TIDE

Transport
Innovation
Deployment
for Europe

# GUIDELINES FOR IMPLEMENTERS

## Implementation of parking charge policies — dynamic parking charges

TIDE is a Coordination Action funded by the European Commission's DG Research and Innovation under the 7th Framework Programme for Research and Development.

SEVENTH FRAMEWORK PROGRAMME

# What is it about?

**Parking charge policy can be one measure to curb congestion**
*Photo Tiia Ettala*

### San Francisco, US

San Francisco has introduced a system where pricing of parking spaces is updated periodically to match demand levels, SFpark. The goal 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.

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 are filled.

## Characteristics

Parking charge policies can be used in different ways: to reduce vehicle traffic, to improve accessibility and to increase the efficiency of land use. Parking charges can also be an important source of revenue for local authorities.

Parking charges can be used actively as an instrument for urban policy. A particularily innovative use of the parking charge instrument is made with dynamic parking charges.

The price of parking is often subsidized or in other ways under–priced in relation to the actual cost of the parking facility. Free or under–priced parking can give rise to inefficient use of parking facilities and excessive parking demand.

Parking charges can be one strategy to change the perceived price, time and convenience of going by car, making other transport modes relatively more attractive. For residential parking, charges normally primarily affect car ownership while for non–residential parking there is a direct impact on mode choice and the choice of destination.

## Key benefits

**Parking charge policy:**

- may increase the efficient use of parking facilities and reduce excessive parking demand;
- may be used to reduce traffic, which in turn can reduce congestion, reduce environmental impacts and improve the urban environment;
- creates revenues that can be used to fund other measures.

## Check list

| | |
|---|---|
| City size | No restrictions |
| Costs | • Costs depend on the measure implemented. Innovative high–tech solutions can require relatively expensive infrastructure.<br>• If the objective is to reduce traffic, parking policy can be a low–cost measure in comparison to other measures (e.g. road pricing).<br>• Enforcement, although ensuring revenues, comes at a cost. |
| Implementation time | Quick implementation in relation to other measures. |
| Stakeholders involved | • Businesses that own and manage parking facilities.<br>• Local authorities.<br>• Neighborhood associations and individual residents.<br>• Local police may be involved in enforcement activities.<br>• Private companies often provide parking.<br>• management equipment and services. |
| Undesirable secondary effects | Parking can move to unwanted locations. |

*"All parking has a cost, even if there is no charge for drivers to use it. If drivers do not pay for it, then everyone does, either through higher general rents (and therefore prices) for shops in a shopping centre, or perhaps through higher local taxes, where a municipality has subsidized a new car park. This is money that could have generated higher benefits if it were spent elsewhere."*

**Tom Rye,**
**Professor of Transport Policy and Mobility Management,**
**Lund University of Technology**

*"For Milan, innovative solutions such as smart parking technology is a way to enhance enforcement ability while at the same time contributing to manage urban mobility."*

**Maria Berrini,**
**CEO of AMAT — Milano Agency Mobility Environment Territory,**
**Milan, Italy**

# Benefits & Costs

## Benefits

The use of parking charge policy can increase the efficient use of parking facilities and reduce excessive parking demand. Correct charges in combination with information to the users can also help create better accessibility and less time spent cruising for parking which gives better reliability and shorter travel times.

Parking charges can also be used to reduce traffic, and can be designed to reach similar effects as congestion charges. Reduced traffic by increasing parking charges can in turn lead to less congestion and reduced environmental impact.

Another benefit is that parking charges creates revenues. These revenues can be used to fund other measures.

Parking charge policies can be used as one part of a broader policy strategy towards sustainable urban mobility. The measure can be combined with improved public transport in order to increase the attractiveness of alternative modes of transport and decrease car dependency.

**The SF Park meter**

*Photo: SF Park*

## Costs

Costs depend on the measure implemented. If the objective is to reduce traffic, parking policy can be a low–cost measure in comparison to other measures (e.g. road pricing).

**Principal cost factors are:**

- Technical equipment: there are different kinds of technical solutions — some are more costly than others.
- Enforcement: making sure drivers pay the fee in a cost–efficient way.
- Information/communication: this is crucial to making users aware of where to park, the cost of parking and how to pay. It is also important to communicate the aims, expected benefits, etc..

### Do increased parking charges affect businesses negatively?

Business owners often have a negative view on increased parking charges because they fear adverse consequences.

However, it has been difficult to establish a link between parking prices and the success of businesses (e.g. a shopping centre). In fact, parking that is too cheap may attract long–term parkers that block available parking opportunities for potential customers.

More parking at a cheaper price does not necessarily mean a successful shopping centre; and centres with higher prices and a more restricted supply can still do well. This is illustrated with data from the UK carried out in a study by Rye, for the City of Edinburgh Council, 2005.

# Users & Stakeholders

## Key stakeholders for implementation

When introducing parking charge polices, it is important to involve as many stakeholders as possible. This gives valuable input when designing the system and can also help to increase the acceptability of the scheme once introduced.

**Important stakeholder groups:**

- Car drivers (private and commercial).
- Different actors within the local administration/ government.
- Businesses in the city.
- Neighbourhood associations and individual residents.
- Larger companies within the region.
- Businesses that own and manage parking facilities
- Local police, if involved in enforcement activities.
- Private companies often provide parking management equipment and services.

## Users and target groups

There are many user groups affected by parking charge changes. It can be quite an unpopular measure for large user groups since it can mean that you need to pay more for the use of parking space.

On the other hand, if the price of parking matches the demand, it can make driving and parking in the city more efficient since the drivers are more certain that there will be parking spaces available. Driving around in the city looking for parking is something most people would like to avoid!

**Important user groups:**

- Car drivers.
- Commercial traffic (taxi, goods transport etc.).
- Inhabitants (residential parking).
- Companies (parking for employees).


**Dynamic parking guidance is the first step to make parking smarter**

*Source: Polis*

# Assessing the potential for your city

### Is this something for us?

Dynamic parking charges is a transferable measure to address cruising for parking space, for cities that have an appropriate parking policy, have smart city objectives and are interested in efficient enforcement. The city should be ready to address legal issues, to cover costs of implementation and to modify the US scheme to the needs of European cities with, for instance, a different typical street lay–out.

As Pierce and Shoup (2013) states in an evaluation of SFpark, congestion charges and dynamic parking charges are similar in so far as drivers will also have to think about the price of parking just as they now think about the prices of fuel, tyres, insurance, registration, repairs, and the vehicle itself. Parking will become a part of the market economy, and prices will help manage the demand for cars and driving.

Compared to congestion charges, parking pricing is relatively simple and cheap. Therefore cities can adopt programs like SFpark even if they do not yet have all the resources, legal framework and political will necessary to adopt congestion pricing. Performance parking prices may represent a step toward full congestion pricing.

## Pre–assessing the costs and benefits

As mentioned earlier, the cost for implementing parking charge policies depends on the measure implemented. If the objective is to reduce traffic, parking policy can be a low–cost measure in comparison to other measures (e.g. road pricing).

The pricing scheme can be adjusted to meet a certain objective, and both the costs and the benefits depend on how the system is designed.

The benefits of the system are likely to increase if the parking charge policy is not seen as a separated issue within the city but rather integrated in a larger policy perspective.

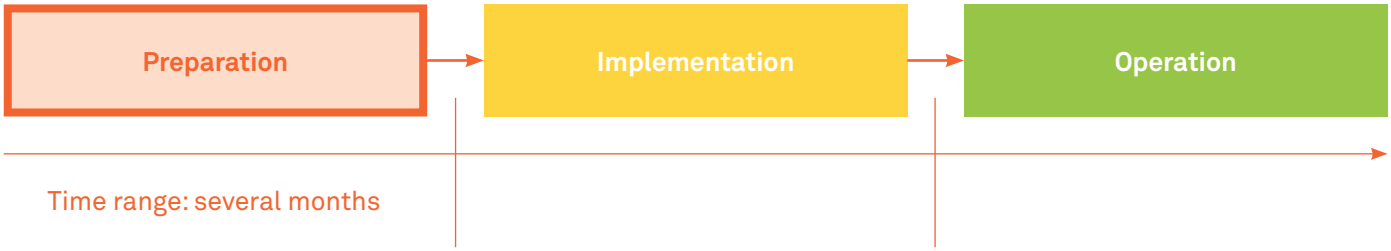

**Information about available parking can reduce cruising**

*Source: WSP*


10 EURO
20 EURO
EURO

# From plan to reality

## Preparation




In the preparation phase it is important to invest in activities that help to create the right pre–conditions and involve the necessary stakeholders for putting the measure successfully into practice.

This ranges from the analysis of given context conditions, building up stakeholder networks, integrating the measure in existing structures, creating necessary infrastructures that the measure relies on, etc..

### Key aspects at this stage

The first step is to set the agenda: bring the question to the table by discussions at local and regional level. The goals for the system must be decided upon at this stage.

The next step could be to learn more about parking availability, parking demand and price sensitivity, for instance the interaction with private parking operators in the area. This is crucial input for the design of the system.

Another key aspect in the implementation phase is to decide how to allocate the system's revenues. Should the revenues be used for infrastructure or to do something else? Creating a consensus is key element to make the measure's implementation a success.

It is important to involve the private parking companies as early as possible, to inform them of the city's goals and how the private parking companies can contribute to these goals.

### Stakeholder involvement

- Different actors within the local administration; municipality or government.
- Businesses that own and manage parking facilities.
- Local police may be involved in enforcement activities.
- Private companies often provide parking management equipment and services.

**Information about available parking can reduce cruising**

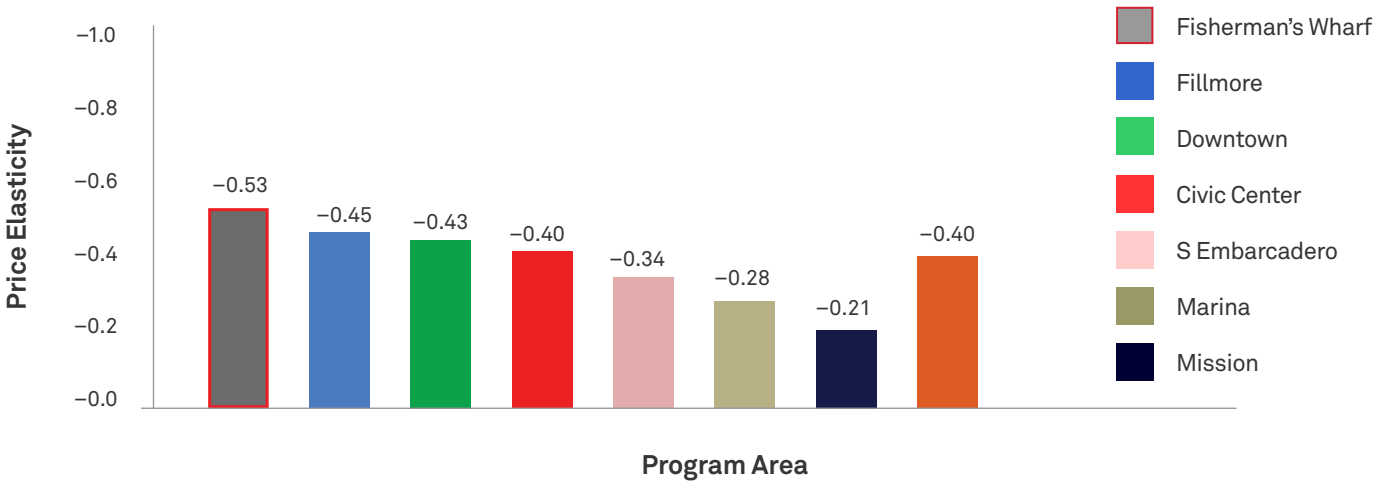
*Source: WSP*

## Success factors and barriers at this stage

One success factor is to create consensus within the city administration and the decision makers about the aims of the system. The design of the system can differ significantly depending on the main goal: increase accessibility, reduce traffic or generate revenues. The system can of course address several problems at the same time, but the aims should be clearly stated. Another issue to decide is how to allocate the revenues of the system.

Other characteristics that can facilitate the introduction of a parking charge policy are lokking at policies that are complementary (public transport policy, congestion reduction policy, traffic management, etc.). Parking charge policy is more likely to succeed if it is integrated into a larger package.

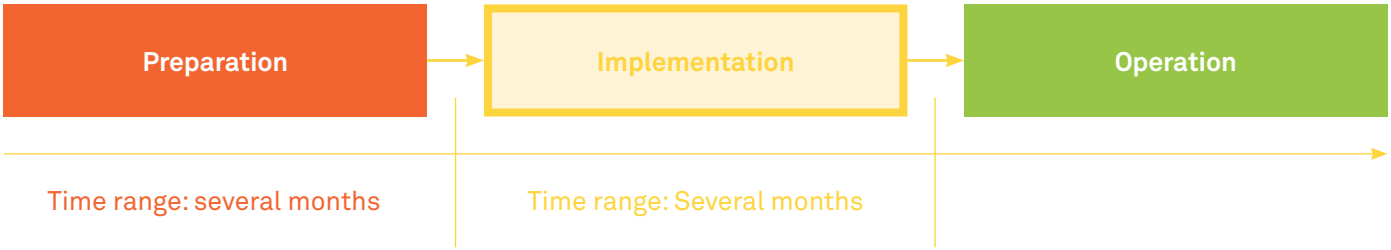
| Ready for implementation? | ✓ |
|---|---|
| Bring the question to the table | |
| Decide on the objectives | |
| Learn more about supply, demand and price sensitivity for different user groups | |
| Design of the system | |
| Involve private parking companies | |
| Involve NGOs and other stakeholder groups | |




An example from SF Park on the large variation in price elasticity between different parts of the pilot area. It is important to understand these variations in order to set efficient prices. Source: Pierce and Shoup (2013). Getting the prices right: an evaluation of pricing parking by demand in San Francisco.

# From plan to reality

## Implementation




The following elements are key to the implementation phase: acquisition of equipment, establishment of necessary infrastructure, assignment of responsibilities, signing necessary contracts and agreements and launching of marketing campaign.

### Key aspects at this stage

One key aspect is to assign roles and responsibilities and to build internal consensus. A clear division of tasks is necessary for the implementation to run as smoothly as possible. The process will be facilitated if there is a clear view of thye scheme's goals.

Before the scheme is introduced, adjustments in permits and regulations (e.g., poles, street installation, power, signs) might be needed. Furthermore, the implementers must keep in mind that negotiations for new technologies can take longer than expected if the technology is relatively new.

To measure the effects of the system, it is advised to to carry out baseline studies during this phase. These studies can include information about current parking behavior, cruising times etc., but also how people travel today, the share of different modes, levels of pollution in the city, etc..

Another possibility is to start out with a trial period to test the system, the level of charges, etc.. This would allow for a better understanding of relevant price elasticity etc., and thereby for an improved design of the permanent system. It would also reduce the risk involved in introducing a new system.

The implementation phase should be the moment to start informing the public about the new parking policy.


Photo: WSP Sweden

## Success factors and barriers at this stage

One main barrier at this point is the issue of acceptability. In the implementation phase, the public becomes more aware of the scheme and the public debate might become intense. Information campaigns focusing on the benefits of the system as well as engaging in the public debate can improve interaction with the public.

Fear of adverse impact on retail is a common concern. Parking charge policies can be perceived as harmful to businesses and commercial areas which have been using free/under–priced parking as a way to attract customers. A key success factor to implementing the measure is to have a dialogue with these businesses as early on as possible.

## Stakeholder involvement

In the implementation process, the same stakeholders as in the preparation phase must to be involved. In addition, there are other stakeholders which become more important in this stage.

Some of the most important stakeholders during the implementation phase are:

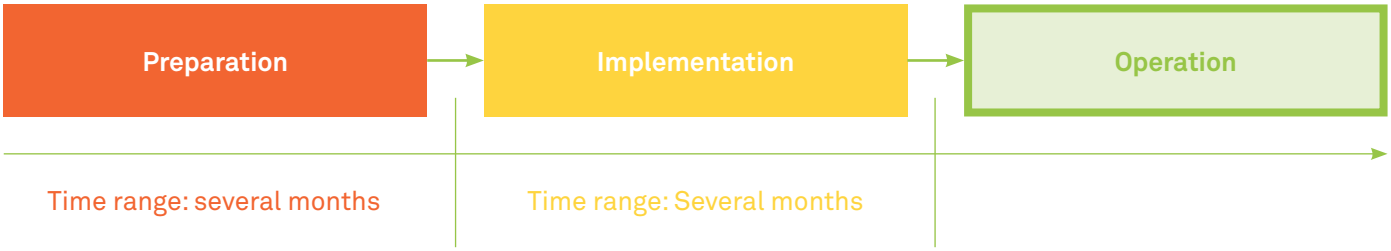
- User groups: information campaigns, public debates.
- Non–governmental organizations can be used as a channel for information and can also help to increase acceptability of the scheme.
- Private parking companies: seek to gain their support for the policy.
- Local businesses (parking for customers).
- Local companies (parking for employees).

**In the LA Express Park pilot, the drivers are guided to parking places by e.g. cell phone applications**

*Photo: LA Express Park*

# From plan to reality

## Operation




In the operation phase, the measure is fully implemented. At the beginning of the phase, several problems (both expected and unexpected) can arise, especially if testing a new technology.

In the longer term, these obstacles will be overcome and the system will run more smoothly as all actors involved become more used to the system. Modifications to the system and adjustments of the charges might be necessary.

### Key aspects at this stage

Technical service and maintenance may become important issues in this phase, in particular for innovative high–tech solutions. It is also important that the system functions well technically to achieve and maintain public acceptance.

Information is one of the most important aspects when the measure is moving into the operational phase. The users must be aware of how the system works, how to find available parking, cost and payment details, etc.. City inhabitants can be addressed directly, but information also needs to disseminated to surrounding areas. The system should also be easy to understand for drivers coming from other cities or countries.

Monitoring is another key aspect to measure the effects and compare with the situtation before implementation of the parking charge policy. Furthermore, this information can be used to identify potential for improvement and can give valuable input for future modifications of the system.

### Success factors and barriers at this stage

As in the implementation phase, addressing public opinion is central. Information and complementary measures can be necessary. If the parking charges are intended to decrease traffic, it might be necessary to expand public transport.

Unexpected negative effects could arise as a result of the scheme. To address these problems and try to find solutions can be important for the acceptability and, in the end, survival of the measure.

# Further information & contacts

## Further information

- **Transport Learning:** material on Parking policies www.transportlearning.net/
- **Los Angeles Express Park:** ladot.lacity.org/pdf/PDF217.pdf
- **San Francisco SFpark:** www.sfpark.org/
- **San Francisco Municipal Transportation Agency (2011).** Putting Theory Into Practice. Post–launch implementation summary and lessons learned, August 2011.
- **Pierce and Shoup (2013):** Getting the prices right: an evaluation of pricing parking by demand in San Francisco, April 2, 2013. Forthcoming in the Journal of the American Planning Association, Volume 79, Number 1, Winter 2013.

## Further TIDE training on this measure:

Webinars and e–learning courses

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**Photo on title page:** WSP Sweden

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## About TIDE — Transport Innovation Deployment for Europe

The European TIDE project aims to foster a more favourable climate for cities and regions to integrate innovations in their urban mobility policies. This should lead to increased acceptance and take–up of new urban transport solutions and technologies. TIDE will help cities and regions to address common challenges in a collaborative and integrated way.

## Why should you care about innovation?

On several occasions, European cities have indicated that innovation can help to tackle challenges resulting from the economic crisis. Innovation can save costs as well as contribute to reaching urban policy goals. Still, cities lack resources to conclude a full innovation cycle.

Innovative ideas usually start in one or just a few places before they reach wider coverage. TIDE will help cities and regions across Europe to shorten the path towards the implementation of innovative measures by showing that it is not necessary to re–invent the wheel and much more effective to exchange on innovation and transfer successful solutions from one European region to another. TIDE thus offers a cost–efficient way of spreading innovation throughout Europe

## Our mission — Guided by your needs!

TIDE will enhance the broad take–up of 15 innovative urban transport and mobility measures throughout Europe and will make a visible contribution to establishing them as mainstream measures. The TIDE partnership is making a range of new and feasible solutions more easily accessible, to address key challenges of urban transport such as energy efficiency, decarbonisation, demographic change, safety, access for all, and new economic and financial conditions.

TIDE focuses on fostering awareness, advancing expertise via tried and new tools, practical work with cities, and costs and benefits. The needs of practitioners in European cities are thereby a guiding principle. TIDE is actively supporting 15 committed cities to develop implementation scenarios for innovative urban transport measures, setting the example to an even wider group of take–up candidates. These measures cover the following five TIDE themes: new pricing measures, non–motorised transport, advanced network and traffic management to support traveller information, electric mobility, and public transport organisation.

## The TIDE innovative transport measures

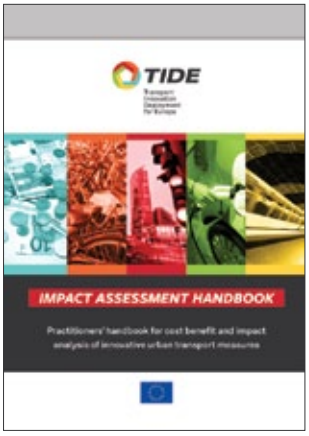
TIDE covers fifteen innovative measures across the five TIDE–themes.

| | |
|---|---|
| **New pricing measures** | • Road user charging in urban areas<br>• Parking charge policies<br>• Efficient and convenient pricing and charging for multimodal trips |
| **Non–motorised transport** | • Bicycle parking schemes<br>• Creating people–friendly streets and public spaces<br>• Fast cycling lanes |
| **Advanced network and traffic management to support traveller information** | • Open data server for applications–based traveller information<br>• User–friendly human machine interface for traveller information<br>• Advanced priority systems for public transport |
| **Electric mobility** | • Clean city logistics<br>• Financing schemes for charging stations<br>• Inductive charging for public transport |
| **Public transport organisation** | • Creation of public transport management bodies for metropolitan areas<br>• Contracting of services focused on improving passenger satisfaction and efficiency<br>• Marketing research as optimisation tool in public transport |

**The TIDE Innovation Toolbox** brochure highlights these fifteen inspiring transport measures and illustrates them with good practice examples, listing characteristics and benefits, key aspects for implementation, and useful references.

**The TIDE Practitioner Handbooks** on Transferability and Impact Assessment provide methods and examples to help understand the local potential for innovative measures in urban transport.

**The Guidelines for Implementers** are ten individual implementation guideline brochures addressing the full implementation process of ten of the fifteen TIDE innovative measures, as well as their costs and benefits, stakeholders to be involved, etc., illustrated with good practice examples.

## The mission of the TIDE project

is to enhance the broad transfer and take–up of 15 innovative urban transport and mobility measures throughout Europe and to make a visible contribution to establish them as mainstream measures.

TIDE focuses on 15 innovative measures in five thematic clusters: financing models and pricing measures, non–motorised transport, network and traffic management to support traveller information, electric vehicles and public transport organisation. Sustainable Urban Mobility Plans are a horizontal topic to integrate the cluster activities.

## The TIDE team

The TIDE consortium is composed of a variety of experts in the field of urban transport, bringing in the knowledge of the academic sector, the experience of cities, the expertise of consultants and the multiplier effect of European networks.

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SEVENTH FRAMEWORK PROGRAMME