

# **Evaluation of Urban Road Design - Aesthetics and Function**

**SUZANNE DE LAVAL**

PhD

Arkitekturanalys sthlm AB

Karins Allé 4,

SE-181 44 Lidingö, Sweden

suzanne.delaval@arkitekturanalys.se

www.arkitekturanalys.se

Abstract:

The documented evaluation of a road project contributes to the general knowledge of road planning and road design. Post-occupancy evaluation is a powerful way of managing evaluation and should be incorporated in the design process.

Project leaders in the Swedish Road Administration are not used to discuss questions about aesthetics, still they are making essential decisions that highly influence the design and the aesthetical result. The need for usable tools and knowledge is immense. The evaluation of aesthetic values is usually neglected in the design process of the built environment. But it is an important question. We have to evaluate the built environment and recycle the knowledge captured.

The paper discusses how to evaluate the aesthetics and function of urban roads and through routes. Methods and routines for application in the road planning- and road design process are discussed and exemplified by some Swedish case studies initiated by the Swedish Road Administration.

# Evaluation of Urban Road Design - Aesthetics and Function

## 1. Evaluation in the design process

Evaluation and feed back of experiences is vital in the process of accumulation of knowledge and skill. Evaluations can be performed in different phases of the road-planning process; you could evaluate the working methods, the cooperation between participants, the purchasing of consultants and contractors, the building programme, the design programme, the built environment etc. The built environment can be evaluated from many aspects like traffic-safety, efficiency, accessibility, equality, aesthetics etc. The type of evaluation will vary depending of the circumstances of each project. What is important is that you take some time for reflections - and that you substantiate the reflections.

An evaluation can be executed by the practitioners that participated in the design process or by external experts. Generally all evaluation contributes to the building of knowledge, on condition that the parties concerned, users and practitioners, are given the opportunity to appropriate the results. If an evaluation is executed by external experts it is vital that the results are presented to the practitioners in the planning organisation. Preferably there are routines in the organisation to adopt and present evaluations for anyone to use. The simplest way is often that those involved in a project carry out an evaluation themselves, summing up the project within the proper project.

The recycling of experience is the core of evaluation. All parties concerned should take part in the circulation of the results. It can be done through seminars, conferences, educational programs or by printed matters.

This paper will concentrate on evaluation of aesthetic quality on roads in an urban environment, how you can execute an evaluation and why, a discussion of methods. Some R&D examples from Sweden are briefly presented.

### 1.1 Evaluation of aesthetics and design

In a R&D project named: *Mål och mått för gestaltningkvaliteter i vägmiljön* (translated: *Aim and measurement for design quality in the road environment*) the researchers come to the conclusion that design is possible to measure, and that there is a strong connection between the mark of overall design quality and the mark of aesthetics. They claim that there is a connection between the quality of safety, function and aesthetics. They stipulate that the adjustment to the environments around is the most important factor for getting a good mark on design and aesthetics.

The documents that are produced in a design process (programs, preliminary studies, analyses, environmental impact assessments etc) are always urgent to use in an evaluation process. They represent the starting point that the built environment can be compared with. Did we reach our goals? Did we have the right intentions?

Those documents represent relevant facts to put in relation to the aesthetic aspects. They provide a basis for forming a judgement. When you have collected documents and assessments of the road project on site, it is easier to discuss the aesthetic questions.

## 1.2 Evaluation of roads in towns

Evaluation of roads in an urban landscape are different from evaluation of roads in the rural landscape. The whole situation is so much more complicated in a town. There are a number of interested parties and several different road user categories concerned.

In towns the environment is changing faster than the rural landscape. The community planning process is more rapid compared to road planning. This situation is a strong reason for undertaking evaluations during a project course, as a complementary to evaluations of the final result. It might support the design process in a positive way. If you carry out an evaluation after the first stage in a project, you can correct your design and performance for the coming stages. The evaluation may give suggestions for improvement of aesthetics and function on the way.

Evaluation of urban road design makes is essential to discuss the urban aspect as well as the aesthetic aspect. Below is a list of questions to consider:

- Are the townscape and the urban road in accordance?
- The roadway and its neighbourhood, what does it look like versus the town?
- Is the road scale adjusted to the town scale?
- Is the accessibility for all types of road-users good?
- Does the road create barriers?
- Is the road environment safe for unprotected road-users, like pedestrians, cyclists, children, handicapped and elderly?
- How are the circumstances for children?
- Is the environment safe? Does it consist of dark passages and other traffic danger spots?
- Does the road produce ugly and unpleasant places?
- What problems are there: poor visibility, speed problem, poor circumstances for orientation etc?
- Are road signs adjusted to the towns scale and character?
- Is the road illumination adjusted to the towns scale and character?

There is a problem when the road meets the big city. It is clearly illustrated in the *Design Programme for the Approaches in Gothenburg Region*. Big traffic routes are cutting right through the city of Gothenburg. Below is a description of the place where some of the big approaches meet in Olskroksmotet and Gullbergsmotet:

*“Although the place is near the city centre the environment has the character of a gigantic landscape of traffic, which you would expect far out in the suburban area. There is a lack of survey and there is a lack of feeling for the place and its importance.”*

The authors of the Design Programme points out that the problems are the same in all the town districts around Gothenburg, although the problems are in a smaller scale.

The complex of problems is concluded:

*“The place is in this central point divides itself into 50% road and 50% town. Nobody has the full responsibility for it, neither the municipality nor the Swedish Regional Road Administration. It is partly a town planning question and partly a road planning question.”*

In the Design Programme there is a discussion about how to transform this chaos of traffic into an environment agreeable for pedestrians and cyclists. The Design Programme suggests four perspectives to discuss:

- Perspective of road and traffic
- Perspective of architecture
- Perspective of town planning
- Perspective of artistic quality

### **1.3 Project leaders attitudes towards evaluation**

Evaluation of road design is a somewhat controversial issue. A considerable number of those working with road planning do not accept the fact that they are involved in a design process and that they make design decisions. They mean that they are not experts on aesthetics, they are just project leaders or planners. They also often comment on aesthetics, that it is a question of taste. Who can judge if something is beautiful? Still they are making essential decisions that highly influence the design and the aesthetical result. There is a need for knowledge of how to handle questions of aesthetics. The need is also immense for usable tools for evaluation.

The project leader will be more and more skilled if he or she evaluates projects in a systematic way. Step by step the project leader can accumulate knowledge and will be capable of giving an opinion on both aesthetics and function and create a profound understanding of the design. The project leader can conclude a road planning project with an evaluation on site, documented and later filed with all other documentation of the project. The evaluation can be executed by the participants in the project or by external experts. It is however important to bring the results back to the road planning organisation.

Below are some examples of how to evaluate aesthetic aspects of a road project.

## **2. Methods for evaluation**

Post-Occupancy Evaluation is a research field that presents a number of methods from Environmental Psychology that are applicable for the project leader in the project activities. Some of the methods can be used even without a researcher. One usable method is Walk-Through Evaluation, which means to study the result on site - and then combine the direct experience to the mutual knowledge about the planning process in a discussion with all participant experts. In the Stockholm and Gothenburg region, the National Road Administration have tried evaluations like this with good results both referring to roads in the rural landscape and to roads in the urban landscape, in R&D projects.

### **2.1 Evaluation bus-tour**

In Gothenburg one evaluation was executed as a bus trip along road E6 with a broad participation of consultants, architects, project leaders and builders. All the experts that had planned and built the road were joining the bus tour. The bus stopped at a number of previous chosen places and the participants walked around and discussed the built result, and the

aesthetics, at the same time as they experienced it and took some photos. One of the participants, a journalist, also took notes during the discussions. In a way this sounds simple, but it is a rare opportunity to put all those experts together and execute an evaluation on site. And it gives a lot of spin-off effects. The evaluation was documented in a publication with pictures and comments from all places studied. *Revisionsresa utmed väg E6 Göteborg - Rabbalshede den 8 maj 2002.* (translated: "Review travel" along road E6 Gothenburg - Rabbalshede).

This kind of evaluation is preferably used in road projects in the rural landscape. In a more complex situation it would be difficult to assemble the group and have a proper discussion on site.

## 2.2 Expert evaluation

In Stockholm an evaluation has been executed by consultant researchers. Three case studies or road projects were analysed from three different angles:

- key role persons were interviewed,
- project documents were studied and
- evaluation of the aesthetics on site (Walk-Through Evaluation)

The evaluation consisted of a synthesis of the three different angles and it was presented in a publication *Hur arbetar Vägverket med gestaltning i verkligheten? Tre fallstudier Utvärdering/uppföljning av gestaltningsåtgärder 2001* (translated: *How does Swedish Road Administration handle design in reality? Three case studies Evaluation/Follow up of design actions*).

The participants in the three road projects in Stockholm were not taking any active part in this evaluation, they were just interviewed. To present feedback to the organisation, a seminar was organized, where the results from the evaluation was presented and discussed. Those participating in the seminar also received a copy of the publication. A majority of the project leaders in the Swedish Road Administration (Stockholm Region) participated in the seminar.

The three road projects in this study were semi-urban situated in the periphery of the urban landscape. The combination of methods used is applicable in both urban and rural landscapes.

## 2.3 Walk-Through Evaluation

In a number of evaluation research projects funded by Swedish Road Administration we have used a kind of Walk-Through Evaluation for experts. Experts consulted in this kind of aesthetic-evaluation are experienced road-planners, architects, landscape architects and road engineers. We have created a form for them to fill in, a list of factors to express an opinion on, as an evaluation tool. The comments on each factor are meant to be short and direct, based on their immediate impressions when they are walking around in the actual environment.

- First impression
- The character of the town or urban environment
- The role of the road in the present context
- How does the road solve the problems in the environment?

- What consideration is taken on the people living nearby?
- Views - from the road and - on the road
- Spatial sequences, the town and the road
- How easy is orientation?
- Variation, rhythm - does the road fit in the rhythm of the town?
- Linear design of the road, comments
- Roundabouts - assessment (for the town, for the traffic)
- Nature adjustment
- Vegetation
- Noise- and air quality
- Details in the traffic equipment, is it modified to suit townscape?
- Street lightning - is it modified for the town?
- Accessibility for vehicles and for unprotected road-users
- Safety for all kinds of road-users
- Total marks, summing-up the evaluation

When the experts have written down comments of all those factors they gather together in a concluding discussion. The researcher responsible for the evaluation is chairing the discussion and also takes notes. The comments and the discussion are afterwards substantiated in an evaluation report. The report is illustrated with photographs from the site.

This kind of evaluation has been quite successful. The experts can without difficulty write down their opinions and the discussion afterwards is usually fruitful. This method can easily be used by the project leader as a quality check when a project is concluded and reported. It is a method adjusted especially for evaluation of urban road environment. If used in a rural environment the list of factors have to be slightly modified.

### **3. Summing up**

Evaluation and discussion about the aesthetics in the road planning design process is important. It is vital in the road planning in urban environments, which is so much more complex than the rural landscape. There is a connection between the quality of safety, function and aesthetics and the adjustment to the environments around. Road planners, road engineers and project leaders play an important role in the design process. But there is need for a change in their attitude towards design aesthetics and evaluation.

Evaluation of aesthetics is possible. Evaluation is an essential element in the build-up of professional knowledge. There are methods and routines that can be applied in the road planning process. Post-Occupancy Evaluation, foremost Walk-Through Evaluation presents fruitful methods and tools for this.

Swedish Road Administration has realized evaluations on the aesthetics of a number of road projects, both in rural and urban environments. There are now valuable lessons to learn. The next step is to implement the methods tested as road planning routines.