

# **Ex Ante-Ex Post Survey Elterleinplatz: Systematic evaluation of redesigning urban streets regarding pedestrian traffic**

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## **Abstract**

### **The aim**

In this pilot project a new tool was developed to get more information about local problems of pedestrians. By counting, observing and asking pedestrians on street the awareness of planners should be raised. After the road construction was finished the ex post survey should provide feedback if the situation improved effectively.

### **The methodology**

In co-operation with a socio-scientific institute the Vienna City Administration developed a method that should assure an overview about the local situation with little expenses. All pedestrians were counted (not only street-crossings) within the street section at peak hours. Traffic-behaviour analyses were arranged by an observation with standardised forms. Standardised interviews on site with pedestrians and open interviews with stakeholders of the neighbourhood should indicate the personal opinion of the users.

The location of this pilot-project is the Elterleinplatz, which is the centre of the 17<sup>th</sup> district of Vienna in a densely built up area. At the square there is a shopping and administration centre and highly frequented stops of two tram-lines.

### **The results**

The ex ante survey illustrated that the Elterleinplatz is not only frequented by 24.000 cars, but also by 20.000 pedestrians and 25.000 public transport users in trams. The comparison of these figures pointed out the importance of this intersection for all road users. The observation and interviews documented the problems of pedestrians at urban intersections: e.g. the lack of space at waiting areas, long waiting times at traffic lights, high speed of car traffic. A new conflict point was located by this survey: A high amount of dangerous crossings from the tram stop in the middle of the street indicated the need of an additional safe access point.

The ex post survey has pointed out the success of the redesign. The sensed safety of pedestrians has risen, the interactions between cars and pedestrians have become slower and more relaxed. The overcrowdings of the corner points have been reduced. But the pedestrians still have the impression that the waiting times at the traffic lights are too long. Children and elderly people still have problems to cross the car lanes.

The ex ante-ex post survey is a simple method that provides an overview about a local situation from the pedestrian point of view by counting, observing and asking the pedestrians. The results of the ex ante survey could improve the quality of the redesign. The positive results of this evaluation can be used to convince politicians and local media of the success of improvements for pedestrians.

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## Vienna - Pedestrian friendly Capital of Austria

The city of Vienna has 1.7 million inhabitants and is the Capital of Austria. The compact quarters of Vienna are densely populated and dominated by about 100 years old houses. The density and quality of local infrastructure (e.g. shopping, education) is still high. The modal share of public transport (35%) and walking (27%) is high; the car ownership is relative low (395 private cars per 1.000 inhab.). So there are good general conditions for walking in the city of Vienna.

### Transport policy of Vienna

For more than 30 years the transport policy of Vienna has the general objective to reduce car traffic in the city. In the 1970s the first pedestrian zones were established in central areas in combination with the construction of new metro-lines. The success of the new metro-network and a restricted parking policy was a constant modal shift from private car traffic to public transport in the 1990s. The modal split of pedestrian traffic has stayed at quite high level. 27% of all trips of Viennese population are made by foot only.

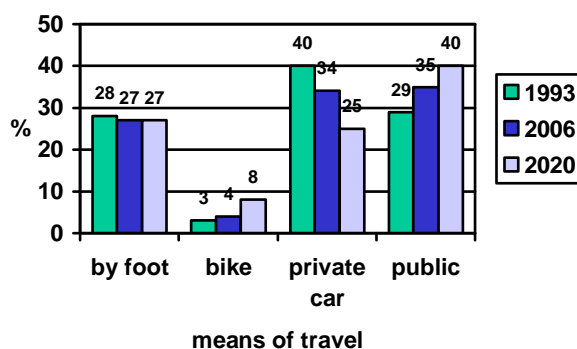


Figure 1 Modal Split (all trips of Viennese population ) 1993, 2006 and 2020 (target)

In 2003 the "Transport Master Plan Vienna" pointed out the importance of pedestrian traffic. A pedestrian coordinator was established in the traffic department. Several pilot-projects with special focus on designing attractive open spaces and improving conditions for pedestrians were carried out.

## **Ex Ante-Ex Post Survey Elterleinplatz**

### **The motive – planners are not used to focus on pedestrians**

In the case of reconstruction of squares and street sections the City of Vienna intends to improve the conditions for pedestrians and users of public transport. Mainly car-orientated public space should be reorganized by reducing the width of car lanes, enlargement of pavements and waiting areas and improved street crossings.

People involved in street planning processes are not used to focus on the needs and preferences of pedestrians. Architects and traffic planners know the guidelines for street construction very well, local politicians have hard discussions with the public about keeping enough parking space for private cars, but they are not used to think about deficits that reduce the quality of walking. The only standardised tool in the process of redesigning urban intersections is counting the amount of car traffic and pedestrians crossing the street.

### **The aim – making pedestrian needs visible in the planning process**

In this pilot project a new tool was developed to get more information about problems and concerns of pedestrians at a special location. The awareness for the quality of walking of urban architects and traffic planners involved in the redesigning process should be raised. After the road construction was finished the ex post survey should provide feedback if the situation has improved effectively.

To define a good „quality of walking“ there are lot of different topics to look at; e.g.:

- Speed of car traffic
- Noise and pollution of car traffic
- Conflicts between crossing pedestrians and turning cars
- Clear view at crossing point
- Width of carriageway
- Short and quick street crossings
- Barriers for crossing pedestrians
- Width of pavement
- Density of pedestrian flow
- Waiting time at traffic lights
  
- Clean and tidy surfaces
- Trees and green spots
- Attractive environment
- Lightning conditions at night
- High quality of surrounding architecture

## **Methodology**

In co-operation with a socio-scientific institute the Vienna City Administration developed a method that should assure an overview about the quality of walking at a local street section with little expenses (Stadt Wien MA 18, Factum 2004). By investigating, observing and asking pedestrians on street conflicts and deficits should be visualised.

The survey is done two times – before (ex ante) and after (ex post) the reconstruction works. The comparison of ex ante and ex post figures proves if the redesign has been successful. These figures can be used to promote pedestrian-friendly redesign projects.

## Investigation – the professional point of view

All kind of data that is easily available from local authorities is collected. Usually there is counting data of the amount of cars. Passenger figures are available from the public transport operators.

All pedestrians were counted within the street section at peak hours. The difference to a typical traffic counting could be high, because usually traffic planners count street-crossing pedestrians only.

The width of pavements and street crossings was measured and the real waiting time at traffic lights was timed. A standardised form was created to keep the effort simple.

Figure 2: simple standardised investigation form

## Observation – look and watch traffic flow with open mind

The observation should document all relevant interactions relating pedestrians. The typical deficits at crossings are conflicts between pedestrians and turning cars. The observation should look at the behaviour of car drivers (e.g. speeding, hurrying, being respectful) and the impression of pedestrians (e.g. fear, irritation, danger). Another important factor is the respect of traffic light regulation (amount of pedestrians and cars crossing at red light).

To make the results comparable with another places traffic-behaviour analyses were arranged by an observation with standardised forms. Observations should document the interaction not only at peak hours. They should also take into account low traffic times, because of possibly rising problems with speeding cars and disrespect of traffic lights.

## Interviews – ask pedestrians and local experts

Traffic planners and architects with their special expert view see a location with different eyes than everyday passersby. The socio-scientific instrument of standardised interviews with a questionnaire is used. In pre-tests the questions are fitted to the special location. The interviews demonstrate if the passersby feel the same deficits and conflicts like the external experts. The questions have to focus on the quality of walking. Design and architecture matters should not be the main focus.

The questionnaire is designed for a short on site interview taking about 3 minutes. Three open questions like "what do you like/dislike at this place" gave the opportunity for longer explanations if the respondents wish to. The case studies have shown that it's enough to ask about 60 persons only to get a quite good picture of the peoples point of view.

In addition open interviews with stakeholders of the neighbourhood are made. E.g. shopkeepers, school directors or members of senior citizen clubs should indicate the personal opinion of every day users. In these interviews there was more time to discuss deficits and improvements focused on quality of walking.

## The case – local district center Elterleinplatz

The location of this pilot-project is the Elterleinplatz, which is the centre of the 17<sup>th</sup> district of Vienna (Hernals) in a densely built up area. At this square there is a shopping and administration centre and highly frequented stops of two tram-lines. An overall unattractive open space, problems for passengers to reach the tram stops and a car dominated street design had been the main problems at this square. The local district government had carried out an large scale redesigning project for the whole district center ("Zentralraum Hernals"). The redesigning had involved Elterleinplatz and six surrounding streets and places.

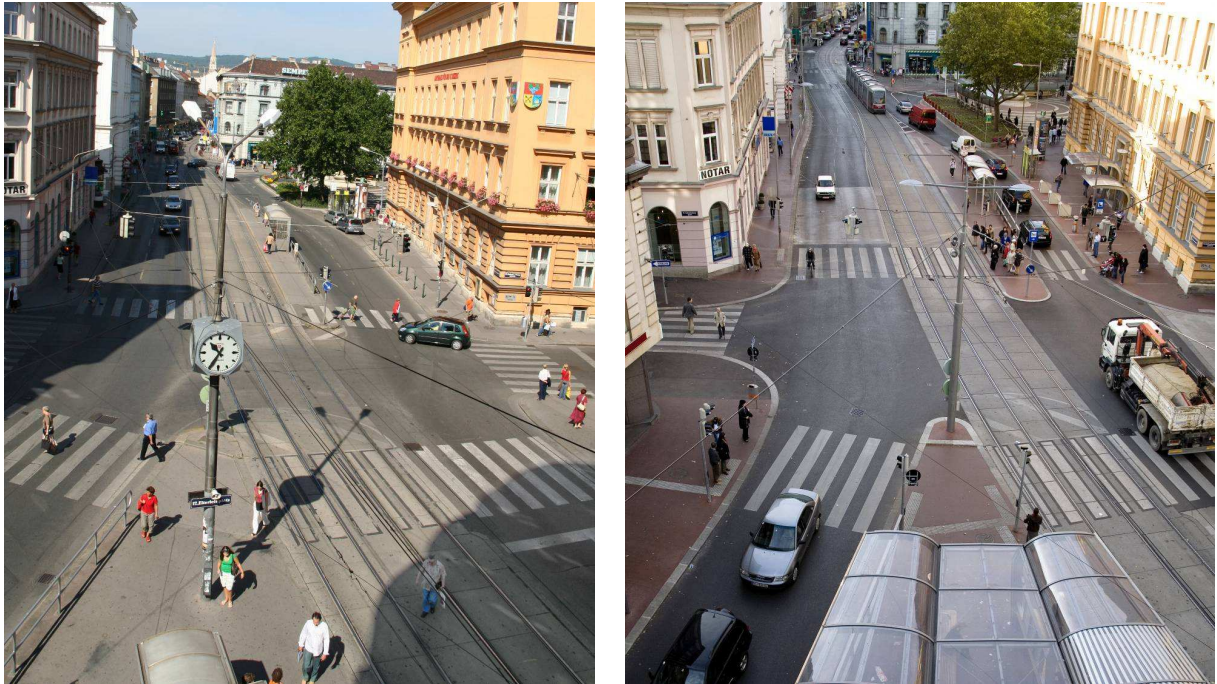


Figure 3: Elterleinplatz before and after redesign

The high car traffic flow had not been changed, because there was no possible bypass street in this district. The project had focused on a combination of different small traffic interventions and a new arrangement of open spaces.

## Results

### Findings of ex ante survey

The ex ante survey illustrated that Elterleinplatz was not only frequented by 24.000 cars, but also by 20.000 pedestrians and 25.000 public transport users in trams. The comparison of these figures pointed out the importance of this intersection for all road users. The observation and interviews documented and underlined the deficits of this spot. The pavements were too small, especially at the corners where crossing pedestrians had to wait for a long time. The tram stops are situated on traffic islands in the middle of the street. The islands were too small and uncomfortable. When a tram arrived crowds of people were crossing the street, passing cars didn't slow down to an adequate speed.



Figure 4: Elterleinplatz before redesign: turning HGV, long crossings, narrow waiting areas

Turning cars, especially long vehicles threatened waiting pedestrians at the corners. In case of traffic congestions the blocking cars obstructed pedestrian flows. Pupils and elderly people didn't feel safe at all.

The ex ante observation pointed out that there was a need for an additional crossing point at the top of the tram stop in the middle of the street. This possible crossing spot had been initially obstructed by a handrail. The observation showed that there was a strong need for this special crossing point. So the plans were changed and a secured crossing point could have been implemented.



Figure 5: unsafe crossing was adopted (left before, right after redesign)

### Interviews and observation documented improvements

The ex post survey pointed out the success of the redesign. The pedestrians recognized the improvements. The sensed safety of pedestrians rose, the interactions between cars and pedestrians became slower and more relaxed. The overcrowdings of the street corners were reduced. In thee ex post interviews speeding cars have been no issue any more.



Figure 6: tram stops after redesign: still crowded, but more space and better access

The complaints concerning long waiting times at traffic lights were reduced. But some pedestrians still had the impression that waiting times at the traffic lights were too long. As the dis-

tance of the street crossing were reduced and the overview was better, more pedestrians crossed at red light.

Children and elderly people still had problems to cross the car lanes. The green light phase was still too short for slow people and right turning cars were felt as menace.



Figure 7: ex ante interview: "What do you dislike at this place?" traffic light and safety issues dominating.

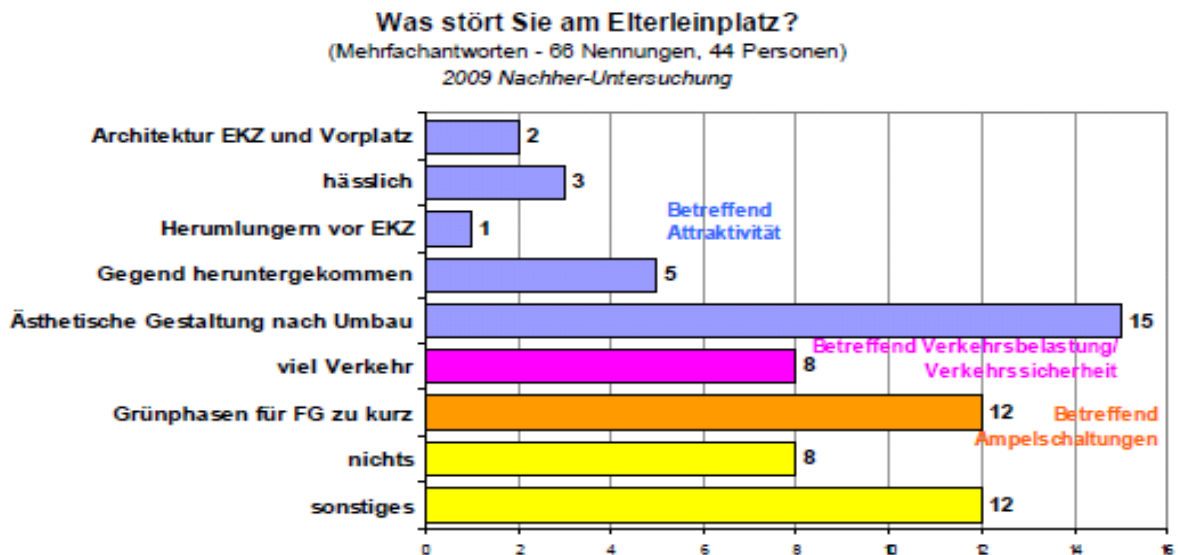


Figure 8: Figure 2: ex post interview: "What do you dislike at this place?" safety issues reduced, attractiveness and design dominating

The new design and street furniture was an ambivalent matter. Some people liked it but a lot of people didn't. The results of the ex ante survey pointed out that safety issues have been more dominant before. If people complain more about comfort and design matters much basic needs for traffic safety and personal security are fulfilled.



Figure 9: red pavements and urban furniture elements at Elterleinplatz

## Advantage of ex ante-ex post methodology

The ex ante-ex post survey is a simple method that provides an overview about a local situation from the pedestrian point of view by counting, observing and interviewing. The results of the ex ante survey force traffic planners to respect and implement the needs of pedestrians.

The ex ante-ex post photo documentations visualise the improvements that have been made. Standardised observations and interviews are a good combination to understand the local situation. The ex post survey gives a compact feedback if a redesign project has been successful. The comparison of ex ante and ex post figures can be used for evaluation and public relations.

The pilot study Elterleinplatz has shown that the results could improve the quality of redesign measures. The positive results of evaluation can be used to convince politicians and local media of the success of improvements for pedestrians.



Figure 10: ex ante-ex post survey Elterleinplatz was awarded 2010 walk-space award Vienna 2010

## **Outlook – pedestrian ex ante-ex post surveys in Vienna**

The ex ante-ex post survey Elterleinplatz was finished in 2009. The expenses for a pedestrian ex ante-ex post survey in Vienna cost about 15.000 EUR. So in case of a large scale redesign of an urban street section the additional costs are marginal.

The local government of 17<sup>th</sup> district of Vienna could be convinced of the advantages of this pedestrian survey. In 2010 two additional surveys at different places have started.

## **References:**

Pedestrian policy in Vienna (website in german language):

<https://www.wien.gv.at/stadtentwicklung/projekte/verkehrsplanung/fussgaenger/index.html>

Stadt Wien MA 18 (Ed.) 2004: Gehen in Wien. Realised by FACTUM OHG (Fischer D., Risser R., Ausserer K.), Stadtentwicklung Wien Werkstattbericht 68, Vienna 2004.

Stadt Wien MA 18 (Ed.) 2005: Pilotprojekt Fußgängerverkehr Teil1: Vorher-Untersuchung Elterleinplatz; Methodenentwicklung und Pilotanwendung. Realised by Ruland G., Vienna 2005 (unpublished).

Stadt Wien MA 18 (Ed.) 2009: Pilotprojekt FußgängerInnenverkehr Vorher-Nachher-Untersuchung Elterleinplatz; Methodenentwicklung und Pilotanwendung. Teil 2 Nachher-Untersuchung. Realised by Ruland G., Vienna 2009 (unpublished).