

6: A constriction simply achieved by planting trees and shrubs within the carriageway. Bollards help to protect these areas from vehicles. The planted areas are free-standing so that surface drainage is not affected.

(Photo: T. Pharoah)

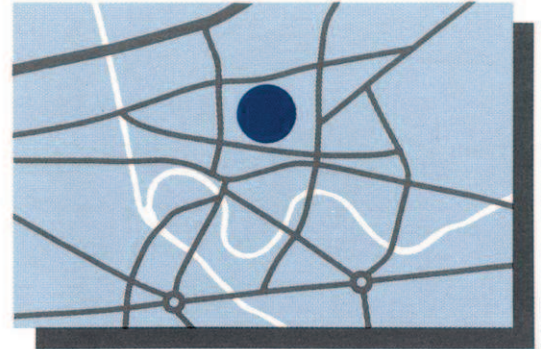
7: Close up of the Moabit cushion, which allows cyclists to pass in comfort. This one is built within an existing asphalt surface.

(Photo: T. Pharoah)

**BERLIN · MOABIT AREA-WIDE PROJECT · GERMANY**

**CONTEXT**

Moabit is an inner-city district of Berlin with 7,000 people employed and a resident population of 30,000 people living mainly in traditional style apartment blocks of 5 or 6 storeys, built around the turn of the century. Most of the streets are laid out on a grid pattern, and are fairly broad. In 1980 Moabit was chosen as one of the six Federal demonstrations of area-wide traffic calming, and the scheme was implemented in the mid 1980s. The area covered was roughly 1km<sup>2</sup>. The main traffic roads were to have been included in the scheme, but the proposals ran into political opposition from Berlin city/state authority. This example therefore concerns only the local residential streets.

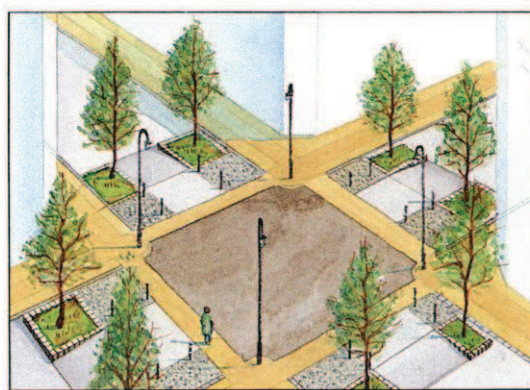


**OBJECTIVES**

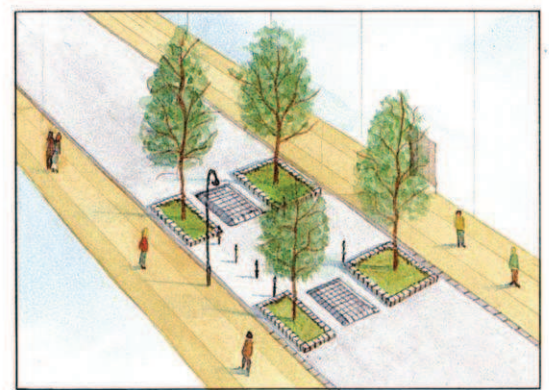
The scheme aimed: to improve traffic safety; to make walking and cycling easier; to create more possibilities for neighbourhood recreation and development; and to improve the local environment.

**DESCRIPTION**

The “slow speed” approach was adopted using the German standard sign (now adopted by several countries). This sign indicates a maximum speed equivalent to walking or running pace, equal priority for



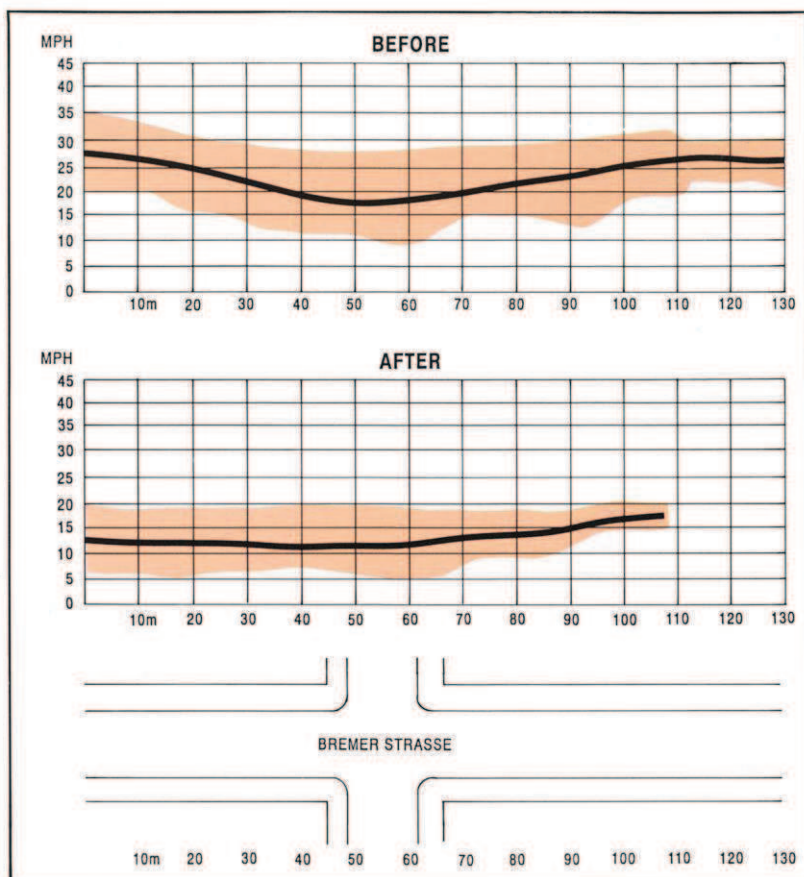
**PLATEAU**



**CUSHION**

all road users including pedestrians, and that children are allowed to play in the street. Former one-way streets in the area were abolished. This change of rules reinforced physical measures that were introduced to slow motor traffic and to provide more space for pedestrians and for recreation and planting.

The main speed reduction measures are cushions, plateaux and selective carriageway narrowing. These measures are spaced about 40m - 60m apart, and in places cushions are located in pairs, which creates a better speed reduction effect. Carriageway constrictions are achieved with planted areas and coincide with cushions or ramps. One particularly wide street has been converted to a linear park, with only a narrow carriageway remaining at one side. Footways are continued across junctions with plateaux. Planting, which together with other environmental treatment now occupies more than 6,000m<sup>2</sup> of former carriageway space, is a major element of the scheme and the number of trees in the area has been doubled.



AVERAGE SPEED PROFILE OF TYPICAL STREET IN MOABIT



6



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8

8: The street that became a park. Most of the carriageway in Waldstrasse now provides space for rest and play and is adorned with numerous trees and shrubs. Much of the original asphalt surface is retained, partly for economy but partly for children to use for roller-boots, etc. (Photo: P. Bowers)

9: Traditional granite setts have been re-used to create interesting textures, and to help with speed reduction. Smooth paving is provided for pedestrians to cross, however. Bollards keep vehicles out of this rest area. (Photo: T. Pharoah)

Major efforts were made to involve the public at every stage of the scheme. A special team was established and three main stages of participation were carried out. Information stands, public meetings and questionnaires were all used. In one street a full-scale mock-up of the proposed measures was used to obtain public opinion on specific features.

#### COST

The cost was about £1.8 million for the whole scheme, or about £10 per m<sup>2</sup> of street space. The cost was kept much lower than earlier traffic calming schemes by retaining kerbs and drainage, and by reusing existing materials such as granite setts.

#### ASSESSMENT

The scheme has had a positive effect on road safety. The number of personal injury accidents has been reduced by 41%, deaths



9

have been cut by 57%, serious injuries by 36% and slight injuries by 34%. Accident reductions have been more significant for pedestrians and cyclists than for car users. Child injuries have been cut by 69%. These changes can be set against a decrease in motor traffic but an increase in pedestrian and cycle traffic in the area. It has been calculated that savings in accident costs in the first two years alone exceeded the entire capital cost of the scheme.

Average traffic speed has almost halved to 12 mph, and the 85 percentile value dropped from 31 mph to around 15 mph.



10: Speed reduction is achieved with the famous Berlin cushion, sometimes placed in twos or threes, as shown here. The optical width of the street is reduced with narrowings and intensive tree planting, which also helps to mask parked vehicles. (Photo: T. Pharoah)

10

Hardly any vehicle travels faster than 20 mph. In addition, a calm style of driving is adopted by most drivers, with less braking and acceleration, and fewer sudden turning movements.

Traffic noise has been reduced by 5 dBA or more in most streets, and vehicle emissions have also been reduced. This is due partly to the slower and calmer driving and partly to reductions in traffic volume of up to 40%.

The scheme is popular with residents and traders, with the greater safety and particularly the increased greenery being appreciated. Some residents have taken on

sponsorship of planted areas. Cafe owners now rent street areas for outdoor tables.

