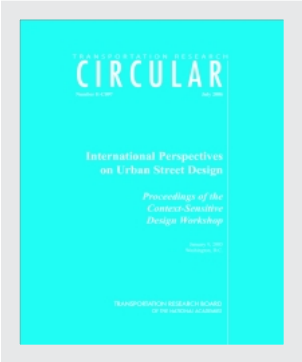

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International Perspectives on Urban Street Design

Proceedings of the Context-Sensitive Design Workshop

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Introduction

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Designing roadways to address the capacity and safety issues while considering their physical and human environmental needs has been emphasized through recent context-sensitive design (CSD) or context-sensitive solutions (CSS) initiatives. To achieve balance, trade offs among several factors are usually considered. Moreover, this approach necessitates flexibility in applying the current design guidelines and the use of creative design in addressing the site-specific project needs. The CSD/CSS approach encourages the designer to use creative design and move away form the "typical cross section" concept where a standard template is used. There are often conflicting elements in a design and a designer is called upon to develop a solution that will consider and address these elements by designing a roadway non conforming to the full design values used up to that point. These elements are often more important for urban streets, since the community values frequently become the most important and often controlling factor.

Significant efforts have been made recently in the United States to apply and utilize such principles in roadway design. However, there are several European countries that have implemented this approach for significantly longer time and it was considered appropriate to learn from these efforts and experiences. The articles included in this circular were presented as part of a workshop during the 84th Annual Meeting of the Transportation Research Board and included work in Germany and the United Kingdom.

Two of the presentations dealt with street design in small towns while another presented CSD aspects of arterial streets within big cities (in this case Berlin, Germany). The fourth presentation addressed issues relative to historic sites (Stonehenge, U.K.).

A roundtable discussion followed, where participants exchanged ideas and experiences on similar projects and issues. Some of the points made and opinions expressed by one or more participants included:

- European designers have learned and became acquainted with the term CSD/CSS, which was mostly unknown in the European Union (EU) although extensive work has been carried out in the field but not in the art and sense as understood in the United States.
- Street widths less than 10 m present a lot of problems especially for fulfilling the needs of all street users. On the contrary widths of 33 m and beyond provide enough space that alleviates any user demand conflicts. Between those two widths care must be taken to balance the conflicting demands of the various users. Parking can be problematic, and usually undesirable, for widths less than 15 m. The trend now is to start accommodating first the space demands for pedestrians and then try to address the vehicular demands. For streets with widths between 10 and 33 m, compromises are unavoidable. As a general rule, the ideal ratio of building height to street width is 1:1.
- Various means for defining the boundaries of the various street spaces have to be implemented. These boundaries can be either hard (curbs for example) or soft. The spaces then for each user could be built with different construction materials that could make them more

appropriate to the various uses. Design solutions should reflect local conditions and should be characteristic of local elements.

- Street cross-section elements should be considered and designed as a whole (road space design) and not individually and independent of each other (integral vs. sectored design). An interdisciplinary approach between urban planners and highway engineers is required for good CSS. The aim of such an approach is to focus in providing the space needed but offer the appropriate space.
- Especially for residential areas, the term “Home Zones” should be introduced to reflect the special situation and priorities given in such areas. The principle of design is the mixed use of the street by both pedestrians and vehicles whereas speed limit is limited to 15 km/h. Public participation and communication between residents, designers and city council is of great importance. Sustainability is the keyword for the design of home zones. A by-product of home zoning is crime reduction in the area.
- In historic sites, a holistic and synergetic approach is desirable, whereas the solutions should be balanced and sustainable as far as possible (single tunnels for example). Design restrictions and controls are accessibility, setting priorities, and economical feasibility.

Context-Sensitive Design for Streets in Rural Built-Up Areas

HARALD HEINZ
Heinz Jahnen Pflüger, Aachen, Germany

RURAL STREETS: A EUROPEAN TYPE OF PUBLIC SPACE

I will explain why "rural streets" in Europe are a special type of spaces and I will show ways to preserve the special image of these streets in their redevelopment in a changed social frame.

THE SPECIAL STRUCTURE OF EUROPEAN VILLAGES

Streets in European villages do not have a strict order. The farmhouses stand at odd angles from the street and at irregular distances from each other, so the width of the street depends on the location of the houses and yards. Between the houses are adjoining buildings, gardens, and meadows. Trees are planted depending on the position of the houses and surrounding natural elements. The areas in front of the houses are not solid; the borders between the private or privately-used areas and the public areas often are not visible.

One of the causes why urban people want to live here is the rural atmosphere. Although these villages are more and more being turned into purely residential areas, their character has to be preserved as a special kind of settlement taken over from the past.

CONSIDERATION OF HISTORY

In contrast to the situation in towns, historical dates in rural areas often are not documented. So the consideration of history is more a regard of particular historical elements, special houses, and little details.

THE SPECIAL CHARACTER OF A RURAL STREET

Multifunctional Areas

Originally private and public life in rural areas were not separated as strictly as in a town. Many activities took place in the areas between the road and the houses, no matter if these areas were public or private. So the street space was a large area for the rural community, an area for various activities, for example parking farm vehicles or cars or various objects which were used by the farmers. But the situation today is different from the original one. The society of the village has changed. Today's farmers don't live in the village anymore. New modern farms were built outside villages to provide better facilities. Today's village residents commute to work into town. This harbors a certain danger for the character of the rural structure since the new inhabitants import their urban behavior by strictly separating their private areas from the public space. So it's our job to find a compromise between the urban needs of these new rural residents and the preservation of the rural character of the village.

Lack of Reserved Areas for Special Users

Today, when it is normal to have clearly separated private and public areas it is difficult to preserve the public space from the private claims. Everybody would like to have their own parking slot, their own front garden, and so on, and nobody feels responsible for an area which isn't his own. Yet the preservation of this special rural character isn't possible if the road administration doesn't feel responsible either. So the road administration has to be made aware of the fact that it is its responsibility to preserve the typical character of rural streets.

What are the elements of the rural character?

THE ELEMENTS OF DESIGN

Soft Separation

First of all the road is smoothly integrated into the space. This is the most important difference to urban streets. The road does not have edges made of curbs. Using or not using curbs is the best way to define the character of a street.

The rural element for bounding the road is gutters, made by three to five rows of paving-stones. The paving stones should be regional stones so that the identity of the street will be stressed.

Elements of soft separation such as gutters take over some other functions too; it makes it clear to all users that they are in a special situation in which, for example, children may suddenly run onto the road, so car drivers especially should realize that it is necessary to drive carefully.

Surfaces

In contrast to urban spaces the materials are simple and more local. For example in many East-German villages the material of sidewalks is sand.

Residents nowadays would like to have more comfortable sidewalks especially during wet conditions. But they demand something that is very inappropriate. So we have to find solutions which optimize the comfort but conserve the charm of the special situation.

In order to preserve the special character of those spaces we have to continue using the traditional materials.

One possibility is the solidification of the historical material, so that the areas do not appear changed while at the same time their functionality is improved and they are more comfortable. It is always important to use no more than two or three different materials; for example, asphalt for the roadway and parts paved with regional stones and water-bound surfaces.

Plants Depending on the Special Type of Space and on the Position of the Houses

Normally we try to plant trees along a street in regular rows, in a symmetric space on the both sides of the roadway. But in rural streets trees have to be arranged less regularly, they have to be planted depending on special situations. In this example trees have to be planted on both sides of the entrance into the house or in this case the reason to plant trees is to mark a little brook which crosses the street. In this situation the street is made narrower causing the traffic to slow down.

Public Furniture: Not in a Rural Street!

Streets have to be spaces for many different activities. For all these activities different elements are necessary. If we try to place special furniture for all possible activities, the street space would be full of different elements which would disturb events which need the area occupied by that furniture. That's why we use public furniture in all streets very sparingly and if we set up any elements these things have to be multifunctional.

In rural areas there must not be any furniture. In rural streets we use public furniture even more sparingly, because these spaces are multifunctional areas. Here the rules mentioned above apply even more. The only traditional element in rural streets is a bench under a great tree on the village green, again today an important meeting point, especially for children and young people.

URBAN DESIGN STREET-DIMENSIONING

The width of the street-space in rural streets is often very small. In a current project the distance between the houses on both sides of the street is only 6 m in several parts. In those situations we apply a special method called urban design street-dimensioning (UDSD). I would like to explain shortly this method of street design.

UDSD is a procedure that questions the dimensions of the roadway that have been declared necessary for motorized traffic in favor of larger dimensions of the sidewalks. The street is designed not from its middle but from its edges.

Method for UDSD

1. Between the sidewalk and the outer edge of the street rooms an area in which the claims of the residents, shop owners, restaurant owners, and customers are satisfied (lounge areas, areas for offering goods, areas for providing a distance between the houses and the users of the street, for example, front gardens) is necessary.
2. For the well-being of the pedestrians and the cyclists the sidewalks have to be in a comfortable relationship to the areas for roadway (comprising all areas for private and public transportation); people feel that a relation of 30:40:30 between sidewalks and roadway is comfortable.
3. For the pedestrians to feel good, the proportions within the sidewalk have to be balanced.

Widths of Sidewalks Determined by UDSD

For the width of the sidewalks determined by UDSD three different sections are discernible.

1. In street spaces over 33 m the sidewalks can be 10-m wide. This width is enough for all activities.
2. In street spaces between 10 and 33 m the cross section can be the result of UDSD (the width of the sidewalk has to be 30% of the width of the street space).
3. For street spaces that are less than 10 m the width of the sidewalks has to be 3 m; the roadway is what is left over (I know that's a courageous sentence, I'll come back to this idea later).

Based on these three factors, we can determine the required width of the sidewalk, and based on that the possible width of the roadway in relation to the whole street- width.

In consequence the roadway will become narrower.

It is necessary to bring the possible breadth of the roadway that is determined in UDSD into harmony with the required sidewalk breadth by a political procedure of balancing the various claims. Historical und regional or local factors have to be included in this procedure.

In correlation to the width of the space of the street we can determine the possible width of the roadway. In that example the roadway in several parts can be as narrow as 2 m. We all know that such a roadway isn't possible. So we have to work out a compromise. But for doing this we as the town planning side have a point that is as strong as the points of the civil engineers.

In the past the most important factor of the street design was the traffic volume. The width of the roadway was not debatable and the sidewalks were as wide as the remaining space allowed. In future it will be in the other way around: the possible width of the roadway will be dimensioned through the UDSD. The final width of the roadway has to be worked out through a discussion of the urban and traffic factors. That was the same in the past, but now the urban factors can be quantified, too.

CONCLUSION

There are several rules that could be established based in CSD principles that could be used in rural built-up areas. The most important aspects of the designs should aim to understand the presence of multifunctional areas and the need for reserving space for special users.

The elements of design that should be considered include the soft separation between roadway and sidewalks, the use of simple but solid surfaces, the use of plants depending on the location and placement of the adjacent houses, the elimination of any street furniture, and the use of UDSD.

To see Heinz's slide presentation on CSD for Streets in Rural Built-Up Areas, click here.

Urban Streets with Multifarious History

HARALD HEINZ
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INTRODUCTION

Urban streets in German cities often have a long history. In particular, streets in the former GDR require a sensitive design approach, with consideration of the difficult superposition of two different social and political systems with different theories of town-planning. Thus, these streets provide very good examples of historical consideration in CSD. The Friedrichstrasse and the Landsberger Allee in Berlin are two examples of these kinds of urban streets with highly complex histories.

FRIEDRICHSTRAßE, BERLIN

The first example is the Friedrichstraße, one of the most famous streets of Berlin.

About 1925 this street was one of the most exciting areas of that time: full of life and several sections had certain, rather bad, but interesting reputation, in any case a typical part of the capital of Germany at that time.

After 1945 the main part of the street became part of East Berlin, and together with Unter den Linden, its most important street

Where the Friedrichstraße crossed the border between east and west, Checkpoint Charlie was set up; it was later to become the most famous checkpoint in Berlin.

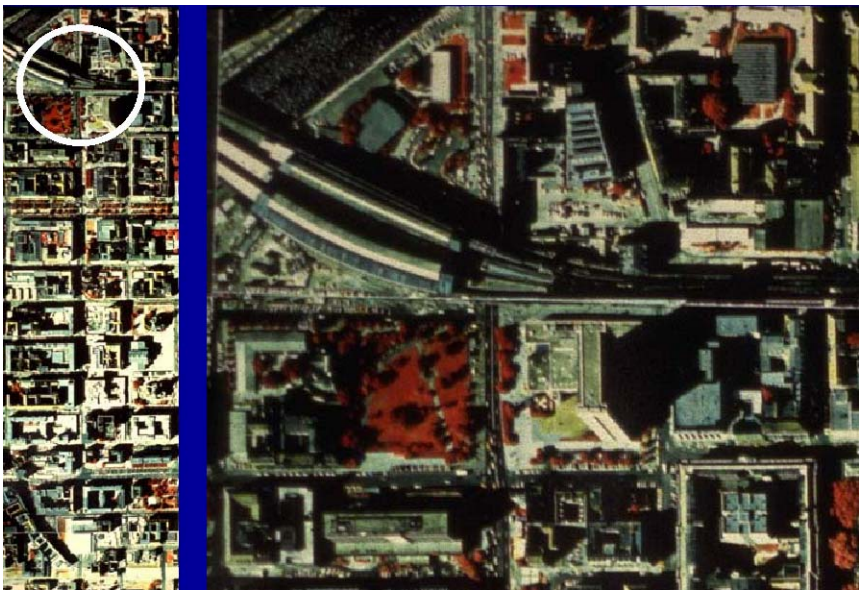
This was the location where American and Soviet tanks stood face to face in August 1961 when the Berlin wall was constructed and the 3rd world war became a reality (Slide 5).

(a) **(b)**

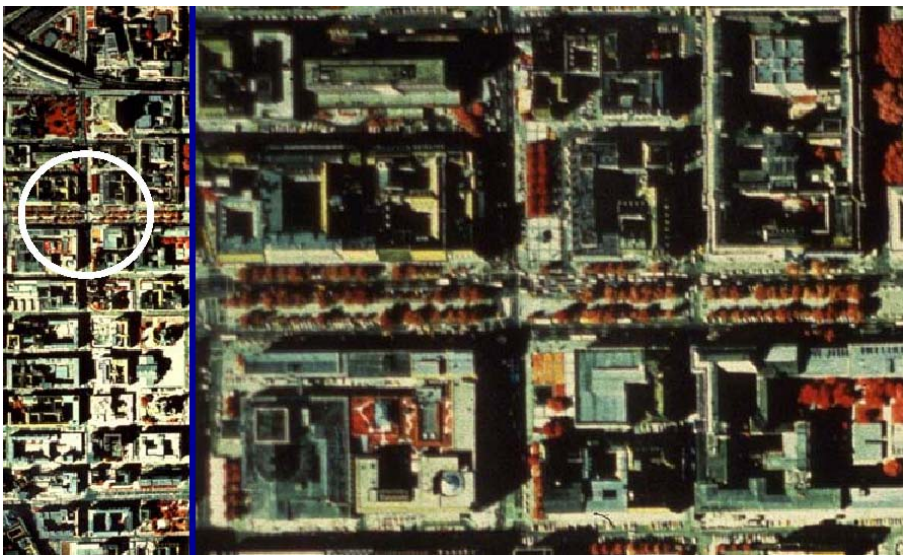
Slide 5 Checkpoint Charlie in (*a*) 1961 and (*b*) 1990.

Another important checkpoint was situated further north: the train station Friedrichstraße (Slide 6). This was the checkpoint for citizens of the FR of Germany and there was the place where people who had been visiting their relatives in the east had to say goodbye to them when they went back to their homes in the west. That's why the building next to the train station was called Tränenpalast (palace of tears).

After the reunification of Germany many investors wanted to build at the Friedrichstraße (Slide 7). In order to preserve the identity of the street the department of town planning in Berlin had invited entries for a competition for the design of this street in 1992. In the competition the administration demanded first ideas for the redevelopment of this street. The project was very important, so we did our best and we won the competition.



Slide 6 Train station Friedrichstraße.



Slide 7 Junction Friedrichstraße/Unter den Linden.

At the beginning of the project all participants agreed that this street was a space which stretched over its whole length, namely 3 km, with a constant width of 22 m. This width is the usual width of all the streets in the historical centre of the city of Berlin. Most streets in the old city center have street spaces which are 22-m high and 22-m wide. So we can say that this proportion between height and width is an important part of the identity of Berlin.

But when we reviewed old pictures of the junction Unter den Linden/Friedrichstraße we realized that originally the width must have been less. We studied old maps and indeed the width of the Friedrichstraße near Unter den Linden was different from that of the main part of the street, which was 22 m. But on both sides of Unter den Linden the street originally had only a width of 12 m, only half of the usual 22 m.

The reason of this important difference lay in the history of the urban pattern: The area is located between the royal palace (destroyed in the World War II) and the Tiergarten. When the king rode from his castle to his hunting grounds he used the street Unter den Linden. But the king wanted to be acclaimed. That is why he ordered houses to be built on both sides of the street where people could live and cheer him when he was going hunting. Between these buildings were unimportant little side roads, which were 12-m wide, and one of these streets was the Friedrichstraße.

But later, in the next step of development, this relationship was changed. The street running from east to west was still important as a beautiful promenade, but now the axis of the whole area, running from north to south, became the main street of city life. Now the traffic increased and so the new sections of all the streets got a width of 22 m.

After our exploration of the former width of the street it was clear to us that difference between the two widths had to be redeveloped. But now we were in a conflict with the urban traffic planners who strictly disagreed with our idea.

They had planned this street section as a high-performance street with four lanes. So the width of the roadway would have to be 12 m, the same as our idea of the width of the whole space. So there was a big fight between us and the department for traffic planning.

In the end a compromise was worked out. The space became 14-m wide—in this space the width of the road was to be 12 m and on both sides was to be sidewalks 5-m wide, under arcades that are 7-m high. The impression of the space is as the historical reasons require, and the width of the roadway is as required by the traffic planners.

But the real traffic goes the way we had supposed. Since cars park on both sides of the roadway only two lanes can be used by the moving traffic (as everybody knows this is the normal situation in an urban street). At the moment, the construction of the last section of this space is starting. Next month the existing hotel Unter den Linden, standing at a distance of about 15 m from the road, will be demolished and a new hotel will be built on the new borderline of the street. After this reconstruction the former space will be almost as its originally state and the image of the space will be recognizable.

LANDSBERGER ALLEE, BERLIN

The second example is the Landsberger Allee, which joins Friedrichstraße on its western end.

In this project we can see the historical influences in street design. The Landsberger Allee is a major street near Alexanderplatz in the eastern part of Berlin. This street is one of the important radial streets leading to the city center. We had to compile a collection of rules for this street.

Originally the street was one of the great radial streets leading to the famous Alexanderplatz, well known by its short form "Alex." The large TV tower is located at this place, a landmark that you can see from far away. Currently the street is composed of three very different segments.

- The biggest part of the street is still a radial street. And while you are going along the street you can see the tower from everywhere all the time. The old position and, in most parts, the character of the former street were conserved.
- But at a distance of about 500 m from the Alex the character of the street suddenly changes. Now the tower is visible on the left side so we feel that the street is no more directed straight to the middle of the city but going past the center. The street is a tangent, a new street, part of the new rectangular grid. The former radial street is no more recognizable in that segment. The earlier identity was lost.
- In the west the street meets another street with yet a very different character, a partly circular street around the city center. Now the TV tower is visible through every side-road; which suggests, that the street goes around the tower and thus around the city center.

The reason for this change is an extensive urban project of the former GDR carried out north of Alex, in which after 1950 the historical structure composed by radial and circle streets was destroyed and substituted by a rectangular grid in the style of the new socialist urban pattern for big industrial prefabricated houses.

When we got the job to redevelop this street in 1993 the most important question was are we going to conserve this division, and, consequently, the houses built during the last 40 years, or are we going to restore the situation of 1939, before World War II? Should we reconstruct the structure that existed in the time before the GDR or should we leave the existing composition of parts built in different periods and political systems. Several people demanded to reconstruct the borders of the street space prior to the changes of the last 50 years.

I disagree with them. I think we have to acknowledge the existing structure as a result of the most recent history of Germany. We have to conserve the special identity of the street and this special identity is the singular formation in three segments with very different histories and historically based structures and elements.

In my opinion a good compromise would be to put in several new buildings especially small, tall houses, almost towers, which allow to have a look at the houses built in the time of the former GDR and at the same time mark the old space before the era of the GDR there by creating a new contemporary space.

The formation of the street is considered in our collection of rules in different ways.

- The cross sections (traditional cross sections with sidewalks along the roadway and trees on both sides, and parkway sections in which the roadway and the sidewalks are integrated in a space such as a park);
- The surfaces (traditional materials such as granite flags and granite mosaic paving, and new materials, especially concrete flags and small strips made of granite mosaic paving);
- The ways of planting (regular planting, especially lime trees, free planting with different trees and bushes);
- The arrangement of the permanent ways for the tramlines (green grass tramlane, stone tramlane made of granite paving); and

- The elements by which pedestrians can cross the road everywhere (continuous or on single points).

CONCLUSIONS

At the end let me conclude that in my opinion CSD has to discuss more than road width, cross sections, or materials of the surfaces. The first object of CSD has to be the discussion of the space structure, the edges of the space, the sections and parts of the space, the unity and the identity of the space. That is why street design is a job for an interdisciplinary team of architects, civil engineers, and town planners.

In this interdisciplinary process the cooperation between architect and civil engineer has to be continuous. At the beginning the architect is the most important person but the civil engineer assists in the process, and at the end it is the other way round. If they do their work one after the other, the result can't be optimal. Only the permanent discussion and cooperation between the architect and the civil engineer guarantees that the result is functional, beautiful, and safe at the same time.

In the past streets were designed in the way you can see on the left-hand side of this foil: the factor determining everything else was the traffic volume. The width of the sidewalks depended on the space that was left over.

In order to improve the quality of the streets for all users, with the exception of the car drivers, this process will have to be reversed in the future. The width of the roadway will be dimensioned in a new way, which we call UDSD. In this procedure the proportions of the individual elements of a street are all taken into account.

Although in end a compromise has to be worked out by the responsible political institution. They can make their decisions on a better basis than today because all factors—the traffic and the urban factors—are quantified during the planning process. That's why we can now provide them with stronger arguments than before.

We are sure that UDSD will be an integrated element of street design because in Germany a new guideline, called RASt (rules for street design in built areas), is in the making. This guideline will regulate the design of rural and urban streets and it will substitute the existing guidelines EAE (rules for street design in residential areas) and EAHV (rules for design of main streets). There will be a lecture about this guideline in Chicago at the 3rd International Symposium on Highway Geometric Design this summer.

To see Heinz's slide presentation on Urban Streets with Multifarious History, click here.

Morice Town Home Zone

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INTRODUCTION

Morice Town was selected by the Department for Transport (DfT) as one of nine National Home Zone pilots to ascertain best practice and to identify how Home Zones can be best integrated into residential areas and accepted as part of British society. The initiative has sought to regenerate Morice Town an area within Devonport, Plymouth, which was significantly rebuilt after World War II due to its close proximity to Devonport Naval Base, a key target for many Luftwaffe missions. Morice Town has not been a recipient of any significant inward investment for about 50 years and was basically a blank canvas with which to work.

As a readily definable area both historically and geographically, Morice Town comprises a mix of dwellings including owner occupied, housing association, council flats, and privately rented accommodation. With a population of some 1,200 people living in 155 houses and 253 flats, the community has good access to nearby local shops and public transport services that are within walking distance. The area also hosts eight local businesses. Morice Town comprises a typical late 19th- or early 20th-century design of terraced streets on a grid setup with footways on either side and straight roads. Good visibility allows for traffic speeds to be in excess of what would be deemed appropriate for a residential area. With much of the existing terraced housing fronting directly onto the footway there is little in the way of environmental enhancements. However where houses were destroyed during the war, three-story blocks of flats replaced them in the 1950s and have resulted in the introduction of some green space in their vicinity.

Other community facilities include a playground (in need of some repair), Morice Town Primary School, a playgroup, and Salvation Army Hall. Initial investigation revealed that Morice Town was defined as an area of social deprivation according to the DfT index, had the second-lowest car ownership in the city, and was reported to have the second-highest rate for car-related crime in the city. The area also has education action zone, health action zone, and employment zone status.

Morice Town is situated geographically just outside a major funding area to the south and was not identified in the local plan for any significant investment in the foreseeable future. It did, however, benefit from being within an area that was eligible for single regeneration budget funding.

With little or no investment the area was in need of regeneration to halt decline and to improve future prospects for the residents. Concentrating initially on those issues that could be addressed through the home zone pilot a dialogue was entered into with the community to see how the idea could best be progressed.

WHAT IS A HOME ZONE?

A home zone could be seen as the European euphemism for CSD, bringing together the community and professionals in a responsive and holistic approach to find local solutions. The home zone concept was first developed in Holland in the 1970s where it was introduced into urban residential areas with the objective of reducing accidents and improving the quality of life

for the community. It was also established that in order for them to work and be sustained, the community must be involved in the process of developing their home zone. The U.K. definition is

> Home Zones are residential streets in which the road space is shared between drivers of motor vehicles and other road users, with the wider needs of residents (including people who walk and cycle, the elderly and children) being accommodated. They are about promoting quality of life and neighbourliness. (DfT 2001)

Comprehensive consultation and communication was undertaken with the community to build a framework through which a home zone could be established.

Public meetings evolved into a dedicated steering group that was formed to represent the interests of the community including the local business forum, schools, and each of the streets. They met on a regular basis and acted as a conduit through which the community could be kept informed and make their views known.

In the first instance it was very much about issues concerning trust and credibility with a skeptical and mistrusting community who saw the council as having a poor record and reputation regarding their ability to deliver. However they invested their faith in the pilot and started to discuss and develop their ideas. In short we embarked on a process of CSD to regenerate Morice Town and give it a new lease of life. Specifically it was hoped to improve the quality of life for residents of all ages through

1. Improving and enhancing the built environment;
2. Introducing the concept of shared space for equal use by all road users;
3. Enhancing the environment to reflect the change of priority away from motor vehicles;
4. Reducing both the number and speed of vehicles so that communities are not divided and so that children's play can take place on the shared space in relative safety;
5. Providing facilities and open spaces that enable community activities to take place;
6. Introducing protected space where it would benefit resident's lifestyle; and
7. Encouraging ownership of the local environment and using sustainable principles for prolonged livability and community development.

WORKING WITH THE COMMUNITY

Over a 3-year period of development the home zone was designed through this partnership with the local community, local council, police, and other groups as necessary.

During this period a number of specific events were held to inform the process and build community capacity including a monthly newsletter that the community designed, wrote, and edited. Planning for Real enabled residents to voice their concerns and to state their preferences to enhance their quality of life, safety, and improve the environment. Data collected through this process helped the steering group to target those identified sections of the community that were underrepresented. The steering group prepared a questionnaire to ascertain the issues that the community wanted to address, what they liked and disliked about living in Morice Town, and how they would change conditions to improve their quality of life.

Some of the issues raised were (not in any priority order):

- Pollution,
- The volume and speed of traffic,
- The lack of facilities for youth,
- The condition of the children's play area,
- Traffic outside the primary school,
- Parking,
- Health issues,
- Fly tipping,
- Dog fouling,
- Litter bins,
- Improved pavements,
- Street lighting,
- Improve environment—planters and flower boxes,
- Build youth club,
- Security, and
- Antisocial behavior.

BUILDING A VISION FOR MORICE TOWN

The information gained through the planning and questionnaire exercises formed the basis for the agenda of Morice Town home zone and led to the next stage of development, the vision.

The community shared responsibility for tendering, interviewing, and selecting prospective consultants with a brief to work with the community and produce a vision of Morice Town home zone based on their aspirations. The production of the vision, completed over an intensive month of consultation, was presented to a public meeting and approved by the community. The vision provided the impetus and enthusiasm for the community to further involve themselves and develop the detail of the home zone.

Upon completion of the visioning exercise a further consultation exercise was entered into with the community to determine the detail outside individual homes and to assess the impact of daily lives. The community also embarked on a health impact assessment with the local health service to review the negative and positive health impacts on the residents.

CONTINUED COMMUNICATION

Following the design period and successfully bidding for funds from several different areas we entered into a 13-month build period that would change Morice Town and the community forever.

The contractors appointed to build the home zone were invited by the residents to enter into a comprehensive liaison and dialogue on a regular basis during the build period. This was well in excess of what is usually required in normal conditions of build delivery but provided an excellent operational partnership from which to deal with the concerns of the residents and reduce potential friction during the turmoil of reconstruction. The contractors entered into the spirit of the project and additionally supported the school and community initiatives on many levels including the provision of school football team kit and particular features requested by the residents to enhance the environment. The choice of materials and their application throughout the home zone, in

particular the unique imprint surface, was carefully considered and chosen by the residents to reflect the history, geography, and renaissance of Morice Town. The community also made a conscious decision to reuse and recycle materials wherever possible, such as granite kerbs reused as a feature throughout the scheme to traffic calm and protect community space. Some residents and local businesses were also given the opportunity to participate in the build process and were employed by the contractors to provide resources, services, or goods.

VISUAL IMPACT

The transformation turned traditional streetscapes into shared-use surfaces, much of it at a single level, with dedicated parking areas built into the infrastructure to reduce the width of the carriageway and the speed of vehicles. Gateway features at each of the nine entrances are visually and physically impactive, leaving all road users in no doubt that they were entering a very different environment. Planters give the area another dimension, adding to the quality of life for the residents and creating a distinctive landscape unique to Morice Town. The highly unusual thermal imprint surface used on through routes and at locations of community interaction also gave Morice Town an identifiable uniqueness.

Removal of all the normal signing and lining associated with vehicular traffic has also helped to redefine the area—traffic has to share the space equally with all road users—there are no priorities. The home zone was designed to reduce vehicular speed through a variety of quality measures, with the emphasis on sustainability—walking and cycling and improved community activity—including children's play. There has been a notable increase in the pride that the residents take in their neighborhood, particularly the contagious and sometimes competitive activity of gardening.

Protected and community space was also considered a key objective of the community during the development period. While the area defined is protected space it is public space with rights of access for everyone. All the planters in Morice Town (over 100) are maintained by the residents, who have formed a gardening club and help out if some planters are not maintained to the standard they would want.

A number of ideas were adopted from those used in Holland—the use of block parking—provides a unique and inexpensive way of reducing carriage width and hence vehicle speed.

The introduction of a Punaise, a raised dome feature stretching across a junction, is also a Dutch import and its use shows the degree of latitude and flexibility that can be achieved through consultation and partnership working whilst regenerating the neighborhood.

Community space took on many shapes and sizes, some of them more defined than others. Special dedicated sites were designed and are now used by the community for their summer fair and Christmas Carol service among other events. The space was integrated with the Salvation Army Centre so that the preschool group and lunch club could benefit from its location.

Building community capacity and securing community ownership of the project is key to sustainability and success. The process of developing a home zone in Morice Town has been instrumental in creating a cohesive and functional community where none previously existed. iInitial public meetings were held to address home zone implementation and a process of capacity building was embarked upon, enabling the community to become more self sufficient and purposeful.

Low speeds are key to realizing a truly shared space and to help encourage and educate drivers regarding the new environment. Morice Town trialed the UK's first and to date only 10-mph zone. It is important that drivers are left in no doubt of the behavior that is expected of them.

In terms of road safety the home zone pilot has delivered lower speeds, improved road safety, has encouraged more cycling and walking and a greater understanding and cooperation between road users.

BUILDING ON SUCCESS

In detail there has been a recorded reduction of 85th percentile speeds across the nine roads by half from 26 to 13 mph, a reduction of through-traffic by 40%, and an increase in play and community activity, leading to an improved quality of life for the residents. This improvement in quality of life has also been borne out by the large reduction in recorded crimes shown in the Table 1.

TABLE 1 Morice Town Road Safety Scheme: Crime Results

2001–2002 Recorded Crime							
Street	**Violent Crimes**	**Criminal Damage**	**Domestic Burglary**	**Vehicle Crime**	**Other Theft**	**Other Offences**	**Grand Total**
Balfour Terrace	2	2	0	4	1	1	10
Charlotte Street	3	4	6	3	2	7	25
Crosshill	0	2	2	6	1	0	11
Garden Street	0	3	0	0	0	0	3
Herbert Place	2	0	0	3	2	1	8
Herbert Street	3	5	0	1	2	1	12
Keat Street	3	3	2	7	2	0	17
Pentamar Street	0	2	1	0	0	0	3
Ross Street	0	2	0	0	0	1	3
Grand Total	**13**	**23**	**11**	**24**	**10**	**11**	**92**
2002–2003 Recorded Crime							
Street	**Violent Crimes**	**Criminal Damage**	**Domestic Burglary**	**Vehicle Crime**	**Other Theft**	**Other Offences**	**Grand Total**
Balfour Terrace	0	1	0	1	1	2	5
Charlotte Street	3	17	5	5	15	4	49
Crosshill	1	3	1	1	0	0	6
Garden Street	1	2	4	1	1	0	9
Herbert Place	1	2	2	1	1	1	8
Herbert Street	4	5	2	3	3	3	20
Keat Street	3	5	2	6	3	2	21
Pentamar Street	3	3	5	1	1	1	14
Ross Street	3	1	0	1	1	4	10
Grand Total	**19**	**39**	**21**	**20**	**26**	**17**	**142**
2003–2004 Recorded Crime							
Street	**Violent Crimes**	**Criminal Damage**	**Domestic Burglary**	**Vehicle Crime**	**Other Theft**	**Other Offences**	**Grand Total**
Charlotte Street	4	0	0	0	0	0	4
Keat Street	1	0	0	1	0	3	5
Grand Total	**5**	**0**	**0**	**1**	**0**	**3**	**9**

Note: Supplied by Devon and Cornwall Constabulary; no other streets recorded any crime.

The figures are for April to March each year and are complete; 2002–2003 was the build period and residents were encouraged to report as there was a degree of vandalism and theft of building materials at this time. Last year's figures however are extremely encouraging and welcome.

The result of implementing Morice Town home zone has been impressive on a number of levels not least the capacity that has been built in the community. It would be fair to say that the scheme has to a large extent met the residents' expectations. It has changed the perception and feel of Morice Town in a very positive way, delivering a great many of the original aspirations to improve the quality of life of the residents, and enhancing and creating a safer environment. There is now a thriving community, currently led through the newly established Morice Town Community Forum, that has been empowered, built on their successes, and who are committed to sustaining their community and the ideals associated with living in a home zone.

To see Trim's slide presentation on Morice Town Home Zone, click here.

Stonehenge
An Exceptional Environmental Scheme

CHRIS JONES
Highways Agency, U.K.

Design for rural roads aims to address the capacity and safety issues while balancing any environmental (human and physical) needs that may be present. There are often cases where such roads need to specifically consider and address historic or cultural resources. The presence and ultimate design of the roadways may impact negatively these resources. There is therefore an increased need for considering and incorporating a CSD/CSS approach for such roadways. This approach is equally important for rural as it is for built-up areas and may be more crucial for areas where rural roads go through small rural communities close to such cultural resources.

Such a case is Stonehenge, which is the most famous prehistoric sight in Britain—an instantly recognizable icon. It is a major tourist destination and, together with other surrounding monuments, is designated a World Heritage Site.

On the south side of Stonehenge, less than 200 m away, is the busy A303 strategic route linking London with the southwest of England. On the north side, and virtually touching the monument, there is a local road, the A344. The effect is that the internationally important setting to the Stones is despoiled by the close proximity of roads and the traffic on them; the experience for millions of visitors is diminished by the sight and sound of traffic. The presentation of Stonehenge has been described by the UK Parliament as a national disgrace.

The A303 is an important route for both business and holiday traffic. Much of the road has already been improved to dual carriageway standard, although the section past Stonehenge is the first single carriageway section on the route after London. The case for improvement is compelling with a number of congestion bottlenecks and accident black spots along this section.

The aims of the A303 Stonehenge Improvement scheme are

- To remove roads and traffic from the heart of the World Heritage Site around Stonehenge, and
- To reduce accidents and congestion.

The scheme that was taken through a public inquiry in 2004 was designed to achieve these aims. It included a 2.1-km long twin-bored tunnel past the Stones which would hide the A303 and enable the A344 local road to be closed. With the removal of the roads, the prehistoric landscape around Stonehenge could be restored to pastoral grassland.

To see Jones' slide presentation on Stonehenge: An Exceptional Environmental Scheme, click here.

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

The **Institute of Medicine** was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Harvey V. Fineberg is president of the Institute of Medicine.

The **National Research Council** was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. William A. Wulf are chair and vice chair, respectively, of the National Research Council.

The **Transportation Research Board** is a division of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. The Board's varied activities annually engage more than 5,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.
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