Mobility Management
A guide of international best practices
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Chapter 1: Introduction

The present guide explores the subject of Mobility Management and provides a selection of Best Practices from around the world. Its aim is to offer concrete examples of how managed mobility schemes can improve the urban transport environment and, thus, inspire companies, cities and all interested bodies in the planning and implementation of such schemes.

The guide is composed by three main parts:

1) an introduction to Mobility Management that introduces the practice and provides an understanding of its objectives, benefits, levels of implementation, etc. (Chapter 2);
2) a selection of Best Practices on different Mobility Management measures (Chapter 3);
3) an analysis of the key lessons stemming from the Best Practices that can significantly influence the implementation and success of Mobility Management measures (Chapter 4).

A list of links with useful online information and resources closes the guide and provides additional material to those who wish to further explore the subject.
Chapter 2: Setting the Scene

Contrary to conventional transport management practices, Mobility Management (also referred to as Travel Demand Management) is a demand-orientated approach that aims to enhance mobility and improve accessibility while tackling urban transport-related problems such as congestion, poor air quality, loss of public space and energy consumption.

More specifically, Mobility Management (MM) focuses on changing the travel behaviour of people towards more sustainable modes of transport through the promotion and implementation of a diverse set of “soft” measures, including organisation of services, application of incentives and disincentives, information and communication.

There are three characteristics that make MM an appealing and effective approach for dealing with mobility issues:

1. **Taylor made solutions**: MM is a flexible approach, it allows to choose from a variety of mobility measures according to the needs, challenges and scale of application, and therefore it can be adapted and modified to each case accordingly. In addition, it includes evaluation and user feedback, which allows for further adjusting of the measures applied in order to obtain the “perfect fit”.

2. **Low cost**: as it was mentioned earlier MM is based on the implementation and promotion of “soft” measures, which in comparison to “hard” ones (e.g. road infrastructure) tend to require low financial resources and are highly cost-effective.

3. **Short to medium term impacts**: another advantage of “soft” measures is that they can be implemented quickly and thus their impacts can be visible within a short to medium period (6 months – 2 years) from decision making.

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**DEFINITIONS**

**Mobility Management**

**Mobility Management (MM)** is a concept to promote sustainable transport and manage the demand for car use by changing travellers’ attitudes and behaviour. *(EPOMM)*

**Travel Demand Management**

**Transportation Demand Management** or TDM refers to various strategies that change travel behavior (how, when and where people travel) in order to increase transport system efficiency and achieve specific planning objectives. *(Victoria Transport Policy Institute, 2014)*

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**Objectives of Mobility Management**

- Encourage change of attitude and behaviour towards sustainable modes of transport
- Improve accessibility for all people and organisations
- Satisfy mobility needs by a more efficient and integrated use of (existing) infrastructure
- Reduce traffic (growth) by limiting the number, length and need of motorised vehicle trips
- Improve co-operation between transport modes
- Increase the efficiency of the entire transport system *(MOMENTUM/MOSAIC, 2000)*

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**Soft vs Hard Measures**

<table>
<thead>
<tr>
<th>Soft measures</th>
<th>Hard measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower level of investment needed</td>
<td>Higher level of investment needed</td>
</tr>
<tr>
<td>Short-term implementation</td>
<td>Medium to long term implementation</td>
</tr>
<tr>
<td>More easily reversible</td>
<td>More difficult and costly to reverse</td>
</tr>
</tbody>
</table>

*Table adapted from European Parliament (2010)*
Target groups

MM could target different groups of the population depending on the level of implementation but most importantly on its objectives. This breakdown of the population in groups is usually based on one or more of the following aspects:

- socio-demographic characteristics (e.g. young people, families);
- socio-economic characteristics (e.g. low-income population);
- trip purpose (e.g. commuters, students, shoppers, tourists);
- geographical areas (e.g. residents of certain areas, employees of specific industrial zones);
- timing (e.g. residents that have just relocated, newly-hired employees).

The identification of the group to which MM is targeted is of great significance for its success. The target group will determine the type and characteristics of the MM measures employed as they will have to meet its mobility challenges and needs.

Levels of implementation

Another important aspect of Mobility Management that should be highlighted is its ability to be implemented at different scales. In particular, two different levels are identified, (1) urban / regional level and (2) site level, that share the same objectives but can differ in the following aspects (MOMENTUM/MOSAIC, 2000):

- promoters of MM (e.g. local administration / area mobility manager vs. site mobility manager);
- organisation and procedures;
- target groups (e.g. entire local population or a specific segment vs. site users such as employees, students, visitors).

Benefits

In the past decades MM has been increasingly embraced by both the public and private sector, which is highly justified considering the numerous potential benefits it can generate:

- reduction of air pollution and thus better air quality with a positive impact on human health;
- reduction of energy consumption;
- reduction of noise;
- less congestion resulting in a reduction of air pollution and time wasted in traffic as well as less stress;
- greater variety of transport solutions resulting in better accessibility;
- more efficient use of the existing transport infrastructure resulting in less public spending on unnecessary infrastructure;
- reduction of the overall number of trips;
- more free public space due to the reduction of the number of cars;
- more efficient land use management;
- less accidents and better safety especially for the more vulnerable categories, e.g. pedestrians and cyclists;
Mobility Management programmes and measures

Mobility Management programmes and measures can be divided in categories according to their characteristics, e.g. target group/s, objective, mode of transport promoted etc.

**Mobility Management programmes** target a specific type of trip or a geographic area and they include a diversity of measures in order to promote sustainable modes of transport. The most important categories include:

- **home-work**: the main target are systematic trips of employees towards a company or an industrial/business zone, whereas visitors are a secondary target group;
- **home-school**: the target are students (and often parents of very young children) and the aim is to promote the use of sustainable modes of transport to and from schools;
- **major events**: as opposed to the previous two categories, the target here are non-systematic trips carried out towards a specific geographic area due to an event, e.g. concert, sports event, international expo, etc.

**Sustainable Urban Mobility Plans** (SUMPs) could also be considered here. They are strategic plans targeting trips carried out in an entire city and its surrounding areas with the aim to facilitate and promote a shift from cars to more sustainable modes of transport.

**Mobility Management measures** on the other hand tend to facilitate and promote a specific mode of transport (e.g. walking, cycling, public transport, carpooling etc.) or focus on a specific type of practice that contributes to sustainable mobility (e.g. parking management, communication and information).

**Areas of interests**

The present guide focuses on the certain Mobility Management programmes and measures aiming to provide a taste of the possibilities in the field. More specifically, considering the importance of certain programmes and measures and the work being carried out within UNECE in parallel to the present guide, the following topics are covered:

- home-work
- home-school
- major events
- SUMPs
- demand responsive transport
- parking management
- sustainable urban deliveries
- communication and information.

**Geographical Scope**

In addition, attention was taken to include best practices from a variety of countries as often mobility management practices may differ from country to country. In this way the reader is
provided with a selection of different approaches on the same subject allowing him/her to be inspired by those most suited to his/her case.
Chapter 3: Mobility Management Best Practices

Study methodology

A - Desktop Study
The best practices presented in this Chapter were collected through a desktop study that examined a number of mobility management programmes and measures implemented in different countries around the world.

B - Interviews with key actors
In addition, for certain best practices further data was obtained through telephone interviews with the people responsible for their development and implementation.

Three main criteria were used for the selection of the examples included in the guide:

1. Duration in time: particular attention was given to the sustainability over time of the best practices selected as it is an important factor for guaranteeing significant and long-term results.
2. Element of innovation: innovation both in the methodology used and the measures implemented was also considered important as it has the potential to inspire and encourage readers to think out of the box in order to achieve their sustainable mobility targets.
3. Results obtained: both quantitative (e.g. modal shift) and non-quantitative (e.g. development of a SUMP) were also deemed to be fundamental as they are an important indicator of the effectiveness of the programmes/measures.

Therefore, the best practices presented in the guide meet at least one of these criteria and in ideal cases they meet two or all three.

In total, 22 best practices covering 8 different types of mobility measures were collected, from 17 countries.

<table>
<thead>
<tr>
<th>Types of Programmes and Measures Covered</th>
<th>Countries (No. of best practices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home-work mobility</td>
<td>Austria (1)</td>
</tr>
<tr>
<td>Home-school mobility</td>
<td>Belgium (1)</td>
</tr>
<tr>
<td>Major events</td>
<td>Bulgaria (1)</td>
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<tr>
<td>Sustainable urban deliveries</td>
<td>Canada (1)</td>
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<tr>
<td>Parking management</td>
<td>Estonia (1)</td>
</tr>
<tr>
<td>Sustainable Urban Mobility Plans</td>
<td>France (1)</td>
</tr>
<tr>
<td>Demand responsive transport</td>
<td>Germany (1 - plus sharing a best practice with The Netherlands)</td>
</tr>
<tr>
<td>Communication and information</td>
<td>Italy (2)</td>
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<tr>
<td></td>
<td>Lichtenstein (1)</td>
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<td>Switzerland (3)</td>
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<td></td>
<td>The Netherlands (1 - plus sharing a best practice with Germany)</td>
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<td></td>
<td>UK (2)</td>
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<td></td>
<td>USA (1)</td>
</tr>
</tbody>
</table>
Best Practices

3.1 Home-Work Mobility

Green Way – Infineon’s Mobility Management Programme (Villach, Austria)

50% of employees travel to work with sustainable modes of transport

How a Company in Austria, manages to achieve a strong modal shift using a motivated Mobility Management Team, which focuses regularly on mobility and has a clear company mandate.

Company: Infineon Technologies Austria AG
No. of people working at the Villach site: more than 5000 people work at the site (daily peak 14h) – nr of people simultaneously present at the site, around 3200
Sector: semiconductor
Location: outskirts of Villach
Country: Austria
Implementation body: Infineon Technologies Austria AG – Mobility Team of 8 employees from various departments and varying from senior managers to shop-floor employees. The team is led by the company’s mobility manager.
Level of implementation: site specific with a positive impact for the local community in general
Topic: company mobility management
Target group/s: Company employees
Stakeholders involved: a variety of stakeholders including
- Company board
- Employees
- City administration
- Regional government
- Public transport operator
- Tourism union / city and region marketing
- Companies in the area

Introduction

In 2016 Infineon Technologies Austria AG launched the mobility management initiative “Green Way” in order to promote sustainable mobility and reduce the company’s negative environmental impacts from employees’ home-work trips. A mobility survey and an analysis of the employee’s residential location was carried out at the beginning of the project that provided useful insight on the mobility habits for home-work trip (Wukovitsch, 2018):
• 65% of the employees travelled to work by car due to inadequate public transport connections, long commuting distances, shorter travel times, perceived lack of alternatives;
• only 25% of the employees live within a radius of 5km from the company, around 50% lives within a 10km radius and more than 20% over 30km away;
• a considerable number of employees were willing to carry out at least part of their home-work journey by bike.

This information formed the basis for the development of the “Green Way” measures.

Objectives
• Create attractive and sustainable alternatives to single occupancy home-work car trips that are available all year round.
• Reduce the CO2 emissions from home-work trips and comply with the Company’s commitment to sustainable growth.

Measures implemented
Mobility management at Infineon is a dynamic activity that evolves through the years in order to better meet the needs of the employees. In fact, the Mobility Team has regular meetings (once every two weeks) in order to discuss the development and implementation of mobility measures.

Mobility measures that have been implemented in order to facilitate and promote sustainable mobility include:

• Public transport:
  o improvement of the public transport connections: since September 2017, there are two bus connections between the company and Villach’s city centre with a 15-minute frequency on two different bus routes;
  o promotion of public transport through economic incentives: since March 2019 the company offers free annual public transport tickets to the employees that request them,
  o continuous collaboration with the city government and the local public transport operator in order to further improve the connections with the different parts of the city and increase the number of employees for which public transport presents a valid alternative to car.

• Cycling:
  o upgrading of bicycle parking facilities: total of 800 parking spaces available, with further cycling parks in plan;
  o creation of a covered multifunctional service station for bicycles;
  o financial subsidies for the purchase of e-bikes;
  o talks with the city government for the creation of bike lanes.

• Carpooling:
  o reserved parking spaces for carpoolers: 100 spaces with direct access to the company’s building;
  o access to visitor parking spaces for employees that carpool to work;
  o carpooling app “TwoGo” to facilitate employees in offering and finding a ride. Infineon has promoted the app to other local companies and at a city level in order to increase the number of users and, thus, the formation of carpooling groups.
Mobility Management: a best practice guide

• **Electric mobility:**
  o creation of parking spaces with charging points for electric cars with a plan to further expand them;
  o raising awareness on electric mobility.

• **Smart working:** employees can be offered the possibility to work from home for a number of days per week - max. up to 20% following approval by the group manager.

• **Communication and visibility:** communication and visibility of the measures implemented are an important part of the “Green Way” programme. Since the beginning, all the above measures were accompanied by a number of communication activities including the creation of a visual identity for the project (e.g. logo), development of a motto (e.g. Take the Green Way), e-newsletter, communication messages on screens, emails etc.

• **Miscellaneous measures:**
  o encourage employees to live in Villach in order to shorten home-work distance: Infineon participates at the welcome2villach.at platform and in the development of measures to increase the attractiveness of the city (including transport planning approaches, public transport improvements and creation of new cycle paths);
  o participation in the EU project STEVE\(^1\), one of the objectives of which is the development of an e-bike and quadricycles sharing system.

Note: Infineon is currently expanding its Villach site with a new factory and office buildings. During construction works, challenges could arise for certain mobility measures, e.g. carpooling reserved parking spaces, nonetheless the Mobility Team follows a very flexible approach that allows it to adapt to changes and continue the “Green Way” programme without major alterations.

**Results**

The amount of car trips fell from 76% to 50%, therefore 50% of employees commute with sustainable modes of transport and the ongoing efforts continue to increase this percentage with a particular focus on public transport.

![Modal Split 2019](image)

*Source: Felsberger, Matthias (2019). Infineon Case Study v3 [email to I.Lepinioti], 15/05/2019*

**Success factors**

• Company board supported the “Green Way” initiative from the beginning.
• Identification of transport solutions that meet the needs of the employees.

\(^1\) [http://www.steve-project.eu](http://www.steve-project.eu)
• Good communication and information campaign targeted at the company employees.
• Visibility of the mobility measures at a local and national level.
• Close collaboration with the local stakeholders.

The success of Infineon’s “Green way” initiative was recognised at national level when in 2018 the company won the VCÖ² - Kärnten Mobility Award and the Austrian VCÖ award in the category “workplace and education”.

**Barriers & Obstacles**

The greatest barrier encountered is the change of travel behaviour towards sustainable modes of transport was the general pro-car mindset among employees and society as a whole.

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²The VCÖ is Austria’s biggest competition for sustainable mobility carried out in cooperation with the Ministry for Transport, the Ministry of Sustainability and the ÖBB.
Mobility Jackpot (or Lottery) at Seewer AG (Burgdorf, Switzerland)

A simple game can shift 4% from car to bike

How a lottery can transform a trip into a game and challenge workers for change. The success of Seewer AG.

- **Company**: Seewer AG
- **No. of employees**: 200
- **Sector**: Bakery machine factory
- **Location**: Burgdorf
- **Country**: Switzerland
- **Implementation body**: Seewer AG in collaboration with Büro für Mobilität AG
- **Level of implementation**: site specific
- **Topic**: home-work mobility
- **Target group/s**: employees
- **Stakeholders involved**: Company management, Employees

**Introduction**

Mobility Jackpot is a communication campaign tool that aims to promote sustainable mobility among employees. It is based on the idea that employees who travel to work by sustainable modes of transport, e.g. on foot, bike, public transport, carpooling, have the opportunity to win a sum of money every week. In this way positive mobility habits are rewarded, encouraging employees to rethink and eventually shift to more sustainable modes of transport for their home-work trip.

The Mobility Jackpot was implemented at Seewer AG in the early 2000’s and it has been adopted by various other companies and local authorities in the past years as it is a fun way to raise awareness on sustainable mobility habits among employees.

**Objectives**

- Encourage employees to use sustainable modes of transport for their home-work trips.

**Description of the measure**

The Mobility Jackpot implemented at Seewer AG worked in the following way (Mobilservice PRATIQUE, 2007):

- CHF 50 was placed in the Mobility Jackpot every week;
- once a week on a random day an employee was selected arbitrarily;
- he/she was asked what mode of transports he/she used for reaching the workplace that day;
- he/she won the Jackpot if the trip was carried out by a sustainable mode of transport, that is on foot, cycling, public transport and carpooling, and was offered the amount of money in cash;
• if he/she had reached the workplace alone by car the money remained in the Jackpot and was added to the sum of the following week. The Jackpot prize could reach considerable amounts when nobody hit the Jackpot for a number of weeks in row.

The higher the amount of money in the Mobility Jackpot, the higher the propensity of the employees to travel to work by sustainable modes of transport.

Results
A survey carried out before and after the implementation of the Mobility Jackpot showed (Mobilservice PRATIQUE, 2007):
• a modal shift of 4% from car trips to cycling;
• 16% of employees had questioned their choice of transport mode during the Mobility Jackpot.

Success factors
• The Mobility Jackpot raises interest on mobility behaviour, which in the case of Seewer AG became a topic often discussed by the employees.
• It is a fun way to raise awareness on sustainable mobility.
• It rewards those who adopt a sustainable mobility approach.
• A low-cost measure that can be modified according to the company’s objectives.

Barriers & Obstacles
• Sustainable modes of transport should be a valid alternative to the private car for reaching the company.
• In order to have a long-lasting impact on the mobility behaviour of the employees it is important to have the measures in place for long periods and, preferably, the Mobility Jackpot should be part of the company’s mobility plan.
Ropka tööstusrajoon a Public – Private Partnership for Mobility Management (Tartu, Estonia)

Creating a Culture of Sustainable Mobility in a medium sized town

The cooperation between the city government and private companies has been the key element to raise awareness and have a positive influence on mobility behaviour.

**Industrial zone:** Tartu Ropka tööstusrajoon  
**Location of the event:** Tartu  
**Country:** Estonia  
**Implementation body:** City of Tartu  
**Level of implementation:** site specific  
**Topic:** home-work mobility  
**Target group/s:** employees and visitors of the industrial zone  
**Stakeholders involved:**  
- Tartu city administration and planners  
- Transport experts  
- Public transport operator  
- Representatives of the companies located at the industrial zone  
- NGOs

**Introduction**  
The industrial zone of Ropka tööstusrajoon is situated 5 km away from the centre of Tartu. It hosts more than 450 small and medium enterprises (SMEs) and commercial activities and is the work destination of around 3300 employees. In addition, every day it receives around 6500 visitors.

The presence of a high number of SMEs and commercial activities, with differing work schedules, that do not perceive a clear economic/marketing benefit from implementing mobility measures, and the lack of a management body responsible for the accessibility of the industrial area, meant that there was a lack of spontaneous interest in mobility management. In response to that the Municipality of Tartu, with the support of the EU project MoMa.BIZ\(^3\) and in collaboration with the representatives of the companies, developed and implemented a mobility plan for Ropka tööstusrajoon.

**Objectives**  
- Improve the sustainable mobility options to and from Ropka tööstusrajoon.  
- Reduce the number of employees going to work by car and, thus, decrease the environmental impact of home-work mobility.  
- Promote a Public-Private Partnership approach for the creation and implementation of a realistic and commonly-agreed mobility plan.

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\(^3\) MoMa.BIZ – Mobility Management for Business and Industrial Zones [http://moma.biz/](http://moma.biz/)
Measures implemented

Background work:

- Creation of a local mobility group – the group involved local stakeholders such as NGOs, transport experts, local administration, representatives of the companies, etc. Its aim was to analyse the mobility situation of the industrial area and develop a mobility plan.
- Audit of the walking and cycling conditions between the town and Ropka tööstusrajoon.
- Desktop research on flexible transport best practices.
- Organisation of training sessions on mobility management for the creation of a culture on sustainable mobility among local stakeholders.

Planning and implementation of mobility management measures:

- Development of a Mobility Plan for Ropka tööstusrajoon that focused on three areas:
  - Improvement of public transport
  - Improvement of cycling and walking conditions
  - Awareness raising campaigns and activities for the promotion of sustainable modes of transport
- Implementation of the Mobility Plan:
  - Public transport: improvement of the timetables and comfort of public transport, as well as dissemination of information on the lines connecting the industrial area with the city.
  - Feasibility study on flexible transport.
  - Cycling and walking: safer infrastructures for cyclists and pedestrians, installation of bicycle stands.
  - Awareness raising campaigns: collaboration with NGOs, local and state authorities, preparation and dissemination of an accessibility map for sustainable modes of transport, organisation of a mobility competition among the employees of the industrial area.
  - Distribution of mobility information packages to new employees in the zone: promotion of a sustainable mobility mentality by supplying the new employees who are unfamiliar with the local transport offer with information on alternative modes of transport.

Results

- Better overall accessibility of the industrial area and in particular with sustainable modes of transport.
- Raised awareness among employees over the different transport modes available for reaching the industrial area and modal shift in favour of sustainable modes of transport.
- Creation of a sustainable mobility culture among the local stakeholders, i.e. local authorities, companies, local planners, engineers, transport specialists, architects, etc.

Success factors

- Local mobility group – this public-private partnership was central to the creation of a commonly-agreed mobility plan.
- Creation of a realistic mobility plan that had the support of local stakeholders.
- Participation at a European project on mobility management that allowed for the exchange of know-how and expertise on mobility management.
Barriers & Obstacles

- High number of SMEs and commercial activities present at the industrial area.
- Lack of sustainable mobility culture among local stakeholders.
Mobility Management at the Parque Tecnológico de Andalucía (Malaga, Spain)

Increasing the transport options for 16,774 employees

The mobility management initiative of the Parque Tecnológico de Andalucía has improved the travel conditions of the employees of 600 companies.

**Business area:** Parque Tecnológico de Andalucía  
**City:** Malaga  
**Country:** Spain  
**Implementation body:** Management body of the Parque Tecnológico de Andalucía  
**Level of implementation:** site specific  
**Topic:** home-work mobility  
**Target group/s:** employees and visitors of the Parque Tecnológico de Andalucía  
**Stakeholders involved:**  
- Management body of the Parque Tecnológico de Andalucía  
- Malaga city administration  
- Regional government  
- Public transport operator

**Introduction**  
The Parque Tecnológico de Andalucía (PTA) is located 13 km west of Málaga and 6 km from the Málaga International Airport. At the moment over 600 companies are located at its premises with more than 16,774 employees, meaning a significant number of trips are made to the PTA area (PTA website). Therefore, a mobility management programme was necessary in order to offer valid alternatives to the private car and limit the number of single occupancy trips to and from its premises.

The mobility management plan was an initiative of the PTA’s management body, and the measures implemented affect the mobility behaviour of the employees of all the companies located at the site.

**Objectives**  
- Provide a variety of transportation options for employees and visitors in order to improve accessibility while tackling traffic and parking issues.

**Measures implemented**  
- **Public transport:** PTA is connected with Malaga with two bus lines with a frequency of 10 to 15 minutes. That was achieved thanks to the lobbying activity of PTA aimed at convincing the public transport operator to improve bus connections between PTA and Malaga.  
- **Free bike loan system on site:** PTA offers a free bike loan system to all its companies with the aim of facilitating mobility within its premises. Companies have to register in order to make use of the system and pay a deposit of € 50 per bike. In that way their employees can
use the bikes free of charge for moving within the Park. Registration to the bike loan system is annual and it is renewed automatically unless cancelled.

- **Carpooling**: in order to facilitate and promote carpooling among people that travel to and from the site, the PTA adopted an interactive carpooling matching tool. Employees working at the site can register and connect with other employees that are looking for or are offering a ride.

- **A Mobility Centre** at PTA provides information and promotes the different modes of transport for reaching the site. It also collects transport related requests and suggestions from the site companies and employees with the aim of improving mobility at the PTA.

- Clear information on the different modes of transport available for reaching PTA is also available to visitors through PTA’s website.
Labelling at the service of mobility

How Mobility Labelling can be of great use to the development of a Mobility Management Plan.

Industrial area: Factory for Non-Ferrous Metals in Plovdiv
City:  Plovdiv
Country: Bulgaria
Implementation body: Factory for Non-Ferrous Metals in collaboration with the Energy Agency of Plovdiv
Level of implementation: site specific
Topic: home-work mobility
Target group/s: employees and visitors of the Factory for Non-Ferrous Metals

Stakeholders involved:
• Management of the Factory for Non-Ferrous Metals
• Employees
• EAP – Energy Agency of Plovdiv

Introduction
The Factory on Non-ferrous Metals (FNM) is a corporation of 10 companies situated 10km south of Plovdiv (the second largest Bulgarian city). It covers an area of 0.9km² and has approximately 2,500 employees, 90% of which are factory workers and 10% administration staff. In addition, it receives around 2,700 visitors per year, mainly students and interns, that represent 12-15 % of the people flow.

Although FNM is easily accessible by public transport, car, and motorbike (the last one in good weather conditions), there were still mobility issues on site including:
• low quality of the public transport service;
• inadequate parking management with parking area being overcrowded;
• lack of carpooling culture;
• lack of bike lanes to and from the site rendering cycling to work dangerous;
• flexible working hours or teleworking not available to administration staff.

It should be noted that FNM has a centralised management that is responsible for the development and the implementation of policies at its premises.

Objectives
• Improve and promote sustainable mobility options to, from and within the site.
• Decrease the number of home-work trips carried out by car.
Mobility Management Actions

FNM collaborated with EAP within the framework of the EU project MoMa.BIZ, and following the Mobility Labelling\(^4\) methodology proposed by the project produced a mobility plan entitled “Transport and Mobility Improvement Plan”, which focused on the following areas:

- Improvement of public transport connecting the site with the surrounding areas;
- Setting up and promotion of carpooling;
- Introducing a parking management scheme;
- “Greening” of deliveries within the site;
- Raising awareness on sustainable mobility.

Measures implemented:

- Definition of new quality tender obligations for the transport operators and improvement of existing bus stops. It should be noted that public transport is organised and co-financed by FNM.
- Development and dissemination a Parking Management Map allocating special spaces to carpoolers and bikes.
- Facilitation and promotion of carpooling through:
  - an online platform for bringing together employees interested in carpooling;
  - reserved parking for carpoolers;
  - guaranteed ride back home.
- Introduction and test drive of cargo bicycles for deliveries within the FNM site. They serve a dual purpose:
  - facilitate greener deliveries within the site;
  - encourage employees to consider cycling for their trips.
- Awareness raising:
  - Information campaign highlighting to the employees the benefits of using sustainable transport.
  - Use of MoMa.BIZ’s Mobility Labelling tool for the promotion of sustainable mobility as well as promoting a green image for FNM. In particular, the mobility situation at FNM was evaluated before and after the implementation of the mobility plan by using the Mobility Labelling tool. The tool indicated a net improvement in the sustainable mobility options since FNM passed from Class B to Class A thanks to the measures implemented.
  - Organisation of an information day at FNM that included:
    - presentation of the Transport and Mobility Improvement Plan to the employees;
    - individual trip advice for employees;
    - dissemination of transport related information material;
    - the Green Label Award Ceremony during which FNM was awarded with an “A Class” Mobility Label Certificate;
    - press conference.

Results

- The first industrial area in Bulgaria to develop a Mobility Management plan.
- Improvement of the mobility situation at FNM which is also certified by the Mobility Labelling tool.

\(^4\)MoMa.BIZ Mobility Labelling  [http://moma.biz/et/documentation/mobility-labelling](http://moma.biz/et/documentation/mobility-labelling)
Success factors

- Interest and support of FNM’s Senior Management to the mobility plan and sustainable mobility initiatives.
- Creation of a common vision regarding sustainable mobility at the FNM site by triggering dialogue regarding the needs of the businesses and their employees.
Mobility management at a Science and Innovation Park - Skolkovo Foundation (Moscow, Russia)

Site specific mobility management with an innovation campus

Planned public transport, cycling and electric mobility measures conceived within the framework of Skolkovo’s mobility management plan could have a potential impact on the surrounding community.

Location: Mozhaysky District of Moscow
Country: Russia
Implementation body: Skolkovo Foundation
Level of implementation: site specific
Topic: home-work mobility
Target group/s: employees of the companies located at the Science and Innovation Park

Stakeholders involved:
- Companies located at the Park
- Employees
- Local authority
- Local public transport operator
- Car sharing provider
- Investors

Introduction
Skolkovo is a research and innovation park located at the Mozhaysky District of Moscow. Companies in the fields of IT, Energy Efficiency, Nuclear Technologies, etc. are present in the Park and, therefore, it is the destination of numerous employees. Sustainable mobility has been part of the Park’s development plans and, within the framework of its Green Code. More specifically, Skolkovo intends to prioritise the following modes of transport for the people working at its premises (listed in order of priority):

- pedestrian
- cyclist
- public transport
- individual transport

Objectives
- Reduction of the energy consumption for home-work trips
- Ensure that the existing parking spaces at 11 entrances meet Skolkovo’s needs
- Improving of infrastructure beyond Skolkovo for electric cars

5 Green Code is a document that collects rules and urban development standards and contains requirements that must be met when developing urban planning documentation. Its purpose is to guarantee that Skalkovo is an environmentally friendly development with respect to the natural and social environment as well as the economy.
• Improving public transport: the authorities are considering higher frequency and establishment of new routes

Measures implemented
• Promotion of electric car sharing: collaboration with car sharing services such as Belkar, Delimobile, YouDrive (electric cars)
• Infrastructure adapted for high percentage of non-car-using employees (bicycle lanes, bike/scooter stations, parking places)
• Promotion of cycling
• Bike sharing: a bike sharing service is available with a monthly cost of a bike on the territory of Skolkovo is 566 Russian rubles (7.85 euros)
• Parking management: employees driving diesel cars cannot access the Park
• Eco-friendly corporate transport services (buses)

Planned measures (Baklanov, 2018)
• An important milestone regarding transport infrastructure for Skolkovo is the railway hub, which should be completed in mid-2019. It will be possible to reach the Park from the railway station on foot via a covered pedestrian street (more than a kilometre long), or by renting a bike or scooter through the cycling network.
• Access by car will still be possible in the future, however, parking spaces will be limited (11,200 places for an estimated 50,000 employees and residents) and parking fees high (parking will cost approximately 12,000 of Russian rubles per month (about 166 euros6) against 7.85 euros for a monthly bike rental).
• Infrastructure will be adapted for high percentage of electric-car-using employees (special lanes on the roads, recharge stations, parking places)
• Connect Skolkovo, through a network of bike lanes, with the city centre of Moscow.

Expected results
• Shift from motorised individual transport to more sustainable modes of transport.
• Reduction in the CO2, thanks to the reduction of motorised individual transport for homework trips.

Success factors
• Mobility management is an integral part of the Skolkovo’s environmental management process: Green Code.
• The rules apply to all the employees.
• Some of bike sharing services and electric taxies were developed right at the Skolkovo Park, and technologies continue to improve.

Barriers & Obstacles
• Poor infrastructure for sustainable mobility around Skolkovo

6 Exchange rate of 29/04/2019
3.2 Home-School Mobility

Mobility Management at campuses – the case of Camosun College (Victoria-British Columbia, Canada)

-14% vehicle use for home-work/college trips

Mobility Management has led to a steady decrease in vehicle use among Camosun College staff and students.

**Campus:** Camosun College  
**City:** Victoria, British Columbia  
**Country:** Canada  
**Implementation body:** Camosun College  
**Level of implementation:** site specific  
**Topic:** home-work & home-school  
**Target group/s:**  
- staff  
- students  
- visitors

**Stakeholders involved:** stakeholders involved include  
- Camosun College  
  - the Director of Ancillary Services.  
  - the Manager of Environmental Sustainability  
  - the Transportation and Parking Management Advisory Committee  
  - Human resources  
  - Unions  
- TPM Advisory Committee  
- CRD Regional Transportation Planning;  
- Local and provincial governments  
- Neighbourhood associations  
- BC Transit

**Introduction**

Camosun College has around 1,200 staff and approximately 10,000 full time students who are distributed between two campuses, Lansdowne and Interurban (Camosun College, 2013).

Transportation and parking challenges led to the development of Camosun’s College “Transportation and Parking Management Plan” in 2009, which provided an insight of the transport situation and issues at the time and set out clear objectives and recommendations. Since then the College, is regularly preparing and implementing three year working plans that include mobility management measures aimed at achieving these objectives.
Objectives
Camosun’s College overarching goal is to provide “convenient, environmentally responsible and affordable access to the College’s campuses”. In order to achieve this, its “Parking & Transportation Demand Management Plan” identifies the following objectives (Camosun College, 2013):

• Reduce parking demand and the total number of motor vehicles – especially single occupancy vehicles – driven to campus.
• Increase use of alternative transportation modes to the college.
• Provide funding for parking maintenance, alternative transportation, and other college programs.
• Accommodate additional campus development, minimize impervious surfaces and preserve green space.
• Support regional and provincial goals towards transportation demand management and reduction of Green House Gas (GHG) emissions (help achieve British Columbia greenhouse gas (GHG) emission reduction targets).

Measures implemented
The measures implemented since 2009 have led to an improvement and a greater variety in the transport options available for reaching the campuses and, thus, the improvement of their overall accessibility. More specifically, the campuses can be easily reached on foot, by bike, public transport, car and carpooling, and there is also a free shuttle service connecting the two campuses. This best practice is focusing on the measures implemented for increasing cycling trips and reducing parking demand and the number of vehicles, especially single occupancy vehicles, driven to campuses.

Facilitate and promote cycling:
• Bike Fix-it Stations (one at each campus):
  o they offer cyclists the possibility to make basic repairs and maintenance of their bikes. They are equipped with a basic repair stand, durable air pump, basic tools and a hanger arm that allows for suspending bikes so the wheels and pedals can spin freely while making adjustments;
  o extra assistance is available through a database of repairs that offers detailed instructions on fixing bikes, this is made available on smartphones by scanning a Quick Read (QR) code on the front of each fix-it stand.
• Showers & Change Rooms:
  o students and staff have free access to change rooms, showers and day use lockers. There is also a towel service, available for small monthly fee.
• Lockers:
  o lockers are also available for rent for those that need a secure space to keep their stuff, and they are positioned at convenient locations throughout campus.
• Bike parking: there are three options for parking bikes:
  o outdoor bike racks: free of charge bike racks located throughout the campuses;
  o secured bike parking that is available for a fee of $5.50/month;
  o a limited number of individual bike lockers available for rent on a monthly or six-month basis.
• Cycling maps and routes are readily available to download at the College’s website.
• Events: promotion of cycling to the campuses through dedicated cycling events such as Bike to Work (& School) Week (May/June) or the Nasty November Cycling Challenge.
Reduce parking demand and the number of vehicles, especially single occupancy vehicles, driven to campus:

- **Carpooling**: dedicated parking spaces reserved for carpoolers until 9am.
- **Car sharing**: partnership with car sharing operator Zipcar to bring self-service, on-demand car sharing to the campuses.
- **Parking**: elimination of free parking at the campuses and collaboration with Honk Mobile to offer a pay-by-phone parking app in order to facilitate payment of the fees.
- **Park & Ride program**: free parking is available for students at Tillicum Mall in Victoria from there the College campuses can be reached by public transport, bike, or carpooling.
- **Communication and promotional events**, e.g. National Ride-Share Week and Car Free Day celebration (2012).

In addition, the College is developing a teleworking policy and programme in order to increase its use and uptake by staff.

**Results**

Some of the results obtained since 2009 include (Camuson College Website, 2019):

- Decrease in single occupancy vehicles from 5.4% in 2010 to 3.8% in 2012
- Decrease in vehicle use from 63% in 2008 to 56% in 2010 to 49% in 2013
- Successful lobbying for better transit service, access to campus and bicycle lane infrastructure.
A comprehensive approach to mobility management for home-school trips (Reggio Emilia, Italy)

A Mobility Manager present in 72% of the schools

The comprehensive approach of the city of Reggio Emilia for home-school trips is influencing the mobility behaviour of 72% of its schools.

City: Reggio Emilia
Country: Italy
Implementation body: City administration in collaboration with the different stakeholders
Level of implementation: city level
Topic: Home-school mobility management
Target group/s:
- Students
- Teachers
- Parents
- Citizens in general
Stakeholders involved:
- City administration
- City boroughs
- Provincial School Office
- Heads of schools
- Reggio Emilia Mobility Agency
- Italian Federation of Paediatricians
- Arpa – regional agency for environmental protection
- Ausl - local health authority
- Road Safety Observatory
- Cycling association "Tuttinbici-Fiab"
- Students
- Parents

Introduction
When it comes to home-school mobility management the Municipality of Reggio Emilia has followed a comprehensive approach that involves a variety of stakeholders, clear objectives and allows for the co-creation of actions plans and projects. More specifically, in 2009 the Municipality launched the “Manifesto for safe, sustainable and autonomous mobility for home-school journeys”. Since the signing of the “Manifesto” a number of projects have been carried out with the aim to promote home-school trips which are more autonomous, sustainable and safe (Pellegrini, 2018).

Objectives
Ensure that going to school without the car and with friends becomes a consolidated habit and an opportunity to improve:
- health,
- safety,
• environment,
• autonomy,
• social interaction,
• schools and the local area.

Specific targets:
• Reduce road accidents and traffic near schools.
• Double the number of children going to school with sustainable modes of transport.
• Each school has a mobility manager.

Measures implemented
The measures implemented fall under six lines of action (Pellegrini, 2018):

1. **Education:**
   • promote better and healthier lifestyles and raise awareness on environmental issues;
   • raise awareness and educate children on sustainable mobility.

2. **Communication:** ensure that drivers and road users respect road traffic rules.

3. **Promotion:**
   • provide the opportunity for students to experience sustainable modes of transport during the home-work trip;
   • incentivise the participation at sustainable mobility projects.

4. **Safety:** ensure more safety on main home-school routes and around schools;

5. **Services:**
   • provide and promote collective modes of transport, e.g. school bus, carpooling
   • promote non-motorised modes of transport, e.g. walking and cycling

6. **Planning:**
   • sustainable mobility should be at the centre of planning - develop a safe network for vulnerable users;
   • consider mobility issues when designing new schools.

The city of Reggio Emilia has implemented a number of projects within the framework of its Manifesto, the most important ones include:

- **School Mobility Manager (SMM):** s/he is the school representative regarding mobility and can:
  - act as a spokesman for the school’s mobility issues and demands;
  - receive and propose initiatives regarding sustainable mobility education;
  - encourage safe and sustainable modes of transport;
  - provide a continuous communication channel between the school and the Municipality.

- **BiciBus** (bike bus) and **PediBus** (walking bus): groups of children travelling to school by bike and on foot respectively, accompanied by volunteers (parents, teachers, etc.) along pre-established routes.

- **Mobility experiences for day nurseries and nursery schools:** provide nursery schools with balance bikes in order to give the opportunity to children between 2-6 years to learn how to balance on a bike. As a result, Primary School children are able to ride a bike.
• **Shared use of public spaces**: a series of initiatives aimed at promoting the use of spaces near schools in a shared and safe way. Three main lines of action:
  o traffic calming and infrastructural improvement of the areas surrounding the schools;
  o temporary car free zones at the beginning and end of the lessons;
  o clearly marking the presence of schools outside the school yards and on the roads that serve the schools, this is achieved by the co-creation of “Urban Tattoos”, that is designing and painting with the children relevant designs on the streets.

• **Collaboration with paediatricians**: local paediatricians participate at public events and school meetings, and have direct contact with individual parents in order to raise awareness of the importance of daily activity for the healthy growth and development of children.

**Results**
The following data refer to the school year 2017/2018 and represent some of the results achieved so far:

- 72% of the schools have a Mobility Manager
- 12% of schools have a bike and/or walking bus programmes
- Shared use of public spaces: 5 “school streets” have been established that cover 17% of the city’s student population

In 2014 and 2019, 99 balance bikes were distributed to a total of 34 nursery schools and kindergartens.

**Success factors**
- The adoption of a comprehensive and interdisciplinary approach regarding home-school mobility, and incorporating it in the city’s framework of Mobility Governance.
- Sharing of lines of actions and projects with relevant stakeholders.
- Possibility to have access national funding thanks to this interdisciplinary approach and collaboration with stakeholders.
- Flexibility in the implementation: since 2009 when the Manifesto was launched a variety of mobility management initiatives have been implemented, some of them throughout the years, others were ceased and new ones adopted.
- When possible, testing mobility initiatives initially in order to allow for changes and for understanding their real impact.

**Barriers & Obstacles**
- The limited human resources available within the Municipality for the implementation of the Manifesto.

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7 Source: Degl’Incerti Tocci (2019). Re: Manifesto - Informazioni aggiuntive [email to I.Lepinioti], 15/05/2019
A successful School Travel Plan (West Midlands, UK)

Car use for home-school trips more than halved

How mobility management at schools can result in a significant reduction of car use from home-school trips. The success story from West Midlands (UK).

**Name of school**: not available  
**Type of school**: Rural Primary School  
**Region**: West Midlands  
**Country**: UK  
**Implementation body**: Headteacher in collaboration with teachers, parents and volunteers  
**Level of implementation**: site specific  
**Topic**: Home-school mobility management  
**Target group/s**: school children and their parents

**Stakeholders involved**:
- headteacher  
- teachers  
- pupils  
- parents  
- school travel adviser

**Introduction**
This example is related to a primary school located in a rural area in West Midlands, UK. At the time of the initiative the school had between 120 and 150 pupils (aged between 3 and 11 years) the majority of which were driven to school by their parents, resulting in traffic and parking problems in the school area.

**Objectives**
- Encourage the use of more sustainable modes of travel for home-school trips.  
- Obtain an Eco-School status

**Measures implemented**
- “Walk to School Week” prior to the development of the School Travel Plan (STP) with the aim to encourage pupils and parents to participate in walking initiatives and then get involved in the development of the STP.  
- STP development - this process involved:  
  - an analysis of the origin of the pupils with the help of postcodes;  
  - survey targeted to parents in order to identify mobility issues;

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8 The figure of the School Travel Adviser was created during the “Travelling to School Initiative” and its role was to develop, promote and coordinate the delivery of School Travel Plans, and provide support to schools to assist the implementation of actions and initiatives resulting from them.  
9 [https://www.eco-schools.org.uk](https://www.eco-schools.org.uk)
o survey targeted to pupils collecting information on current and preferred modes of travelling to school;
o review of best practices regarding Walking Buses;
o continuous communication with the parents;
o implementation of two Walking Buses.

- Following the development of the STP the school implemented the following initiatives:
o Walk on Wednesday scheme that led to the development of two Walking Buses;
o Park and Stride scheme: pupils living outside the village could be dropped off at the village hall and walk to the school for part of the Walking Bus route;
o pedestrian and cycling training for year 3 and 4 pupils and distribution of badges and cards encouraging children to walk and cycle to school;
o organisation of wider community meetings providing information on the initiatives introduced;
o communication: articles in the weekly school newsletter to parents with information and updates on initiatives.

Results
Following the implementation of the STP the school managed to achieve an important modal shift, that is a considerable reduction in car use from 49% in the school year 2006/07 to 22% in 2008-2009.

The greatest contribution to this modal shift was by the Walking Bus initiative that was initially introduced once per week and was gradually extended to every day with approximately a third of the children participating.

Success factors
- Involvement and continuous communication with the parents.
- Support received from the School Travel Adviser including ideas and resources.

Barriers & Obstacles
- Parents’ reluctance to stop driving their children to school and allow them to carry out the trip on foot or bike.
- Convenience issue related to both parents’ and pupils’ lifestyles, e.g. working hours, after school activities, etc.
3.3 Mobility Management for Major Events

**Mobility Management for the U2 and Coldplay 2017 concerts in Brussels (Brussels, Belgium)**

**Sustainable modes of transport preferred among concert fans**

Obtaining incredible mobility results for three consecutive concerts in Brussels that attracted around 50,000 fans each.

**Event:** U2 and Coldplay 2017 concerts in Brussels  
**Location of the event:** King Baudouin Stadium (around 6km from the Brussels city centre)  
**Country:** Belgium  
**Implementation body:** Event organiser with the support of Scelta Mobility, a mobility consultant firm, and in collaboration with the different stakeholders  
**Level of implementation:** mobility measures at city level whereas communication activities at a greater level  
**Topic:** mobility management for major events  
**Target group/s:** U2 and Coldplay fans attending the concert  
**Stakeholders involved:**
- Event organisers
- Mobility consultant
- City of Brussels
- Police
- Public transport providers in Brussels
- Railway operator

**Introduction**

The 2017 U2 and Coldplay concerts in Brussels were a music event of national importance that attracted thousands of visitors from all over the country. Considering King Baudouin Stadium’s capacity of 50,000 and the limited parking spaces available (from 10,000 down to 6,250 at the time due to construction works), the risk of traffic problems and car parking chaos in the concert area was rather high. In order to prevent this, the event organisers and their mobility consultants, in collaboration with local stakeholders, set up and implemented a series of mobility management measures aimed at facilitating and promoting sustainable modes of transport.

**Objectives**

- Avoid traffic congestion by creating alternative solutions to car use.
• Avoid parking chaos at the area surrounding the concert location by limiting parking demand.

**Measures implemented**
All the tickets for the three concerts were pre-booked which provided the event organisers with information on the post code of origin for all the fans attending the concert. This information allowed for the planning of a variety of mobility measures that were tailor made to the different areas of origin. The measures implemented included (Scelta Mobility, 2018):

- Establishment of night trains: night trains were organised for areas outside Brussels that had a high concentration of fans.
- Extension of the metro and tram services in Brussels in terms of frequency, capacity and timetables.
- Creation of Park & Ride services.
- Creation of guarded bike parking.
- Extra private parking places in presale.
- Communication:
  - clear and direct communication to the fans regarding the lack of parking spaces at the concert area.
  - targeted communication: mobility alternatives were communicated to the fans based on the mobility solutions available for their area of origin. This included information on public transport, cycling routes and parking areas, park and ride services, etc.
- Price setting: the price of the train ticket was lowered from €18 to €10 whereas the cost of parking was more expensive €20.
- Promotion of carpooling through the application “Eventpool”.

**Results**
At each one of the concerts the great majority of the fans reached the stadium using sustainable modes of transport (Backx, 2018):

- transport by bike: 1500
- train: 5,000
- city public transport between 16,000 and 20,000
- cars: 5500 on all parking lots (between 3200– 3700 cars per concert at the parking lots around the stadium)
- less than 3500 cars on the main parking lot

Obtaining these results for three consecutive concerts that attracted around 50,000 fans each, highlights the importance of mobility management in influencing mobility behaviour.

**Success factors**
- Good communication:
  - targeted mobility information to the fans based on their post code;
  - clear and direct message regarding the shortage of parking spaces.
- Event organiser interested on mobility and influencing the transport mode used of the audience to more sustainable ones.
- Construction works taking place at the stadium parking area at the time. This provided an excellent leverage for influencing the mobility behaviour of fans.
• The variety of solutions offered that allowed people to choose the perfect one for their case.
• Knowing the visitor: the fact that tickets were booked in advance provided useful information regarding the origin of the trips and thus allowed for a better planning of the mobility solutions and targeted communication.
• Stakeholder cooperation.
• Very good weather conditions during the concerts.

Barriers & obstacles:
• Convincing the event organiser to be clear and direct in its communication to the fans regarding the limited number of parking spaces available.
• The great variety of stakeholders (due to the complex political system in Brussels) that had to be involved in order to organise and implement the various mobility solutions.
• The stadium is adjacent to the Expo Site in Brussels that owns part of the parking spaces. It was not possible to obtain control of these parking spaces during the concerts and thus not possible to have a better control of the trips made by car.
Travel Demand Management at the London 2012 Olympic Games (London, UK)

Transport Demand Management for the smooth running of major events

How communication and relatively modest changes in behaviour could help make the most of the available capacity on transport networks. The case of the London Olympics.

Event: London 2012 Olympic Games
Location of the event: London
Country: UK
Implementation body: Transport for London
Level of implementation: national with particular focus on London
Topic: mobility management for major events - focus on information measures
Target group/s:
- spectators
- local citizens
- local businesses
Stakeholders involved:
- London Organising Committee of the Olympic and Paralympic Games
- Olympic Delivery Authority (ODA)
- Transport for London (TfL)
- Highways Agency
- Network Rail
- Department for Transport

Introduction
Transport is key to the success of an event such as the Olympic Games and vital for avoiding heavy disruptions to the normal “function” of a city. In the case of London, a city already characterised by an extremely high travel demand, the 2012 Games presented a great logistics challenge. A number of actions were undertaken, including hard (e.g. infrastructure) and soft ones (e.g. incentivising public transport use) and Travel Demand Management (TDM) was amongst them. TDM was undertaken in order to deliver a travel behavioural change in businesses and regular travellers and allow the transport system to run well during the Games.

Objectives (Transport for London, 2012a)
- Overall London 2012 Games objective: London 2012 to be the first 100% public transport and walking and cycling Olympic Games.
- TDM objective: provide robust and authoritative information to businesses, spectators and regular travellers to help them plan ahead and keep the system moving

Measures implemented (Transport for London, 2012a)
- Spectators:
London 2012 Spectator Journey Planner: a planner dedicated to the spectators of the Games. The planner was fed with journey patterns modelled to identify optimal routes from across London to all Games venues. Spectators were advised of routes that maximised available capacity, not necessarily the most obvious one.

- Public:
  - A nationwide publicity campaign was implemented to alert people to the situation during the Games including messages such as: “Cycling could be the quickest way during the Games” and “Walking part of your journey may be quicker during the Games”
  - GetAheadoftheGames.com, online platform that provided:
    - information about public transport hotspots across the UK;
    - alternative routes and options;
    - an interactive tool to help people understand changes on the road network.
  - Public messaging: transport related messages were delivered to the public before and during the Olympic Games through a variety of channels including ads on the radio, press, online and outdoors, leaflets, station posters, maps, website, social media, rail station big screens etc.

- Businesses:
  - 550 large businesses (600,000 employees) in locations affected by the Games were given direct planning support;
  - 3,000 businesses, in particular small and medium-sized enterprises, attended planning workshops;
  - a range of business planning toolkits were made available;
  - presentations, events, letters and advertising were used to inform businesses and ensure they could continue to operate during the Games.

- Freight operators:
  - freight forum led by business in order to identify key issues;
  - freight journey planner to help operators select compliant routes and avoid the busiest spots.

- Additional information through staff and volunteers: easy to identify staff and volunteers equipped with smartphones and tablets were located at key points of the transport network in order to assist travellers with transport information.

Results (Transport for London, 2012b)

- TDM contributed to the smooth running of the London 2012 Games, with around one third of Londoners reporting a change to their weekday daily travel during the Olympic Games.
- TDM during the Games proved a very important experience for TfL that has gathered important lessons for the management of the transport system following the Games:
  - communication and relatively modest changes in behaviour could help make the most of the available capacity on transport networks;
  - TDM could provide benefits during planned closures of the Tube or rail network for upgrade works;
  - the importance of digital and social media channels for the provision of real-time travel information and advice.
3.4 Sustainable Urban Logistics

The Beer Boat - waterborne last mile deliveries in Utrecht (Utrecht, The Netherlands)

**Fast, efficient and silent deliveries**

Utrecht using waterborne freight distribution for last mile deliveries in its city centre.

**City:** Utrecht  
**Country:** The Netherlands  
**Implementation body:** Municipality of Utrecht  
**Level of implementation:** City level  
**Topic:** Sustainable urban logistics  
**Target group/s:** Shops, restaurants, bars and commercial activities in general in the city centre  
**Stakeholders involved:**  
- City of Utrecht  
- Breweries  
- Catering industry wholesaler  
- Final customers: clients, shops, bars and restaurants in the city centre

**Introduction**

The city of Utrecht has a medieval city centre characterised by narrow streets and several canals. The local authority has been concerned about the negative impacts of freight distribution in the city centre including damage, blocking of streets due to loading and unloading, accidents, noise and air pollution (CIVITAS MIMOSA Project 2008-2012). As a result, over the years it has introduced different vehicle restrictions such as time windows for freight traffic to deliver goods and a low emission zone. Nonetheless, the most interesting measure towards this end was the introduction of waterborne freight distribution for last mile deliveries to the city centre.

**Objectives:**
- Decrease freight traffic in the city centre  
- Exploit waterborne freight distribution for ensuring goods accessibility in the city centre

**Measures implemented**

The Municipality of Utrecht introduced waterborne freight deliveries in its city centre in 1996. More specifically, it established the Beer Boat, a specially adapted diesel barge that carried out beer deliveries in bars and restaurants along the canals. This measure proved very effective in reducing the number of trucks and the related negative impacts at the city centre while it guaranteed the delivery of beer and compliance with labour laws (for carrying barrels and crates). Considering the results and following a market survey and feasibility study, the city of Utrecht introduced in 2010 an electrically-powered vessel (with auxiliary diesel engine) increasing in that way the load capacity while reducing air pollution. The load capacity of the vessel is 18 tonnes (BESTFACT, 2013).
Results (BESTFACT, 2013)
- Continuous operation from 1996 till today.
- Decongestion of roads in the city centre.
- Better air quality: the electric vessel has reduced emissions of CO2 by 17 tonnes, NOx by 35 kg and PM10 by 2 kg per year.
- Fast, efficient and silent deliveries.

Thanks to the success of the Beer Boat, in 2012 the Municipality of Utrecht, in a continuing effort to minimize negative impacts of heavy traffic in the city centre, introduced a second electrically-powered cargo vessel called ECOBOOT for the collection of waste from the city centre (Connecting Citizen Ports 21).

Success factors
- Existing vehicle restrictions at the city centre
- Cost and time efficient practice
- Reduction of transport costs
- Higher flexibility for deliveries as the delivery time window for the city centre was extended
- Informed decision making and business plan: market survey and feasibility study before the acquisition of the electrically-powered vessel

Barriers & Obstacles
- High original investment for the acquisition of the vessels.
Cubicycles for last-mile inner-city delivery (Frankfurt – Germany & Utrecht – The Netherlands)

**Innovation at the service of inner-city deliveries**

How standardised containers and customised electrically assisted cargo bicycles can contribute to zero emission urban last mile deliveries.

**City:** Frankfurt & Utrecht  
**Country:** Germany & The Netherlands  
**Implementation body:** DHL  
**Level of implementation:** City level  
**Topic:** Sustainable urban deliveries  
**Target group/s:** DHL inner city deliveries  
**Stakeholders involved:**  
- DHL – multinational package delivery and supply chain management company  
- Velove – producer of the Cubicycle  
- Local authority

**Introduction**

The delivery of goods and parcels by bike is a key factor in ensuring sustainable urban deliveries and is becoming increasingly popular thanks to:  
- zero energy consumption and zero emissions;  
- no limits in accessing city centres;  
- reduction of delivery trucks within cities.  

DHL is one the various multinational package delivery and supply chain management companies (e.g. UPS, Amazon, FedEx) that has been investing in cycle logistics projects for inner city deliveries. One of its latest successful pilots includes the use of City Hubs and Cubicycles in order to replace truck deliveries in city centres.

**Objectives**

- Increased use of cargo bikes for urban deliveries.  
- Minimize the company’s environmental footprint.  
- Support city governments’ efforts to promote sustainable cities.

**Measures implemented**

There are three important parts of the central part of the City Hub - Cubicycle project (DHL press release 10/03/2017):  
1) the use of standardised one cubic meter containers which match the dimensions of a standard shipping pallet (80x120x100);  
2) City Hub: a customized trailer which can carry up to four such containers;  
3) Cubicycle: a customized four wheeled electrically assisted cargo bicycle which can carry a container with a load of up to 125kg.
The delivery process (Deutsche Post DHL Group press release 03/01/2017):
- the containers are preloaded at a DHL operational site and loaded on the City Hub;
- a van delivers the City Hub at a designated area in the city centre;
- the containers are easily and quickly loaded on the Cubicycles;
- the Cubicycles carry out the last mile deliveries within the city centre;
- empty containers (possibly also with returns or picked up parcels) are returned to the City Hub;
- the containers are transported back to the operational site.

Results
- Reduction of emissions by minimizing the mileage and time spent on the road by standard delivery vehicles.
- Since the pilot in Frankfurt and Utrecht DHL has introduced this system in many other Dutch cities, i.e. Nijmegen, Alkmaar, Antwerp etc. (Erlandsson, 2017)
- Each City Hub can replace up to two standard delivery vehicles, with an equivalent CO2 saving of over sixteen tons per year and a significant reduction in other emissions. (DHL press release 10/03/2017)

Success factors
- The ease and speed with which the containers can be moved between the different modes.
- The possibility to transport higher volumes by bike.
- The cargo bike itself that despite the weight and volume of the container it can be easily manoeuvred, it does not impair the view for other cyclists and it self-powered through the use of solar panels.
- The possibility to equip the cargo bike with GPS or Internet of Things transmitters, to facilitate real-time shipment tracking and to ensure they can be monitored for security purposes.
- The reduced cost of ownership when compared to that of vans.
Cityporto of Padova - a successful urban distribution service (Padova, Italy)

-1,216 km per day for inner city deliveries

The successful and long-running urban distribution service that contributes to the reduction of air pollution in the City of Padova.

City: Padova
Country: Italy
Implementation body: Interporto Padova
Level of implementation: city level
Topic: sustainable urban deliveries
Target group/s:
- Freight transport operators and carriers
Stakeholders involved:
- Municipality of Padova
- Province of Padova
- Veneto Region
- Chamber of Commerce of Padova
- Local Public Transport Company (APS Mobilità)
- Interporto di Padova

Introduction
The Cityporto of Padova logistics scheme offers a last-mile delivery service in the urban area of Padova using an environmentally friendly fleet. The service was initiated in 2004, following the need of the Veneto Region to rationalise freight distribution and improve air quality in urban areas. It was actually the result of an agreement between the province, the municipality, Interporto Padova (a freight village at the outskirts of Padova), the local chamber of commerce and APS Mobilità, the local public transport company (Eltis, 2015).

Throughout the years, the Cityporto has proven a successful operation with a steady increase of urban deliveries and a considerable contribution in limiting air pollution in the city of Padova.

Objectives
- Rationalise urban deliveries and decrease their environmental impact in urban areas.

Description
The Cityporto of Padova is located at the Interporto Padova and consists of an urban logistics platform and a fleet of methane and electric vehicles. The model of the service is based on a voluntary subscription of freight transport operators and carriers. Those who join the service benefit from easier access to the city centre of Padova for last-mile deliveries since the vehicles used (Eltis, 2015):
- can access the city centre at any time and do not have to respect the time windows for deliveries set by the Municipality of Padova;
- have preferential lanes;
• are able to park inside the limited traffic zones at any time of the day.

In addition, the use of ITS for the management of daily deliverables guarantees high efficiency in urban deliveries in terms of vehicle loading capacity and number of delivery trips.

Results
• In February 2018 (Frigato, 2018):
  o more than 60 operators subscribed to the service;
  o more than 1 million of deliveries since 2004: 1,003,008 deliveries carried out from 2004 to February 2018.
• Decrease in the environmental impact of urban deliveries: the following results are based on a study carried out for the Italian Ministry of Environment on the Cityporto Activity over a 24-month period, 2008-2010 (Elitis, 2015):
  o reduction in the total number of km covered by freight vehicles: 561,400 km;
  o daily average reduction: 1,216 km/day;
  o access of some 100 pollutant vehicles (Euro 1 and Euro 2) to the city has been avoided every day resulting in an important overall reduction of pollutants:
    ▪ CO2: - 219 tonnes
    ▪ NOx: - 369 kg
    ▪ SOx: - 72,8 kg
    ▪ VOC: - 210,4 kg
    ▪ PM10: - 51,4 kg

Success factors
• Stakeholder involvement since the beginning allowing for the design of a commonly agreed service where public and private interests were taken into account.
• Support of the Municipality of Padova and presence of freight vehicle access limitations to the city centre.
• Industrial plan focused on economic sustainability.
• Voluntary subscription of the operators to the service.
• Attention on the economic sustainability of the project and gradual implementation of the activities.
• Management of the service by an independent entity, the Interoporto Padova SpA
• Strategic location of the logistics platform: at the outskirts of the urban area and easily accessed by the motorway
3.5 Parking Management

Parking management at Sihlcity (Zurich, Switzerland)

Only 33% of the trips to a retail centre carried out by car

How parking management in combination with mobility management can bring about significant results in favour of sustainable urban mobility. The successful case of Sihlcity in Zurich.

City: Zurich
Country: Switzerland
Implementation body: Sihlcity developers and management body
Level of implementation: site specific
Topic: parking management
Target group/s: visitors and people who work at Sihlcity
Stakeholders involved:
- Sihlcity developers
- Municipality of Zurich

Introduction
Sihlcity is a multifunctional development located in the southern part of Zurich, 2.5km from the city centre. The development was inaugurated in 2007 and includes a total of 97 businesses, the majority of which shops (75), cafés and restaurants (14) (Field, 2010). The site also includes a hotel, cinema, library, gym, medical centre and church. It is a major trip attractor in Zurich with 2,300 employees and an estimated 10,000 visitors per day, however, thanks to its parking management and the presence of public transport alternatives only a limited number of trips is carried out by car (EPOMM, 2013).

Objectives
- Limit the number of trips carried out by car at Sihlcity and, thus, prevent traffic congestion and air pollution.

Measures implemented
The site was originally a paper mill and in order for the developer to obtain planning permission for transforming it into a retail centre a number of restrictions to car access were imposed by the local authority. More specifically, the Sihlcity developers signed a contract that provided (EPOMM, 2013):
- financial contribution for better public transport;
- financing of access routes to the area;
- provision of at least 600 and at most 850 parking spots;
- paid parking;
- a maximum of 8,800 car trips per day to the location (and a penalty if the number is more than that);
• home delivery service.

As a result, the current parking situation is characterised by (ZVV website):
• limited number of available parking spaces: 850 in total of which 50 park & ride season spaces that can be used only by public transport season ticket holders;
• none of the parking spaces is allocated to the staff of the businesses on site;
• there is no free parking and parking fees are rather high: for example, the parking fee for 5hrs is 11 CHF\(^ {10} \) whereas a public transport single ticket for 1-2 zones costs 4.40 CHF and a daily ticket 8.80 CHF.

The parking in the area surrounding Sihlcity is also controlled with on street parking dedicated only to residents, in this way employees and visitors to Sihlcity are discouraged from parking there.

**Results**
• In 2010 only 33% of the trips to Sihlcity were carried out by car (Field, 2010).

**Success factors**
• Zurich’s land management policy that only allows new development in sites that have adequate access to public transit, walking and cycling facilities.
• Zurich’s Access Contingent Model\(^ {11} \) which recommended a limited supply of parking spaces and application of high parking fees.
• Limited parking spaces.
• High parking fees.
• Good variety of alternative modes of transport: public transport, cycling, walking.

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\(^{10}\) 1 CHF = 1 USD or 0.89 Euro (exchange rate on 04/04/2019)

\(^{11}\) The Access Contingent Model is a strategy created to keep the car traffic volume under control which derives from sites which are generating a high traffic impact. It defines the maximum number of car trips which are allowed to be generated from a development respectively from the different types of utilisation allowed. (EPOMM – Web: [http://epomm.eu/old_website/study_sheet.phtml?id=928&study_id=2525](http://epomm.eu/old_website/study_sheet.phtml?id=928&study_id=2525) accessed on 04/04/2019)
INFICON AG – parking management at the workplace (Balzers, Liechtenstein)

-100 tons of CO2 emissions per year

The leverage offered by parking management at the workplace for bringing about a modal shift from car to sustainable modes of transport for home-work trips.

Company: INFICON AG  
No. of employees: 225  
Sector: Electrical Engineering  
Location: at the outskirts of the town Balzers  
Country: Liechtenstein  
Implementation body: INFICON AG  
Level of implementation: site specific – company level  
Topic: home-work mobility management, parking management  
Target group/s: Company employees  
Stakeholders involved:  
- Company management  
- Employees  
- Local authority  
- Local public transport operator  
- Car sharing provider

Introduction  
INFICON AG is located in the town of Balzers on the border with Switzerland. Within the framework of the environmental management certification process ISO 14001 the company developed and implemented a comprehensive mobility management plan, which among other measures included a courageous parking management policy (Eltis, 2015).

Objective:  
- Reduction of the energy consumption for home-work trips.  
- Ensure that the existing parking spaces (120 in total) meet the company needs.  
- Maximum 40% motorized individual transport for the journeys to work (yearly average) defined in the year 2000.  
  (INFICON, 2008a)

Measures implemented  
INFICON’s mobility management plan on one hand increased the transport options for home-work trips for its employees and on the other it used incentives and disincentives for promoting sustainable modes of transport. Mobility management measures implemented throughout the years include the creation of covered bike parking spaces and dressing rooms at work, promotion of car sharing, various incentives for carpoolers, mobility jackpot (see best practice “Mobility Jackpot (or Lottery) at Seewer AG”) for the promotion of sustainable mobility in general, etc. Nonetheless, the
cornerstone of its mobility plan is the parking management policy implemented, which exploited the lack of parking spaces in favour of sustainable modes of transport.

INFICON’s parking management is characterised by three aspects:
- clear and transparent criteria for the assignment of the existing parking space that are applicable to all staff member;
- mostly nominative parking spaces and only a limited number of non-dedicated ones;
- parking fees.

1. Criteria for the assignment of parking spaces
In order to guarantee that the existing parking spaces are allocated to the employees who need the car for home-work trips due to lack of valid alternatives a set of criteria for “non-car commuting” were set up. Employees meeting any of the following criteria are not eligible for a parking space unless otherwise justified (OECD/ITF, 2010):
- home-work trip on foot within 8-15 minutes;
- home-work distance within 3km by bike and with a vertical elevation gain less than 50m;
- closest usable public transport stop within 600m from home and for bus rides of less than 11mins, total walking distance throughout the trip within 900m;
- home-work public transport travel time up to 3 times travel time by car and no longer than 60mins.

2. Nominative vs non-dedicated parking spaces
Parking spaces allocated with the above criteria are nominative and, therefore, are dedicated to specific employees.

However, a limited number of spaces is also made available as free day-parking to those who carpool at work. In particular, these spaces are not dedicated to any specific employee and are made available (in addition to those not used by absent employees) to carpoolers free of charge when they travel to work by car alone.

It should be noted that there are two categories of carpoolers (OECD/ITF, 2010):
- “Top” members: single occupancy car trips limited to a maximum of two per month or 24 per year;
- “Regular” members: single occupancy car trips limited to 8 per month or 96 per year.

3. Parking fees
All employees with an assigned parking space have to pay an annual parking fee. Parking fees in 2010 were (OECD/ITF, 2010):
- for employees that meet non-car commuting criteria but still use a car: € 480/year
- for employees with no alternatives to the car: € 240/year

Results (INFICON, 2008c)
1. Modal shift from motorised individual transport to more sustainable modes of transport:
Notes:
- *Data collected with a mobility survey in 1999 and by counting vehicles in 2007 (cars, motorcycles and bikes).*
- *Motorised individual transport includes both car and motorcycle*
- *In the case of 2007 collective transport includes both public transport and carpooling (32% and 5% respectively).*

2. Reduction in the CO2 emissions by about 100 tons per year, thanks to the reduction of motorised individual transport for home-work trips.

3. Company savings of € 80,000 per year: The mobility management measures have resulted in a yearly net saving of €80,000 for the company. This calculation takes into account the costs for the implementation of the measures (including working hours), income from parking fees and savings due to fewer parking spaces being needed.

**Success factors**
- Mobility management is an integral part of the company’s environmental management process.
- Employees are engaged in the mobility management process.
- A clear and transparent parking management policy that applies to all employees (including senior management).
3.6 Sustainable Urban Mobility Plans

Kruševac, the first Serbian City with a Sustainable Urban Mobility Plan (Kruševac, Serbia)

From a “follower” to a “pioneer”

Overcoming the lack of national legislation for the development of a Sustainable Urban Mobility Plan. The success story of the city of Kruševac.

City: Kruševac  
Country: Serbia  
Body responsible for development and implementation: City of Kruševac  
Level of implementation: city level  
Topic: Sustainable Urban Mobility Plans (SUMP)  
Target group/s: all the citizens travelling within the city of Kruševac  
Stakeholders involved:  
- Local politicians  
- City administration departments  
- Urban Planning Public Enterprise Kruševac  
- Council for Traffic Safety  
- First Technical School of Kruševac  
- Agency for Regional Development of the Rasina Administrative District  
- Local Police  
- Centre for Disables People  
- Public Transport Operator  
- Taxi association  
- Public Health Institute  
- Representatives of primary and secondary schools, and preschool institutions  
- Bicycle clubs  
- Citizens

Introduction

Kruševac is the administrative centre of the Rasina District in central Serbia with a population of 130,000 inhabitants. Despite the lack of national regulations and guidelines regarding sustainable urban mobility and the lack of expertise in the field at a local level the city of Kruševac decided to change its approach of solving transport related problems and adopt a SUMP.

Participation at EU sustainable mobility projects (as a “follower city” 12) as early 2012, as well as the positive reaction of citizens to campaigns carried out within the framework of the European Mobility

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12 A city that does participate directly to a project but follows closely its development and results.
Week, inspired and encouraged the City Administration towards this goal and in 2017 Kruševac developed its first SUMP (Panozzo, 2018).

Objectives of the SUMP
The main objectives of Kruševac’s SUMP are (Panozzo, Niccolò, 2018):

- to achieve a modal split of “80:20” by 2030, that is 80% of trips carried out with sustainable modes of transport (on foot, by bike, or public transport) and 20% made by car;
- to render Kruševac a “city accessible to all citizens”, regardless of age, gender, physical and metal capabilities and income.

The SUMP also sets a number of medium- and long-term goals.

Development of the SUMP
The development of Kruševac’s SUMP involved a variety of stakeholders.

Following the decision to develop a SUMP in November 2015, the City of Kruševac appointed a Commission for the drafting of the document. The Commission included members of the City Council for traffic safety, the City Committee for urban planning and City Committee for environment protection, representatives from Urban planning and Parking management departments from the City Administration, representatives from public transport and other private companies, etc.) local politicians, personnel from various departments of the city administration, representatives of the Urban Planning Public Enterprise and the city’s First Technical School, and the local Council for Traffic Safety.

Working groups dealing with specific topics were formed:

- traffic and innovation;
- ecology and social progress;
- public involvement.

Amongst others, the working groups included representatives of primary and secondary schools and preschool institutions, bicycle clubs, and the Regional Development Agency of Rasina District.

There was a comprehensive collection of data in order to assess the existing mobility situation and demand as well as support the development of action plans for the improvement the different modes of transport.

Citizens were also involved in the SUMP process. Information and awareness was carried out through media, the municipality’s website and during the event “Vidovdan eco day”. In addition, a mobility survey was carried out in order to obtain information on the citizen mobility habits as well as their opinion on certain modes of transport.

Results

13 A European campaign that seeks to improve public health and quality of life through promoting clean mobility and sustainable urban transport. The campaign gives people the chance to explore the role of city streets and to experiment with practical solutions to tackle urban challenges, such as air pollution. http://www.mobilityweek.eu/
• Kruševac is the first Serbian city to have developed and adopted a SUMP.
• Since the adoption of the SUMP the city of Kruševac has carried a number of actions towards its implementation (Panozzo, 2018):
  o establishment of a network of school mobility coordinators for the promotion of sustainable mobility for home-school trips (a total of 37 school coordinators from urban and rural parts of the city);
  o investment of resources in the improvement of pedestrian and bicycle infrastructure and accessibility;
  o in 2018 the city centre was closed to traffic and dedicated to active modes every day from 1st May to 1st October from 6PM-10PM;
• Continuous participation to the European Mobility Week since 2015 with activities for the promotion of sustainable mobility (Panozzo, 2018).
• Sharing of its experience with other cities at national and international level: in February 2018, Krusevac hosted the annual assembly and round table of the CIVINET network - a network of cities exchanging information and working together to engage with the European Union and national governments, about transport policy issues, legislation, regulations, and funding14 (Panozzo, 2018).

Success factors
• Commitment of the local administration to move away from the tradition car-centric urban planning to sustainable urban planning.
• Participation as a “follower city” at various EU projects on the topic of sustainable mobility.
• Study visits to EU cities with best practices on sustainable mobility.

Barriers & Obstacles
• Lack of national regulations and guidelines regarding sustainable urban mobility.
• Lack of expertise at the local administration level in the field.

14 https://civitas.eu/civinet
Strasbourg SUMP – a highly integrated SUMP (Strasbourg, France)

The first cross-border tramline

How territorial and sectoral integration in the development of a SUMP can improve accessibility beyond the limits of a city.

City: Strasbourg  
Country: France  
Body responsible for development and implementation: City of Strasbourg  
Level of implementation: city level  
Topic: Sustainable Urban Mobility Plans (SUMP)  
Target group/s: citizens and visitors of Strasbourg  
Stakeholders involved: the stakeholders involved include  
- Strasbourg’s transport department  
- 12 other city departments  
- Chamber of Commerce and Industry

Introduction
The city of Strasbourg has a long history on sustainable urban mobility the beginning of which is traced in the 1990’s with the construction of a modern tram system. The city developed its first Sustainable Urban Mobility Plan in 2000 and revised it in 2012 setting up new objectives and actions.

Integration
Territorial and sectoral integration are two important characteristics of Strasbourg’s SUMP. More specifically, the SUMP covers the entire Eurometropolis of Strasbourg, formerly known as Urban Community of Strasbourg, that comprises of 28 municipalities. In addition, it includes cross-border coordination with the neighbouring city of Kehl in Germany for certain initiatives, i.e. the extension of tram line D to Kehl railway station in Germany that provides a direct connection between the two.

As regards the sectoral integration, it was achieved thanks to the collaboration of the city’s transport department with other 12 departments including health, economic development, urban ecology, land use planning, local democracy and proximity. As a result, the city’s mobility policy is an integral part of its urban policy, e.g. urban planning and housing, as well as other policy fields such as the Atmosphere Protection Plan, the Air Energy Regional Climate Programme, the Territorial Coherence Plan, the Mobility Pass, the Health Plan and the Intercommunal Local Development Plan.

Objectives of the SUMP
The SUMP defines targets for 2025 and sets the following key objectives (SUMP Award, 2013):
- A 30% reduction in driven mileage relating to the Urban Community of Strasbourg (calculated in vehicle-km).
- Traffic reduction on the A35 and along the “Route du Rhin”.
- Reliable journey times for all modes of transport.
- Active modes must contribute to 30 minutes of daily physical activity.

SUMP Contents
Strasbourg’s SUMP is a strategic document and its implementation is defined by the following operational plans:

- Pedestrian Plan
- Cycle Plan
- Public Transport Plan – 2025
- Accessibility Plan
- Charter of Public Spaces Planning
- Plan of hierarchical organisation of the road network

The SUMP identifies 4 actions to develop a multimodal transport system and provide a better service to the inhabitants (Strasbourg Eurometropole, 2015):

1. Controlling, organising and reducing automobile traffic:
   - limiting car traffic within the city centre;
   - parking management – encourage short stay parking, limit long-term parking of people working in the city centre and promote of public transport through an advantageous fare policy, maintain residential parking;
   - providing park + ride services;
   - facilitating intermodality.

2. Developing alternatives to private cars
   - close collaboration between Strasbourg Eurometropolis and the local Public Transport Operator;
   - implement the Public Transport Masterplan 2025;
   - develop the tram and bus network;
   - implement the Pedestrian Plan of the city;
   - continue the extension of the cycling network;
   - offer innovative transport services, e.g. bike sharing, car sharing.

3. Link Transport and Urban planning – focus on a major cross-border project:
   - extension of the line D to the German city of Kehl

4. Make the different modes of transport affordable and facilitate their use:
   - fair and affordable public transport based on the financial situation of each household;
   - multimodal transport card and single pricing between urban areas.

Results

Some the results obtained thanks to the implementation of the SUMP include:

- Public transport - years of reference 2009-2012 (SUMP Award, 2013):
  - 20.2% increase of the number of subscribers
  - 19.5% increase of trips by year with 113.9 million trips in 2012;
  - 16% increase of revenue from clients with 42 million Euros in 2012.
- Cars entering the city centre: 17% decrease between 2000 and 2011 (Strasbourg Eurometropole, 2015).
- An improvement of public spaces in the city.
Seattle's Mobility Playbook (Seattle, USA)

Recognising the potentials and risks of emerging transport innovation

Hoe the city of Seattle is attempting to leverage emerging transport innovation in order to meet its mobility and broader community objectives.

City: Seattle
Country: USA
Implementation body: City of Seattle
Level of implementation: city level
Topic: Sustainable Urban Mobility Plan
Target group/s: all the citizens travelling within the city of Seattle
Stakeholders involved: a great variety of stakeholders were involved including:
- Seattle Department of Transport as well as an interdepartmental team
- Consultants
- Expert reviewers
- Seattle Office of Sustainability and Environment
- Major employers
- Mobility providers
- Seattle Information technology
- Community-based organisation partners and many others.

Introduction
In 2017 the city of Seattle updated its sustainable urban mobility plan, entitled “New Mobility Playbook” (NMP). The innovation behind Seattle’s NMP lies in understanding the importance of emerging transport innovation in the shaping of future urban mobility and the city’s determination to leverage it in order to meet Seattle’s mobility and broader community objectives. More specifically, the city recognises that while traditional modes of transport such as walking, cycling and public transport will remain the backbone of its transportation system, new technologies and mobility services could provide more transport options and convenience if properly managed.

The New Mobility Playbook
The NMP clearly identifies the opportunities and risks that lie within new mobility, which are:
- potential benefits:
  - accommodate growth without increasing congestion;
  - enable more transportation options;
  - build a more responsive transportation system;
  - create a more equitable transportation system;
  - create a safer and greener transportation system.
• potential risks:
  o more congestion and more pollution;
  o lead to more inequity;
  o erode the support and resources for public transit;
  o disrupt the economy and lose jobs faster than innovation creates them;
  o end up with systems we don’t understand, can’t manage, and can’t protect.

Considering the above the aim of the city of Seattle and its NMP is to create “a safe, interconnected, vibrant, affordable, and innovative city for all”. In order to achieve this the NMP adopts a flexible, outcome-oriented approach based on five “plays”:

PLAY 1: Ensure new mobility delivers a fair and just transportation system for all
PLAY 2: Enable safer, more active, and people-first uses of the public right of way
PLAY 3: Reorganize and retool Seattle’s Department of Transport to manage innovation and data
PLAY 4: Build new information and data infrastructure so new services can “plug-and-play”
PLAY 5: Anticipate, adapt to, and leverage innovative and disruptive transportation technologies

For each of the “plays” the NMP identifies a number of strategies with short- and long-term actions, and for each action key partners and their role are indicated.

Finally, the city welcomes partnerships with entrepreneurs, advocates, and creative thinkers to plan and implement programs, pilot projects, and services that are in line with the NMP.
3.7 Communication and information

Munich – Gscheid Mobil (Munich, Germany)

Harnessing life-changing events for promoting sustainable mobility

How the city of Munich is having a positive long-term impact on the mobility behaviour of its citizens.

City: Munich
Country: Germany
Implementation body: City of Munich
Level of implementation: city level
Topic: awareness raising on sustainable modes of transport
Target group/s:
- existing and new residents
- children and youth
- seniors
- migrants
- poor people
- tourists
- companies

Stakeholders involved:
- City of Munich – coordinated and implemented by the Road Traffic, Transport and Mobility Management Office
- Schools
- MVG – local transport company
- Car sharing operators
- Cargo bikes companies
- Target groups

Introduction
Since 2006 the City of Munich is carrying out “Munich – Gscheid Mobil”, a mobility management programme that supports citizens, companies, tourists and immigrants in their individual mobility planning and promotes environmentally friendly modes for trips within the city (Bühler-Karpati, Barbara, 2017). More specifically, the programme takes advantage of life-changing events, e.g. birth of a baby, retirement, moving to the city etc. in order to influence the mobility behaviour of people through consultation, motivation and education.

Objectives
- Promote sustainable modes of transport and reduce car traffic in Munich.
- Reduce transport related CO2 emissions.
Measures implemented
Gscheid Mobil is a mobility management project focused on raising awareness among the different target groups on the existence of a sound mobility service in Munich and the benefits of using it (both for individuals and for the society in general). The project has six different target groups:

- families
- children
- senior citizens
- companies
- new residents
- migrants.

For each one of these groups the programme offers targeted information both in terms of contents and modes of communication. For example, education related activities have been prepared for schools, mobility information has become a key part of the new citizen integration project, information is provided to new families through maternity hospitals and midwife practices. The projects launched so far include (URBACT Good Practices Website, 2019):

- **Children and youth**: with the aim to shape mobility behaviour towards sustainable mobility from early childhood to young adulthood, the project is made up of different mobility education sub-projects that accompany children from the age of 3 till the age of 16, for example:
  - Bambini: target 3-6 years of age
  - Walking bus: target 6-10 years of age
  - School rally: target 10-16 years of age

- **New citizens**: each new citizen of Munich receives a welcome folder with information on mobility and transport, leisure activities and culture in the city. Further information on the mobility and the transport network (e.g. cycling maps, public transport timetables, free public transport tickets etc.) are also available on request. The information is available in German and since 2016 the folder includes a summary in English, French, Italian, Spanish and Polish.

- **New families**: “Go!Family – en route with a baby” is targeted to new families with the aim to discourage the acquisition of a new car. More specifically, the project allows for parents-to-be to test mobility options including bicycle trailers, cargo bikes or electric bikes, carsharing, special family tickets for public transport, etc.

- **Migrants**:
  - the topic of sustainable mobility is integrated in the educational material of the integration courses available to migrants;
  - “My bike – My Munich”: it targets refugee women and youth with the aim to start a cycling culture among them and make them feel comfortable in cycling around Munich. The initiative includes: cycling courses, joint excursions, training to become a cycling teacher as well as a bicycle repair workshop.

- **Senior citizens**: mobility consultancy for 65- to 75-year-olds.

- **Companies**: providing support so that companies establish a mobility manager figure, design and implement a home-work mobility plan. For example, the city offers support in all the stages of the designing and implementation of the mobility plan, that is survey, analysis, development of measures, implementation and evaluation.
Results
Gscheid Mobil tends to have long term impacts on the mobility behaviour of Munich’s citizens and thus it is hard to measure its exact impact on car traffic. Nonetheless the city has been supporting the programme for over 10 years since it strongly believes that it has a positive influence on citizens’ mobility behaviour and consequently to reduce car traffic and less CO2 emissions within the city.

According to a study evaluating the impact of welcome folders to new citizens the number of new citizens who used public transport was 7.6% higher among the group who received the information folder and the telephone consultation compared to the group who did not. This is equivalent to almost 6,500 cars less in the streets of Munich per year (URBACT Good Practices Website, 2019).

Success factors
• Integration of “Gscheid Mobil” into transportation and urban planning taking into account new forms of residential development with reduced parking spaces and a new mobility culture.
• Customised information and communication methods for the different target groups.
3.8 Demand Responsive Transport

**PubliCar – the Swiss Demand Responsive Transport (Switzerland)**

A demand responsive transport service operating for over 20 years

The successful model of PostBus for offering flexible public transport that meets the needs of residents in sparsely populated areas while being cost-efficient.

**Location:** rural areas and small towns  
**Country:** Switzerland  
**Implementation body:** PostBus  
**Level of implementation:** rural areas and small towns  
**Topic:** demand responsive transport  
**Target group/s:** residents of rural areas and small towns  

**Stakeholders involved:**
- Municipalities
- Cantons
- Federal administration
- PostBus
- Residents of rural areas and small towns

**Introduction**

PubliCar, launched in 1995, is a demand responsive transport offered in rural areas or small towns or during periods of low demand, e.g. night service. It is a flexible service with no timetables or fixed routes that is complementary or alternative to conventional public transport.

**Objectives**
- Offer a flexible public transport service that meets the needs of residents in sparsely populated areas.

**Description of the service**

The planning and offering of the service is based on the following “tools” (Massa, 2011):
- call centre which collects the requests for the journeys;
- software for the automatic grouping of the requests and the optimisation of the journeys;
- management and communication tool: via telephone/smartphone and SMS;
- 7-19 minibuses that are easier to manoeuvre in narrow streets while still meeting the transport demand for each journey.

The process of the service follows 5 steps (Massa, 2011):
1) booking of the trip: the user contacts the reservation centre (call centre) and indicates origin, destination and time of the journey (rules regarding when the of booking should be made vary from area to area and in certain cases it can be done up to an hour before the journey);
2) the reservation centre verifies the availability;
3) the reservation centre coordinates the requests of the users and defines the best possible itinerary;
4) the minibus driver is informed about the journey and reservations via telephone/smartphone;
5) PubliCar collects the users and brings them to their destination.

The service differentiates from a regular taxi service since:
- it is subject to geographical areas and service hours;
- it aims to optimise journeys by bringing together requests of different individuals;
- it tries to avoid individual trips.

Results
In general, it is safe to say that PubliCar is a successful service, operating for more than 20 years.

On average it has around 50-90 users/day per service, and in certain areas this number goes up to 200 users/day (Veja Barbero and Topi, 2014).

Being a public service, PubliCar is subsidised by public funds and its operation costs are similar or even cheaper than traditional transport services with a cost recovery rate of approx. 25% (Veja Barbero and Topi, 2014).

Success factors
- Public transport that meets the needs of the local population.
- Integration with main public transport network.
- Economy of scales since the service is offered at a national level.

Barriers & Limitations
- If the service is very successful it tends to be costly and has to be replaced by a conventional public transport service.
Innovative Transport in Rural Areas – the case of The Village Bus (Kolsillre, Sweden)

4,100 passengers in a year for a population of 100 people

A self-managed and cost-efficient demand responsive transport service for a village of 100 people.

**Location:** Kolsillre  
**Country:** Sweden  
**Implementation body:** residents  
**Level of implementation:** entire village  
**Topic:** innovative modes of transport, demand responsive transport  
**Target group/s:** village residents  
**Stakeholders involved:**  
- Village residents

**Introduction**

Kolsillre is a village in the county of Vasternorrland in Sweden with a population of around 100 people. Like in many rural areas, conventional public transport was limited and not effective in connecting the village to the services and facilities in Vasternorrland and thus used very little. As a result, within the framework of the “Rural Transport Solutions”\(^\text{15}\) project, the residents of Kolsillre carried out the pilot “The Village Bus”, where they organised their own public transport by means of a minibus.

**Objectives**

- Develop a demand responsive public transport service run 100% by the passengers (including the registration of journey requirements and driving of the bus)

**Description of the service**

The service was launched in 2010 and it made use of a 9 seater minibus and the website [www.byabussen.se](http://www.byabussen.se) (not in service at the moment) that allowed for the registration of the journeys. The residents that wanted to make use of the service had to create an account on the website and the minibus could be operated by registered drivers only. The minibus was stationed at the village so it was accessible to everybody (Project “Move on Green”, 2014).

The service did not have fixed routes or timetable but the users organised it themselves according to their needs. More specifically, residents would access the website and book a seat on an existing route or create a new one. The bus would also stop to pick up people standing on the road.

**Results**

- More than 4,100 passengers, transported in 2011, a rather high amount for a population of 100 people (European Commission, 2012).

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\(^{15}\) The overall aim of this project was to develop innovative and sustainable rural and coastal transport schemes and services reducing social exclusion and enhancing the vitality and sustainability of sparsely populated areas in Northern Periphery. [https://www.northernperiphery.eu/en/projects/show/&tid=70](https://www.northernperiphery.eu/en/projects/show/&tid=70)
• The majority of trips was towards the town of Ånge located 45km away (European Commission, 2012).
• Cost effective service: average cost per person € 7.26 which translates into € 0.61 per kilometre, that is considerably less than the cost of regular bus lines in the area, € 2.00 per kilometre (Project “Move on Green”, 2014).
• Increased contacts and community spirit among the residents of the village.

In March 2012 the Village Bus was awarded the “Best Results” National Award in Stockholm.

Success factors
• Flexible solution that offered public transport according to the needs of the residents.

Barriers & Obstacles
• National legislation regarding commercial transport services. At the time of the project it was not allowed for the users of the Village Bus to pay/collect fares in order to fund the service and allow it to become financially sustainable and continue over time.
Chapter 4: Lessons Learnt

The present chapter draws from the success factors and barriers of the best practices presented in chapter 3 in order to bring attention to the points that could significantly influence the results of mobility management practices.

Existence of alternatives to the car

Key to the success of mobility management at all levels is the presence of sustainable modes of transport that are valid alternatives to single occupancy car trips, e.g. walking, public transport, cycling, carpooling, car sharing, etc. The higher the number of alternatives the higher the number of transport needs that could be satisfied and, thus, the higher the modal shift to be expected. In addition, a high variety of transport solutions provides a guarantee that the transport needs of the people are going to be met throughout the year, even in the case of events such as public transport strikes or in the case of bad weather (when considering cycling and walking).

“Push” and “Pull” measures

In order to increase the effectiveness of mobility management programmes it is important to include both measures that make individual car use less attractive (“push”) and measures that increase travel choices and improve the attractiveness of sustainable modes of transport (“pull”). The implementation of just “pull” measures is often not enough in achieving changes in mobility behaviour and in particular in reducing car use, due to:

- the pro-car mindset of the society and lack of sustainable mobility culture;
- the comfort and joy that the use of car represents for many people;
- the difficulty in changing human habits.

Therefore, the implementation of management techniques that discourage the use of private cars is fundamental. In this sense, parking management can be a very effective “push” measure as it is demonstrated by best practices in chapter 3, i.e. “Parking management at Sihlcity” and “INFICON AG – parking management at the work place”.

In the case of mobility management at city level integration of “push” and “pull” measures can be achieved through Sustainable Urban Mobility Plans (see section 3.6).

Know the target group

As was mentioned in chapter 2, having a clear idea and a good understanding of the target group/s of the mobility management programme allows for the selection and implementation of the most suitable measures.

Once the target group/s have been identified it is important to collect information on the transport mode used for their trips and why. What is the origin and/or destination of their trip? Do they travel by car? If yes, why? Is it because of lack of alternatives, busy lifestyle, comfort and joy of driving, etc.?
As was shown in the best practices of “Green Way – Infineon’s Mobility Management Programme” and “Mobility Management for the U2 and Coldplay 2017 concerts in Brussels”, this information will allow for the identification of mobility measures that meet the needs of the people and for targeted communication.

Stakeholder involvement
Whoever the stakeholders of a mobility management programme are, e.g. employees, citizens, transport operators, companies, cities, etc., their active involvement throughout the development and implementation can generate numerous benefits and contribute significantly to the success of mobility management. More specifically, benefits of stakeholder involvement include:

- awareness raising regarding the issues the programme intends to tackle;
- transparency over objectives and communication of outputs;
- identification of mobility needs and issues, and development of a tailor-made and realistic mobility management programmes;
- allowing for both public and private interests to be taken into consideration;
- creation of a sense of co-ownership and ensuring acceptance of the measures;
- possibility of establishing networks and synergies that not only contribute to the success of the programme but could also result in savings and a more efficient allocation of resources.

In fact, stakeholder involvement has been a central part of all the best practices presented in this guide.

In some cases, the great number and variety of stakeholders that need to be involved could slow down the planning and implementation process, nonetheless, it is an important activity that should be carried out.

Long-term approach (commitment and integration with other sectors and programmes)
Although the impacts of mobility management can be visible in a short to medium period (6 months – 2 years), a long-term approach is fundamental for achieving consistent results towards sustainable mobility.

A key for guaranteeing longevity of results is support and commitment from senior officials, whether this is a company board, senior management or a city council.

At the same time integration with other sectors and programmes is also important. For example, as was highlighted by the best practices of “Parking management at Sihlcity” and “Munich – Gscheid Mobil” integration of mobility management with land-use planning can be really effective. At the same time mobility management can contribute to the environmental objectives of companies and cities, and it should, thus, be an integral part of environmental programmes and management processes (for example see best practices “INFICON AG – parking management at the work place”, “Mobility management at a Science and Innovation Park - Skolkovo Foundation” and “Cityporto of Padova - a successful urban distribution service”).
Raising awareness and communication

Raising awareness and communication activities are at the core of mobility management. They:

- raise visibility of mobility measures and alternatives to single occupancy car trips;
- facilitate the shift from cars to sustainable modes of transport by providing useful information;
- inform the public about the benefits (economic, health, environmental, social, etc.) of sustainable modes of transport;
- raise acceptance of mobility measures;
- motivate changes regarding mobility behaviour.

In fact, as it can be seen from the “Travel Demand Management at the London 2012 Olympic Games” best practice, communication campaigns and targeted information can determine the success of other mobility measures and can be fundamental in achieving mobility targets.

In order to maximise the impact of raising awareness and communication activities it is important to:

- pay attention to the target group and even consider a further “segmentation” to smaller groups based on characteristics such as origin of the trip, distance covered, age, etc., so as to offer tailor made information and incentives;
- consider establishing an identity (branding – slogan, logo) so that mobility management measures are easily recognised.

Make it fun and rewarding

As it is indicated by the “Mobility Jackpot (or Lottery) at Seewer AG” best practice, gamification (that is the use of games and fun elements) can be a very effective tool for achieving a shift from single occupancy car use as it:

- provides a motivation for changing mobility behaviour by rewarding the use of sustainable modes of transport;
- creates excitement and interest on sustainable mobility.

As it can be inferred from the information in chapter 2, the best practices illustrated in chapter 3 and the lessons that stem from them (chapter 4), when it comes to mobility management there is no one size fits all solution but there are good examples to draw on. As a result, the present document is not an exhaustive guide but offers a snapshot of the different possibilities. For those who wish to further explore the subject, internet is a valuable tool as it offers numerous websites and online platforms on mobility management and best practices, a selection of the most interesting ones is available in Annex 1.
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Innovative Transport in Rural Areas – the case of The Village Bus (Kolsillre, Sweden)


Annex 1: Online Resources

This chapter offers a list of websites and online platforms with useful materials and tools on Mobility Management for those that wish to further explore and get additional inspiration on the subject.

- **Allinx** ([https://www.allinx.eu/](https://www.allinx.eu/)): a network of mobility managers with a “Knowledge base” section that collects articles, documents and research reports. Registered members have access to webinars too.

- **CIVITAS** ([https://civitas.eu/](https://civitas.eu/)): is a network of cities dedicated to sustainable urban mobility. The platform provides sustainable mobility material, case studies, tools, e-courses and webinars.

- **Crow - Mobiliteit en gedrag** ([https://www.crow.nl/mobiliteit-en-gedrag](https://www.crow.nl/mobiliteit-en-gedrag)): this website focuses on influencing mobility behaviour and offers materials and case studies from the Netherlands as well as other countries. (in DUTCH)

- **Die Transferstelle Mobilitätsmanagement** ([https://www.mobilitaetsmanagement.nrw.de/](https://www.mobilitaetsmanagement.nrw.de/)): the data library of the platform offers a selection of guidelines and case studies from Germany. (in GERMAN)

- **Eltis** ([http://www.eltis.org/](http://www.eltis.org/)): this is Europe’s main observatory on urban mobility that “facilitates the exchange of information, knowledge and experiences in the field of sustainable urban mobility in Europe”. The platform collects case studies, tools, training materials, etc. on sustainable urban mobility and Sustainable Urban Mobility Plans.

- **EPOMM** ([http://www.epomm.eu/index.php?id=2632](http://www.epomm.eu/index.php?id=2632)): the European Platform on Mobility Management offers information on mobility management planning and acts as a database of materials produced by European projects on sustainable mobility. It also hosts the presentations carried out at ECOMM, the European Conference on Mobility Management that is held annually ([http://www.epomm.eu/index.php](http://www.epomm.eu/index.php)).

- **ITDP** ([https://www.itdp.org/](https://www.itdp.org/)): the Institute for Transportation and Development Policy offers a selection of publications and articles on sustainable mobility.

- **National Centre for Mobility Management** ([https://nationalcenterformobilitymanagement.org](https://nationalcenterformobilitymanagement.org)): it provides e-courses, webinars and links to mobility management resources.

- **Sustainable Urban Transport Project** ([https://www.sutp.org/en/](https://www.sutp.org/en/)): it provides case studies and publications on sustainable urban transport in a variety of languages.

- **Victoria Transport Policy Institute** ([http://www.vtpi.org/tdm/](http://www.vtpi.org/tdm/)): it offers materials on mobility management and sustainable modes of transport, as well as an online encyclopaedia on Transport Demand Management ([www.vtpi.org/tdm/tdm75.htm](http://www.vtpi.org/tdm/tdm75.htm)).