National ARTISTS WP2 report of Sweden

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City of Malmö
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1. Sweden and Malmoe

For maps and locations of the two cities Malmoe and Eskilstuna, please, take a look in chapter 7. In chapter 1 and 2 the situation is referred to Malmoe as the local authority. Special features for Eskilstuna are included in chapter 7 in connection to the reconstruction of Hamngatan there.

General development in Sweden; which we assume affects both the planning in Malmoe and Eskilstuna.
- In 1880-90. The era of the “industrial revolution”. The drastic development of motorism. Car traffic and its importance were definitely on the agenda.
- In 1930-40 The era of “How to build”. The era of regulations and recommendations
- 1950-60 The era of “More space to traffic”.
- In the 1960’s and 1970’s “The one-million homes program”. A very expansive period for the construction of housing.
- The changeover from left-hand traffic to right-hand traffic in 1967
- The SCAFt planning guide was introduced at the end of 1960’s. One of the main proposals by SCAFt was to make planners separate different road users as much as possible.
- The oil crises in the 1970’s
- 1970 the period when we realised that it will never be possible to completely remove the traffic flow / capacity problems by rebuilding or allocating more space to traffic. There has to be other solutions.

Malmoe;
In the General Plan for the 60’s there was a vision of incorporating the southern parts with the inner with light rail. Some arterial streets were therefore built with a reservoir of space for the future light rail traffic. The light rail was never built so some arterial streets are really “unnecessarily” wide also compared to that period’s norms. In the 80’s there was a new try to build a light rail to the outer areas. The project was never implemented.

Malmoe – is located on the flat country. Thus, the expansion of Malmoe is in terms of new rings around the centre. This creates major complicity for public transport. The former tram traffic could not offer sufficient service to the areas further away from the centre. In 1963 it was definitely decided not to make any further investments into the tram traffic. Emphasis would instead to be put on increased and improved bus traffic. This is quite different compared to the situation in the other two greater cities in Sweden, Gothenburg and Stockholm. These cities are surrounded by hills, the expansion therefore had to be in routes from the centre. These conditions facilitated the planning of good public transport

In the 60’s the Municipality of Malmoe was promised an extension. Smaller municipalities around Malmoe were to belong to the greater Municipality. Malmoe therefore concentrated to build several storage blocks of flats as the need for some people to live in residential districts would be satisfied within the new greater Municipality. Now the vision of a greater Municipality never came true. Therefore the Municipality of Malmoe only consists of the city not rural part. The efforts later on to build some residential districts were rejected by that times government that thought that Malmo shouldn’t expand, the spaces left open in the central parts should first be built.
1.1 Formal / legal and traditional road planning
In Malmoe as in other larger Swedish cities, it is the Municipality that has the responsibility for the roads. Among the smaller cities it is, however, the Swedish National Road Administration has the responsibility for the bigger roads in the cities i.e. the responsibility for the arterial streets.

Complaints from the public are put forward to the decision makers through letters to the local authorities.

According to the 1987 “Planning and Building Act” municipalities have two planning standards; the Comprehensive plan and the Detailed Development Plan. The Comprehensive plan is mandatory for all municipalities and must be kept up to date. The Plan is not legally binding but a tool to promote public interest.

The Detailed Development Plan is legally binding and an implementation tool. This is an agreement between the municipality, public and estate owners. In addition almost all Swedish municipalities develop local Agenda 21 plans.

When new roads are to be built this is has to be established through the Detailed Development Plan. The rebuilding of arterial roads is however an issue for the technical board at the municipality to decide. When the function of the road is changed like into a pedestrian street this is also an issue for the technical board. If it, however, comes to direct road closure this is a Detailed Development Plan issue.

The location of bus stands, decision about parking regulations and speed limits are issues that are solved directly in the technical board at the municipality. Bigger changes like terminals are to be handled through the Detailed Development Plan.

The police has no specific decisive role. It is, however, one of the bodies to which a proposed measure is referred for consideration like speed limit issues and other traffic regulation issues.

1.2 Financial structure
The Swedish municipalities have in most cases the responsibility for the arterial streets i.e. reconstructions are to 100% financed with municipality taxation money. The exception are the bigger roads, not arterial roads but through-going roads, in the smaller Swedish Municipalities where the Swedish National Road Administration has the responsibility. The municipalities have parking norms and the bigger municipalities like Malmoe also have a cycle parking norm.

1.3 Reconstruction experience and tradition

Individual design elements / schemes:

Marking of traffic lanes:
The experience with the marking of traffic lanes is that it is necessary but also that there are problems at streets with high traffic flows as consideration also has to be taken to parking
possibilities along the street. The solution has been to have more narrow lanes on the link and then to let them widen up at the intersection.

The recent opinion is that this is still a good way to structure the driving path in the Swedish cities. Today there is a more liberal attitude towards parking. There is a tendency to a greater extent to consider different types of demands of the street; demands that surely differ from street to street i.e. the view today is more varying.

New arterial streets by demolishing buildings:

Experience;
The purpose of 1874 Building Act was to give light and space to the residents in the cities. There were norms on a minimum building height to space between buildings ratio. A consequence some buildings were demolished in the inner parts of the bigger cities. The great demolishion of buildings in the inner parts of the greater cities took place in 1965-75 in connection to the "one-million-homes program". The purpose was to improve housing by moving residents to new homes in the outskirts of the cities and the process of turning residential property into offices in the inner parts took place. A second purpose was of course to create space to the ever increasing car traffic; car traffic should have unrestricted access to the inner parts of the cities. To some extent this was a reality in Eskilstuna before 1970 but the big "disaster" of demolishing buildings and environments with great cultural inheritage took place in Stockholm. To be honest one must, however, admit that the buildings that were torn down actually were in very poor condition. The demolishing of buildings was never in use in Malmoe as the city already had wide enough streets.

Recent opinion
If the reason for demolishing a building is to give way for car traffic in the inner parts of the cities, it is not a very realistic option today.

New arterial streets in non-built-up areas:

Experience
New arterial streets are built in the outskirts of the cities. There doesn’t seem to be any greater problems when new roads are built in untouched areas.

Recent opinion
If the arterial streets are adapted to the environment they are going through there is no problems with new arterial streets in non-built up areas.

New signal-control at junctions:

Experience
In the city of Malmoe the phases of the traffic signals are based on vehicle flows and not time. Most signals also have an automatic cycle detection. These conditions are, however, not valid for the rest of the country; a rather big proportion of the signals are time based where the cyclistists have to stop and push a button to get detected.

Recent opinion
New strategies for improving the traffic signals are very realistic options. With the use of GPS it will also be easier to prioritise bus traffic. In the new strategies bus priority would be given to late and crowded buses.

Green waves:

Experience
The tendency is that green-waves were more common earlier than today. It was seen as a way to prioritise the roads with a artery function.
Recent opinion
Today there is a mixture rather than either / or. The opinion is that the solution is good for priority during peak periods but that it should be switched off during off-peak. The most advanced system for signal control in Malmö today is called SPOT. SPOT is a new “intelligent traffic signal system” that reads the activities at the intersection (through video and loops) and suggests the most appropriate alternative. The “decision” of the system is based on pre-knowledge that is stored in a continuously updated data base – the system “learns”.

Reconstruction of roundabouts to other type of junction:

Experience
The reconstruction of roundabouts to signal controlled intersections was rather common some 30 years ago. For one of the cases, Hamngatan in the city of Eskilstuna, the signalised intersection that now was rebuilt to a roundabout was in 1969 rebuilt from roundabout to traffic signal. This type of reconstruction is especially relevant when the flows are not equally distributed.

Recent opinion
The opinion today is still that a roundabout is perhaps not the very best solution if the incoming flows are of very different magnitude. The opinion is, however, very much in the direction of converting signals to roundabouts than the other way around.

New roundabouts:

Experience
Between the beginning of 1970’s and 1990’s new roundabouts were normally not built unless they had a big radius. The experience was that roundabouts couldn’t handle the capacity.

Recent opinion
Today the opinion is that as long as the incoming flow is rather evenly distributed between the different legs, a roundabout is a good solution. People with defective vision do, however, have bigger difficulties to cross at a roundabout compared at a signal. Further research is needed to find better solutions for this user group. Further research is also needed to find optimal solutions for cyclists through the roundabout. Thus, the safety of the vulnerable road users is important. Roundabouts and mini-roundabouts have become rather common traffic safety measures in Swedish cities. Mini-roundabouts are even built at intersections with rather high traffic volumes. The results show very positive safety effects and the capacity problems are not significant worse compared to the signal.

Parking:

Experience
The municipality has experience of almost all different types of parking. The arterial street as a location to park the car has been considered less important compared to the artery function of the road.

Recent opinion
Today the opinion is a bit more varied. Now there is a balance depending on the current situation on the street. The aim today regarding parking is less to find one solution that is to be valid for all problems and sites; more to find suitable soultions to each and every street.

One-way traffic:

Experience
This has been considered as an important measure to promote capacity. In the 60’s and 70’s around 10 streets a year were converted into on-way traffic in the municipality of Malmö.
Recent opinion
Today the tendency is to change the one-way traffic roads into two-way.

More / fewer traffic lanes:
Experience
In the past, in the 60’s and 70’s when capacity was the high priority function of the arterial streets, there were of course more traffic lanes.
Recent opinion
Today opinion is a bit different. The use of the street is what determines the number of lanes and the allocation of space for different purposes.

Closure of tramlines:
Experience
The last tram in Malmoe was in traffic in the early 70’s.
Recent opinion
The opinion today is that for those cities (e.g. Gothenborg, Norrkoping) where the trams survived the great closures in they will most probably continue to operate. Light-rail is coming very strongly as a complement to buses.

New bus lanes:
Experience
yes some earlier
Recent opinion
Discussion regarding the positive and negative effects of the bus lanes. It is probably positive with separate bus lanes but there is a problem in connection to car parking facilities along the street. There is also a tendency to congestions at the intersections and at the stands.

New cycle tracks / lanes (narrowing footways):
Experience
People cycled a lot during and right after the second world war in Malmoe. New cycle facilities were also built during this period. Then in the 1960’s and 70’s the people stoped cycling and the cycle paths were removed.
Recent opinion
Yes new cycle tracks is good investment with regard to enhancing cycling. It makes cycling more attractive and safe as long as the interactions with motorised traffic at the intersections are solved in a good way. The space is both allocated from the carriageway and the foot path. In Malmoe the foot paths are generally very wide. Regarding cycling on arterial streets painted cycle lanes in the carrigage way are tested in some different cities.

Pedestrian streets (widening footways):
Experience
There are many streets in Malmoe that have been converted into pedestrian streets in the most central parts. Foot paths have “always” been rather wide in Malmoe.
Recent opinion
The opinion today in Malmoe a bit pending regarding new pedetrian streets. For a city of the size of Malmoe there is now thought to be enough pedestrinasation. Even more pedetraian streets would prevent other users from entering the central parts. The solution today is rather to widen up the foot paths if needed.
Pedestrian crossing / median islands:

**Experience**

Until a couple of years ago there were many marked pedestrian crossings in Malmoe and in other Swedish cities. Then the new "pedestrian crossing law" was introduced. With the law the responsibility of the interaction on the marked pedestrian crossing was transferred from the crossing pedestrian to the driver. As a consequence many marked crossings were removed. The tendency is therefore rather that the marked pedestrian crossings are removed than introduced. There are almost no crossings left on roads with speed limits above 50 km/h.

**Recent opinion**

Today the pedestrian passage is secured by the introduction of middle strips.

Noise reducing pavements:

**Experience**

There is some experience with noise reducing paving in Malmoe.

**Recent opinion**

The opinion is not clearly for or against; rather it depends on. There are definitely some good alternatives but it seems as if they still are too expensive since the length of life is too short.

Humps / bumps / pinch point / chicanes

**Experience**

Malmoe has a lot of experience of speed reducing measures like humps / narrowing of pedestrian passage / chicane.

**Recent opinion**

As for most municipalities the best results regarding drivers’ behaviour i.e. the tendency to give way to crossing pedestrians and speed reduction are achieved when humps are introduced. It is, however, important that the humps have are correctly constructed to reach the best results. It is also important that the humps are placed frequently so that the speeds do not increase too much between the humps. To narrow the passage for the pedestrians across the street also seems to be an attractive solution. This is achieved by widening the foot path at these locations. Chicanes, however, have been tested but results show that the speed distribution is too big to be considered safe.

Accumulated knowledge:

Mostly based on the Malmoe conditions with some influence from Gothenburg.

Arterial streets are not the main focus in any of the present norms for traffic planning in Sweden or the main focus in many research projects. In 1987 ARGUS (general advice for street design and standard) was launched. Many of these advices are today very much out of date. Further more is the use of the handbook a complex task due its lack of flexibility. It is, however, the handbook that most municipalities are forced to use. Some municipalities, like in Malmoe, do instead get inspiration from the norms used in Germany and Denmark. According to the municipality of Malmoe they use these norms in 70-80% of their planning.

In 1996 the Swedish Parliament has passed a proposal [10] which says that the foremost aim of the national traffic safety work in Sweden is to prevent fatal accidents and accidents with severe
injuries. This approach is called the Vision Zero and the vision is that nobody should get killed or seriously injured in traffic.

In 1999 the Swedish Association of Local Authorities presented ”Lugna gatan” [9] Calm streets; to promote a planning process for safer, more eco-friendly, pleasant and attractive streets in urban areas.

The Swedish road Administration (SNRA) has together with the Swedish Association for Municipalities decided to develop new norms that “better fit the current transport political goals”. The aim is to develop TRAST, ”Traffic for an attractive city” a handbook for overarching traffic planning in urban areas and VGU, ”Design of roads and streets”. VGU will contain advice for how to design all types of roads and streets depending on their function irrespective of who has the responsibility for the road. The first versions are planned to be presented late 2003 / early 2004.

The SNRA and some local authorities have been testing measures on arterial streets and gained own knowledge through these studies but the extent is rather limited.

Research at Transport Institutes and Universities have of course included measures on arterial streets but the extent is rather limited. Local authorities use these results to a rather small extent. There are no textbooks produced on this subject. The teaching on the Universities of course bring up the issue.
2. City of Malmoe

2.1 Policies and Rationales
Below there is a list of traffic and land use plans and policies in force in the City of Malmoe that are related to the arterial streets:


**Cycle program for the city of Malmoe, 1999. [3]**
The aim is to form a future society with improved environment and traffic safety.
In a 10 year period the aim is to
- increase cycle traffic by 10 %
As a consequence
- car traffic will decrease by 2-3 %
- emissions from car traffic will decrease by ca 5%

The program of measures to transfer shorter car trips to cycle trips include the following tasks;
- Access to a continuous cycle net
- A net that has attractive cycle paths
- A net that offers safe cycling
- Availability of safe cycle parking
- To offer the opportunity to rent a bike; the “Malmoe bike”
- To promote cycling by changing the attitude
- To promote cycling instead of car trips for shorter journeys
- To promote cycling by providing information about cycling facilities in Malmoe.
- To promote a dialog with all stakeholders in Malmoe regarding the cycling program
- To create a program for implementing the aims described above

**Traffic strategy for Malmoe (a basis for discussion) December 2002. [4]**
The aim is to answer two main questions
1) Which challenges is the traffic system in Malmoe facing within the next 15-20 years?
2) Which strategies and measures can help to realise the overarching goals set up by the municipality? These goals are to:
- increase the number of jobs.
- have a social balance within the city.
- have a robust and sustainable structure.
- have create an attractive city environment.
- to become a regional centre.
The Malmoe traffic system. 2002. [5]
The aim with the report is to show the alternatives for how to deal with the increasing traffic and the consequences. The report consists of three parts;

- the traffic system in Malmoe; yesterday and today. In a economic perspective. In a social perspective. In an Environmental perspective. In a Spatial / Physical perspective.
- scenario; the traffic in the future. Four different scenarios for a future Malmoe is described.
- description of the consequences based on each of the scenarios

From 1971 to 1987 the norms (number of car parking spaces per apartment etc.) have steadily decreased. In recent years, however, the number of cars per inhabitant has increased from 330 cars / 1000 inhabitants in the 70’s to 362 in year 2000. The norm should therefore increase and reach up to one parking space per car. This means that more space should be allocated for residents in the most central parts of the city. This the first time there are norms for cycle parking. For block of flats the norm is 2.5 spaces per apartment and for student homes 2 spaces per apartment. Without going into details

The long-term vision for Malmoe is
- to become an important part of the Oresund region,
- to be a city in the new Europe with intense contact with the rest of the world,
- to achieve a high education level
- to have stable employment
- to have ecological housing
- to have rich leisure-time and recreation activities
Strategy;
1) to be supplemented with 1500 new housing and 1500 new jobs per year
2) to mix different functions so that different needs of housing and places can be satisfied
3) to maintain a dense city; new constructions mainly in the central areas
4) new constructions are not to be erected at the expense of greenery and parks
5) the open farmland and hills around Malmoe are to be protected

Traffic environment program for the city of Malmoe. 1996. [8]
The aim is to present a program in order to improve the traffic environment in Malmoe, to suggest measures, timeplan and make a description of the environmental and economic consequences. For the arterial streets the following areas are most importance;
Noise; to take measures along roads where the noise exceeds 65 dB(A). Cost 2 MSEK / year.
Environmental friendly purchasing for the municipality; demand that fuel and vehicles with the best environmental class are used; demand the use of engine preheater, etc. COST 2 MSEK / year
Cycle traffic; a plan for alternative, safe and fast cycle passages to the centre; a plan for grade-separated intersections where so needed; a plan for improvement of accident prone intersections; etc. COST 15 MSEK / year.
Land use; concentrate the existing settlements; better mix of housing and other activities; suggest suitable locations for activities that generate high traffic volumes; concentrate construction to big public transport centres; etc.
Road maintenance; use less materials; use less salt; etc.
Barrier effects; reduce car speeds in the inner parts; adapt the rad space to desirable road user behaviour; reduce the barrier effects; develop the historical important arterial streets like
Regementsgatan and Nobelvägen (our cases); the give the entries to Malmö a better identity; create safe and clear passages for pedestrians

Traffic regulation: to present a parking plan for the central parts of the city so that parking should be reserved for residents and restricted to short term parking for others. The parking should be off street parking i.e. on building area and in parking houses. The possibility for commuters to park in the inner parts of the city should be restricted. Commuter- and entrance parking should be facilitated.

A continuous development of the regional railway traffic with the new City tunnel under Malmö as a framework.

The SNRA (Swedish National Road Administration) has the overall responsibility for the traffic and traffic safety on all Swedish roads i.e. including those in urban areas. To be able to handle this responsibility the SNRA needs to cooperate with different authorities and not least the local authorities. In this work together with the local authorities an education manual has been produced for the staff at the department of public works in Malmö. The aim with this education is to raise the level of traffic safety knowledge at the local authority.

2.2 Processes and Experience

The responsibility and tradition in the different the phases of decision-making and design processes have changed over the years.

In 1950-60 politicians were not involved to any greater extent. The traffic engineers and urban planners at the local authorities decided whether there was any problem; if measures should be taken; good design solutions; etc. The public was not involved to any greater extent either.

In 1970 the staff at the local authority produced alternative solutions to reconstruction and the politicians, technical board, decided which solution to chose.

In 1980 the process was concentrated to the Technical Board; the politicians made suggestions and decided which design to chose.

Today we are very much back to a process orientated around the department of public works at the local authorities. Today the issues often have a social dimension that the department of public works perhaps is not the best body to handle. There is a distinct element of stakeholder involvement in the process today. Major reconstructions are “handled according to the handbook” i.e. there is a formal project organisation with reference groups, there is a communication plan for handling media and stakeholders, there are clearly pronounced goals, a time and cost budget, risk analyses, the choice of alternative design often goes via competitions with jury, expects are called upon if needed.

Project identification phase:
The problems today are often associated with the wide arterial streets; the barrier effect, high speeds and high accident numbers that this brings about. Capacity for motorised traffic is no longer the highest priority for these streets so a discussion around alternative use of the space is often on the agenda; reallocation of space. Pedestrians need improved crossing facilities as the long passages cause insecurity, etc. Elderly pedestrians seem to be an exposed group on these streets. The complaints are often brought up by the residents in the area. These are also often supported by the view of the traffic engineers and urban planners at the department of public works. The complaints are often about ”too high speeds”, ”dangerous to cross”, etc.
Decision to design:
The proposal for reconstruction is presented for the politicians in the technical board. If the technical board agrees then the department of public works is assigned to bring forward different design solutions. The budget for the project is decided. The technical board takes the decision to design.

Project definition phase:
As stated above major reconstructions are “handled according to the handbook” i.e. there is a formal project organisation with reference groups, there is a communication plan for handling media and stakeholders, there are clearly pronounced goals, a time and cost budget, risk analyses, the choice of alternative design sometimes goes via competitions with jury, experts are called upon if needed. The project organisation consists mostly of people from inside the municipality. There is a manager group, steering group and a reference group. In the reference group there are representatives from media, from the residents and shopkeepers in the area. If needed experts from outside is asked to participate in the process.

Alternative design solutions can be handled in different ways. Either it can looked upon as a mean of communication; a competition is announced with special invitation to architect groups. The other possibility is that necessary competence is found within the organisation. The communication with stakeholders can also with this alternative be maintained through sketches in the newspaper, etc.

Decision to reconstruct:
In the decision to reconstruct all vital details are included like; description of the target, time plan, budget, the project structure is described, project risk analyses and a scheme for assessment. The Technical Board takes the decision.

Implementation:
There is often a small over-run of costs. The implementation is rather delayed than finalised before schedule. During the reconstruction there is often a special group within the project organisation that communicate with the different stakeholders and media. Meetings are arranged in the affected area. There is often competitive tendering for the actual construction. The evaluation of the reconstruction has become a conventional feature in the process. The extent of the assessment differs, however, significantly from project to project. There seems at least to speed measurements and traffic flow counting involved. The special targets pronounced at the start of the process of course have to be assessed.