

Residential Street Design and Play

A literature review of policy, guidance and research on residential street design and its influence on children's independent outdoor activity



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About the author

Helen Forman is an architect who has spent the last 15 years working in the housing field, both public and private, and is fascinated by the link between housing design and community cohesion. She has been a Playing Out 'area activator' for 5 years, holding regular street play sessions in her own street in Leeds and encouraging others to do the same, to allow children the freedom and fun that it brings. Playing Out and Helen wanted to find out more about the kind of urban fabric that would need to exist to allow children more access to that freedom – to literally 'remove the barriers' and move towards an environment of independent mobility and play. This piece of work is one step in that journey.

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Introduction

Children are disappearing from our outdoor environment, with harmful consequences for their physical, social and mental well-being. There is a growing body of evidence showing that over the last 40-50 years, there has been an alarming reduction of children's independent outdoor activity.

In 2010, only 25% of English primary school children were allowed to travel home from school alone in 2010 compared with 86% in 1971 (Shaw, et al., 2013). 71% of adults played out in the street or neighbourhood as children, compared to only 21% of children today (Lacey, 2007).

The decline in children's physical fitness over the last few decades is well documented. Between 1975 and 2000, the percentage of overweight children in England increased from less than 10% to over 20% (Government Office for Science, 2007). Obesity is currently doubling during the primary school years, with 20% of children diagnosed as obese when they leave (HSCIC, 2015).

The ongoing PEACH project, conducted by Bristol University, has already revealed that higher activity is associated with time spent outdoors (University of Bristol, 2016), and there are also many studies showing that children's play and independent access to the outdoors is beneficial to their social and mental development. The report 'A World Without Play' (Play England, 2012), summarised the evidence well and advocated '*greater emphasis in planning and housing redevelopment on the preservation of good-quality public space, where children feel safe and where they can congregate and play*'. The Policy Studies Institute has carried out a number of studies into independent mobility showing its negative impact on children's health (Shaw, et al., 2015).

During the last 50 years, the number of cars in the UK has almost doubled from 19 million in 1971 (RAC, 2008) to 36 million in 2015 (DfT, 2015), and the danger of traffic is most often cited as the reason why children's independent outdoor activity has decreased so dramatically. Volume and speed of traffic have been shown to impact negatively on community street life, not just due to safety issues but also the pollution and noise which can make the space outside our homes a hostile environment.

This review, commissioned by Playing Out, sets out to study the extent to which residential street design can provide an environment that encourages children's outdoor activity. It examines existing research, policy and guidance on this subject. It considers the way children play in their local neighbourhood and whether both retro-fitted and new-build street treatments and layouts have influenced opportunities for play and independent mobility. It considers some of the barriers to developers to designing a more play-friendly environment, and makes some recommendations for further action, to try to begin to answer the question:

What needs to be done to ensure that our new residential developments facilitate children's outdoor activity and enable them to benefit from the increased health, freedom and confidence that it offers?

The nature of children's outdoor activity

To understand how to design for children's outdoor activity, it is important to look at existing residential environments and observe how layout and design influences play. The most substantial piece of research on children's outdoor activity during the last 20 years is the 1997 Whewey and Millward study of play on twelve housing estates across the UK '*Child's Play: Facilitating Play on Housing Estates*', which gives valuable insights into children's independent play. Other research has followed in more recent years, including Biddulph's useful observational 2011 study of ten housing developments '*The impact of innovative designs on activity in residential streets*', and a number of impact assessments of Home Zones in the early 2000s. Findings from the research reviewed indicate that the following factors are influential in the popularity and duration of children's play:

1. Proximity to the home

Whewey and Millward (1997) found that roads and pavements close to housing were the most popular locations for play (46% of all observations), which reinforced findings from an earlier study (DoE, 1973), despite the considerable increase in traffic during that time. Children preferred to play 'where they could see and be seen' – in open view of houses rather than in more hidden areas. While their range increased with age, there still appeared to be a strong desire, both for security and convenience, to stay relatively close to the home. Residential streets were again identified as the most valued play space outside the home in a series of interviews with children in Wrexham (Barclay & Tawil, 2013).

2. Social contact

Locations where there are strong possibilities of interaction with other people have been found to be more popular for play (Whewey & Millward, *Child's Play: Facilitating play on housing estates*, 1997). Observations and interviews from this study showed that children want to be where they are likely to meet up with their friends, for instance on a front wall or street corner. Back gardens were much less popular than front gardens. Biddulph (2011) also found that the majority of children observed outside were socialising with others, with very few playing out on their own.

3. Accessibility of key destinations

Whewey and Millward found that the predominant activity for children was 'going', i.e. walking, cycling or occasionally roller skating, purposefully in a definite direction. Children visited key locations in their neighbourhood, such as friends' houses, shops and play areas, but did not stay long (Whewey & Millward, *Child's Play: Facilitating play on housing estates*, 1997). A study of independent mobility found that friends' homes, shops, play areas were the most common destinations for children when unsupervised, with the second most popular activity simply walking or cycling around (Shaw, et al., 2015). The Wrexham research showed that children valued playing in a broad range of places and that safe routes to those places improved their satisfaction with opportunities for play (Barclay & Tawil, 2013). The importance of safe access to shops, parks and other places of social interaction has been discussed in many studies of children's independent mobility, and it has been suggested that it has often been overlooked in the design of cities (Carroll, Witten, Kearns, & Donovan, 2015).

4. The range of play opportunities

A study found that a greater variety of places stimulates a higher level of outdoor play (Whewey & Millward, *Child's Play: Facilitating play on housing estates*, 1997). This finding is reinforced by the Wrexham research which found that children value having access to a variety of spaces in which they

can have different types of play experiences (Barclay & Tawil, 2013). In addition, this study found that potential conflicts between community members were more easily avoided where there was a broader range of spaces available to children.

5. Traffic

Both traffic speed and volume have been found to have an effect on how streets are used. Appleyard's study of three similar streets in San Francisco showed that residents' quality of life was measurably affected by the volume of traffic in the street (Appleyard, 1981). Those living on a light-trafficked street knew more of their neighbours, felt a greater sense of belonging and were more familiar with its physical features. The study was replicated on residential streets in Bristol in 2011 and the findings resonated strongly with Appleyard's (Hart & Parkhurst, 2011).

Wheway and Millward (1997) concluded that the speed of traffic was a factor in the social function of the street. Biddulph (2011) found the same to be true - of the streets studied, the two with the highest traffic speeds (18-20mph) also had amongst the lowest levels of observed play. He concluded that it was the combination of low traffic speed and low volume (32 cars during the busiest hour in the streets observed) that led to the most play.

Residential street design that influences play

Research indicates that there are a number of street types that appear to facilitate play to some degree. The more commonly cited are discussed below:

1. Home Zones

The history of Home Zones can be traced to the 1960s. The Buchanan Report 'Traffic in Towns', written as a response to concerns about the steady rise in car use in 1963, described a technique of creating zones described as 'urban rooms', where pedestrians and vehicles could co-exist safely. The report had more impact in continental Europe than in Britain, particularly in the Netherlands, and the idea of the 'Woonerf', or 'Living Yard' was born. A total of 2,700 woonerven had been built by 1983 (Federal Highway Administration, 1994).

The idea of a street designed as a shared space was not implemented in the UK until much later, but between 1998 and 2007, around 70 'Home Zones' were created, with the vast majority being the retrofit treatment of an existing street. Most had a share of a £31m government 'Home Zones Challenge' fund and almost all took years to complete, as a considerable amount of time and resource was needed for community consultation and agreement. Legislation to support Home Zones was introduced in the UK in 2000 and 2001 after campaigns from pressure groups such as the Children's Play Council (now Play England) and Transport 2000 (now the Campaign for Better Transport).

Physical characteristics of a Home Zone vary, but generally are used to discourage drivers from moving much faster than walking pace. They can include a surface treatment across the entire width of the street with no kerb edge. Landscape features such as trees or planters are often added to both to provide interest and to shorten drivers' sight lines so that they naturally slow down. There may be restrictions on parking and other features that enhance the appearance of the space and encourage residents to linger and socialise.

It should be noted that the shared surface treatment often adopted in Home Zones has been controversial, because of perceived/potential risks to partially-sighted and other disabled people. Challenges from this community to shared surface schemes, especially where used in city centres with greater volumes of traffic, have resulted in further research and testing of compromise solutions. Recommendations include physical markers to denote a 'safe space' in the street where vulnerable pedestrians feel safer, without preventing the remaining area being shared by other pedestrians, motorists and cyclists. The term 'shared space', rather than 'shared surface' has been coined to describe developments that follow this advice (Ramboll Nyvig, 2007).

The Home Zone Challenge project was widely viewed as successful and the Department for Transport reported the development of stronger and more integrated local communities in the successful examples (DfT, 2005). Learnings from the Home Zone Challenge and from the DfT's research into the existing policy framework for street design led to the publication of the Manual for Streets (MfS) in 2007. The manual superseded the DfT's Design Bulletin 32 (DB32) and focussed on improving the quality of residential streets to be more distinctive, provide social interaction and promote environmental sustainability.

There are a number of studies of Home Zones and their impact on social interaction and play. A study of eight schemes based on resident interviews found that retrofit Home Zones dramatically decreased traffic flow and speed, increased children's use of the street for play and also increased adult interaction, creating a sense of community (Gill, 2007). An evaluation of the Southville Home Zone in Bristol using questionnaires, interviews and some informal observation, found that the vast majority of residents felt that their streets had been improved and were being used in a different way (University of West England, 2006).

The evaluation of new build schemes is important for two reasons. Firstly, attitudes and behaviours on retrofitted streets are likely to have been influenced as much by the process of consultation and implementation as the physical changes themselves. The debate about the future of the street and the lengthy and often difficult process of changing it can affect relationships between neighbours. New build Home Zones are different – the residents are often not yet known and move in without the same kind of personal and community investment. Secondly, retrofit Home Zones require significant funding, time and resources, and as such are not readily replicable in the foreseeable political climate. Since the Home Zones Challenge, retrofit schemes have been thin on the ground. Gill (2007) concluded that the prospects for further retrofit projects may be limited to regeneration schemes where they add the most financial value. He also noted that questions of fairness have been raised because they favour some streets over others.

The only new build scheme funded by the Home Zones Challenge was Staiths South Bank in Gateshead, which was completed in 2005. Since then the number of Home Zones built in new developments has been fairly small, and there are few new build case studies to review. Staiths South Bank was the subject of a pre- and post-occupancy evaluation using resident interviews in 2003 and 2005 (Arts Council England, 2006). This found that though residents liked the design and community feel of the development, there was concern about some of the restrictions imposed including parking. Unfortunately, although the development included a large number of informal play areas and had a play strategy for each phase, very few children had moved in at the time of the evaluation, and many properties, like others in new developments at this time, were empty, having been purchased by

investors. It will be interesting to see the results of a new observational study currently being carried out by ZCD Architects on this and nine other recent housing developments.

A very useful analysis of new build Home Zones is Biddulph's 2011 study, which included 6 new build schemes:

- Lidgett Square, Allerton Bywater, Leeds
- Montreal Avenue, Horfield, Bristol
- Broadclose, Bude, Cornwall
- Cornwall Street, Gun Wharf, Plymouth
- Simplicity and Rambler's Lane, New Hall, Harlow
- Limetree Square, Street, Somerset

On the basis that most of the previous post-occupancy studies had used resident opinion surveys to gain data, Biddulph chose to focus exclusively on observation work to examine how Home Zones were being used. Ten housing case studies were chosen to compare retrofit and new build Home Zones built to MfS guidelines with streets that had been designed to comply with DB32. He found that children stayed significantly longer and were much more likely to play in Home Zone spaces (both new build and retro-fit) than in DB32 compliant streets. Traffic in Home Zones had a slower average speed, and these streets appeared to encourage a diversity of play types and more freedom to roam where they were larger.

Some reports suggest that not all Home Zones are successful in slowing traffic and encouraging play. The design of one scheme in Bristol was not considered to be a suitably safe environment for children's play (CABE, 2006), while the organisation Playing Out reported that residents of one Home Zone in Bristol have applied for a Temporary Play Street Order, preventing through traffic during set periods up to once a week (see playingout.net). However, the bulk of the evidence suggests that the Home Zone concept, where carefully considered and designed, can make a huge difference to the accessibility of the street for children's play.

2. Cul de sacs

The value of cul de sacs for children's play is debated. Whewey and Millward (1997) recorded a high level of play in the cul-de-sacs they observed, especially where they were linked by a footpath network. Further research by Whewey in Cardiff showed very similar results – many more children were observed playing in cul-de-sac layouts than in the streets with a grid layout (Whewey, 2011). Biddulph (2011) cited attitudinal studies in California which found that residents felt that cul de sacs were safer and offered more opportunity for play, and there are similar findings in the Staiths study (Arts Council England, 2006).

Biddulph (2011), however, found the cul de sacs he observed to have relatively low levels of play, and suggested that children's natural sociability drew them away from these quieter streets to busier places where they were more likely to meet their friends. He questioned the view that the cul de sac layout results in more play than through routes; although permission to play is more likely to be granted as parents feel these places are safer, this does not necessarily mean that children wish to play here.

Housing design guidance published by the Association of Chief Police Officers (ACPO Secured by Design, 2014), while supporting short cul de sacs, strongly advises against footpath links between streets, as they are often insufficiently overlooked and are linked to property crime. Current thinking in urban design promotes pedestrian permeability and the grid street form as it enables a more efficient use of space and encourages movement on foot. Most local planning authority guidance advises against cul de sacs for these reasons.

Many housebuilders, however, still prefer the cul de sac layout – often because small private drives do not have to be adopted by local highways (Paterson, 2012). It could also be due to buyer demand from families who favour this layout. Housebuilders often install short cul de sacs with block-paving finish in a shared space arrangement, but the other features of Home Zones are often absent so cars may still dominate the space.

3. Traffic calmed streets

Traditional traffic calming can include many features, including speed limit signs, pinch-points, chicanes, bumps or raised tables. The footpath and the road are generally retained as segregated zones. Though it is generally acknowledged to fulfil its role in slowing traffic speed and therefore improving safety, its role in encouraging social interaction in the street is debated.

Whewey and Millward (1997) found that traffic calming had a positive influence on the popularity of the street for play. Parents were more likely to assess the street as safe, and therefore permission to play out was increased. Where two inner city terraces were compared, one with traffic calming (including 20mph signs, changes in surface material and humps) and one without, the traffic-calmed street attracted more active street games, though the difference between the numbers of children outdoors was minimal. Recommendations for traffic calming to reduce car speeds to 10mph were included in this study.

The research by Biddulph (2011), however, questions whether traffic calming makes any difference to how the street is used. He cites previous research (Hodgkinson & Whitehouse, 1999) which concluded that traffic calming measures implemented in a number of the streets in the UK had had little impact on their function as a social space. His own observational study included a traffic-calmed street in Cardiff which had been subject to a post-occupancy study showing a significant reduction in traffic volume and a majority view from residents that the space was now safe for play. The street did not attract such activity at all during the period observed. A similar street nearby, which had been given a shared space Home Zone treatment, and had no through-traffic, was by contrast well used for play by children during the observation period. However, due to the relatively short period of observation, conclusions should not be drawn too readily from this analysis.

Based on the notion of ‘mental speed bumps’ (Engwicht, 2005), Sustrans, the sustainable transport charity, has for around a decade been working with communities to change their streets in a more affordable version of the Home Zone concept, including many of the same features such as rearranged parking, pavement widening, dropped kerbs, planters and build-outs. According to Sustrans, one such project resulted in a 34% increase in the number of residents who felt the street is a place to socialise (Sustrans, 2016).

4. Footpath networks and safe 'loops'

Both Whewey and Millward (1997) and Biddulph (2011) found that networks with little or no traffic were popular as locations for children's play. The 'going' nature of children's activity outdoors – the desire to move around from one place to another - identified in many of the studies reviewed meant that safe loops around a neighbourhood encouraged more outdoor play. Thus as we have seen above, cul de sacs linked by footpaths saw more activity than those without. Biddulph (2011) suggested that roads which limited through traffic but remained permeable for pedestrians and cycles reduced the volume and speed of traffic, creating more opportunities for play. Whewey and Millward (1997), who found that the predominant activity of children outdoors (37%) was going somewhere, usually walking or cycling, saw safe, accessible networks as critical to successful residential design.

The current policy landscape

An analysis of current legislation, local and national policy guidance shows that there appears to be ample support available to encourage the development of streets as social spaces that facilitate play. The Manual for Streets sets out very clearly its principle aims, which are for streets as places for social interaction that are sustainable, inclusive and community focussed. Legislation allowing for Home Zones has been in place for well over a decade. Many local authorities, though not all, have street design guidance that covers shared spaces and Home Zones. Building for Life 12, a design assessment tool for housing and neighbourhood development, that local authorities may use as a planning condition, has a section on 'Streets for All', which requires the designer to address the need for social interaction and play.

There is far less policy and guidance available on urban design for children's independent mobility. The need for safe cycling and walking 'loops' and routes to key places such as shops and play areas is paramount, but support for this in planning guidance is scarce. The Manual for Streets includes an example objective in setting local policy as *'enabling local children to walk and cycle unaccompanied from all parts of a development to a school, local park or open space'* but it is not a prominent aim of the document. The National Planning Policy Framework, published in 2012, recommends that 'key facilities such as primary schools and shops should be located within walking distance of most properties', though it does not mention their accessibility to children. Building for Life 12 has the most to say on safe walking routes. It gives guidance on acceptable walking distances, as well as recommending the provision a choice of safe, direct and attractive routes for cyclists and pedestrians and the planning of development 'so that everyday facilities and services are located within a short walk of people's homes'.

In their 2015 study of independent mobility, Shaw et al encourage the incorporation of children's independent mobility into policy objectives for planning, transport and housing, and cite case studies such as Rotterdam and Vancouver, where urban planning methods have been introduced to improve opportunities for children's play and roaming.

Barriers to designing residential streets that enable play

Although a number of new housing developments have embraced the principles embodied in Manual for Streets, the majority have not. While housebuilders sometimes implement an area of shared space in cul de sacs, this area is usually not adopted by the local highways authority and the development as a whole can reflect a hybrid of Manual for Streets and DB32 guidelines.

Research in 2012 examined the barriers to house builders to building shared space using interviews and including case studies of the Staiths, Gateshead and Allerton Bywater (Paterson, 2012). These findings are included along with indications from other studies below.

1. Local Highways Authority (LHA)

While local planning authorities tend to encourage the use of Manual for Streets, Paterson found that highways engineers have often been reluctant to promote shared space or Home Zone principles. Adoption of residential development roads by the LHA can be difficult to achieve where non-standard materials and features are used. Although many local authorities have updated their street design guidance in line with MfS, some still have not, and this may be preventing a move towards shared space, as house builders appear to prioritise local guidance (Paterson, 2012).

2. Cost

The cost of providing shared space was the most frequently mentioned barrier in interviews in the Paterson study. Maintenance payments or commuted sums for trees and other street features were seen as prohibitive (Paterson, 2012).

3. Lack of end-user demand

House builders interviewed stated that their own market research and local authority housing needs surveys show that private gardens are very important to residents and had led to a tendency to prioritise these over shared external space (Paterson, 2012). Other research indicates that residents place a high priority on opportunities for street play (DfT, 2005) but there is some evidence that community features and generous shared space were qualities that were not valued until after residents have moved in (Arts Council England, 2006). Gill (2007) notes that although Home Zones were seen as a considerable benefit by most residents, some were not supportive of the concept, especially where there was a prospect of play directly outside their houses. There seem to be important cultural differences between the UK and other countries where Home Zones have been more widely used; Paterson (2012) cites the privatised approach to property and the emphasis on car use in the UK as significant contrasts.

4. Parking

Locating car parking a short distance away from the home allows more pedestrian freedom and social interaction directly outside it, and this feature is commonly adopted in Home Zones. However, Paterson (2012) found that house builders preferred to include car parking within a dwelling's plot – they found parking on shared space harder to sell. Garages and private drives are preferred by developers and this can be more difficult to integrate into a Home Zone layout. At the Staiths development, small parking courts were provided and were raised as one of the concerns by residents, though it seems that sufficiency was more of an issue than location (Arts Council England, 2006). The DfT (2005) survey found that 71% of respondents thought that it was

important for everyone to have a parking space outside their house. When asked whether they would be prepared to park an extra 50 metres away from their home to enable the street to be a more sociable place, the majority (52%) disagreed.

5. Limited guidance on the effect of urban design on children's play and independent mobility

As noted above, there is very little guidance on designing neighbourhoods to encourage children's independent mobility. Demos' research in 2007 for Play England found that professionals such as housing developers, local authority planning officers and traffic engineers had '*difficulties seeing and understanding how their work relates to the needs of children and young people*'. Shaw et al (2015) found that urban design in many countries studied did little to encourage the range of children.

Understanding and/or prioritisation of this key component of children's play and health appears to still be low.

Recommendations for further action

1. Build the evidence base of the impact of residential development design on play

The most substantial piece of research (Whewey & Millward, *Child's Play: Facilitating play on housing estates*, 1997) is nearly twenty years old and pre-dates the *Manual for Streets*. Although further studies have been undertaken, notably Biddulph (2011), these are limited to short observational periods and more studies of new build development (particularly of the types of street identified in this study) both observational and attitudinal, are needed. Gathering evidence of the wider health impacts (for adults as well as children) of residential street design is also important; this should both align and add weight to the argument for developing guidance for designing residential neighbourhoods for independent play. More evaluation of the low-cost alternatives to Home Zones, such as the Sustrans interventions would also be beneficial.

2. Emphasise and explore the commercial benefits of designing for play

The health and social benefits of outdoor play and independent mobility are well-documented and of primary importance. However, there are commercial benefits too, which could encourage house builders to consider them. The retro-fit Home Zone project at Northmoor, Manchester, regenerated the area and resulted in a tenfold increase in average house prices between 2001 and 2010 (Great Places Housing Group, 2016). Indications are that a Home Zone in Bristol added around £5,000 to house prices in 2005 and increased saleability (University of West England, 2006). In new build Home Zones, higher densities can be created, such as that at Staiths, which achieved 46 dwellings per hectare, higher than that house builder's traditional layouts. A simple desktop study could explore more widely whether Home Zones, both new-build and retro-fit, are reflected in increased house prices, and if so this would help build the commercial case for their implementation.

3. Focus on how new build developments can be designed for play

Although retro-fitted Home Zone layouts have been very successful in encouraging social interaction and play, they are expensive and resource intensive. They are unfortunately not likely to be replicable in the foreseeable economic climate, except perhaps in areas of low demand, where

as described above they have been shown to increase property values and play a valuable role in the regeneration of communities. Integrating shared space and Home Zone components into new build developments is more cost-effective and does not have the same requirements for community consultation and buy-in.

4. Explore the barriers to Local Highways Authorities of promoting shared space

Case studies of new build Home Zones frequently identify that negotiation with highways engineers over adoption of the streetscape is one of the most difficult stages of the process. This was particularly noted at Gun Wharf, Plymouth (CABE, 2016) and at Allerton Bywater, Leeds (Paterson, 2012). Collaborative working between the LPA and LHA from the outset to overcome highway engineers' reticence to depart from familiar traditional layouts was remarked as critical to success of Home Zone schemes at Broadclose, Bude (Housing Design Awards, 2016) and Staithe (Paterson, 2012). Adoption and maintenance of shared space is a sticking point in the development of Home Zones and more could be done to explore solutions such as have been used in the case studies mentioned here.

5. Develop guidance and training for decision makers on designing for play and child-friendly public realm

Clear guidance and training on design is an important part in encouraging the development of playable neighbourhoods. Architects, urban designers, house builders, planners and highways engineers may have an understanding of how street design can slow traffic and encourage social interaction, but there is little guidance on play specifically or on designing for children's independent mobility. The Demos (2007) report makes some useful recommendations including a collaborative approach between all interested stakeholders in implementing play strategies that build a child-friendly public realm 'beyond the playground'. The City of Rotterdam's 'Building Blocks for a Child Friendly City' guidance (City of Rotterdam, 2016) sets out simply and clearly four principles for design: child friendly housing, public space (including pavement play), facilities and safe traffic routes. These principles could be used as the structure for play strategies for new large scale developments and in the assessment for planning applications for new housing. Initiatives such as NHS Healthy New Towns and Leeds' Child Friendly City could be used to pilot such an approach.

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Appendix I: Summaries of research papers' reference to residential street design and play

Arts Council England (2006)

The power of the barbecue: Consumer responses to Staiths South Bank

Summary

A survey of responses to the Staiths South Bank, Gateshead, a development of 743 homes built by George Wimpey PLC in collaboration with the designer Wayne Hemingway. Staiths was designed using Home Zone principles such as shared circulation space and a range of informal play areas and was the only new build residential amongst the 61 pilot Home Zones that the government initiated in 2001. The development aimed to support and promote a greater feeling of community living, with a play strategy for each phase of the project, private gardens backing on to south facing communal pocket parks with permanent barbecues for residents to use. Parking spaces are located a distance away from the homes.

Aims

To learn more about how consumers choose where to live – what makes a 'dream home' and which factors are the most influential. To gather views from residents and non-residents about the development and to draw conclusions for the design of volume housing in the future.

Method

3 focus groups of different ages and family types were interviewed in 2003, during the early stages of development. 4 focus groups were then interviewed in 2005, including some of the same respondents, after the development was completed, to determine whether views of it had changed.

Findings

- Design and location were the highest priorities for buying a home at the Staiths – only 6% of respondents cited community as a reason. However, after moving in, community was cited as a key asset of the development.
 - Mainly young, middle class families moved in at the outset – only 1 in 8 households had children. Some dwellings were empty, having been bought by investors.
 - Residents liked the unusual design and individuality of the homes
 - Some residents were unhappy with the imposed restrictions of the development, regarding refuse storage, washing lines and home extensions.
 - Many non-residents from nearby neighbourhoods felt that their needs for safety and community were better met by the cul de sac model which was found on their own estates
 - The restriction to one car parking space was identified as a concern. Most people supported a more car-free environment, but wanted adequate parking provision.
-

Biddulph, M (2011)

The impact of innovative designs on activity in residential streets

School of City and Regional Planning, Cardiff University

Aim

To explore whether completed new build residential streets which conform to the Manual for Streets criteria are used differently (and encourage a greater variety of street users and activities) than streets which comply with the superseded DB32 guidance.

Method

Ten housing case studies were chosen, including six new build Home Zones built to MfS guidelines, two streets complying with DB32, and two 19th century terraced streets which were directly comparable except for their retro-fitted street surface, furniture and traffic calming measures. The street environments were studied to observe how different ages of people used the street, both by researchers for six hour periods, and by time-lapse cameras on lamp posts

Findings

- Children and young children stayed in Home Zone spaces significantly longer than in DB32 compliant streets
- Children and young children were significantly more likely to play in Home Zone spaces than in DB32 compliant streets
- Home Zones appeared to encourage a diversity of play types and more freedom to roam where these were larger
- No children were observed playing in the street with retrofitted traffic calming measures, in contrast to the similar street with the full Home Zone treatment
- People were more likely to walk through the streets if there were good local services
- The combination of low average car speed, low volume of traffic and permeability for pedestrians and bikes to move in loops seems to encourage play and roaming
- Street treatment made very little difference to teenager, adult or elderly people's activity
- Children playing in the streets were from the local vicinity
- Many of the schemes where play was observed contained some kind of focal or personalized space free of car movements by design where play was allowed to occur
- Less play was observed in cul-de-sacs than in more connected streets

Conclusions

- Streets designed in accordance with the Manual for Streets with Home Zone qualities encourage use by children for play
 - Design that went beyond simple traffic calming measures to create shared space and provided a wide network of spaces, with access to local services, were most successful
 - A combination of low traffic speed and low traffic volume led to the most play
-

Department for Transport (2005)
Attitudes to streetscape and street uses

Summary

The report interrogates the Office for National Statistics' Omnibus survey for October 2004 to determine British people's attitudes to streets as part of the built environment.

Method

Interviews were conducted with adults from approximately 1,800 households across Great Britain.

Findings

- Over half of people thought that traffic in their area was dangerous to pedestrians and other road users.
 - The majority of respondents thought that the sense of community in their area was good and that their street was a pleasant place to be.
 - The impact of traffic on people's quality of life was not generally considered to be serious but this varied according to location of residence.
 - If their street were to be redesigned, **the three activities that most respondents thought should have priority were parking for residents (46%), children playing (43%) and walking (42%).**
 - The **majority (82-90%) agreed that the streets should be somewhere safe for children to play in**, that they should be a good place to stop and talk to neighbours, and that they should contain soft landscaping.
 - However, over half of respondents said they would not be prepared to park an extra fifty metres away from their homes in order for the street design to accommodate these things.
 - When asked whether they would like to have a say in the local authority's redesign of their street, a large majority agreed. A smaller proportion said that they would actually be prepared to do some work towards improving the quality of their street.
 - When asked what physical qualities people looked for in a street when choosing a place to live, the three attributes chosen by the largest proportion of respondents were: feeling safe when walking around, a good general environment and a well maintained street.
 - The majority of respondents thought that the type and the quality of the street was important when choosing somewhere to live.
 - Four in five respondents thought that it was important for their street to be a high quality environment.
 - On some issues, there were clear differences in the opinions of subgroups, particularly amongst those with and without children, those living in urban or rural areas, and those in higher and lower socio-economic groups.
-

Gill, T (2007)

Can I Play Out?: Lessons from London Play's Home Zones project

London Play

Summary

The report describes and evaluates the work of London Play's Home Zones for London (HZfL) project (which aimed to promote and develop proposals for Home Zone schemes in five London boroughs) and also examines other Home Zones in England.

Aims

- To examine the impact of the completed home zones on children's lives
- To learn about the perceptions of residents and communities of streets as spaces for play and socialising
- To identify the barriers to establishing home zones
- To study methods for involving children in the process
- To look at the longer term prospects for streets as true 'shared spaces'

Method

- Ealing Five Roads Forum, Bristol Southville and Gateshead Staiths were independently evaluated and five London schemes were also examined in less detail
- Twenty-two interviews were conducted, just over half by telephone and the rest face-to-face
- Selected sites were visited
- Secondary data from other evaluations and studies was gathered to provide policy and practice context

Findings

- Retrofit home zones can dramatically decrease traffic flow and speed
- Home zones increase children's use of the street for play
- Home zones increase adult social interaction, creating a sense of community
- Most, but not all residents welcome home zones, which makes implementation more difficult
- Retrofit home zone schemes are costly, and therefore not widely replicable and perhaps most beneficial in regeneration contexts
- Policy support for home zones is adequate, but more research and good practice support is needed on effective designs, as some are less successful than others
- Children's policy and public health policy are not yet major influences on the development of child-friendly streets
- The impact of involving children in design is not yet clear, but there are clear benefits when adults act effectively on their behalf

Conclusions

- Home zones enjoy support across many public policy areas, and completed schemes are proving popular.
- The home zone model can help regenerate areas of low demand (such as Northmoor, Manchester)
- New developments indicate that Home Zones appeal to house purchasers

- The home zone idea is entering a second phase with potential ‘growth areas’ in new developments, regeneration areas and ‘DIY streets’
 - There are clear connections between home zones and the promotion of healthier, more sustainable lifestyles and more cohesive communities
-

Paterson, E (2012)

House builders approach to residential shared outdoor space in England

School of the Built and Natural Environment, Northumbria University

Aim

To examine house builders’ approach to provision of shared and private outdoor space

Method

Literature review of the use of shared space and Home Zones

Interviews with house builders and government agencies

Case studies of the Staiths (Gateshead) and Allerton Bywater (Leeds)

Findings

- Positive influences to building shared space exist through Manual for Streets, the Transport Act 2000 and promotion by some planning authorities. It is more likely to be considered by house builders where there is good public transport and lack of other local public open space.
- Barriers to building shared space include a preference for private gardens and parking, cost of maintenance, a reluctance to implement it by highways authorities, some lack of understanding of the Home Zone concept, and perceptions (not borne out by evidence) of lower security and safety, and lower space efficiency.

Conclusions

For greater take-up of shared space and Home Zones in new housing development, the report recommends:

- Improved guidance on shared space including its links with higher densities efficiency of land use (Staiths achieved 46 dwellings per hectare)
 - A clearer message from local authorities to house builders including linking existing guidance from the DfT (Manual for Streets, Shared space LTN 1/11) with legislation
 - Analysis of Home Zone exemplars abroad and of how institutional and cultural factors in transferring them to the UK might be overcome
 - Training for highways engineers, house builders and communities on Home Zones and shared space
 - New solutions for maintenance of shared space
-

Shaw, B et al (2015)

Children's Independent Mobility: An international comparison and recommendations for action

Policy Studies Institute, University of Westminster

Summary

The study documents and compares children's independent mobility in 16 countries across the world, and reviews how policy responses could be developed to address issues raised.

Aim

To identify:

- Variations in children's independent mobility within, between and across different countries
- Factors that affect the observed levels of independent mobility
- The implications of changes in independent mobility for children, their parents, and society
- Potential policy responses to the findings

Method

Between early 2010 and mid-2012, 18,303 children (aged between 7 and 15 years old) and a subset of their parents were surveyed in order to explore their degree of freedom to travel and play in their local neighbourhood without adult supervision.

Findings

- Low levels of children's independent mobility are common, with significant restrictions placed on the independent mobility of children across all the ages studied.
- Parents have significant concerns about letting their children go out alone with traffic seeming to be the strongest factor affecting the granting of independent mobility.
- When comparing aggregate rank scores of children's independent mobility for each country, Finland is by far the highest performing country, followed by Germany, Norway, Sweden, Japan and Denmark, who score more closely to one another.
- Countries with the lowest aggregate rank scores of children's independent mobility were, in order: France, Israel, Sri Lanka, Brazil, Ireland, Australia, Portugal and Italy (tied), and South Africa.
- The aggregate rank score for England places it far behind the top group of performing countries but ahead of the lowest performing group of countries.

Findings pertinent to housing design and play

- With the exception of Denmark, the nine countries with the highest levels of children's independent mobility all have national policies to promote walking or cycling, and the local authorities in these countries are permitted to set lower speed limits than those defined at the national level.
- Of those explored, traffic seems to be the strongest factor affecting the parental granting of independent mobility, above fear of strangers and community supervision
- There was a (weak) correlation between being driven to school and low independent mobility

Recommendations for action pertinent to housing design and play

7 recommendations are made to enable greater children's independent mobility, of which no. 3 is most relevant here:

Recommendation 3: Put the needs of children at the heart of spatial planning and urban development – public spaces that work for children, work for everyone:

- Area planning processes that take into account children's needs, safety issues and parental concerns
- Environmental policies that ensure healthy environments especially in relation to air pollution, noise and green space
- Connected and safe transport networks that allow children to independently access play, friends, school, leisure facilities, shops and other amenities
- Meaningful consultation and involvement of children in design processes.

Planning and development processes can make urban environments more child-friendly and enable independent mobility, e.g. Home Zones, wider city strategies such as Rotterdam and Vancouver, and the UN's child-friendly city initiative. Holistic design of the public realm, a move away from conventional zoning of play space and making the streetscape more child-friendly is recommended. The report also encourages the incorporation of children's independent mobility into policy objectives for planning, transport and housing.

Whewey, R and Millward, A (1997)

Child's Play: Facilitating play on housing estates

London: Chartered Institute of Housing and Joseph Rowntree Foundation.

Aims

- To determine where, how and for how long children play outdoors
- To identify and understand favourite play places
- To draw out changes that children and parents would like to see
- To find ways that children could be involved in improvements
- To provide design and management guidelines for planners and providers on the above

Method

- Twelve housing estates were chosen, built between the 1890s and 1990s by housing associations, local authorities and private developers
- Over the summer holidays of 1996, observations were carried out for six hour periods at different times of the day of the activities of children (under 18yrs) and their duration
- Following the observations, 236 children and 82 parents were interviewed
- Information was gathered from estate managers, local planners and youth workers about children's play on housing estates

Findings

- Roads and pavements were the most frequent locations for play (46%)

- Social contact was one of the primary motives for playing out, and locations where there were strong possibilities of interaction with other people were more popular for play
- A significant amount of play involved moving around, so estates with footpath networks for pedestrians and cycles saw more activity
- Designated play areas were well used and important to children, particularly where they are visible from housing, but they were not used for long periods of time
- The most play was observed in estates where there was a variety of places, traffic calming, street closure, walls, driveways, grassy areas set back from the roads and cul de sacs (where linked with a footpath network)
- Children spent most of their playing time where they could see and be seen
- Children can help identify their needs for play and be part of the process for improving neighbourhoods

Conclusions

Children have multifarious needs for play – the outdoor environment needs to encourage social contact, physically active play and mobility on foot or by bike.

A set of nine guidelines for architects, planners and estate managers was generated from the research, summarized below with objectives and measures in brackets:

1. To enable children to move freely round their estate on foot, bicycle, skates, or other wheeled vehicle (footpath network linked to play spaces and services)
2. To travel safely without danger from traffic (road layouts and materials to limit traffic speed)
3. To be able to play in front, or within sight, of their homes (natural surveillance, variety of play spaces and surfaces)
4. To be part of the community and the community's interactions (variety of play spaces and surfaces, public open spaces located on popular pedestrian routes)
5. To be able to play in the natural environment (trees and other natural features incorporated into streets, public open spaces and play areas)
6. To be able to play in purposefully provided play opportunities (variety of play spaces and surfaces, play areas located on popular pedestrian routes or footpath networks)
7. To be able to play football and other ball games (play areas to include flat grassy areas, laid out pitches for teenagers)
8. To be able to play outdoors within the home environment (surveillance between back garden and street, house and front garden)
9. To be able to attend playschemes, clubs or other organised activities (playwork facilities, play areas located on popular pedestrian routes or footpath networks)

Appendix 2: Summaries of reference to residential street design and play in current policy and guidance

ACPO Secured by Design (2014)

New Homes 2014

Summary

Secured by Design (SBD) is a police initiative owned by ACPO (Association of Chief Police Officers) and this document sets out guidance on the specification, design and build of new and refurbished homes to help prevent crime.

Content

The document is set out in 3 sections:

1. The development – Layout and Design
2. Security of the Dwelling
3. Ancillary Security Requirements

Content pertinent to housing design and play

Section 1 sets out recommendations for the external layout and design of developments and has the following advice which directly impacts on street play:

2. Layout of roads and footpaths – outlines the use of design features to define space and encourages open, direct and well-used routes
3. Through roads and cul-de-sacs – warns against ‘excessive permeability’ and notes its link to higher crime rates. Footpaths linking cul-de-sacs to one another are strongly discouraged. Limiting permeability to overlooked streets at the front of properties, rather than segregated footpaths, is recommended.
4. Footpath design – recommends that routes for pedestrians, cyclists and vehicles are integrated to provide a network of supervised areas. Sets out design guidelines for isolated footpaths, where unavoidable.
6. Seating next to a footpath – sets out guidelines for seating design and placement to promote ‘valuable amenity’ and deter anti-social behaviour.
9. Communal areas – recommends clear boundaries between public/private and vehicular/pedestrian space. Gives advice on location, design and the consideration of ‘informal association spaces for members of the community, particularly young people’.
10. Dwelling Boundaries – sets out principles of front /rear boundaries and surveillance to promote community interaction.

18. Planting – gives guidance on the type and location planting to ‘create attractive residential environments’, prevent graffiti and loitering, enhance perimeter security and add visual interest. Warns against planting that obscures natural surveillance, lighting and CCTV or could be used as a climbing aid to access property.

Birkbeck, D & Kruczkowski, S (2015)

Building for Life 12: The sign of a good place to live

CABE at the Design Council, Design for Homes, Home Builders Federation
Nottingham Trent University

Summary

Building for Life 12 is a design assessment tool for housing and neighbourhood development. The Building for Life concept was introduced in 2001 and redesigned in 2012 and 2105. Its summary statement emphasizes the aim to ‘create good places to live, work and play’

Aims

- To assist planning authorities assess the quality of proposed and completed developments
- To help structure design codes and local design policies
- To help structure discussions on development between ‘local communities, local planning authorities, developers and other stakeholders’
- To assess schemes for the ‘Built for Life’ accreditation which can be used as a marketing tool by housing developers

Content

12 assessment criteria are used in 3 groups as follows:

Integrating into the neighbourhood:

Connections, Facilities and services, Public transport, Meeting local housing requirements

Creating a place:

Character, Working with the site and its context, Creating well defined streets and spaces, Easy to find your way around

Street & home:

Streets for all, Car parking, Public and private spaces, External storage and amenity space

Content pertinent to housing design and play

Criterion 9 ‘Streets for all’ directly addresses the use of the street as a social and play space, as follows:

9a Are streets pedestrian friendly and are they designed to encourage cars to drive slower and more carefully?

9b Are streets designed in a way that they can be used as social spaces, such as places for children to play safely or for neighbours to converse?

The text encourages working with the Highways Authority, strategies to slow traffic, providing good natural surveillance, paying particular attention to the space between the pavement and the front door, and using good quality landscaping

City of Rotterdam (2010)

How to build a Child Friendly City

Summary

A short introductory document to the urban planning method 'Building Blocks for a Child Friendly Rotterdam' developed to help reduce migration of families away from the city, and create a more liveable city where children are more visible. The method has been used in the Spangen area of Rotterdam to create a child-friendly route to allow safe independent access to local facilities, and threshold zones outside housing for socialisation.

Content

Building Block 1: Child Friendly Housing - sets out guidelines for family housing including space standards and play provision within and outside the building.

Building Block 2: Public Space – outlines the sports and play provision within the vicinity and requires a pavement suitable for play (3-5m wide) on one side of each street. Sets out guidelines for planting including climbing trees and the use of liminal space as a buffer and social zone.

Building Block 3: Facilities – sets out recommendations for available facilities and accessibility of schools.

Building Block 4: Safe traffic routes – outlines traffic-calming measures and guidelines on the location of facilities to create safe, well-populated routes.

Department for Communities and Local Government (2012)

National Planning Policy Framework

Summary

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and set out the Government's planning policies for England and how these are expected to be applied. It renewed the Government's emphasis on local and neighbourhood planning, which had been initiated with its Localism Act in 2011 which abolished regional spatial strategies.

Aims

- To streamline planning policy, superseding all Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG) for use in England.
- To provide local authorities with guidance in drawing up development plans (Local Plans, neighbourhood plans and the London Plan). It can be used as a material consideration in determining planning applications.

Content

The document establishes a presumption in favour of sustainable development, establishes the Local Plan as the keystone of the planning system and emphasises protection of the natural and historic environment. It sets out 12 core principles which set out that planning should:

1. Be led by a practical and visionary Local Plan
2. Be a creative exercise in improving place
3. Drive and support sustainable economic development
4. Seek to secure a high standard of design and amenity
5. Recognise the diversity of different areas of England and protect Green Belts
6. Support the transition to a low-carbon future
7. Help conserve and enhance the natural environment
8. Encourage the re-use of brownfield land
9. Promote mixed use developments
10. Conserve heritage assets
11. Manage development to make full use of public transport, walking and cycling
12. Support local strategies to improve health, social, and cultural wellbeing

Content pertinent to housing design and play

Section 4 'Promoting sustainable transport' encourages planning for sustainable modes of transport where reasonable and creating '*safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones*'

Section 7 'Requiring good design' acknowledges that good design is a key aspect of sustainable development, encourages planning policy that helps establish a strong sense of place and recommends the use of design codes to guide '*the overall scale, density, massing, height, landscape, layout, materials and access*'

Section 8 'Promoting healthy communities' discusses the planning system's role in '*facilitating social interaction and creating healthy, inclusive communities*' and encourages planning decisions which provide high quality public realm, shared space and '*active street frontages which bring together those who work, live and play in the vicinity*'

Department for Transport. (2006)

DfT Circular 02/2006, The Quiet Lanes and Home Zones (England) Regulations 2006

Summary

The circular gives guidance on the definition, designation and development of Quiet Lanes and Home Zones.

Content

Quiet Lanes – the aim of designation is to 'maintain the character of minor rural roads by seeking to contain rising traffic growth that is widespread in rural areas', using sign, community involvement, and where necessary, development controls. Recreation and social interaction are included in the list of

potential activities for the lanes. Only roads with existing low speed and flows of traffic are considered suitable – ‘no more than about 1000 motor vehicles per day’ is recommended.

Home Zones ‘aim to improve the quality of life in residential roads by making them places for people, instead of just being thoroughfares for vehicles’, with the street sensitively designed for traffic calming and using community involvement and signs to encourage ‘very slow vehicle speeds’. The guidance recommends that vehicle flow should be ‘no more than about 100 motor vehicles in the afternoon peak hour’ and expects vehicle speeds to be restricted to ‘well below 20mph’. Children playing and people talking are given as examples of potential street activity.

Guidance is given on development of a Quiet Lane or Home Zone, and states that this should involve all stakeholders including children. Within a Quiet Lane or Home Zone, Use Orders and Speed Orders may be implemented. Use Orders allow specific activities in the street at certain times. Speed Orders set a target maximum speed but ‘do not impose speed limits’.

The process and timing of designation and consultation is also discussed.

Department for Transport, Department for Communities and Local Government, Welsh Assembly Government (2007)

Manual for Streets

Summary

Manual for Streets (MfS) was issued as technical guidance to professionals involved in the design of new residential streets. It superseded Design Bulletin 32 (DB32) and its companion guide Places, Streets and Movement in England and Wales. MfS acted on findings from research (Better Streets, Better Places, OPDM, 2003) and focused on improving the quality of residential streets to be more distinctive, provide social interaction and promote environmental sustainability.

Aims

- To transform the quality of streets through a collaborative approach between stakeholders, moving away from standardised methods to more creative ones
- To encourage the use of modes of travel other than the car
- To assist in the creation of streets that are attractive, well connected, cost effective, safe, inclusive and that build and strengthen communities

Content pertinent to housing design and play

- Section 1.1 ‘Aims of the document’ - includes emphasising the priority of the pedestrian, and the need for collaborative street design.
- Section 2.3 ‘Principal functions of streets’ – describes ‘place’ and its role in social activity as one of the key functions of the street. Promotes minimising highway infrastructure where possible and using surface materials and planting to achieve a sense of place.

- Section 3.5 The Design Process – ‘Objective setting’ – includes an example of a typical objective being the enabling of local children to walk and cycle unaccompanied from all parts of a development to a school, local park or open space.
 - Section 5.2 ‘The value of good design’ – refers to the benefits of public space on well-being and the economic, social and environmental benefits of good urban design
 - Section 5.7 ‘Designing streets as social spaces’ – promotes streets that accommodate a range of users and encourage social interaction.
 - Section 6.3 ‘Pedestrians’ – Includes advice on designing streets for children and play
 - Section 7.2.8-7.2.15 ‘Shared surface streets and squares’ – Cautiously promotes shared surface in ‘calm traffic environments’ (below 100 vehicles per hour) to promote social interaction. Offers advice on ensuring disabled and partially-sighted people can be accommodated.
 - Sections 7.2.16-7.2.22 ‘Home Zones’ – describes Home Zones and signposts to other relevant documents.
-

Design Council (2015)

Active by Design: Designing places for healthy lives

Summary

The document introduces a programme of work by the Design Council to respond to the ‘*social and economic costs of preventable disease in the UK by championing the creation of healthy places*’

Aims

- To ‘*promote the use of good design to encourage greater levels of daily physical activity in buildings and public spaces in cities and towns, and increase access to healthy and nutritious food*’
- To create links between the planning system, health service and the built environment sector to address this issue

Content

Statistics on inactivity, obesity and health worldwide including on the decrease of outdoor play

Examples showing how design and use of public space can influence health

Suggestions and prompts for built environment practitioners for how they could contribute to the health agenda through their work
