. They introduce concepts such as the maximum parking space density of public space.
- This implies that the regulated/priced areas expand. Cities do not only establish city centre parking strategies, but urban, and even metropolitan parking strategies.
- The expansion of regulated areas, and detailed zonal parking regimes can cause 'border effects'. The most efficient way of avoiding these border effects is to select logical zones with 'natural' or 'spatial' borders, such as urban green zones, rivers, main roads, etc.
- These parking plans are based on research and scientific analysis. Cities use digital mapping of the available capacity, market research and (micro-) modelling.
- The parking plan accommodates the needs of the different user groups mentioned above: residents, visitors, urban logistics etc. Specific urban logistics plans include parking solutions for freight vehicles.

Accommodating the parking client

In terms of end user appreciation, the success of a parking policy can be broken down in three factors: understanding the system (e.g. knowing what to pay and when to pay), acceptance and compliance. The actions put in place to accommodate the parking client should have a positive effect on these three issues.

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A first concern of the parking client is **the cost of parking.** However, the knowledge about parking tariffs and alternatives amongst user of the parking offer is very limited. The interviews bring the following information about this:

- Cities charge per minute, or per time blocks. There is a risk that pricing schemes become too complex to apprehend.
- The charge categories can differ between zones (central vs peripheral, business district vs residential).
- Depending on the zone, 'free time' offers can be introduced (e.g. the first 15 minutes free parking to allow for quick errands).
- Clean vehicle exemptions (e.g. electric vehicles pay less or nothing to park) are overall not an issue for most cities contacted.
- Dynamic pricing, where prices differ according to the pressure on the existing offer are not considered to be necessary or practical.
- Pricing levels between cities cannot be compared due to the local economic and legal circumstances.

With regards to **payment options**, cities offer different solutions and they all have fair arguments why (not) to choose for a specific technology. There is a tendency to move towards cashless operations. A specific user friendly option is to have post payment solutions (monthly invoices). It is important to mention that there is not link between the level of advanced planning and the technologies chosen. Cities might have a far-reaching and effective parking strategy, and could at the same time not engage in technologies such as SMS parking.

Innovation for residents

Amsterdam is investigating to allow permit holders to enter off-street parking facilities at night.

The **residents' permits** are an important tool for street regulation. It is also the politically most sensitive issue. The permits are not seen as a primary source of revenue for the municipality. In a lot of occasions the cities recognise that the permits granted cannot be accommodated within the given parking capacity.

There are several ways to design the residents' permit system. There are differences between cities in terms of numbers of permits granted (only 1st car, or also 2nd and 3rd car); the beneficiaries (household, car owner, driving licence owner, etc.). In principle, the permits are issued for a specific zone in the city. The permits can be digital (linked to the licence plate) or on paper (windscreen display).

It appears that the pricing levels of permits for 2nd and 3rd cards do have some influence on behaviour. Pricing levels for permits for the first car of residents are in general too

low to move any car away from the on-street parking capacity. Currently residents parking permits have an 'all-day, all streets' validity within a zone. Restrictions to the night time, or specific streets, might help to change the resident's parking behaviour.

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Choosing the best technology

All cities contacted are investigating better and efficient technologies. The technologies mentioned include sources of **primary data**, such as ANPR, SMS parking, vendor machine performance, sensor networks and RFID (for specific vehicles, e.g. freight logistics).

Technological Innovation

The city of Westminster deploying a 10.000 sensor network for better enforcement and management information.

Secondary technological tools mentioned are digital permits (based on the licence plate, and easily linked to ANPR enforcement), scan cars/mopeds for ANPR enforcement, dynamic parking guidance (Variable Message Signs fed with real time parking data), smartphone apps (for payment) and e-billing (to allow for post-payment).

It is remarkable that all these new technologies are all very **driver focused**, and that the current movement towards connected care and 'apps for cars' is not fully recognised.

Cities choose **technologies in view of accomplishing policy goals**. Not all technologies are efficient to reaching all policy goals. The most efficient technologies are aimed at managing parking rights, payment and enforcement. Management information and information towards the parking client are underdeveloped. For instance: SMS parking databases could deliver very rich information about travel patterns (day-week-seasonal effects) that could be used for targeted information and mobility management actions. At the moment this information is in most cities only used to focus enforcement activities.

Technological Innovation

CDV is developing a trial for sensor parking within the framework of the POSSE project. The project also engages in the DATEX II parking date standardisation discussion.

POSSE
Promoting Open Specifications and Standards in Europe
www.posse-openits.eu

None of the cities contacted actually has **on-street parking information systems** in place. Parking information is currently mainly focused on guidance towards off-street parking facilities. At the Dublin event, the need for on-street parking information systems was put to question. Is it useful to invest in costly information systems (e.g. using sensor technology) for parking systems that are most of the time close to saturation? Who would receive the information? There might be a lot more candidates for the available spaces than the offer allows for.

On the other hand, the deployment of sensor networks is relatively cheap compared to the total cost of street management tools (lighting, maintenance) and brings considerable benefits in terms of enforcement data and management information. Technologies are becoming smarter (including not only binary information sensors but also RFID receptors enabling smart cooperative systems based solutions.

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This issue is clearly not resolved, and links in with the topic of **opening up parking data**. Polis organized a workshop about this issue on the 9th of October – initiated by Gent and Rotterdam. Discussions focused on:

- Policy, specifically the fear held by many urban authorities that releasing real-time data on parking space occupancy (supplemented by routing information in some cases) will encourage people to use their car. Those cities opening up parking data claim that truly multi-modal journey planning and information should cover all modes, including private cars, and that it is better to engage with the market now.
- Innovation: there was an interesting discussion around the creativity potential of the app developer community and particularly the fast rate at which new apps reach the market.
- Contractual arrangements: although parking garages may be owned by a city, the parking management system may well be operated by a third party, in which case, the city must include the open data/data access provision in the contract with this third party.

Managing the change – changing the management

Several cities contacted are getting better organised to face the challenge of managing on-street parking. Measures include Institutional reform, better integration with other services and better monitoring of contracts.

Looking at **institutional reorganisation**, we notice that metropolitan areas look at centralised competences in the field of parking. This would enable metropolitan parking planning and management. These centralisation processes take time and meet resistance of municipalities within the metropolitan area. The centralisation can be the result of regional legislation. Cities establish up municipal parking companies or agencies. Several authorities look into cooperation, and pooling of resources between authorities, to increase efficiency and reduce costs.

Another way to increase efficiency is the principle of **territorial management contracts**. In this case the city issues a call for tender for an integrated offer of urban management activities. These packages of activities include street furniture, lighting, waste management, etc. and parking! In this way, consortiums of service providers can find synergies between services that can reduce costs. Other examples of service integration can be found in integration of safety and security assignments in the tasks of the parking wardens – thus creating a league of ‘city ambassadors”.

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Innovation in enforcement

Gent parking wardens are operating according to geo-referenced routes, thus enabling a fair and efficient enforcement. .

When enforcement and operations are outsourced to private companies, the public authority issuing the contracts can install mechanisms to closely **monitor performance of the parking operator**. The UK experience of model contracts and codes of practice can be helpful in this regard. Cities experiment with geo-referenced routing of parking wardens in order to establish a fair enforcement system.

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Towards dynamic on-street parking charges in Europe?[2]

Where most parking innovations have originated from Europe, the parking community is currently looking to the US to learn from the ongoing experiences with dynamic parking charges. The TIDE project looked into current practices in this field and carried out an assessment of the transferability of this measure to European cities.

What's happening in San Francisco?

San Francisco has introduced a system where pricing of parking spaces is updated periodically to match demand levels, SFpark. The system was introduced in 2011. The objective is to reduce traffic by helping drivers find parking and at the same time decrease congestion and make streets safer. SFpark uses demand-responsive pricing to open up parking spaces on each block and reduce circling and double-parking. Rates may vary by block, time of day and day of week.

SFpark charges the lowest possible hourly rate to achieve the right level of parking availability. In areas and at times where it is difficult to find a parking space, rates will increase incrementally until at least one space is available on each block most of the time. In areas where open parking spaces are plentiful, rates will decrease until some of the empty spaces fill. In pilot areas, meter pricing can range from between 25 cents an hour to a maximum of $6.00 an hour, depending on demand. Rates will be adjusted by no more than 50 cents per hour down or 25 cents per hour up, and no more often than once per month.

Lessons learnt in San Francisco

Evaluation of the San Francisco system shows limited effects on cruising and occupancy. Possible explanations for this can be that the drivers have not yet adjusted to the rates or that the demand for on-street parking is more inelastic than expected (the charges need to be higher before large impacts are revealed).

Since many cities have expressed an interest in learning more about SFpark, the municipal transportation agency in San Francisco have gathered information about the measure in a booklet, available online. The list of lessons learned is very comprehensive. A few of them are given below:

- Many challenges accompanied planning and implementing a ground-breaking project with complex technology, significant policy changes, and a large amount of discovery and uncertainty. The support of a dedicated executive at the agency was critical, as was having appropriate financial resources.

[2] This section is based on findings of the TIDE project, coordinated by Polis. This section is authored by the WSP team, expert project partner for the parking charges topic.

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- Understanding the existing parking supply was a critical first step in the planning and implementation of the SFpark pilot project and will be just as important for its evaluation.
- Building internal consensus and cooperation for SFpark's significant policy, organizational, and technological changes required significant time and effort.
- It was important to have a clear explanation of how parking revenue from SFpark is used, and relating parking management revenues to funding transit and the overall transportation system is typically well-received.
- It has helped to be open and clear about SFpark's goals, policies, and methods. For instance, when prices are adjusted, it is clear why decisions are made to raise rates, lower them, or keep them the same.
- Permitting and regulations (e.g., poles, street installation, power, signs), as well as contract negotiations for new technologies, took much more time than expected.
- The technology used in SFpark is not plug and play. Implementing SFpark required a lot of hand coding for different technologies to work together. As this field and market matures, this problem will likely diminish, but for now this will remain an issue for any city.
- Pursuing SFpark on a pilot basis was a sound approach. To have attempted this change all at once citywide would have had an unacceptably high risk of failure.

A case for dynamic parking charges for Europe

The dynamic parking charging concept was discussed within TIDE with parking experts. They concluded that 'dynamic parking charges are a transferable measure to address cruising for parking space, for cities that have an actual parking policy, have smart city objectives and are interested in efficient enforcement. The city should be ready to address legal issues and to cover costs of implementation and to modify this US scheme to needs of European cities with specific street lay-out.'

Issues mentioned were the urgency of problems: is there a real problem to solve? The methodological challenge of measuring cruising was mentioned, as well as issues surrounding the technology: is it mature and sufficiently smart? What is the (logistical) impact of installing a city wide sensor network? There is also a legal barrier: none of the cities contacted would see it legally or practically possible within the current framework to change the charges in a monthly or weekly basis.

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A way forward: how to measure success?

The discussions with cities and parking professionals at the Dublin workshop opened a new debate about on-street parking: how do we measure success? The focus of future EPA-Polis activities on on-street parking will address this question, aiming at detailing:

- What is success for cities? What are the policy and operational objectives in place?
- How do we measure impacts on-street parking policies? (Looking at traffic indicators, cruising time etc.)
- How do we measure system outputs such as revenue, geographical coverage of the enforcement etc?
- How do we measure process indicators such as customer satisfaction and acceptance, cost of operations etc.?

The Horizon2020 programme offers opportunities with regards to research in these areas.

EPA and Polis will look into the creation of an assessment framework for on-street parking services, including a certification process. For public parking garages this is in place with the European Parking Standard Award, which has been issued to hundreds of car parks in many European countries.

For further information:
www.tide-innovation.eu
www.posse-openits.eu/
www.europeanparking.eu/
http://www.polisnetwork.eu/publicevents/180/61/How-can-we-make-on-street-parking-a-success-3rd-EPA-Polis-Parking-workshop-10-September-Dublin

Ivo Cré, November 2013