ROADS IN THE SOUTH DOWNS

ENHANCING THE SAFETY AND QUALITY OF ROADS AND PLACES IN THE NATIONAL PARK

SOUTH DOWNS
NATIONAL PARK

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Working together in the design, management and maintenance of rural roads and places
for the benefit of the South Downs National Park

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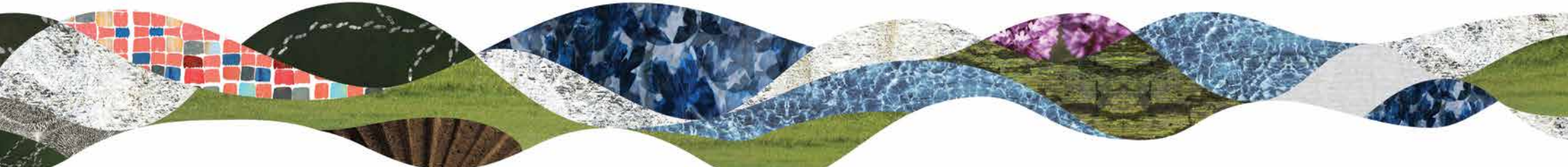

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EXECUTIVE SUMMARY

The South Downs National Park became fully operational in 2011, fulfilling an aspiration dating back to the 1930's to recognize the unique and valuable qualities of this area of south-east England. As the most recent addition to the UK's 15 National Parks, the South Downs National Park Authority (SDNPA) and its partner organisations have the opportunity and challenge to redefine the standards of landscape management and conservation within its boundaries.

The 1949 National Parks Act and the 1995 Environment Act set out the responsibilities and duties of all public organisations working in a National Park. The primary purposes of the SDNPA are to conserve and enhance the natural beauty, wildlife and cultural heritage of the area, and to promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public. Public bodies working in the National Park have a duty to have regard to these National Park purposes.

This guide looks to underpin these aims by raising awareness of best practice for rural road design and management for highway authorities, the National Park Authority and all the communities within the area. It is intended to influence decision-making, training and investment as well as to raise awareness of opportunities and challenges in reconciling traffic movement with the inherent qualities and purposes of the National Park.

As the first such area to be designated following the publication of *Manual for Streets 1 & 2*, the South Downs National Park is able to draw on changes in national policies and priorities as well as national and international best practice.

In setting out possible aspirations to preserve, enhance and reinforce the distinctive identity of the built and natural environment the guide seeks to closely integrate the design and treatment of roads and streets with their context. This requires the bringing together of local knowledge and community interests with the skills available from engineers, landscape and urban designers, planners, conservationists and all those with an influence on the quality of the National Park.

Implementing enhancements to the extensive highway network in the South Downs National Park will take time. With increasing pressure on the public purse, measures that are a priority for the Local Highway Authority and which enjoy widespread community support and additional funding contributions are more likely to go forward. The guide aims to help achieve such consensus.

The guide recognizes and highlights the key role played by roads and highways in forming the immediate foreground for most visitors to the Park, and the important influence played by legislation, duties and policies for road design in determining expectations, driver behaviour and values. The guide sits under the *Protocol for the Management of Highways in the South Downs National Park* agreed with the four Local Highway Authorities (LHAs), Highways England and the SDNPA. This local officer protocol sets out a vision for 'a highway network that is managed and maintained in such a way that it conserves and enhances the South Downs outstanding landscape quality and local distinctiveness whilst delivering a safe and convenient network for all users and modes of transport'.

The guide aims to help avoid the tendency for highways to suburbanize and standardise the landscape. To this end, an approach based on careful analysis of appropriate design speeds for traffic combines with an emphasis on distinctive place-making, village entrances and an integration of roads and streetscapes with their surrounding buildings, features and landscape elements. Building on a growing number of case studies, the guide is intended to inform and inspire officers, councillors, agencies and residents alike to share a broad vision for the long-term care and conservation of a unique and valuable national asset.

BACKGROUND

HIGHWAY DESIGN & THE NATIONAL PARK

Why are the details of highway design in the South Downs National Park so important? And why is it essential to introduce and refine a series of core principles and best practice for such mundane and utilitarian infrastructure as the roads, streets and lanes that form the highway network? Is it realistic to expect that four separate highway authorities and a national highways agency can combine to develop a distinctive approach that differs from the usual ways in which we adapt our roads to cope with increasing traffic pressure?

A National Park is, by definition, special. We define certain areas as important and significant because they reflect particular values and meaning, both to us as individuals and as a society. The significance of special landscapes lies in the experiences and collective memory they create in the minds of residents, visitors and potential visitors. These special qualities led to the South Downs designation as a National Park.

Such experience and memories are gathered through movement. Our response to the built and natural environment is determined by travel, by the changing perspectives and sensations generated by journeys. These may be mundane everyday trips, or deliberate acts of exploration. By moving through the landscape we create and reinforce the mental maps that give meaning and significance to our surroundings. Movement and travel is the medium by which we experience and interpret a National Park.

For the majority of visitors and residents, it is the highway network that frames our experience of the National Park. Of some 46 million visitor days in 2012, 84% arrived by car. Roads, streets and lanes, their intersections and immediate surroundings, provide the most significant component of their travelling landscape. The relationship between highways (with all the associated infrastructure that goes with them) and the built and natural environment lies at the core of public perceptions of the National Park. Roads define our sense of place.

Careful highway design is also relevant to the shifting economic realities of the National Park and of smaller towns and villages. Changes in retail patterns and communications are drastically altering the purpose and nature of high streets, small shops and the market activities around which many settlements grew. The growth of out-of-town retail centres, and the rapid expansion of the internet as a basis for trade and social interaction, have both eroded the role of towns and villages in the functional distribution of goods and services. Instead, town centres are surviving only if they remain attractive in their own right, fulfilling broader social needs in place of utilitarian retail distribution. For areas dependent on tourism, the intrinsic qualities and distinctiveness of towns, villages and landscapes are especially important. The road network is a critical element in retaining such qualities.

A high standard of highway environment throughout the National Park will support the principal purposes of the Authority and minimize the impact of traffic on the built and natural environment. Design and management of streets and roads conveys the appropriate cues to drivers about speed, and helps to manage expectations and behaviour.

The South Downs National Park is addressing these issues at a time of major change in both the theory and practice of street design and traffic engineering. It is the first National Park to be designated after publication of *Manual for Streets 1 & 2*. These national guidelines signal a significant shift in policies for roads and lanes, offering opportunities for a more integrated, place-making approach to multi-purpose roads and spaces. Policy and best practice around the UK demonstrate the benefits of a more context-specific and locally distinctive approach. There is now greater local community involvement in the design, management and maintenance of road networks. This increases the need for wider understanding and commitment to the core principles that will create distinctive roads and places in the South Downs National Park.

SOUTH DOWNS NATIONAL PARK

PURPOSE OF THE GUIDE

The day-to-day management and maintenance of the highway network in the South Downs National Park is undertaken by the four local authorities of Brighton & Hove City Council, East Sussex County Council, Hampshire County Council and West Sussex County Council. In addition Highways England is responsible for motorways and trunk roads, such as the A3, A23 and A27. Each highway authority has developed policies and practices based on former guidance and on its own traditions and priorities, some set out in formal guidance, and some informally accepted. Changes in best practice and policies have been adopted over the years, and there is an understandable diversity in priorities and procedures within a pragmatic and flexible framework.

The establishment of the South Downs National Park prompts the need for a more consistent approach to highway design, one that responds to the specific priorities and objectives of the designation. A greater recognition of local context and place, combined with an increasing emphasis on walking, cycling and sustainable transport, are themes consistent with good highway management across the country. They are especially relevant to the work of a National Park. Consistency between environmental, social and economic objectives becomes more critical where decision-making is shared between the National Park Authority and highway authorities.

The Environment Act (1995), Section 62 (2) clarified the responsibilities and duties of any public organisation working in the National Park to have regard to National Park purposes. These are:

- to conserve and enhance the natural beauty, wildlife and cultural heritage of the area
- to promote opportunities for the understanding and enjoyment of the special qualities of the National Park.

There is also a duty for the National Park to foster the social and economic well-being of local communities.

This Guide is intended to provide a starting point for introducing highway design and management practices consistent with these general purposes and duties. In so doing, it is intended to provide a resource and reference point for emerging best practice in rural and urban highways, drawing on experience gained in other UK National Parks and from schemes elsewhere in the country. It seeks to draw together, and build on, the existing knowledge base and experience gathered by the respective highway authorities, and to help steer the development of techniques and principles consistent with a high-profile National Park.

Through case studies and examples, the Guide identifies key issues and common problems, aiming to bring together a widely dispersed knowledge base to make best use of limited resources in working towards the objectives of the National Park. The Guide should be perceived as a dynamic work-in-progress, to be updated and refined as experience is gained and policies developed. The development of policy and best practice notes by government and the professional institutions will feed into future editions, and in turn the South Downs Guidance will provide a model for other authorities.

The Guide is also intended to provide a resource and reference point for parish and town councils, local communities, specialist interest groups and all those with an interest in the quality of the South Downs environment. The 2012 report *The State of the National Park* noted that around 80% of parish councils had particular concerns about the impact of traffic and vehicles, and the relevance of highways to the economic and social functions of local settlements is clearly growing. The Guide aims to inform and support non-technical readers and to bridge the gap between the complex world of highway design and the priorities and perceptions of local communities, helping to bring forward schemes as opportunities arise and budgets allow.

Changing priorities and new opportunities for rural communities introduce new concepts into the vocabulary for streets and roads. Conventional traffic engineering has centred on urban contexts and the design of major strategic highways, and we are less familiar with terms such as *streetscape* for rural locations. This guide seeks to extend this vocabulary to meet the needs of rural areas, their changing priorities, and the low-speed environment essential to prosperous and safe communities. Terms such as *transition spaces*, v*isual narrowing*, *place making*, *edge friction* and *desire lines* can clarify discussions concerning rural traffic and road design. Language can inform and empower.

THE SOUTH DOWNS NATIONAL PARK

The *Special Qualities* report of 2011 by the new South Downs National Park Authority concisely summarises the remarkable and distinctive characteristics of this unique geographical area. The outcrop of chalk downland that provides the central spine of the National Park combines with the alternating series of greensand and clays of the Western Weald to form an outstanding and varied set of landscapes that have been shaped and adapted by human activity over thousands of years. From Twyford Down outside Winchester in the west, across to Beachy Head on the outskirts of Eastbourne, the South Downs National Park defines an environment of farms, heath, woodland and river valleys, interspersed with market towns and historic villages. It is landscape that forms an essential part of our collective interpretation of southern England.

The South Downs is unusual in accommodating over 110,000 residents, and includes some larger market towns of Petersfield, Midhurst and Lewes. The Park adjoins some of the most densely populated areas of Britain, and is bordered by large and rapidly expanding towns and settlements. The interconnected conurbation along the south coast from Seaford through to Portsmouth lines its southern boundary, including Brighton & Hove, Worthing, Littlehampton, Bognor Regis and Chichester. Winchester, Alton, Bordon and Haslemere to the north and west, and Eastbourne to the east, are all expanding settlements. The pressure from development, and from the growing volume of transport, especially highway traffic, places particular demands on the fragile and vulnerable landscape.

The major highway network is dominated by north-south routes, connecting the south coast ports and settlements to London and the Midlands. These include the M3, the A3,the A24, the A29, the A283 / A285 and the A23. There are fewer east-west routes; the A272 runs through the centre of the western portion of the National Park, with the A27 linking the conurbations to the south and connecting Brighton to Lewes and Eastbourne. Within this network of trunk roads and busier highways exists the ancient network of smaller rural roads, the 'B' and 'C' class roads, smaller unclassified country lanes, estate roads, farm tracks, byways and bridleways and footpaths. The majority of smaller settlements lie away from the major network; some such as Rogate and Bury in West Sussex straddle the major routes.

Several long-distance trails, notably the South Downs Way, serve the National Park. The development of the National Cycle Network, and especially Route 2, represents an increasingly significant part of the transport network. Bus services and patronage are typical for rural areas of the UK. Although served by 15 railway stations in, or close to, the National Park, train travel is not, of itself, a significant mode for exploring the landscape. But the connections to and from railway stations are critically important.

The National Park is divided by one river running west to east, the Rother, and five main rivers running north-south in valleys each with distinctive characteristics. The Meon, Arun, Adur, Ouse and Cuckmere rivers punctuate the landscape of the South Downs. Crossing points on these rivers have themselves had a significant impact on settlement patterns and routes, and road bridges serve as important landmarks in the network.

Many of the major routes criss-cross the boundaries of the Park, and there are few distinctive entry points. The use of gateway signs to identify the perimeter of the Park is thus less appropriate than for more defined National Parks such as the Norfolk Broads or Lake District. Instead, the development of well-mannered and place-sensitive streetscapes may gradually and increasingly distinguish the South Downs National Park as a place of consistently high design standards.

The National Park's roads and bridges form an integral part of its landscape. Greatham Bridge, Pulborough

Roads and landscape near Beachy Head

The A272 near Petersfield

Modern highway engineering has tended to ignore the key landmark opportunities of river crossings. Stopham Bridge, A283

OBJECTIVES FOR HIGHWAY MANAGEMENT

A road network has to balance a wide range of often competing demands. In addition to coping with the movement of vehicles through the Park, the network has to provide access to and from the towns and villages, the farms and businesses and all the varied and scattered assets of the area for residents, businesses and visitors. Highway safety remains a key duty. Whilst serving this functional and utilitarian role, the whole network remains an integral and inseparable part of the National Park, providing the front door and foreground for the built and natural environment. Whilst motorways and major truck roads are often deliberately isolated from their context, careful design of the infrastructure, positioning of lights and signs, choice of materials, landscape and habitat management can all add to the special qualities of the area. The rest of the local network of roads, lanes, streets and related spaces provides the immediate foreground and geographic skeleton of the Park. Retaining and enhancing the quality of the National Park's environment is as relevant to highway design and management as it is to buildings and the landscape.

Movement of vehicles comes with risks. Any highway network has to balance speed and ease of access with the requirement for a reasonable and realistic level of safety. No road or street is ever "safe", and the design of the highway can never be expected to protect travellers entirely from harm, or from the effects of individual mistakes. Nevertheless minimising and reducing deaths and serious injuries associated with the highway network remains a key objective of all highway authorities. Establishing the appropriate expectations amongst drivers of the realities and hazards of the historic settlements and rural routes is critical to safety. Such expectations foster traffic speeds appropriate to the context. Identifying and working with appropriate vehicle speeds is key to achieving safety objectives. This guide offers a systematic method for helping to establish preferred speeds over rural routes. Clarifying the preferred speed of vehicular traffic in turn informs all the decisions necessary for the design and maintenance of the rural network, including road widths, signs and markings, highway geometry and sight lines.

For much of the past century, the principle purpose of the highway network centred on the movement of motor vehicles. To a great extent, this single focus has determined the character of our existing roads. Since the 1990's, social, political and environmental pressure has shifted the emphasis towards promoting alternatives to the private car. For shorter journeys and connections to railway stations and public transport, walking and cycling have begun to receive greater attention. Bus connections, community transport, car-sharing and the growing National Cycle Network have combined to try to reduce car dependency. The objectives for highway management have evolved to include a wider range of transport modes as alternatives to private cars.

Highways represent a valuable and expensive asset for the public sector. Few, if any, new roads are likely within the National Park in the foreseeable future. Nevertheless the management and maintenance of the network absorbs a significant proportion of limited public resources. The efficient repair and replacement of road surfaces and verges, the maintenance of signs, signals, bollards, lighting equipment, bridges and tunnels, footways, footpaths and bridleways requires forward planning and design, monitoring and data collection, and all of the work involved in the management, enforcement and policing of the network. The constant search for means to contain costs and long-term liabilities continues to be a key objective for highway management.

Constraints on highway authority budgets for management and maintenance are prompting initiatives that might harness the energies and enthusiasm of local communities and private sector players to play a greater role. Localism, and the broad political consensus for greater public engagement in decision-making and control, is already changing the relationship between residents, interest groups, and local authorities. Neighbourhood planning, and the increasing engagement of town and parish councils in fund-raising for highway-related issues, presents both challenges and great opportunities for a review of policies, roles and responsibilities for highway management.

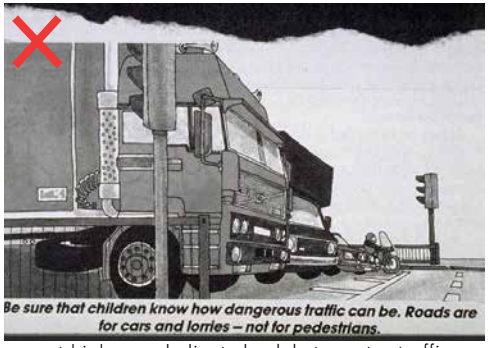
The South Downs near Fulking

CORE PRINCIPLES

In addition to numerous specific design and engineering policies, this overview highways guide for the South Downs National Park is based on four overriding principles. These principles should be considered fundamental to planning all investment and maintenance for every road type within, and approaching, the National Park, whenever resources and priorities permit.

- Maintaining a clear distinction between single-purpose, high-speed strategic routes, and the "public realm" associated with the mixed use, slower speed network. Careful co-ordination between highway authorities is needed to contain highway elements tightly within strategic route corridors
- A preferred "design speed" is a key starting point. Any adaptions and modifications to the public realm should begin with an understanding of the intended speed for vehicular traffic rather than maximum speed limits
- In place of standardised, "anywhere" road design, every element of the highway environment should aim to reinforce the distinctive context of its location within the National Park. Context-specific design lies at the heart of this guide
- Maximum engagement with local communities to capture local energies, knowledge and enthusiasm as resources allow

An integrated network serving a multitude of uses...



... not highways dedicated solely to motor traffic

Appropriate speeds defined by design elements...

...not based on excessive signing and enforcement

Context specific design to reinforce distinctiveness...

...avoiding standardised "anywhere" highway layouts

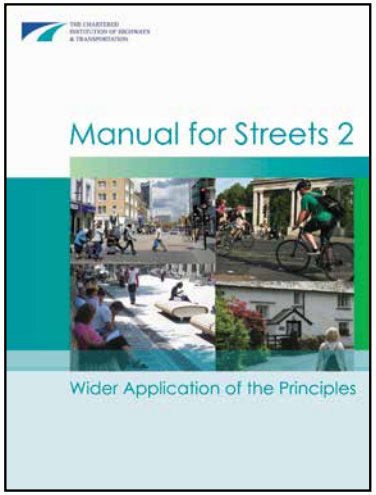
HIGHWAYS & THE PUBLIC REALM

Successful road design requires a clear distinction between two very different and contrasting components of the network. On one side, the National Park contains several strategic highways that form part of the UK's main transport network. These include the M3 motorway bordering the western end of the Park, with the A23, the A3, A24, A283 and A26 providing the main north-south routes. The A27 provides the key east-west route along the southern edge of the Park from Eastleigh to Brighton, and along the northern boundary from Brighton to Eastbourne. In addition, the A272 bisects the National Park from Winchester to Billingshurst.

Apart from where they run through the centre of settlements, such as in Petersfield, Rogate, Midhurst and Petworth, such major roads serve few other purposes than transport. Single purpose transport corridors may offer opportunities for practical measures to minimise the impact of such routes through quieter road surfaces, low-level lighting and drainage capable of encouraging wildlife through reed beds and holding ponds. Busy transport highways remain part of the National Park, and their design and treatment must take account of the National Park purposes.

By contrast, the vast majority of the road network serves a multitude of functions in addition to transport. Country roads, lanes, shopping and residential streets, promenades and access ways form the major component of the public realm – the public spaces where the life of a community exists. In these multi-purpose parts of the highway network, it is essential that the traffic environment is fully part of the context. Streets and lanes provide the foreground to buildings or the landscape, serve as places for encounters, interaction and exchange between people, and have to adapt to circumstances, events, times-of-day, and all the manifestations of human activity that define the public realm. Integrated highways have to accommodate endless variety of purposes, ranging from blackberry-picking to framing a child's first independent exploration of the world on a route to school or to the shops. A core principle for highway design and management in the South Downs National Park should be to integrate and accommodate the full spectrum of roles that rural highways serve.

A core principle of this guide should allow the existing minor road network, together with the busier routes, to reflect the key qualities of the National Park in contrast to the world of segregated highways. The two worlds are governed by very different national policy guidance: motorways and trunk roads are covered by *The Design Manual for Roads and Bridges* (DMRB), whilst the rest of the network of rural roads and town or village streets are covered by *Manual for Streets 1 & 2* (although LHAs are able to apply their own policies and interpretation of the Manual). Protecting the visual and environmental quality of the National Park will require constant care to both ameliorate the impact of major highways, and to avoid the characteristics of the high-speed, regulated world of segregated highways from leaching into the lower-speed, mixed use context. Establishing and maintaining clear boundaries and transitions between the two types of highway is a core principle for the South Downs National Park.



PREFERRED SPEEDS

Traffic speeds are fundamental in determining the character and quality of the highway network. Any given route through the National Park will consist of a combination of open road, built-up areas, junctions and features such as bridges, bends and gradients. Clarifying and fostering the appropriate speed for the particular context is a core principle.

The relationship between road safety and speed is well established. Similarly speeds critically influence the tendency to walk, bicycle and spend time in the public realm. For any route the transport benefits of speed have to be balanced against noise levels, emissions and higher maintenance costs.

The preferred speed along any route will seek to balance journey times with the multiple purposes of a road,street or place. This balance, along with priorities for intervention, can be analysed and understood by plotting preferred and actual speeds for any given route. Appendix 1 describes this in more detail.

Clarifying preferred speeds provides a means to balance the often comflicting demands for the highway network whenever scheme proposals come forward.

DIFFERING SPEED CONTEXTS

Low speed village centre - Bramber

Varied verges and tree canopy help slow speeds

Higher speed village centre - East Dean

Wide carriageways and highway infrastructure raise speeds

CONTEXT RESPONSE

Much of the appeal of the South Downs National Park lies in its remarkable variety, and the memorable and distinctive combination of landscapes and settlements. A core principle of this highway guidance centres on maximising the intrinsic connection between the design and configuration of the Park's highway network, and the unique characteristics of each context. By definition, this suggests an approach to engineering and design that is locally specific rather than standardised.

A context-specific approach to highway design for the National Park requires a significant change in the way in which schemes are prepared and developed. In the past, the Department for Transport and professional institutions have encouraged a consistent, standardised approach to highway design, arguing that uniformity improves clarity and driver confidence. Recent policy guidance, including *Manual for Streets 2*, has suggested that a more "place-based" approach to design is appropriate for mixed-use, integrated streets and spaces. Local distinctiveness, variety and contextual design also fits with a broader political shift towards localism and decentralised decision-making.

The core principles of identifying mixed streets and routes as distinct from dedicated highways, and of clarifying preferred speeds, lend themselves to the introduction of context-specific highway management. Introducing a distinctive element to design can help to engage drivers with the local circumstances, reduce speeds and improve safety. It also allows parish councils, neighbourhood groups and other local interest groups to contribute both energy and expertise to the management of the highway.

In practical terms, contextual design requires design teams to pay careful attention to the history, geography, geology and morphology of each particular place. Understanding why a settlement exists, its form and structure, can inform and guide engineering decisions. Some towns and villages have grown up around crossroads; some based around a river crossing or water source. Some places mark a defensive position or strategic high point; others are the result of land ownership patterns and the development of estates. Farming, forestry, natural resources and trade routes have all shaped settlement patterns. The aim of context-sensitive highway design is to reinforce our understanding of the built and natural environment and to enhance its legibility.

Context-specific design requires a close relationship between the streets and their adjacent buildings, reflecting the activities that buildings generate and their role as landmarks and reference points in the built environment. Any highway drawing should therefore pay particular attention to the role and location of buildings, and especially their doorways and entry-points. This is in contrast to conventional plans, which often show only the space within the highway boundary, with only faint outline of adjacent buildings and landscape. A clear conversation between buildings, landscape and streets is central to context-sensitive design.

The geology of the South Downs provides relatively few stones durable enough to be used for paving, apart from some Ironstone around the borders of Sussex and Kent. Historically a small outcrop of "Bethersden Marble" in the eastern end of the area was used, but generally the lack of easily available hard stones accounts for the widespread use of brick and fired clay paviours for footways and public squares. These are still widespread in places such as Alfriston, Eastbourne and Lewes. Retaining, repairing and respecting the historic paving patterns helps to reinforce the distinctive qualities of such settlements.

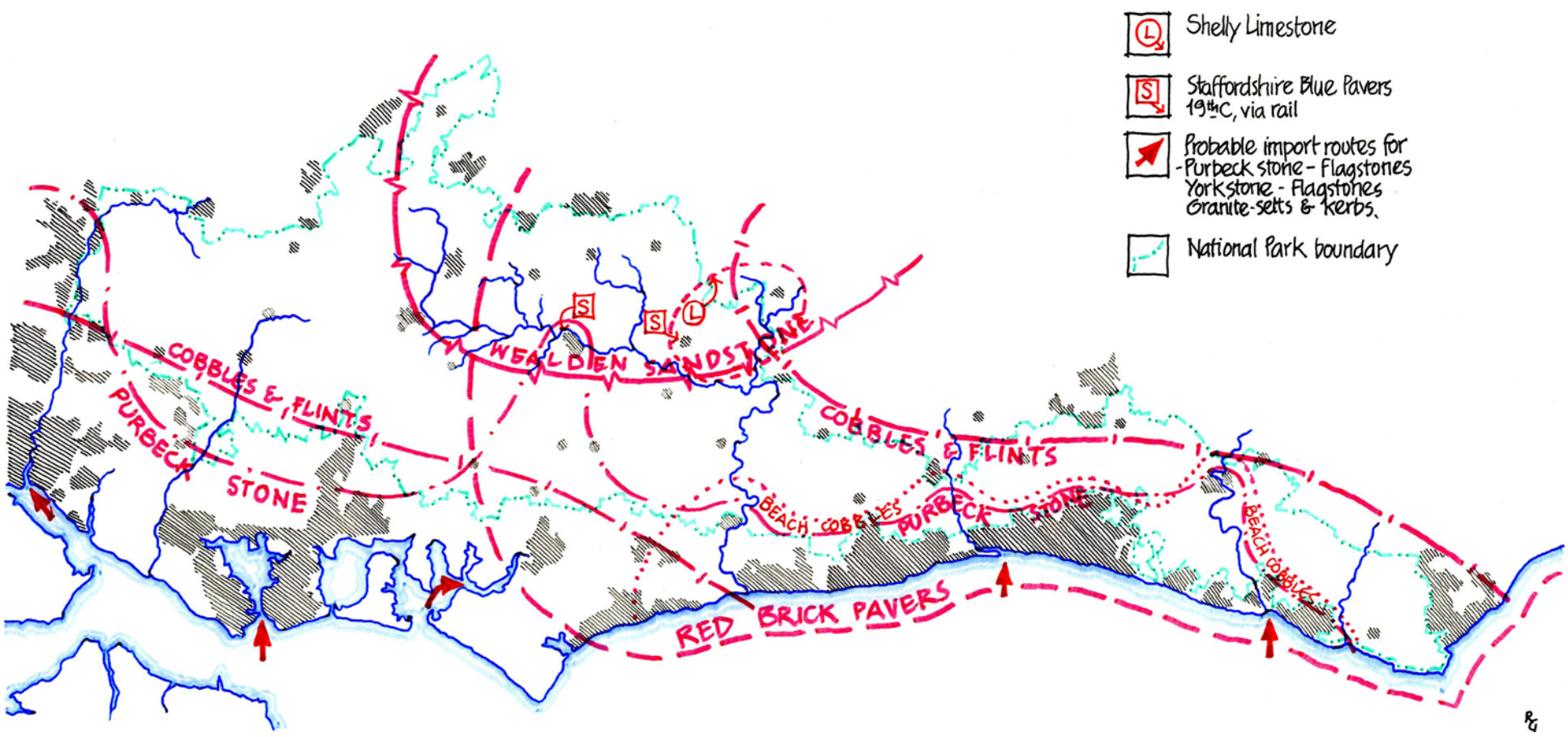
Likewise, a context-specific approach to highway management and maintenance means that everyone concerned with streets and roads has a clear understanding of the street furniture and everyday features that help to establish a sense of place.

Distinctive railings, bollards, street-signs, benches, pillar and post-boxes all contribute to the individual identity of a town or village, right down to manhole covers and gulley gratings. A village cross, drinking fountain or a war memorial are all critical to the definition of place, and their presence should help inform street design and provide cues to drivers. To achieve a fully integrated approach to highway design, every feature of the road environment can contribute to retaining and reinforcing the unique context and circumstances.

Distinctive brick footways - Alfriston, East Sussex

Roadside elements contributing to qualities of place and distinctiveness

A crossroads village - place qualities eroded by highway layout and markings



Sources of historic paving in the South Downs

LOCAL ENGAGEMENT

The fourth core principle for road design and management in the South Downs National Park builds on the growing enthusiasm, energy, and ability of local communities to engage with the quality and safety of their roads, streets and public spaces. The shift from standardized highway design towards a more contextual approach makes such engagement both practical and essential. The development of neighbourhood plans, and the increasing shift towards local decision making, reflects an important and growing underlying principle.

Whilst formal responsibility for the maintenance and operation of the highway remains with highway authorities, there are many critical areas whereby local knowledge, skills and creativity can form a vital component. The complexity of the built environment, the activities and patterns of movement generated, and the implications of speeds and traffic flows can only realistically be appreciated and understood at a local level. Local authority budgets increasingly limit the scope for larger highway organisations to gather information, identify and analyse issues and develop schemes in isolation. An increasing number of adaptions and modifications of rural roads and spaces are emerging from local initiatives, backed by local knowledge and ideas.

Such a change has implications for both design, communications and funding. Building local community capacity and confidence to engage with highways issues requires training, understanding and knowledge of what is possible and what can be effective. Well resourced meeting venues and methods of consensus-building are essential. Above all, local engagement requires a change in the working relationship between government and local communities to allow locally specific ideas and options to emerge.

Funding for interventions in the highway is more frequently assembled from multiple sources, both from a variety of public sources, developers and private contributions as well as voluntary agencies. Such fund assembly and the more complex associated project management calls for new skills at both local and authority levels. Increasing numbers of case studies allow for experience and models to be collated and distributed within the National Park.

The growing understanding of driver behaviour suggests that there are many ways in which driver expectations can be modified by small scale measures to enhance qualities of place that do not require heavy highway engineering, measures for which communities can take responsibility. The care and configuration of the surroundings to the highway, the painting and upkeep of railings, benches, verges, hedges and trees can all play an important role. Measures need not even be permanent; many communities have found that events, fairs and small-scale manifestations of human presence can have a surprisingly durable effect on traffic and driver interventions. Increasingly the design, management and maintenance of the rural highway involves allowing local pride and a sense of ownership of the rural public realm to be supported and encouraged.

PROTECTING AND ENHANCING THE HIGHWAY ENVIRONMENT

Certain elements in the landscape and in the built environment require particular attention in the South Downs National Park in order to achieve the long-term objective of fully integrated, context-responsive roads and streetscapes. Such elements can often lie outside, or indeed distant from, the formal highway boundary. Nevertheless, it is essential that particular care and consideration of such features is included in any highway design or maintenance programmes so that the key objectives of the National Park can be realised. The following section outlines a number of these key elements and their relevance.

LANDMARKS

In the broader landscape, towns and villages serve as the focal points for the highway network. Church spires, castles and major estates and houses have historically influenced the alignment and direction of routes, providing the landmarks and orientation points for roads and lanes. Similarly, significant trees can serve to mark junctions, focal points and key places around the highway network. Wherever possible the detailing of roads, especially at junctions and intersections, should respect and recognize the presence of such elements.

BRIDGES

The landscape of the South Downs National Park is drained by the river Rother running east-west, and by six rivers that bisect the Park from north to south. These are the Rivers Itchen (on the western border), Meon, Arun, Adur, Ouse and Cuckmere. These larger rivers are fed by numerous smaller streams and tributaries, each with a distinctive character. The highway bridges that cross these water courses serve as both transition points between different parts of the Park and as landmarks in their own right. Some of the bridges are medieval, some modern. Integrating the highway network with the landscape requires particular care and recognition of their particular character and historic role. Careful detailing and respect for bridges and fords is central to the integration of highways into the landscape.

BOUNDARIES

Roadside hedges, verges and planting play an important role in defining the character of the highway network. They form a critical frame for roads and routes, and help to determine the speed profile and character of the highway. In addition, such elements play an important part in creating ecological corridors and habitats, providing continuity and shelter. Careful pruning, maintaining variety, and encouraging diversity of trees and flowers all help to add richness to the story told by the travelling landscape. Community involvement and initiatives in the care and management of boundaries contributes to maintaining a distinctive sense of place.

Church spire as focal point for highway alignment - Tillington

Buildings and crossroads in combination - Ditchling

Bridges, sign and streets in unison - East Meon, Hampshire

A simple elegant arched bridge punctuates a road

Insensitive design and upkeep masks ancient bridge - Rogate

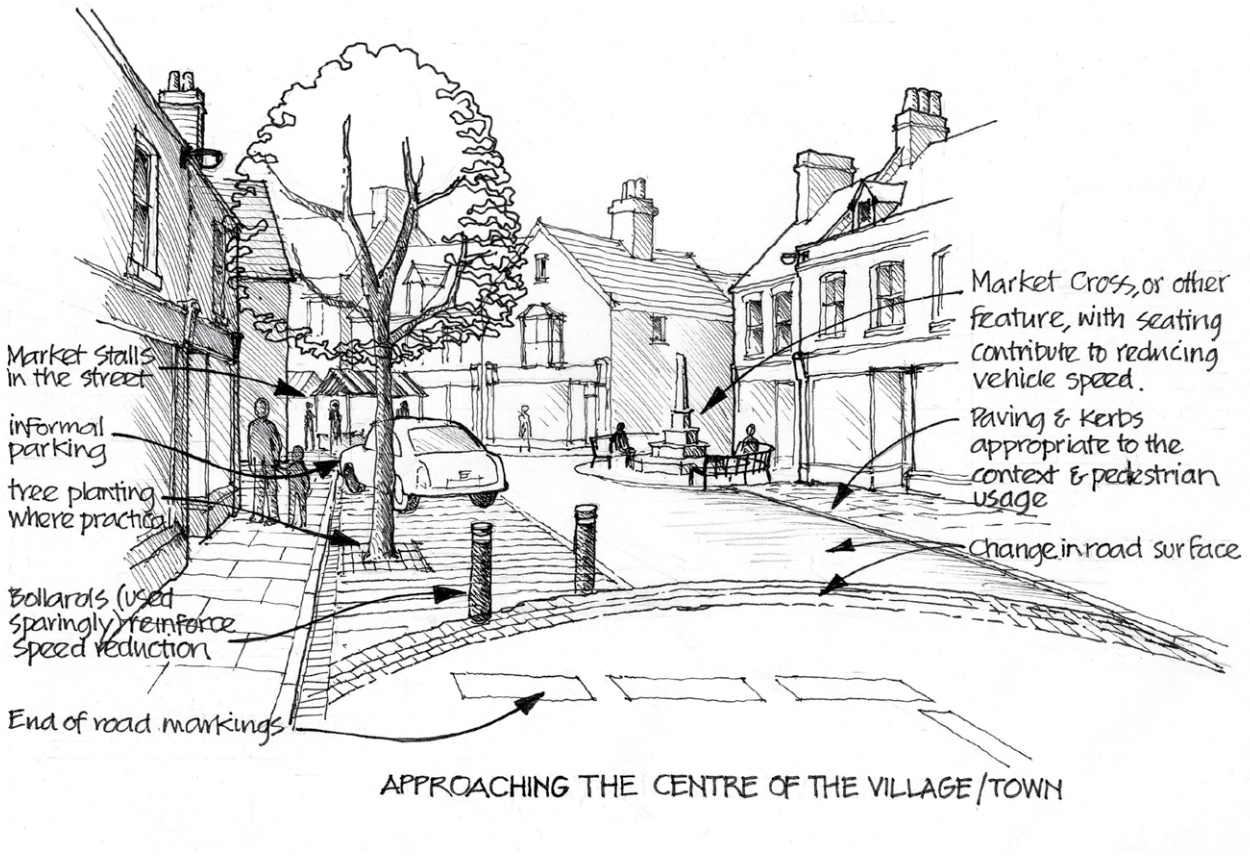
Bridge, church and highway combine to create place

STREETS AND ROADS IN TOWNS AND VILLAGES

The central tenet of this guide within the South Downs National Park is to ensure that highway design, management and maintenance protects and enhances the individual character of each settlement. The free-to-use shared identity for the National Park (see www.southdowns.gov.uk) provides one means to define individual character and position within the National Park context within appropriate signage and street furniture. In pursuit of this core objective of distinctiveness, certain elements require particular care and attention, elements which collectively provide the legibility and structure necessary for fully integrated highways. These include:-

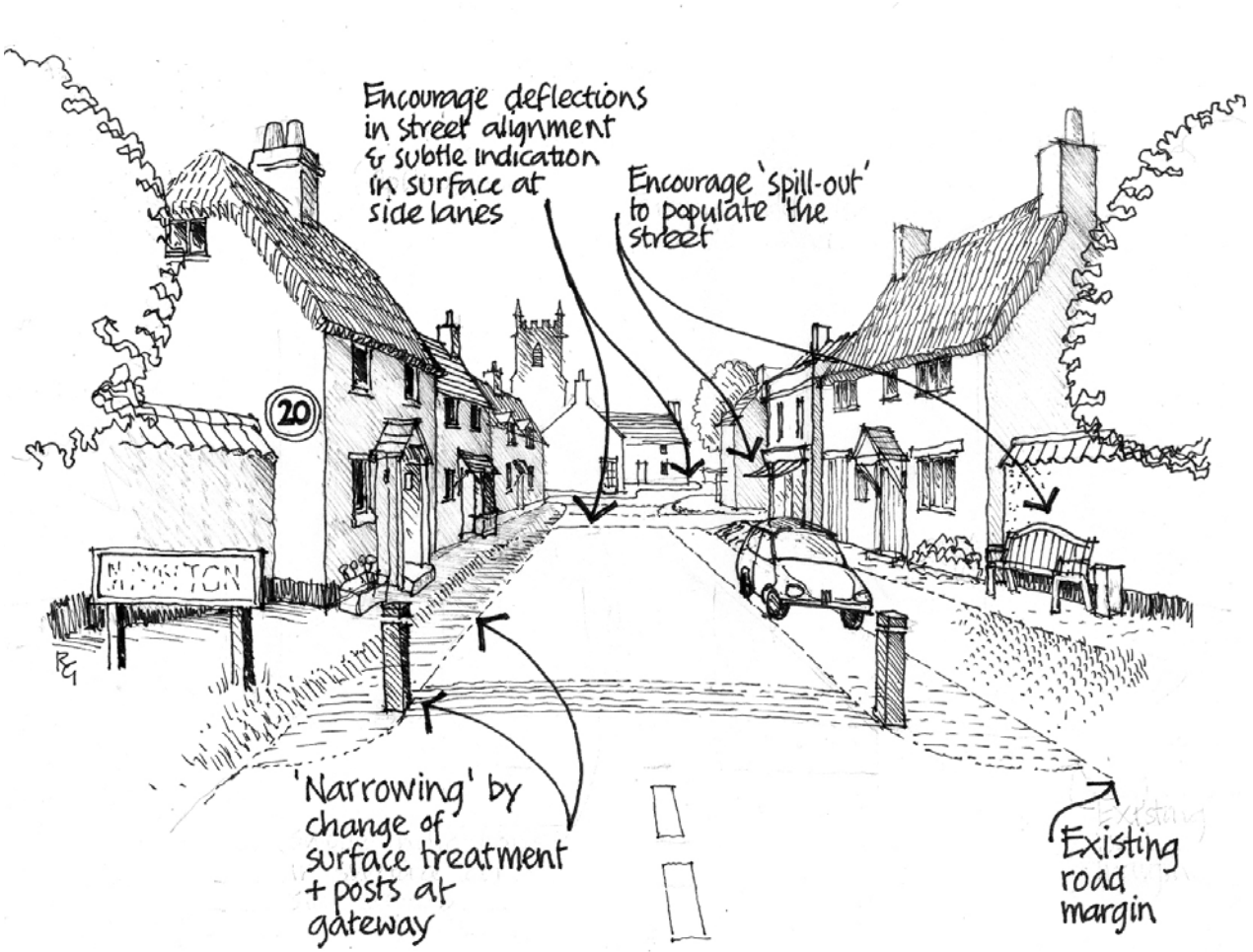
VILLAGE CENTRES

Wherever possible, highway measures should help define and reinforce the sense of a centre. Often the focal point of a village centre is already clear, defined by a village green or the church or some other principle building. In some linear settlements, the identity of the centre is not so clear and may need additional definition through paving, planting or the positioning of street furniture. Excessive clutter and highway paraphernalia can erode the definition of a village centre.



ENTRY POINTS

The boundary of a town or village is of critical importance for highway design. The SDNPA is gradually adding a sense of place to such entrances. Although every place is different, the point of entry and exit marks a key transition between road and public space, helping to inform drivers of a change in priorities. Highway signs and nameplates can be positioned to reinforce the messages given by the buildings and boundaries. Road markings end at such boundaries, and every opportunity should be taken to emphasize a change in scale and context.



JUNCTIONS & SECONDARY SPACES

In larger villages and towns, it is helpful for the highway environment to emphasize a number of spaces around the centre. These may consist of intersections with minor roads, or may reflect important spaces fronting significant buildings. Kerbs, paving and planting can combine to add legibility to such secondary spaces, and to break down the linearity of the highway, perhaps reflecting the presence of church, schools, a pub, a bus stop, a village hall, shop or some other focal point.

Simple highway place-making - West Meon, Hampshire

Place qualities eroded by road markings - Petworth

CHURCHES

The parish church is often the principal building in a village, and a focal point for gatherings, weddings, funerals and celebrations. It is essential that any future highway design takes account of this role, and reflects the pedestrian flows to and from the entrances to the churchyard. Often the lych gate presents a significant roadside presence, and may require space for a wedding car or hearse.

Church and high street combine - St. Armel, France

Sensitive highway treatment - Buriton, Hampshire

VILLAGE HALLS

A similar role is often played by the buildings such as village halls that provide meeting and performance spaces. Like churches, such buildings are important "attractors" for vehicular and pedestrian movement, and the streetscape can help highlight their presence and significance.

The village hall opposite local shops could combine with highway design to slow traffic through place-making

Use of unified paving to create simple place outside village hall

SCHOOLS

The space outside school gates and entrances serves as a vital gathering place for any community. A key destination and mental landmark for children, the streetspace outside the school frames the meeting and greeting of parents, children and teachers. Driver awareness is especially critical at such points, and the highway design can reflect the special role of school fronts. All too often, highway signs and markings combined with security measures can turn such important community spaces into hostile and uninviting environments.

School playground open to village street - Netherlands

Signs and fences divide school from village life

PUBS & HOTELS

The village pub is a quintessential element of the village, and the South Downs National Park hosts many of the best-loved and cherished examples of hostelries. The highway should aim to accommodate and promote the presence and activity of pubs and inns, allowing space for tables and gathering wherever feasible and appropriately licenced. Pub signs, parking provision and pedestrian routes play important roles in helping to integrate highway design with the presence of public houses.

Pub sign and planting contribute to place - Bramber

Historic pub fronting highway - Alfriston

SHOPS

Village shops and post offices are under increasing economic pressure in competition with larger, out-of-town stores and the growth of the internet. Highway design can play a critical role in helping to maximise the trading opportunities of smaller shops. Careful positioning of short-term parking, providing space for spill-out and external displays, and ensuring that shop fronts remain as visible and accessible as possible are critical factors for highway design around such important places.

Village shop and post office - Selborne, Hampshire

Village shop and post office - Alfriston

MONUMENTS, STATUES & WAR MEMORIALS

Alongside major trees, man-made focal points are often opportunities for place-making. Minor modifications to highway features and the avoidance of insensitive road markings can help highlight the presence and significance of special local features, which make the town or village streetscape distinctive and memorable.

John Ruskin Memorial Fountain - Fulking

Tree outside the Hollist Arms - Lodsworth

VILLAGE SQUARES, VILLAGE GREENS & WATER FEATURES

The relationship between the principal spaces of a settlement and the highway calls for particular care. Where a village green serves as a cricket pitch or outdoor space for fetes and events, it is important that the carriageway remains visually and psychologically subservient to the quality of the overall space. The detailing of verges, kerbs and road widths requires special care in such contexts. Where a village pond or water feature forms part of the village character, there may be opportunities for creativity in highlighting such locations.

Lurgashall Village Green and Cricket Field

Tree and village pond - East Dean, West Sussex

ROADSIDE FURNITURE

A myriad of small scale features combine to significantly influence the quality and attractiveness of the rural highway environment, providing significant cues to drivers about traffic speeds and other hazards. Although seemingly insignificant in isolation, the furniture and features of the roadside, such as bins, bollards and railings need careful consideration. It is important that all such features are recorded and audited, and that as much redundant or inappropriate clutter as possible is removed.

DIRECTIONAL SIGNS

The form and size of directional signs are important determinants of traffic speeds. Large motorway signs are designed to be read at high speeds, and can encourage drivers to expect such speeds. By contrast, traditional finger-posts are designed to be read and understood at trotting speeds, establishing the context of the route. Resisting the tendency for signs sized for motorways and trunk roads to spread out into adjacent rural routes is important for highway authorities, especially at the interface between the responsibilities of Highways England and local highway authorities.

Large highway signs indicate high speed context

Finger posts contribute to low speed environment

STREET LIGHTING

Highway lighting is the primary reason for the loss of dark skies in the countryside, and the need to minimise the use of high-level illumination is especially critical for a National Park. Away from major urban areas and trunk roads, street lighting can be localised and modest. It is especially important that any highway lighting is designed to reflect the mixed-use, pedestrian-focused scale of built-up areas, in contrast to the standard high-level lighting columns. Lighting that serves to highlight key places and buildings should form part of an integrated approach to highway design.


Shop fronts and sensitive low height lighting - Denmark

Building mounted lighting illuminate context - Devizes

ROAD DETAILS

The promotion of context-specific, integrated streetscapes in the South Downs National Park creates opportunities to simplify and soften many conventional highway elements. The promotion of lower speeds permits the possible omission of many expensive features associated with segregated and high-speed roads. These include crash-barriers, traffic signals, pedestrian guardrails, anti-skid surfacing and physical traffic-calming features such as road humps, chicanes and excessive signs.

Oversized chevron signing promote speeds - Rogate

Excessive highway signing and lining - B 2116

ROADSIDE FURNITURE

The quality and character of the National Park highway environment is defined by the care and attention given to every roadside detail. Telephone boxes, letter boxes, milestones, walls, fences and railings, seats and benches all combine to define the nature of place. The design, maintenance and careful location of mundane highway elements such as grit and litter bins, bus stops and shelters, and street nameplates all offer opportunities to distinguish the South Downs National Park from other parts of the country. Such elements are best cared for and maintained by local communities, and the National Park aims to encourage creativity and local responsiveness to counter the usual municipality of such details.


Village green, and roadside elements - Lurgarshall


Valuable roadside furniture and signs define character

PAVING & SURFACES

Whilst asphalt and tarmacadam will remain the predominant surface material for highways in the National Park, there are opportunities for local aggregates and chippings to articulate key spaces and to reflect local characteristics. Setts and cobbles are only appropriate to low-speed roads and streets, but they will continue to provide a distinctive component of many historic towns and villages. The careful use of small areas of setts may be appropriate to help define informal places and parking bays, and the skills required to lay them correctly and minimise maintenance will need to be actively promoted.

Distinctive street paving - Midhurst

Simple setts deployed as kerb - Selborne

ROAD EDGES

Narrow lanes and soft verges tend to suffer as vehicles become wider and traffic volumes increase. New techniques for reinforcing grass verges are emerging, and will be particularly relevant for highways in National Parks. Wherever possible, standard high concrete kerbs should be avoided in favour of carriageway edges that allow vergeside grasses and plants to blur the edges of rural roads. The excessive use of bollards to protect verges should be avoided, and other types of street furniture (such as benches, seats, bicycle stands and tree guards) can be deployed where ownership allows.

Damaged verge from poor edge detailing

Reinforced grass paving forms soft verge - Buriton

PARKING CONTROLS

Yellow line parking controls represent a significant intrusion of highway elements into the rural environment. Towns such as Petersfield have successfully introduced "Restricted Parking Zones" (RPZ's) as a means to avoid their use, and to design parking spaces into the overall streetscape. The use of RPZ's for towns and villages should be extended wherever possible as a more appropriate basis for parking management in the South Downs National Park, allowing the selection and design of on-street parking spaces to be integrated into the overall streetscape. The gradual reduction of yellow lines and number of highway signs could become a notable characteristic of the National Park.

Intrusive road markings - Midhurst

No yellow lines. An RPZ in Petersfield

ROAD MARKINGS

Whilst beneficial for higher speed elements of the highway network, centre line road markings, separators, and priority junction markings can be minimised in the low-speed context of towns and villages within the South Downs National Park. Recent research and pilot schemes such as West Meon in Hampshire have demonstrated the benefits in speed reduction from omitting centre lines. The absence of road markings can significantly reduce the linearity of rural roads and streets and emphasize their spatial context

Excessive markings and clutter - Petworth

The A272 without markings - West Sussex

CAR PARKS & ROADSIDE AREAS

The management and signing of waste collection areas and car parks often present the least attractive elements of villages and visitor attractions. Car parks so often determine the first impression for visitors, and it is easy for lack of co-ordination and care to generate environments sharply at odds with the principles of the National Park. The same level of care afforded to historic streets should be extended to such mundane, but essential, components of the built environment. Avoiding and removing excessive signage, giving careful attention to entrances and boundaries and applying creativity to the secondary public spaces that serve visitors should remain an important theme for highway management in the South Downs National Park.

Unofficial temporary signs quickly disfigure roadsides. Such temporary signs tend to become permanent fixtures. Sponsored roundabout signs, brown tourist signs, and signs to new development can multiply along with advertising banners, temporary signs advertising local events, special occasion announcements and flyers. The erection of such signs is covered by legislation. Highway authorities, district councils and the SDNPA will work to remove illegal notices promptly and encourage minimal signage clutter.

A municipal welcome in Midhurst, West Sussex

Signs and prohibitions add excessive clutter

Poor sign management - Alfriston


A utilitarian car park - Jevington, East Sussex


Hatching really necessary? (Pembroke Coast NP)

Informal signage

IMPLEMENTATION

Maintaining, adapting and protecting the quality of the highway network in line with this guide will be a continuous process over many years. For some villages, such as Rogate and Selborne in the west of the National Park, and Alfriston and Jevington in the east, measures to protect the fabric and quality of the settlements are urgently required. For other parts of the Park, an integrated approach to highway design will help minimise, and reverse, the gradual erosion and suburbanisation of the public realm. Whatever the timescale, three key factors are necessary in order to implement the principles contained in this guide.

POLITICAL CHAMPIONS

The quality and priorities for the management of the public realm is, ultimately, a political and not a technical question. Recognizing the need for change, and overcoming the natural resistance to such change, requires determined and creative leadership. For an extended and diverse area such as the South Downs National Park, maintaining consistency of political vision over many years requires the formation of a broad, long-term consensus. Consistent integrated highway design requires the alignment of all four relevant local highway authorities, together with district councils as well as the numerous parish and town councils concerned. Such political leadership may ultimately be the most critical factor governing the quality and consistency of highway design. Clear communication, feedback, discussions and reviews will be necessary to support the implementation of a long-term vision for the highways of the South Downs National Park, a vision and set of principles that can be shared by staff in the National Park Authority, by officers serving the highway and district authorities, by councillors and advisors, by consultants and contractors, by parish and town councils, by volunteers and by all those who commit time and energy to pursuing the long-term objectives of the National Park.

TRAINING & SKILLS

Increasing numbers of transport planners, landscape architects and highway engineers have been trained to apply the combination of skills required to create fully integrated highways. Good street design and road engineering is not easy! A combination of historical, geographical and geological knowledge combined with three-dimensional design awareness, knowledge of materials and structure, together with an understanding of behavioural psychology sets a demanding job specification. As techniques, materials and our understanding of highway design change, there is a continuing need to train and gather the skills required for successful place-making, low-speed design and urban quality. Such skills can be learnt, but it takes time and commitment to ensure that all the relevant highway authorities and their partners can absorb and apply the principles, and to ensure that these skills are passed on as personnel change.

ORGANISATIONAL STRUCTURE

Streets and roads are complex places. The skills necessary to design, manage and maintain multi-purpose spaces and movement corridors are rarely combined in one team or department. Experience and knowledge usually has to be assembled from many quarters, public and private. In the South Downs National Park, apart from Brighton & Hove Unitary Authority, responsibilities for the public realm are split between district councils and county councils. Town and parish councils along with local neighbourhood groups are playing an increasingly important role in initiating and steering highway measures. Successful integrated streetscapes require fully integrated teams. Bringing such teams together and overcoming internal divisions within and across organisations poses daunting challenges for senior management, to bring together effective teams to deliver schemes consistent with the objectives of the National Park.

CASE STUDIES: CREATING A CLEAR VILLAGE ENTRANCE

BURITON, HAMPSHIRE

Buriton lies close to the busy A3 near Petersfield. Over the years, highway clutter of signs and road markings accumulated, eroding the village's identity and giving the wrong cues to drivers. This led to increasing speeds, and reduced confidence in walking and cycling.

An overall plan to address these concerns was commissioned by the Parish Council. They then initiated a sequence of small-scale schemes to emphasise the historic qualities of the village. These included the space alongside the church, the duck pond, and the village pub. The village entrances were carefully redefined to signal the boundaries of the highway environment. Road markings, signs and barriers were removed, and a robust palette of paving materials used to reduce speeds and to highlight key spaces..

Funding came from a variety of sources,. Existing highway improvement funds were redirected, and supplemented by the forerunner authority of the National Park, the District Council and the Parish Council. Developer contributions played a significant role. Local supervision and simplification of scheme details allowed costs to be reduced, with much voluntary input to project management and quality control.

AFTER

BEFORE

The redesign of the entry points into Buriton combines simple signing, planting and materials to signal the boundary of the village at the point where drivers encounter the first significant building. All unnecessary road markings and signage were removed, and replaced using a simple combination of paving surfaces.

CASE STUDIES: REMOVING LINES AND SIGNS

WEST MEON, HAMPSHIRE

Inappropriate traffic speeds can split villages and reduce the value of local facilities. Hampshire County Council and the local parish council developed a series of measures to slow traffic to a more appropriate speed. These included clear entry treatments, simple placemaking at key locations and the removal of highway measures such as white lines, signs and chevrons.

The Parish Council played a lead role in building understanding and consensus for the measures, providing Hampshire with a pilot project to test their effectiveness. Public space blends seamlessly with the highway, giving clear cues to passing drivers about the village context.

Although modest in scale, the interventions succeeded in reducing traffic speeds by 3-4 mph, sufficient to reduce the severity of accidents and to improve pedestrian confidence and mobility in the village. The case study illustrates how resurfacing as part of a standard highway maintenance programme can be modified to shift priorities to the specific context in order to lower speeds, and clearly define the transition between highway and village.

AFTER

BEFORE

In the centre of West Meon the white lines and chevrons were removed. These highway measures encourage inappropriate expectations in drivers , who see no difference between the highway and the public realm. Their removal gives clear signals that drivers are now part of the village context. The change in surfacing creates a defined centre for West Meon.

CASE STUDIES: DEFINING THE CENTRE OF A VILLAGE

SELBORNE

New housing development, and the resulting growth in traffic volumes, places particular pressure on the South Downs National Park. Left unchecked, such pressure can rapidly erode the integrity and quality of historic settlements and undermine the shops and pubs at the heart of the rural economy.

Selborne shows how a parish council can offer additional resources to the local authorities by exploring and developing a consensus for addressing such problems. Selborne Parish Council commissioned an area-wide study of the three villages of Oakhanger, Blackmoor and Selborne to re-establish and strengthen the identity and definition of the settlements and the rural nature of their local lanes.

Rather than focus on more signs or hard engineering, the schemes draw on the history and character of the villages to reinforce the contrast with the nearby highways. Reduced visual widths and place-making are used to achieve the preferred speeds of 17-18 mph, and particular attention is paid to school entrances, village halls, shop frontages and village greens. Developer contributions combined with multiple funding sources are central to the long-term implementation

AFTER

BEFORE

Proposal to create a simple village square at the heart of Selborne, centring on the village hall, pub and local shops. Additional place making at landmark buildings either side of the square, combined with visual narrowing, slows approaching traffic and allows human activity to reassert an influence on the busy through route.

CASE STUDIES: PLACE MAKING TO MARK A SCHOOL ENTRANCE

ROGATE, WEST SUSSEX

Only a few historic settlements in the South Downs straddle a busy strategic route. Rogate is one such crossroads village, and its ancient fabric is heavily damaged by heavy and fast-moving traffic on the A272. The proposals drawn up by the Parish Council for their Neighbourhood Plan address the balance between the needs of traffic and the special circumstances of a village and its residents.

At present the road sweeps past the unnoticed primary school entrance, and speeds are high. The proposals aim to create a significant place outside the school, to draw drivers attention to the likely presence of children. Similar measures are proposed for other key buildings and landmarks.

Other proposals to slow speeds include clear entry points to the village and reducing the visual width of the road through edge strips and defined parking bays. Courtesy crossings highlight the main pedestrian routes through the village, linking the church to its cemetery, and the residential areas to the school.

The proposals form part of the Neighbourhood Plan for the village, which will allow highway modifications to become an integral part of any future development proposals. Phased implementation of the measures will be carried out as opportunities arise.

AFTER

BEFORE

Place making outside the primary school in Rogate to promote slower speeds. Drivers perceptions of the road as a continuous sweeping curve are transformed by apparent road narrowing and the creation of an identifiable place to interrupt the bend. The school entrance marks one end of the village centre.

CASE STUDIES: PLACE MAKING TO HIGHLIGHT VILLAGE CONTEXT

JEVINGTON, EAST SUSSEX

Drivers take their cues for speed from their perception of the road ahead. Over time, the presence of village life can disappear from rural roads especially within long-drawn-out fragmented villages. Jevington, on the edge of Eastbourne, is one example where traffic dominance and speed has increasingly driven human activity away from the road to the extent where the village struggles to maintain its internal connections and identity.

Jevington offers an example of how local initiative can help restore the presence of a place to address such an imbalance. The parish council raised sufficient funds to prepare a long-term vision for the village. This builds on detailed measurements and analysis carried out by volunteers to identify key places where small-scale interventions could be effective. These include the former village pond, the pub forecourt, the village hall, and the point at which the village is crossed by the South Downs Long Distance Footpath. Every opportunity is taken to accentuate the relationship between the role of the road as an integral part of the village, and to animate the route with signs of human activity.

Jevington's plan envisages a sequence of spaces punctuating the road through the extended village, which will re-establish the presence of a village context in the driver's perception. This example marks the junction with a green lane, creating an informal courtyard framed by buildings at the entrance to the village.

APPENDIX ONE

PREFERRED SPEED ANALYSIS

A fundamental principle of good highway design is to establish and clarify the appropriate speed for vehicles on any given stretch of road. The aspirational speed provides the foundation for every subsequent decision relating to highway design. Carriageway widths, verge details, sight lines and the geometry of junctions, crossing arrangements, surface materials, signing, road markings, lighting and street furniture are all dependent on, and help to establish, the preferred speed. The concept of the preferred speed should not be confused with speed limits. The latter may be necessary to reinforce the preferred speed, and it is important that, as far as possible, design speeds and speed limits are consistent. This is not always practical within the limitations of legislation: for example, some narrow winding lanes have a design speed of 15-20 mph, but may be still subject to the standard national limit of 60 mph.

The relationship between speed and journey times is surprisingly complex. In urban areas, journey times are largely determined by the efficiency of intersections. Since intersections tend to work more efficiently at lower speeds, journey times can improve through introducing lower design speeds. For long, uninterrupted routes between settlements, higher speeds may be more significant in reducing journey times. For much of the highway network, the design speed has been determined less by conscious policy decisions and more by historical accident and gradual small-scale modifications over time in response to rising traffic levels.

Traffic speeds are fundamental to determining the character and priorities of the highway network. The relationship between road safety and speed is well established. Similarly the effect of speed on pedestrian comfort and the willingness of people to bicycle, walk or spend time in and around the road environment has been well documented. Likewise, the benefits of speed for transport have to be balanced with the disbenefits of higher noise levels and emissions and significantly greater wear-and-tear and maintenance costs.

Less quantifiable, but equally significant, speed of traffic can influence the extent of activity in the public realm. The presence, or absence, of such activity in turn influences drivers' choice of speed. Higher speeds discourage day-to-day presence of people in streets and on rural roads, and tends to direct life away from the public realm towards private gardens and protected spaces. As life retreats from streets, speeds increase. A vicious cycle can thus be set in motion, which can reduce the liveability and economic vitality of towns and villages, and erode the essential qualities of an area such as the National Park.

This guide sketches out a basic methodology for assessing and reviewing preferred speeds for any given route. By comparing aspirational speeds through a variety of typical environments and locations, and comparing these with the resulting journey times, it is possible to make rational decisions to take account of political and social priorities, and to inform subsequent policies and highway design. So a route that runs through relatively featureless landscape might have a preferred speed of, say 45-50 mph, but this might be closer to 15-20 mph through a village, or where the route crosses a narrow bridge or meets a junction. Having agreed the preferred speed profile of a route, analysis of typical existing traffic speeds can be added. Where significant gaps exist between current and preferred speeds, the priorities for modifications or interventions can be identified. The diagram on Page 41 illustrates the principle.

The analysis of preferred design speed can help inform the management and maintenance of any given route, and is relevant for existing as well as for any new highway construction. Although comprehensive adaptions to the highway network may happen slowly over many years, an understanding of observed and preferred speeds provides a systematic tool to identify priorities and adapt the highway environment to match the particular context and circumstances of any given road, lane or village centre.

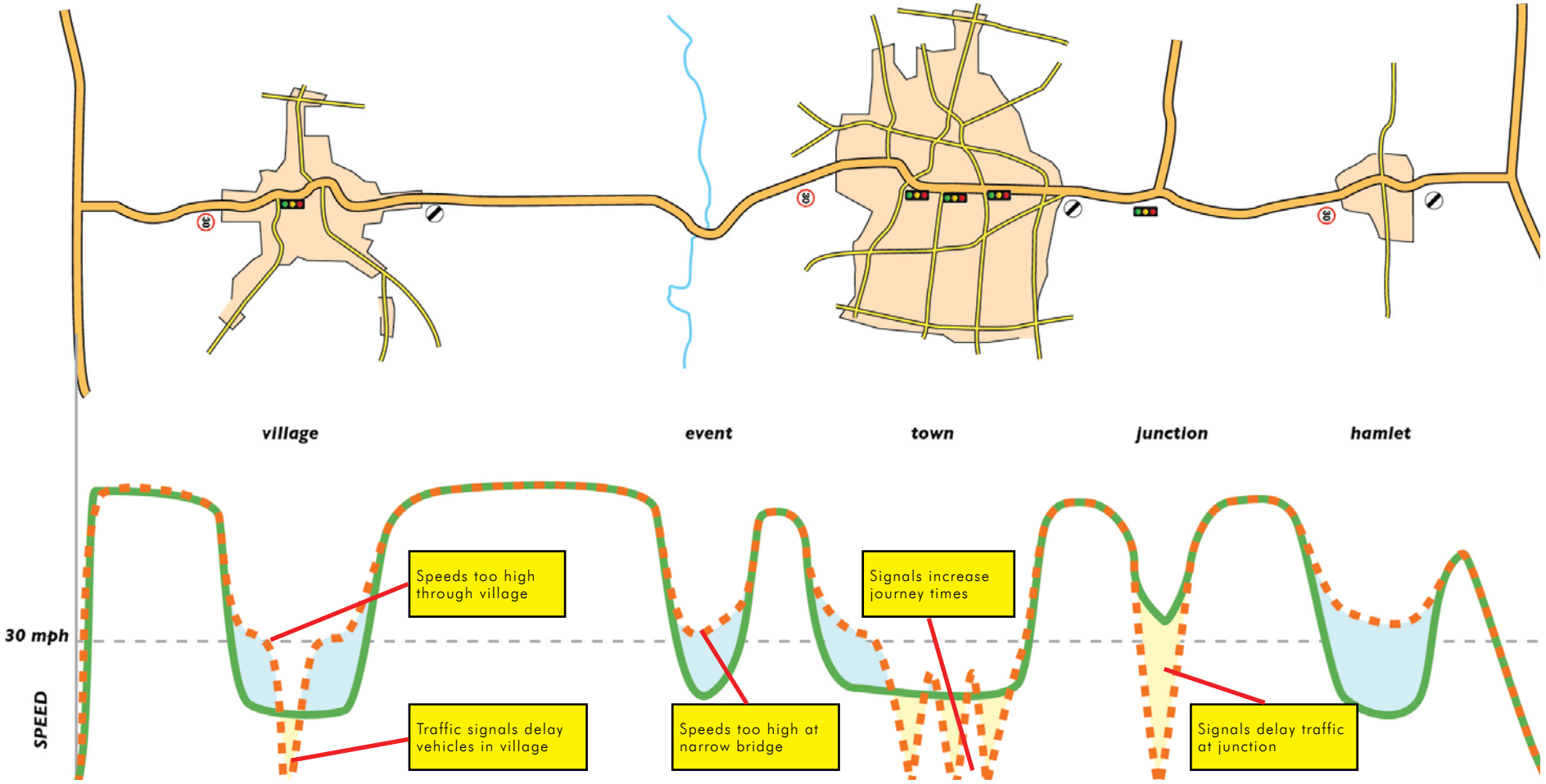
APPENDIX ONE

PREFERRED SPEED ANALYSIS EXAMPLE

Any given route through the National Park will consist of a combination of open road, built-up areas, intersections and features such as bridges, bends or gradients.

The ideal speed for traffic on a route will balance journey times with the other purposes of a road, street or place. The preferred balance can be plotted out - the green line below.

By plotting the actual average speeds - the broken orange line - the disparity between existing and preferred can be illustrated, and the areas for priority intervention identified.



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