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Introduction

Our society cannot do without the mobility of goods and people. It enables us to satisfy our basic needs; it supplies us with goods, work and recreation. However, there also are some disadvantages. Mobility damages our health and the quality of our living environment. Emissions from traffic have a large effect on the air quality and noise levels in urban areas, for instance. In addition, mobility produces around one third of our CO2 emissions. In addition to these environmental effects, the growth of mobility is making accessibility more and more problematic.

Europe, the Dutch central government and the local authorities have written policies and regulations to combat the harmful effects of mobility. When measures are implemented, the advantage is that those measures will produce savings (in the long term) for the business sector.

Businesses have a duty of care: to reduce the harmful effects of mobility as much as possible. This duty of care is based on the Dutch Environmental Management Act (Wm), the Dutch Activities (Environmental Management) Decree and the European Energy Efficiency Directive (EED). So far, the government has not sufficiently stressed the implementation of this duty of care. The growing awareness of the harmful side-effects of mobility have brought about a change.

This User Manual is intended to help licensing authorities, supervisory bodies, environment agency and municipal enforcement officers, policy-makers and businesses. It explains how to interpret and implement this duty of care.

Reading guide
Chapter 1 explains the legal basis for mobility management. Chapter 2 discusses the term “mobility relevance”. It also explains specifically how to carry out the duty of care. The User Manual contains a list of measures. You can make a selection of the frequently used efficiency measures, depending on the situation specific to your business.
Chapter 1 The legal basis for mobility management

There are different mobility flows. It depends on the type of business. They range from commuter transport, visitor mobility, commercial transport and freight transport. Mobility management means organising these mobility flows efficiently; it aims to reduce the impact on the environment as much as possible. The relevant regulations for mobility management are listed in the chart below.

Figure 1: Legislation and regulations relevant to Mobility Management

In the following sections, we will explain the regulations and their relation to the duty of care for effective mobility management.

Businesses can also take the initiative, of course, as well as being guided by regulations; we call this "self-regulation". For instance, businesses that embed sustainable mobility by joining a quality mark comply with (some of) the regulations at the same time. We shall discuss this in more detail in section 1.5.

1.1 Establishments with permit obligations - all mobility flows

It is possible to issue permits and enforce regulations based on the duty of care. The Dutch Environmental Permitting (General Provisions) Act states that the Environmental Management Act applies to the definitions "consequences for, and protection of, the environment". The Dutch Environmental Management Act defines the basis for mobility management for establishments with permit obligations. The general duty-of-care provision in Section 1.1a of the Environmental Management Act states that everyone must take sufficient care of the environment. The emphasis lies on everyone’s individual responsibility. In principle, this duty of care applies to all establishments. The competent authorities may enforce it under that provision if an establishment’s behaviour threatens the environment.

Section 1.1, second paragraph, of the Environmental Management Act, describes the "consequences for the environment" and "protection of the environment" more precisely. It includes the

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1 Please see Section 1.1, second paragraph and under b, of the Environmental Management Act.
2 Please see Section 1.1 of the Environmental Permitting (General Provisions) Act.
3 This applies to situations in which the performance or omission of an activity means the violation of unspecified environmental regulations. The establishment that performs or omits that activity can be accused of acting in a way that is socially improper.
consequences of the mobility of persons or goods to and from the establishment and the care to limit the harmful effects on the environment caused by the activity in question.

The competent authority may specify this general duty-of-care provision in permits for establishments with a permit obligation under Section 5.7, first paragraph and part d, of the Environment Permitting Decree (Bor). The competent authority may ask an establishment’s initiator for information about the measures the establishment has implemented or intends to implement to prevent or limit the harmful effects of mobility movements. The competent authority may draw up regulations for the permit to make sure the establishment carries out those measures. However, the competent authority must give good reasons for needing that information and explain what they will do with it.4

There are certain aspects the licensing authority must consider:

1. Are there any regulations for mobility management that are relevant to this establishment?
2. Are the reasons for the regulations good enough?
3. Is it sufficiently clear what will be done with the information asked from the establishment?
4. Has the impact of the establishment on the mobility flows been considered properly?

If a regulation has been set for an irrevocable integrated environmental permit, the supervisory body must be able to enforce that regulation. If there are no regulations for the integrated environmental permit, the authorities may rely on Section 1.1a of the Dutch Environmental Management Act. Due to the vague nature of that Section, we recommend a meeting with the establishment’s initiator. The duty of care can be defined in more detail in regulations for the permit, unless the situation is a threat to the environment. Once the regulations have been arranged, they can be enforced.

1.2 Establishments without permit obligations - mobility of their employees
It is possible to enforce and customise regulations based on the duty of care. The Activities (Environmental Management) Decree has classified establishments as A, B and C categories. Establishments in category A have no permit obligations or reporting obligations. Establishments in category B have reporting obligations but no permit obligations. For these establishments, the duty-of-care provision in Section 1.1a of the Dutch Environmental Management Act is specified more clearly in Section 2.16 of the Activities (Environmental Management) Decree.5 That Section includes obligations for an establishment’s initiator for the transport of the establishment’s employees to and from the establishment. By “employees”, we mean “all the full-time employees, part-time employees and field staff who have permanent and temporary employment contracts”.6 Exceptions are agency workers and other hired staff. Employees who spend more than 80% of their hours working from home are another exception from this provision.

Section 2.16 of the Activities (Environmental Management) Decree is specified more clearly in Sections 2.7 and 2.8 and Appendix 1 of the Environmental Management Activities Regulation (Activiteitenregeling milieubeheer), hereinafter called: The Activities Regulation). It lists the measures institutes can take and includes a “points system”.

Both this exhaustive regulation and the points system have not (yet) come into force. Section 6.9 of the Activities (Environmental Management) Decree states, as transitional law, that the competent authority for mobility management may define customised regulations under the duty-of-care provision in Section 2.1, fourth paragraph, of the Activities (Environmental Management) Decree.7 That means that the competent authority may define specific requirements for the management of traffic and transport of an establishment’s employees based on the duty of care in a customised regulation.

1.3 Establishments without permit obligations - mobility of persons and freight
It is possible to enforce and customise regulations based on the duty of care.

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4 Administrative Jurisdiction Division (ABRvS) 9 February 2005, no. 200308170/1 (Helmond).
5 Section 2.15a of the Activities (Environmental Management) Decree.
7 Section 6.9 refers to paragraph 3 of Section 2.1 of the Activities (Environmental Management) Decree. However, the Activities (Environmental Management) Decree has been altered and the paragraphs have new numbers. Now, the new paragraph 4 describes the authority to define a customised regulation. Please see the Explanatory Memorandum (Bulletin of Acts and Decrees 2012, no. 441, p. 10).
Section 2.1, first paragraph in conjunction with the second paragraph and under k, of the Activities (Environmental Management) Decree comprises the duty of care to prevent or limit harmful effects on the environment caused by the transport of people and goods to and from the establishment. This duty-of-care provision focuses on visitors and freight transport. According to the legislature, visitors mobility means visits by customers or visitors (in large numbers) to an establishment. For example, visits to a cinema, a theatre or a shop.

This obligation applies to establishments in categories A and B.9 In addition, this obligation also applies to a number of C category establishments. The competent authority can define the provision in more detail in a customised regulation.10

Establishments without a permit obligation that are also subject to the Activities (Environmental Management) Decree do not need to submit an application before starting up the establishment. Category A establishments can just start up. Category B establishments must report to the competent authority at least four weeks before they start up. The Activities (Environmental Management) Decree is based on the principle that establishments must comply with the defined obligations so that they can control the harmful effects of the activities.

If an establishment violates the duty-of-care provision from the Activities (Environmental Management) Decree, the competent authority can act as an enforcer if necessary. Legal certainty demands that an establishment’s initiator can only be held responsible for the duty of care, if he could have known, in advance, that his actions or omissions are in conflict with that duty of care.

According to case law, it is obvious that the competent authority should make it clear how that duty of care should be carried out instead of immediately enforcing it. The competent authority should specify that duty of care in a customised regulation.11 The competent authority can discuss how to carry out the duty of care with the business. Please see the next chapter for more information.

1.4 The scope of business-related mobility
New knowledge and a recent decision in the Urgenda case (ECLI:NL:RBDHA:2015:7145, 24 June 2015) against the Dutch government revealed that the Netherlands must implement many more measures than it has so far. If these measures are not introduced, the Netherlands will not comply with the European climate change agreements (a 20% reduction of CO₂ emissions by 2020 compared to 1990).

Mobility contributes to a considerable portion of the CO₂ emissions. The Environmental Management Act applies to the supply and removal movements and the effects of the traffic attracted by the establishment. However, that effect must be attributable to the operations of an establishment. Moreover, the Council of State’s Department of Administrative Justice says, since 2012, that if an establishment’s operations cause risks to public health, those risks will be considered as an impact on the environment when the application is assessed, in view of Section 1.1, paragraph 2, preamble and under a of the Environmental Management Act. It is important that efficiency measures along all parts of the business’s transport chain are considered. Business-related freight transport starts at the location from where the raw materials/intermediate products are moved to the establishment for storage and/or processing. It ends where the raw materials/products are delivered to buyers. After all, those mobility movements can be attributed to the establishment’s operations.

A business can direct and influence those movements if the business owns vehicles or uses leased vehicles. If the mobility has been contracted out, a business can use its influence by making arrangements with the mobility provider to reduce the mobility’s impact on the environment.

With respect to the mobility of persons, the commuted distances, the kilometres generated by commercial mobility of persons and visitors mobility are relevant to the impact on the environment.

1.5 The Energy Efficiency Directive (EED)
In July 2015, the Provisional Scheme for the Implementation of Sections 8 and 14 of the Energy Efficiency Directive came into force. This scheme is based on the European Energy Efficiency Directive (also known as EED). The European Directive aims to cut back 20% of our energy
consumption by 2020 (compared to 2010). The most important obligation in the European Energy Efficiency Directive is the energy audit.

The obligation to carry out an energy audit was incorporated into Dutch legislation by the Provisional Scheme for the Implementation of Sections 8 and 14 of the Energy Efficiency Directive (hereinafter called: The Provisional Scheme).

Under Section 2 of the Provisional Scheme, businesses must carry out an energy audit by 5 December 2015 at the latest. After that, they must carry out an energy audit every four years. That obligation applies to businesses that employ more than 250 people or that have an annual turnover of EUR 50 million and an annual balance sheet total of more than EUR 43 million. Sites of businesses that are not establishments do not need to carry out an energy audit.

The scope of the energy audit covers mobility too. In this case, we mean mobility that is part of the business’s operating assets, or mobility that is considered part of the business’s operations. In other words, all mobility the business controls.

The report of the energy audit should be sent to the competent authority within four weeks after it was carried out under the Environmental Management Act. In most cases, the competent authority is the Municipal Executive. Sometimes, it is the Provincial Executive. At the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland, RVO)’s website, you will find an advisory document on “report format EED”.

We advise businesses to include an action plan in the energy audit report or as a separate document. The action plan is based on the results of the energy audit and lists the minimal measures the company will take. It also includes a schedule for their implementation. The action plan is not mandatory under the Provisional Scheme. However, the competent authority may ask for it as part of the legal obligations under the Activities (Environmental Management) Decree or for the integrated environmental permit. Following that, the competent authority will assess the action plan to see if it complies with the assessment framework for the Activities (Environmental Management) Decree or the integrated environmental permit. Once the competent authority has approved the action plan, the authority will use the plan as a basis for supervision and enforcement.

The duty of care for mobility management’s framework (Chapter 2) is set up in such a way that if a company complies with the duty of care for mobility management, it also complies with the EED obligation. You will find more information at the Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland, RVO)’s website.

1.6 Quality Marks
At present, the central government has reviewed several quality marks to see whether they will comply as frameworks for the EED audit. Lean and Green, TLN and Ecostars are quality marks that focus specifically on encouraging sustainable mobility. However, other quality marks such as the Envirometer (Milieubarometer, healthcare sector), the CO₂ performance ladder (building industry), BREEAM (property sector), ISO50001 and the Long-Term Agreements (Meerjaren Afspraken, MJA3) provide a framework for the mobility aspect for different sectors.

Quality marks provide a framework for the duty of care. Because the level of ambition varies for each quality mark, it is important that the government decides on the status of the quality marks in relation to the legal minimum, that is to say, the duty of care. The Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland, RVO) can give you more information about this subject.

1.7 The Environment and Planning Act
Environmental and planning legislation covers a very large area of law; it contains a large number of sectoral Acts. Each Act only provides for part of the interests of the physical environment. Because the legislation is divided into sectors, there are some problem areas in environmental and planning legislation. Moreover, it is not future-proof. That is why the government has proposed to introduce new, comprehensive legislation: the Environment and Planning Act (Ow). The government
intends put the new system into force in 2018. The Act has already been passed; the governmental decrees and ministerial regulations that accompany it will follow in the coming years.

The exact consequences of the system’s changes will only be visible once the government decrees and ministerial regulations have been published. The Act, which has already been published, mainly defines the parameters. That is why, with respect to the implementation of the Environment and Planning Act, this explanation only describes the anticipated direction of the supporting regulations for mobility management.

In fact, mobility management is not specifically mentioned in the Environment and Planning Act. However, it defines the parameters that are related to the purpose of mobility management. For instance, the Act uses the term "sustainable development" as one of its social ambitions. In addition, the Act also gives the approximate limits of the aspects that the Act regulates. Mobility management involves several of the aspects that are mentioned in the paragraph of that Section.

Because this User Manual centres on the duty of care, it is a good idea to mention the general duty of care that is laid down in the Environment and Planning Act; please see Section 1.3 of the Environment and Planning Act. That general duty of care follows on from such things as Section 1.1a of the Environmental Management Act. The specific duties of care will be specified in the supporting regulations.

The new system differs significantly from the current system because it does not use the term "establishment". It introduces the term "activity that is harmful to the environment" as that new term has a much wider range than the term "establishment". The term "activity that is harmful to the environment" includes activities inside and outside the (current term) establishment. Those activities may or may not be based on the location. Their duration is not relevant either. In the new situation, any regulations for mobility management will not be linked to an establishment. They will be linked to an "activity that is harmful to the environment".

It is expected that the Besluit aktiviteiten leefomgeving [Living Environment Activities Decree, abbreviated to Bal] will include specific duty-of-care obligations. The themes relevant to mobility management, such as health, energy and raw materials efficiency and the protection of air quality will probably become part of the specific duty of care. It is probable that this duty of care will apply to activities that are subject to general (government) regulations and to activities that are subject to permit requirements.

In principle, the Environmental and Planning Act will be imposed by local government authorities. That principle ("local, unless") has been laid down in Section 2.3 of the Environment and Planning Act. Although the exact scope is not yet clear, local government authorities will have more scope to impose (general) rules after the Environment and Planning has been introduced. That will probably mean that the scope for imposing rules for mobility management will increase too. It is also reasonable to expect that the options for measures for general government regulations will be expanded. Although customisation is now only possible in designated cases, the new system will probably allow more generic customisation which will only be restricted by the Act’s sphere of application and the authority of the local government authorities.

To sum up: the Environment and Planning Act will allow local government authorities to make rules for mobility management. However, we do not know how much scope they will have or which subjects are involved just yet.

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12 Section 1.3 of the Environment and Planning Act.
13 Section 2.1, third paragraph, of the Environment and Planning Act.
Chapter 2 The Framework for duty of care for mobility management

This chapter discusses the framework for the duty of care for mobility management and lists the legal minimum requirements to which businesses must comply.

2.1. Mobility relevance
Because it is not efficient to contact all businesses about the duty of care for mobility management, we recommend using threshold values. It is relevant to implement measures for the type of mobility in question on top of those values. The threshold values define the "mobility relevance". We recommend using the threshold values listed below.

<table>
<thead>
<tr>
<th>Transport by road</th>
<th>Lorries</th>
<th>Vans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vehicles (owned, leased)</td>
<td>&gt; 10</td>
<td>&gt; 15</td>
</tr>
<tr>
<td>or Total number of kilometres (owned, leased/contracted out)</td>
<td>&gt; 1,000,000</td>
<td>&gt; 800,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transport by water</th>
<th>Bulk cargo</th>
<th>Shipping containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transported by vessels that are owned/leased/contracted out</td>
<td>&gt; 50,000 tons</td>
<td>&gt; 4,000 TEU</td>
</tr>
<tr>
<td>and navigation hours</td>
<td>&gt; 1,000 hours</td>
<td>&gt; 1,000 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Passenger mobility</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial mobility</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Commuter mobility</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Visitors mobility</td>
<td>&gt; 500</td>
</tr>
</tbody>
</table>

Table for thresholds of mobility relevance per modality at the business level.

The indicators for mobility relevance are defined at the site level. As mobility is often directed from a central point, the duty of care may be arranged at the group level. Below are three examples to illustrate.
- An establishment has 120 employees: People need to be transported for this site (commercial and commuter traffic), so that is part of the duty of care.
- A site uses more than 12 lorries (it owns or leases them). Freight transport must be part of the duty of care, regardless of the number of transport kilometres/year.
- If the business does not manage the transport itself but contracts it out, it must explain how much the business can influence it and control it. Transport that is contracted out is only part of the duty of care if the business has some influence and/or control over it.

2.2. The implementation of the duty of care for mobility management
The more detailed implementation of the duty of care for mobility management is presented in the figure below. The figure is explained below it.
To comply with a minimum level of care, businesses must make the PDCA cycle for the duty of care for mobility above part of their business operations. They must have an insight into the mobility-related emissions and monitor them on a yearly basis.

**The (baseline) measurement**
When a business measures the emissions for the first time, we call that measurement the baseline measurement. The baseline measurement describes the business activities, the types of mobility and the emissions that accompany them. Appendix 2A specifies the requirements of a baseline measurement.

**Determine the options for measures**
Make an inventory of the relevant measures for achieving more sustainability using the baseline measurement. Use the list of measures (appendices 3A, 3B or 3C) to help you.

**Schedule of measures**
After you have made the inventory of the measures, you can select suitable measures. Record the schedule for implementing those measures in an Action Plan. Appendix 2B describes the requirements for a schedule of measures.

The (baseline) measurement, determining the options and Schedule of measures make up the Mobility Efficiency Plan.

**Implement, monitor and adjust the measures**
We recommend that you monitor the implementation of the measures and adjust them every year. It is also advisable to update the Action Plan every year. You should review the ambitions and schedule for the implementation of the measures and incorporate them into the PDCA cycle on the basis of a four-yearly evaluation of the results.
Appendix 1 Mobility Management, definitions

**Freight transport**
Freight transport in the New Edition of the User Manual means the transport of process-based flows of raw materials, semi-manufactured products, consumables, finished products and residues. Generic flows such as waste, office items, catering, etc. are not included in this definition. Those flows can be seen as belonging to the respective transport users.

**Modality**
Freight transport in the User Manual means the transport with the following modalities:
- Road
- Inland shipping
- Rail
- Short sea

The Energy Agreement (September 2013) does not include energy efficiency for aviation or maritime shipping, due to the extraterritorial aspects. For the same reason, the modalities aviation and maritime shipping (deep sea) are not included in the User Manual.

**Establishment**
The Environmental Management Act uses the term "establishment": an establishment is the location of a business, institute or organisation. By law, businesses, institutes and organisations must implement measures to reduce the harmful effects of the transport of freight and people on the environment as much as possible. It was decided, at the consultative meeting between the Ministry of Infrastructure and the Environment and the Multihoek Vervoer van de Omgevingsdiensten [Multi-Angle Meeting on Mobility between the Environmental Agencies], to use a wider interpretation of the term "to and from the establishment" for transporters when this New 2015 Edition of the User Manual was created.

**Transport user**
A transport user is a business whose activities generate freight transport. It could be a manufacturing company, a trading company, an institute or a large logistics service provider. The transport user might organise, schedule and execute the transport fully or partially using the transport user’s own fleet. The transport user might contract out the scheduling and execution of the transport fully or partially. The transport user might leave the transport fully or partially to the transport user’s suppliers (delivered home) or its customers (ex works). If something is considered a transport user, it is always an establishment. If the transport user contracts out the transport to one or more regular transporters (inland-shipping operator), the tool will assume that the transport user can directly influence the fuel consumption and emissions. Often, the vehicles’ appearance is recognisable as having the transport user’s corporate identity.

**Transporter**
The transporter executes the transport on the instructions of a transport user. The transporter can execute the transport with its own equipment, or use charters, either fully or partially. The regular charters are considered part of the transporter’s fleet in the User Manual. The transport user decides the extent of the transporter’s control. The transporter does not always have an establishment that is not accommodation, a garage or parking space. If the transporter provides storage and transhipment services, those services are considered transport to and from the establishment.

**Director**
Transport users might decide to contract out the organisation, scheduling and hiring of the transport to “directors”. To execute the transport, the directors, in turn, use transporters.

**Terminal**
A terminal transships freight from one modality to the other, on the instructions of transport users, transporters or directors. The terminal is seen as an establishment, but the supply and removal on the road is arranged and carried out by third parties. Some terminals (ECT for instance) have inland shipping and rail connections with the hinterland.

**Inland shipping operator**
An inland shipping operator provides transport over water with ships it owns and/or hired ships. In one or two cases, the transport users and transporters own inland ships.

Control
The business that decides on the transport or pays for it has control. There is a difference between transport users’ control and that of transporters:

Transport user
The extent of control depends on the delivery conditions. If the transport user leaves the supply and removal to suppliers and customers, the transport user does not have any control over the transport by road (delivered home and ex works). However, the transport user can decide on the modality and therefore has control over the “modal shift”. The transport user always has control of "transport efficiency".

Transporter
The transporter usually has control over the execution of the transport. If the transport user provides the schedules for the transport and the transporter only provides the transport capacity, the transporter’s control is limited to "fuel efficiency".

Emissions
We use the EU standards and data from the Statistics Netherlands (CBS) to calculate emissions. So far, only PM10 has been calculated using fuel consumption for the particulates emissions. From what we now know, elementary carbon (EC: carbon black/ultra-fine particles) in traffic emissions are the most significant threat to our health. We do not have any limit values yet, but we will have them in the future. This also applies to particulates produced by the wear and tear due to traffic and mobility.

Vehicle movements
Transport users have information about the number of vehicle movements for goods transport to and from the establishment. Usually, the vehicle goes through the gate twice (going in and going out). Sometimes, the incoming movements and outbound movements can be combined. That means that the number of vehicle movements is fewer than the number of trips multiplied by 2. Transporters make one or more stops per trip without calling at their own establishments. To find the number of vehicle movements in the region, we need to multiply the number of trips by 2.

Region
Region means the catchment area of the environmental agency, municipality or province. The range of the region is an assumption for the maximum trip distance within the region. Trips that are carried out entirely within the region may not be longer than the range. Usually only a small number of the kilometres for domestic and international trips are generated within the region. The term “region” has been introduced as an alternative for the term “establishment”. It is intended, at least, to identify the local emissions if it is not clear how much fuel is used.

Business unit
To identify the energy and environmental effects, it can be useful to split up the baseline measurement/monitoring for business units such as:

• Transport user
  • Supply
  • Removal
  • Residues
  • Consumables
  • Control over transport
  • No control over transport
• Transporter
  • Collection
  • Distribution
  • Pallet transport
  • Bulk transport
  • Control over transport schedules
  • No control over transport schedules

Transport unit
The transport unit is the unit used to calculate the load factor and the loading and unloading times. Examples of transport units are:

• Block pallet (100x120)
• Euro-pallet (80x120)
• Roll-containers
• Package
• Bin
• Barrel
• M3
• Container (20ft, 30ft, 40ft, 45 ft)

FTL/LTL
FTL stands for Full Truck Load, which means a lorry loaded with 1 consignment per trip and 1 delivery address.
LTL, Less Than Truck Load, means a lorry with separate loads. In that case, the trip will deliver several consignments (groupage) to 1 or more delivery addresses.

Cost savings
The User Manual uses the term "cost savings" to indicate whether measures might have a beneficial or neutral effect on the business returns. The volume of the cost savings and the way the costs and revenue are calculated are not discussed in the User Manual. The current parameters for costs effectiveness are based on measures that will be paid back within five years (payback time). Legislation and regulations tend to replace payback time with Life Cycle Cost as much as possible; Life Cycle Cost takes into account long-term savings, residual values of long-term investments and discount rate percentages as far as possible. Many of the measures introduced for freight transport do not have a payback time because they are not aimed at cutting costs but based on rates. Measures aimed at clean and silent technologies do not usually have a payback time either.

Company characteristics
The company characteristics of a transport user or transporter and the extent of control are the first choice in the tool. They are decisive for the composition of the package of measures.

Transport characteristics/parameters
The tool for freight transport includes characteristics per field of measures. Those measures could be related to possible improvement measures. No measures are described in the field of measures "transport efficiency" due to the specific nature of potential measures. However, it includes examples and the characteristics have been replaced by parameters. The default setting of the selection buttons of the characters is "yes". If "no" is selected, the measure is dropped.

Passenger transport, definitions

Employer
The employer provides the employee with work. The employer is not necessarily a natural person; often, the employer is an organisation, an institute or a business.

Passenger transport
Passenger transport in the User Manual means:

- commuter traffic
  Commuter traffic is the trips made by employees between the place where they live or stay and the regular place(s) of work. The place of work, where they do their work, has been agreed on in a contract. If the employee does not have a contract, all trips (back and forth) between the place where the employees live or stay and the address of the company is seen as commuter traffic.

- commercial traffic (including service movements)
  Trips made by employees, on the instructions of the employer, to different places of work are seen as commercial traffic. Usually, those trips are made by casual workers such as plumbers and professional carers. By extension, trips made by self-employed workers without employees to clients are considered commercial trips.

- visitors mobility
  "Visitors" means customers, suppliers, service companies and the general public.

The terms “commuter traffic” and “business traffic” are used particularly in tax legislation and regulations. The terms “visitors mobility” is also used in the tool for Crowd Pullers.
Employer’s strategy
The collaboration between the government and trade and industry is an important cornerstone of the Beter Benutten Platform (Optimising Use programme). Those parties are working together in the regions to improve accessibility.
The parties involved are all parties who influence the behaviour of groups of travellers: employers, hospitals and schools, etc.
Appendix 2A First part of the Efficiency Plan

Format for the (Baseline) Measurement for Mobility
This format presents a picture of the subjects that must be included in a (baseline) measurement within the context of the Duty of Care under the Environmental Management Act. The duty of care, seen in the context of the Environmental Management Act, requires a reduction in CO₂ emissions (energy efficiency), which is also the aim of the EED. It also aims to combat the emissions of NOₓ and particulates. If you have done a baseline measurement, you have also complied with the EED’s audit obligation.

If you do not have any quantified data at the moment, you can submit a calculation or estimate. Because you must do a (baseline) measurement every four years, the quality of supporting data for the measurement will improve continually and in stages.

Emission determining facts
The purpose of this part of the (baseline) measurement is to get a picture of the facts that have an impact on the environment.
- Type of establishment (transport user, transporter, terminal, inland shipping)
- Number of mobility movements (km); frequency
- Number of employer (km)
- Number of visitors (km)
  - People
  - Van
  - Lorries
- Type of transport
- Type of fuel
- Amount of freight
- Total value of emissions, noise levels and accessibility

Company activities
- Please describe the company activities and the mobility flows connected to them.
- Please describe the mobility policy and the corresponding ambitions.
- Please list and quantify as many mobility flows as possible (number of mobility flows, total number of kilometres, volumes, tonnage, pallets, etc.)
- Please explain how you have determined the mobility-relevant types of transport.
- If the transport is contracted out, please state the extent to which the company has control and influence over the type of transport in question. Please state whether they are included in the scope of the inquiry or not.
- Please describe your own fleet (number, label categories, euro categories).
- Please describe the location in relation to public transport.

Energy managements and emissions
- Please explain how the total of energy consumption, the NOₓ/particulates emissions are measured and how they are monitored. Please state the actual fuel consumption or the extrapolated/inferred/estimated values. What is the level of detail at which the values are determined (fleet, vehicle, driver)?
- Decide on a trend analysis (for example, energy consumption per produced quantity of a product, employee) and its development over time.

Energy balance
- Decide on an energy balance or energy flow diagram that shows how the energy consumption is divided over the different mobility flows.
Appendix 2B Second part of the Efficiency Plan

Format for Schedule of Measures

A Schedule of Measures is made based on the (baseline) measurement; the aim is to reduce emissions and noise levels and to improve accessibility.

The first part of the Schedule specifies WHAT: the chosen targets and measures, including the measurement indicators and the desired values. In the second part, the Action Plan describes HOW the measures are organised. The digital tool box and the descriptions available in PDF format (Appendix 3) will help you select worthwhile measures.

A logical strategy for the Schedule of Measures

A logical strategy for making mobility more sustainable is to set priorities. Firstly, aim to prevent mobility (video conferences, working from home). Next aim to switch to the cleanest types of mobility (public transport/cycling, modal shift to water and rail). After that, aim to clean up the means of transport (more efficient, alternative types of fuel, electric vehicles) and finally aim to improve the use of the means of transport (“new-style driving”, increasing the load factor, carpooling, lease policy, route optimisation). CO2-search-engine is a practical aid that will give you a good impression of possible efficiency measures.

- It is advisable, when selecting measures suitable for your business, to report them using the system described above: Prevention, Switch, Clean and Improve.
- If you have contracted out the freight transport, specify the relevance of recording the fuel monitoring in a contract.
- For freight transport, specify whether the switch to a cleaner type of transport (water/rail) or cleaner fuel (green gas/electricity) is relevant.
- For the passenger transport, specify the measures that encourage the use of public transport/bicycles and discourage road mobility.

While you must consider the elements above, you should include the following elements in the first part of the Schedule:

- Ambitions
  - What are the reductions of emissions (quantities) and noise levels you are aiming for? How much do you want to improve accessibility?
  - What are the targets for:
    - Buying in “green” transport?
    - Image of your establishment?
    - Your employees’ knowledge/skills/awareness/behaviour?
    - Efficiency of the mobility flows?
    - Communication to the stakeholders (and who are they?)
- The assessment framework for the intended measures: effect - feasibility - payback time - applicability - motivation of the business
- Selection of measures to reduce emissions and noise levels and to improve accessibility (transport user, transporter, etc.)
- Selection of other measures
  - Employees’ knowledge/skills
  - Employees’ awareness/behaviour
  - Efficiency
  - Communication to stakeholders
- Measurement indicators (other than emission values and noise levels) and target limit values of the remaining mobility management measures (design of the dashboard for emission values, noise levels, accessibility and management measures).
- Assessment by the competent authority (checks)
- Deciding on the final list (approval)

The second part, the Action Plan, consists of the following elements:

- A description of the expected energy consumption, the selected measures and their intended effect
- A schedule for the implementation of the selected measure (people, resources, milestones expressed in time)
- A schedule for the implementation of the monitoring (times, people, resources if applicable)
- A schedule for adjusting the measures
- A schedule for the new ambition specifications (finalising the PDCA cycle)
- Making a distinction between certain, conditional and uncertain measures

The Efficiency Plan, the (baseline) measurement and Schedule, including the Action Plan, are good points of reference for a meeting with the Supervisory Body.
Appendix 3A Measures and the Freight Transport Tool

The freight transport tool, an explanation

You can identify potential energy and environmental gain with the aid of company and mobility characteristics/parameters that lead to the described measures. For the policy areas "Climate and Energy", "Living Environment/Health" and "Accessibility", the mobility characteristics/parameters and measures have been clustered into seven measure fields. The tool begins with the (baseline) measurement (below) and proceeds from the measure field with a mainly generic nature "Clean and Efficient" via "Vehicle Efficiency" and "Transport Efficiency" to more company-specific measures fields, "Modal Shift" and "Transport Economy". The measures fields "Quieter" and "Optimising Use" contain extra policy-supporting measures that are not covered by the other measure fields.

![Diagram of measure fields and measures]
Measure fields and measures

Clean and Efficient

This group of measures focuses on the level of the fleet and the drivers; in inland shipping, it focuses on the vessel and the skipper. You can reduce emissions and energy consumption by driving more economically; you can achieve this by changing your behaviour and/or with technical support, such as speed limitation devices and valances. You can use cleaner vans, lorries and inland ships too. You can check the tyre pressure and consider using energy-efficient tyres and silent tyres.

We have included measuring the mobility and environmental performance of the transport and reviewing the effects of measures as a measure under “Monitoring”.

Mobility characteristics

- Fleet
  - Owned by the business
  - Contracted out / fixed charter inland ships
  - Owned by the business
  - Contracted out / fixed charters

Selected measures

- Clean and efficient sourcing
- Speed limitation device
- Upgrading the fleet
- Training driving behaviour
- New fuels
- Tyres
- Valences
- Monitoring consumption
- Cleaning up inland shipping
Measure: Clean and efficient sourcing

A brief description of the measure:
Take the sustainability aspects into consideration when sourcing transport and logistics.

When sourcing transport, the client of the transport (transport user, logistics provider, trading company) can take the impact on the environment and accessibility into consideration. You can do this by engaging in a dialogue with suppliers or by explicitly including aspects of sustainability in purchasing conditions and contracts. If you hold transport suppliers to account for the emissions they produce and for their consumption, you can achieve sustainability and innovation sooner.

The legal framework and applicability:
The government has laid down a number of administrative agreements for sustainable sourcing. Sourcing transport and logistics should be included in those agreements. Recent studies have revealed that the targets for 100% sustainable sourcing have not been achieved by a long way. “Sustainable Sourcing” covers a large number of distinctive criteria. For transport, the CO₂ performance ladder offers some points of reference. You can also use the Lean and Green Award and Star as selection criteria for sustainable sourcing. Companies with ISO 14001 environmental certification could arrange to have transport included in the certification.

Effects on the environment, costs and accessibility:
We cannot provide exact saving percentages for this measure. The underlying measures taken by the service provider to comply with the criteria for sustainability determine the effect of this measure. Generally speaking, the effect on the costs is limited, though it is much better for the environment.

Best practice:
Cargill Crude Oils Europe has asked its permanent workforce to obtain the Lean and Green Award.

Information:
www.lean-green.nl
Measure: Speed limitation device

A brief description of the measure:
Adjust the maximum speed of the speed limitation device to a lower setting.

In Europe, lorries weighing more than 3,500 kilograms must be equipped with a speed limitation device. The device should be set at a maximum of 90 km/h. However, in practice, the maximum setting is often a few kilometres faster, particularly in lorries that are used abroad. Reducing the maximum speed setting to 85 km/h, for instance, produces substantial savings.

The legal framework and applicability:
Companies are free to lower the maximum speed. For the sake of safety, a setting that is too low (for instance: 80 km/h) is not advisable.
Vans are not obliged to have a speed limitation device. However, in Europe, there are plans to introduce them for vans and to set the maximum speed to 120 km/h.

Effects on the environment, costs and accessibility:
A lower maximum speed saves fuel. The savings depend on the use of the lorry: the savings are greatest if the lorry is often driven at the maximum speed, for long-distance transport outside built-up areas and on motorways. From experience, we know that every kilometre reduction produces a saving of just under 1%. For instance, a reduction of 90 to 87 kilometres will produce a saving of around 2.5% in fuel.

In addition to the fuel savings (costs and emissions), savings can be made on maintenance and traffic fines if the speed limitation device is set to a lower speed. Because there are scarcely any costs involved in this measure, the returns are very large.

The time lost due to a lower speed setting of 3 to 4 km/h is minimal. If it is actually measurable, it is certainly not more than a few minutes for a drive of 250 kilometres.

Best practice:
Setting the speed to 85 kilometres per hour produces 5% fuel savings. Installing speed limitation devices in light lorries and vans is also an extremely effective measure. However, there are costs involved (a couple of hundred Euros per vehicle).

Information:
Measure: Upgrading the fleet

A brief description of the measure:
Replace the fleet with vehicles with cleaner engines.
Euro IV was introduced as the standard for lorries in 2013. The differences between the Euro categories are presented in the table below.

The legal framework and applicability:

Environmental zones have been introduced to large towns and to Rotterdam’s Maasvlakte. In those zones, you can only drive the cleanest category of vehicle (Euro VI). Environmental zones for vans were recently introduced to Rotterdam and Utrecht too. Other countries use differentiated toll systems; the cleanest vehicles pay the least.

Effects on the environment, costs and accessibility:
Calculations for mobility scans reveal that replacing (some) of the fleet with vehicles in the highest environment category produces a large (up to 40%) reduction of PM and NO\textsubscript{x} emissions. Reductions in CO\textsubscript{2} emissions are not very large and depend on the brand and type of car: Euro VI-category vehicles are usually no more than 4 to 5% more economical. The difference is made by how you deploy the vehicles.

Best practice:
Container transport companies in the Port of Rotterdam have switched en masse to Euro VI vehicles. The introduction of environmental zones contributed to that switch.

Information:
http://ec.europa.eu/environment/air/transport/road.htm
Measure: Training driving behaviour

A brief description of the measure: Encourage efficient driving behaviour in drivers.

Efficient driving depends mainly on the driver's driving behaviour. If the driver drives more efficiently, savings in fuel and reductions of CO₂ emissions can be achieved immediately. Drivers who attend the course “Het Nieuwe Rijden” [New-Style Driving] learn things like:

- letting go of the gas pedal in due time and allowing the vehicle to roll out
- driving at an even speed
- keeping a good distance and anticipating
- smarter use of the gear lever to save fuel.

The legal framework and applicability:
It is best to arrange the training of drivers to use "new-style driving" within the framework of the legal obligation under Code 95, the European successor to drivers’ qualifications. It consists of two parts:
1. Basic qualifications
2. Refresher courses

The refresher course comprises the obligation to give drivers 35 hours of training per 5 years (7 hours per year) by a qualified training institute.

At least 7 hours of the 35 hours must be practical training (no more than 28 hours should be theory).

New-Style Driving is offered in 3 of the 15 modules of the practical training courses. You are free to choose the practical training course; you are not obliged to train efficient driving.

Effects on the environment, costs and accessibility:
Efficient driving does not have any effect on the number of vehicle movements or kilometres. The savings are achieved in fuel, CO₂ emissions, particulates and NOₓ emissions. In addition, savings can be achieved in terms of vehicle maintenance and traffic safety will improve, cutting back costs for insurance and damage.

The volume of the savings varies considerably. It depends on the extent to which the drivers are already trained, the method of training, the type of transport and vehicle and how what has been taught is applied and repeated. The costs are about EUR 300 for one day (7 days according to Code 95) of practical training per driver. The Central Office for Motor Vehicle Driver Testing (CBR) presents the following savings:

<table>
<thead>
<tr>
<th>New-Style Driving</th>
<th>savings per articulated vehicle per year</th>
<th>An annual reduction of CO₂ (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel savings</td>
<td>4%</td>
<td>€ 1,600</td>
</tr>
<tr>
<td>Maximum fuel savings</td>
<td>8%</td>
<td>€ 3,200</td>
</tr>
</tbody>
</table>

Best practice:
Experience has taught us that a combination of training, monitoring the effects, regular feedback for the drivers combined with refresher courses have the most effect. You can often achieve savings of up to 10%. Communication about the side effects (less wear and tear, traffic safety) reinforces the foundations.

Information: www.hetnieuwerijden.nl
Measure: New fuels

A brief description of the measure:
*Use engines and/or fuels other than conventional petrol and diesel vehicles.*

The technology of engines in lorries and vans is developing rapidly. At the same time, several alternative types of fuels and engine systems are being developed. Here is a brief list:
- Liquid fuels: GTL, bioethanol, biodiesel
- Gaseous fuels: CNG, LNG, LPG, biogas
- Fuel cells with hydrogen
- Electric: fully electric and hybrid

The legal framework and applicability:
A limited number of biofuels have been added to the conventional fuels under European regulations. Because there are some objections to the 1st and 2nd generation of biofuels, blending is limited. The use of biodiesel has some disadvantages in vehicle-technical terms too. For instance, maintenance is more expensive and it is more difficult to reduce particulates emissions. The use of natural gas has a small advantage with respect to the emission of CO₂. In terms of emissions of NOₓ and particulates, Euro VI-category engines are just as clean as vehicles that run on natural gas. Biogas is not yet available in large quantities.

The application of hybrid engines for vans and lorries is not yet widespread. There are no tax-related incentives for introducing them. Fully electric engines are still very much under development and, as yet, they are not very appealing cost-wise. However, alternatives for diesel are more interesting, due to the environmental zones for lorries and vans in city centres.

Effects on the environment, costs and accessibility:
Fully electric engines are best for the environment. Their emissions, CO₂ emissions and noise levels are lower than any other engines. Hybrid engines also have advantages because the consumption and emissions are considerably lower than conventional engines in urban areas. The advantages of natural gas and LPG for the environment are decreasing because diesel engines are becoming increasingly cleaner. The effects on accessibility and costs of alternative types of fuel are, as yet, adverse or minimal.

Best practice:
- De Rooy Transport in ’t Goy has both vehicles that run on biogas and lorries that run on electricity.
- Electric lorries are also used by Peeters, Technische Unie and Heineken.
- Companies such as Simon Loos, Wim Bosman, ST vd Brink use lorries that run on LNG.

Information:
http://www.truckvandetoekomst.nl/thema/brandstoffen-aandrijving/
Measure: Tyres

A brief description of the measure:
Fit energy-efficient and silent tyres and check the tyre pressure.
A simple way to save fuel is to frequently check the tyre pressure (every month, for instance). Research shows that 50% of lorries on the road have at least one tyre of which the pressure is too low. If the tyre pressure is not optimal, it will cause extra friction with the road surface. That means the tyres will wear faster and the vehicle needs more fuel. You can fit energy-efficient and silent tyres on the lorry, in addition to maintaining the right tyre pressure.

The legal framework and applicability:
A business can check the tyre pressure of their own vehicles more frequently (1x month, for instance) at the location where the vehicles are parked, filled with petrol or loaded/unloaded in addition to checking the tyre pressure during periodic maintenance. Fitting A-category energy-efficient tyres that also have a low noise category produces commercial and social savings.

Effects on the environment, costs and accessibility:
You can achieve 1 to 3% savings by maintaining the right tyre pressure. The table below describes the potential savings for a number of types of vehicles.

Best practice:
An automatic measuring system for lorry tyres has been installed at Transportcentrum Westland.

Information:
www.debesteband.nl
Measure: Valences

A brief description of the measure:
Install valences (side-wings) on the bottom of trailers.
A lower air resistance can cut back fuel consumption. You can fit valences both on new trailers and onto trailers that are already in use (retrofit).

The legal framework and applicability:
Valences are possible and worthwhile for closed trailers that are loaded from the back. The lorries must be used on motorways for at least about 100,000 km per year to produce a payback time of under 3 years.

Effects on the environment, costs and accessibility:
The Dutch supplier Ephicas claims that fuel savings of 3.5% are realistic. The reduction of emissions matches that. A limited reduction in the emission of rolling noise can be achieved.

Best practice:
• The transport company Peter Appel has fitted valences on a large number of its trailers used for supplying supermarket distribution centres, etc.
• TNT and Action also use trailers with valences.

Information:
www.ephicas.eu
Measure: Monitoring consumption

A brief description of the measure:
Measure and review vehicles’ fuel consumption.
You can monitor fuel consumption on several levels: the consumption of the entire fleet, per type of vehicle, per individual lorry or van and per driver.

The legal framework and applicability:
You can use on-board computers that are standard in lorries and used more and more often in vans to register fuel consumption for each vehicle and driver. You can read out modern engine management systems remotely. That means you can collect and analyse detailed information about the driver’s behaviour (speed, revs, acceleration, delays, idling, etc.).

Effects on the environment, costs and accessibility:
The measure will not immediately produce fuel savings, but insight into the fuel consumption of each vehicle and driver (and how it develops over time) will result in better awareness. It will provide points of reference for changing behaviour and will establish the effectiveness of the measures in terms of costs and the environment. As a result, this measure reinforces the other measures.

Best practice:
Businesses that read out on-board computer data, analyse information about drivers’ behaviour, give feedback to the drivers and use that information to give their employees regular training.

Information:
http://www.duurzaammkb.nl/tips/tip/494/monitor-stofverbruik/
Measure: Cleaning up inland shipping

A brief description of the measure:
*Use cleaner inland ships.*

Because inland ships and their engines can be used for a very long time, their technology is not the cleanest kind. Replacing engines or fitting particulate filters could make inland shipping much cleaner. Only 10% of the 5,500 ships in the Netherlands is currently classed as CCR category II or cleaner. As well as exhaust gas filters, there are developments in CNG and LPG as engine fuel. Experiments are also being done with lorry engines in a series circuit for propulsion. And lastly, new engine and ships concepts are being developed that use fuel more efficiently.

The legal framework and applicability:
Both Europe and the United States are working on new emission standards for ships’ engines and other mobile sources. They will only apply to new ships. Due to the poor market situation in inland shipping, we do not expect engines to be replaced or made cleaner very soon. There are subsidy schemes to cover some of these costs. Additional measures seem essential.

Effects on the environment, costs and accessibility:
The effects on the emissions of particulates and NO\textsubscript{x} are very large, certainly when compared to other measures that focus on fuel efficiency. Nonetheless, cleaning up ships is difficult from a commercial point of view. Transport users are not willing to pay more for cleaner transport. Environmental zones have not (yet) been introduced for inland ships. A modal shift to inland shipping could improve its competitive position and could, as a result, increase its chances of becoming cleaner.

Best practice:
The Danser inland shipping line has several innovative clean ships on the waterways.

Information:
[www.eicb.nl](http://www.eicb.nl)
You can also improve efficiency at the level of vehicles. If you use larger and/or lighter vehicles, the vehicle can carry more load per transport. If you can speed up the loading and unloading process, you can optimise the transport schedules. That would also produce a reduction of the emissions and improve the accessibility.

The options for applying these measures are determined by factors that limit the trip capacity: weight, volume and/or time.

- **Volume-restricting factor**
- **Weight-restricting factor**
- **Time-restricting factor**

**Mobility characteristics**

**Selected measures**

- Double load platform
- Longer and heavier goods vehicles
- Loading and unloading equipment
Measure: Double load platform

A brief description of the measure:
Use trailers with a double load platform, so that the lorry can carry up to 40% more load.

Many pallets and other kinds of loads are lower than 1.5 metres. You can load a standard trailer up to 2.7 metres. You can load special double platform trailers (belly-load or Twin Deck) up to 3.70 metres. The latter can carry up to 40% more pallets or roll-containers and has the same volume capacity as a longer and heavier goods vehicle. They are not suitable for heavy goods due to the maximum permitted vehicle weight, which in turn is lower than that of a longer and heavier goods vehicle.

The legal framework and applicability:
The great advantage of this type of trailer compared to a longer and heavier goods vehicle is that there are no special legal requirements or restrictions for training, routes or weather conditions. The trailers can also be used in international traffic. However, the type of load (not too high, not too heavy) and the options for return cargoes set restrictions. The special double platform trailers are mainly used for transport to and from distribution centres.

Effects on the environment, costs and accessibility:
Because the fuel consumption hardly increases (no more than 3%) compared to a standard combination, the use of a double load platform can save up to 35% of fuel and as a result, reduce emissions and vehicle movements. The cost savings depend on the options for use (load factors, options for return cargoes, capacity utilisation rate). In particular, the options for return cargoes largely determine the cost effectiveness of this measure.

Best practice:
The following companies use trailers with double load platforms, etc.: Jumbo, Ewals, CvHeezik, Ewals

Information:
https://www.vaneckgroup.com
Measure: longer and heavier goods vehicles

A brief description of the measure:
Transport by means of a Longer and Heavier Goods Vehicle combination (LZV), a lorry that can and may carry more load than a normal lorry combination.

A Longer and Heavier Goods Vehicle combination is a maximum of 25.25 metres and weighs 60 tons, while a normal lorry is at most 18.75 metres and may (in the Netherlands) weigh no more than 50 tons. In terms of volume, it can carry up to 40% more load. Seven Longer and Heavier Goods Vehicle combinations are possible (see image; versions F and G are rare). Longer and Heavier Goods Vehicle combinations can be used for domestic point-to-point connections with sufficient volume. They are not suitable for heavy goods due to the maximum permitted vehicle weight.

The legal framework and applicability:
There are restrictions for the use of a Longer and Heavier Goods Vehicle combination. For instance, a Longer and Heavier Goods Vehicle combination may only travel along a route that has been laid out in advance, if it is not travelling on a motorway. It may not be used in fog or extreme weather. Longer and Heavier Goods Vehicle combinations may not cross railway crossings where trains pass at speeds of more than 40 km/h, designated slow-traffic home zones or “zone 30” areas either. The Longer and Heavier Goods Vehicle combinations are mainly intended to travel to and from ports and industrial areas. A general overtaking ban applies to Longer and Heavier Goods Vehicle combinations and the driver needs an additional driving course. Moreover, the participants are obliged to report accidents, violations or serious offences involving the Longer and Heavier Goods Vehicle combination and any police reports.

The Longer and Heavier Goods Vehicle combinations must have, among other things:
• mirrors that comply with the most recent European regulations;
• advanced brake systems;
• an axle load measurement system;
• a sign on the back picturing the outline of the combination and stating its length in metres.

Effects on the environment, costs and accessibility:
Because the fuel consumption hardly increases (no more than 5%) compared to a standard combination, using a Longer and Heavier Goods Vehicle combination can save up to 30% of fuel and as a result, reduce emissions and vehicle movements. The savings in terms of costs depend on the options for use (load factors, options for return cargoes, capacity utilisation rate).

Best practice:
Various scans reveal that Longer and Heavier Goods Vehicle combinations are usually used for single, specific mobility movements and customers. Depending on the percentage of the total transport for which you use the Longer and Heavier Goods Vehicle combination, the savings can be between 3 and 20%. You can achieve the largest savings when you use them for transport between manufacturing locations and retail distribution centres. Longer and Heavier Goods Vehicle combinations are used more and more often for container transport too.

Information:
https://www.rdw.nl/sites/onthefling/Paginas/LZV.aspx
Measure: Loading and unloading equipment

A brief description of the measure:
Reduce the loading and unloading times by using technical equipment.

The measure has the same effect as the Load and Unloading Times in the Transport Efficiency measure field. The technical possibilities have more emphasis in the Load and Unloading Equipment measure. If you can load and unload faster, you can improve the efficiency of the transport and use the lorries more effectively. Faster loading and unloading can lead to reducing kilometres and fuel consumption in several ways. The fleet’s capacity utilisation rate will drop if less time is spent on loading and unloading. If there are no time restrictions set for the trips and the deployment of staff, you can raise the load factor. If you cannot increase the load factor due to such restrictions, you can adjust the vehicle schedules (more trips per vehicle per day), which will reduce the kilometres and cut costs.

The legal framework and applicability:
You can reduce the fixed part of the loading and unloading times (reducing waiting times, getting the load ready, dealing with paperwork more efficiently) and the variable part (other load carriers, automatic scanning, etc.).

Effects on the environment, costs and accessibility:
The environmental effects of faster loading and unloading depend very much on how much you can optimise the schedule. If you can reduce the time by 10%, the environmental impact will be a maximum of 2 to 3%.

Best practice:
- Automatic loading and unloading systems at Unilever Rotterdam and Van de Put Fresh Cargo Handling.
- Automatic loading and unloading system for soft drinks at Sandbergen Transport.
- Walking floors are often used for loading and unloading loosely deposited bulk goods.

Information:
www.ancra.nl
www.cargofloor.com
Transport Efficiency

If you cannot reduce the quantities you need to transport or reduce the transport distance, you can execute the transport more efficiently by improving:

- the transport schedules
- the load factor
- the management of the transport
- the registration of transport indicators
- supporting IT systems, on-board

Mobility characteristics

- FT
- L
- LT
- L
- Time restrictions

Selected measures

- Schedules (vehicles)
- Schedules (trips)
- Loading and unloading times
- Return cargoes
- Management information
Measure: Schedules (vehicles and trips)

A brief description of the measure:

*Use an automated scheduling system for executing the transport.*

You can use a transport management system (TMS) to manage fleets, schedule drivers and execute the trips. Dedicated systems have been designed to optimise the trip schedules. The systems can be either static or dynamic; in the latter case, the system also checks the current traffic situation and the vehicle's load factors. Connections to ERP, WMS and TMS systems ensure integrated and efficient business operations.

The legal framework and applicability:

Automated trip scheduling is particularly interesting if you have transports to many and varying addresses (partial loads or LTL). This is the case, for instance, with deliveries to consumers, the distribution of building materials and maintenance and service companies. If only fixed routes are used, you can use a trip-scheduling system to calculate the best possible routes system, i.e. tactical scheduling. Because of the purchase and maintenance costs of a trip-scheduling package, it would not be profitable to use it only for tactical scheduling, in many cases. For transport with full loads (FTL), you can optimise the scheduling for each vehicle with automatic systems. Those systems also support the optimisation of complicated driving and resting times.

Effects on the environment, costs and accessibility:

The most important effect of automated scheduling is an increase in the load factor combined with a reduction of the transport distance. That means that both the emissions of CO₂ and of particulates and NOₓ and the number of kilometres and vehicle movements can drop by implementing this measure. How great the effect will be depends on the specific situation of the business, but suppliers of trip-scheduling packages claim that the savings could be as much as 15%. If you can use several types of vehicles optimally by using vehicle scheduling, the effect could be substantial (up to 25%).

Best practice:

Various mobility scans and other improvement projects reveal that businesses can achieve actual savings of an average of around 10% on the kilometres generated for trips.

Information:

- [www.ptv.nl](http://www.ptv.nl)
- [www.tomtom.nl](http://www.tomtom.nl)
- [www.ortec.nl](http://www.ortec.nl)
Measure: Loading and unloading times

A brief description of the measure:
Reduce the loading and unloading times.
If you can load and unload faster, you can improve the efficiency of the transport and use the lorries more effectively. Faster loading and unloading can lead to reducing kilometres and fuel consumption in several ways. The fleet’s capacity utilisation rate will drop if less time is spent on loading and unloading. If there are no time restrictions set for the trips and the deployment of staff, you can raise the load factor. If you cannot increase the load factor due to such restrictions, you can adjust the vehicle schedules (more trips per vehicle per day), which will reduce the kilometres and cut costs.

The legal framework and applicability:
You can reduce the fixed part of the loading and unloading times (reducing waiting times, getting the load ready, dealing with paperwork more efficiently) and the variable part (other load carriers, automatic scanning, etc.).

Effects on the environment, costs and accessibility:
The environmental effects of faster loading and unloading depend very much on how much you can optimise the schedule. If you can reduce the time by 10%, the environmental impact will be a maximum of 2 to 3%.

Best practice:
The National Speed Docking Championship is a national competition that encourages the reduction of loading and unloading times and an increase in transport efficiency.

Information:
http://lean-green.nl/nl-NL/nkspeeddocking/
Measure: Return cargoes

A brief description of the measure:
Reduce the empty kilometres by generating return cargo.
Driving empty is not an activity to be encouraged, in terms of accessibility, the environments and costs. If you can get a return cargo, it is an extremely effective way of increasing the load factor and reducing the amount of empty kilometres.

The legal framework and applicability:
Most transport companies will try to avoid returning with an empty vehicle. After all, a business’s earning power depends directly on the amount of loaded kilometres for which the customer (the transport user) has paid. If you can collaborated with other transporters and transport users, the quantity of return cargo can be increased even more. In some specific cases, it is impossible to arrange a return cargo. That could be the case when you use special lorries to carry only one load type, for instance. The potential for return cargo is also extremely limited in the case of distribution and collection transport. In addition, the effect of this measure is limited if you need to return empty casks, roll-containers or other load carriers.

Effects on the environment, costs and accessibility:
If the “empty leg” is 100% (that is to say: full on the outward trip and empty on the return trip), the potential for savings will not be more than 50% per unit of transported product. In practice, a much lower savings percentage should be expected because, in most cases, return cargo will only take up part of the route. It will also often generate extra kilometres.

Best practice:
Transport users who use the same transporters to transport their load, despite competition, have already achieved good results. Transporters’ cooperation initiatives include:
- Pallet Wise
- Transmission
Measure: Management information

A brief description of the measure:
*Improve your insight into transport performance.*

Insight into the most important performance indicators for transport enables managers to set up the process as efficiently as possible. That means managers can keep both emissions and the costs of transport as low as possible. We can distinguish between generic and measure-related performance indicators. Generic indicators give insight into the general performance of transport and logistics of a company: costs, load factor, kilometres per stop, capacity utilisation rate, etc. Measure-related indicators describe the effects of measures, such as consumption per vehicle or per driver, the costs per container, etc. There are several tools that convert data into management information, such as dashboard performance systems.

The legal framework and applicability:

A business needs to record all information related to generic costs in its accounts as part of its business operations. Specific and measure-related information can be recorded as the business sees fit; there is no legal framework for it. However, a number of relevant environmental and transport indicators should be recorded, in a format like the one below, for instance:

The power of management is reinforced if you link it to internal and external process management systems: quality marks such as ISO, TLN and monitoring within the framework of things like the Lean and Green quality mark. You can also reinforce its effect by sharing relevant management information with partners in the chain (suppliers, customers). Links or integration into the ERP system and other systems (WMS, TMS) are becoming easier to make, due to modern ICT applications. Even a simple Excel application can generate plenty of extra management information for small businesses.

Effects on the environment, costs and accessibility:

On its own, this measure will not have any effect on emissions; however, it will support other measures. The right management information is crucial for efficient and “lean” business operations, so it is also a condition for cost savings.

Best practice:

A business that bases all the relevant performance indicators on its company objectives, records the information in a structured system and links it to its systems to ensure care for the environment and quality management systems.

Information:
Modal Shift

Transport by rail or water generally causes less damage to the environment than transport by road. In addition, accessibility by road improves if a shift to those modalities is encouraged. There are different types of modal shift.
1. Transport of bulk cargo (solid, liquid) and general cargo by dedicated ship or wagon
2. Transport of standard load units (containers, trailers, swap bodies) by container ship and container train

The second type is called “intermodal transport”. The term “synchromodal transport” is also used. It means a dynamic shift and collaboration between road, inland shipping and rail.

In addition to the modal shift to rail and water (inland shipping and short sea), there is also a shift to pipelines, which is interesting in terms of sustainability. The last measure is applied sporadically. It is a company-specific measure and can only be used in certain sectors of the chemistry industry.

If there is enough high-quality supply of intermodal services, the market forces will bring about a modal shift autonomously. Government authorities can stimulate the use of inland shipping and rail by bringing parties together (for instance, in Lean and Green Barge). The government authorities can also encourage their use by investing in transport infrastructure and transhipment infrastructure. Maasvlakte II demonstrates an unusual form of government intervention with regard to the modal shift. The Port of Rotterdam Authority has agreed on the following mobility arrangements with the container terminals that intend to set up on Maasvlakte II (before 2033):
- inland shipping: 45% (currently 30%)
- rail: 20% (currently 10%)
- road: 35% (currently 60%)

In Europe, people are calling for an extra stimulus for alternative modalities. The instrument provided by legislation and regulations will be considered as a means for this.

Mobility characteristics
- Bulk/general cargo
- continental Containers
- continental Containers import/export

Selected measures
- Dedicated rail
- Dedicated inland shipping
- Intermodal rail
- Intermodal short sea
- Intermodal inland shipping
Measure: Modal shift to dedicated rail

A brief description of the measure:
Transport non-containerised bulk and general cargo by rail. Liquid and dry bulk goods, such as ores, grains, chemicals, edible oils, etc. are transported in special goods wagons directly from the supplier’s location to the buyer. Neo-bulk cargo and general cargo, such as paper rolls and steel rolls, building materials, etc. can be carried by rail. This requires special transhipment facilities at both ends of the connection. There are two types of transport systems: full train load (full trains or block trains) and full wagon-load service. In the latter case, one or more wagons are delivered to and then collected from a business. The full train is put together in a shunting yard. This type of transport is becoming less and less common.

The legal framework and applicability:
Generally speaking, dedicated rail transport is relevant and interesting in terms of costs for long distances (>300 km) and if the flows are dense enough. By contrast with intermodal transport, lorries do not execute the first and final stages of the transport.
Hazardous substances must be transported via a specially designated network (Basisnet).

Effects on the environment, costs and accessibility:
A modal shift from road to rail would have a large, beneficial impact on the emissions of CO2, particulates and NOx. However, rail transport must use electric traction to achieve those results. The number of vehicle movements in the region will drop substantially if dedicated rail transport is used.

Best practice:
Some recent examples of a modal shift from road to rail:
- The transport of grain from Hungary and Romania to the Netherlands (RETRACK train)
- The transport of liquid chemicals between Rotterdam and Germany.

Information:
http://www.railcargo.nl/
Measure: Modal shift to dedicated inland shipping

A brief description of the measure:
Transport bulk goods by inland shipping between loading and unloading sites on the water.
Large general cargo flows, such as paper, steel and building materials can also be carried by dedicated inland shipping. These bulk goods and general cargo flows mean that the shipper and the recipient of the goods must have transhipment facilities such as cranes, vacuvators and pumping equipment.

The legal framework and applicability:
Inland shipping is the most appropriate modality for the transport of dry and liquid bulk cargo in large quantities of relatively low-grade goods. Inland shipping’s market share for those flows is 80%. Despite that, road transport can compete with inland shipping in a number of cases and there is still potential for a shift from road to ship.

Effects on the environment, costs and accessibility:
The environmental impact of a modal shift from road to inland shipping depends on the type of ship used, the distance, the waterway and the volume of the goods flow. In general, the effect on CO₂ emissions is good. However, the effect on the emissions of particulates and NOₓ is only beneficial if the transport involves long distances, if modern ships are used and if the newest engines that run on CNG and/or hybrid engines are used. The number of vehicle movements in the region drops substantially if this measure is implemented.

Best practice:
The transport of edible oils and other food commodities between the port and the buyers in the hinterland, including Unilever

Information:
www.bureauvoorlichtingbinnenvaart.nl
www.informatie.binnenvaart.nl
Measure: Intermodal rail

A brief description of the measure:
Transport containers, trailers and swap bodies over long distances by train as an alternative for road transport.

In recent decades, many shuttle connections have been set up between the mainports and the hinterland. In the Netherlands, the Betuwe all-freight railway line was built specifically for the delivery of goods from the Port of Rotterdam. Many services are available along the corridor between that port and Germany and Italy. The supply of services to Eastern Europe (particularly Poland) seems to be growing.

The legal framework and applicability:
Intermodal rail traffic can provide unbroken door-to-door transport that breaks even, if the first and last stages of the transport and the extra transhipment costs counterbalance the costs of transport by rail. Because rail transport is not as flexible as road transport and its costs are relatively high, this modality is mainly suitable for the transit of maritime containers and continental flows involving long distances (> 500 km). There is ample rail transport to and fro between Italy and the Netherlands (15 trains per day). This is partly because road transport across the Alps is discouraged by the Swiss and Austrian governments.

Effects on the environment, costs and accessibility:
A modal shift from road to rail would have a large, beneficial impact on the emissions of CO2, particulates and NOx. However, rail transport must use electric traction to achieve those results. The number of vehicle movements in the region will not be reduced. However, large savings can be achieved on the entire route in road kilometres. The earning power of a modal shift depends mainly on the first and last stages of the transport and the distance of the transport.

Best practice:
Some recent examples of a modal shift from road to rail:
• The transport of containers from Maasvlakte II to the CTT terminal in Pernis
• Transport between the Port of Rotterdam and the new rail terminal in Venlo

Information:
www.railcargo.nl/railgoederenvervoer/intermodaal_vervoer
Measure: Intermodal short sea

A brief description of the measure:
Transport containers and trailers between European countries on the coast by short sea instead of by road.

There are already plenty of services between the Netherlands and Scandinavia, the Iberian Peninsula, the United Kingdom and the Baltic States. Two kinds of ships are used for these services: ferries and relatively small container ships (about 100-2,000 TEU). 45-foot containers are being used more and more frequently for continental transport. These containers have a capacity that is comparable to a trailer. In addition to continental transport, there is also plenty of short-sea container transport that supplies (as a “feeder”) to the large deep-sea container terminals. The containers are then transported from the deep-sea terminals to Asia (and vice versa). In these cases, standard 20 and 40-foot containers are used.

The legal framework and applicability:
Intermodal rail traffic can provide unbroken door-to-door transport that breaks even, if the first and last stages of the transport and the extra transhipment costs counterbalance the costs of transport by water. In general, short-sea transport is only interesting in terms of cost if the distances are large (>500 km) and the extra travelling time is not an objection. Short sea, just as inland shipping, can compete more and more with road traffic for the transport of fresh produce.

Effects on the environment, costs and accessibility:
The environmental impact of a modal shift from road to short sea depends on the type of ship used, the distance, the waterway, the first and last stages of the transport and the volume of the goods flow. There is a large variety of types of ships and routes so the environmental effects cannot be clearly identified. The effects are similar to the effects of inland shipping: in general, the effect on CO₂ emissions is good. However, the effect on the emissions of particulates and NOₓ is only beneficial if the transport involves long distances, if modern ships are used and if the newest engines that run on CNG and/or hybrid engines are used. The number of vehicle movements in the region will not be reduced. However, large savings can be achieved on the entire route in road kilometres.

Best practice:
• The transport of agricultural products by containers between the Netherlands and Scandinavia
• RoRo (ferry) transport between Northern Spain (Bilbao) and Antwerp and Rotterdam

Information: www.shortsea.info
Measure: Intermodal inland shipping

A brief description of the measure:
Using inland shipping to transport shipping containers. Transport of containers by inland shipping has risen steeply over the last two decades. Inland shipping is used particularly often for the transport of maritime containers (import and export flows) along the corridors between Rotterdam, Antwerp, Amsterdam, Northern Brabant, Limburg and the Ruhr area. Ships with a capacity of 80 to 400 TEU (equivalent to 20 feet) are used for that transport. Most services are provided according to fixed timetables.

The legal framework and applicability:
Transport of containers by inland shipping can provide unbroken door-to-door transport that breaks even, if the first and last stages of the transport and the extra transhipment costs counterbalance the low costs of transport by water. Inland shipping proves to be a cheap and reliable alternative for road transport over short distances too, as showed by the transport between Maasvlakte and Ridderkerk, Moerdijk and Hook of Holland. Inland shipping can compete more and more with road traffic for the transport of fresh produce in refrigeration containers (reefers).

Effects on the environment, costs and accessibility:
The environmental impact of a modal shift from road to inland shipping depends on the type of ship used, the distance, the waterway, the first and final stages of the transport and the volume of the goods flow. In general, the effect on CO₂ emissions is good. However, the effect on the emissions of particulates and NOₓ is only beneficial if the newest engines that run on CNG and/or hybrid engines are used. The number of vehicle movements in the region will not be reduced. However, large savings can be achieved on the entire route in road kilometres.

Best practice:
Appealing examples of a modal shift from road to inland shipping are:
• Heineken containers on transport via the Alpherium to Rotterdam
• Transport from Heinz and Mars from East-Brabant to Rotterdam and the European hinterland
• Transport of reefer containers with shrimps from Heiploeg in Rotterdam to Harlingen
• Transport from deep-sea shipping companies to the large inland terminals in Venlo, Antwerp and Germany

Information:
http://www.bureauvoorlichtingbinnenvaart.nl/.bureauvoorlichtingbinnenvaart.nl
Transport Savings

This group of measures involves the reduction of the quantities of goods to be transported and/or the reduction of the distances of the transport. You can achieve this in the following ways:

1. **Reduce the volume of the transport**, by compressing the flow, for instance, or using smarter designs or packaging for products.
2. **Reduce the distance of the transport** by reorganising the network, moving logistic connections in the chain, etc.
3. **Reduce the number of transport movements** by lowering the delivery frequency, bundling or combining the flows.

In all these cases, the measures are specific and will vary for each business and for each logistic chain. These measures require detailed knowledge of the company processes and potential technological improvements.

### Parameters

- ✔ Service Level
- ✔ Product/packing
- ✔ ging Distance
- ✔ Cooperation
- ✔ Networks

### Selected measures

- Lower the
- Smaller/lighter
- Minimise the distance
- Bundle/combine
- Reorganise the
Company-specific measures

Below, we present some examples of company-specific measures with the reduction of the environmental impact and the costs savings within the measure’s scope in terms of percentage. The achieved improvements are unique to the business in question. The measures’ potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower the frequency</td>
<td>Increase the transport carrier’s load</td>
<td>Chemical company</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Lower the frequency</td>
<td>Reduce the number of small consignments</td>
<td>Animal feed manufacturer</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Smaller/lighter</td>
<td>Compress the sludge</td>
<td>Edible oils refinery</td>
<td>29%</td>
<td>12%</td>
</tr>
<tr>
<td>Smaller/lighter + vehicle efficiency</td>
<td>Without packaging less volume and double load platform</td>
<td>Motorbikes transporter</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>Smaller/lighter + vehicle efficiency</td>
<td>Less volume and vertical compression roof in vehicle</td>
<td>Mattress manufacturer</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>Relocate the composting</td>
<td>Waste collector</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>Regional residues processing</td>
<td>Food manufacturer</td>
<td>0%</td>
<td>36%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>In-house packaging instead of external arrangements</td>
<td>Chemical company</td>
<td>28%</td>
<td>27%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>Sources in the vicinity: Local for Local</td>
<td>Catering industry Fresh markets</td>
<td>Plenty of variation</td>
<td></td>
</tr>
<tr>
<td>Bundling/combining</td>
<td>Bundled the distribution</td>
<td>Bakery and sweets manufacturers</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Reorganise the network</td>
<td>Reorganise the distribution network</td>
<td>Ironmonger</td>
<td>0%</td>
<td>10%</td>
</tr>
</tbody>
</table>
**Measure: Lower the frequency**

Below, we present some examples of the measure "Lower the frequency" with the percentage reduction of the environmental impact and the costs savings within the measure’s scope. The achieved improvements are unique to the business in question. The measures’ potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower the frequency</td>
<td>Increase the transport carrier’s load</td>
<td>Chemical company</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Lower the frequency</td>
<td>Reduce the number of small consignments</td>
<td>Animal feed manufacturer</td>
<td>12%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Select a measure
**Measure: Smaller/lighter**

Below, we present some examples of the measure "Smaller/lighter" with the percentage reduction of the environmental impact and the costs savings within the measure's scope. The achieved improvements are unique to the business in question. The measures' potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller/lighter</td>
<td>Compress the sludge</td>
<td>Edible oils refinery</td>
<td>29%</td>
<td>12%</td>
</tr>
<tr>
<td>Smaller/lighter + vehicle efficiency</td>
<td>Without packaging less volume and double load platform</td>
<td>Motorbikes transporter</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>Smaller/lighter + vehicle efficiency</td>
<td>Less volume and vertical compression roof in vehicle</td>
<td>Mattress manufacturer</td>
<td>20%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Select a measure
Measure: Minimise the distance

Below, we present some examples of company-specific measures with the reduction of the environmental impact and the costs savings within the measure’s scope in terms of percentage. The achieved improvements are unique to the business in question. The measures’ potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimise the distance</td>
<td>Relocate composting</td>
<td>Waste collector</td>
<td>0, %</td>
<td>6, %</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>Regional residues processing</td>
<td>Food manufacturer</td>
<td>0%</td>
<td>36%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>In-house packaging instead of external arrangements</td>
<td>Chemical company</td>
<td>28%</td>
<td>27%</td>
</tr>
<tr>
<td>Minimise the distance</td>
<td>Sources in the vicinity: Local for Local</td>
<td>Catering industry Fresh markets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select a measure
**Measure: Bundling and combining**

Below, we present some examples of company-specific measures with the reduction of the environmental impact and the costs savings within the measure’s scope in terms of percentage. The achieved improvements are unique to the business in question. The measures’ potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundle/combine</td>
<td>Bundle distribution</td>
<td>Bakery and sweets manufacturers</td>
<td>5%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Select a measure
Measure: Reorganise the network

Below, we present some examples of company-specific measures with the reduction of the environmental impact and the costs savings within the measure’s scope in terms of percentage. The achieved improvements are unique to the business in question. The measures’ potential must be identified each time they are implemented.

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>Measure</th>
<th>Type of business</th>
<th>Reduction</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reorganise the network</td>
<td>Reorganise the distribution network</td>
<td>Ironmonger</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Select a measure
Geluidskwaliteit

Het terugdringen van verkeerslawaai is een belangrijk onderdeel van de beleid ten aanzien van leefbaarheid. Maatregelen gericht op kilometerreductie dragen ook bij aan minder geluid op het traject van de rit. Belangrijke parameters echter voor de directe omgeving en regio zijn voertuigbewegingen en stille technologie. Alle maatregelgebieden, met uitzondering van Schoon en zuinig, bevatten maatregelen voor vermindering voertuigbewegingen in de omgeving van het bedrijf en vallen onder het beleidsterrein Geluidskwaliteit.

<table>
<thead>
<tr>
<th>Maatregelgebieden</th>
<th>Mogelijke maatregelen</th>
<th>Kansrijke maatregelen besparingsplan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport-besparing</td>
<td>Verlagen frequentie</td>
<td>Verlagen frequentie</td>
</tr>
<tr>
<td></td>
<td>Kleiner/langer</td>
<td>Kleiner/langer</td>
</tr>
<tr>
<td></td>
<td>Minimaliseren afstand</td>
<td>Bundelen/combineren</td>
</tr>
<tr>
<td></td>
<td>Herinrichten netwerk</td>
<td></td>
</tr>
<tr>
<td>Modal shift</td>
<td>Dedicated spoor</td>
<td>Dedicated spoor</td>
</tr>
<tr>
<td></td>
<td>Dedicated binnenvaart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermodaal spoor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermodaal directe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intermodaal binnenvaart</td>
<td></td>
</tr>
<tr>
<td>Transport-efficiency</td>
<td>Planning (voertuigen)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planning (ritten)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Laad- en lastijden</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Retourvaarten</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management informatie</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Planning (ritten)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Laad- en lastijden</td>
<td></td>
</tr>
</tbody>
</table>
Measure: Silent technology

A brief description of the measure:  
*Use noise-reducing technology.*

The legal framework and applicability:  
The PIEK programme has been developed for distribution in urban areas. It has a system of certification that allows businesses to load and unload at night too. PIEK applies to refrigerating units, tail-lifts, load carriers and engines. At night, the PIEK noise levels may not be higher than 60 dB(A) at a distance of 7 metres. In addition to the PIEK programme, which focuses mainly on loading and unloading, noise-reducing technology can be used for engines, tyres and drive systems. The use of electric traction, for instance, has a large effect on the emission noise. The same applies to the use of silent tyres. Please also see the measures: "Tyres" and "Alternative Fuels".

Effects on the environment, costs and accessibility:  
These types of measures are aimed specifically at noise reduction. The effects on accessibility, costs and other emissions have not been included in it.

Best practice:  
• Large transporters for the retail industry (for instance, Simon Loos, St. vd Brink, Post Koge) have invested in PIEK equipment and also work very hard to make their fleets more sustainable.  
• Consider silent sourcing if you contract out transport.

Information:  
[www.piek-international.com](http://www.piek-international.com)
Bereikbaarheid

Een betere bereikbaarheid heeft een nauwe relatie met andere aspecten van de leefomgeving, zoals verkeersveiligheid en leefbaarheid. Belangrijkste parameter voor de directe omgeving en regio is het aantal voertuigbewegingen. Alle maatregelgebieden, met uit zondering van Schoon en zuinig, bevatten maatregelen voor vermindering van de voertuigbewegingen in de regio en vallen binnen het beleidsterrein Bereikbaarheid.

- Voertuigbewegingen in de regio
- Voertuigbewegingen in de spits

Spitsmijden
Bereikbaarheid in andere maatregelgebieden

Beter benutten

Maatregelgebieden | Mogelijke maatregelen | Kansrijke maatregelen besparingsplan
---|---|---
Transport-besparing | Verlagen frequentie | Verlagen frequentie
 | Kleiner/lichter | Kleiner/lichter
 | Minimaliseren afstand | Bundelen/combineren
 | Bundelen/combineren | Bundelen/combineren

Modal shift

- Dedicated spoor
- Dedicated binnenvaart
- Intermodaal spoor
- Intermodaal shortsea
- Intermodaal binnenvaart

Transport-efficiency

- Planning (voertuigen)
- Planning (ritten)
- Laad- en lostijden
- Recurvorwaarden
- Managementinformatie

- Planning (ritten)
- Laad- en lostijden
Measure: Avoiding rush hour

A brief description of the measure:

Avoid the rush hour

If you transport products outside the rush hours, you can transport them faster and more reliably. There are several options for avoiding the rush hours, such as off-peak distribution and night transport concepts. In addition, a number of other measures can lead to less transport during rush hour, such as a modal shift from road to inland shipping and rail.

The legal framework and applicability:

Avoiding the rush hour is rewarded with a financial incentive in some "Beter-Benutten" (optimising use programme) regions. In such cases, a business receives a non-recurrent reimbursement for every lorry that avoids the rush hour.

Effects on the environment, costs and accessibility:

Avoiding the rush hour mainly affects the accessibility and the transport costs. The number of trips is usually not reduced and the effects on emissions and mobility movements are small. If you use other modalities for avoiding the rush hours, the effects are considerable.

Best practice:

- Mooy Logistics and Van der Heijden in the Rotterdam region drive at night.
- Several retail chains supply shops in the off-peak hours (after 19:00 and before 07:00 hours.)

Information:

http://www.verkeersonderneming.nl/home/transport_en_logistiek
Annex 1

Preselection
In the preselection for road transport, you can use several criteria to gain insight into the volume of a business’s freight transport and what it means for the policy areas climate and energy, air quality, noise quality and accessibility. The following criteria are relevant:
- number of vehicles
- total number of kilometres
- kilometres in the region

There is a lower limit for these criteria so that the right businesses can be addressed as effectively as possible. In the diagram with the criteria, we have indicated that at least the kilometres (total number and/or in the region) or the number of vehicle movements must be given as well as the number of vehicles you own (if applicable).
The size of the fleet and kilometres are indicators for the impact on the climate, energy and air quality. For local emissions, the focus may be on the kilometres in the region. A lot of transport is over short distances, such as container transport around ports or the transport of building materials in urban areas.
Vehicle movements mainly affect the policy areas of noise quality and accessibility. Transporters and transport users always have information to identify the number of movements, even if they are not in control. Transporters know the number of trips they make and can use that information to calculate the number of vehicle movements.
Transport users know what leaves through the gate and what enters it. The criteria apply to a transport user with over 10,000 vehicle movements per year who does not know his kilometres or fuel consumption. The corresponding packages of measures of the tool also apply to that transport user.
The selection of the final criteria depends on the ambitions of the competent authority and the efforts needed to achieve it.
Local circumstances can be a reason for customisation and different criteria.

Criteria selection preselection road transport

<table>
<thead>
<tr>
<th>Total per year</th>
<th>Lorries</th>
<th>Vans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of vehicles</td>
<td>≥ 10</td>
<td>≥ 15</td>
</tr>
<tr>
<td>and</td>
<td>Total number of kilometres</td>
<td>≥ 1,000,000</td>
</tr>
<tr>
<td>or</td>
<td>Kilometres in the region</td>
<td>≥ 500,000</td>
</tr>
<tr>
<td>or</td>
<td>Vehicle movements</td>
<td>≥ 10,000</td>
</tr>
</tbody>
</table>

For inland shipping, the information concerns the volume and navigation hours of full ship loads.
If that information is not available, the number of trips could be an indication that you need to do a baseline measurement.

Criteria selection preselection inland shipping (full load)

<table>
<thead>
<tr>
<th>Total per year</th>
<th>Bulk cargo</th>
<th>TEU</th>
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<tbody>
<tr>
<td>Tons -TEU</td>
<td>≥ 50,000</td>
<td>≥ 4,000</td>
</tr>
<tr>
<td>and</td>
<td>Navigation hours</td>
<td>≥ 1,000</td>
</tr>
<tr>
<td>or</td>
<td>Trips</td>
<td>≥ 50</td>
</tr>
<tr>
<td>Percentage for the region</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>
Substantiation and an explanation of the criteria

To get an impression of the consequences of the selected criteria, we have calculated below what the emissions, vehicle movements/trips and fuel consumption will be for the lower limits of the criteria. We have used average values for the calculations:

Road transport

| Substantiation criteria preselection baseline measurement road transport |
|---------------------------------|-----------------|-----------------|
| **Data per vehicle**            | **Lorry**       | **Van**         |
| **Type of transport**           |                 |                 |
| Kilometres per year             | 100,000         | 50,000          |
| Trips per year                  | 500             | 700             |
| Kilometres per litre            | 3.3             | 8.5             |
| European standard               | 5               | 5               |

| **Total for the fleet according to the criteria** |
|---------------------------------|-----------------|-----------------|
| **Total per year**              | **Lorries**     | **Vans**        |
| Number                          | 10              | 15              |
| Kilometres                      | 1,000,000       | 750,000         |
| Vehicle movements               | 10,000          | 20,000          |
| Litres of fuel                  | 303,030         | 88,235          |
| Tons of CO₂                     | 960.6           | 279.7           |
| Kilograms of NOₓ                | 4,497.7         | 1,309.6         |
| Kilograms of PM₁₀               | 20.4            | 5.9             |
| Percentage for the region       |                 |                 |

Which businesses and kilometres are reflected in the criteria?

A transport company with 10 lorries that generates 1 million kilometres per year has a turnover of around EUR 1.5 million and approx. 15 employees. The group of transport companies with more than 1 million kilometres certainly makes up 70% of the transport companies and drives 80% of the kilometres in road transport.

The number of Dutch transport companies that have more than 10 vehicles is around 1,200 or around 12% of the total number of transport companies. If a regional limit is assumed of 500,000 kilometres per year, the smaller regional transport companies will be included too.

It is difficult to identify the group of transport users that are addressed by the criteria because it depends very much on the type of company and distributions structure. However, a transport user with 10 lorries, generating 1 million kilometres and with about 20% transport costs, for instance, is a company with about EUR 10 million turnover and on average, about 100 employees.

Despite the fact that most transport users have contracted out their transport, they can state the number of vehicle movements. 10,000 vehicle movements per year equals 20 trips per day to the company. That might be a lot for its neighbours, but it is relatively little for the business community that needs shipping.
**Inland shipping**
The criteria for inland shipping are based on full loads. Nearly all the dedicated and bulk-cargo flows transported by inland shipping are full loads. By contrast, in most cases in which containers are used for intermodal transports, the loads are partial loads. The transport user does not have any immediate influence on fuel consumption or emissions if partial loads are transported.
Appendix 3B Measures and the Passenger Transport Tool

The Passenger Transport Tool, an explanation

You can identify potential energy and environmental benefits with the aid of company and mobility characteristics/parameters that lead to the described measures. For the policy areas “Climate and Energy”, “Living Environment/Health” and “Accessibility”, the mobility characteristics/parameters and measures have been clustered into five measure fields. The tool begins with the (baseline) measurement (below) and proceeds from the measure field of a mainly generic nature “Cleaner Driving” via “Another Time” and “Another Style of Travel” to the more strategic measure fields “Shorter Trips” and “Fewer Trips”.

<table>
<thead>
<tr>
<th>Vervoerkenmerken /parameters</th>
<th>Beleidsterreinen</th>
<th>Maatregelen</th>
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<tbody>
<tr>
<td>• Veel zakelijke ritten intern</td>
<td>Minder ritten</td>
<td>Videopreconferencing</td>
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<tr>
<td>• Moer thuis werken mogelijk</td>
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<td>Thuiswerken</td>
</tr>
<tr>
<td>• Veel lease wagens</td>
<td></td>
<td>Heroverwegen lease / Mobiliteitsbudget</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mobiliteitsbudget</td>
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<tr>
<td></td>
<td></td>
<td>Dichter bij de klanten</td>
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<tr>
<td>• Klanten zitten ver weg</td>
<td>Kortere ritten</td>
<td>Verhuisschoonheid</td>
</tr>
<tr>
<td>• Aantal medewerkers wonen ver weg</td>
<td></td>
<td>Dichter bij de werknemers</td>
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<tr>
<td>• Arbeidsmarkt ligt op afstand</td>
<td>Anders rijden</td>
<td>Stimuleren fietser/elektrische fiets</td>
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<tr>
<td></td>
<td></td>
<td>Samen rijden /Car /Vanpoolen</td>
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<td></td>
<td>Parkeerentré</td>
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<tr>
<td>• Weinig medewerkers</td>
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<td>Heroverwegen Lease / Mobiliteitsbudget</td>
</tr>
<tr>
<td>gebruiken de fiets</td>
<td>Anders rijden</td>
<td>Pendeldiensten v/n station</td>
</tr>
<tr>
<td>• Weinig medewerkers</td>
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<td>Vergoeding zakelijke rittoerstrijden</td>
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<td>gebruiken OV</td>
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<td>Reuze voor OV-locatie</td>
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<td>• De vestiging wordt</td>
<td>Ander tijdstip</td>
<td>Flexibele werktijden</td>
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<td>verplaatst/ol nieuw</td>
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<td>Spitsnijden</td>
</tr>
<tr>
<td>• Vaste werktijden</td>
<td>Schoner rijden</td>
<td>Elektrisch rijden</td>
</tr>
<tr>
<td>• Reizen in de spits</td>
<td></td>
<td>Snelfietsregel</td>
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<tr>
<td></td>
<td></td>
<td>Upgrade wagenpark</td>
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<tr>
<td>• Eigen wagenpark</td>
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<td>Training rijgedrag</td>
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<td>Terugkoppeling gedrag</td>
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<td>Bandenspanning</td>
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Measures

The following pages describe the measures for Passenger Transport.
Cleaner Driving

If the car is the most suitable means of transport and you cannot reduce the number of trips any more, programmes for cleaner cars could help achieve savings in costs and be better for the environment.

Electric pool cars can be used for short trips (furthest range per day ~ 100-150 km).

Businesses that have their own fleets can dedicate themselves to (replacing it with) cleaner vehicles, periodic checks on tyre pressure and can try to influence their drivers’ driving behaviour (training, monitoring and feedback, fitting speed limitation devices). This has proved to have an effect on fuel consumption and emissions.

*(not avoiding the rush hour)*
Measure: Sharing cars/ carpooling/van-pooling

Scope
Commuter mobility

Description

Applicability
All businesses

Environmental effects

Costs and benefits
Costs
Benefits

Enforceability

Why implement this measure?
• Because it is sustainable
• Because it cuts costs
• Because it offers advantages for a business's public image
Measure: Cleaner driving - electric

Scope
Commuter mobility and commercial mobility

Description
The use of electric vehicles is cheap and clean. You can encourage the use of electric vehicles by installing charging posts at the establishment (for employees) and providing electric pool cars for short commercial trips (with a maximum operating range of less than 100-150 km). The use of electric cars produces a good public image.

Applicability
All businesses

Environmental effects
Driving electric cars reduces the emission of harmful substances.

Costs and benefits
Costs
Charging posts cost roughly between EUR 2,000 and 3,000 per post.

Benefits
The costs of electric mobility are lower.

Enforceability
The establishment can demonstrate: the number of charging posts, the number of electric pool cars.

Why implement this measure?
• Because it is sustainable
• Because it cuts costs
• Because it offers advantages for a business’s public image
Measure: Cleaner driving - speed limitation devices

**Scope**
Commercial mobility

**Description**
Devices that limit speed and the number of revs mean that extreme driving behaviour becomes impossible. It saves fuel and leads to **less damage, lower maintenance costs and fewer speeding fines.** A speed limitation device is a product that prevents the driver from driving faster than the speed to which it is set.

**Applicability**
Businesses that have many commercial vehicles on the road.

**Environmental effects**
Better driving behaviour reduces harmful substances and saves on fuel.

**Costs and benefits**

**Costs**
Installing a speed limitation device (there are different sorts and different prices) starts at about €500.

**Benefits**
Fuel savings are between 5 and 15%. Less damage, lower costs for maintenance, fewer speeding fines.

**Enforceability**
By demonstrating the installation of speed limitation devices.

Please also see [www.ecodrive.eu](http://www.ecodrive.eu)
**Measure: Cleaner Driving - upgrading the fleet**

**Scope**
Commuter mobility and commercial mobility

**Description**
When you buy company vehicles, you can make a selection based on the sustainability of the vehicles. For instance, only buy vehicles that have an A label for energy, or only buy electric vehicles.

**Applicability**
Businesses with company vehicles and/or leased cars.

**Environmental effects**
Cleaner cars produce fewer emissions of harmful substances.

**Costs and benefits**

**Costs**
There are no extra costs if the vehicles were due for replacement.

**Benefits**
Fuel savings are between 5 and 15%. Lower operating lease costs.

**Enforceability**
By demonstrating the policy and restrictions on the choice of leased cars.

---

Why implement this measure?
- Because it saves money
- Because it is sustainable
- Because it offers advantages for a business’s public image

---

![Table](opbrengstmaatregel.png)

<table>
<thead>
<tr>
<th>Opbrengst/maatregel</th>
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<td>Kosten</td>
<td>🤝</td>
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Measure: Monitoring consumption

**Scope**
Commuter mobility and commercial mobility

**Description**
*Measure and give feedback on the fuel consumption of vehicles.*
You can monitor fuel consumption on several levels: the consumption of the entire fleet, per type of vehicle, per individual lorry or van and per driver.

**Applicability**
You can use on-board computers that are standard in lorries and used more and more often in vans to register fuel consumption for each vehicle and driver. You can read out modern engine management systems remotely. That means you can collect and analyse detailed information about the driver's behaviour (speed, revs, acceleration, delays, idling, etc.).

**Environmental effects**
The measure will not immediately produce fuel savings, but insight into the fuel consumption of each vehicle and driver (and how it develops over time) will result in better awareness. It will provide points of reference for changing behaviour and will establish the effectiveness of the measures in terms of costs and the environment. As a result, this measure reinforces the other measures.

**Costs and benefits**

**Costs**
Organisational costs

**Benefits**
Indirectly, up to 10%.

**Enforceability**
Based on lease companies fuel registration and systems.

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<tr>
<th>Opprengst maatregel</th>
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<tr>
<td>Geluidskwaliteit</td>
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<tr>
<td>Bereikbaarheid</td>
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<tr>
<td>Kosten</td>
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Why implement this measure?
- Because it saves money
- Because it encourages sustainability
Measure: Training driving behaviour

Scope
Commuter mobility and commercial mobility

Description
Encourage drivers to drive efficiently.
Efficient driving depends mainly on the driver’s driving behaviour. If the driver drives more efficiently, savings in fuel and reductions of CO₂ emissions can be achieved immediately.

Drivers who attend the course “Het Nieuwe Rijden” [New-Style Driving] learn things like:
• letting go of the gas pedal in due time and allowing the vehicle to roll out
• driving at an even speed
• keeping a good distance and anticipating
• smarter use of the gear lever to save fuel

Applicability
By contrast with professional drivers, private motor car drivers are not obliged to follow a practical course. Employers could offer their employees “New-Style Driving” courses.

Environmental effects
Efficient driving does not have any effect on the number of vehicle movements or kilometres. The savings are achieved in fuel, CO₂ emissions, particulates and NOₓ emissions. In addition, savings can be achieved in terms of vehicle maintenance and traffic safety will improve, cutting back costs for insurance and damage. The volume of the savings varies considerably. It depends on the extent to which the drivers are already trained, the method of training, the type of transport and vehicle and how what has been taught is applied and repeated.

Costs and benefits
Costs
A day of training costs between EUR 150 and 300, depending on the number of participants and how the course is set up.

Benefits
Savings can be up to 15%.

Enforceability
Based on the number of employees who have followed a course.

Information:
www.hetnieuwериjden.nl
Measure: Tyres

Scope
Commuter mobility and commercial mobility

Description
Install energy-efficient and silent tyres and check the tyre pressure.
A simple way to save fuel is to frequently check the tyre pressure (every month, for instance). If the tyre pressure is not optimal, it will cause extra friction with the road surface. That means the tyres will wear faster and the vehicle needs more fuel. You can fit energy-efficient and silent tyres on the lorry, in addition to maintaining the right tyre pressure.

Applicability
In addition to checking the tyre pressure during periodic maintenance, you can organise and/or encourage extra checks on the tyre pressure. Fitting A-category energy-efficient tyres that also have a low noise category produces commercial and social savings.

Environmental effects
You can achieve 1 to 3% savings by maintaining the right tyre pressure.

Costs and benefits
Costs
Energy-efficient tyres are not more expensive to use.

Benefits
Savings can be up to 3%.

Enforceability
The number of energy-efficient and silent tyres fitted on company and privately-owned vehicles.

Information:
www.debesteband.nl

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<tr>
<td>Kosten</td>
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</table>

Why implement this measure?
- Because it cuts costs for fuel
- Because it is sustainable

Promising
Rejected
Another time

Avoiding the rush hour is a measure that is encouraged by the central government. It improves the flow of traffic. Employers and employees need to have a flexible attitude towards how they divide their time. For employees, it is nicer to waste less time in traffic jams. For employers, it could be a good idea to extend business hours to accommodate it, even if it requires some organising. This measure is not just relevant for drivers; it can apply to travellers by train too.

When you encourage people to avoid the rush hours, it is important to reserve some parking spaces for the people who avoid the rush hour.

In a number of regions, some temporary rush-hour avoidance programmes have been introduced. If drivers avoid the rush hour, they can earn some money.

(\textit{The benefits for the environment are limited or non-existent.})
**Measure: Flexible working hours**

**Scope**
Commuter traffic

**Description**
*Introduce flexible working hours*
Traffic jams occur because too many people want to use the limited road capacity at the same time. It is particularly affected by the more or less mandatory start of the working day at about (roughly) half past eight and the end of the working day at about (roughly) five o’clock. If employees have more scope to decide on their working hours, some of them will choose to start work earlier or later. This will spread the volume of traffic over a longer period and alleviate the rush hour traffic. A potential advantage for employers is the extension of operating times.

**Applicability**
Businesses that have employees who are not dependent on scheduled hours or opening hours.

**Environmental effects**
The measure will lead to a reduction in fuel consumption, as moving traffic is more efficient than traffic at a standstill in a traffic jam.

**Costs and benefits**

**Costs**
There are some organisational costs.

**Benefits**
Fuel savings of up to 5%. The operating times can be extended due to the shift in working hours.

**Enforceability**
By demonstrating the introduction of flexible working hours.

---

**Why implement this measure?**
- Because it improves employees’ balance between work and personal life
- Because office space can be utilised more efficiently
- Because it saves employees time and money

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<table>
<thead>
<tr>
<th>Opbrengst maatregel</th>
<th>Klimaat/Energie</th>
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Measure: Avoiding rush hour

Scope
Commuter mobility

Description
Take part in projects that focus on avoiding the rush hour
Programmes that focus on avoiding the rush hour reward drivers who frequently drive within a certain area for avoiding the rush hour in that area (usually between 7 and 10). Depending on the specific programme, they could earn a sum of money (EUR 2 to 4 every time they avoid the rush hour) or points that can be saved for gifts. They can avoid the rush hour by working from home, travelling earlier or later or travelling by bike or public transport. There are (have been) programmes that focus on avoiding the rush hour in the Rotterdam, Arnhem-Nijmegen, Utrecht and Brabant regions. Employees take part in the programmes; employers can encourage their participation. So far, all programmes for avoiding the rush hours have been temporary.

Applicability
Employers whose employees use the car during rush hour and who already work with flexible working hours.

Environmental effects
Drivers who avoid the rush hour are less likely to encounter traffic jams and can save fuel. Drivers who avoid the rush hour often use another means of transport too, and produces savings too. The largest savings are made by not travelling (working from home).

Costs and benefits
Costs
none

Benefits
Potentially, small amounts can be saved on parking space.

Enforceability
Employees take part in the rush-hour avoidance programmes rather than employers. But a business can monitor the staff who take part and demonstrate that participation. Please also see:

Rush-hour avoidance projects are linked to the Ministry of Infrastructure and the Environment’s programme “Beter Benutten” (Optimising Use). Please see [www.beterbenutten.nl/spitsmijden](http://www.beterbenutten.nl/spitsmijden). “Beter Benutten” concentrates on employers in the various regions who want to use mobility more sustainably. For more information, please also see [www.beterbenutten.nl/ik-ben-ondernemer](http://www.beterbenutten.nl/ik-ben-ondernemer).

Avoiding rush hour in the Utrecht region:
[www.spitsmijdengalecopperbrug.nl](http://www.spitsmijdengalecopperbrug.nl)

Avoiding rush hour in the Arnhem Nijmegen region:
[www.slimuitdespits-challenges.nl](http://www.slimuitdespits-challenges.nl)

Avoiding rush hour in the Rotterdam region:
[www.spitsmijden010.nl](http://www.spitsmijden010.nl)
Another Style of Travel - modal shift

A change in the choice of means of transport is a very effective and cost-cutting group of measures. There are two types: stimulating and restrictive measures. A stringent parking policy is an example of a restrictive measure. Only the employees who really need a car may park close to the office. That means that the others are forced to make other choices. Remember that this measure may cause inconvenience in the immediate vicinity if cars are parked there. Another restrictive measure is to cap the allowance for commercial kilometres. It forces employees to be more aware of their mobility choices.

Stimulating measures involve encouraging employees to use public transport and bikes, such as arranging (extra) travel allowances for non-drivers. Such measures means that you need to reconsider the allowance system. Stimulating the use of bikes can be better for your employees’ health and can bring about a lower rate of sick leave.

Mobility budget (please also see Fewer Trips) also encourages choices for other modalities, if those modalities are made more appealing in financial terms. If the operations are moved, choosing an urban location close to a public transport hub can influence the modal shift. In that case, more people will travel by public transport. An alternative option is to offer shuttle services between the station and the office.
Measure: Another Style of Travel - modal shift; stimulation; bikes and e-bikes

**Scope**
Commuter mobility (commercial mobility)

**Description**
Employees who live at cycling distance are encouraged to come to work by (electric) bike more often. The bike is the most suitable alternative for short-distance commuter and commercial traffic. Businesses have many attractive options, tax-wise, to encourage cycling. You can also set up your own scheme to improve the appeal of bikes for commuter traffic and commercial traffic.

In most regions, employers can join a network that encourages employees to take part in campaigns that stimulate the purchase and/or use of a(n) (e-) bike. The campaigns vary from e-bikes trial offers to discounts on the purchase price of e-bikes and subsidised kilometres on e-bikes or bikes.

The networks help employers to set up a good bike policy, which consists of things like an allowance per kilometre (even under 10 kilometres), tax-related options for compensating expenses, bike parks at the establishments and shower facilities.

**Applicability**
Employers who want to stimulate employees to have healthy lifestyles, who want to encourage sustainability, who want to save on costs (parking expenses).

**Environmental effects**
Encouraging bike mobility means fewer car movements, which means fewer emissions of harmful substances. The more people who are encouraged to use bikes, the larger the impact on the environment will be. This is particularly the case if bikes are used in combination with public transport to replace cars for both commuter mobility and commercial mobility.

**Costs and benefits**

**Costs**
Costs for installing facilities (storage, shower facilities), administration.

**Benefits**
Fewer parking spaces are required, accessibility improves, lower travel expenses. Employees who come to work by bike are less often ill.

**Enforceability**
The establishment can demonstrate that it is a member of one of the regional networks. The establishment can demonstrate that it has taken part in a campaign (through its employees).

Please also see:
- www.fietsennaarhetwerk.nl/aan-de-slag
- www.rij2op5.nl
- www.trappers.net
- www.duurzaammkb.nl/tips/tip/551/regeling-d

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**Why implement this measure?**
- Because it cuts back sick leave
- Because it requires less parking space
- Because it is sustainable

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<table>
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**Promising**

**Rejected**

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71
Measure: Another Style of Travel Parking Policy

**Scope**
Commuter mobility (commercial mobility)

**Description**
By parking policy, we mean restricting the possibilities employees have to park their cars close to the establishment (within a range of 500 metres). If an employer introduces a parking regime, the employer must study each individual employee’s need to use a car. The employer must consider the following aspects: individual circumstances (for instance, an impairment) and other reasonable options for reaching the establishment (by bike if it is within cycling distance, by public transport within 1.5 times the time it costs to reach the establishment by car; possibly carpooling). The parking regime is related to the employer’s vision on mobility.

When you introduce a parking regime, it important that you involve the works council.

**Applicability**
Businesses that have parking problems.

**Environmental effects**
A restrictive parking policy forces the use of alternative means of transport. It has a rather large environmental effect: there are fewer car movements so fewer emissions of harmful substances.

**Costs and benefits**

**Costs**
Perhaps there will be costs for a pass system.

**Benefits**
Lower costs for parking space.

**Enforceability**
A parking policy can be considered restrictive if you do not have more than one parking space for every 10 employees. The establishment must demonstrate that it has set up a parking regime.

**Why implement this measure?**
- Because it cuts back costs
- Because it is sustainable
- Because there is more parking space left for employees who really need it

Please also see:
http://www.slimmeropweg.nl/slim-parkeren-stappenplan/maatregelen

Example: The staff of Wilhelmina Hospital Assen meer op de fiets [More bikes in Assen]

The new parking policy at Assen’s Wilhelmina Hospital (WZA) proved a success for its employees after one year. Now that staff must park their cars farther away, 100 more employees come to work by bike. “Now that staff have an eight-minute walk from the NAM building, where they can park their cars for free, they have worked out that they actually get to work much faster by bike. So, it’s money for jam. And it’s healthy too.”

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Measure: Another Style of Travel Shuttle Services from the station

**Scope**
Commuter mobility

**Description**
A shuttle service is a type of transport by which employees can travel regularly between two or more destinations. For instance, it is used for transport between a business’s sites or to and from the station. If you offer a shuttle service, your employees can use public transport in comfort. Shuttle services are particularly practical for morning and evening rush hours. The business could also consider offering employees a taxi service for off-peak hours.

**Applicability**
Large businesses that are situated some distance away from a public transport stop (station). It is important that the traveller potential is sufficient.

**Environmental effects**
If the shuttle service is a success and actually results in more use of public transport, there are fewer car movements. That means that there are fewer emissions of harmful substances and CO₂.

**Costs and benefits**

**Costs**
The costs of running a shuttle service are high. Perhaps you could consider running a shuttle service jointly with other businesses in the vicinity. In addition, there are costs for the use of taxis in off-peak hours.

**Benefits**
More use of public transport can cut back on the commuter allowance. It can also save parking costs.

**Enforceability**
The establishment can demonstrate that it runs a shuttle service.

**Please also see:**
Vipre: [www.vipre.nl](http://www.vipre.nl)
Connexxion Tours: [www.connexxion.nl](http://www.connexxion.nl)

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Measure: Another Style of Travel Stimulating the use of public transport

**Scope**
Commuter traffic, commercial traffic

**Description**
On balance, travelling by public transport is cheaper and has a less damaging effect on the environment than travelling by car. Businesses can achieve considerable savings in commuter mobility and commercial mobility. Obvious stimulating measures are: offering public transport subscriptions for commuter traffic and offering a commercial public-transport pass (NS business card, Mobility Mixx). Moreover, it is important that employers actively communicate that public transport is a preferred option. In addition to this, other measures are important, such as parking restrictions or offering a shuttle service.

**Applicability**
Businesses that can be reached by public transport. Businesses whose employees regularly go on commercial trips.

**Environmental effects**
The use of public transport instead of cars reduces the emission of harmful substances.

**Costs and benefits**

**Costs**
In general, the costs of public-transport subscriptions are not more than allowances for cars, kilometre allowances or leased cars.

**Benefits**
You can achieve significant savings in the potential reduction in the number of parking spaces.

**Enforceability**
The establishment can demonstrate that it has an active stimulation policy by showing the number of public-transport subscriptions (for commuter or commercial traffic).

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Why implement this measure?
- Because it is sustainable
- Because it requires less parking space
- Because it is cheaper
Measure: Another Style of Travel Allowance
commercial trips

Scope
Commercial mobility

Description
Many businesses provide an allowance that is more than the untaxed part of EUR 0.19 per km for commercial kilometres. A high kilometre allowance stimulates the use of cars. If you limit this allowance and combine that with a business public-transport pass (NS business card, Mobility Mixx), you can stimulate the use of public transport. Movements from city centre to city centre by public transport are generally quicker than those travelled by car.

Applicability
Businesses whose employees regularly go on commercial trips.

Environmental effects
The use of public transport instead of cars reduces the emission of harmful substances.

Costs and benefits
Costs
The costs of business subscriptions for and trips with public transport are usually lower than allowances for cars, kilometre allowances or leased cars. Depending on the sort of trip, the travel time by public transport could be longer and could affect productivity.

Benefits
You can achieve significant savings in the potential reduction in the number of parking spaces.

Enforceability
The establishment can demonstrate that it has an active stimulation policy by showing that a substantial number of the commercial movements are made by public transport.

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Why implement this measure?
• Because it encourages sustainability
• Because it requires less parking space
**Measure: Another Style of Travel Choosing a location near public transport**

**Scope**
Commuter mobility and commercial mobility

**Description**
Businesses that are considering moving can decide to move to a location that is easily accessible by public transport (usually in town centres). At these locations, employees’ commutes and commercial movements are more often made by public transport. An establishment’s customers will also use public transport to reach it.

In the long term, businesses can achieve a better position on the employment market.

**Applicability**
All businesses

**Environmental effects**
The use of public transport instead of cars reduces the emission of harmful substances.

**Costs and benefits**

**Costs**
Locations in town centres are usually more expensive than locations on the edge of town or outside it.

**Benefits**
You can achieve significant savings in the potential reduction in the number of parking spaces.

**Enforceability**
Moving to a location that is easily accessible by public transport is only worthwhile if it is combined with a restrictive parking policy and if you encourage the use of public transport.

### Why implement this measure?
- Because it is sustainable
- Because it requires less parking space
- Because it leads to a better position on the employment market

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![Promising vs Rejected](chart.png)
Shorter Trips

The measure group “shorter trips” can be extremely effective, but in practice, the implementation of these measures is limited. A compensation for moving house - in combination with a commuter allowance that is phased out, for instance - might induce employees who currently live relatively far away to move closer to work. It would cut back on kilometres. Experience has taught us, however, that this measure does not often have an effect. Moving can be limited by the housing market and by where the partner works.

If many kilometres are generated for trips to customers located far away, you might consider moving the business closer to your customers.

Another reason to consider moving your operations is when the employment market is faraway from the site of the business.
Measure: Shorter Trips Closer to customers

**Scope**
Commercial mobility

**Description**
A business that has plans to move or expand could consider looking for a location that is closer to its customers. That would mean that the business’s employees would not need to travel as far to customers or that customers do not need to travel as far to the business.

**Applicability**
Businesses with a substantial volume of incoming or outbound customer visits.

**Environmental effects**
The overall effect of this measure on the environment is quite considerable. Shorter trips have beneficial effects on environmental aspects such as the depletion of fossil fuels, emissions of harmful substances, noise levels of traffic, combating claims on space and impairment of views.

**Costs and benefits**

**Costs**
Costs of moving, costs of the location compared to the current location. Potentially higher costs due to longer employee commutes.

**Benefits**
Savings in mobility costs for commercial trips made by employees. Potentially higher turnover due to the proximity of customers.

**Enforceability**
The establishment can demonstrate this by explaining the customer locations.

**Example:**
Training Institute De Baak was located in Noordwijk. This company gives training courses and educational programmes on their premises. Ten years ago, De Baak noticed that many of their customers came from the region east of Utrecht. Those customers needed a lot of time to reach Noordwijk and ran into traffic jams, too. That is why the business opened a second site in Driebergen. From then on, De Baak could offer a better service to its customers and its customer base has expanded.

![Opbrengst maatregel](chart)

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**Why implement this measure?**
- Because it is good for customers
- Because it is good for trade
- Because it cuts back the costs for commercial trips

78
Measure: Shorter Trips Moving Allowance

Scope
Commuter mobility

Description
The farther people live away from their jobs, the longer they need to travel. That means the costs increase and they cannot use alternatives such as bikes. So a business that actively helps its employees to move closer to their jobs can gain a lot.

Applicability
An employee could be eligible for an allowance if he/she moves to a house that is within cycling distance, for instance. This measure does not apply if the employee is transferred because of his or her job. However, it does apply if the scheme has been used within the last three years because the business moved.

Environmental effects
The number of kilometres for commuter mobility is reduced. The bike becomes a more obvious means of transport. Nonetheless, an employee could have many reasons not to move house for his or her job: the partner’s job, the situation on the housing market.

Costs and benefits
Businesses have much to gain if their employees live as close as possible to their jobs. The employees are less tired from travelling and it becomes more appealing (financially) to travel by bike or public transport. The demand for parking facilities drops and the costs for travel are less. The costs for introducing this measure are low, or non-existent. However, certain matters must be laid down in the employment conditions and/or the collective bargaining agreement.

Enforceability
The establishment must have a fixed moving allowance that demonstrably stimulates living closer to work. The immediate moving costs must at least be redressed or an allowance must be given that is proportionate to the sum the business saves on commuter costs in three years. The moving scheme must be demonstrated in collective bargaining agreements or employment conditions.

Why implement this measure?
- Because it saves employees time
- Because the business’s ties with its employees grow stronger
- Because it requires less parking space

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Promising:  
Rejected:  

79
**Measure: Shorter Trips Closer to Employees**

**Scope**  
Commuter mobility

**Description**  
There are many advantages for businesses if the employees live close to the premises. For instance, their employees spend less time commuting and the chances that they use bikes or travel by public transport increase systematically. If a business needs to move its operations, it can consider moving closer to current or potential employees (closer to the employment market).

**Applicability**  
Option (1) applies to businesses considering expansion or moving, perhaps in combination with a move closer to their customers. Business’s best moves are to its employment market: for example, highly educated staff are often found in university towns.

**Environmental effects**  
The effect becomes apparent in the long term. When a business moves, the effect in the short term is often the opposite to its intention: the average commuter distance increases.

**Costs and benefits**  
If you are considering a move, this argument can be taken into account. The costs depend on the features of the location you choose.

The benefits are savings in the travel allowance budgets and in parking space.

**Enforceability**  
The establishment has an employment policy focused on stimulating work in the individual’s home town (built-up area/within cycling distance) or at locations close to public transport (NS stations or regular bus stops). Not many employers have this kind of policy written down on paper, although, in practice, they take it into account when employing staff.

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**Why implement this measure?**  
- Because it saves employees time  
- Because the business’s ties with its employees grow stronger  
- Because it requires less parking space
### Fewer Trips

This group of measures involves, on the one hand, the internal organisation of the work and, on the other, a change of behaviour for employees.

You can partially reduce commercial trips, such as between sites, by arranging video conferences.

Allowing people to work from home reduces the number of daily commutes. Working from home also reduces the need for parking (a significant saving for employers).

We know that employees with leased cars generate more kilometres than employees who receive allowances for their mobility in other ways (or not at all). If you get rid of leased vehicles in your business, your employees travel less.

Introducing a mobility budget is a good way to go about it. You give your employees a budget that they can use as they see fit instead of a leased car and a parking space. That also means they can make some money from it. We know from experience that they are more aware of their choices and drive less.

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Measure: Fewer Trips, Video Conferences

Scope
Commercial mobility

Description
Commercial movements are very personal. Often, business meetings require personal contact. If you can arrange a room at the business premises for visual contact using cameras and monitors, there is very little need for commercial mobility any more (particularly if they are follow-up meetings). A simple webcam will allow people to exchange thoughts interactively without needing to be in the same physical location. A simple kind of video conference is Skype (usually suitable for one-to-one meetings).

Applicability
This measure can be applied to businesses where the employees have many (regular) external meetings. It is certainly appropriate for businesses that have several sites and where employees need to "shuttle" to and fro between them. This measure requires the presence of a meeting room equipped for video conferences.

Environmental effects
The immediate effect of this measure is large and leads to fewer commercial movements. Depending on how much cars and aeroplanes are currently used as transport for commercial mobility, this measure is considerably better for environmental aspects such as the depletion of fossil fuels, emissions of harmful substances, noise levels of traffic, combating claims on space and impairment of views.

Costs and benefits
Costs
Investments in equipping a meeting room with equipment for video conferences.

Benefits
This measure will mean lower costs for commercial mobility (travel costs and parking). The measure is also appealing to businesses and employees because employees will not spend any time travelling. If you can arrange meetings more efficiently, you will lose less working time.

Enforceability
The establishment must demonstrate that:
1) it has a room for video conferences, and
2) that room is used to such an extent that you do not need at least an agreed percentage – for instance 10% – of the commercial movements any more. You can demonstrate by setting off the use of the room against the remaining commercial movements.

Why implement this measure?
• Because it saves money
• Because it saves time
• Because it considerably reduces energy consumption and emissions
Measure: Fewer Trips Working from Home

Scope
Commuter mobility

Description
It is not self-evident that employees should spend every day working at the office or on the business site. Offering facilities to work from home part of the time has many advantages for both employers and employees. The most significant, immediate advantage for employees is obviously that he/she does not need to travel from home to work. Studies show that a significant advantage for employers is that labour productivity increases. In addition, employers save on office space, which means saving money, by switching to a flexible use of the workstations at the same time.

The establishment offers a scheme for working from home and/or telecommuting which employees can appeal to. They structurally do some of their work at home, which results in 10%, 20% or more savings on normal commuter movements. (Attention: this only applies to a scheme for Working from Home, so that employees does not need to commute).

However, we do not regard it as working from home if 80% or more of the work was already done at home.

Applicability
The measure is suitable for businesses where employees can do certain parts of their work at home and/or do office work at home. Logging into the company network and related facilities is self-evident.

Environmental effects
The overall effect of this measure on the environment is quite considerable. Depending on how much cars are used in the current transport of commuter traffic, this measure is much better for environmental aspects such as the depletion of fossil fuels, emissions of harmful substances, noise levels of traffic, combating claims on space and impairment of views.

Costs and benefits
Costs
Facilities for enabling employees to work from home (login options for computer systems, investments in home offices) are potential operating costs.

Benefits
Transport-related benefits: considerably lower costs for transport (parking and travel costs). Other benefits: this measure can help employers reinforce their HRM because they can offer employees more freedom to choose a working environment that is appropriate for the nature of the work, freedom in working hours, combining work and personal life, etc. This could lead to higher staff productivity.

Enforceability
The establishment must demonstrate that it:
1) has such a scheme (in employment conditions), and
2) can plausibly show, by means of the number of telecommuting contracts with its employees, that so much use is made of the scheme that 10% of the movements are no longer necessary.

Why implement this measure?
• Because it saves employees time
• Because it cuts back office space
• Because it requires less parking space
Measure: Fewer Trips Reconsider the Lease and Mobility Budgets

**Why implement this measure?**
- Because it is in keeping with the need for flexibility in styles of travel. A mobility budget makes employees more aware of the costs.
- Because it is in keeping with sustainable business operations.

**Scope**
commuter mobility and commercial mobility

**Description**
Most companies spend lots of money on their employees’ commutes and commercial trips; on average, it is often about €2,000 per employee, and can run up to €10,000 or more. The indirect costs are often several times as much: loss of production due to traffic jams and long trip times, additional costs for parking and all the management and administrational costs.

A traditional lease scheme often falls short of the current needs of employers and employees. Employees want more flexibility in the times and style of travel and work. Employers are looking for more sustainable business operations and want to cut costs.

A mobility budget gives the employees the responsibility for commutes and commercial trips. They are given a monthly budget and the costs they have for transport are deducted from it. The employees may keep the sum that is left - on certain conditions. If they have a shortfall, they will have to pay.

A mobility budget centres both on reimbursing expenses and on encouraging the right behaviour. A mobility budget makes employees more aware of the costs.

At present, there are three kinds of mobility budgets for leased-car drivers:

1. The “relinquish” budget: relinquishing a leased car (arranged in the employment contract) in favour of a fixed allowance (often based on the standard amount for leasing). The employee in question pays for the rest of his or her travel expenses.

2. The “car-choice” budget: leased-car drivers who choose a cheaper or cleaner leased car than the standard ones may keep the financial difference. Often, the employer’s reasons involve sustainability and the employee’s reasons are the lower additional tax liability.

3. The “car-use” budget (the bonus-malus lease budget). This budget gives the leased-car driver a financial incentive to drive less, and to drive more efficiently, to travel by other means (bike, public transport, carpooling), to buy cheaper fuel and to cut back on parking costs.

**Applicability**
For businesses with a lease scheme (arranged in the employment contracts and functional).

**Environmental effects**
The overall effect of this measure on the environment is quite considerable. Fewer trips are made and employees buy cheaper (more efficient) cars. Beneficial effects on environmental aspects such as the depletion of fossil fuels, emissions of harmful substances, noise levels of traffic, combating claims on space and impairment of views.

**Costs and benefits**

**Costs**
Investments in administration.

**Benefits**
 Fewer costs for mobility (depending on the version selected). Employees can also reap the benefits.

**Enforceability**
The establishment must demonstrate that it has such a scheme (incorporated into its employment conditions.) For more information: http://www.u15.nl/communities/community-mobiliteitsbudget
Efficiency Plan for Passenger Transport Promising Measures

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**Efficiency Plan for Passenger Transport Motivation is not included in the measures**

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<tr>
<th>Investigated measure</th>
<th>Motivation is not included</th>
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## Potential quantity of savings

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<th>Onderdeel</th>
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### Improvement measure

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<tr>
<th>Improvement measure</th>
<th>Potential savings (per year)</th>
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<tbody>
<tr>
<td></td>
<td>Vehicle movements</td>
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**Total**
Annex 2

For the preselection, the company details are recorded and studied to determine what kind of employer it is.

The preselection is the first stage of the tool; its purpose is to find out whether a business is relevant to the duty of care. Based on the preselection, the business may be invited to assess its impact on the environment (baseline measurement) if that has not already been done, or if the assessment is not complete.

For passenger mobility, we look at the number of staff, the level of the staff’s education, the features of the location and the number of commercial kilometres the business produces. Local and specific circumstances can be a reason for customisation and different criteria.

In the Netherlands, the average distance of a commute is about 17 km for a single trip. There is plenty of variation: highly educated employees travel twice as far (35 km) while employees who are less well educated travel less than 10 km. That means that a single highly educated employee commutes, on average, about 14,000 km per year. That means that a law firm that has 200 employees, for instance, generates nearly 3 million kilometres per year. If three quarters of those kilometres are travelled by car, the emissions of CO2 are more than 400 tons. If the office is more urban and closer to a station, we can assume less use of cars and more use of public transport. More employees will travel by bike too. In such situations, the emissions are lower in proportion.
Appendix 3C Measures and the Visitors Mobility Tool
The Tool for Crowd-Pullers, an explanation

The tool for crowd-pullers is based on Mobility Management for crowd-pullers of December 2007.

The tool comprises six measure fields, including descriptions of the measures, for visitors mobility and three measure fields for specific circumstances with some pages on measures from the existing User Manual.

We have added 5 examples of Permits for Mobility Management from the Environmental Agency Noordzeekanaalgebied.

www.infomil.nl
Crowd-pullers can be divided into Mega complexes and Events

Mega complexes have permanent locations. Events have changing locations and only use that location temporarily. By “event”, we mean an organised activity that draws relatively many visitors for a short time.

*Mega complexes* can be classified by their scale (regional or national) and sector: commercial (shopping/retails; RAI, for instance) and recreational (sports, recreation and theme parks, Gelredome for instance).

The scale has an impact on the catchment areas of the mega complexes. The scale is decisive for the distance and average travel time; it has a large effect on the length of visit to the complex.

The sector to which the mega complex belongs is decisive for the target group. The target groups vary due to the spread of the visits over the time and the dependence on cars. People visit furniture stores at different times from when they go to the supermarket. Visitors to IKEA or Makro stores come by car so they can transport their purchases while visitors to a sports complex are less dependent on cars.

The following facilities are essential for a mega complex’s good accessibility:

- plenty of parking facilities
- direct connections to public transport
- a road infrastructure that allows accessibility

*Events* draw many visitors in a short time and are very diverse. That makes them harder to classify. The classification we can make is based on the scale of the catchment area:

local, regional, national and, in some cases, international
The advantages of mobility management for people and goods for mega complexes and events are:

- fewer traffic jams and parking problems
- more alternative means of transport, better accessibility with options for non-drivers
- more mobility capacity and flexibility if the numbers of visitors are large
- more visitors for the crowd-puller because travelling by an alternative means of transport becomes part of the crowd-puller itself (for instance, a “magic” bus service from the station).
- savings in costs on the parking infrastructure for the owner of the establishment
- less traffic, less inconvenience, less stress for visitors
- improved traffic safety
### Kenmerken

**Specifieke omstandigheden**
- Bezoekers Megacomplexen
- Bezoekers Evenementen

### Maatregelgebieden

- **Locatie en infrastructuur**
- **Verkeersmanagement en routering**
- **Beperken van pieken**
- **Minder verplaatsingen**
- **Meer fietsen en lopen**
- **Meer met openbaar vervoer**
- **Schonere auto’s**
- **Vollere auto’s**
- **Minder autokilometers door meer aandacht parkeren en organisatie**

### Maatregelen

- **Maatregelbladen P1 t/m P10**
- **Verlengen openingstijden**
- **Informatie publiekstreker**
- **Reis/route informatie**
- **Info/com bereikbaarheid fiets**
- **Korting verlenen**
- **Infrastructuur/bewegwijzering**
- **Beveiligde fietsenstalling Park&Bike**
- **Pakketbezorgdienst**
- **Systeem voor vervoer boeken**
- **Kortingsregeling voor OV**
- **Speciale (gratis)vervoerpassen**
- **Aantrekkelijk vervoer inzetten**
- **Parkeerplaats bus bij ingang**
- **Overleg overheden service OV**
- **Stimuleren schone voertuigen**
- **Stil asfalt**
- **Doelgericht infra/routering**
- **Parkeerplek/laden elektrisch**
- **Voorkeurplaatsen/-stroken**
- **Betaald parkeren**
- **Informatie over samenrijden**
- **Online info route/parkeerplek**
- **Parkeerbeleid ontwikkelen**
- **Parkeerbeleid toepassen**
- **Piekenregelen**
- **Recreatieve voorzieningen**
Measure: Dedicated lanes for group and public transport

**Scope**
Employees of, and visitors to, mega complexes and events at locations with accessibility problems.

**Description:**
A lane, physically separated from other traffic or otherwise, is used for group and public transport (Efficiently Used Vehicles, “EGV”) to and from a mega complex or event. Use of lanes specifically for a target group will improve the location’s accessibility. There are a number of distinctive types:
- a temporary lane used for an event
- a permanent lane (“EGV”-lane) for transport to a mega complex

The hard shoulder can be used temporarily as a lane for group and public transport to and from an event. A permanent solution is more suitable for a mega complex at a permanent location. Existing bus lanes and rush-hour lanes are very suitable for this purpose and quick to arrange.

**Important preconditions**
- Existing lanes/hard shoulders/rush-hour lanes must be available.
- If there is no existing lane, there must be enough room for a permanent lane.
- There must be options to enforce the use of the lane.
- The expected use determines the access policy for the dedicated lane. Vehicles for van-pooling and carpooling and efficiently used vehicles can only access the lane if the expected use by other group transport and public transport is limited. This will create support for the dedicated lane.
- The availability of sufficient capacity on the road network in the vicinity of the mega complex or event is an advantage, but not a condition.
- Combining a Park & Ride facility at a connection to the main road network is a factor for success for this measure.

**Measure to be implemented by**
- the local government authorities in negotiation with the parties involved such as other authorities: provincial and/or urban region, businesses, public transport services, local residents and the police.

**Applicability**
- At locations where there is no other high-quality alternative option for public transport
- There is both a parking problem and an accessibility problem at the crowd-puller
- The costs for Park & Ride facilities (parking + transport costs) must be lower than the parking costs at the crowd-puller
- The dedicated lane must be open to access for freight traffic outside the event

**Advantages and disadvantages (for the environment)**

**Advantages**
- Fewer mobility movements, less impact on the environment
- Better flow of group and public transport traffic and freight transport, if any

**Disadvantages**
- The costs of investing in a permanent solution are high

**Costs and benefits**

**Costs**
- The costs of temporary use of traffic lanes are limited. The costs consist of the permit, enforcement, the use of the lane.
- The costs of a permanent solution are high. The costs consist of investments, changes to the infrastructure, enforcement (physical), maintenance and signposting.

**Benefits**
- Users save on costs (less fuel consumption, less time spent waiting). This will create support for the measure.

**Enforceability**
The measure can be enforced by implementing physical measures (barriers, cameras) or supervision by the police and justice department.
More information
The effect of the measure will increase when it is combined with other measures such as Park & Ride, tourist transfer hubs, transport package deals.

Sources for this measure
• Mobiliteit en Evenementen, [Mobility and Events] ECORYS, Amsterdam, 2006
• Handboek Mobiliteitsmanagement bij wegwerkzaamheden [User Manual for Mobility Management for Road Works]: Dienst Verkeer en Scheepvaart RWS (Rijkswaterstaat’s Centre for Transport and Navigation)
• www.rws-avv.nl (under "Passenger Mobility – user manuals and schemes")
Measure: Park & Ride/tourist transfer hubs

Scope
Commuter mobility and visitors mobility in towns, wild life areas, the coast. Description: A transferium (also known as Park & Ride) is a comfortable location for transferring to public or alternative transport that:

- is in a logical place on the route between origin and destination
- costs little time for a transport
- provides a public transport connection between the transferium and the destination
- has options for setting up numerous attractive facilities (such as shops, restaurants, garages)

A transferium provides the facility to park the car (secure parking) and then make the final stage of the trip by public transport or private group transport to reach the destination. A transferium is not a goal, but a means to solve local bottlenecks. It is part of a total package to reduce inconvenience caused by traffic and to prevent damage to the environment. A transferium helps to reduce the volume of traffic and directs the traffic flows to parking facilities.

Important preconditions
- It is important that local businesses are involved in setting up and operating a transferium. The local businesses know the market and know what is needed.
- They can decide on the size and the right location of the Park & Ride grounds. First of all, the location must be situated on the user’s access route and secondly, it must be a logical transfer hub in relation to the final destination (for instance, a tourist destination). This choice is essential for the measure to succeed.
- Good access from the transferium: the signposting must be optimal and the connecting public transport links should have as few bottlenecks as possible.
- The use of the transferium should be encouraged by promotion and by discouraging parking at the destination (for instance, by making parking more expensive).
- Design the transferium with the visitors in mind. They want to park their cars and travel on to their destinations as efficiently as possible and without paying. Remember to arrange options like viewing, reserving and paying in advance via the internet (www.parkticket.nl).
- Consider how bikes and public transport can reach the transferium.

Measure to be implemented by
- the local government authorities in negotiation with the parties involved such as other authorities: provincial and/or urban region, businesses, public transport services, local residents and the police.

Applicability
- Areas in which the use of cars is discouraged, both in urban areas with much pressure on the parking facilities (edge of town) and in vulnerable (recreational) destinations and/or areas around vulnerable (recreational) destinations (destination transferiums)
- at a distance from crowd-pullers, events and business parks
- as departure locations for transport over long distances (origins of transferiums)

Advantages and disadvantages (for the environment)

Advantages:  
- pressure is removed from vulnerable areas  
- less inconvenience (caused by traffic) for the vicinity  
- lower pressure on parking space  

Disadvantages:  
- high initial costs  
- traffic is attracted to the transferium by the facilities it provides  
- makes claims on the space

Costs and benefits

Costs
- The construction of the infrastructure

Benefits:
- Revenue can be made from parking on the one hand and advertising on the other. Buses and parking tickets can carry advertising for businesses
**Enforceability**
Transferiums in the vicinity of business parks might be used as free parking space by the employees of the businesses at the location, although that is not the intention. The combination of parking + transport ticket can prevent that use.

**More information**
The appeal of transferiums can be improved by adding facilities such as shops, places to eat, etc. Additional facilities depend on the aim and the location of the transferium. People using a transferium in an urban area will want other facilities than people using a transferium in the Veluwe region. It is also possible to organise excursions, walking routes, guided tours, etc. that start from the transferium.

**Sources for this measure**
- Successful examples to follow. *Vervoermanagement als een professionele bedrijfsactiviteit met resultaat*, [Mobility management as a professional business operation with results] ECORYS, Amsterdam, 2005
- Transferium in Renesse in *Dagje uit*; [A Day Out] a book of examples about recreational traffic, KPVV Rotterdam, July 2006
- Handboek Mobiliteitsmanagement bij wegwerkzaamheden [User Manual for Mobility Management for Road Works]: Dienst Verkeer en Scheepvaart RWS
- www.rws-avv.nl (under “passenger mobility –user manuals and schemes”)
Measure: Alternative means of transport such as covered wagons, miniature trains, open-topped buses, etc. deployed from the transferium, Park & Ride and the public transport hub

**Scope**
Visitors mobility to events, mega complexes and recreation areas.

**Description**
Arranging alternative transport from the transferium, such as covered wagons, miniature trains, open-topped buses, shuttle buses, etc. to reach the destination. Alternative transport is part of the enjoyment of an event, mega complex or day at the beach.

**Important preconditions**
- The infrastructure must be suitable for alternative transport.
- The transferium must be at a short distance (no more than 10 - 15 minutes) from the destination.
- Remember to arrange options like viewing, reserving and paying in advance via the Internet (www.parkticket.nl).

**Measure to be implemented by**
- The local government authorities in negotiation with the parties involved such as other authorities: provincial and/or urban region, the owner of the crowd-puller, employers, catering establishments, garages and public transport services, taxi firms, local residents, the police and justice department.

**Applicability**
- Areas in which the use of cars is discouraged, both in urban areas with much pressure on the parking facilities (edge of town) and in vulnerable (recreational) destinations and/or areas around vulnerable (recreational) destinations (destination transferiums)
- at a distance from crowd-pullers, events and business parks

**Advantages and disadvantages (for the environment)**

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>better accessibility</td>
<td>not every location is suitable for alternative transport</td>
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<tr>
<td>stimulates employment</td>
<td>the initial costs are high</td>
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<tr>
<td>good for the quality of life</td>
<td>it claims space</td>
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<td></td>
<td>particularly in the summer months</td>
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**Costs and benefits**

**Costs**
- The deployment of alternative means of transport.

**Benefits**
- Savings on the construction of parking spaces at the “expensive” location.
- Appeals to more visitors - benefits for the owner and the government.

**Enforceability**
Transferiums in the vicinity of business parks might be used as free parking space by the employees of the businesses at the location, although that is not the intention. The combination of parking + transport ticket can prevent that use.

**More information**
A transferium is a good point of departure and arrival for alternative means of transport.
**Sources for this measure**

- Transferium in Renesse in *Dagje uit*; [A Day Out] a book of examples about recreational traffic, KPVV Rotterdam, July 2006
- Natural surroundings and wildlife area Transferiums in the Veluwe region, in *Dagje uit*; [A Day Out]
Measure: The deployment of coaches/buses for direct transport to the destination in combination with separate parking spaces at the entrance

Scope
Visitors to mega complexes (theme parks, football stadiums, etc.) and events (Floriade, Dickens Festival in Deventer).

Description
The deployment of coaches/buses to transport visitors directly to mega complexes and events from random destinations. An extra incentive is to make the trip part of the activity or event that is the subject of the visit (Efteling’s "magic" bus). Offering extra advantages to visitors who travel by coach or bus, such as food vouchers or discount vouchers, is an additional reason visitors might choose this option. There are a number of ways to arrange direct transport by coach:

- Deploying coaches from beginning to end: the visitors are collected from the pick-up point at the beginning of the trip
- Deploying coaches from the transferium or pick-up point; Parking cars at the transferium or pick-up point
- The coach follows its route and picks up visitors from various locations.

Ensure that there are plenty of parking spaces close to the entrance so that visitors do not have far to walk. To prevent the coach transport getting delayed in traffic, which would cancel out the effects of not taking the car, the buses should be allowed to use a dedicated lane which only coaches and buses may use (for instance, the use of rush-hours lanes and hard shoulders where possible). After the visit to the event, etc. the visitors are returned to their point of departure.

Important preconditions
- Find out in advance how many visitors wish to use this option (it is possible to link the trip by coach/bus to the entrance ticket, to reserve in advance or arrange a package deal). Remember to arrange options like viewing, reserving and paying in advance via the internet (www.parkticket.nl).
- Keep the costs low for the visitors, for instance, by giving a discount when combined with admission, to offer an attractive alternative.
- Consider the availability of pick-up points, coaches or buses and drivers.
- A guarantee the transport has been arranged, regardless of the number of visitors travelling by bus.
- Offer a get-home guarantee, regardless of the time.
- Good access and exit roads for the coaches to and from the pick-up points in the vicinity.

Measure to be implemented by
- the crowd-puller and day-tourism business in negotiation with the local government authorities and the parties involved such as businesses, public transport services, local residents and the police/justice department.

Applicability
- At events at which at least 5,000 visitors are expected
- if parking problems and traffic jams on the access roads are anticipated.

Advantages and disadvantages (for the environment)
Advantages
- fewer kilometres generated by cars
- fewer cars so less pressure on parking facilities
- more visitors can be transported at once
- less damage to the environment per visitor if the staffing levels are sufficient
- improved access to the location
- non-drivers can also reach the mega complexes and events
**Costs and benefits**

**Costs**
- the deployment of the buses and drivers, the use of the pick-up points

**Benefits**
- Visitors contribute to the transport and extra admission or advertising revenue by advertising in the coaches or buses.

**Enforceability**
Enforce the use of the special lanes by labelling the buses.

**Sources for this measure**
Measure: Deploying parking attendants/traffic controllers

Scope
Crowd-pullers, mega complexes and events

Description
Deploying parking attendants and traffic controllers to guide drivers to empty parking spaces. Parking problems can be partially solved by deploying parking attendants who guide visitors to empty parking spaces. The flow of traffic improves too if exit cards are used.

Important preconditions
• having plenty of parking facilities
• arranging to accommodate for peak times, by opening up meadows, etc. for instance.
• preventing a queue of waiting cars that need to pay for parking space by making payment in advance possible via the Internet (so only a check on the proof of that payment is needed)

Measure to be implemented by
• the crowd-puller in negotiation with the local government authorities and the parties involved such as businesses, suppliers, parking management services, local residents and the police/justice department.

Applicability
• crowd-pullers, where the visitors arrive for a limited visit and want to park quickly
• events without any permanent road markings and where most visitors don’t know their way around

Advantages and disadvantages (for the environment)
Advantages
• prevents illegal parking in verges and residential areas
• fewer traffic queues
• less inconvenience for the vicinity, improves the quality of life
• creates a number of (Saturday/part-time) jobs
• happy visitors

Costs and benefits
Costs
• mainly labour costs (and perhaps clothing costs) for the parking attendants/traffic controllers

Benefits
• revenue from parking fees

Enforceability
Police presence for supervision

More information
Traffic controllers should be easy to recognise, both during the day and at night

Sources for this measure:
Beverwijk Bazar in Dagje uit; [A Day Out] a book of examples about recreational traffic, KPVV Rotterdam, July 2006
Measure: Controlling and accommodating for peak times in pressure on parking facilities

Scope
Mega complexes and events.

Description
Peak times in pressure on parking facilities by using meadows, village greens, closing off roads, grounds, etc. Using other grounds in the vicinity for parking when the normal parking facilities start filling up.

Important preconditions
- having facilities/grounds to accommodate for peak times
- coordination with the owners/managers of those grounds
- someone must notice that the normal parking facility is starting to fill up and decide to use other grounds to accommodate for the peak times (parking attendant/traffic controller?)
- facilities to adjust the access route (fences, cones, etc.)
- separate exit routes that are independent of the access routes
- good signposting

Measure to be implemented by
- the crowd-puller negotiates with the local and regional government authorities (province and urban region) and the parties involved such as the owners of the land, businesses, local residents, public transport companies and the police.

Applicability
For crowd-pullers whose visitor numbers per day are difficult to predict.

Advantages and disadvantages (for the environment)

Advantages
- prevents illegal parking in verges and residential areas
- fewer traffic queues
- less inconvenience for the vicinity

Disadvantages
- it adjusts to the demand, so it could attract more visitors

Costs and benefits

Costs
- consist of hire and use of the grounds

Benefits
- consist of parking fees

Enforceability
Police presence for supervision

More information
Provide alternative means of transport such as group bus transport www.tripticket.nl and do not hesitate to cut off the access to the area “full is full”.

Sources for this measure
Beverwijk Bazar, Efteling, coastal areas in Dagje uit; [A Day Out] a book of examples about recreational traffic, KPVV Rotterdam, July 2006
Measure: Combining and sharing capacity (parking facilities) at mega complexes (cinema, theatre, stadium and hospitals)

**Scope**
Employees, visitors to office parks, hospitals and crowd-pullers.

**Description**
Everyone wants to park as close to their destination as possible; it is not always possible. When there is too little parking capacity, people park in verges, on roads and other places. That is not desirable. You will need to decide, per situation, which options there are for parking. Could use be made of the existing parking capacity in the vicinity? Or will alternatives be needed to accommodate for peak times? The double use of car parks. During the day, the car park is used by employees and visitors; in the evening and at weekends, it is used by visitors to recreational establishments, sports, late-shopping nights, etc.

**Important preconditions**
- It must be close, in the immediate vicinity, to other establishments with other functions that draw large numbers of visitors. In addition, it is important that the times of the different uses follow on from each other reasonably well without overlapping too much.
- The distance between the car parks and the location is not too large. The larger the distance, the less inclined people are to park farther away. Accommodating for large distances by using shuttle services adds to the costs.
- Parking costs must not be too much, or else there is not incentive to park elsewhere.
- Good coordination between the various parties prevents problems (such as overlapping opening hours).
- Remember (although this choice of phrasing makes it seem more of an option than a precondition) to arrange options like viewing, reserving and paying in advance via the Internet (www.parkticket.nl).
- There must be someone who notices that the normal car park is starting to fill up (see under P7).

**Measure to be implemented by**
- the local government authorities in negotiation with businesses and the parties involved such as other authorities: provincial and/or urban region, businesses, public transport services, local residents and the police/justice department.

**Applicability**
For crowd-pullers, whose numbers of visitors fluctuate greatly.

**Advantages and disadvantages (for the environment)**

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tr>
<td>fewer vehicle movements</td>
<td>it could attract more traffic</td>
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<tr>
<td>improves the location’s accessibility (by car)</td>
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<tr>
<td>less pressure on the parking facilities</td>
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</tbody>
</table>

**Costs and benefits**

**Costs**
- are relatively low; use is made of car parks that already exist

**Benefits**
- parking fees (extra)

**Enforceability**
The target groups can be separated from each other by using barriers and a pass system.
More information Sources for this measure
Examples include:
- allowing weekend visitors to Madurodam to use the car park of the Ministry of Infrastructure and the Environment
- visitors to the mega cinema in Amsterdam Bijlmer or to Ikea can park in the business park
Measure: Dynamic mobility management and routing

Scope
Visitors to mega complexes (theme parks, football stadiums, etc.) and events.

Description
Using dynamic mobility management provides alternative routes or (empty) parking facilities so that the intended destination can be reached. Dynamic route advice provides options locally for alternative routes and parking facilities and ensures a better distribution of the road capacity and traffic flow. Panels above the road or mobile signs with route information can be used as temporary signposting to show the routes. The dynamic information can even be used to close off lanes or to designate them to specific traffic flows such as coaches or buses. You can choose to bar freight traffic at an event and guide them along other routes. Smart use of traffic lights can improve the flow of traffic. If there is little traffic, you can use phased light, while traffic lights can be used to gate large volumes of traffic. Good parking routes and access/exit routes improve the flow of traffic and the accessibility.

Important preconditions
• the availability of Dynamic Route Information Panels (DRIPs)
• alternatives such as mobile signposts with route information could be placed at strategic places
• the willingness of the road managers to cooperate

Measure to be implemented by
• Local, regional and central government authorities in negotiation with the crowd-puller in question and parties such as businesses, public transport services, local residents and the police.

Applicability
• panels are particularly suitable for mega complexes with changing events.
• mobile signposting for non-regular events
• providing information about travel times by public transport and by car

Advantages and disadvantages (for the environment)
• fewer traffic jams (less CO₂ and fewer particulates)
• spread of traffic movements
• better flow of traffic (less CO₂ and fewer particulates)
• less traffic searching after losing ones way (less CO₂)
• less pressure on the parking facilities
• less inconvenience for the vicinity (noise levels and air pollution)

Costs and benefits
Costs
• direct costs for the installation of the DRIPs
• hire and use of temporary signposting

Benefits
• optimal use of the parking facilities
• happy visitors
• improved accessibility

Enforceability
Traffic controllers and police supervision
More information
Make sure the information is reliable; if it is not reliable, the situation will be worse, not better

Sources for this measure
• www.maatregelencatalogus.nl, Ministry of Infrastructure and the Environment
• Handboek Mobiliteitsmanagement bij wegwerkzaamheden [User Manual for Mobility Management for Road Works]: Dienst Verkeer en Scheepvaart Rijkswaterstaat (Rijkswaterstaat’s Centre for Transport and Navigation) www.rws-avv.nl (under “passenger mobility – user manuals and schemes”)
Measure: Gating, cutting off, narrowing access/exit flow options

**Scope**
Mega complexes and events

**Description**
Gating, cutting off or restricting the access/exit flow options spreads the traffic movements over time and improves control over the flow of traffic. The traffic is allowed in bit by bit, producing an optimal flow of traffic.

**Important preconditions**
- Allow a sufficient buffer to gate the traffic.
- Provide information for the road users (for instance, full route information from the home address to the preferred car park at the event).
- Provide alternative activities to make the waiting time at the location more pleasant.
- Prevent potential rat-run traffic.

**Measure to be implemented by**
The crowd-puller in negotiation with the local government authorities and the parties involved such as other authorities: provincial and/or urban region, businesses, public transport services, local residents and the police/justice department.

**Applicability**
Situations in which the majority of the visitors arrive or leave at the same time.

**Advantages and disadvantages (for the environment)**

**Advantages**
- better flow of traffic (less CO$_2$)
- protection of vulnerable destinations

**Disadvantages**
- more traffic jams and waiting times at access and exit roads
- detoured kilometres produce more CO$_2$ emissions

**Costs and benefits**

**Costs**
- changes to the infrastructure, such as constructing buffer zones, mobile barriers and traffic lights

**Benefits**
- cutting back on time spent travelling
- better accessibility produces economic gain
- extra turnover for catering establishments

**Enforceability**
- harsh infrastructural measures prevent the wrong behaviour
- good behaviour can be shaped by means of video registration and focused supervision on traffic

**More information**
The measure must be coordinated with dynamic mobility management.

**Sources for this measure**
- Dajje uit; [A Day Out] a book of examples about recreational traffic, KPVV Rotterdam, July 2006
- www.maatregelencatalogus.nl, Ministry of Infrastructure and the Environment
• **Handboek Mobiliteitsmanagement bij wegwerkzaamheden** [User Manual for Mobility Management for Road Works]: Dienst Verkeer en Scheepvaart Rijkswaterstaat (Rijkswaterstaat’s Centre for Transport and Navigation) www.rws-avv.nl (under “passenger mobility –user manuals and schemes”)

Fewer movements

- Extending opening hours: spreading the arrival of visitors so they have plenty of time to see and enjoy everything. This cancels out a reason to visit the location again, at least in the short term (for instance, shopping centres and theme parks). The crowd-puller will prefer this not to happen.

- Providing exhaustive advance information about the crowd-puller: this will prevent people making unnecessary travel kilometres (because the day out proved not to be what they expected it to be). Providing clear travel information in advance to prevent kilometres made for detours.
More visitors arriving on foot or by bike

- Providing information about the accessibility by bike in advance.
- Giving visitors on bikes discounts on admission (for instance, by means of money-off vouchers).
- Negotiations with the local government authorities about good cycling facilities, such as safe and comfortable cycle paths/bike lanes, good signposting to the crowd-puller and secure bike parks.
- New developments in automatic bike parks and Park & Bike. Communication about the accessibility by bike.
More visitors arriving by public transport

- Offering a parcel delivery service so that visitors can arrange to have their purchases delivered to their homes if they travel by public transport.
- Booking facilities for booking the preferred transport in advance, so that you know how many visitors travel to the crowd-puller and what time they will arrive/leave. This will also save the visitors the trouble of looking up and arranging their alternatives for the car/trip themselves (www.tripticket.nl).
- Arranging discount deals for visitors with public transport services.
- Coordinating the opening and closing times with public transport departure times and arranging them with the public transport services.
- Offering special (free) transport cards for events and temporary happenings.
- Offering attractive transport by using covered wagons, miniature trains, open-topped buses from the Park & Ride and public transport hub* (p3)
- Reserving temporary parking spaces for coaches at the entrance to events.
- of the establishment* (p4).

Negotiations with the (local) government authorities about the following matters:
- Opening bus services for direct connections between holiday parks and tourist attractions.
- Deploying extra public transport for events.
Measures to be taken by the local government authorities are:

- Encouraging the use of clean vehicles for transport of passengers and freight (particularly to natural wildlife areas).
- Using silent asphalt on access roads that lead through residential surroundings.
- Constructing quick access and exit roads for organised traffic. The visitors must be able to see for themselves that organised travel has both financial and practical advantages.
Fuller cars

- Provide privileged parking spaces for visitors if they arrive in a vehicle with 6 or more people.
- Reserve separate lanes (“EGV lanes”) on the grounds of the crowd-puller for efficiently used vehicles.
- Introduce paid parking at the establishment; people who travel by car together are given a discount or do not need to pay.
- Encourage visitors to share a car by setting up a match system on the website where people can get in touch with each other. The crowd-puller can encourage that behaviour by offering discounts. Also offer the option of booking and paying the admission directly online.
Arrange the option to view, book and pay online. After arranging that, the driver is sent a personal route plan and is guided quickly to the car park.

Within the context of “parking and organisation”, the local government authorities can implement the following additional measures to improve the accessibility and to reduce the inconvenience to the vicinity by:

- Developing a parking policy: who can park where (criteria) for which parking fee.
- Regulating parking management and shared parking capacity.
- Restricting inconvenience caused by parking in residential areas by introducing a “blue zone”.
- Employing parking attendants/traffic controllers.
- Implementing parking indicators.
- Controlling and accommodating for peak times.
- Stimulating the construction of recreational facilities at walking and cycling distance from the residential areas.

Fewer kilometres are produced by cars if you spend more attention to parking and organisation.
Examples

ARENA Traffic and (public) transport

- The permit holder stimulates and aims to restrict the impact on the environment caused by the traffic to and from the establishment as much as possible.
- The permit holder should also ensure that public transport is guaranteed until at least 1 hour after the end of the event if the event ends after 11 p.m. Public transport should be sufficiently guaranteed until Amsterdam’s Central Railway Station.
- The permit holder must inform the visitors to the event in due time of the departure times of the public transport.
- The permit holder must submit a new mobility plan to the director of Dienst Milieu en Bouwtoezicht [The Department for the Environment and Building Supervision] no later than six months after this permit has taken effect. The mobility plan should be drawn up in consultation with the Mayor and Aldermen of Ouder-Amstel.

This plan should at least contain:

- parking capacity for no more than 11,250 cars;
- a bike park that has demonstrably sufficient capacity, for at least 2,750 bikes and 250 mopeds/motor bikes;
- which residential areas should be made inaccessible for cars of visitors to the stadium by means of access regulation;
- combination tickets for admission and parking;
- combination tickets for admission and public transport;
- deployment of extra equipment such as shuttle buses;
- the route for shuttle buses and bus stops;
- a central contact for transport information and mediation;
- if necessary, an additional bus system;
- a route direction system;
- regulating parking management and enforcement system;
- a traffic circulation plan and
- a communications plan, including clear signposting to bike parks and public transport points.

The information above must be differentiated by the type of event and the expected number of visitors; there must be a guarantee that the transferium functions properly.

The transferium may be included in the calculation of the total parking capacity needed as the equivalent of 1,500 spaces.

Regarding the parking spaces near Borchland Party Centre, it should be stipulated that they are only used for large events and even then, as the last in a series of car parks that are used. No event may be organised if the parking space necessary cannot be guaranteed.

- The entrance tickets for the stadium should include a text that discourages visitors to visit the stadium by car and encourages them to travel by public transport or bike.
- On its website or by comparable means of modern communication, the permit holder should inform the visitors as well as possible about the accessibility of the stadium for bikes and public transport.
- The permit holder should indicate on signs which car parks may be used by visitors to the stadium for parking cars.
- Events must be arranged in due observance of the approved mobility plan and in consultation and collaboration with the competent authorities.

The permit holder must include, in the plans, suggestions on how to close off access to residential areas for cars of visitors to the stadium. Those suggestions must be formed after consulting the police, (representatives of) local residents and stakeholders.
Rijksmuseum Mobility Management (permit 2006)

Encouraging alternative means of transport

– The permit holder informs visitors about the museum’s accessibility by bike and public transport. Information is included as a standard on stationery, folders, the website, etc., telling visitors how to reach the establishment by bike and by public transport.

– Within one year of the re-opening of the museum, the permit holder should sell combination tickets that offer transport by train and admission to the museum.

– In addition to regulation 20, the permit holder should conduct a study on the options to expand the combination ticket to include public transport provided by the municipal authorities in Amsterdam. The results should be reported and submitted to the competent authority for approval.

Within one year of the re-opening of the museum, the permit holder should conduct a study on the options for creating bike parks for bikes, in, on the grounds of/or in the vicinity of the museum. The results should be reported and submitted to the competent authority for approval.
Ziggo Dome

Traffic and transport
The permit holder stimulates and aims to restrict the impact on the environment caused by the traffic to and from the establishment as much as possible.
The permit holder informs visitors about the accessibility and availability of parking facilities and bike parks in the vicinity.
The permit holder must inform visitors about the options for reaching the establishment by public transport and encourage the use of public transport. An appeal, at least, to travel to an event by public transport should be included as a standard on stationery, folders, entrance tickets, etc., and on the website. In addition, it should state how to find up-to-date information about travelling to and from the establishment by public transport.

The permit holder guides the traffic to the car parks intended for that purpose for events at the establishment if the capacity of the parking facilities in the immediate vicinity is not sufficient for the expected numbers of visitors.
The permit holder must make the information provided by the public transport services about departure times available to the visitors to the event in due time and in an appropriate way.
If events are held in the central region of Amsterdam Zuidoost at the same time, the permit holder must coordinate the programme of the event with the other organisers. The permit holder should also coordinate the arrangements with the managers of the parking facilities.

The permit holder should submit a mobility plan to the competent authority for approval no later than two months before the permit holder occupies the Ziggo Dome. This plan should at least contain:
- combination tickets for admission and public transport or a contract with Tripticket;
- a central contact for transport information and mediation;
- parking capacity in the vicinity;
- facilities to store bikes in the immediate vicinity;
- a communication plan, including clear signposting to bike parks, public transport points and parking capacity in the vicinity, good information on public transport, accessibility by bike and parking facilities on the website, on tickets, in advertisements and in the hall of the Ziggo Dome.

Measures and facilities that could be implemented for commuter traffic - that is part of the research for the mobility plan - include:
- bike parks, with shower facilities available at the establishment;
- personal travel advice when the person enters employment;
- carpool mediation;
- priority given to car-poolers when parking spaces are allocated; a return guarantee for car-poolers;

This mobility plan should be evaluated one year after the occupation of the Ziggo Dome. Within 14 months of the occupation, a report with potential improvements and an action plan and/or an updated mobility plan should be submitted to the competent authority for approval.

After that, the plan should be reviewed on its currency and adjusted where necessary once every five years.
ARTIS Traffic and transport

Within 3 months of the completion of the multi-storey car park, the permit holder should conduct a new study on the options for reducing the impact of transport on the environment. This is a supplement to the study on traffic and transport (conducted by Decisio, reference Update bereikbaarheidsplan Artis, date 12 July 2011).

The study intended in the former regulation is at least based on the use of the establishment’s multi-storey car park and parking facilities in the vicinity of the establishment. The mobility plan discusses the following matters at least:

4 an inventory of the accessibility;
5 an inventory of the mobility details of commuter mobility, visitors mobility, commercial mobility and freight transport;
6 bottlenecks for the business, employees, visitors, the vicinity;
7 measures that have already been implemented;
8 possible measures.

Within 6 months of the completion of the multi-storey car park, the permit holder should submit an action plan based on the study on the options for reducing the impact of transport on the environment. The action plan lists the measures that will be implemented and when.

The accompanying action plan should at least contain the following elements:

9 measures that are to be implemented;
10 the terms within which they are to be implemented;
11 the environmental effects;
12 the costs and benefits.

The measures listed in the action plan must have been carried out by the dates given in the plan. The permit holder informs visitors about the establishment’s accessibility by public transport. Information should be included as a standard on the website, etc., telling visitors how to reach the establishment by public transport.

When the present company cars are replaced, the most energy-efficient (categories A or B in the Ministry of Housing, Spatial Planning and the Environment’s categorisation), and the cars that have the least impact on the environment that comply with the status of technology at the time, preferably electric or hybrid, should be chosen.

When the present equipment that runs on diesel is replaced, the most energy-efficient equipment that also has the least impact on the environment that complies with the status of technology at the time, preferably electric, should be chosen.
OLVG Hospital MOBILITY combined with the environmental thermometer

1. If the environmental thermometer certificate for (at least) the bronze level was awarded within 6 months after the permit became irrevocable, the following regulations 3 to 5 (inclusive) do not yet have to be executed. If the certificate for the silver level has not been awarded by 1 January 2013, these regulations must still be executed.

2. If the three aforementioned regulations have not been executed by 1 January 2013, the execution should be effected as of that date, unless additional compensating measures (for which points have been awarded in addition to the silver level) have been implemented for the environmental thermometer.

3. Within 9 months after the permit was issued, an implementation schedule should be drawn up for the possible measures. The plan should convert the ambition into policy, implementation measures and a schedule. The note in the preamble to "Bereikbare zorg of zorgelijke bereikbaarheid, Handleiding ziekenhuizen en mobiliteit" [Accessible Healthcare or Worrying Accessibility, a User Manual for Hospitals and Mobility] takes these matters into consideration and assesses the practical aspects.

4. All measures are recorded in an implementation schedule:
   Subject/measure:
   • Reduction target;
   • Performance indicator / can be measured by;
   • Party with the ultimate responsibility;
   • Parties involved;
   • Resources;
   • Schedule for the implementation of the measure;
   • Time(s) for review.

5. The plan should be submitted to the competent authority for approval within the term given.