Sense and nonsense about Shared Space

- For an objective view of a popular planning concept

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Shared Space is an EU-wide design philosophy for inner-city shopping and high streets which is, however, not new and has been fully incorporated in German and Dutch regulations for some time now. Implementation of Shared Space projects have already had its effect on the city planning of sensitive street and open spaces. The measures are based on mutual agreement among motorists, cyclists and pedestrians concerning the widest possible elimination of traffic controls, light signals and signing. Investigating case-study areas reveals that improved traffic safety might generally be achieved. At the same time, conflicts have also arisen, revealing that there are requirements and limits on the range of applications. This article will explore these issues in detail.

1 Introduction

Designing inner city street space in accordance with the Shared Space philosophy is currently a part of public, political and urban planning discussion. The corresponding European co-operation project is making big waves, which is likely attributable to the fact that „Traffic without Rules“ [1] gave rise to correspondingly strong reactions due to the high density of controls in Europe. Scepticism reigns, in particular among safety experts and traffic planners. This response is understandable, especially when publications on the issue (e.g. [2]) create the impression that planners might have gone too far with their regulations and uniform building blocks. As a consequence, decision makers are asking themselves, if they have been supporting a mistaken strategy for years. Are all the elements comprising contemporary street space (such as sidewalks, cycle lanes and paths, pedestrian crossings, traffic islands or traffic light installations) somewhat superfluous?

2 Ideas and views on Shared Space

Shared Space was originally a European cooperation project to develop new planning concepts intended to establish an equilibrium among movement, soujourning and other spatial functions. During the lifespan of the study from 2004 to 2008, this concept was tested by seven cooperation partners, each participating in a regional project. They are:

- The Province of Friesland (the Netherlands)
- The Municipality of Haren (the Netherlands)
- The Municipality of Emmen (the Netherlands)
- The Municipality of Oostende (Belgium)
- The Municipality of Ejby (Denmark)
- The Municipality of Bohmte (Germany)
- The County of Suffolk (England)

The following paragraphs briefly present the idea and view on Shared Space in alluding to the explanations in the publication "Shared Space: Room for everyone" [2].

Shared Space is a concept originated by Dutch traffic engineer Hans Monderman and the Keuning Institute. He developed the idea of restructuring inner-city traffic and shifting the emphasis onto human beings and their manifold activities" [3]. In contrast to the traffic calming measures of the 80s, Shared Space is not based on restrictive regulations for motor vehicles, but is intended to create a voluntary change of relationship among all the users of public space, a change in social behaviour that is to be supported by appropriate traffic planning. It is alleged that this transformation can be achieved by eliminating all traffic controls and, in particular, traffic signs and replacing them with social rules. Characteristic of Shared Space is the greatest possible reduction in the number of traffic lights, signs and markings.

The planning of streets and their environment is to rely on distinctive environmental elements and as little as possible on traffic-control measures in order to promote social relationships. Accordingly, priority rules are supposedly replaced by interpersonal understanding. If it is no longer clear who has the right of way, the informal rules of human politeness will allegedly come into effect. In this respect, Shared Space deliberately aims at creating a certain uncertainty, which supposedly increases actual safety. The choice of materials, for example the type and colour of the paving, street furniture and lighting, is meant to emphasise and reinforce environmental qualities.

3 Project examples

Drachten – Laweiplein roundabout

In 2001, an inner-city intersection in the Municipality of Drachten (approx. 30,000 residents) in Friesland (the Netherlands) with a traffic volume of approx. 18,000 motor vehicles per 24 hours was converted from a signal-controlled intersection into a showcase shared-space project involving a roundabout (Figure 1).

Figure 1: Laweiplein roundabout in Drachten, the Netherlands

The urban quality of the central intersection, on which the Municipality of Drachten Theatre is located, was allegedly upgraded, pedestrians and cyclists being given priority over private motor vehicles. In this regard, approximately 5,000 cyclists ride through the intersection daily. The design deviates from the usual characteristics of small roundabouts. For instance, signposting and marking for non-motorised traffic are notable by their absence; the pavement and newly created open-space areas are used by all non-motorised traffic participants without any channelisation.

Crossing zones for cyclists are located directly at the entrances to the circle; pedestrian pedestrian crossings are placed approx. 30 m away from the roundabout lane on all four approaches. In doing so, a conscious decision was made to mark linear pedestrian crossings at positions on all the entrance legs.

The roundabout is almost unsigned; "Roundabout" traffic signs are placed in the middle of the circle. Cyclists have the option of blending with the mixed traffic in the circle lane or riding through the intersection on the pavement or open-space areas. Accordingly, there are no direction or route indicators on the pavement; cyclists can ride through the intersection without any restriction. The intersection has an attractive design with fountains and places to sit and linger.

Drachten: the Drift/Torenstraat/Noordkade/Zuidkade intersection („yield to right“ rule)

In close proximity to the Laweiplein roundabout in Drachten is the Drift/Torenstraat/Kaden intersection. This intersection, which used to be controlled by traffic lights, was converted to an uncontrolled intersection governed by the yield-to-right rule as part of the Shared Space co-operation project in 1998 (Figure 2). The intersection has a traffic volume of approx.

15,000 motor vehicles per 24 hours. One of the four intersection legs is designed as a bicycle access way from which private motor vehicle are excluded and which is used by a daily grand total of approx. 7,000 bicycles.

The intersection space is of a mixed-modal design; in the intersection, pavement and adjacent areas are not separated from the road surface in any way. The uniform design underlines the public space character, while adjacent surfaces are furnished with markings and design elements, such as bollards, to distinguish the pedestrian and cycle zones from road surfaces. At the request of residents, pedestrian crossings over the high street were subsequently also signed and provided with raised guide or marking strips. Cyclists can ride through the intersection in all directions without any routing.

Further signing was almost entirely eliminated. Even speed restrictions have not been introduced, with the result that the permissible speed limit in the inner-city area of 50 km/h is in effect.

Figure 2: The Drift/Torenstraat/Kaden intersection in Drachten, the Netherlands

Figure 3: Noordkade/Zuidkade intersection approach with bollards for channelisation, Drachten, the Netherlands

Figure 4: Torenstraat intersection approach with pedestrian crossing and cycle lane,

Haren: local shopping street Rijksstraatweg

In Haren, a suburb of Groningen in the Netherlands with about 20,000 residents, a local shopping street and adjacent intersecting legs were revamped in accordance with the Shared Space principle in 2003. The traffic volume on the shopping street amounts to around 8,000 motor vehicles per 24 hours.

From Groningen, the Rijksstraatweg is entered by way of a roundabout; two subsequent intersections are uniformly designed based on the mixed-modal principle with „yield-to-right“ rules. Open spaces are not separated from road surfaces in any way (Figure 5). Cyclists and moped riders have unrestricted use of the area. Pedestrian crossings located at the intersections are unpainted. Immediately adjacent to the intersection area, the cycle lanes are marked with a different colour material, so that channelisation is realised there (Figure 6).

Outside the intersection areas, the shopping street is also constructed with equally undifferentiated surfaces. The walkway is however distinguished from the road surface by choice of material and colours, as well as by trees and lamp standards. In addition, fences prevent parking of vehicles in the side areas. No regulations have been introduced for cyclists, except for a „mild channelisation“ based on a differently coloured strip of pavement on the walkway (Figure 7).

Figure 5: Rijksstraatweg/Kerkstraat intersection, Haren, the Netherlands

Figure 6: Rijksstraatweg/Brinkhorst intersection, Haren, the Netherlands

Figure 7: Rijksstraatweg , Haren, the Netherlands

4 Definition and classification of Shared Space

The majority of the explanations about the cooperation project mentioned in Section 2 make it clear that Shared Space primarily involves a philosophy or principle of design. The examples discussed in Section 3 show how this principle has now been implemented. If a some-

what more concrete definition is required, projects can in some sense be identified as Shared Space when:

- the mixed-modal principle is applied to sections of town high streets, local shopping streets or main shopping streets, preferably in intersection areas
- the mixed-modal principle accommodates, to the greatest possible extent, all traffic subsystems, at least bicycle and pedestrian traffic on at-level surfaces
- the motor vehicle, bicycle and pedestrian traffic subsystems (as well as, if applicable, public transport) make use of these sections
- stationary vehicles are prohibited from these sections as much as possible
- signs are largely eliminated

Further characteristics are „yield-to-right“ rules which are, however, not compulsory and the presupposed effective handling of the traffic volume, as well as a participative process in the location specific and attractive planning of these sections, which is, however, likely to occur automatically, given the sensitivity of such areas.

5 Effects and evaluations

Initial evaluation results are available for the above-mentioned examples in Drachten and Haren ([4], [5]). The currently available accident situation is detailed in figure 8. The following findings can be made on their basis:

- Traffic accidents with serious consequences that occurred at the signal-controlled Laweiplein intersection are no longer being recorded after the conversion to a roundabout. The number of accidents at the Laweiplein intersection has also decreased.
- No change in the occurrence of accidents is to be noted for the Drift/Torenstraat/Kaden intersection in Drachten. Accidents with slight injuries were also recorded after the conversion, mostly involving cyclists.
- While serious and slight injuries occurred on the Rijksstraatweg in Haren prior to the conversions, these kinds of consequences from accidents are to date no longer being recorded. The number of accidents has also decreased.

Acc. cat. / Year	Fatal	Serious injury	Slight injury	Material damage	Total
Drachten – Laweiplein					
1997	0	1	3	6	10
1998	0	0	0	9	9
1999	0	1	3	9	13
2000	0	0	0	9	9
*2001**	*0*	*0*	*0*	*4*	*4*
2002	0	0	2	8	10
2003	0	0	0	3	3
2004	0	0	0	1	1
2005	0	0	0	1	1
2006	0	0	0	2	2
Drachten – De Drift/Torenstraat/Kaden					
1994	0	0	0	1	1
1995	0	0	0	8	8
1996	0	0	0	2	2
1997	0	0	1	8	9
*1998**	*0*	*0*	*1*	*2*	*3*
1999	0	0	1	3	4
2000	0	0	0	0	0
2001	0	0	0	4	4
2002	0	0	2	6	8
2003	0	0	1	3	4
2004	0	0	2	6	8
2005	0	0	1	4	5
2006	0	0	2	2	4
Haren – Rijksstraatweg					
1997	0	1	2	10	13
1998	0	0	4	12	16
1999	0	0	0	16	16
2000	0	0	1	8	9
2001	0	1	1	17	19
2002	0	0	0	7	7
*2003**	*0*	*0*	*0*	*11*	*11*
2004	0	0	0	4	4
2005	0	0	0	6	6
2006	0	0	0	7	7

**Year of conversion*

Figure 8: Comparison of accidents in three locations before and after conversion to Shared Space

In interpreting these results, it must be noted that the case of the Laweiplein in Drachten involves a not unusual reduction in accidents that is likely primarily due to the conversion of a signal-controlled intersection to a roundabout. For instance, serious accidents are generally reported at signal-controlled situations, if a motorist crosses the intersection against the light at high speed or, in a two-stage control system, a left-turning motorist fails to notice simulta-

neously green-lighted oncoming through-traffic. Due to the lower speeds involved in roundabouts, serious accidents are, as a rule, avoided. To such extent, the positive effects on traffic safety in this area are neither primarily nor exclusively attributable to the properties of the Shared Space principle. Nevertheless, it can be acknowledged that, in all three Dutch situations, no accidents with serious consequences have been recorded to date. With regard to the accident rate, the new situations in the example areas can, according to current findings, be regarded as predominantly safe. Admittedly, the preceding situations did not involve accident-prone locations, so that noticeable accident problems are or were not discernible before or after the conversion. Given the small number of occurrences, no clear conclusion about objective traffic safety can therefore be drawn.

Surveys of citizens in Drachten and Haren ([4], [5]) show divergent views about the traffic safety, most respondents not finding the described situations to be safe. Noteworthy among their responses is the fact that many respondents (90%) to surveys concerning the Rijksstraatweg in Haren want clear controls for bicycle traffic in the form of either cycle lanes on the road surface or cycle paths on the pavement. Evidently, there are currently more frequent conflicts, especially between pedestrians and cyclists. It should also be noted that more respondents to the before-and–after comparison of the Laweiplein in Drachten find the combined roundabout and open-space area to be unsafe. For instance, 45% of respondents regard the post-conversion situation as unsafe, whereas the pre-conversion intersection is regarded as such by 30%. Moreover, it is precisely the elderly who feel less safe (47% in comparison to 38% for the previous situation). The increased negative opinions of the Laweiplein mostly come from motorists and cyclists; there is no discernible difference in the responses of pedestrians in the before-and-after comparison. Of „dramatic“ note in the evaluation report is the fact that there has been an objective radical increase in the time lost of all traffic participants in the new situation compared to the previous one; 66% of respondents identify the post-conversion traffic circulation and flow as generally poor, whereas only 5% regarded it as such before the conversion.

Problems clearly occur at the „yield-to-right“ De Drift/Torenstraat/Kaden intersection. In this case, bicycle accidents are over-represented, observations indicating that cyclists „speed through“ there at times of high motor vehicle / bicycle volumes (approx. 15,000 MV/24h and approx. 7,000 cyclists/24h, which certainly increases the threat to cyclist safety. If motorists frequently exercise their habitual priority in the through direction, time intervals for turning and street-crossing cyclists are difficult to judge, so that conflict situations frequently arise. High motor vehicle and bicycle traffic volumes should therefore adhere to a more diligent observance of the "yield-to-right" rule.

The implemented subsequent improvements in Drachten and Haren (subsequent creation of pedestrian pedestrian crossings and tactile elements) under pressure of the inhabitants concerned suggest that pedestrians – especially children, the elderly and individuals with restricted mobility – have problems with the Shared Space principle. As mentioned above, it is precisely the elderly who, for example, feel less safe at the Laweiplein in Drachten. In complex traffic situations, these categories of people require more time to process and react: complexity generally increases the safety risk. An emphatic shortcoming in this regard partly involved the lack of contrasting and tactile elements for the orientation of the visually impaired and blind.

For individuals who walk with the aid of a cane, there is a lack of direction and warning elements. The uniform-colours and poor contrasts in the design, which is certainly attractive in a civic planning sense, offer little information to the visually impaired. Subsequent efforts were made to improve a few areas in this respect. For example, direction markings and attention zones were later added to the Drift/Torenstraat/Kaden intersection in Drachten to make it possible for the blind and visually impaired to cross the street. Admittedly, these measures only have a site-related effect. Since appropriate direction elements are absent in the wider vicinity of the intersection, there is no barrier-free through-traffic route.

6 Results and conclusions

Shared Space makes sense, if urban upgrading of sensitive street and open space is a primary objective of the plan. With prudent application and limitation to short sections and intersections of small-town high streets, shopping streets or main shopping streets, the advantages of the concept can be properly exploited. It can be further observed that the application of the mixed-modality principle in cases of heavy traffic volumes requires the arrangement of outstanding visibility conditions that can only be assured by consistently banning of stationary vehicles and, as far as possible, cutting back on signing to the level of necessity. These street spaces appear “clean”, attractive and safe.

It is nonsensical to believe that Shared Space is a cure-all for the prevention of accidents, conflicts and, not to be forgotten, protests by residents. Views about the results of the conversion measures are divergent and, given the small number of examples and findings, difficult to objectify. Shared Space has its limits, primarily concerning traffic volumes and the length of potential sections. Moreover, it is hard to deal with all the requirements of a particular situation and Shared Space projects struggle with such difficulties just like all other design principles aimed at creating streets for connections, access and accommodation.

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