

**XXIIInd WORLD ROAD CONGRESS
DURBAN 2003**

AUSTRIA - NATIONAL REPORT

STRATEGIC DIRECTION SESSION ST2
Roads and quality of life

GENERAL REPORTER:

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Introductory remark from the First Delegate of Austria

This paper is being published because it is of scientific interest. There are at present no plans in Austria to implement its recommendations in the form of concrete guidelines.

HOW TO INCREASE THE QUALITY OF URBAN AREAS

Summary

The traffic engineer's most important task is to improve the economic, social and environmental living conditions of his/her fellow citizens. For over ten years now, this has been the main focus of village and urban renewal programmes in all Austrian *Länder* and in Lower Austria in particular. The redesigning of the space reserved for traffic plays a key role in this work. As part of the remit of the C9 EURO COST working group and in an attempt to determine 'best practices' in Lower Austria, the processes used there to increase the quality of urban areas were systematically evaluated. To this end, it proved useful to differentiate between two different definitions of quality:

1. *formal* quality, which covers the design of the area and, in particular, that of the space reserved for traffic, and
2. *functional* quality of the urban area in terms of the variety in the area and its surroundings.

In all examples analysed, the quality of urban areas was enhanced by reducing the amount of cars and the spaces reserved for car drivers in these areas. It is worth noting that moving traffic has a less negative effect on urban quality than cars parked on streets. However, reducing the amount of space reserved for parked cars has adverse effects on urban quality because it shifts urban functions to suburban areas.

The analysis of the aforementioned processes has shown that if urban quality is to be restored, both legal practice and part of the legal basis will have to be changed. Parking facilities cannot be treated according to the amount of ground and space they take up but rather should receive equal treatment according to their function. For example, the same parking rates should be charged for all supermarket car parks, whether they are located in an urban centre or outside it. This is one way of improving economic, social and environmental conditions for residents.

The analysis of *formal* quality showed that in development areas, high levels of urban quality are no longer reached because the streets are too wide, the alignment of the streets too straight and the size of the meshes in the traffic system too great. Moreover, urban areas lack the squares that create quality in high-quality areas.

The *functional* quality of urban areas is under threat from suburban supermarkets, specialised discount stores, leisure facilities, jobs and monofunctional residential areas.

Recommendations for restoring urban quality were drawn up on the basis of the analysis of these processes.

HOW TO INCREASE THE QUALITY OF URBAN AREAS

Introduction

Over the past few years, the Office of the Government of Lower Austria has implemented several measures as part of numerous urban renewal initiatives aimed at increasing the quality of urban areas.

In an attempt to gather general information on how to improve the quality of urban areas, the C9 EURO COST working group sought and analysed examples of 'best practice'.

While the COST working group did not define the 'quality of urban areas', those working on the issue in Lower Austria used empirical analyses and the life processes of a lively, active city to arrive at a definition.

What does the 'quality of urban areas' mean?

This simple question is not only difficult to answer, it is probably impossible to answer in a scientific manner. To what areas does the term refer? Urban areas have completely different functions, which are difficult to define even in traffic terms. One indicator—albeit extremely limited—of the quality of an urban area is its traffic safety record. The largest and smallest of Austria's *Länder* capitals (Vienna and Eisenstadt) have the highest levels of urban traffic safety. These indicators reflect the integral of all urban areas in a city and are a reliable indicator of the quality of the traffic structure. However, the situation is much more difficult when it comes to defining quality. This is why it was decided to differentiate between two different types of quality for Lower Austria:

1. the formal quality of an urban area and
2. the functional quality of an urban area.

The formal quality of an urban area

The formal quality of an urban area is determined by geometric dimensions, scale and design elements.

The advantage of analysing the research work conducted in Lower Austria was that historic urban centres all have properties that are of a high, if not optimum, urban formal quality. This made it possible to define quantitative indicators for minimum formal quality requirements by analysing the historical areas of the city.

However, the formal quality of an urban area is nothing more than a barely sufficient prerequisite for the quality of the urban road area. While historic cities do have outstanding formal qualities, their quality of life results in part in deserted city centres. This is why it became necessary to define a second quality factor for urban areas, namely functional quality.

The functional quality of an urban area is determined by the variety and density of the available functions of human activity. These functions include: living, working, leisure, social contacts, education, culture and shopping. This aspect was also taken into account in the analysis of the urban areas in Lower Austria, which was based on fundamental research in this field.

Analysis of urban areas in Lower Austria

Eleven medium-sized cities were examined for the purpose of analysing these questions. To this end, the following things were evaluated: plots of the city, photo documentation, local surveys and interviews concerning the processes that resulted in the enhancement of urban quality.

Analyses of urban plots

The main characteristic of a high-quality urban area, which is used in all urban analyses, is the alternation of streets and squares. In the cities of Lower Austria, squares are situated at a distance of between 80 and 220 metres from each other. An analysis of this dimension in terms of the acceptance of the distances that people have to walk shows that these distances between squares in a car-free environment still achieve acceptance levels of 100 per cent and are considered attractive until another square is reached. This analysis also shows that urban quality can be measured according to human standards.

However, if the distance between the squares exceeds 220 metres, acceptance decreases rapidly.

Another characteristic is the practical lack of T-junctions in high-quality urban areas. This usually creates a very good guidance effect and provides clear information.

Yet another feature of high-quality urban areas is the lack of long, straight construction lines. Instead of long stretches of buildings, these areas have different groups of buildings that are located at short distances and at specific angles to each other, thereby creating a lively street alignment and a distinctive effect. Saw tooth patterns in curved street areas are another common feature. Such patterns allow for excellent exposure and good visual monitoring of public places even in densely developed urban areas.

Streets and squares make up the 'supporting structure' of high-quality urban areas. This structure can be found in all high-quality urban areas. If there is no such supporting structure, the urban area in question cannot be of a high quality. This is the case in practically all development areas dating from the past fifty years.

In addition to the horizontal structure of the urban area, all high-quality urban areas have a vertical structure in terms of the types of buildings constructed. This structure can take the form of bay windows, balconies or arcades, which protect people from weather and the elements, and provide a location for shopping, social contact etc. An analysis of the plots and the numerous photos allowed for the drafting of a first series of formal criteria that can be used to evaluate the formal quality of urban areas.

Functional quality

This refers to the variety and blend of functions in urban areas and their buildings. These functions include living, shopping, social contact, culture, education, leisure and relaxation, and must be arranged in such a way that basic needs can be met without the need for motorised transportation. In other words, functional quality stands and falls with the amount of pedestrians in an urban area.

If both formal and functional quality are correctly defined, these quality indicators should be visible in the analysed processes employed by the government of Lower Austria to restore the high quality of its urban areas.

Analysing the processes

The data for the analysis was compiled in twelve cities from interviews conducted with people who had been involved in the attempt to improve and restore the quality of urban areas. The most important results of these interviews can be summarised as follows:

- The quality of urban areas decreases rapidly with an increase in car traffic. Urban motorways do not contribute to the quality of urban functions.
- Urban quality is destroyed not only by moving traffic but primarily by parked cars. All positive processes in all cities are characterised by the reclaiming of urban areas for pedestrians, cyclists and public transport.
- The greatest resistance to this process is put up by the economic community, which is calling for more parking facilities and more car traffic.
- This resistance is justified because peripheral structures such as supermarkets and specialised discount stores that rely exclusively on customers with cars are draining the city of consumer purchasing power.
- The rationing of parking facilities, which has become necessary in urban centres as a result of the acute lack of space, taxes parking space functions and not the property. This results in unfair treatment for city centre businesses when compared with their counterparts in the suburbs, where public authorities have not yet introduced adequate parking rates for private car parks.

This means that the original functional quality of urban areas is being destroyed from the outside (what's more, the economic power of the community is being eroded).

Another conclusion of the analysis of the processes that enhanced urban quality was that urban quality can only be achieved by community efforts. All successful processes that restored and retained the quality of urban areas are characterised by the fact that in addition to the involvement of the municipality and the government of Lower Austria, the local business community and residents played not only an equal but sometimes a dominating role in the projects. It is only when an urban area is considered by all to be a community area that high quality can be achieved.

The number of pedestrians: an absolutely reliable indicator of the quality of urban areas

High quality urban areas act like a magnet on people. It was discovered that a very simple indicator—namely the number of pedestrians that pass through an area in the course of a day—can be used to determine the quality of an urban area. People voluntarily gravitate towards high-quality urban areas. As a result, there is a sufficient number of pedestrians in the area for the entire spectrum of human activities. The time-variation curve for pedestrian frequency in high-quality areas is much more balanced than in poor- or low-quality urban areas. In low-quality urban areas, pedestrians only appear at peak commuting times and possibly during shop opening hours. Outside these hours, these areas are deserted (this is what happens in American urban centres at the weekend and in certain development areas in European cities). High-quality urban areas, on the other hand, perform numerous social and cultural functions. This means that people spend time in these areas outside office and shop opening hours. Outstanding examples of high-quality urban areas are the pedestrian zones that have developed in the historic centres of most European cities.

Thanks to the work conducted in Lower Austria, a structure for the evaluation of urban areas was developed for the first time ever. This structure demonstrates that the planning of urban areas will have to be radically transformed if these areas are to be transformed into or back into high-quality urban areas.

Entfernung und Akzeptanz

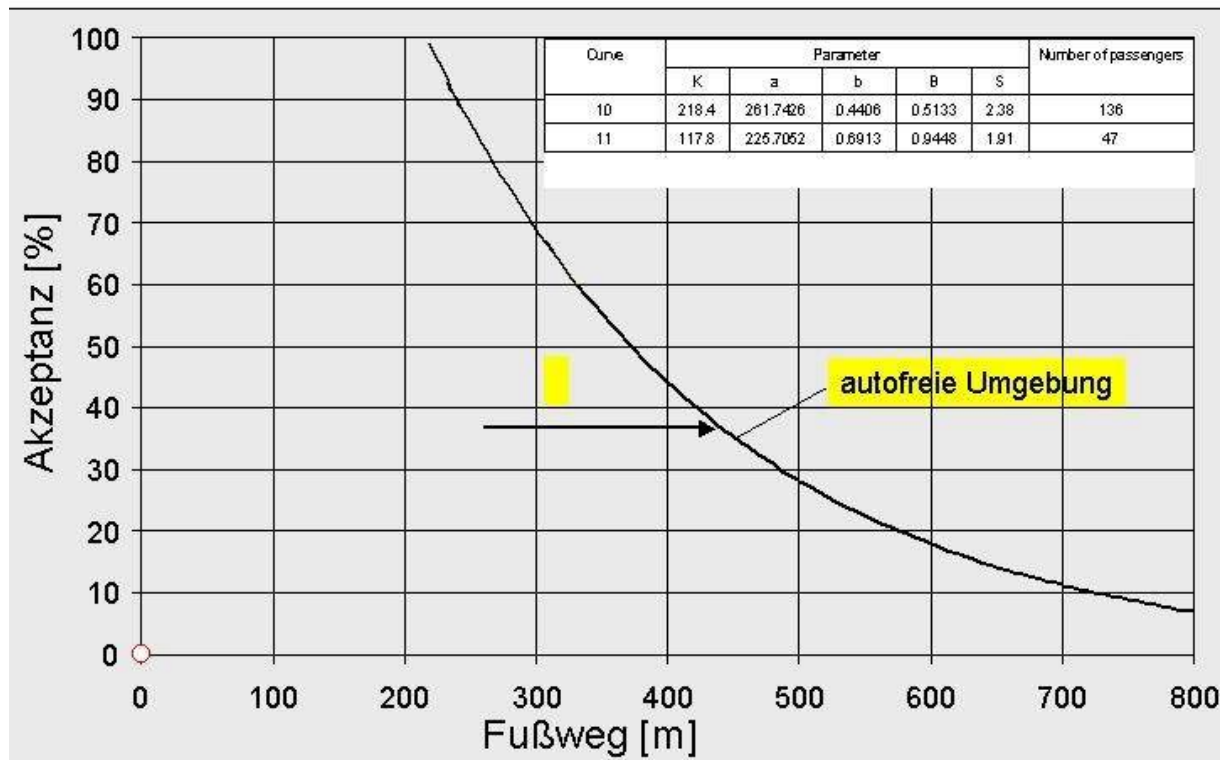


Figure 1: Entfernung und Akzeptanz
 Akzeptanz [%]
 Autofreie Umgebung
 Fussweg [m]

Distance and acceptance
 Acceptance [%]
 Car-free environment
 Distance on foot [m]

Plätze und Straßen



Plätze und Straßen
das Traggerüst für
urbane Qualität

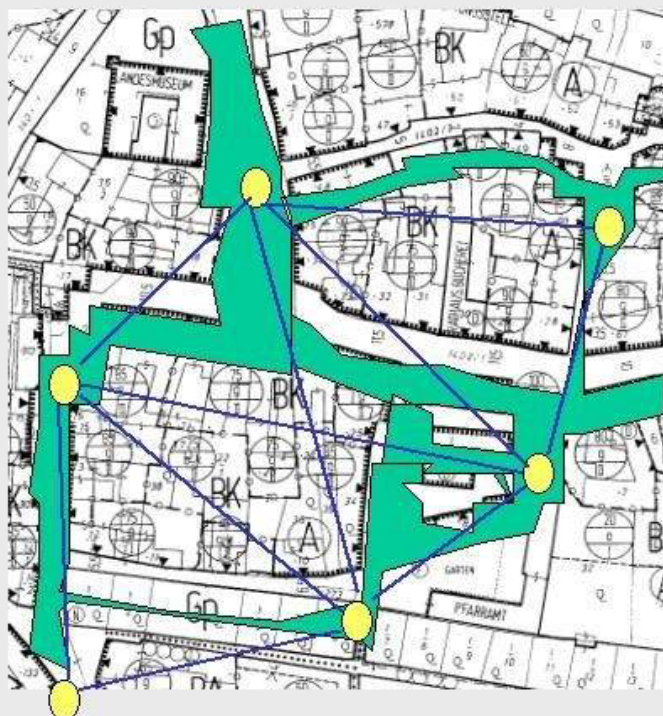


Figure 2: Squares and streets: the supporting structure for urban quality

Parallele Grenzen



Parallele Begrenzungen
der urbanen Räume
sind die Ausnahme



Figure 3: Parallel boundaries of urban areas are the exception to the rule

Conclusions and recommendations

The quality of urban areas comprises two components: *formal* quality and *functional* quality.

$$\text{Quality of the urban area} = \text{formal quality} \times \text{functional quality}$$

The following aspects are of importance when it comes to *formal* quality:

1. Human standards

Today, scientific research can be used to arrive at a quantitative definition of human standards. Moreover, this standard can be found in all historic urban structures (that were developed before motorised transportation).

2. Urban quality requires the alternation of squares and streets (squares are rarely a feature of modern urban planning or are frequently badly situated).
3. The distance between squares should vary in accordance with the size of the city and should not on average exceed 220–250 metres.
4. Parallel lines of construction do not contribute to the quality of urban areas. These lines should be distinctive and varied, and should be offset against one another (contrast). In accordance with human standards, this contrast must be on a correspondingly small scale.
5. The size of the meshes in the urban networks for pedestrian mobility must be appropriately small, and should not exceed 50 metres.
Large, connected blocks of buildings create barriers and detours for the pedestrian that significantly reduce the quality of urban areas.
6. High-quality urban areas always have a distinctive appearance. This can be achieved using both the alignment of the buildings and primarily the design of their façades.
7. Urban areas always have definite, characteristic points of orientation. Such points include church towers, characteristic buildings and trees.
8. T-junctions reduce the quality of urban areas, not only because of the large number of points of conflict but mainly as a result of the inadequate quality of information provided.
9. When walking through an urban area, the quality of the urban area is reflected in the alternation of narrow and broad spaces.
10. For users of urban areas, protection from the elements is a quality factor. This protection can be provided by arcades, technical protection (shutters) or from the appropriate positioning of plants.

11. A balanced number of green areas is an integral part of the quality of urban areas. These green areas can either be public or private.
12. The monofunctional use of urban areas, such as for parked cars, destroys the quality of these areas and should as a rule be avoided.

Functional quality:

This is much more difficult to achieve than formal quality. Functional quality requires the correct organisation of technical traffic systems, especially for cars. The parked vehicle is the main destroyer of functional quality, even in the high- and top-quality urban areas of Europe. Consequently, the following principles must be observed and the following findings taken into account:

1. The speeds of the traffic systems determine the location of functions in urban areas.
This is the result of the constancy of travel times within the traffic system. In fact, an increase in speed generates a spatial separation of functions (the assumption that time could be saved by increasing speeds was one of the main errors of traditional traffic planning).
2. The decisive factor when it comes to reducing and adapting speeds to meet the needs of the city is the organisation of parking spaces. Extending the walking distance to a parked vehicle is the most effective way of reducing speed within the system.
3. For this reason, basic urban functions—such as the supply of basic needs, shopping, basic education, basic jobs, daily leisure activities—must be arranged and located in such a way that it is quicker for people to walk to these functions than it is for them to walk to their parked cars.

The organisation of parking facilities is consequently a key requirement when it comes to creating functional quality. Vehicles should therefore be parked together in garages at a suitable distance and should not be able to reach every point in the area, thereby enabling approximately 70 per cent of urban areas to be reclaimed for the remaining functions. This is the basic principle behind reaching a high level of urban quality, regardless of whether it is in existing or planned structures.

Lack of awareness

Experts and politicians are aware of the issue of the formal quality of urban areas. This is why many countries, including Austria, have passed a series of administrative provisions regarding the maintenance and promotion of the formal quality of urban areas and, in particular, of historic quarters.

Analyses now show that the required level of urban quality has not been achieved in recently developed zones (i.e. those developed in the 20th century). Planners and politicians lack awareness of urban quality and this has manifested itself in the inappropriate development and diminishing quality of urban areas. This environmentally, socially, culturally and economically unsustainable development model is centred on the automobile and was first implemented in the United States. With the introduction of this model, vehicles and the demands of their drivers replaced humans as the benchmark for development areas: in short, the city was made to bow to the needs of the automobile. This leads to the conclusion that the criteria for achieving a high level of formal quality in urban areas derived from the analysis of high-quality areas should also be used in new development areas. This means that all new plans or revised plans must be checked to see whether they comply with the formal quality criteria for urban areas. In addition, these criteria should be used as a prerequisite for the approval of such plans. Essentially, this means adapting the administrative provisions concerning the protection of high formal urban quality for all development areas.

Given the complexity of the matter, there is a complete lack of awareness of the threat posed by peripheral economic structures to the functional quality of urban areas. Elementary legal principles and provisions do not exist in this field.

Functional qualities are under threat from:

- supermarkets located on the edge of or completely outside urban areas,
- specialised discount stores located outside urban areas,
- leisure facilities located outside urban areas that are used for daily leisure,
- jobs, and
- monofunctional suburban residential areas.

All of these developments are based on the effect of the vehicle and modern-day organisation of parking facilities.

Urban quality can only be achieved and maintained when the following conditions are met:

1. Parking facilities for cars may not be located close to any human activities, whether it be living, working, shopping or cultural facilities.
2. In European cities, the distance to a parked car must be at least as great if not greater than the distance to the nearest public transportation link (e.g. bus stops, tram stops, train stations).
3. The number of garages may not exceed the number of public transportation links in the urban structure. For reasons of expedience, the number of garages must be reduced to half the number of public transportation links;
4. Local destinations must be reached on foot or by bicycle. Economic car-based transportation is permitted for the purpose of loading and unloading but not for private trips.

The only people that may be excluded from this regulation are people with severe physical disabilities who rely on the use of special cars for physically disabled people.

The quality of urban street areas is the result of the orderly structure of the system. This orderly structure, which existed for thousands of years, was destroyed in the course of a single century. By meeting the demands of the driver, these standards and orderly structures were destroyed for humans living in urban areas. The time has come to reverse this trend.

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