

Växjö Municipality Transport Plan

Passed by city council 2014-10-21



Table of contents

Foreword	3	Strategy area: walking	26
Summary	4	Comprehensive goals for walking	26
About the transport plan	6	Current status	26
The purpose of the transport plan	6	What improvements do pedestrians need? How do we convince more people to walk?	26
The transport related targets governing the transport plan	7	Strategies and measures regarding the improvement of pedestrian routes	26
The benefits of an efficient and sustainable transport system in Växjö	8	Strategies and measures regarding the operation and maintenance of pedestrian routes	27
Current status	10	Strategy area: public transport	28
The travel patterns of Växjö residents	10	Comprehensive goals for public transport	28
Freight transport	11	Current status	28
Regional trips	12	Strategies and measures regarding traffic planning and accessibility	29
Accessibility	12	Strategies and measures at transfer stations	31
The character of the city	13	Strategies and measures regarding operations and quality	31
The environmental impact of transport	13	Strategy area: mobility management	32
Traffic safety	14	Comprehensive goals for mobility management	32
Strategy area: sustainable vehicle traffic	16	Current status	32
Comprehensive goals for sustainable vehicle traffic	16	The potential for changing modes of travel	33
Challenges within urban planning	16	Strategies and measures within IT	33
Current status: freight transport	18	Strategy and measures aimed at changing travel patterns, mobility management	34
Current status: electric vehicles	18		
Strategies and measures regarding location	20		
Strategies and measures regarding streets and parkings	21		
Strategies and measures regarding electric vehicles	22		
Strategies and measures regarding freight transport	22		
Strategy area: cycling	23		
Comprehensive goals for cycling	23		
Current status	23		
Improvements requested by cyclists	23		
Strategies and measures regarding the development and improvement of the cycling infrastructure	24		
Strategies and measures regarding the operation and maintenance of the cycling infrastructure	24		
Strategies and measures regarding information	25		

Foreword

In the coming years, Växjö will grow from a small town where journeys are made with private cars, to a larger and more attractive city with distinct urban qualities and regular regional connections. This transport plan focuses on capacity and more efficient and sustainable transport. As the community grows, we will ensure that more people can be transported in the same area. We will develop a city where walking, cycling and public transport can handle the bulk of the transport needs of residents, and where low impact vehicles are used.

For rural areas with sparse public transport options, the car is still the main mode of transport. But car traffic is space-intensive and causes traffic disruption. By choosing more efficient modes of transport within the city and for travel between destinations when we are able to, capacity is freed up for those who have to continue to rely on travel by car, such as rural residents.

This means that the Municipality must work harder to improve accessibility for walking, cycling and public transport while being restrictive in relation to increased capacity for car traffic. City planning must prioritize densification and creating mixed development along public transport routes. Work to reduce speeds at crossroads in order to increase safety for unprotected road users, and to improve the maintenance of pedestrian and cycle paths in order to decrease severe traffic injuries.

It is my full conviction that these measures will lead to a more attractive city with good accessibility for all ages and groups, regardless of access to a driver's license, and with less noise pollution and improved air quality. Simply put: a city that people will want to visit, work and live in.



Bo Frank

Chairman of the Municipal Board

Summary

The transportation challenges facing Växjö are mainly as follows:

- Enabling growth within the city while maintaining accessibility and the qualities of the urban environment.
- Reducing emissions of greenhouse gases, other pollutants, and noise caused by traffic.
- Increasing the health, security and road safety of residents.
- Improving the cost-effectiveness of investments and operations within infrastructure and transport.

The proposed solutions are aimed at creating a more efficient and sustainable transport system. More people and freight are to be transported in the same available area, and car traffic is too space-intensive and causes traffic disruption. By enabling those who can switch to more efficient

modes of transport to do so, capacity is freed up to cater to those who cannot make the switch and rely on private car use. To accomplish this, the chosen measures should be focused on:

- Reducing the need for travel and transport.
- Transferring trips from private car use to walking, cycling and public transport where alternatives exist.
- Streamlining the remaining car and freight traffic.
- Promoting safer traffic behaviors among road users.
- Transitioning to lower impact vehicles and fuels.

The strategies are laid out in the summary table below. Beneath each strategy area, measures and division of responsibilities are presented in greater detail.

Strategy area	Strategies
Sustainable vehicle traffic	
Localization	<ul style="list-style-type: none"> • Locate residential and commercial areas in a manner that reduces travel needs and increases accessibility for pedestrians, cyclists and public transport. • Increase the number of residents with access to basic amenities (food shopping, preschools and schools) within walking distance.
Roads and parking facilities	<ul style="list-style-type: none"> • Prioritize walking, cycling and public transport above private car traffic. • Be restrictive in regards to measures that increase the advantages and relative accessibility of private car use compared to walking, cycling and public transport. • Increase road traffic safety through lowering the speed and flow of traffic on roads where unprotected road users and motor vehicles converge.
Freight transport	<ul style="list-style-type: none"> • Opt for fossil fuel-free and energy efficient freight transport.
Electric vehicles	<ul style="list-style-type: none"> • Make the use of electric vehicles easier and more convenient. • Increase the share of electric vehicles in Växjö.

Cycling

Improve and develop bicycle infrastructure	<ul style="list-style-type: none">• Develop the bicycle infrastructure network in order to offer shorter, more comfortable and safer roads in both new and existing areas of the city.• Make it faster and easier to ride on the main bike paths while reducing the risk of traffic injuries. The main focus is to reduce the number of stops/barriers for cyclists.• Provide safe and accessible bicycle parking facilities.
Operation and maintenance of bicycle infrastructure	<ul style="list-style-type: none">• Maintain cycle paths in a condition that makes it fast, easy, convenient and safe to cycle in the City of Växjö.• Increase cycling in winter.• Reduce single-vehicle accidents caused by shoddy maintenance.
Information	<ul style="list-style-type: none">• Develop bicycle culture in Växjö so that cycling is associated with more positive characteristics (hip, normal, beautiful, etc.).• Develop information channels capable of easily guiding cyclists to important destinations.• Involve bike enthusiasts, associations and etc. in the development of cycling.

Walking

Develop and improve pedestrian paths and walkways	<ul style="list-style-type: none">• Develop the pedestrian walkway network in order to offer shorter, more attractive, more comfortable, safer and more accessible roads.• Focus the improvement of walkways on the four urban centers and important destinations in the city.
Operation and maintenance of pedestrian paths and walkways	<ul style="list-style-type: none">• Maintain the walkways so that they continue to be comfortable and safe.• Reduce solitary accidents involving pedestrians caused by shoddy operation and maintenance.

Developed public transport

Traffic planning and accessibility	<ul style="list-style-type: none">• Reduce travel time by public transport compared to private car use.• Further develop the competitive advantage in using the travel time to perform tasks besides driving.• Make it easier to use public transport through improved frequency and precision.• Increase the accuracy and transfer opportunities within the public transport system.• Focus on developing the main regional commuter lines, lowering longer distance trips within the city and linking the city's four centers.
Transit points	<ul style="list-style-type: none">• More stops should have weather protection, be accessible and be equipped with lockable bicycle parking.• Make it easier to get to the stations and stops all year round.
Operation and quality	<ul style="list-style-type: none">• Increase collaboration between the Municipality, regional traffic authorities and contractors in order to provide travelers with a positive experience with personnel, vehicles, stops, and technical systems.• Further develop buses to be quieter and more energy efficient.

Mobility management

IT	<ul style="list-style-type: none">• Motivate more people to use IT-services in order to replace travel.
Mobility management	<ul style="list-style-type: none">• Influence the choice of transport mode and create a safer traffic behavior through information, offers and dialogue.• Provide information on relevant public transport options, tailor to specific target groups, search for collaborations and try to attract motorists.

About the transport plan



The purpose of the transport plan

The transport plan is the over-arching master plan governing all activities within the Municipality regarding transport. The plan describes how the City of Växjö will work towards creating an effective, sustainable and safe transport system and reach the municipal transport-related targets found mainly in the *master plan* and the *environmental program*. The plan follows the overall structure of the management system of the Municipality, see picture above.

The transportation challenges facing Växjö are mainly as follows:

- Enabling growth within the city while maintaining accessibility and the qualities of the urban environment.
- Reducing emissions of greenhouse gases, other pollutants, and noise caused by traffic.
- Increasing the health, security and road safety of residents.
- Improving the cost-effectiveness of investments and operations within infrastructure and transport.

The solutions offered are aimed at the creation of a more efficient and sustainable transport system. More people and freight are to be transported in

the same available space, while single-occupant car traffic is space-intensive and causes traffic disruptions. By enabling those who can switch to more efficient modes of transport to do so, capacity is freed up to cater to those who cannot make the switch and rely on private car use. Walking and cycling are efficient modes of transport for short trips, and public transport is efficient for travel within the city and between urban centers. In rural areas and areas with sparse public transport however, private car use often is and will remain the only viable option for many residents and visitors. People from across the region, including rural areas, need access to important regional destinations such as Växjö city center, the hospital, Linnaeus University, Grand Samarkand and Arenastaden. It is therefore particularly important that those who are able to walk, cycle or use public transport do so, to ensure that there's sufficient capacity to transport more people and maintain accessibility.

The work will be based on the following cornerstones:

- Reducing the need for travel and transport.
- Transferring trips from private car use to walking, cycling and public transport where alternatives exist.
- Streamlining the remaining car and freight traffic.
- Promoting safer traffic behaviors among road users.
- Transitioning to lower impact vehicles and fuels.

The transport plan includes a range of strategies and measures divided into five strategic areas:

- Sustainable vehicle traffic
- Cycling
- Walking
- Developed public transport
- Mobility management

The measures in the transport plan will provide all administrations support in their prepa-

ration of business plans and internal budgets. Monitoring will be integrated into the municipal management system. The plan should be revised once per term. In order to clarify the transport plan, the following more detailed plans will be developed:

- Traffic plan, to indicate which streets the city traffic is to be diverted to.
- Parking strategy.
- Revision of the bicycle route plan, with expanded guidelines for bicycle planning.
- Pedestrian plan, including accessibility options for disabled persons.
- Traffic safety program

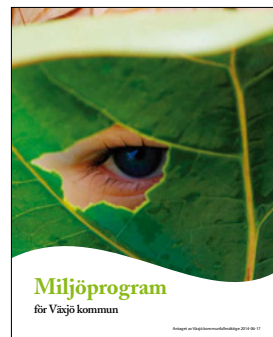
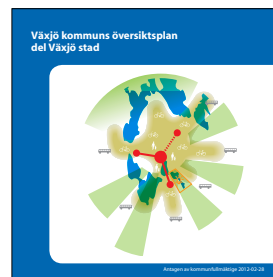
The transport plan covers the Municipality of Växjö as a geographical area. Växjö Municipality also has an *energy plan* that includes measures and strategies for promoting sustainable energy use in the Municipality. In order to avoid overlap between these documents, a delimitation regarding transport is made so that the energy plan solely focuses on energy efficient and fossil fuel-free vehicles, along with the production of and access to renewable fuels.

The transport related targets governing the transport plan

In the Municipality's master plan from 2011, there are six goals, several of which are related transport.

Växjö will be:

- The regional city – a core in an interacting region.
- A city of lakes and parks, where nature is around the corner.
- A denser, more multifunctional city where almost all passenger transport within the city is on foot, by bicycle or with collective transport.
- A city for all, promoting safety, security, and public health.
- A city with multiple urban centers, where the city center retains its small-scale charm.
- Bold architecture combined with respect for the historic backdrop.



Master plan, Environmental Program and Energy Plan



The environmental program from 2014 contains the following objectives influencing the transport plan:

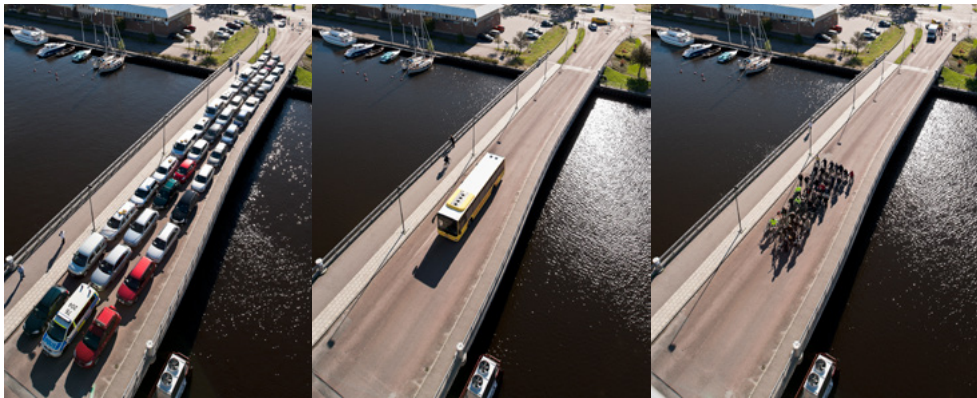
- The fossil carbon dioxide emissions per capita is to decrease by at least 65 percent by 2020, compared to 1993 levels. Växjö is to become a fossil fuel free city by 2030 at the latest. This will entail a decrease of 24 percentage points compared to 2012 levels.
- By 2020, car traffic will have been reduced to a maximum of 6 300 km per person per year, with no negative impact on the accessibility of community services. This will mean a decrease of 260 km per person compared to 2012 levels.
- By 2020, at least 37 percent of all trips within Växjö will be made on foot or by bicycle, along with a minimum of 10 percent by public transport. This represents an increase of 9 percentage points compared with 2012 levels.

In addition to these, there are other objectives in the environmental program including energy efficiency measures, reducing noise pollution, improving air quality and targets on road safety that will be impacted positively by the implementation of the measures in the transport plan.

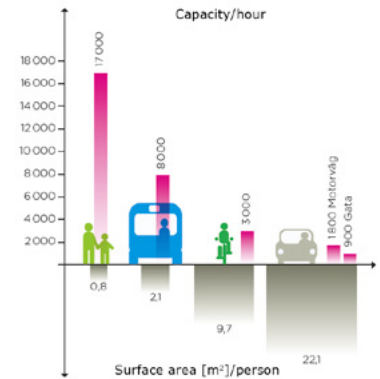
A reduced and slower traffic with more people walking, cycling or using public transport enables the city to grow while maintaining adequate access for those who need to travel by car. Thus, it makes it possible for the urban environment to retain its appeal and charm. Furthermore, it contributes to a reduction in noise and air pollution and improved road safety. More people walking and cycling contributes to improved public health. Improved public transport contributes to greater regional accessibility.

The benefits of an efficient and sustainable transport system in Växjö

An efficient and sustainable transport system with a greater proportion pedestrians, cyclists and public transport users as well as a smaller proportion of motor vehicles in a growing Växjö provides the following benefits:



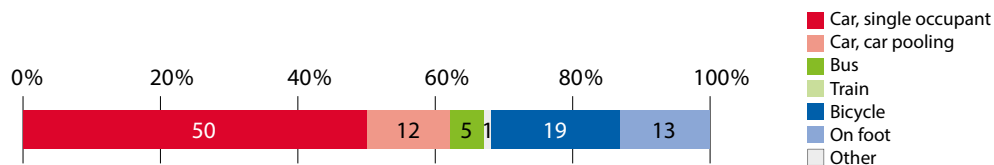
An illustration of the comparative space efficiency of different modes of transport. The picture shows the space necessary to transport the same number of people; by car to the left, by bus in the middle and on bicycles to the right. Photo: Gävle Municipality



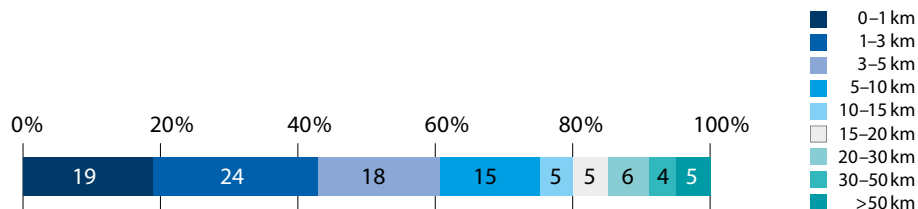
Available capacity by mode of transport on a typical city street. (Diagram taken from Swedish Road Authority publication 2007:3, revised by Ramböll Sweden AB)

- More efficient use of available space, resulting in increased capacity and lower costs. For every transported person, car traffic requires a larger space than public transport, cycling or walking. Decreasing the proportion of car traffic thus reduces the demand it puts on public space, decreasing the need for investments in new road infrastructure in the process.
- Carbon dioxide emissions are reduced. After the deployment of the new biomass-powered cogeneration block, almost all remaining fossil carbon dioxide emissions are from traffic. Development of more sustainable transport options along with the transition to more sustainable fuels (biofuels, electricity, etc.) will be necessary to achieve the fossil-fuel free target by 2030.
- Improved air quality in the city. This will in turn contribute to fewer sick days. Recent calculations indicate that poor air quality is responsible for ten times more deaths than road accidents in Sweden.
- Fewer are exposed to noise pollution. There are around 3 000 people in Växjö center who are exposed to an average noise level of 60 dB(A)

- according to the preliminary results of the noise study conducted in the spring of 2014. Less motor vehicle traffic means that fewer noise-sensitive residents will be exposed to high levels of noise. At the same time, the requirements on physical measures to reduce noise are minimized, facilitating further densification of the city.
- More people are physically active, improving their own health. A study from Umeå University indicates that the risk for heart attacks is reduced by 40 percent for active commuters (walking, cycling or bus ride) compared to car commuters.
 - Accessibility to the city's operations is improved for a wider group of people, regardless of age or access to driving license.
 - More people moving in the public space leads to increased human interactions, which in turn increases the sense of security. These are important factors in creating an attractive city.
 - The target group for public transport increases, while fewer cars contribute to increased road safety.



Illustrates modal split. Source: travel survey conducted in 2012



Illustrates the distances we travel. Source: travel survey conducted in 2012

Current status

The travel patterns of Växjö residents

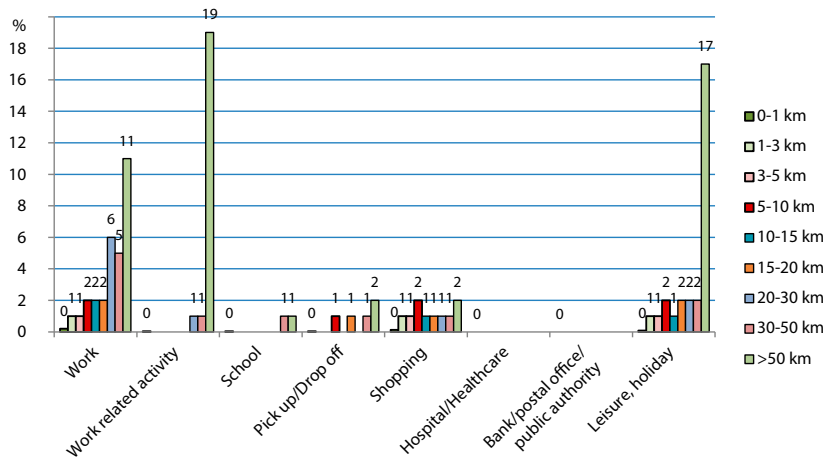
During 2012, Växjö residents made an average of about 2,6 trips per person per day, with a total travel time of one hour and ten minutes. The shorter trips, under five kilometers, account for over 60 percent of the total number of trips. Half of these trips are by cars. This means that a large proportion of cars on the streets of the city are making short trips where cycling could be a viable option. However, when it comes to total energy consumption and total distance traveled, the longer trips account for the majority. Three-quarters of the total distance we travel is accounted for by trips that are 20 km or longer.

The car is the dominant mode of transport. In 2012, 62 percent of the total number of trips was by car. This rises to 75 percent when looking at

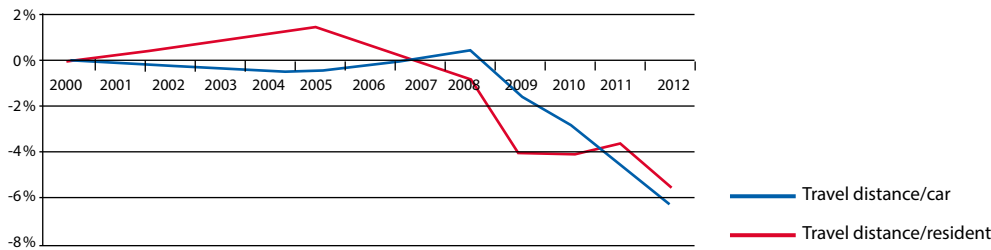
the distance traveled. When the traveled distance exceeds one km, the majority of trips are made by car. The share of cars peaks for trips that are 10–20 kilometers long. Walking and cycling have a greater share at shorter distances while the share of public transport increases on longer trips.

Contrary to popular belief, travel is not dominated by work related trips. The car is mainly used for short leisure and shopping trips and for longer work related or holiday trips.

After peaking in 2008, the number of kilometers local residents travel by car has decreased by six percent 2012. The number of kilometers traveled by car per year is falling in most Western cities, which is described as a new trend also called *Peak Car*. The proportion of car trips per person



Total traffic by car (passenger-kilometer per day) divided by trip length and purpose. Source: travel survey conducted in 2012

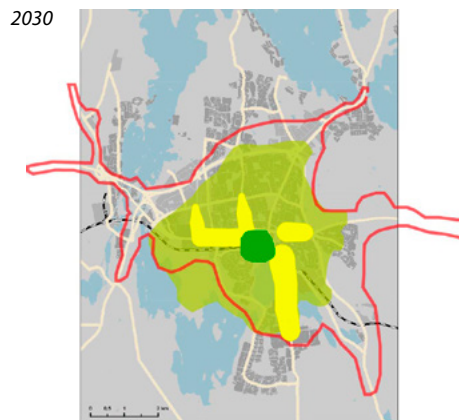
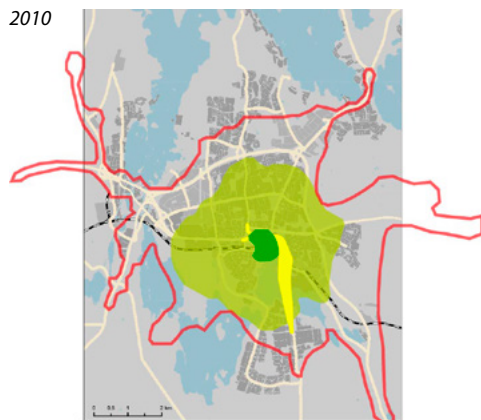


Travel distance trends in Växjö 2000–2012. Source: Central Bureau of Statistics and the regional development strategy

has also decreased slightly from 2002 to 2012, in favor of cycling. Meanwhile, the number of residents in Växjö is growing by around 1 000 people each year. So far, this has resulted in a slight increase in car traffic in the streets. The results vary between different streets, with the streets immediately surrounding the center having maintained a fairly constant flow of traffic during the 2000s. On the city’s access roads however, car traffic has increased by about 20 percent since 2002. It is believed that the reason for this is that the population increase has taken place mainly outside of the measuring points. This in turn has increased the number of people commuting into the city, and increased shopping at external shopping centers where car use often is the only viable transport option.

Freight transport

Light and heavy trucks make up 11–17 percent of the traffic on national roads, 5–9 percent on main roads and 1–4 percent on residential roads. The trends show an increase in truck traffic, mainly by small delivery vans. The growth is accounted for by an increase in the use of trucks within the private sector. The number of deliveries to municipal operations has on the other hand decreased drastically, by around 80 percent, since the implementation of the Municipality’s project for co-distribution of freight to its operations since 2010. Work trips and other work related transport by light trucks and privately registered vans are estimated to make up around 25 percent extra of the traveled km concerned in the travel survey by cars.



Local accessibility range for 2010 and 2030. Travel time of 10 minutes from the city center on foot (dark green), by bicycle (light green), by public transport (yellow) and by car (red). Source: travel survey conducted in 2012



Regional accessibility range for 2010 and 2030. Travel time of 50 minutes from central Växjö by public transport (green) and by car (red). Source: travel survey conducted in 2012

is most competitive with cars on the routes between the city center and the University, Västra Mark, Araby and Teleborg. This is partly because of the high trip frequency minimizing waiting times. Public transport is less competitive with the car in terms of travel time on the other routes within the city.

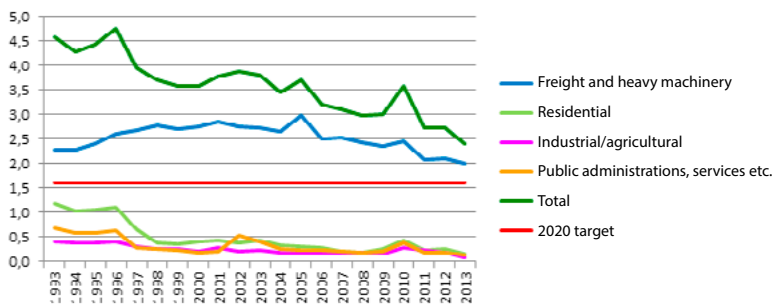
The character of the city

The transport system has a significant impact on the character of the city. For example, the layout grid with straight cobblestone paved streets is a large part of the character of the city center. Large parts of the city were built between the sixties and the eighties and are characterized by separation of traffic, car-free residential areas and large spaces for parking. Approximately eight percent of the surface in the urban center is tak-

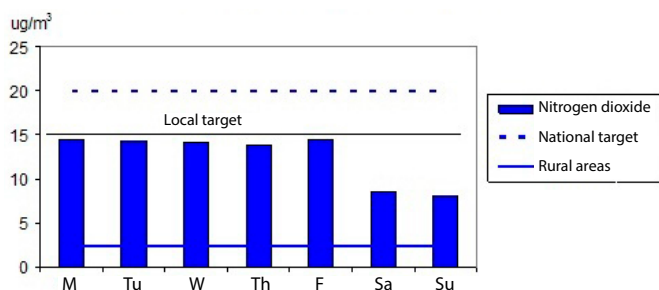
en up by large-scale car parks and areas along the city's access roads and main roads with high levels of noise pollution. The high proportion of private car use indicates a low level of transport efficiency. In Växjö, the proportion of space devoted to roads and parking compared to the number of people transported is relatively high.

The environmental impact of transport

The transport sector accounts for a significant portion of the current environmental impact in Växjö. Fossil fuels still dominate the transport sector, which means that 80 percent of the Municipality's remaining emissions of carbon dioxide from fossil fuels is caused by transport and work vehicles. In 2012, 92 percent of the cars in Växjö were petrol or diesel powered.

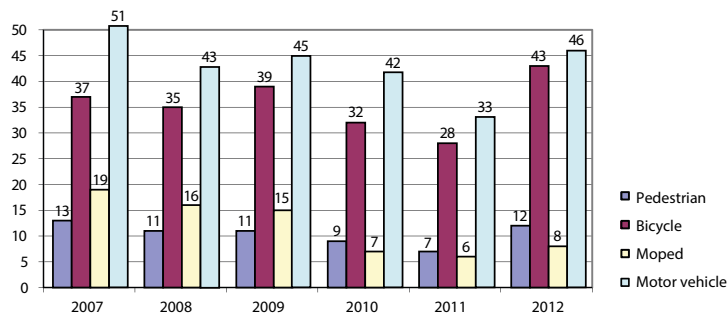


Per capita carbon dioxide emissions, tons adjusted for temperature. -47 percent compared to 1992.
Source: Växjö Municipality



Average nitrogen dioxide levels on Storgatan, Växjö, April 2007 – December 2011.
Source: Växjö Municipality

Measurements in the rural areas of Kronoberg County show nitrogen dioxide levels of 2,4 micrograms per cubic meter of air (lower continuous line). On Saturdays and Sundays, with around 10 000 vehicles passing the measurement point, the levels rise to more than 8 micrograms. With denser traffic on weekdays (15 000 vehicles per day), the levels almost double to just above 14 micrograms per cubic meter.



The number of accidents leading to injuries reported to the police 2007–2012.
Source: Växjö Municipality

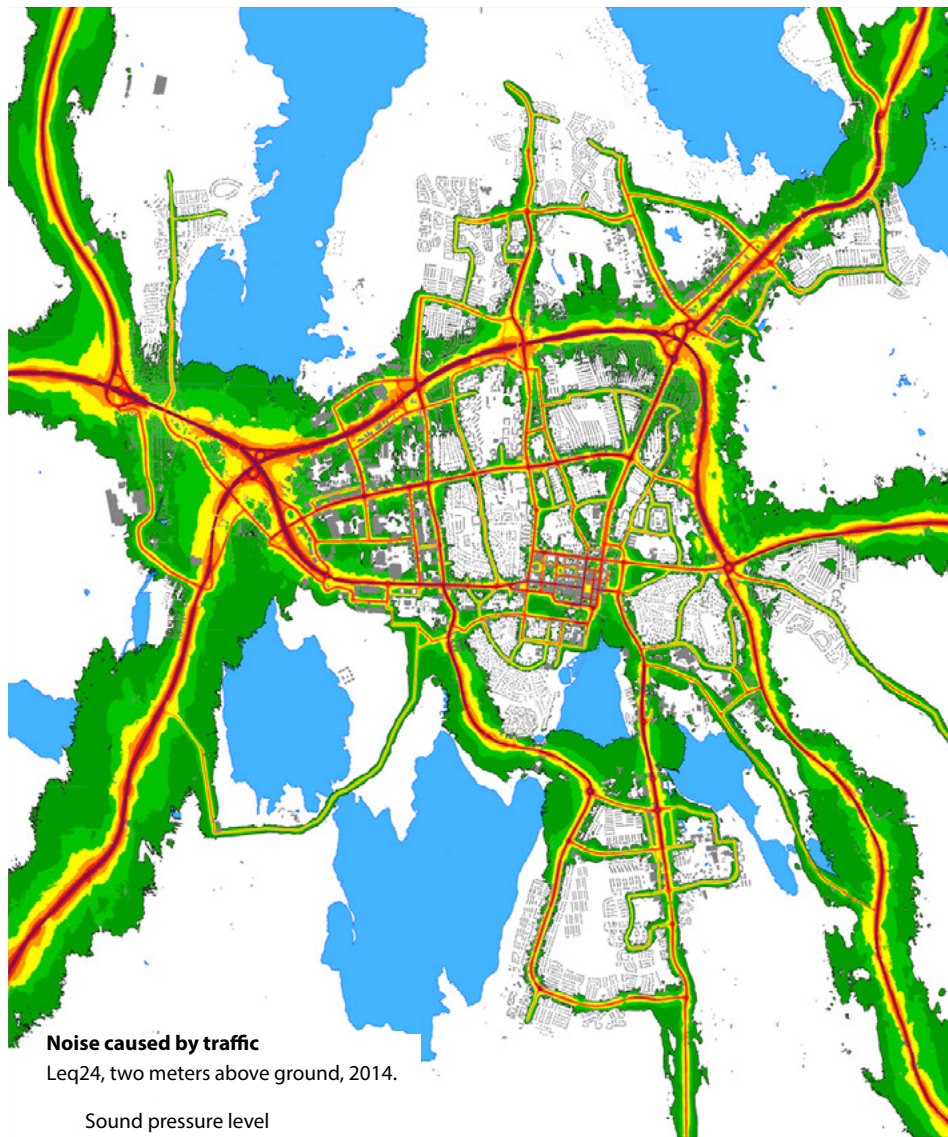
According to the results of the noise study conducted in the spring of 2014, approximately 3 000 people in the urban center of Växjö are exposed to average noise levels in excess of 60 dB(A). Air quality is affected by emissions of particulate matter from combustion in all engines, but also from studded tires damaging the asphalt. The levels of nitrogen dioxide in the air at the measurement point at the intersection of Storgatan/Arabygatan is clearly linked to the number of passing cars. During weekdays with more intense traffic, nitrogen dioxide levels rise while they fall on weekends when there's less traffic.

Traffic safety

In 2012 there were 208 accidents on municipal streets and roads, 139 of which involved unprotected road users (bicycles, pedestrians and mopeds). Most of the reported accidents leading to severe injuries (14 accidents in 2012) involved cyclists, followed by pedestrians and moped riders. One reported casualty involved a car collision with a pedestrian. More than half of the accidents involving unprotected road users occurred at intersections or roundabouts and also involved cars. The remaining accidents involving pedestrians and cyclists were solo accidents, where slippery or bumpy road surface or loose gravel may have been the cause.

According to a survey on safety and security among the residents conducted by the Police Authority in Kronoberg in 2012, 41 percent of the respondents feel that traffic is a problem. 43 percent said that car speeds were excessive, while 20 percent felt that traffic rules and regulations were not respected. However, the trends point to a slight improvement over time within these three areas.

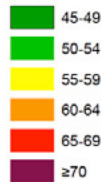
Noise caused by traffic. Leq24, two meters above ground, 2014.
Source: Växjö Municipality



Noise caused by traffic
Leq24, two meters above ground, 2014.

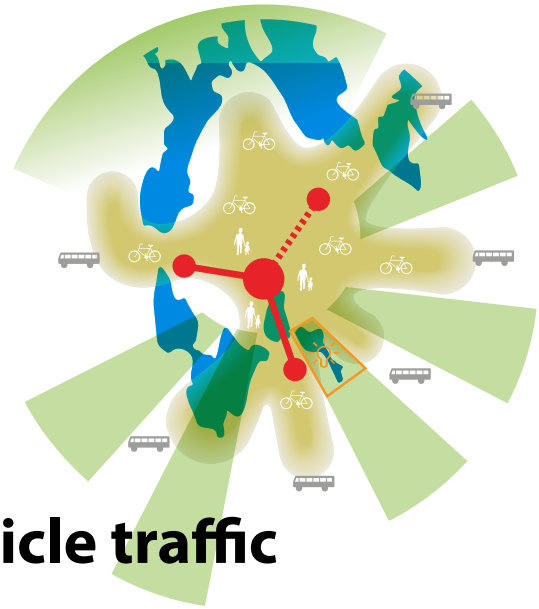
Sound pressure level

dB(A)



Scale A0 1:12000





Strategy area: sustainable vehicle traffic

Comprehensive goals for sustainable vehicle traffic

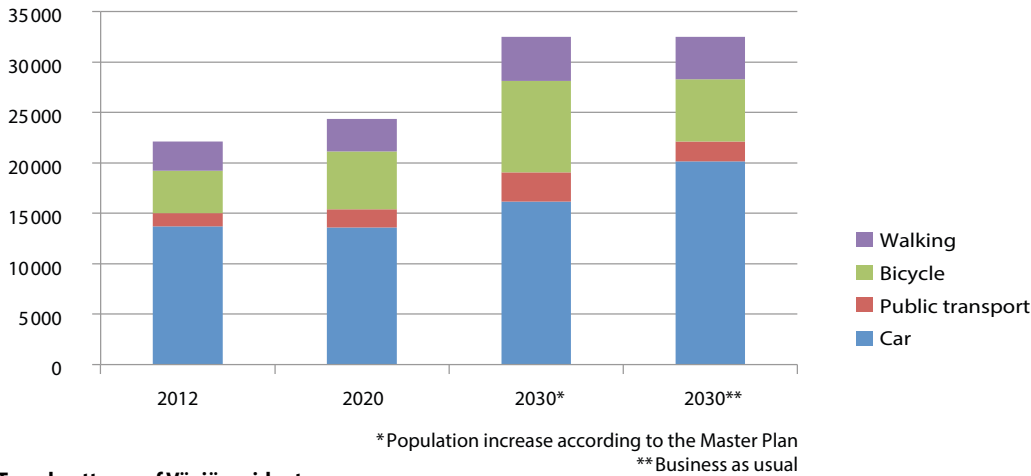
See the section *Goals within the transport area governing the transport plan*, page 7 of the environmental targets.

Challenges within urban planning

Växjö is growing and aims to be an important center in a connected region. A major challenge within urban planning is to enable the city to grow while retaining the accessibility and qualities of the urban environment. Good accessibility would entail short travel times for residents and freight arriving on time. Positive qualities of the urban center include the small size of the streets, available space for trees, few existing barriers and little noise pollution – making the available spaces attractive to residents. The space requirements and noise pollution of private cars make them unsuitable for achieving good accessibility and an attractive urban environment. This challenge needs to be addressed to allow access to those who require travel by car, such as rural residents and emergency service vehicles, while at the

same time creating an attractive urban environment.

A solution identified in the master plan is to densify the city. This would enable us to reduce the travel needs while providing commercial and residential areas at locations with superior regional accessibility. Large parts of the city were built between the sixties and the eighties and are characterized by separation of traffic, car-free residential areas and large spaces for parking. Approximately eight percent of the surface in the urban center is taken up by large-scale car parks and areas along the city's access roads and main roads with high levels of noise pollution. Some of these areas have a potential for densification. Considering other municipal goals such as improved public health and reduced noise pollution, this represents a conflict of objectives. This could be partly addressed by thoughtful architectural design and the development of suitable strategies for controlling the flow and speed of local traffic.



Travel patterns of Växjö residents

The first column illustrates the number of trips by different modes of transport according to the survey conducted in 2012.

The column for 2020 includes the projected population increase, with a distribution according to the objectives in the Environmental Program.

The first 2030 column illustrates the split by the time the city has reached 100 000 inhabitants having achieved the objectives of the Environmental Program for 2030.

The last column shows the situation for the city with 100 000 inhabitants but with the same modal split as in 2012. The high share of car trips in such a scenario would lead to a 50 percent increase in car traffic, causing congestion and inflating demand for the expansion of the road network. Source: Växjö Municipality

The master plan also identifies several areas which are more peripheral and where walking, cycling and public transport are less likely to be competitive. There is a clear conflict between real estate development in these areas and achieving the objectives of the environmental program and the master plan.

Proximity to services can also reduce car traffic and make it easier for those without a car. An estimated one-third of city residents and one-quarter of the residents of other towns and villages have a walking distance of more than one kilometer to the nearest supermarket.

Växjö has good accessibility for cars with spare capacity on the streets. For some years, there has been some congestion on the access roads, lasting up to 20 minutes in rush hour traffic. But the delays caused by the congestion are counted in single minutes. Currently, the Municipality lacks

a plan for shaping the traffic system and implementing measures addressing the consequences of real estate development for example. A new traffic forecasting system is under development, facilitating impact assessments in the future. There is also a lack of local knowledge on proven best practice when designing intersections and other traffic installations.

In the city center, there are approximately 5 000 parking spaces, 2 400 of which are municipally owned paid parking spaces divided into two zones. So-called super clean vehicles are entitled to free parking in the municipal spaces in Zone 2. The majority of private car parks are not accessible to the public. It's possible to maintain good accessibility to parking spaces for those who really need them by reducing car traffic and using fees and time constraints for available parking spaces.



Coordinated distribution of freight

Current status: freight transport

The transport need generated by society's need for goods and products, as well as for the removal of waste products, is associated with a number of environmental impacts. It's not just the vehicles themselves, but also society's demand for freight deliveries that drives the transport need. Decreased demand for short delivery times and reduced requirements for receiving deliveries within a narrow time frame would enable the industry to further optimize transport.

The industry is already working hard to raise efficiency and optimize freight transport, driven by economic factors. Within the region, there's opportunity to reload from rail to road transport, and multiple logistics and distribution centers contributing to an increased fill rate in the vehicles. Many freight companies in Växjö have trained their drivers in eco-driving, continuously monitoring and following up their results, helping to reduce fuel consumption.

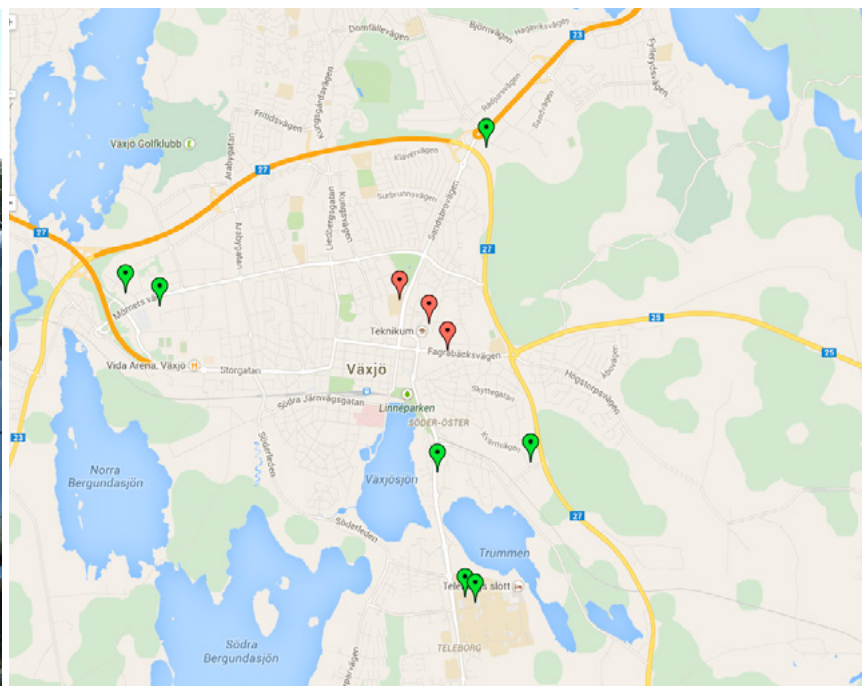
Regarding the selection of fuel, the industry is largely dependent on vehicle availability, and to some extent the availability of the fuels. Biodiesel has become the obvious alternative to diesel for several companies, which also run their own bio-diesel-depots in Växjö.

The Municipality has a well-established system of coordinated distribution of freight, creating benefits in reduced transport needs, lower emissions and reduced costs. The initiative has also resulted in increased traffic safety around kindergartens for example, and facilitated deliveries from local food producers to the Municipality. However, the Municipality's attempts at getting the downtown shops and businesses involved in a similar scheme have so far been unsuccessful.

The Municipality also generates heavy transport for waste and wood chips transport among other needs. There are demands on contractors for waste transport regarding the use of biofuels in utilized vehicles. In the plans for Sandvik III, Växjö Energi has made preparations for eventually enabling wood chip transport by rail directly to the plant. Currently, the fuel is supplied from forests in the region, making this less likely to happen in the short term

Current status: electric vehicles

Electric vehicles have long been viewed as the solution to many transport-related problems, but despite having been introduced in the early '90s, the market uptake of electric vehicles – mainly cars – has been sluggish. One explanation is that electric cars have a high purchase price and a relatively short range requiring additional planning for longer trips. Electric bicycles however are already established with a dramatic increase in sales. According to a simple survey, retailers in Växjö sold more than 150 electric bicycles in 2013, representing an increase of more than 100 bicycles compared to the preceding year. At the end of 2013, there were 10 electric cars, 186 electric hybrids, 11 plug-in hybrids and 200–300 electric bicycles, electric mopeds and special electric vehicles in Växjö Municipality.



By the end of 2013, the Municipal Organization had four cars, two vans, eight mopeds, about 40 electric bicycles and 23 other vehicles powered by electricity. Växjö Municipality participated in the national electric vehicle procurement program organized by the City of Stockholm and Vattenfall. There is an increased interest from municipal departments and companies to purchase vehicles through this procurement program. There is also interest in increasing the number of electric service vehicles within the technical administration among others.

Experience from the EU project ELMOS, where 450 residents had the opportunity to borrow 28 electric bicycles for a three week period from the Municipality, points to a high rate of user satisfaction resulting in ten percent of the participants purchasing their own electric bicycle. In the next step of the project, electric cars will be introduced via a car-sharing scheme along with the introduction of car-pulling possibilities on

campus. The aim is not to simply replace a fossil fuel car with an electric one, but to replace many cars through the use of car-sharing and car-pulling.

Växjö Municipality is also a part of the *Green-Charge* project led by the low emission vehicle association *Miljöfordon Syd*. The project aims to increase the number of electric vehicles and improve the charging station infrastructure in southeastern Sweden.

At the end of 2013, there were six charging stations within the Municipality spread over different neighborhoods. In addition, there were about 5 000–10 000 power outlets (e.g. for block heaters) in residential and commercial parking garages that can be utilized for recharging electric vehicles.

Charging stations in Växjö 2014.

Source: www.uppladdning.nu

Green symbols are public charging stations. Red symbols are not public. 12 further charging stations are planned for early 2015.



Strategies and measures regarding location

STRATEGY

Locate new residential and commercial development so that travel needs are minimized and they become easier to access by walking, cycling and public transport.

More residents are to have access to basic services (grocery shopping, preschools, schools) within walking distance.

Urban planning is primarily governed by the master plan. However, the efficiency and sustainability of the transport system could be improved through an increased focus on accessibility in the planning preparations, purchase of land, investments, dialogue with external partners and placement of municipal operations.

Urban planning aiming for superior accessibility is primarily focused on the following points:

- Central location of smaller residential buildings, shops and businesses so as to reduce travel needs and improve accessibility by walking, cycling and public transport, both locally and regionally.
- Optimal integration of stops/interchanges with the surrounding buildings/environment. Attractive design and possibilities for other

activities (e.g. shopping) help reduce the negative perception of waiting times.

- Striving to make basic services accessible by walking as often as possible. This applies to new development areas as well as to existing areas where basic services currently are not available within walking distance. Here, basic services refers to access to grocery shopping, preschool and elementary school. The establishment of new operations for grocery shopping should be steered towards areas with a large population base within walking distance (500 meters).
- Peripheral placement of disruptive activities and operations with large footprints. This is a prerequisite for densification and the location of housing centrally, and also helps reduce heavy transit traffic.
- Taking into account the impact new infrastructure development will have on property development and the transport system.

Measure 1

A supporting document is to be developed examining accessibility for pedestrians, cyclists and public transport users, to assist in the prioritization of development areas.

Management: the Municipal Board, the Technical Services Committee

Measure 2

Prioritize investigation, planning, land purchase and investment for development areas with superior accessibility for pedestrians, cyclists and public transport users, where the reliance on private car use is relatively low.

Management: the Municipal Board, the Technical Services Committee, the Building Committee

Measure 3

Influence the placement of public and commercial operations. Vaxjö Municipality takes an active role as an investigator and a dialogue partner for finding suitable locations for new development. The municipality strives to find locations that are easy to access by walking, cycling and

public transport for both employees and visitors. This is particularly important for operations with many visitors such as shopping, health care, pre-schools, schools and offices. Similarly, operations relying on heavy, wide or long trucks are located where the road network can handle the added pressure.

Management: the Municipal Board, the School and Child Care Committee, the health care committee and Vöfab.

Measure 4

Increase the accessibility to services by placing new development areas near existing services, densifying in existing areas as well as by pointing out the needs in zoning plans. Densification also improves the conditions for the establishment of new local services and operations.

Management: the Building Committee, Växjö Housing and Vidingehem.

Strategies and measures regarding streets and parkings

STRATEGY

Prioritize walking, cycling and public transport over car use.

Restrict measures that increase the advantages and relative accessibility of car traffic compared to walking, cycling and public transport.

Increase road safety by lowering speeds on roads where unprotected road users and vehicles meet.

Measure 1

Develop a traffic plan for the City of Växjö. The traffic plan will define where different modes of transport are allowed/prioritized, and set guidelines and limitations for different types of roads and streets in terms of speed, accessibility, traffic control measures, emergency vehicle accessibility, and more.

Management: the Technical Services Committee, in



consultation with the Municipal Board, the Building Committee

Measure 2

Develop a parking strategy that takes a holistic approach to parking for cars, bicycles and commuter traffic, as well as highlights the availability of disabled parking. The concrete measures in the parking strategy should favor sustainable modes of transport.

Management: the Technical Services Committee, in consultation with the Municipal Board, the Building Committee

Measure 3

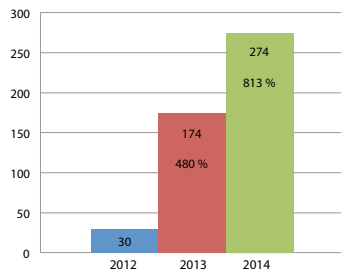
Develop methods to reduce the levels of particulate matter in the air, and implement measures to reduce noise pollution in buildings in compliance with the noise pollution action plan.

Management: the Technical Services Committee, the Environment and Health Committee

Measure 4

Implement actions such as speed control measures around key pedestrian and bicycle crossings, and the painting and signposting of roads, to further improve the work on road safety and to reduce the number of injuries.

Management: the Technical Services Committee



Sales of electric bicycles in Växjö. Numbers sold per year and increase in percentage compared to 2012. Compiled in 2014.

Source: Växjö Municipality

Strategies and measures regarding electric vehicles

Although electrical charging infrastructure and electric vehicles are touched upon in the municipal energy plan, we recognize the importance of including them in the transport plan as well. Electric vehicles have an important role to play in reducing noise pollution and local emissions generated by the transport sector within the city. Electric bicycles and car-sharing schemes with electric vehicles also show great potential for replacing private cars. 'Electric vehicles' is meant to cover both passenger vehicles and vehicles for freight distribution.

STRATEGY

Make it easier and smoother to use electric vehicles.

Increase the share of electric vehicles and electric bicycles in Växjö

Measure 1

Locate relevant strategic points (car parks, workplaces) for electrical charging stations and work towards the establishment of charging stations at those points. Collaboration with the private sector might be necessary.

Management: the Municipal Board in collaboration with Växjö Energy and the Technical Services Committee

Measure 2

Lead by example by increasing the share of electric vehicles (e-bikes, cargo bikes, electric cars, light trucks, etc.) in the municipal fleet.

Management: All committees and company boards

Measure 3

Conduct campaigns and collaborate with various stakeholders with the aim of increasing interest in all types of electric vehicles, electric vehicle sharing schemes, electric bicycles and so on among businesses and the public.

Management: the Technical Services Committee

Measure 4

Investigate the possibility of introducing electric/hybrid buses in municipal public transport.

Management: the Municipal Board

Strategies and measures regarding freight transport

STRATEGY

Reward fossil fuel-free and efficient freight transport.

Measure 1

Include transport services and contractors in the municipality's goal of fossil fuel-free municipal operations by 2020. In the procurement process for transport services, municipal operations shall make demands encouraging more efficient vehicles and increased use of renewable fuel.

Management: All committees and company boards

Measure 2

Develop a regulatory regime for freight deliveries to the city center favoring fossil fuel-free vehicles. For example, this could mean designating use of the loading zones closest to the city center exclusively for fossil fuel-free delivery vehicles.

Management: the Technical Services Committee

Strategy area: cycling

Comprehensive goals for cycling

See the section *Goals within the transport area governing the transport plan*, page 7 of the environmental targets.

Current status

We can determine the following from a travel survey conducted in 2012:

- 19 percent of all trips in Växjö were by bike in 2012. This represents an increase of three percentage points compared with the travel survey from 2002.
- 61 percent of all trips in Växjö were five kilometers or shorter, a distance where the bicycle has great potential. 48 percent of these trips were made by car, while the rest were by bicycles, walking and buses in that order.
- 89 percent of bicycle trips were five kilometers or shorter, while 38 percent were 1–3 kilometers.

The number of cyclists fluctuates throughout the year. According to measurements from the measurement point at Vattentorget, the number of bicycles changes considerably over the year. During winter, around 4000 cyclists per week pass the measuring point while the number doubles to around 8000 cyclists during the summer season. This would suggest that half of all cyclists in Växjö ride all year round.

According to an HUI (Swedish Institute of Retail) study from 2010, visitors to Växjö center use the following modes of transportation:

- Cycling: 29 percent spending SEK 260/occasion
- Bus: 25 percent spending SEK 248/occasion
- On foot: 10 percent spending SEK 181/occasion
- Car: 35 percent spending SEK 290/occasion



On an annual basis, cyclists spend SEK 340–380 million in Växjö center.

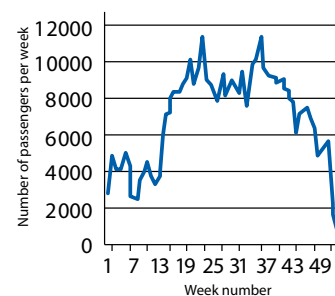
Improvements requested by cyclists

Through the annual survey conducted during the bicycle campaign SydostTrampar (southeast pedals), participants provide feedback on cycling in Växjö. In 2012, 235 cyclists participated, most of which were regular riders. Based on these responses, the following areas are the most in need of improvement:

- Maintenance of bicycle paths (snow removal, sand sweeping, etc.)
- Road safety (continuous cycle paths, separation from car traffic, not leading cyclists into roundabouts, etc.)

Additionally, the respondents called for improvements with respect to:

- Accessibility on bicycle paths (waiting time at intersections, detours, speed bumps)
- Infrastructure design details (curbs, up- and downhill slopes).
- Continuous cycling path network (in the center and outside of the city).
- Lighting (inadequate/missing in some places).



Number of passing bicycles, Vattentorget 2013.

Source: Växjö Municipality

Strategies and measures regarding the development and improvement of the cycling infrastructure

STRATEGY

Develop the cycle path network to offer shorter, safer and more convenient connections in both new and existing areas of the city.

Make cycling faster and easier on the main cycle paths while reducing the risks of accidents. The focus is to reduce the number of stops/barriers for cyclists.

Make it easier to park bicycles comfortably and safely.

Measure 1

Make an inventory of the bicycle path network in Växjö and other centers in order to determine the improvements needed to make them faster, easier, safer and more convenient for all types of bicycles.

Manager: the Technical Services Committee

Measure 2

Implement the measures from the inventory list to make paths faster, simpler, safer and more convenient according to set priorities: bicycle paths with the highest numbers of cyclists or where redevelopment is planned. Make an attempt at implementing the principles of *cycle superhighways* on one of the main cycle paths.

Manager: the Technical Services Committee

Measure 3

Develop guidelines and solutions in principle for design of bicycle infrastructure (intersections, roundabouts and for sections on bicycle paths/lanes, parking etc.), which also follow the principles of road safety. These principles will be included in the revision of the bicycle path plan.

Manager: the Technical Services Committee

Measure 4

Develop a long-term strategic plan for Växjö's bicycle path network, aimed at linking the city's new expansion areas and other new development plans with existing bicycle paths. The plan should also include the bicycle path needs of other urban and rural areas. Paths are to be classified as belonging to the main cycling network, other cycling paths, or leisure and recreational paths, and signposting on the paths is to be developed. These measures will be included in the revision of the bicycle path plan.

Manager: the Technical Services Committee

Measure 5

Obtain a current investment list of prioritized new bicycle paths with calculated costs. The list will be included in the revision of the bicycle path plan.

Manager: the Technical Services Committee

Measure 6

Evaluate bicycle paths and parking in the town center and station area.

Manager: the Technical Services Committee

Strategies and measures regarding the operation and maintenance of the cycling infrastructure

STRATEGY

Maintain the bicycle path network so that it is fast, easy, convenient and safe to cycle in Växjö.

Increase winter cycling.

Reduce single vehicle accidents caused by inadequate maintenance.

Measure 1

Develop operating procedures to ensure high accessibility and quality for the bicycle infrastructure, in order to minimize accidents throughout the year. Develop a prioritization order for snow

removal, sweeping and other maintenance of bike paths in the city center and other population centers in the municipality. Develop a work strategy to ensure good safety and accessibility during roadwork and maintenance on bicycle paths. These measures will be included in the revision of the bicycle path plan.

Manager: the Technical Services Committee

Measure 2

Develop a maintenance plan for bicycle infrastructure ensuring quality, accessibility and safety. This measure will be included in the revision of the bicycle path plan.

Manager: the Technical Services Committee

Measure 3

Develop a routine to simplify the reporting of problems with bicycle infrastructure in the municipality, including user feedback in order to maintain a good standard of infrastructure together with the users.

Manager: the Technical Services Committee

Strategies and measures regarding information

STRATEGY

Develop the bicycle culture in Växjö so that cycling is increasingly associated with positive qualities (hip, normal, beautiful, etc.).

Develop suitable information to enable cyclists to easily find important destinations.

Engage cycling enthusiasts, associations, etc. in the development of cycling in the city.

Measure 1

Work on campaigns enabling students to walk and cycle safely to and from school. Work actively on advisory services aimed at students, in order to increase their knowledge of traffic safety. Collaborate with schools, parents' associations,



the Police, the Police Academy, the Swedish Transport Administration, insurance companies, etc.

Manager: the Technical Services Committee, co-managed by the School and Child Care Committee

Measure 2

Collaborate with cycling associations and other stakeholders to create a well-developed bicycle culture in the municipality, enabling more groups to cycle longer and more often. Create a cycling reference group engaging cycling associations, enthusiasts and other stakeholders who meet regularly to discuss ideas that would improve the conditions for cycling and help promote the cycling culture in the municipality.

Manager: the Technical Services Committee, co-managed by the Leisure Committee

Measure 3

Prepare a record of the state of cycling within the municipality examining its development over the years through measurements, travel surveys, etc. Present the results in a bicycle audit, together with other improvements related to cycling.

Manager: the Technical Services Committee

Strategy area: walking

Comprehensive goals for walking

See the section *Goals within the transport area governing the transport plan*, page 7 of the environmental targets.

Current status

We can determine the following from a travel survey conducted in 2012:

- 13 percent of journeys were made on foot according to the travel survey from 2012. This represents an increase of one percentage point compared to 2002.
- 61 percent of all trips in Växjö were five kilometers or shorter, a distance where walking has great potential. 48 percent of these trips were made by car, while the rest were by bicycles, walking and buses in that order.
- 91 percent of all pedestrian trips were three kilometers or shorter, while 67 percent were one kilometer or shorter.
- Pick up and drop off of children account for eleven percent of the trips.
- Older residents tend to travel by car to a greater extent than younger residents.

The population is aging and the proportion of children being driven to school is on the rise.

What improvements do pedestrians need? How do we convince more people to walk?

The biggest challenges in terms of pedestrian traffic are:

- Improving safety in order to encourage walking among elderly residents
- Improving conditions so that children are permitted to walk by themselves
- Improving accessibility for disabled residents
- Improving safety so that women feel safe walking at night

- Increasing the appeal of walking so that residents choose to walk longer distances, walk to the bus or park their cars further away from their destination.

Optimal conditions are found in a dense, mixed-use city with many different destinations accessible within a two-kilometer radius. Trips on foot are slower than other modes of transport, leading pedestrians to be particularly sensitive to barriers and unattractive environments. Most measures aimed at improving accessibility for disabled residents improve accessibility for all pedestrians.

The most important measures are deemed to be reduction of travel distances through urban planning, improvements to winter maintenance and sand sweeping of walkways, improvements to increase accessibility for the disabled, and developing projects such as the *gående skolbuss* (“walking school bus”) project. Further work is required to improve the municipality’s management of pedestrian traffic.

Strategies and measures regarding the improvement of pedestrian routes

STRATEGY

Develop the pedestrian path network with the aim of offering faster and more beautiful connections, improving traffic safety and accessibility for the disabled.

Focus the improvements on pedestrian paths in the four urban centers and important destinations in the city.

Measure 1

Make an inventory of the main pedestrian routes in Växjö in order to determine the improvements needed to make them more accessible for the disabled, and improve traffic safety and the sense of security.

Manager: the Technical Services Committee

Measure 2

Implement the measures from the inventory list in order to improve accessibility for the disabled,

traffic safety and the sense of security on Växjö's main pedestrian routes.

Manager: the Technical Services Committee

Measure 3

Develop a pedestrian plan for Växjö, which also provides guidelines or suggests solutions for providing for the needs of the elderly, children's needs, security for example for women at night, and accessibility for the disabled.

Manager: the Technical Services Committee

Strategies and measures regarding the operation and maintenance of pedestrian routes

STRATEGY

Maintain walkways so that they are comfortable and secure.

Reduce pedestrian solitary accidents caused by lack of maintenance.

Measure 1

Develop operating procedures for streets, plazas and walkways increasing accessibility for pedestrians and minimizing accidents throughout the year. Develop principles for winter maintenance and sand sweeping of pedestrian paths in the city and other population centers in the municipality. Develop a strategy to ensure good safety and accessibility during roadwork and maintenance on pedestrian paths.

Manager: the Technical Services Committee

Measure 2

Develop a maintenance plan for pedestrian paths ensuring good quality and accessibility and improving traffic safety. Include continued work on security in tunnels, lighting and shrubbery.

Manager: the Technical Services Committee

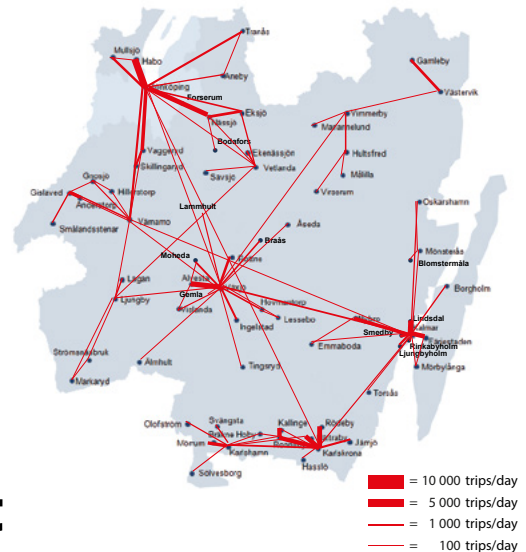
Measure 3

Develop a routine to simplify the reporting of problems on pathways in the municipality, including user feedback in order to maintain a good standard of infrastructure together with the users.

Manager: the Technical Services Committee



Taken from the 2012 travel survey, illustrating the largest flows of **car trips** between towns in south-eastern Sweden.



Strategy area: public transport

Comprehensive goals for sustainable vehicle traffic

See the section *Goals within the transport area governing the transport plan*, page 7 of the environmental targets.

Current status

The travel survey conducted in 2012 established that public transport accounted for six percent of all trips in Växjö, representing a decline of one percentage point compared to 2002. However, a rising share for public transport has been observed in recent months after major investments were made during 2013. Trips made by city buses have increased by 20 percent (up to and including January 2014), while trips by regional buses are up around four percent compared with the same month in 2013. Furthermore, there has been a rise in customer satisfaction.

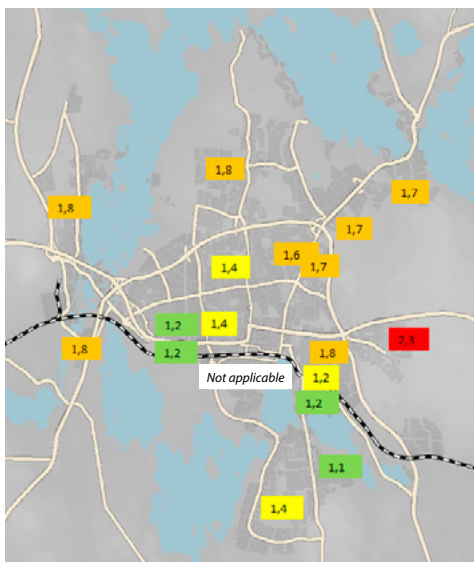
Three-quarters of the total distance we travel is accounted for by trips that are 20 km or longer. Longer car journeys are generally made for longer work related or holiday trips.

The map above shows the routes for many longer

car journeys. Routes with large flows, where public transport has a good chance of increasing its market share, are mainly between Växjö and the towns Alvesta, Moheda, Hovmantorp, Rottne, Ingelstad and Kalmar.

On most routes to Växjö center, trains provide superior travel times to cars. The long delays in Alvesta however, mean that travel with the Krösatåget north is not as competitive as with cars regarding travel time. Regional bus transport is never faster than car traffic, but on some routes buses are faster than others. Public transport is most competitive with cars on the routes between the city center and the University, Västra Mark, Araby and Teleborg. This is partly because of high trip frequency minimizing waiting times. Public transport is less competitive with the car in terms of travel time on the other routes within the city.

According to a survey conducted by the Regional Traffic Authority in Kronoberg in collaboration with the Swedish Public Transport Association, the main factors in increasing public transport use are offering relevant options and providing



Map and table comparing the door to door travel times of cars and public transport. 1 indicates public transport travel times matching those of cars, while 2 means that the car is twice as fast.

Starting area	Starting address	Travel time quota
Measurement for 7 to 8 AM, August 21, 2013		
Braås	Parkgatan 2, Braås	1,47
Rottne	Johan Emils Väg 3, Rottne	1,02
Lammhult	Ejdervägen 33A, Lammhult	1,35
Gemla	Hantverkäsvägen 5, Gemla	0,79
Ingelstad	Ådalsvägen 14, Ingelstad	1,51

Source: Växjö Municipality

appropriate information on the options on offer. These factors have a much greater impact than factors such as price.

Strategies and measures regarding traffic planning and accessibility

STRATEGY

Reduce the travel time for public transport compared to the car.

Further develop the competitive advantage of using the travel time for productive activities besides driving.

Make it easier to use public transport by increased trip frequency and consistency.

Improve punctuality and transfer opportunities.

Focus on improving the main regional commuter routes and longer trips within the city, along with linking the city's four centers.

Measure 1

Further develop regional train traffic.

In the short term, work towards:

- More Öresundståg departures terminating in Kalmar.
- Increasing the number of departures by the newly started Kōrsatåget.
- Securing train lines to Gothenburg.
- Improvements to transit and waiting times in Alvesta and Emmaboda.

Manager: the Regional Traffic Authority

Measure 2

Conduct studies in order to develop train and bus traffic on the most important regional routes.

Initiate a feasibility study on double track rails between Växjö and Alvesta, and support the development of the main rail tracks in Skåne and Småland. Furthermore, measures to improve punctuality, shortening the travel time to Värnamo and a future train stop on the I11 are considered to be beneficial to regional development. Additionally, a review of the regionally important bus routes is needed in order to identify the measures with the greatest potential to



increase trips by public transport. The following routes should be reviewed: Växjö–Alvesta–Ljungby, Växjö–Ingelstad–Tingsryd–Ronneby, Växjö–Rottne–Braås–Åseda and Åryd/Furuby–Hovmantorp–Lessebo.

Manager: the Municipal Board, the Public Transport Authority and the Regional Traffic Authority

Measure 3

Planning for an attractive long-term route network within the city.

Transit points and bus lanes are investigated in order to determine the necessary land claim and investments, and to properly integrate them with the surroundings and services. In several places, choices need to be made regarding different line options. In the short term, the Bredvik/Bäckaslöv bus routes and the placement of stops within the city for regional bus lines need to be investigated.

Manager: the Municipal Board and the Public Transport Authority



Measure 4

Offer public transport options to new development areas from the start.

In the short term, this means further development of the traffic to Vikaholm, traffic planning and design for Bredvik and Bäckaslöv, and building a stop for regional buses in Bredvik.

Manager: the Municipal Board, the Public Transport Authority and the Regional Traffic Authority

Measure 5

Implement accessibility measures for buses.

Ensure prioritization of public transport at traffic signals. Develop long-term measures designed to increase the capacity for buses along Sandgårdsgatan–Storgatan–Smedjegatan, Linnégatan–Sandsbrovägen, Fagrabäcksvägen and Liedbergsgatan. Reduce the number and duration of stops by locating bus stops centrally and streamlining boarding times. Avoid bumps, sharp turns and materials with a short life span during redevelopments. Reduce anxiety and delays for bus passengers by improving planning and coor-

dination during roadwork or large events.
Manager: the Technical Services Committee

Strategies and measures at transfer stations

STRATEGY

Several stops are to be weather protected, adapted to improve accessibility and equipped with bicycle parking offering a high level of protection from theft.

Make it easier to get to the stations and stops all year round.

Measure 1

Make a priority action list for stops where the municipality is operationally responsible. Make an inventory of shortfalls in usability, security and safety for pedestrian and bicycle paths, and on crossings with car traffic adjacent to the stops. Clarify responsibility areas for the operation and maintenance of stops along national roads and ensure that an operational budget is allocated. Ensure the high quality of the operation and maintenance of all bus stops. Expand winter maintenance on municipal pedestrian and cycle paths leading to bus stops.

Manager: the Technical Services Committee

Measure 2

Invest in weather protection, platforms, guiding paths, bicycle parking, parking spaces, adequate lighting, seating, etc. at the main bus stops.

Manager: the Technical Services Committee

Strategies and measures regarding operations and quality

STRATEGY

Increase collaboration between the municipality, the Regional Traffic Authority and the contractor in order to provide the users with a positive experience from personnel, vehicles, stops and technical systems.

Develop the buses to be quieter and more energy efficient.

Measure 1

Establish trilateral cooperation between the contractor, the Regional Traffic Authority and the municipality in order to facilitate a prompt response to simple issues, and to promote mutual confidence and cooperation on more complex issues.

Manager: the Municipal Board and the Regional Traffic Authority

Measure 2

Organize station councils in order to develop and coordinate the operation of station areas.

Manager: the Municipal Board and the Regional Traffic Authority

Measure 3

Promote the implementation of measures stimulating calmer driving by the contractor-employed drivers.

Manager: the Regional Traffic Authority

Measure 4

Set stricter targets for energy efficiency and noise pollution in future procurement processes. A reduction in the use of internal combustion engines in buses could contribute to the reduction of noise pollution in attractive locations, and to increased energy efficiency. Consideration should be given to trying electric hybrid buses if the number of city buses is increased before the next procurement process,

Manager: the Municipal Board and the Regional Traffic Authority



Strategy area: mobility management

Comprehensive goals for mobility management

See the section *Goals within the transport area governing the transport plan*, page 7 of the environmental targets.

Current status

Mobility management is a concept working to change travelers' attitudes and behaviors in order to promote sustainable transport and reduce demand for private car use. The goal is to reduce congestion, single occupant car use and negative environmental impacts while increasing the opportunities for walking, cycling and public transport. *Soft* measures such as information and communication, organization of services, and coordination of different stakeholders are central to mobility management. The field can be

viewed as the software of traffic planning, complementing the traditional *hard* solutions. Soft measures tend to improve the efficiency of hard measures such as new tram lines, new roads or new bike lanes. In comparison to hard measures, mobility management measures require relatively small financial investments, providing superior financial returns (the EU-project MAX, 2009). Furthermore, IT solutions have the potential to replace some of the demand for physical trips, and assist in streamlining and controlling all types of transport.

The mobility management measures implemented in Växjö include:

- Växjö Municipality has participated in the campaign *Sydost Trampar* (southeast pedals) for four years, where around 1 000 participants

throughout the region ride bicycles six weeks during the spring and six weeks during the fall. Results from 2012 show that one third of the participants drove a car three days or more before the start of the campaign, another third one to two days before while the final third were regular bicycle riders.

- Växjö Municipality has worked on the *Hälsotrappare* (health pedalers) campaign for two years (2011–2012), where employees are invited to leave their cars at least three days a week and cycle part or the entire journey to work (minimum of two kilometers each way). The outcome has been very encouraging, with 61 percent of the participants cycling to work at least three days a week a year after the project, and a decline in sick leave days compared to before the start of the project.
- During 2013, a campaign to introduce electric bicycles was implemented as part of an EU-project, lending 28 e-bikes to the employees of 25 different operations for three-week periods. The participants were very pleased to have the opportunity to borrow e-bikes, and 31 percent have reported a change in their travel habits, riding bicycles more often than before borrowing an e-bike. Ten percent of the participants went on to purchase their own electric bicycle.
- The Regional Traffic Authority in Kronoberg is working on *try-for-yourself* campaigns, offering residents in the county free travel on public transport for two weeks. The offer is sent out to 25 000 households in Kronoberg county, primarily to priority areas with a high trip frequency and favorable commuting options.
- The Regional Traffic Authority in Kronoberg also works on targeting different groups, e.g. younger travelers, business trips in larger companies, etc.
- In 2014, the campus area is introducing an electric car-sharing scheme, combined with web-based functions for car-pooling and public transport.



The potential for changing modes of travel

The travel survey from 2012 showed that approximately 16 percent of the residents of the municipality are car users who want to reduce their car use, and have already tried or are researching ways of replacing car trips with other options. A further 16 percent express a certain ambition to reduce their car use, but have no concrete plans to achieve this.

There is a strong correlation between access to good public transport and a reduced demand for private car use. Women, young residents and the highly educated also show a greater willingness to cut down on private car use compared with other groups.

Strategies and measures within IT

STRATEGY

Promote the use of IT solutions to replace travel needs.

Measure 1

Provide active internal counseling services to the employees of municipal operations, in order to promote the use of IT solutions to replace physical trips.

Manager: the Municipal Board

Measure 2

Work on providing companies and organizations counseling services aimed at increasing the awareness of the possibilities of IT solutions to replace physical trips.

Manager: the Technical Services Committee, the Municipal Board and the Regional Traffic Authority

Strategy and measures aimed at changing travel patterns, mobility management

STRATEGY

Influence the choice of mode of transport and create safer traffic behavior through providing information and conducting campaigns and dialogue.

Provide information on relevant public transport possibilities, target specific user groups, seek collaborations and attract motorists.

Measure 1:

Provide welcoming packages to new residents providing information and offers for walking, cycling, e-bikes and public transport. Offer packages and consultation to businesses moving to or within the municipality as well.

Management: the Technical Services Committee, the Municipal Board

Measure 2:

Offer consultation services to large companies and organizations regarding their work and business travels, providing information and campaigns related to travel surveys, action plans and review methods.

Management: the Technical Services Committee, the Municipal Board

Measure 3:

Conduct annual campaigns geared towards inspiring increased cycling, walking and public transport use. An example would be campaigns

offering the opportunity to try e-bikes, cargo bikes or public transport.

Management: the Technical Services Committee and the Municipal Board in cooperation with the Regional Traffic Authority in Kronoberg

Measure 4:

Work to improve traffic safety through campaigns on helmet use, visibility in traffic, etc. Utilize established concepts such as eye contact.

Management: the Technical Services Committee

Measure 5:

Cooperate with developers to create conditions for an increase in trips on foot, by bicycle and by public transport (green travel plans) when planning new areas and expanding existing ones.

Management: the Technical Services Committee, the Municipal Board

Measure 6:

Encourage and promote the use of car pools and car-sharing schemes for both businesses and individuals, preferably using electric cars. Inform car-sharing organizations about the possibility of gaining access to premium parking spaces, and provide such parking spaces when the need arises.

Management: the Technical Services Committee

Measure 7:

Introduce travel cards for municipal work related trips in southern Sweden.

Management: the Municipal Board



Växjö
kommun



Europas grönaste stad

The Technical Services
Committee

Box 1222
351 12 Växjö
Telephone 0470-410 00
www.vaxjo.se



Part-financed by the European Union
(European Regional Development Fund)