

## **Strategies for successful urban transport delivery: Zurich's Transport Policy**

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### **Facts and figures about Zurich**

The city is growing again and currently has roughly 385'000 inhabitants. Some 365'000 jobs are located here. Moreover, Zurich is the hub of a metropolitan area with approximately 1.7 million inhabitants.

Zurich embraces public transport. Zurich's transport planning has a good reputation. And there is no big gap between the thinking of the people and their behaviour. In 2007 we conducted a large-scale mobility study comprising 1'300 interviews in the city and the neighbouring municipalities. The study shows, for example, that approximately 80 per cent of the inhabitants use public transport regularly, that is to say daily or two to five times a week. The chart also shows that Zurich residents use the public transport services in a flexible and rational manner. For example, only 11 per cent focus exclusively on cars as a mode of transport. (Pedestrians are excluded in this chart.)

The quality of the public transport system is rated "very good": on a points scale from 1 to 10 the average rating is 8.37 points. Roughly 80 per cent awarded 8 to 10 points, in other words they are "very satisfied". Moreover, 57 per cent are "very satisfied" with walking as a mode of transport, and 25 per cent are equally satisfied with the transport system "car".

The people of Zurich love their public transport services. The question "Which mode of transport do you basically prefer to use, circumstances permitting, to move around in the City of Zurich?" elicited a majority response of "public transport". Surprisingly, a majority of people who were travelling by car on the day of the survey also specified public transport as their favourite means of getting around within the town. Only the cyclists remained firm in their preference for their chosen mode of transport.

Zurich's quality of living is famous. Since 2000, Zurich has topped Mercer's quality of life list, which covers some 215 cities worldwide. At the moment, Vienna is on top of the list. To this ranking, Zurich's successful transport planning makes a very significant contribution.

### **Zurich's holistic transport planning and its contribution to the overall quality of living**

Zurich's transport policy is built on constancy, pragmatism and networking. Already in 1974 the parliament's transport commission expressed principles for an adequate urban transport policy, amongst other things e.g. that restrictions in the use of individual vehicles have to be made for the benefit of the commonwealth. The updated transport policy from 1987 was the result of an ecological rethinking (forest dieback, federal environment protection law etc).

In the further updated mobility strategy from 2001 sustainable development has top priority: along with environment thus again economy and society. In the meantime, issues of energy became more and more the focal point of interest. Among others, the objectives of a "2000-Watt-Community" were put on the agenda of the city council's legislative period 2006 - 2010. On November 30 2008 the voters of the City of Zurich approved with 76% in favor to an addition of

the City's constitution as to such objectives (in particular: defined reduction of energy use and CO<sub>2</sub>-emission until 2050. That means a reduction from today approximately 6000 to 2000 watt, which is very ambitious. Transport will have to make a substantial contribution therefore).

For decades, the City of Zürich pursues a strong networking and a wide diversification of all mobility measures. All measures are linked together. A large number of small steps have been taken to supplement the larger ones, all within a process marked by pragmatism and perseverance. And all is leading in the same direction, in line with the city's transport policy. In my judgement, the small measures have had a big impact on travel behavior; they thus have a decisive influence on whether or not transport planning produces the desired results.

Public transport is the backbone of Zurich's urban mobility system. Zurich is a city of trams, trolley- and other busses which offers a reliable and fast transport to all parts of the city with a close timetable.

The programme of the seventies and eighties aimed at speeding up public transport. It has produced fast and reliable bus and tram services and it focused on three objectives:

- Routes unobstructed by private cars between intersections by creating dedicated tracks and separate bus lanes. Parking places along the roads with tram lines and major bus routes were eliminated.
- A traffic control system with automatic vehicle location. The control centre – and the driver via a cab display – is always kept informed of timetable changes and disruptions. The appropriate corrective and assistance measures can thus be applied without delay. Punctuality and therefore regularity can thus be considerably improved. 80% of all vehicles operate within a 30 to 40 seconds deviation from the timetable, which is thought to be the world's best reliability level for an on-street system.
- Green on request, the SESAM system: maximum priority for public transport vehicles at traffic lights. According to the principle that trams and buses do not need a long green phase but do need a green light when they are approaching an intersection, Zurich has developed a control concept for traffic lights that gives priority to public transport. The system can be used by every tram and bus at all intersections regulated by traffic lights, independent of the time-table.

(Excursion: The traffic signal controlled intersections are grouped into small cells, with the aim of maximising efficiency within each cell, with queuing areas for traffic between the cells. Rather than detecting queues, the system counts vehicles and regulates entry according to local street capacity. Traffic signals at intersections are programmed to give absolute priority to trams and buses, and also to ensure that some capacity is given to pedestrians and cyclists; e.g. if an approaching tram is detected, a short green phase will be given to the crossing flow, both to clear it ahead of the tram and to enable passengers to reach the stop safely.

In handling other traffic, Zurich's traffic control system differs from conventional approaches. The city is divided into a large number of units, each consisting of three to ten sets of traffic lights. These units are formed dynamically depending on the direction of traffic and are co-ordinated with traffic volume. For example, during the morning peak, the units located on the outskirts of the town restrict the inbound traffic so that it can be handled by those located nearer the city centre. Traffic is not restricted at actual gates, but by making the appropriate reduction in the capacity of the entire unit. An artificial kind of congestion thus arises, although it is spread

in such a way over a number of traffic lights that it does not seem to be a deliberate limitation of traffic. Unlike a queue at a single traffic light, users accept this type of capacity reduction.)

The chart depicts the positive impact of the speeding up programme, the development of the modal split in respect of commuter traffic: a constant increase in public transport's share of domestic traffic over the past decades. Concerning commuter traffic from outside into the city, a trend reversal was achieved in 1990 with the launch of the S-Bahn, a suburban railway service. The increase is not only limited to commuter traffic: today, more than twice as many rail passengers travel across the city limits than 20 years ago.

The S-Bahn system includes a basic interval timetable, an "area pricing" system and a tariff agreement with free transfer between modes, and incorporates the individual transport operators within the Zurich Transport Authority (ZVV). The attractive network runs throughout the canton of Zurich, roughly 1'800 km<sup>2</sup>. The system covers railways, trams, buses etc. as well as cable-cars, lake and river boats. You can use the same ticket for all these services within a specific zone for a specified period of time. ("One ticket for everything.")

In addition to the S-Bahn, the federal railway connects nationwide long-distance traffic between the Swiss cities based on the junction principle and with timetable intervals of one hour, on main routes of 30 minutes. This requires accurate travelling times between junctions. (Just before the full hour, all the trains arrive at the major cities. Everybody can change the train. Just after the full hour, the trains leave the stations.) This "Bahn 2000-system" is based on the motto "not as fast as possible but as fast as necessary" and went nationwide into service on December 2004. In Zurich, the system is already running for a longer time.

The chart depicts the success: The difference of the share of commuters using public transport between 1990 and 2000 in Switzerland. The blue colour shows a higher share regarding the connections between the centres and other cities/communities. Red means a decrease of public transport users. Zurich is deeply blue, not only in the conurbation but also as to the long distances to other cities like Bern, Basel, Geneva etc.

All together (including urban transport systems) Switzerland has an almost perfect "service public" in mass transport. Therefore, the social prestige of public transport for journeys of all lengths and purposes has traditionally been high and remained high until these days. Even bank directors and ministers of state can afford to travel by tram, bus or train – and they do! Central element in public transport is the construction of integral transport chains from transit to local transport, in form of nation-wide, well coordinated offers involving all available transport means. Including walks to stops and stations.

In Zurich, development and transport planning is coordinated: the Cantonal Public Transport Act of 1988 and the relevant Transport Supply Order require the provision of good public transport services for all continuous built-up areas with at least 300 inhabitants, jobs or trainees/students. "Good" means that there must be a bus or tram stop in a catchments area within a distance of 400 m or a train stop within a distance of 750 m with at least one service per hour, but usually half-hourly. And this from the early morning till late midnight and during the whole week, also on Sundays. It should be noted that this is the standard everywhere in the canton, even in the mountain areas. In the City of Zurich, the tram and bus headway is much closer, 7 to 8 minutes, and the walking distance to the stops is less than 300 m.

Zurich's transport policy aims for an intermodal and multimodal behaviour of the people, a mobility culture for a flexible use of all modes. Intermodality stands for a combined transport

chain. Specially to mention is here "walking": The first and the last link of the public transport chain are covered on foot. Every public transport passenger is also a pedestrian, the waiting areas at stops and the walks to them must therefore be attractive. No walkers, no passengers!

Anyway, walking is a crucial topic. It's the most natural form of transportation. For many people – children and older persons, for example – walking might be the only mode of independent transportation. Walking pulls together all the elements of the transport system, it's the glue of the transport system. And without pedestrians, the city is dead, the urban quality is lost. It is fair to say that many smaller improvements to the everyday walking experience are more valuable than a single major prestige project. Walking must be a feel-good experience; this is the key to successful transport planning.

Therefore, public spaces must be designed in the first place for the pedestrians. The motto should be: To build spaces where all transport modes are welcome, but pedestrians are kings. But public spaces are also the calling card of a city. In a highly competitive international market, location decisions are influenced to no small extent by the quality of these spaces. In May 2006 the City Council decided on a strategy for Zurich's municipal public spaces: "Public Spaces 2010". The scheme also covers the classification of the spaces according to their significance: international, regional/city-wide or of importance to the specific city area.

Another crucial topic is the parking policy. Parking restrictions are required everywhere, because they provide the most effective support for a transport policy. The most important measures are therefore those which deal with parking on private property: in particular, the Parking Ordinance regulates the number of mandatory parking spaces in new buildings and conversions as well as the maximum permissible number of extra parking spaces. In addition, where good or very good public transport services exist, more areas have been earmarked for further reductions. Clean air targets and road capacities are further factors that are taken into account in this context.

Furthermore, on November 28 2010 the voters of the City of Zurich supplemented the Parking Ordinance with a new car-free housing paragraph. In practical terms: mandatory parking spaces in new buildings and conversions can be reduced to nil if specific mobility management measures are taken. This relates to new mobility forms such as car sharing ("Mobility Car Sharing") and others.

In the city centre, a policy called "Historic Parking Compromise" was established in 1996 and put a cap on the parking supply for visitors and customers. If a new space is created off-street in the capped area – for example a new public parking garage – , the same number of on-street parking spaces must be removed to keep the supply equalized on the level of 1990.

And in all residential neighbourhoods, measures are taken against non-resident parking longer than one hour.

All strategies and activities of the City Council are cross-linked: Mobility Strategy, Spatial Planning, Masterplan Environment, Masterplan Energy, etc. Project management staff from all City Council departments ensures that all measures are implemented in the same direction. Even the smallest decision – irrespective of whether it concerns public transport, private car transport, traffic management, walking, parking policy, spatial planning, etc. – must be taken in consideration of the overall plan. After almost 40 years of intensive activity, the mobility policy of Zurich shaped the thinking and acting of all those working in the city administration.

This is one of the reasons for the high standard and the success of Zurich's public transport system: Public transport is embedded in an overall transport concept.

With more than 300 million passengers a year, public transport predominates in Zurich's traffic. The aim is not only to maintain but also to improve this market position. Marketing and a self-confident appearance on the Zurich transport market position ("We are number one", "We are the key to your quality of living") contribute just as much to public transport as do infrastructure improvements and tariff policy. The trams and buses in Zurich's blue and white colours are always present in the cityscape and are therefore a beloved part of the city and the citizens.

Since the eighties, Zurich's Transport Authority has also launched a series of humorous posters.

The three components in transport planning are measures in infrastructure, measures in traffic management and measures in mobility management. Soft policies for sustainable mobility management are increasingly important. New residents are provided with relevant information, for example the "Zurich Mobile" package. Mobility management features also an advisory board, public awareness and education schemes, new measures designed to shape mobility behaviour, and more. A special city map covers pedestrian routes, bicycle routes, the public transport network and car sharing locations. In these days, we will present a new route planner for walking and cycling, which recommends very precisely the shortest way and for walkers also the greenest way, for cyclists the safest way.

Campaigns aim to increase people's understanding of the issues, to expand acceptance of a new urban mobility, of a new mobility culture: The "Mobilspiele/Mobility Games" project was put into practice in the summer of 2003. Its aim was to ask questions and to inform, but also to provoke and to entertain. The follow-up campaigns were dedicated to cycling and to walking. We released several interesting city-walk maps featuring different districts of Zurich. We also recorded drama-style audio tours for some of the districts for an absolutely unique sightseeing experience.

Very important are also the young people. Their attitude will give distinction to the traffic to be in our cities. The sooner they deal with mobility issues, the better. So, together with the Department of Education, we have worked out mobility instructions for children and teenagers, including a mobility dossier for teachers and additional offerings as mobility weeks for school classes.

### **How to respond to future challenges.**

The City of Zurich expects 30'000 more inhabitants (+8%) within the next two decades and some tenthousands more employees; new mobility solutions are necessary.

Even though Zurich's transport policy has generated impressive results, there is still a good deal to be done. As indicated by the 2007 mobility study, and as things stand at this point in time, a segment of approximately 20 per cent could be persuaded to switch to public transport. Conversely, the study also revealed a small potential for a change-over in the opposite direction, away from public transport. The number of people willing to switch to public transport could certainly be boosted by way of appropriate measures, of which road pricing might be one.

But we also need further investments in infrastructure:

Not even 12 years after the opening of the S-Bahn, there was a second referendum about increasing the capacity of Zurich's central station, this time mainly for the national railway. On 23 September 2001 the voters of the Canton of Zurich approved with 82% in favour – which, for Swiss democracy is an extremely high rate of "yes" voters – a second underground through-station followed by a second tunnel to Oerlikon in the North and to the airport. This new 4.8 km long tunnel will cost some 2 billion CHF (of which the canton pays 40%, with the Federal Railways paying the balance) and should be in service 2014.

The city is planning to construct three new tramlines of some 15 km within the next fifteen years. (The first one is under construction.) In the North of Zurich, about 17 km of a new suburban LRT connects Zurich with the neighbouring communities, their development areas (with potential for at least 25'000 people and 90'000 new jobs) and again the airport; this system went into service in December 2010.

The city's transport policy of the last decades has been successful. However, is today's mobility strategy also fit for the future? What will happen, when oil gets short or majority belong to the elderly population? Let's look ahead. On the basis of three different remote future prospects we wanted to get a picture of the situation in Zurich 2050. The three prospects are:

1. "Individuality" (more or less unlimited mobility);
2. "Lack of resources" (energy is limited);
3. "online and disintegration" (basic change in society and telematic applications).

With the objective of revealing unexpected trends in mobility behaviour and environmental development, today's mobility strategy can be updated in good time. Zurich's top international competitiveness shall be sustained. A transport infrastructure and mobility offers, which will be adjusted to urban development and social changes at an early stage, will help to maintain Zurich's top position.

## **Conclusion**

Zurich has a high performance in complete mobility. This is the result of a new study by MRC Mc Lean Hazel sponsored by Siemens. ([www.siemens.de/mobility/uitp2009/downloads](http://www.siemens.de/mobility/uitp2009/downloads))

Promoting public transport and environment-friendly traffic is not a question of paying lip-service. We do it with all our hearts: investing in infrastructure as well as in softer measures such as traffic management, mobility management and public relations. The results show us, that we are on the right way. And that we have a high acceptance of the citizens with this policy. (Even the world class athletes went by tram from their hotel to the Diamond League competition in Zurich's stadium. For some it was the first time ever sitting in a tram.)

And secondly, we network all our activities in the transport field and since a long time, we direct all planning and implementations straight towards the same principle goals. Mainly the hundreds of little measures dispose of success or failure of the overall policy.

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