

A photograph of a narrow cobblestone street at dusk. The street is paved with irregular, grey cobblestones. On the right side, a stone wall runs along the street, and several bicycles are parked against it. The bicycles are dark-colored with some red accents. The street is illuminated by warm, yellow streetlights, creating a soft glow. In the background, there are buildings with windows and a blue sky. The overall atmosphere is quiet and urban.

# Urban Planning for Reduced Car Use

Short version

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Publisher: City of Lund

Editing and layout: Linda Kummel

Reference Group: Håkan Lockby, Åke Hellström and Christian Rydén

Cover photo: Ulla Knutsson

Translation: AAR Translator

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## Foreword

This short version of the Manual of Urban Planning for Reduced Car Use has been produced within the framework of LundaMaTs – an Overall Concept for an Environmentally Adapted Transport System in Lund. The short version has been made possible with the help of the European Regional Development Fund within the BSR Interreg III B Programme.

Both the Manual of Urban Planning for Reduced Car Use and this short version focus chiefly on passenger-car transport and what we in Urban Planning can do to moderate the rate of increase of car traffic. This is especially important in Lund, not only for environmental reasons, but also to be able to strengthen and maintain the competitiveness of the City of Lund. Without a plan for reduced car usage, this would be difficult to achieve. However, much of modern society has been built around the motor vehicle and as planners it is time we asked ourselves ‘Is this what we really want?’. Should we assume today’s - and yesterday’s – travel behaviour when we plan the future city structure, or should we consider that coming generations will have other needs and modes of behaviour? How should we planners act when we form society and various interests have to be weighed against one another? Which route should we take to ensure beautiful cities with excellent living, working, and leisure environments?

Our hope is that this manual will prove a help in the race to create an attractive municipality with sound development - environmentally, economically, and socially. Transport is a necessary part of this development and contributes to our quality of life - but also causes negative effects if it is allowed to grow without control. This manual cannot give answers to every question, but it can help to ask the right questions, and that is a good start to all planning.

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## TRANSLATOR'S NOTE: ABBREVIATIONS

The following are English versions of Swedish abbreviations used throughout the text:

CDP: City Districts Programme

DP: Detail Plan

EMCP: Extended Municipality Comprehensive Plan

LGH: Local Groundwater Handling

MCP: Municipality Comprehensive Plan

MM: Mobility Management

SP: Suburban Programme

# Introduction

## Background

The project 'Land Use and Transport in Lund Municipality' was carried out during the period 2003-2005. It was an 'LIP-project' operated within the framework of *LundaMaTs – an Overall Concept for an Environmentally Adapted Transport System in Lund*. The aim of LundaMaTs was to have a direct influence on reducing carbon dioxide emissions in the municipality, and urban planning is one of the five reforms presented to attain this.

The 'Land Use and Transport project' aimed to increase knowledge support on how urban planning can be used to reduce transport requirements. Target groups were the officials and politicians who work in Lund Municipality on some form of urban planning.

In December 2005, after internal seminars, action meetings, and workshops, the *Manual of Urban Planning for Reduced Car Use* was ready for printing and distribution to the target group after the turn of the year. In the autumn of 2006, the stock of manuals began to diminish, and the wish for a short version or summary, together with an English version, was expressed both internally and externally. This version is intended to meet those wishes. The short version was created first and foremost to reduce the content to present measures and then to group them by subject. It is intended for those who want to know more about planning for reduced car use, but who do not have time or opportunity to read the full version, and therefore provides a quick summary of the measures that are available.

## Why plan for reduced car use?

*Urban Planning for Reduced Car Use* aims to minimise dependence on cars and the need for transport. It deals mainly with creating the conditions for using more environmentally friendly transport and simultaneously reducing public need to use cars. The possibility of changing public behaviour is highly dependent on the attractiveness of the alternatives. The competitive aspects of public transport are mainly frequency of services, cost, and comfort, but it is also necessary to create environments and everyday situations in which it feels simple and obvious to cycle or travel by bus or train.

Many details of everyday life can be very significant in making the car a less obvious alternative. These can include the provision of cycle parking close to dwellings, routes to and from transport stops, opportunities for simple and rapid interchange between bus, train, and cycle at connection points, as well as the layout and length of cycleways. Obviously, the location of housing, workplaces, and businesses is of great significance in choice of transport mode. Reduction of motorised transport also has other advantages: improved health, reduced noise, better access, lower infrastructure costs, increased comfort in urban spaces, and much more. A transition to more sustainable modes of transport also reduces the emissions that can lead to respiratory illnesses, allergies and cancer, while at the same time encouraging the population to take more exercise, thus reducing the incidence of obesity and cardiovascular problems.

The manual was intended to supply the knowledge that exists within the area of urban planning for reduced car use to colleagues in Lund Municipality who work on some form of urban planning. Clearly, this knowledge can also be of use to other municipalities. It can be applied in everyday work, but it will also act as an inspiration for those who want to know how urban planning for reduced car use can be attained. The manual deals almost exclusively with passenger-car transport, but in view of the aim of reducing carbon dioxide emissions it is equally important to take similar action in areas such as truck and air transport.

## What tools are available?

There are several ways of reducing or moderating the growth of car traffic, and those which are generally emphasised are as follows:

- Control of land use (structure, density, and locations of buildings for business and residence)
- Improvement and simplification for sustainable modes of transport
- Introduction of restrictions on car usage (financial and physical control including parking restrictions)
- The Four Stage Principle of the Swedish National Road Administration (analysis of measures to solve identified problems and deficiencies).

In fact, these methods are used only to a small degree. The one that sees most use is mainly improvement and simplification of sustainable transport modes. Restriction of car traffic by financial and physical controls is difficult to apply at municipal level. At the national level there are opportunities to carry out a number of measures that are expected to have

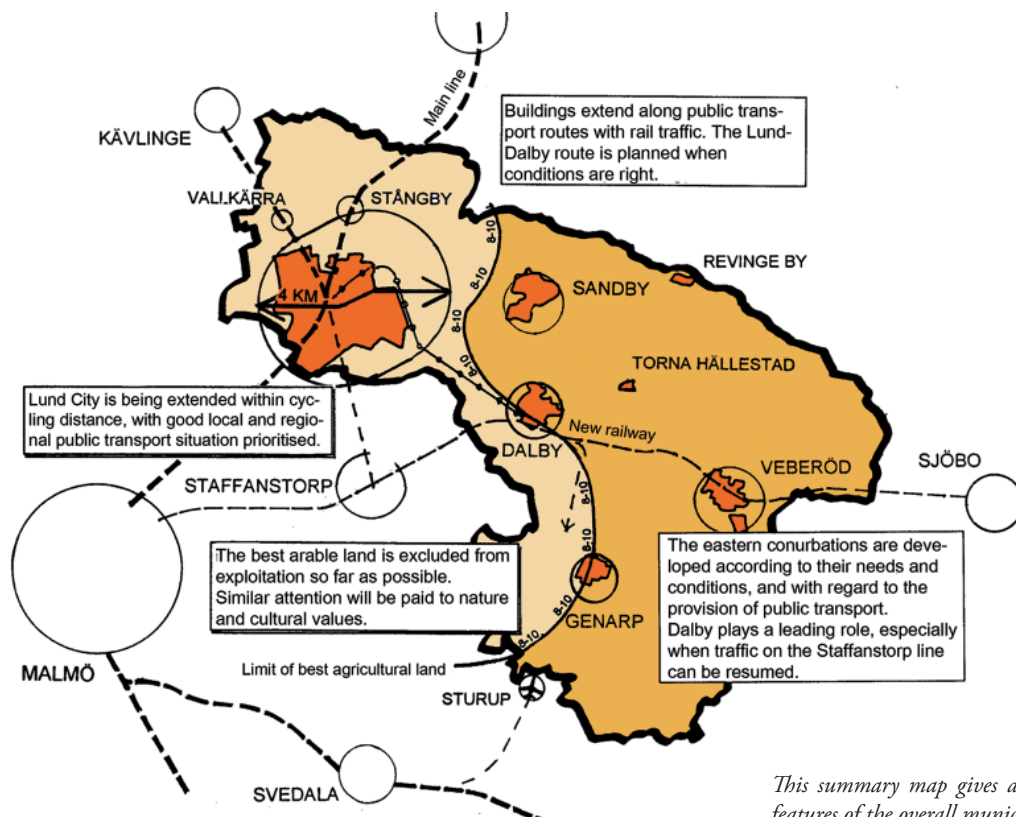
a considerable effect on the amount of car use. Increased fuel prices, charges or fringe-benefit taxes for workplace parking, or taxation that prioritises sustainable commuting are measures that cannot be carried out locally but which can rapidly achieve a transition to more sustainable transport. A regional plan is desirable from several different aspects to increase co-ordination between various municipalities and enable discussions of aspects such as regional enlargement, increased work markets, and localisation of out-of-town shopping centres. From transport matters it is almost a prerequisite with a regional plan to be able to work together at regional level on items such as freight transport, commuting, and the establishment of business and commerce. In Lund the overall plan has been worked out in such a way that the future development of the city can to a great extent take place on a basis of reduced vehicle usage. A strategic move is the 'MCP circles' which show where building can occur within reasonable cycling distance.

Urban planning for reduced car use at municipal level is possible at several planning levels as well as within several authorities: overall planning, detail planning, various types of agreement, traffic design, evaluation and follow-up and soft measures. The measures proposed in the manual include location of housing and businesses, concentration, design of city spaces, prioritisation of sustainable transport, etc, and a brief survey of the measures proposed in the manual will be summarised below.

## Why plan for reduced car use?

Reducing vehicle use has many advantages:

- reduced emissions
- improved local environment
- increased physical activity and improved health
- improved possibilities for children to go to school themselves
- improved accessibility
- prevention of urban sprawl
- increased support for public transport
- increased social integration
- higher traffic safety
- reduced costs of infrastructure extension



*This summary map gives a general picture of the strategic features of the overall municipal plan.*

## Localisation measures

### **Localise dwellings with cycling distance of large workplaces, interchanges or centres**

When? MCP: Report standpoint, work out strategy, EMCP: Make detailed report.

**To be considered!** Financially favourable, adjustment needed regarding space-intensive applications such as LGH.

**Environmental effect:** HIGH

**Example:** VINEX-policy

### **Localise dwellings re public transport interchanges or routes**

When? MCP: Report standpoint, EMCP: Report localisation, CDP/SP: Discuss/report localisation, Traffic plan: Clarify accessibility matters for all types of transport.

**To be considered!** It is easier to put public transport in place before dwellings if public transport already exists early in the planning stage.

**Environmental effect:** HIGH

**Example:** Messestadt Riem, Germany

### **Localise visit and/or staff-intensive activities near interchanges or public transport routes**

When? MCP: Report localisation and standpoint, EMCP: make detailed report, CDP/SP: Discuss/Report

**To be considered!** Support for public transport increases and further actions can be taken. Initially, private initiatives for establishing businesses, a business may move later or become bankrupt and thus reduce customer support for public transport.

**Environmental effect:** HIGH

**Example:** MCP-2004 Mölndal municipality

### **Localise business based on public transport situation in the city (ABC principle)**

When? MCP: Draw up guidelines and define standpoint, EMCP: make detailed report, CDP/TD/Traffic plan: Discuss/report.

**To be considered!** Measures mean that the company does not need as much ground area for parking. Location of activities on an easily-accessible site is not always helpful – if customers or staff are themselves located in inaccessible areas they will use cars in any case.

**Environmental effect:** HIGH, but difficult to control.

### **Plan for areas with low car ownership**

When? MCP/EMCP: Indicate suitable areas, CDP/SP: Discuss/report, DP: Work out indicated areas.

**To be considered!** Restricted parking spaces lead to

# Reduced Car Use Measures in Urban Planning

## Good localisation

### Localisation of dwellings and workplaces

Localisation of dwellings and workplaces within a municipality is very important in traffic work. Extension of the Lund conurbation has been based on a reasonable cycling distance, five kilometres, to the centre, and then along public transport routes mainly based on rail traffic. Sooner or later the five km limit will be reached, and then localisation of dwellings and activities will become very important in terms of transport needs. Both dwellings and workplaces should be localised so that they are within cycling distance either to the destination or to a good public transport interchange. Dwellings need to be accessible to public transport and there should be good opportunities to get onto the pedestrian and cycle traffic network.

Detail planning also provides opportunities regarding localisation of dwellings and workplaces and then the most important aspects are how the various functions are localised within a plan, the position of dwellings within the plan, and similar issues. Good examples of vehicle-reduced localisation can be seen in the Dutch work with Vinex policy and in Messestadt Reim in Germany. 'Car-free' building can be seen in Camden, London, as well as in Tübingen in Germany.

### Localise public transport – inverse ABC-planning

The ABC model is a Dutch model for localisation of activities where the situation is matched against the activity's accessibility requirement based on the existing infrastructure. The model is simple and works well in co-ordinated land and transport planning, but despite this the Netherlands have abandoned the principle because its application did not deliver what was expected. Many companies chose to locate themselves in what are termed 'C-locations', i.e. close to motorways and poorly served by public transport, even when they were companies that were both labour-intensive and had many visitors.

Another problem was that the model because of its nature could deal only with new rather than existing company locations. The method also assumed that 1) there are sufficient 'right' locations, and 2) that

companies were willing to move to one of them. The Scania County Administrative Board in its report *Land Use in Suburbs (Report 2002:17)* proposes an inverted version of the ABC principle in which the form of building is determined by the location of the area relative to the centre and public transport. In this way, an area such as Linero-Norrånga with good public transport, which e.g. connects areas with different schools and the centre, gives a design that is suitable for families with young children and teenagers but also other groups where the car does not come first as a means of transport. Another variant of the ABC principle avoids locating activities near good public transport, but does the opposite, restricting building where public transport is poor.

## Localisation of business

Today, the trend is for larger food and retail businesses to be established near main access roads in typical car situations where competition from public transport is often poor. Customers take it for granted that they will travel by car, which reinforces the need for transport and car dependency and forces the majority into a travel pattern based on car usage.

These large establishments along the city's access roads mean a thinning out of the city and risk reducing the choice of businesses in the city centre, and often drive small shops in city areas and even in the city centre out of business. The long distance and location along traffic routes makes it difficult for many inhabitants (the elderly, the disabled, children, and the large number of people who do not have a driving licence) to walk or cycle to these businesses.

Large business areas risk contributing to urban sprawl and forming barriers because they often have very generous land areas, protection zones, and larger streets or roads connecting the area with other cities. Lund's business areas, like those of many other cities, have a tendency to grow, and the consequences for the city as a whole have not always been analysed. It is no longer manufacturing industries that dominate but the composition is rather varied. Activities with many employees and visitors should preferably be located near good public transport connections. To check the spread of businesses, some types of activities with limited goods transport could be located in or near housing areas.

City district centres with businesses, other types of service, social premises, and possibly homes for the elderly and nursery schools, should be important interchanges, and should also act as public transport interchanges. Rapid-transit city buses could perhaps stop at these interchanges, and many choose to cycle to take the bus to work while others choose service routes that travel around part of the city with shorter distances between dwelling and bus-stop.

There is a great need for regional co-ordination and well-implemented impact and follow-up studies (also at regional level). Increased knowledge of the effects of an out-of-town establishment is necessary to attain increased dialogue between individuals and interested parties.

reduced urban sprawl but can also lead to chaos on the streets. A low-car area must present good services and acceptable alternatives to cars in the form of well-designed pedestrian and cycleways and access to public transport. But restricted or even zero parking does provide building proprietors with the opportunity to reduce building costs.

**Environmental effect:** MEDIUM-HIGH.

**Example:** Low-car housing areas in Camden (London, UK) and Tübingen (Germany).

### **Identify and plan areas suitable for car pools**

**When?** MCP/EMCP: Indicate suitable areas, etc: Facilitate establishment with agreement and support.

**To be considered!** Car pools reduce the need for parking space. Area types suitable for car pools are generally of high density but other criteria such as finance, population make-up, and parking opportunities also play a role to a greater or lesser extent. Environmental effects per car pool member are very good. In Sweden there are some 60 car pools with round 2,000 users.

**Environmental effect:** MEDIUM

### **Localise public transport to visitor-intensive and/or employee-intensive businesses**

**When?** MCP: Define standpoint, Traffic plan: Discuss/report

**To be considered!** Personnel/visitors given improved access to sites and businesses which therefore get increased customer support. It may be difficult to provide public transport retrospectively, and if possibilities for car use remain, good public transport will not have the impact it would have had if it had been there from the beginning.

**Environmental effect:** LOW-MEDIUM

**Other:** Other measures combined with improved public transport can provide better environmental effect, e.g. information campaigns to employees and visitors in the area and parking charges. For example, Nova Lund is a frequently-visited business area where access by public transport could be improved.

### **Restrict building in areas with poor access to public transport**

**When?** MCP/EMCP: Standpoint

**To be considered!** The live countryside can be threatened, but alternative traffic (e.g. car-pooling) can be arranged for places that are difficult to supply with public transport.

**Environmental effect:** LOW

**Other:** Clarity to developers is important, e.g. information sheets explaining accessibility to the municipality's various areas can be provided, with inaccessible areas marked 'limited possibilities for public transport'.

### **Localise larger food retailers for reduced car use**

**When?** MCP: Standpoint, CDP/SP: discuss business development for area, business policy/structure plan: discuss out-of-town business.

**To be considered!** Localise food retailers in city districts without larger business units. Check possibilities for building them near city centre or as concentrations within city districts. More life and movement is created in city districts and this is positive for the inhabitants with businesses close at hand. Large parking areas sometimes act as an attractive force. Private initiatives are required for the establishment of businesses. Any inflow of traffic from other city districts can disturb the inhabitants.

**Environmental effect:** MEDIUM/HIGH

### **Restrict the spread of out-of-town business**

**When?** Regional plan: Common viewpoint in the region first priority, MCP: define standpoint, DP: restrict space and spread of parking - recommend multistorey parking or more resource-effective planning.

**To be considered!** Reducing the size of commercial buildings creates a more human scale. Parking takes up large areas and it is therefore difficult to restrict just the area, but efforts must be made so that customers can get to shops in an alternative way. Also how parking problems are solved within properties is of great importance: cycle parking should be located near entrances, and parking should be solved in a space-effective manner, preferably in multistorey buildings.

**Environmental effect:** HIGH

**Example:** Regional planning of retail trade, Denmark and Norway.

## Concentration measures

### **Concentrate in existing built-up area**

**When?** MCP: Define standpoint, EMCP/CDP/SP: Indicate suitable area, DP: Report.

**To be considered!** Make better use of existing infrastructure; good possibilities to improve waste land. Concentrations in noise zones experienced as positive by those who live inside, potential exists alongside oversize traffic routes, for example. Concentration near roads can cause problems with hazardous goods, noise, etc. Legislation sometimes points in other directions (cf Highways Act).

**Environmental effect:** HIGH

**Example:** 20K , residential building project, Stockholm

The need for large food retailers will probably remain, and good accessibility by bus and cycle should be a prerequisite for establishing them. Large food retail businesses should be restricted partly to business areas and partly to situations. A concentration of large business establishments limits the opportunities for residents of other city districts to walk or cycle to them.

The document *Scania's Environmental Objectives and Environmental Handling Programme (2003:62)* reports important measures to attain environmental objectives, and in this case a well-designed environment. The environmental handling programme states that, from 2004 onwards, municipalities should plan to avoid activities such as shopping centres that can be reached mainly by car. In the establishment of out-of-town shopping centres the effects on traffic work, air pollution, noise disturbance, city-centre businesses, and intrusion into nature and cultural landscape should be clearly reported. The County Administrative Board also emphasises the need for national measures and should also reinforce controls to avoid traffic-generating activities such as out-of-town shopping centres.

## Working with density

Through dense construction and in concentration of existing built-up areas, good utilisation of infrastructure and reduced public distance to destinations and public transport are obtained. Dense construction creates shorter distances to centres and destinations which increases the attractiveness to pedestrian and cycle traffic. A high degree of exploitation in detail planning has an effect on support for public transport and service functions in the neighbourhood. In the same way, mixed areas, i.e. a blend of residential and business accommodation within the same detail plan, can be a way of affecting the availability of local services and thus car dependency.

*The French Quarter in Tübingen is a good example of concentration. Photo: CPO*



# Function integration

A mix of dwellings and workplaces within an area can create a denser city with shorter distances between different functions such as residences, services, workplaces, and businesses. It can also increase the chances that food suppliers and certain services can survive in city district centres or similar neighbourhoods. A common problem is that local shops may close down because many people go to the large out-of-town business areas. Large central stores, or near-town shopping centres, can also have this effect on city district centres.

It should be possible to locate activities such as offices, certain businesses, and other services, which currently exist in specific business areas, to residential areas. A mix of dwellings and businesses means that many people will be in the area throughout the day, which makes it safer, and also that public transport will obtain better support and that more people will want restaurants and food retailers. Availability of provisions and services near dwellings increases opportunities for walking or cycling for everyday errands instead of travelling by car to out-of-town business areas. The initial aim is not that residents will also work within their residential areas, but it opens the possibility for some to be able to choose a job near home. A mix of shopping, services, and residences provides good opportunities to avoid out-of-town establishments. Also, spare-time occupations, amusements, cinema, sport, etc are functions that should be more mixed in with residential accommodation. At the detail planning stage, this mix needs to be designed in a satisfactory manner, and a balance may have to be found around which activities are suitable for mixing in built-up areas.

*At Järila Sjö outside Stockholm, housing is successfully mixed with shops, restaurants, and other activities. Photo: CPO.*



## Increase density for public transport

**When?** MCP: define standpoint, report suitable location, EMCP: Discuss further, Traffic plan: Discuss further, DP: Report a high exploitation rate for dwellings near public transport or in central positions, localise building at public transport interchanges or routes.

**To be considered!** It is more flexible to have public transport in place before building. Public transport is noisy and therefore requires somewhat more expensive construction techniques for buildings. Valuable land may need to be taken into consideration for buildings because it is a suitable place for public transport.

**Environmental effect:** HIGH

**Example:** Rieselfeld, Germany

## Function integration

### Function-integrated building

**When?** MCP: define standpoint, analyse, indicate suitable area, EMCP/CDP/SP: Firm up/report, DP: Report

**To be considered!** Environmental restrictions such as protective distance and environmental quality standards such as PBL can prevent a mix of activities and dwellings, and the municipality's ability to control developers and businesspeople is limited. Traffic safety is often worse than in separated areas, noise can be caused by, e.g., goods deliveries, and the attractiveness of the company may be restricted.

**Environmental effect:** LOW/MEDIUM

**Example:** Järila Sjö, Stockholm, Kirchsteigfeld, Potsdam, Germany

### Localise activities within residential areas to promote increased function mixing

**When?** MCP: Define standpoint, EMCP/CDP/SP: Indicate suitable area, DP: Define position and type of business in plan. In the DP raised ground floors can also be recommended where the possibility of having nursery schools, businesses, dwellings should be able to be located in different phases.

**To be considered!** Businesses will receive increased customer support, local service support will be improved, any local shops will receive better customer support, The residents have more choice within reach, activities increase during the day, there is a demand for public transport from both sides (both in and commuting to the area). Not only companies but also schools and leisure centres are good elements to mix in with residential buildings.

**Environmental effect:** LOW/MEDIUM

**Example:** Southern station area, Stockholm

Measures that promote sustainable transport

**Plan for long-term development of public transport**

**When?** MCP: Define standpoint, Traffic plan: Firm up/Report

**To be considered!** Generally, public transport acts better if it is included as a basic assumption in planning. Development of station area already existed at the MCP stage. The project most often gives good economy, and the money is well invested. There is a tradeoff between local stops and high speed, Good public transport interchanges take up a lot of land and development pressure for these points can be high.

**Environmental effect:** HIGH

**Plan for high density and efficient ground utilisation for public transport interchanges and routes**

**When?** MCP: Decide on increased density for good public transport, EMCP/CDP/SP: Report, DP: Report land utilisation and density

**Environmental effect:** HIGH

**Develop existing and future interchanges to facilitate change between cars, bus, train, and cycle: The 'whole journey' perspective.**

**When?** MCP/EMCP/CDP/SP: Indicate suitable sites, DP: Estimate areas extend and design, Traffic: Detail design.

**To be considered!** Convenience, smoothness, and good detail design will be keywords in the design of good interchanges. Easy changing makes public transport more attractive and effective, and the attractiveness of the area can also increase for business. Large areas may be needed, conflicts with other interests may arise in central locations -- development of interchanges is a slow process.

**Environmental effect:** HIGH

**Improve accessibility of public transport**

**When?** MCP/EMCP: Indicate suitable sites, CDP/SP: Discuss, report situation, Public transport plan: Indicate suitable routes/system, DP/Traffic design: Detail design.

**To be considered!** Different places work for different measures (bus queues, signal priorities, bus-only streets, etc). It may be difficult to obtain sufficient ground area and this can mean dealing with many property owners. Signal prioritisation can improve bus traffic accessibility at crossings. The measures are cost-effective but can be difficult to solve in the

## Work with the Sustainable Transport Act in planning

### Planning for long-term development of public transport

Long-term planning of the public transport route network and service frequency is necessary to be able to develop effective public transport. Planning for new residential and business areas must go hand-in-hand with planning of route networks, and localisation of dwellings and/or activities should be assessed on the basis of the possibility of developing good public transport links. It is of the utmost importance that public transport is in place from the outset.

Lund's current route network has good coverage with short distances between stops, but this has a negative effect on travel times. An example of travel time relations between home and workplace shows that travelling by bus takes too long to be competitive with car travel. Straight, simple, and limited numbers of routes provide the best conditions for effective public transport. The 'Lundalänken' (Lund Link) is an example of how a whole new route can be created to give public transport maximum priority. A combination of the fast express variant with few stops and low traffic routes with longer lines that run nearer to residential property and are accessible to people such as the disabled is the ideal solution.

### Work with interchanges

Good interchanges greatly increase the competitiveness of sustainable transport. Co-ordination with regional traffic should be aimed at developing good interchange points. Opportunities to change from bus to train, from cycle to bus, etc, are very important and should be as fast and as smooth as possible. With good public transport it is important to increase density and to have an effective use of land. Area-intensive ground parking should be avoided and instead parking can be created in special buildings such as the Västra station car park or park-and-ride facilities at the outskirts of the city. In the suburbs, too, it is important to have good parking facilities for cars and cycles at major stops. In modern society many people travel to work, so it is important that residential buildings in good public transport situations are dense. With good interchanges, use of various types of service is facilitated.

### Prioritise public transport in the street environment

Accessibility of public transport is an important factor in competing with car transport, and is normally more important than price. In congested situations, buses do not travel any faster than cars, and

service frequency falls in line with reduced passenger potential. Bus transport will always be regarded as less advantageous than cars, therefore, so long as they both have to operate under the same conditions. To be able to develop Lund's public transport system, both building and car traffic must be adapted to the needs of public transport. If buses are given better conditions, e.g. in the form of bus-only streets, there is greater possibility that more people will choose public transport.

Travel by public transport depends on safety and security on and along the route to the stop. Poor lighting, dense shrubbery, or stops located long distances from buildings mean that people experience a serious sense of insecurity and therefore choose car travel instead. Interchanges and stops need to be well designed for all times of day so that these places feel attractive, safe, and secure. Interchanges should have good intermodality, in other words good opportunities to change between different modes of transport.

## Good design for footpaths and cycleways

The City of Lund has high ambitions regarding pedestrian and cycle traffic, and there is evidence that the attraction of pedestrian and cycle travel increases significantly if the routes are direct and aesthetically pleasing. Footpaths and cycleways that start and finish within Lund's urban area represent a majority of total travel, but half of car journeys are still short (< 3 km). Cycling loses its position as an attractive means of transport when building density becomes too low, because destinations are fewer and distances increase. The city planning pattern is in most cases the cause of this thinning out of the city, generally known as urban sprawl. It is therefore important that planners place great emphasis on creating direct cycleways and aim for density in building.

*Cyclists on a red/grey crossing. Photo: Technical Administration*



case where buses pass through crossings in different directions. The consequences for other types of transport must be analysed.

### **Safe and secure design of stops and interchanges**

**When?** MCP/EMCP/CDP/SP: Define standpoint, DP: Report area and design, Traffic: Report detail design.

**To be considered!** Stops can be designed with good views and be made clearly visible near residences or activities. Detail design of stops should be carried out in accordance with Scania Traffic guidelines, with the greatest possible attention paid to the surroundings in the location and design of stops. Location of stops should be analysed and illustrated at the detail planning stage. It is important that adequate ground area be allocated for stops.

**Environmental effect:** MEDIUM

### **Design new footpaths and cycle routes with attractive and direct sections**

**When?** MCP/EMCP: Allocate sections for major cycle routes, CDP/SP: Report/discuss suitable sections, DP: design of footpaths and cycle routes reported in detail planning illustrations or quality program, Traffic measures: Detail design footpaths and cycle routes in accordance with walk/cycle policy.

**To be considered!** If routes pass through a park the life and movement in the park increase, but routes that pass through parks may also involve some insecurity. Routes through streets can be seen as unsafe from a traffic safety viewpoint (especially for children). At the detail planning stage it is important that footpaths and cycle routes are planned at the same time as buildings so that the straightest sections can be designed. Straight routes can mean that footpaths and cycle routes are laid alongside busy streets. Traffic safety at crossings should be studied and provided for.

**Environmental effect:** HIGH

### **Create a footpath and cycle route network with freedom of choice**

**When?** Throughout the planning process: ensure that suitable routes for completion / contribution areas are indicated in MCP/EMCP/SD/SP, that new cycle routes are marked in DP, and finally that a detail design of cycle routes is carried out as a traffic design measure.

**To be considered!** Life, movement and safety also for residents, cycle routes with different function occur. If new footpaths and cycle routes are laid along roads, motorists may be inspired to cycle.

**Environmental effect:** MEDIUM

**Example:** EMCP for Västerjärva-Ulriksdalsfältet, Solna and Sundbyberg Municipalities, 2004.

### **Prioritise pedestrian and cycle traffic at crossings**

**When?** Traffic Design: Design crossings in accordance with pedestrian and cycle policy guidelines.

**To be considered!** Disincentives for cars can make cycling more competitive; most get a smoother ride and the measures give the city a clear cycle image.

**Environmental effect:** MEDIUM

### **Create well-lit and safe pedestrian and cycle tunnels**

**When?** Measures to improve lighting and safety for unprotected users should be included throughout the planning process and studied in the detail planning process and along with traffic design.

**To be considered!** Adequate space should be allocated at the detail planning stage so that tunnels can be constructed in accordance with pedestrian and cycle policy guidelines. It is important that gradients meet the requirements for wheelchair users and persons with reduced mobility. Tunnels will be as light and as open as possible. Flyovers should not mean detours.

**Environmental effect:** LOW

### **Create good quality cycle parking**

**When?** At the detail planning stage, for building permits and detail design. A good cycle park has good access for cycles, is well lit, has good locking facilities, is near an entrance, allows adequate space between cycles, and has sufficient cycle places near enough to destinations. For long-term parking, cycles should be given protection against weather and theft.

**To be considered!** Cyclists can get nearer to their destination than motorists, which may be perceived as an advantage. Cycle parking should be designed in accordance with the pedestrian and cycle policy guidelines. Space should be guaranteed at the detail planning stage so that parking standards for cycles can be met.

**Environmental effect:** LOW

### **Make an inventory of cycleways**

**When?** Throughout the planning process and at the administration stage. Identification of absent links and studies of route layout should be carried out and documented in a cycle route plan. This can be part of an overall traffic plan or be a specialised traffic plan in itself. Studies of route quality, directness, comfort (paving etc), safety (lighting), traffic safety etc. should be collected into a single document that can for a support for investment and improvements. Collaboration between Technical Administration and the City Planning Office are appropriate for this type of activity.

**Environmental effect:** HIGH

Pedestrians and cyclists are also in need of safe and secure footpaths and cycle routes, and, because lack of security and safety show themselves in different ways, both systems complement one another. Many people choose to walk and cycle on busy streets if they feel that footpaths and cycleways are unsafe, in the dark, for example. Good lighting, regular shrub clipping, as well as placing footpaths and cycle routes near buildings are all important success factors to work on. To be able to see and be seen is very important to provide safety.

Cycleways can in some places be designed in ways that increase their attractiveness. An example of this can be seen in Odense where they worked on green ways, attractive layouts, etc. Footpaths and the cycle route network should be able to be used by everyone, at all times of day. There should be the opportunity of choosing safe routes, green ways, fast routes, etc. New pedestrian and cycle routes should be adapted to the existing network directly and safely.

*Good quality cycle parking means good accessibility, good locking arrangements, and good lighting, but most of all it should be close to destinations. This is exemplified in this location where the pedestrian-only streets Lilla Fiskaregatan and Kyrkogatan meet at Stortorget. Photo: Technical Administration*



## Use illustrations

Many everyday details can be very significant in ensuring that the car is not seen as a first alternative, such as the design of cycle parking close to dwellings, routes to and from stops, simple and rapid interchange between bus/train/cycle, and the design and layout of cycleways.

Detail planning illustrations are not legally binding, but can still be a useful way of arranging the municipality's ideas. Illustrations can for example show how building entries relate to cycle stands and stops, how safe and secure cycle tracks can appear, etc. Illustrations in detail planning can serve as one of many ways to present the low-car concept in dialogue with building owners. If planners can show a low-car illustration of how something might be, there are good opportunities to agree with building owners on these measures from the outset.

## Work with parking areas

Most Swedish municipalities have parking standards which regulate the number of parking places needed for various types of built-up area. Since access to parking has a strong connection to car use, parking standards can act as a good method of controlling car dependency.

Lund Municipality's parking standard gives figures for various activities and built-up areas. There are also corresponding figures for provision of cycle parking places.

At the detail planning stage, parking requirements for cars and cycles are defined on the basis of these standards, and if they do not conform to the number of parking places in the parking standard they

*Car parking at Spoletorp. The car-park is right next to the railway area. Photo: Technical Administration.*



## Illustration measures

### **Present low-cars ideas in detail planning illustrations**

**When?** Early in the detail planning stage and with building permits. Illustrations can include entries facing cycle parking, well-lit footpaths and cycle routes, safe and secure ways to transport stops, good cycle parks, etc.

**To be considered!** Illustrations are not legally binding but motivate planning regulations, describe the aims of plans, and act as support for those who examine building permits. Illustrations can affect building owners by showing a view of how things will look, but it is important to agree with the building owner early in the process and not mislead in any way - illustrations can sometimes lead to false expectations. However, it is important to show what the municipality wants to do.

**Environmental effect:** MEDIUM

## Parking measures

### **Design residential areas with few car-parking spaces**

**When?** Suitable areas for reducing parking requirement indicated in general plan. Indicated area subject to further processing during detail planning. Parking standards for Lund Municipality need to be changed to implement this type of measure, or to permit deviations from the standard.

**To be considered!** Need for cycle parking should also be involved in detail planning but is often forgotten. Balance between the numbers of parking spaces that should be provided is difficult, service and public transport must exist in a built-up area if demand for cars is to be overcome. Establishment of a car pool vehicle in the area can increase the possibility of further reduction of car parking.

**Environmental effect:** MEDIUM-HIGH

**Other:** Links to marketing are very important. Agents, building owners, and others must stress the advantages of living in a low-car area rather than the disadvantage of not having a parking place.

**Example:** Hammarby Sjöstad, Stockholm

### **Create parking reserves**

**When?** In detail planning a reduced number of parking places can be achieved by designating land as parking reserve. Lund Municipality's parking standard gives a certain number of planned spaces for various types of area and also indicates that these need not exist at completion. The land is accordingly for possible future parking but need not be arranged. Many parking areas in reserve form can be put to use as, e.g., recreation areas, play areas, etc.

**To be considered!** Measures can advantageously be compensated by membership of a car pool, good public transport (possibly with discounts), safe and secure cycle parking, or car-sharing.

**Environmental effect:** MEDIUM-HIGH

**Other:** Goes together with Mobility Management measures

**Example:** Parking reserve, Vauban, Freiburg, Germany

### **Create adequate cycle parking with high standards and good situation**

**When?** During detail planning of residential and business areas. Follow up with building permits. Lund Municipality's parking standard has an annex concerning cycle parking which should be combined with the material during any revision of parking standards.

**To be considered!** A good situation is characterised by proximity to entrances or destinations.

**Environmental effect:** MEDIUM

### **Use maximum numbers in parking standards**

**When?** During detail planning of residential housing and building permits. Lund Municipality's parking standard reports parking requirements with a minimum limit, and if property owners want to have several parking places they will consult with the municipality when building or ground permits are needed. The municipality can thus state a maximum number of parking places. A revision of parking standards is however necessary to allow variation in the number of parking spaces required.

**To be considered!** If there is a good alternative to parking such as a car pool then the measures are positive. The measures require properly-functioning alternative transport, promotion of pedestrian and cycle traffic, or compensation with mobility management measures.

**Environmental effect:** LOW/MEDIUM

**Example:** The environmental city programme, Norway

### **Use opportunities to mark out 'No Parking' areas to prioritise pedestrian and cycle traffic near entries**

**When?** Opportunities to mark out 'No Parking' areas and to bring ground arrangements under this heading in planning regulations exist at the detail planning stage.

**To be considered!** A condition for these measures is that cycle parking exists near to entries. By creating separation so that the car will not always be the nearest alternative, the same number of parking places can be recommended but placed further away within the planned area and thus increase the attractiveness

do not get a building permit. Car parking places on building sites require building permits if they do not provide parking for residential housing with a maximum of two apartments. The number given is a minimum and the standard is followed adequately during detail planning, not least so that building owners will feel it is a fair system. With a revision of the current parking standards where the design of residential areas with few parking places is permitted, there are good opportunities to create acceptable residential environments in which the car is not an essential. A decision by the housing committee is required to revise the current parking standard.

During detail planning there is also the opportunity of marking certain areas as 'no parking' or as reserve areas for parking. This means a possibility of limiting the amount and location of land for parking places and thus the number of parking places there can be. A single parking space occupies on average about 25 m<sup>2</sup>, which in reserve form can be used by residents for recreation, barbecue areas, etc. It is also possible not to designate land for parking (except for disabled parking) right up to residential housing or business areas, but a little further away within the planned area. It is of course also possible in detail planning to ensure that cycle paths and transport stops are nearer entrances than car parks are, so that the car becomes less attractive as a means of transport.

*Example of design of the interchange at the Western station square in Lund. As a good intermodal solution, it increases the attractiveness of the sustainable transport situation. Photo: Technical Administration.*



# Work with Mobility Management

The soft measures that aim to affect travel before it begins are a complement to measures that affect the physical environment. They can reinforce a good basic structure, facilitate change, and work towards increased technical efficiency. Awareness of the potential of soft measures to affect human behaviour must exist throughout the planning process. It is however the last stage in the planning process where allocation of responsibilities takes place and implementation is defined that this type of measure is especially needed.

Mobility management matters deal mainly with implementation and responsibility, but it is also important to understand that mobility management measures also have a considerable effect at the physical level. Measures such as car pools, car-sharing, etc. reduce demand for cars and thus also the need for parking, which can be seen clearly in the plan. As supply of parking places has a clear effect on car use, mobility management measures can be applied to reduce the number of parking places for a given area. In many cases, the measures involve showing the alternatives to the car, and facilitating the supply of information to travellers. For some types of measure, responsibility can be devolved from the municipality to others, e.g. estate agents, businesses, and building owners. In the construction of new areas, it is important to remember that new tenants will not yet have formed any transport routines. They should therefore be offered information packs like a Smart passenger sheet to show the alternatives to cars that exist and the advantages in personal health and finances.

Mobility management measures are at the same time a knowledge base of resident behaviour and needs which should give an impression in the physical planning. Mobility management measures do not affect the physical structure but reinforce a good existing structure. It is therefore tremendously important that the structure of the city facilitates sustainable transport and flexibility in travel patterns.

of the sustainable transport media. Lowering the attractiveness of private motoring can be compensated by membership of car pools, good public transport (possibly with discounts), safe and cycle racks, or car-sharing. It can be dangerous to be over-economical with parking places – parking chaos can occur!

**Environmental effect:** LOW

## Mobility management measures

### **Facilitate establishment of car pools within the property**

**When?** MCP/EMCP/SP: Identify areas suitable for car pools (density, good public transport connections, apartment buildings, terraced houses, or link villas) and work out strategy. In certain development areas, it will involve setting requirements on building owners to promote car pools in the area with places for cars and by informing residents about the possibilities. Agreements are created where car pools are 'built into' the property and tenants or purchasers get membership of the car pool with their new home. Requirements can also be set in ground allocation competition.

**To be considered!** Measures are a financial alternative for the building owner. There is no car pool standard in the current parking standard.

**Environmental effect:** HIGH

### **Offer new residents or new employees annual cards for public transport and transport information**

**When?** Agreement with companies and building owners on implementing measures created at ground allocation or development.

**To be considered!** People are most likely to accept change when they are undergoing changes themselves, for example when moving to a new job. Difficult to implement in planning, requires follow-up, time-consuming work, Scania Traffic must be involved and subsidise annual cards.

**Environmental effect:** ?

### **Promote remote working through development of common IT-workplaces in city districts or municipality district centres**

**When?** Initially it is important to indicate at the general planning level where IT-workplaces should be located. Agreement with building owners is required for good connections, and well-designed sites should be created.

**To be considered!** Perhaps not a question for the future? Remote working reduces social contacts, and that possibility of living in places where the car is the only means of transport may even be increased.

**Environmental effect:** ?

### **Green travel plan requirements for newly-established businesses**

**When?** In overall planning it is important to emphasise that newly-established companies in, for example, the future business area designated in the overall plan, will report how their personnel can get to and from work. Agreement with building owners is concluded along with ground regulation or development agreement.

**To be considered!** Personnel who do not know what mode of transport to use are informed and can make a choice on that basis. Measures can be initiated from planning, but it will be difficult to implement in full with the planning instruments we have at present, and difficult to implement for every establishment.

**Environmental effect:** ?

### **Include low-car-use issues in specific projects**

**When?** At all levels of the planning process

**To be considered!** Synergy effects occur, especially in the environmental area. The measures are not emphasised in themselves, however – someone must push the issue!

**Environmental effect:** Variable.

## CDP/SP-measures

### **Produce low-car-use city district programmes**

**When?** The city district or suburban programmes can be used as an alternative extension tool for the general plan, and as a more solid support for detail planning. The programme can help to bridge the gap between these two levels and so simplify work on detail plans while city districts are given good opportunities for sustainable development. Transport issues can be emphasised in the city district programme especially for ways to attain reduced car usage.

**To be considered!** The future of city districts will become simpler to survey and good opportunities are given to study transport issues. The city district programme will however produce no improvement of the traffic environment situation if the issues are not addressed – the responsibility lies with the planners!

**Environmental effect:** MEDIUM

## Implement projects with synergy effects

Specific projects can be a way of emphasising car-reducing measures. Because a synergy effect often occurs when a number of different measures are combined, this type of project-directed concept can be suitable in emphasising the car-reducing measures. For example, a project where child safety in the traffic environment is the main issue can to a large extent be handled as a car-reducing measure, as can an already completed project such as Lundaänken (Lund Link).

## Work with the City District and Suburban Programmes

At the beginning of the eighties, Lund Municipality initiated the City District Plans as a reaction to the outflow from city districts which was happening at the time. The aim of these plans was to make all parts of the city more usable as living environments and more usable in terms of residents, work, service, and recreation. The main object was to bridge the gap between general and detail plans. Later, aspects such as citizen influence were included and the mission statement was extended so that the city district plan as a document could act as a collection of plans and planning ideas for city districts that residents, officials, and politicians could see as a common action programme. During the 1980s, three city district plans were implemented.

In the first years of the current century, the question of the significance of city districts has again found itself on the agenda, in Lund as well as in other cities. In Lund, the idea has been to emphasise the city district programme as an extension of the overall plan for Lund City, *Protecting and winning the city*. It discusses the production of a city district programme to analyse and define the character of city districts and the conditions for continued development. In this work, dialogue with residents is an important ingredient and in contrast to planning discussions the public has no proposals to respond to, but can instead contribute to a discussion of the strengths and weaknesses of the area. An advantage of the city district programme is that it should increase opportunities to analyse how city districts can be developed from an overall perspective. The programme can describe the character, function, history, population, and service of the existing city districts and their potential for change. Posing questions on transport needs and car dependency has a specific place in a city district programme, but the weight assigned to these factors is a matter for the individual planner. A low-car-use city district programme should emphasise issues such as relative travel times, city district centres, parking access from dwellings, public places and worksites, public transport routing, stops, and cycle parking.

## Standards and policies

A change of Lund Municipality parking standard could create good opportunities to improve sustainable transport. The minima that Lund Municipality's parking standard state should be able to be applied also as maxima, in other words that there is a maximum number of parking places that building owners can create. A change in parking standards is necessary so that it will be possible to propose fewer car-parks in a detail plan. Parking standards should be able to be changed to show a reasonable span and to deviate from it means compensation from building owner, e.g. in the form of membership of car pools or monthly cards having to form part of the rental. It is important to have similar treatment for all so that the system is perceived as fair.

A reduced number of parking places can best be achieved by having parking places separated from rents or residential charges. If there is no automatic parking, cars will be used less and fewer people will own cars.

The Technical Administration's *Policy for Pedestrian and Cycle Traffic* from 2003 to a certain extent lacks guidelines for aesthetic and configuration issues. The policy will be revised every three years, and a revised version produced jointly by the Technical Administration and the City Planning Office should be given greater weight.

## Work systematically with in-depth studies and follow-up

### Produce a traffic plan

A traffic plan, i.e. an in-depth study on the theme of traffic, is an important instrument for increasing knowledge of the effect of traffic on urban planning, as well as for reporting the city's development with regard to traffic in the long term. In Lund there is no overall traffic plan, especially with regard to public transport and cycle traffic. Warning and winning the city – an in-depth study of the overall plan for Lund City (2004), emphasises the creation of a traffic plan as a suitable measure for developing systems for all types of transport in terms of accessibility, capacity, safety and the environment. The traffic plan will report how proposed measures contribute to meeting environmental objectives. Support for such a plan also exists in TRAST (Traffic for an Attractive City). For a reduction of transport demand and car use, traffic plans and strategies should report the connection between the traffic system and the city's overall aim, and also make a balance between different types of traffic. The plan should also analyse possible development areas based on opportunities for public transport, location of interchanges, route planning, cycle routes, and other issues that can be linked to the plan.

A traditional traffic plan reports how physical changes can be made

## Standards and policies

### **Revision of parking standards (Parking in Lund Municipality: needs and guidelines, Report 2000:24)**

**When?** Parking standards used as signposts at detail planning stage and as a requirement in building permit allocation. The current parking standards are starting to be out of date and a revision is necessary, among other things to bring cycle issues into parking standards. Revision of parking standards can only be made after a decision by the Local Planning Authority.

**To be considered!** A parking standard that permits some variations, covers cycling, and indicates that the situation of car parking in the plan should be able to have a large effect on car use in Lund.

**Environmental effect:** HIGH

**Example:** Parking standards for cars and cycles in Malmö, Malmö City 2002

### **Revision of pedestrian and cycle policy**

**When?** It is desirable to have a common pedestrian and cycle policy for both the Technical Administration and the City Planning Office. Such a policy could be used for planning cycleways, reconstruction, design, and configuration. A revision of pedestrian and cycle policy will be made every three years (2006 et ff) so that decisions will no longer need to be taken by the Technical Committee. However, for a common pedestrian and cycle policy for the Technical Administration and City Planning Office to be created, a decision by the Local Planning Authority is needed.

**To be considered!** A common pedestrian and cycle policy could have a certain effect on car use in Lund as well as improving conditions for pedestrian and cycle traffic.

**Environmental effect:** LOW

## In-depth studies (EMCP) and follow-up

### **Traffic plan as support for the overall plan**

**When?** Proposed as support to MCP and extensions. A public transport plan, or a broader traffic plan as support for overall plans and extensions of the overall plan, can mean greater opportunities to increase the position of public transport relative to the car in planning of development areas by optimum route planning, development of interchanges, location of stops, etc.

**To be considered!** Opportunities for children to get to school by themselves can be analysed in a traffic plan, as well as health aspects, financial factors, and climate problems. Regional interconnection can however be difficult to implement. Creating a traffic plan is a slow process and the overall perspective in planning can be lost. In planning of development areas, a traffic plan can increase the position of public transport relative to the car by optimum route planning, location of stops, etc. Safe and aesthetically pleasing design of footpaths, cycleways, and stops can be implemented simultaneously. Public transport takes up space, difficult in existing city structure, overall perspective in planning can be lost, regional connection is very important but can be lost in a plan at municipal level.

**Environmental effect:** ?

**Example:** Traffic plan for Uppsala city (submitted document), Uppsala municipality 2004.

### **Propose structure plans for business**

**When?** Drawn up as support to MCP and extensions or together with neighbouring municipalities to attain regional connection. A structure plan for business as support for overall plans and extensions of overall plans can offer major opportunities to affect transport requirements.

**To be considered!** Regional connections can be difficult to implement.

**Environmental effect:** ?

**Example:** Structure plan for Business for Högsbo/Sisjö area, Gothenburg municipality

### **Follow-up studies of business establishments**

**When?** During pre-studies, investigation, etc, throughout urban planning work. Follow-up studies can act as effective knowledge support in studies of any new establishments.

**To be considered!** Effects of business establishments will be clearer and consequences for traffic work can be emphasised. Of course, follow-up studies have no effect on what has already been built, but they can provide lessons on how business establishments should be planned in the future.

**Environmental effect:** MEDIUM

in the city's street environment, preferably illustrated with maps, but it is also possible to analyse how Lund City can be developed in the long term with regard to sustainable transport. LundaMaTs gives a good support for such a plan. If the city is to be developed to accommodate more pedestrian, cycle, and public transport facilities, and less car traffic, the traffic plan needs to contain a report of how this advantage in the transport situation will affect the design of the city. The traffic plan can also report on the possibility of localising public transport to residential areas, planning for public transport's long-term development, overhauling main cycle routes in the municipality, indicating suitable locations for park and ride schemes, as well as suitable sites for improvements in accessibility of public transport, e.g., bus-only streets.

## Work with business issues

The current trend is that large provision and retail businesses are established near large suburban transport routes in typical car-use situations. It is assumed that customers will take their cars to the business areas, which reinforces transport requirements and car dependency, and forces many into a car-based travel pattern. Large establishments laid out along transport routes lead to urban sprawl and risk reducing choice of business in the city centre.

The need for large food retailers will probably remain, so a structure plan for businesses or a business establishment plan will be a necessary extension. Such a plan can show how the city should be developed with regard to business, especially business area and situation, but should also draw up guidelines around the accessibility of business establishments by public transport and cycle. A concentration of large business establishments provides no opportunities for residents from other city districts to walk or cycle to businesses, and a structure plan for business should be able to show how a large part of business can be located in city district centres. These locations, with a choice of businesses, other types of service, society premises, and possibly accommodation for the elderly and nursery schools, can become important interchanges which can also act as public transport interchanges. The structure plan for business is an important instrument for increasing knowledge of the effect of business on traffic work, as well as indicating strategies for affecting this development. The regional connection in this type of plan is very important and the plan can preferably be worked out together with neighbouring municipalities.

The establishments are also often in competition with neighbouring stores in city districts, which makes it difficult for many residents to walk or cycle to the business. Impact assessments are carried out in most cases, but follow-up studies are not as common. The need for follow-up studies of business establishments is therefore very great.

## Use planning indicators as evaluation tools

One way of following up the objectives of various plans is to use planning indicators. A planning indicator has a number of uses: it can be used to describe the current situation, to make a quality assessment of material, to follow-up of objectives, or to compare different cities (this however requires that the same planning indicators are used). The individual planner can use several different planning indicators to evaluate various aspects of a plan.

Work with planning indicators has not been used for very long in Sweden, and is mainly known through SAMS (Urban planning with Environment Objectives) which was an ideas and strategy project carried out as a collaboration between the Swedish National Environmental Protection Agency and the Swedish National Board of Housing, Building and Planning. The project's final report Urban Planning with Environmental Objectives in Sweden was published at the end of the project in September 2000.

In planning work, the individual planner can use a series of planning indicators to 'build up' a plan in order to be able to check that the work is progressing in the right direction. However, the area of greatest relevance from the point of view of urban planning for reduced car use is follow-up, or in other words to be able to assess the consequences of physical plans.

The use of planning indicators for overall plans is a suitable planning instrument the main functions of which are to be able to follow up planning targets and to promote discussion of them. The target of an overall plan can easily be recognised as too general. For overall planning, working with indicators can be a way of illuminating the overall targets as well as simplifying and creating interest in following them up. Planning indicators are also suitable for describing aspects of accessibility at the overall system level relevant to the overall plans. For example, a planning indicator can be created on the basis that all residential areas will have a travel time quota for public transport/car of less than two regarding accessibility to the centre and major workplaces.

## Work on agreements with building owners

In municipal work on land and development issues there are opportunities to reach satisfactory car-reduction agreements with developers and building owners. A number of measures have already been implemented, such as the collaborative agreement drawn up in the increased residential building project, but a lot remains to be done. The municipality can influence building owners to encourage car reduction by

### Evaluation measures

#### **Work with planning indicators for urban planning for reduced car use in planning work**

**When?** As a tool for evaluating reduction of car usage at several stages in urban planning, chiefly at overall planning level, where clear targets for planning work have often been set, but also in detail planning. The tool can also be used privately so that planners can see or lead work in the right direction.

**To be considered!** Facilitate significant assessment work for specific targets in MCP and act on several levels. In the process, planners can determine whether the planning process is on track in the right direction relative to the preset target. It is however important to indicate that the working method assumes time and involvement. Working with indicators does not give the complete picture and can be regarded as abstract by planners. Planning indicators do not cover value-based aspects such as well-being, attractiveness, aesthetics, etc. They facilitate assessment work regarding specific targets in planning – during planning and follow-up. It is a method that takes time and involvement.

**Environmental effect:** HIGH

### Building permit measures

#### **Follow up detail low-car-use intentions of planning via building permits**

**When?** Disposition of property functions and illustrations of car reduction measures take place in detail planning and this is followed up in building permits. It is important to show that it is possible to implement in the plan and that intentions will not fail part-way through the process.

**Environmental effect:** MEDIUM

#### **Examine carefully situation and extend of cycle parking**

**When?** Cycle parking with high standards and good situations in suitable surroundings are recommended in detail planning, and it is important that adequate land area is designated for it. Measures should be properly followed up in building permits.

**To be considered!** The municipality must be clear on what detail planning/building permits mean.

**Environmental effect:** LOW

**Other:** Clarity towards developers is important, e.g., information sheets or short versions of manuals aimed at building owners should be comprehensively circulated at this stage.

## Agreement measures

### **Establish pilot project for reduced car use with interested building owners**

**When?** Start a dialogue in association with ground permits or development agreements. Support for such dialogue can be provided by promotional brochures.

**To be considered!** Dialogue-based contact can work well when the participants do not feel compulsion, but voluntary arrangements can also result in fewer participants.

**Environmental effect:** HIGH, mainly when knowledge is increased indirectly and can be processed further.

### **Draw up collaborative agreements to stimulate building in less attractive but low-car situations**

**When?** Before ground permits and detail planning. Collaborative agreements can be used to stimulate building in low-car situations.

**To be considered!** The municipality must have really attractive situations to offer so that agreements will be of interest. The municipality must be clear about what the agreement means.

**Environmental effect:** MEDIUM

**Example:** Collaborative agreement Linero – Dalby, Lund Municipality

drawing up car-reduction development agreements, arranging ground permit competitions where car-reduction solutions are prioritised, and by starting dialogue projects with interested building owners. The measures are most effective together and a good basis is to work together with interested building owners. The municipality's responsibility then consists of emphasising the issue.

## Pilot project

One way of getting together with building owners is to operate a pilot project where involvement is voluntary and where the strategy is to encourage dialogue with building owners on possible measures, rather than using compulsion. A condition for building owner interest in becoming involved is probably that the municipality also presents the measures. Voluntary car reduction formulations in ground permit allocations and development agreements as well as in detail planning illustrations can help building owners to think in terms of car reduction. The pilot project can also be a way of getting building owners used to the idea, so that they have the opportunity to begin to think around car reduction measures and then discuss them without compulsion. This sort of dialogue-based way of working can be very successful, no matter whether the municipality or the building owner actually owns the land. From this pilot project we can then document the effect of various measures. The experience we gain in this way can be applied in future in association with ground permits and agreements that contain specific requirements.

*Cycle parking should be protected against the weather, as well as being safe and secure. The example below is from Vauban, outside Freiburg, Germany, and is an attractive solution of how well cycle parking near entries can be implemented. Photo: CPO.*



## Collaborative agreements

As part of the *Increased Residential Building project*, City of Lund has signed collaborative agreements with building owners. The main object is to select building owners via ground permits involved early in the planning and implementation processes for certain municipality-driven residential projects. The process may resemble what takes place naturally when the building owner is also the landowner. The difference is that the municipality can set different conditions and also split up the land between building owners with different 'product profiles'. An example of conditions that can be set is that building in an attractive situation may take place on condition that building will also take place in a less attractive but for municipality more strategic situation, e.g. with good public transport.

## Ground permits

Influencing building owners to create the best conditions for residents or employees to be able to cycle or travel collectively from door to door is something that can be emphasised through ground permits as these often precede detail plans. The municipality has the opportunity to use ground permits to set requirements for car reduction measures. If however the municipality wants to make building owners carry out measures after the purchase agreement has been signed, a separate agreement on these measures will be required. At the moment, this type of separate agreement is unusual in Lund Municipality and is difficult to follow up. Some measures are however possible to implement to reduce car use, mainly by arranging cycle parking nearer to entries than car parking. Investigations show that the cycle as a means of transport becomes significantly more attractive if the cycle park is directly outside the door. In combination with information campaigns and individual travel plans that the municipality can help there are good opportunities to influence human behaviour. It is

*Car parking at Ideon. Photo: Claes Hall.*



### **Require prioritisation of pedestrian and cycle traffic and public transport over cars via ground permits**

**When?** During ground permit allocation

**To be considered!** Ensuring that cycleways, cycle parks, and transport stops are located nearer to entries than car parking makes these modes of transport more attractive. Ground permits are usually allocated before detail planning takes place and it is not always known what type of building will eventually exist. A solution to this can be to determine that cycle parking will be located nearer to the entry than car parking. There is also responsibility in follow-ups.

**Environmental effect:** MEDIUM

### **Implement ground permits competition with an agreement and follow-up model to ensure promised car reduction measures such as car pools**

**When?** Before the ground permit competition, promotional brochures are distributed to interested parties, and proposals are assessed on the basis of the quality and quantity of car reduction measures. The competition will involve an agreement and follow-up model to ensure that the proposed measures are implemented.

**To be considered!** Lack of follow-up – have the proposed measures really been implemented? Car reduction solutions assume good opportunities for using alternative transport, the building owners involved may have difficulty in departing from their usual working methods. Knowledge of car reduction measures is necessary to be able to set the requirement.

**Environmental effect:** MEDIUM

**Example:** Ground permit competition at Lundby village, Gothenburg.

### **Create car reduction development agreement**

**When?** At signature of development agreement.

**To be considered!** The municipality will probably have to carry out considerable work to make the area more attractive, which may mean a dialogue project at an early stage. The municipality must also be clear about what the agreement involves. Measures can be difficult to follow up, but the existence of the car reduction papers increases building owners' awareness of problems and of the municipality's intention.

**Environmental effect:** MEDIUM

**Example:** Hammarby Sjöstad, Stockholm

also possible to hold a ground permit competition where car reduction solutions are prioritised. A ground permit competition makes land open to competition in order to create added value for the municipality and its inhabitants. The reasons behind such a decision may be financial or aesthetic, but the method has been used successfully for various forms of environmental adaptation of new building projects.

## Development agreements

In development agreements it is not possible to set legally binding requirements for car reduction measures (when building owners also own the land). We do have the possibility, however, of inserting paragraphs of a voluntary nature, and regard this as an opportunity to emphasise issues. The strategy will then be to set up a dialogue with building owners, rather than try to force the measures upon them. Development agreements for the new construction along the southern road in Lund contain an example of this type of formulation.

## How were the measures created?

The measures proposed in working on the production of the Manual of Urban Planning for Reduced Car Use arose in a number of discussion groups with participants from Lund Municipality City Planning Office and Technical Administration during Spring 2005. The groups went on to identify measures that could be employed within participants' specific working areas, as well as to discuss the advantages and disadvantages of the measures, obstacles, and environmental effects. The measures will be able to be implemented when drawing up plans at various levels, and during traffic design and ground permits, and when writing agreements.

Responsible for the production of the manual of *Urban Planning for Reduced Car Use* was Linda Kummel (formerly Edvardsson) with the support of the Technical Administration, the City Planning Office, and participants in the project's series of seminars. These participants were personnel from municipal administrations, Scania County Administrative Board, Scania Region, the Swedish National Board of Housing, Building and Planning, the Swedish National Road Administration, Lund Technical University, and various consultancy firms.

## Where are we today?

Since the manual was launched, the KLIMP project, Urban Planning for Reduced Car Use started towards the objective of implementing car reduction measures in planning in Lund Municipality. Projects carried out have been divided into four different action areas:

- 'Resource Reinforcement in Ongoing Processes'
- 'Special Studies'
- 'Competence Development / Training / Dialogue'
- 'Methods Development'

The project is operated as a joint administration project between the Technical Administration and the City Planning Office, with a project leader and project secretary, linked to SBK, and has been granted resources for implementation over the period 2006-2008.

Information on the project 'Urban Planning for Reduced Car Use' can be found on: [www.lund.se/bilsnalplanering](http://www.lund.se/bilsnalplanering) or by contacting the project secretariat on:

+46 (0) 46-35 58 04/32.

*The Manual of Urban Planning for Reduced Car Use* has been produced as part of a project of the City of Lund in 2003-2005 and has been distributed within the City of Lund as well as in other municipalities, county management boards, national agencies, and to associations and private individuals. Interest has been considerable, and in Autumn 2006 work was started on a short version, where the contents and measures could be presented in concentrated form.

*Urban Planning for Reduced Car Use* aims to reduce car dependency and transport demand. Urban planning deals mainly with creating conditions to use more environmentally-friendly transport and at the same time to reduce the need of the population to use cars. The measures lie within the subject areas localisation, density, function integration, parking, extension, and follow-up, and much else.

The manual can be used in everyday work, but should also act as an inspiration to those who want to know about what urban planning for reduced car use can achieve.

