Appendix A:

BUILDING FOR LIFE 12 INDEPENDENT ASSESSMENT Fernwood, Nottinghamshire

Produced in support of the Fernwood Neighbourhood Development Plan, August 2015

urban forward ltd

Contents

This report was produced in August of 2015 for Fernwood Neighbourhood Development Plan. It was produced by urban forward ltd. All photographs and graphics were produced in-house by urban forward ltd unless otherwise credited. urban forward ltd produced the latest (2015) version of Building for Life 12 on behalf of the Building for Life Partnership.

Introduction

About this report

This report was produced in support of the Fernwood Neighbourhood Development Plan. Fernwood currently comprises 1090 dwellings and is set to accommodate new development, and the community of Fernwood want to ensure that new development is of the highest quality.

To help designers working on developments adjacent to Fernwood learn lessons - both good and bad - from what has been built already, we have undertaken a review of the existing settlement. To structure this review, we have used the Building for Life 12 toolkit. Buiding for Life 12 was produced to help designers looking to make better developments, but may also be used as an audit of existing places to see how they perform in relation to urban design best practice. You can read more about Building for Life 12 later in this document.

To produce this report, we have undertaken various types of analysis and conducted site visits as well as holding workshops with the residents. The evidence from these exercises has helped inform the responses to the questions in Building for Life 12.

The report is divided into sections, the first of which explains a bit about Fernword, how Building for Life 12 works and how to use it, and provides a summary. The following sections follow the Building for Life 12 chapters, with four questions in each. Each question is dealt with in turn, with photographs and diagrams used to support the text. Each question is given a score, and commentary is supplied explaining how to move towards an improved outcome (where needed). A summary can be found at the end of each section.

Finally, appendices provide a glossary or terms, plus some further reading should readers want to know more about some of the national guidance on urban design and the techniques used in this report.

About Fernwood Neighbourhood Development Plan

The residents of Fernwood recognise that their parish will grow considerably over the coming decades, and that they '*need a strategy for the future, a plan that addresses what we want to achieve and is recognised by all interested bodies especially the developers and Local Authorities. To guarantee a voice for our community which should ensure that our concerns are never neglected.*' The vision for the Nieghbourhood Development Plan is to help shape future development to deliver four elements:

Developing a strong community – to build on the successes of the already effective user groups, and to provide a framework of opportunities which recognises the needs of all residents.

Encouraging the growth of a business environment – in keeping with the planning aspirations of the current commercial business park, and is geared to provide employment opportunities for the growing Fernwood community.

Monitoring of the planned new build programme – so that any future development reflects the current nature of the village and the desires of residents.

Promotes the village as a desirable place to live – by protecting its natural fauna and flora as well as the maintenance of the built environment and the attendant facilities, so that the village will continue to appeal as an attractive, welcoming and sought after place to live.

To deliver this vision, the Plan has set out 10 initial draft objectives critical to success. These are:

Objective 1 – future housing growth must meet the needs of the local community and which recognises the need to minimise the impact on the natural and built environment. That the habitats of animal and bird species are appreciated and planned for at all stages of the build programme.

Objective 2 – new housing developments should integrate with the existing build design to enhance the appearance of the village as uniform and complementary in appearance.

Objective 3 – encourages the development of a support infrastructure which provides schooling, medical care, sports and recreation facilities, community centres and shopping outlets both adequate and appropriate for the developing village as and when needed.

Objective 4 - has a suitable and frequent public transportation system with links to all major road networks and near communities – that the services provided are both affordable and sustainable.

Objective 5 – that any project housing development recognises the need for adequate employment opportunities in the near vicinity i.e., by both the developers and county/district councils. Further, that the greater Fernwood is not perceived as a dormitory for other neighbouring communities.

Objective 6 - future build programmes recognise the impact of climate change and minimise the effect of carbon emissions via construction methods which promote energy savings. Additionally, that the potential of flood risk and other identifiable natural disasters form part of any future design criteria.

Objective 7 – that the impact of unnecessary access to the central facilities via motorised transport can be minimised through the creation of pedestrian public rights of way and which provide effective walking routes to all of the developed village.

Objective 8 – that the natural assets of the village are protected for the future benefit of residents. That residents feel secure in their homes and without fear of anxiety from any forms of anti-social behaviour.

Objective 9 - .future housing needs must incorporate the needs of a community which is ageing. Adequate and specific care provision should be provided and with housing types that complement the existing care home facility.

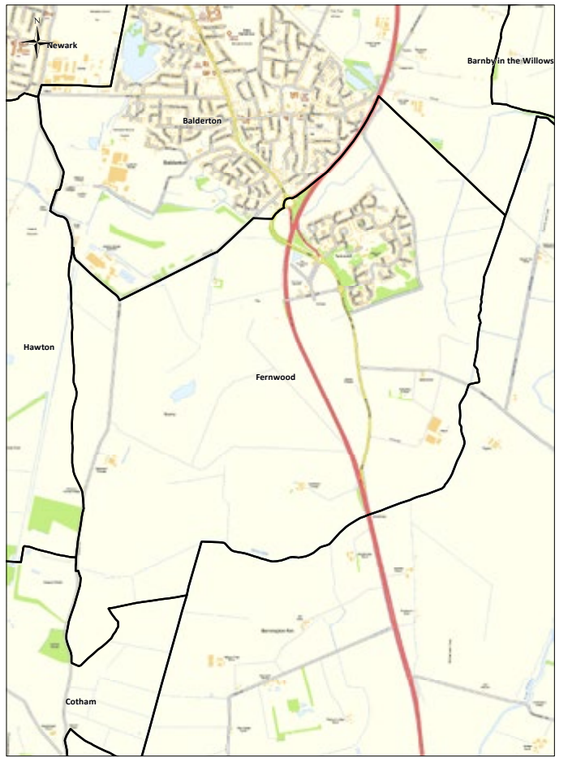
Objective 10 – to encourage community funding initiatives which benefit all sections of the village – by age, ethnic or religious background and without any discrimination.

About this assessment

About the scheme

Fernwood is a new settlement of approximatly 2,200 people located in Nottinghamshire, to the south of Newark.

It has around 900 dwellings currently making up the village. Future phases of development will add several hundred more homes, and adjacent sites may one day deliver many more in the Parish and surrounding. Within the scheme there are schools and shops, plus open spaces and play spaces.



Above: Fernwood Parish boundary.
Source: Newark and Sherwood District Council

Format of the assessment

This assessment was undertaken following a detailed site visit of Fernwood and the surrounding area, guided by members of the Neighbourhood Development Plan Steering Group. The site visit was undertaken on the 21st of May 2015.

The format of this report follows that of other independent Building for Life 12 reports, with Fernwood being tested against the questions in BfL12 and awarded a 'traffic light' score. Summaries of each section are provided, and tips for how future development can best meet the requirements of Building for Life 12.

Symbols used in this document:

Green score: The scheme meets the criteria of the question under consideration.

Amber score: An element may need more work or cannot reasonably be resolved by the design team.

Red score: An element of the scheme is unsatisfactory and needs to be reconsidered.

Towards green: A suggestion as to how an element may be improved to score green.

Amber warning: Highlights an issue that could lead to an element being problematic.

Red warning: Highlights an issue that could lead to an element being downgraded.

About Building for Life 12

About Building for Life

Building for Life 12 is the industry standard, endorsed by government for well-designed homes and neighbourhoods that local communities, local authorities and developers are encouraged to use to help stimulate conversations about creating good places to live.

Building for Life 12 (BfL12) is led by three partners: Design Council Cabe, Design for Homes and the Home Builders Federation, supported by Nottingham Trent University.

The 12 questions reflect the Partnerships' vision of what new housing developments should be: attractive, functional and sustainable places. Redesigned in 2012, BfL12 is based on the National Planning Policy Framework and the government's commitment to not only build more homes, but better homes - whilst also encouraging local communities to participate in the place making process.

The questions are designed to help structure discussions between local communities, local planning authorities, developers and other stakeholders. BfL12 is also designed to help local planning authorities assess the quality of proposed and completed developments; it can be used for site-specific briefs and can also help to structure design codes and local design policies.

Developments that achieve 9 'greens' are eligible to apply for a 'Built for Life' quality mark. 'Built for Life' quality marks are available immediately after planning approval, offering developers the opportunity to promote the urban design quality of their developments as part of their sales and marketing activity. It will also help home buyers find a place to live which has been designed to have the best possible chance of becoming a highly popular and desirable neighbourhood.

Using BfL12

BfL12 comprises of 12 easy to understand questions that are designed to be used as a way of structuring discussions about a proposed development. There are four questions in each of the three chapters:

- Integrating into the neighbourhood
- Creating a place
- Street and home

simpler, easier, better

Based on a simple 'traffic light' system (red, amber and green) we recommend that proposed new developments aim to:

- Secure as many 'greens' as possible,
- Minimise the number of 'ambers' and;
- Avoid 'reds'.

The more 'greens' that are achieved, the better a development will be. An 'amber' may indicate an element that is beyond the control of the design team. A red light gives warning that a particular aspect of a proposed development needs to be reconsidered.

Assessment summary

Green score: The scheme meets the criteria of the question under consideration.

Amber score: An element may need more work or cannot reasonably be resolved by the design team.

Red score: An element of the scheme is unsatisfactory and needs to be reconsidered.

How did Fernwood do?

Question	Score	Summary
Integrating into the neighbourhood		
1 Connections Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings and land uses along the boundaries of the development site?	✗	Fernwood struggles to connect well both internally and externally, with lots of dead end routes and a confused route structure.
2 Facilities and services Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, pubs or cafes?	–	The facilities and services provided on site are of reasonable quality, but their location on the development means they are harder to access than they might otherwise be.
3 Public transport Does the scheme have good access to public transport to help reduce car dependency?	✗	Fernwood struggles to link to the wider world by bus, and the service that does exist is not direct to the places you want to get to.
4 Meeting local housing requirements Does the development have a mix of housing types and tenures that suit local requirements?	✓	The development provides a good mix and range of dwellings, and also provides housing of different tenures which should help generate a mixed and balanced community.
Creating a place		
5 Character Does the scheme create a place with a locally inspired or otherwise distinctive character?	✗	Whilst some of the buildings are of high quality, Fernwood does not have a particularly discernible character, looking and feeling much like any other estate.
6 Working with the site and its context Does the scheme take advantage of existing topography, landscape features (including water courses), wildlife habitats, existing buildings, site orientation and microclimates?	✓	Existing structures and landscaping are put to good use, with large trees retained and set into some attractive spaces, and existing buildings used to create an architectural set-piece.
7 Creating well defined streets and spaces Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to turn street corners well?	✗	Several key failings relating to how blocks are arranged mean that often, public access to the rear of properties is a problem. Many streets do not have good boundary treatments, weakening their definition.
8 Easy to find your way around Is the scheme designed to make it easy to find your way Around?	✗	The route structure is complicated and disconnected, and sight lines are short making wayfinding difficult.
Street & home		
9 Streets for all Are streets designed in a way that encourage low vehicle speeds and allow them to function as social spaces?	–	The streets on this development are generally very standard and feel over-engineered. Too much similarity between street types erodes character, and many streets do not support social use through their design.
10 Car parking Is resident and visitor parking sufficient and well integrated so that it does not dominate the street?	✗	Parking is generally well resolved, with a good on-plot provision for most homes. Where parking courts are provided, they are generally large and could be more private. More informal parking could help to add parking options to the streets.
11 Public and private spaces Will public and private spaces be clearly defined and designed to be attractive, well managed and safe?	–	Fernwood has too many ambiguous areas of open space where the intended use is not clear. Some of the spaces are more successful than others, but generally many of the spaces could be better resolved.
12 External storage and amenity space Is there adequate external storage space for bins and recycling as well as vehicles and cycles?	✓	There is adequate access to rear gardens etc for bins and cycles, but more could be done with front gardens etc to allow for bin and recycling storage. The plot types used mean that this isn't a huge problem here.

Executive Summary

Fernwood is a development conceived and deigned in an era where prevailing practice was very different from what is considered good urban design today. As such, it struggles to perform well against the criteria set out in Building for Life 12. The biggest impediment is the structure of the estate, with many of the routes confused and convoluted. This impacts on block structure, open space, wayfinding, and how the facilities and services can be distributed.

Some features of the estate do perform well when evaluated using Building for Life 12, which help the place function well and add to the quality of experience of living there. It is also very green, which adds maturity and makes the place feel welcoming. It is, however, an expensive place to maintain, and residents complain of high management charges associated with the upkeep of landscaped spaces.

Despite some shortcomings, there is much to learn from Fernwood that can help new development in the Parish capitalise on the good and avoid the bad. An emphasis on creating a clear and coherent movement structure from the outset is a key first step, and this should include ensuring that routes run right to edge of the site to allow for easy expansion in the future and for connections between neighbouring development areas.

Facilities and services should be placed in the most accessible locations for new and existing residents, and public transport should be planned in from the outset, with stops on main routes that are easy to get to for all residents. A mix of housing helps create a balanced community and can add character to a development.

Character can come from all scales of design, including green and blue infrastructure, street types, planting and the careful detailing of buildings. Site context can help in adding character too, and a careful appraisal of the site and surrounding help embed sustainability into the design.

A coherent, connected mesh of streets helps to generate well defined streets with a good block structure. This helps manage privacy and create vibrant public spaces. Using both structure and design detailing can aid in making places legible, and more legible places promote walking and cycling.

Using Manual for Streets to help in street detailing will help new development deliver streets that can play an important role in generating character and identity, but that also provide good environments for the widest range of users. Similarly, an integrated approach to parking can help manage quality and can balance the needs of car users with those of pedestrians and cyclists, all whilst improving the function of a place.

Carefully designing blocks to avoid left over spaces combined with a strategic plan for how public spaces work together across a development site can ensure that open space provision delivers the maximum amenity and ecological value. Providing for bin and cycle storage at the outset can stop these functional aspects damaging the quality of the place in the future, and using a plot type that is robust to change can future-proof development as things change over time.

Integrating into the neighbourhood

1 Connections

Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings and land uses along the boundaries of the development site?

Building for Life 12 recognises the importance of connecting places together so that people can get about, communities can interact, and so that residents and visitors are able to get to shops and other facilities.

Well-connected places have repeatedly been shown to have economic and social advantages over places that are more isolated, which is why national policy and guidance seeks for new development to be well connected with its neighbours.

The Fernwood estate was conceived as a new village and as such sits alone as a distinct settlement. This puts it at a disadvantage in terms of connecting to elsewhere, as the walking distances to the neighbouring Balderton are high and there are currently no other places to connect to on the east or south. Unlike a more vernacular village, Fernwood has no major routes running through it, which means it does not benefit from through-traffic and the visitors this brings.

To better understand how the place is structured, a route structures diagram (see right) has been developed showing:

- Routes that are connected in a loop (purple)
- Routes that connect to one or more dead-ends (light blue)
- Routes that are dead-ends (purple)
- Footpaths (yellow)

Because there are no major routes passing through Fernwood, the estate has been developed around a looping spine road that connects to the B6326 at both ends, effectively allowing circulation within the estate but not connecting beyond. Connections beyond the estate to the sides other than the B6326 on the western edge are dealt with by footpaths.

Internally, the northern most part of the estate is quite differently interconnected compared to the southern part of the site. To the north, additional loop roads serve a series of short dead-end streets. In the south, the structure changes, instead using a ‘nested hierarchy’ of streets, with access roads from the main spine route leading to a series of dead-end streets.

Whilst the northern part of Fernwood has better levels of connectivity than the southern part, both areas of the scheme suffer from being poorly interconnected with each other and with being quite remote from the local centre. The footpath network helps to add more direct routes across the whole place, but many of these are not well overlooked, nor do they pass through spaces that are well-lit.

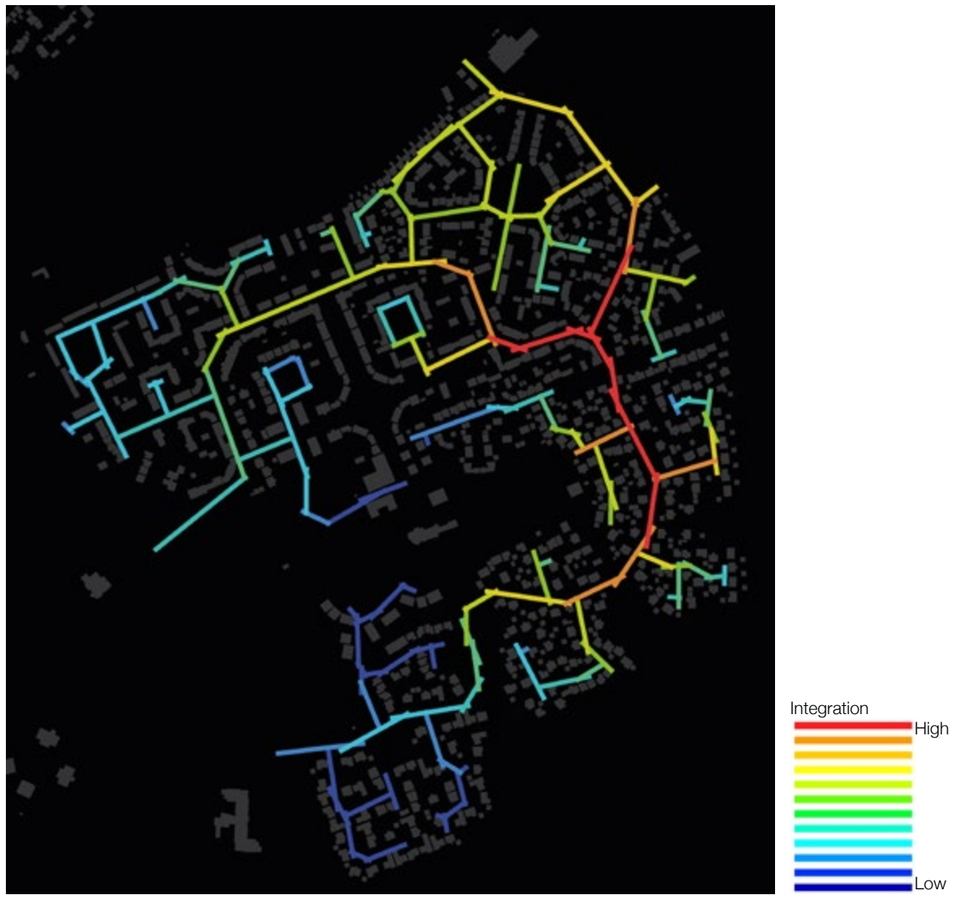
The edges of the scheme are generally made up of buildings and plot backs, which then have either hedging or green space beyond. Only a few of the routes on the estate run to the edge of the boundary, so expanding the estate in the future may be difficult. There is some scope for connecting to the north and to the east, but connecting to the south may be more problematic.

Overall, the levels of connectivity, both internally and externally, are not very high. Similarly, the quality of the connections made tends to be quite low in that inter connectivity between parts of the estate is indirect and fragmented.

For future development, care should be taken to ensure more routes run to the edge of the development area so that should the estate be expanded, it can connect back into the existing route network with ease. Also, internal connectivity should make use of a more gridded strucuture to help better integrate parts of a development with each other.

Right: A route structures diagram of Fernwood, showing how the various streets interconnect with one another.

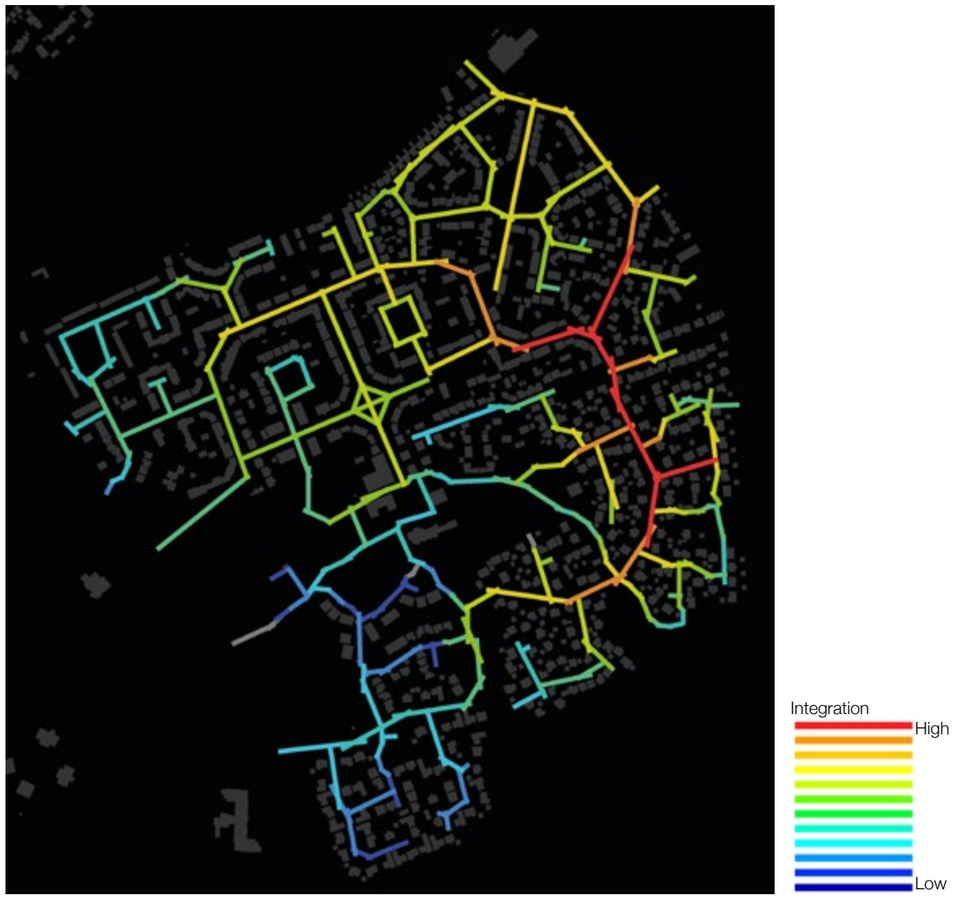
Internal connections in Fernwood



The diagram above shows how the streets and spaces in Fernwood integrate with one another when used for vehicles. The warm colours (reds, oranges, yellows) show spaces that are well integrated to the other spaces on the estate. Well integrated spaces are the ones that are easy to get to, and the warm coloured spaces above are the ones on Fernwood that are the most accessible in this respect.

The diagram shows that the the eastern portion of the spine road is the most integrated space on the estate, with the area around the school showing good levels of integration. The less well integrated parts of the estate occur in the south, where many of the streets are dead ends and which therefore do not form integrated spaces.

In this diagram, the location of the local centre does not appear to be well integrated for access from around the estate, suggesting that getting to it may be an issue. This might affect its economic performance and the range of shops and services that are viable there.



The next diagram again tests integration, but this time with the footpath network added in. The situation to the south of the estate is improved but only marginally. Streets to the east (such as Thomas Road) become better integrated. The north east corner remains the best network of integrated spaces, and integration levels for the shops is slightly better. However, even for pedestrians, the local centrer is not the most accessible space on the estate.

2 Facilities and services

Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, pubs or cafes?

For places to be sustainable they need to have access to facilities and services that allow people to both function and enjoy their immediate surroundings. If the development in question is sufficiently large, it may be appropriate for these facilities and services to be provided on-site. Building for Life 12 asks designers to think carefully both about the range of facilities that might be required and about how easy these will be to access for residents and visitors.

For Fernwood, a small but important local centre exists on site. It sits on the southern arm of Rubys Way, and is located next to the historic Balderton Hall. Here you'll find the community centre, nursery, a convenience-sized supermarket and smaller retail units. There is also a small cafe / bar. Some of the units are currently vacant. Near to the local centre are play facilities including a small equipped park and tennis courts.

Out on the B6326 is a pub that serves food and which is adjacent to the northern entrance to Fernwood. A school is located in the north eastern corner of the estate.

The viability of local centres in new development is often problematic, with shops and services reluctant to move into self-contained places that are too small to generate the levels of demanded needed to maintain a large range of outlets. Fernwood is a large place and as such is able to support a fair range of facilities. However, the location of these appears to be an issue, with the local centre tucked away in quite an isolated part of the development. We have examined its relative accessibility on the pages overleaf,

and the conclusion is that whilst the shops are located 'in the middle' when viewed in plan, they are not located on the most accessible streets in the estate, meaning that they are more difficult to access than they could be. This will have a marked affect on retailers ability to be viable, and will put downward pressure on rents etc.

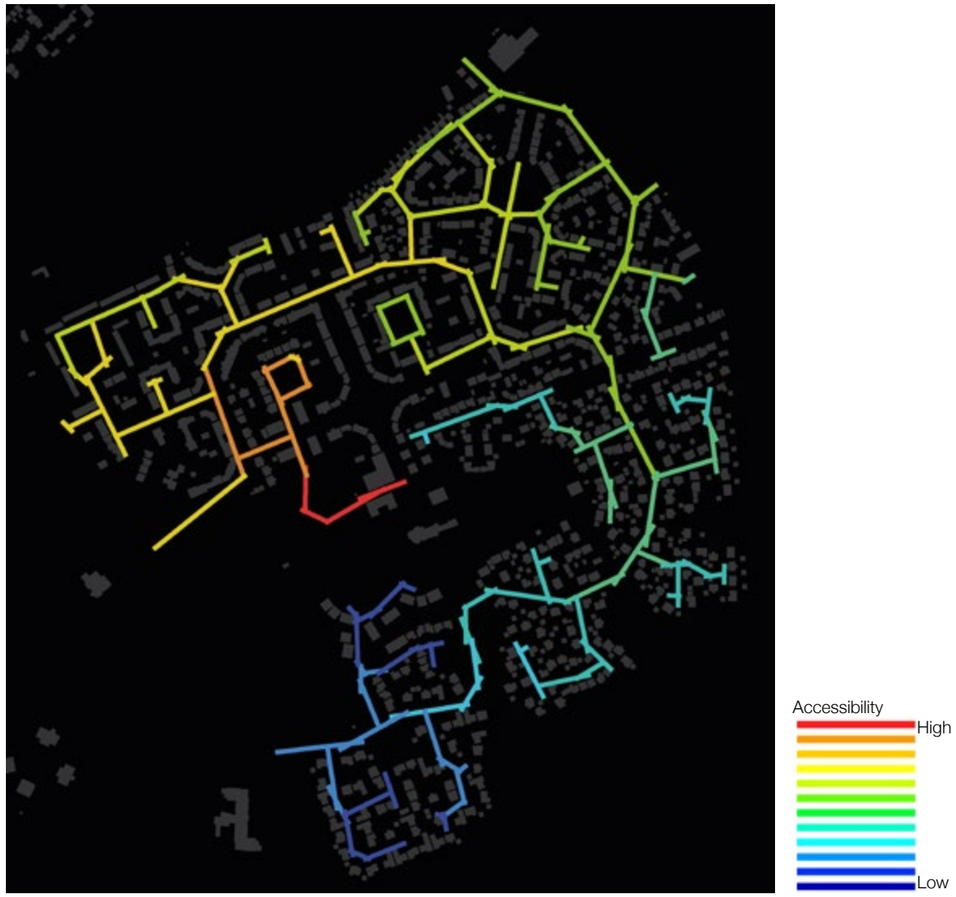
The school, whilst appearing buried deep into the site, off in a corner, is actually on a more spatially accessible part of the development, and as such is quite well located for access, at least from the homes in the north. Both the shop and school are isolated when viewed from homes in the south, likely due to the complex routes highlighted in Q1.

Overall, Fernwood goes part-way in fulfilling the requirements of Building for Life 12 in relation to facilities and services; it provides a reasonable range and does so in places that have pedestrian and cycle access. However, by not placing the local centre in the most accessible location the designers of Fernwood have put it at a disadvantage and have required residents to travel to less well integrated spaces than might otherwise be available.

Future development should look to better understand how the network of streets and spaces are integrated so that the location of shops and other facilities can be more carefully planned. The busiest routes will add passing trade to retail offers, and co-locating schools and other facilities allows for linked trips and boost viability,

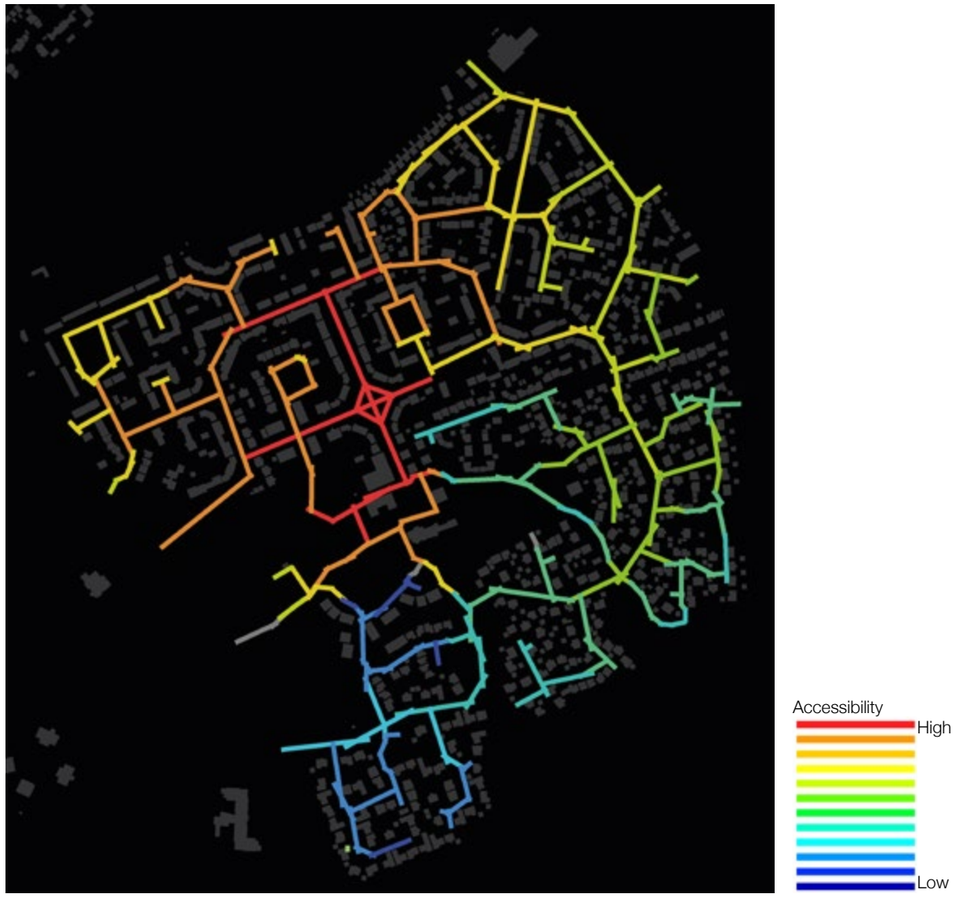
Right, clockwise from top left:
1. The nursery in the local centre
2. The small supermarket with cafe bar beyond
3. The Tawny Owl, the pub on the B6326
4. The school, as seen from Hollowdyke Lane
5. The play facilities located near the local centre

How accessible is the local centre?



The diagram above again colours spaces in Fernwood, but this time takes a single space and then test the accessibility of all the other spaces from that location. Here, we start by locating the local centre and from here we analyse how the other spaces relate to it for all modes of transport including cars.

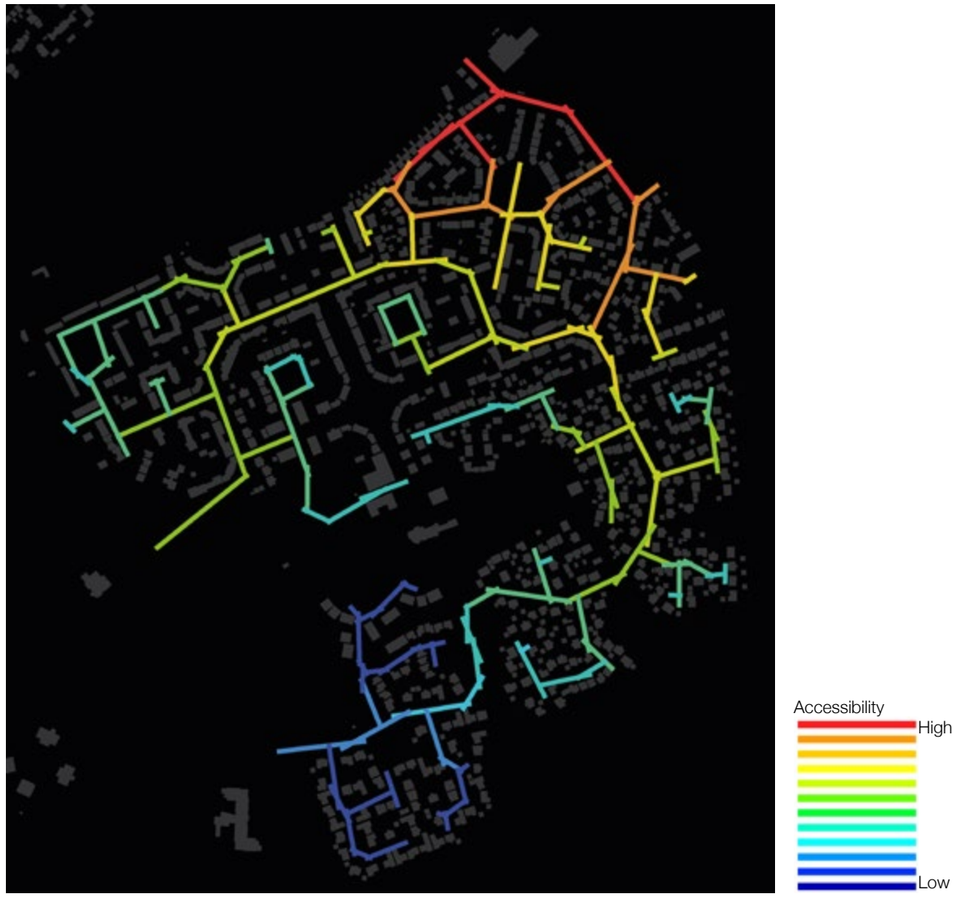
The modelling shows that local centre is markedly more accessible for the northern parts of the estate than for properties in the south. This uneven accessibility might make it more likely that residents in the south would drive rather than walk or cycle.



Adding in footpaths improves the accessibility for the spaces in the north, but has little effect on the southern parts of the estate.

This suggests that the footpath network is too complicated and fragmented to act as a substitute for the street network.

How accessible is the school?



Running the same kind of analysis for the location of the school reveals something interesting; although located in what initially appears to be an isolated corner, the school is actually in a space that is reasonably accessible from most parts of Fernwood. The only areas that appear to be isolated in relation to the school are in the south western corner, although the local centre appear isolated too, highlighting a potential lack of co-support between the school and shops.

Adding in footpaths improves accessibility across the estate, but again only marginally for the south western corner of the development.

Crucially, the local centre is now a more accessible space for school users, improving its relationship with school users who might want to make linked trips etc.

3 Public transport

Does the scheme have good access to public transport to help reduce car dependency?

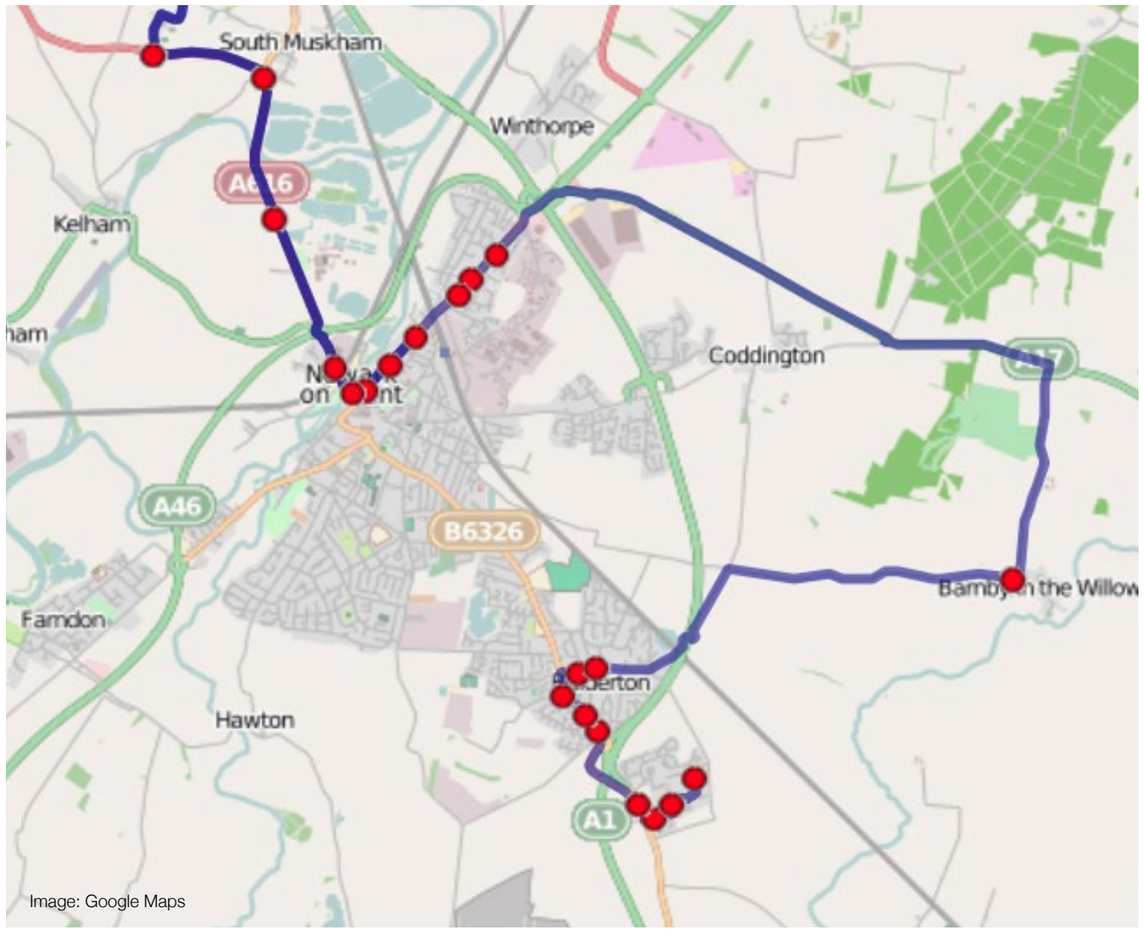


Image: Google Maps

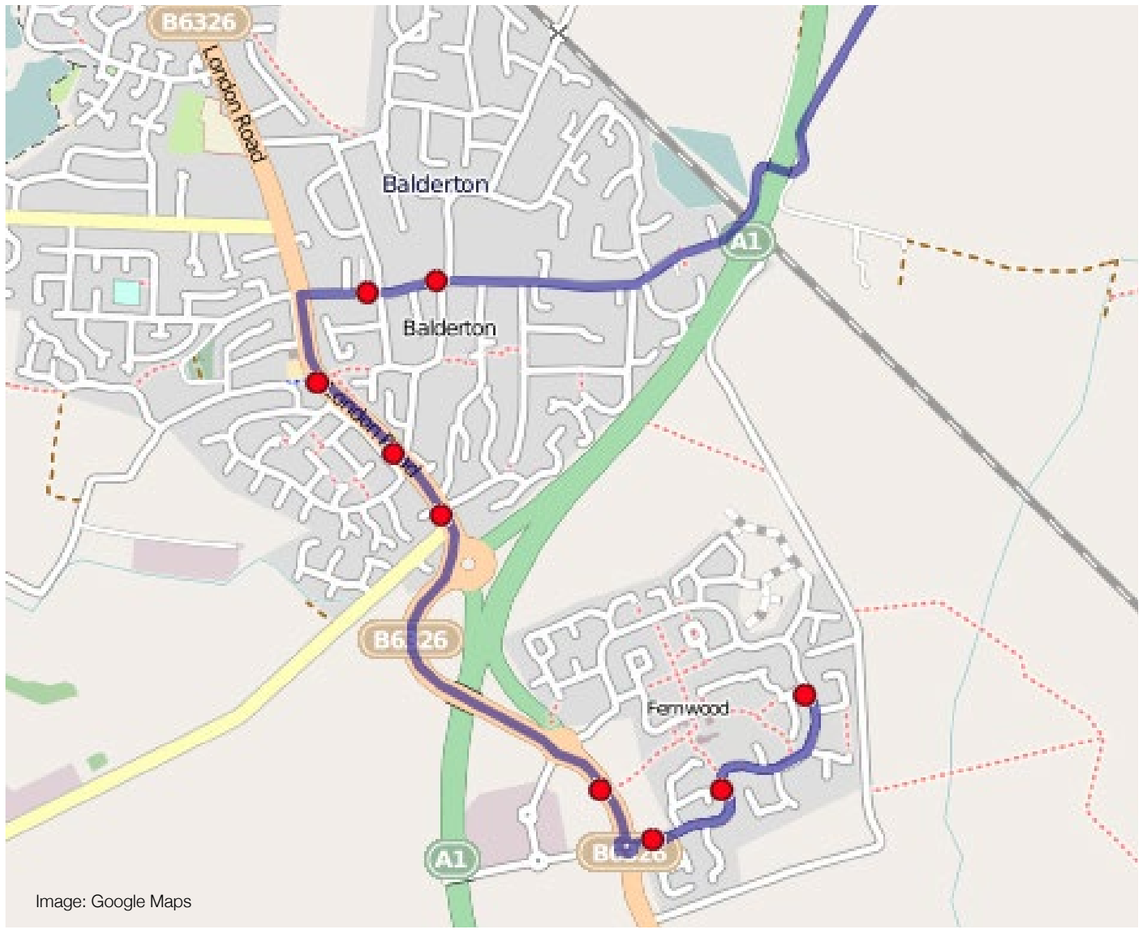


Image: Google Maps

Good public transport is essential if you want to bring about a modal shift away from private car use and onto more sustainable forms. Building for Life 12 stresses the importance of providing access to good public transport as a key component of a developments' ability to function in a sustainable way. It encourages designers to maximise the accessibility of public transport within any development.

Fernwood has a bus service that links it with Balderton, but residents feel the quality of this route is low due to the infrequency of busses. When looking at where this bus takes you (see above), it is clear that it does not take you directly to the places you are most likely want to go, instead skirting Newark and taking a long route to reach the northern part of town.

Taking a closer look, this bus does not run the full length of the spine route, instead appearing to double back and thus missing out a large portion of the northern part of the estate, which is the area with the highest population density. Extending this route right through the site would improve both accessibility for more residents and viability by providing more customers for the service.

Future development should look to interconnect with major routes in a way that allows buses to pass through without needing to take long loops and back-tracking. Stops should be located in the most accessible location, and main routes should be direct so buses can reduce their travel distances.

4 Meeting local housing requirements

Does the development have a mix of housing types and tenures that suit local requirements?

A mix of people helps to generate a community. To generate a mixed and balanced community you need a range of housing types and tenures that cater for different needs. Building for Life 12 asks designers to ensure that they are not creating enclaves for one type of person by ensuring that the types, prices and tenures of homes avaliable offer something for everyone.

Fernwood uses a range of property types, from flats that might suit those without children such as younger residents, or those looking to downsize into something more manageble as they get older. There are Affordable Homes on Fernwood, as well as everything from terraced housing through to very grand detached executive homes. All in all, Fernwood scores well against the Building for Life criteria.

Future development should likewise look to provide a range of housing types and tenures. Care should be taken to ensure that design is 'tenure blind' so that affordable homes are not easy to differentiate from market sale properties. Designers should look to use housing types to generate areas of different character; housing density in particular can be used to get more people living near important local centres and spoces where footfall is needed.

Left: A new phase of development showing a range of dwelling types.

Right, clockwise from top left:
1. Townhouses
2. Large, detatched homes
3. Variation within a street
4. Older teraces
5. Flats on the spine route

Summary

The **Integrating into the neighbourhood** section of Building for Life 12 seeks to address the large-scale strategic issues that influence how any development can perform both socially and economically. It encourages designers to produce places that connect both internally and externally, that provide a mixed and balanced community, that offer an appropriate range of facilities and services and which have sustainable transport options.

For **Connections**, Fernwood has several key failings that prevent it scoring 'green' for Building for Life 12. It has poor levels of connectivity to the wider area, making it an isolated place in relation to neighbouring communities. It is also internally fragmented, with low levels of connectivity between different parts of the estate.

Fernwood has a good range of **Facilities and Services**, with an appropriate range of shops and other uses that are of benefit to the community. However, it doesn't quite score 'green' on Building for Life 12 as the local centre is not in a particularly accessible location, and is instead tucked away in a quiet part of the estate.

Public transport to and from Fernwood is of particular concern; the bus service is infrequent and does not connect the estate with the neighbouring major centre of Newark. It also does not appear to serve the internal routes of the estate particularly well, making it less accessible and less attractive.

Fernwood does a good job in **Meeting local housing requirements**, with a range of property types and tenures on offer that should help in generating a mixed and balanced community.

Creating a place

5 Character

Does the scheme create a place with a locally inspired or otherwise distinctive character?

Building for Life 12 recognises the importance of designing places to have their own character. BfL12 allows for character to be either locally inspired or otherwise distinctive, meaning that designers do not have to slavishly mimic an areas existing character to score well on the question. In the sub questions, BfL12 suggests using locally distinctive characteristics to inspire designers and to help make a design tie in with its locality. Done well, this approach avoids pastiche and can help produce designs that are both distinctive in their own right but which include features that reflect the local context.

The character of new development is of particular concern to both residents and to Local Authorities, with a prevailing view that an over-reliance on standardised housing types and street treatments has lead to new estates looking and feeling like they could be anywhere.

Fernwood features some reasonably grand and high-quality dwelling types, but it is not evident in either the layout or in the details how the form of Fernwood draws inspiration from the local vernacular, nor how it creates a place that is distinctive in its own right. Many of the dwelling types can be seen on any number of estates around the country, and overly standard street treatments means that there is little to distinguish a street in Fernwood from those found elsewhere.

The issue is further compounded by an apparent lack of differentiation within the estate. Whilst the estate appears to have loose character areas, there does not appear to be an overall strategy for using the available design elements - streets, spaces, plots and building detailing - for creating a place with both an overall character plus differentiation within it. Some of the green spaces and squares within Fernwood create areas that have character in the context of the development. However, the effect is weakened through the spaces that are created being either addressed with building sides or backs, or in the case of the squares, inconsistently treated around the edges by the buildings that line them.

Too much variation is a consistent issue for Fernwood, with each street often containing a example of everything and all material types, which erodes rather than builds character. At the same time, the treatment of the streets themselves are overly standardised. For example, the main spine road that loops through the development is the same width and has the same footway treatment along its entire length. Whilst there is difference at the level of individual buildings, more could have been done along this route to help it have a different character in its different parts.

In some areas, boundary treatments such as low hedges or railings add a great deal in terms of character; areas with open fronted plots tend to look and feel more bleak, and on plot parking tends to dominate the street scene. Street trees and planting have great potential to add character, and where they do occur in Fernwood they make the place feel more mature and welcoming. However, their use does not seem to follow a design logic nor define street types or areas, which is a missed opportunity.

Future development should look to generate character at a range of scales, with each carefully planned to ensure that there is enough consistency to help the whole development work as one, but enough variety to allow for differentiation as you move across it. More should be made of planting, trees and green spaces to support character across the place, with different approaches in different areas supporting the generation of character areas whilst also helping to add a mature feel.

Right, clockwise from top left:

1. Flats with different designs and materials, not working together to build character
2. Standard street design combined with over variation at the building level
3. Variation of street materials helps create character, but a jumble of buildings erodes character
4. More consistency at the building level combined with green space helps add character
5. Multiple building types and materials prevent a coherent design from emerging

6 Working with the site and its context

Does the scheme take advantage of existing topography, landscape features (including water courses), wildlife habitats, existing buildings, site orientation and microclimates?

Good design responds to site context, turning constraints into opportunities and embedding preexisting site features to help build character and distinctiveness. Existing site features can include topography, landscaping such as tress and hedgerows, water courses, and existing buildings. Views into and out of the site may also be important.

Carefully incorporating existing features can make developments feel mature on day one and can help differentiate one development from another. It is also more ecologically and environmentally sound to work with rather than against existing features, as cut and fill, flooding and the removal of trees can all be expensive and damaging.

Although much of the Fernwood area was open space before 2001, the design team have responded to two preexisting site features; the clumps and belts of mature trees and the structures of note (Balderton Hall and the water tower). Preexisting trees appear to have been retained and are generally contained in large areas of open space. Balderton Hall and the water town form part of a set-piece, with a cruciform of footpaths running between them and through a small square. Adjacent to this is the shopping area and community hall, nursery etc.

Generally, the existing tree retention is positive; the copse to the southern edge of the site is large enough to support an ecological function whilst providing amenity for residents. The trees that once formed the grounds of Balderton Hall are well integrated into a park and this make this space look and feel mature. The other retained trees form interesting spaces that help break up the development, albeit some of the spaces are not usable as amenity space.

Overall, Fernwood performs well against the requirements of Building for Life 12, and future development should seek to likewise integrate key site features and views in a similarly integrated way.

Below, left to right:
1. Existing mature trees integrated into the street scene
2. Nature trail through the existing copes area to the southern boundary

Right, clockwise from top left:
1. Balderton Hall, a preexisting feature of note
2. The watertower and Balderton Hall are linked by a footpath ‘set piece’
3. Existing trees retained and integrated into open space on site (shaded green) and the water town and Balderton Hall (shaded purple)

7 Creating well defined streets and spaces

Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to turn street corners well?

Good streets and spaces tend to be lined with building fronts that have regular doors and windows which provide overlooking and activity to the street, enhancing their usability and safety. Similarly, good streets and spaces tend to be clearly defined, so that private plots are delineated from publicly accessible areas through planting or some other edge treatment.

A good solution to creating well-defined streets and spaces is an arrangement called the 'perimeter block'. A perimeter block places buildings so that the fronts face out, and the backs and back gardens are contained inside. This has the dual benefit of keeping back gardens and building backs private and away from public access, whilst enabling the street to benefit from the most active parts of a building to the front.

Layouts that do not use perimeter blocks tend to suffer from spaces that attract antisocial behaviour, have issues relating parking to building entrances, and expose back gardens to public routes, making them less safe.

Fernwood generally uses something akin to a 'loose' perimeter block, but with some important alterations that lessen the effectiveness of the arrangement and weaken the strengths of using the arrangement.

In the northern parts of the estate, the buildings follow a more consistent line in relation to the edge of the street, and this gives the impression of a stronger block structure than found elsewhere. Undermining this is a heavy reliance on rear-plot parking, which opens up the interior of the block to semi-public access, making gardens vulnerable and introducing spaces that are not well overlooked.

Most of the property that faces out onto the spine road (Goldstraw Lane) has rear of plot parking, probably due to fears concerning direct frontage access and high volumes of traffic. This is unwarranted; the research supporting Manual for Streets demonstrates that direct frontage access to plots via driveways is safe for streets with up to 20,000 vehicle movements per day. The older parts of the estate such as Dale Crescent show better block structure, as does Johnsons Road to the north east.

As you move further south, the block structure starts to loosen further, with fragmented development that does not tend to use perimeter blocks. The streets to the south also tend to have less straight forward relationships between building fronts and the street edge, with entrances to the side of plot or with buildings located on short closes, tucked away from the main streets (see for example Oakfield Road). It is also more common in the southern portion of the estate for housing to have exposed buildings backs, as most of the units here back on to open spaces. Whilst this does not affect the enclosure of the streets, it does reduce the quality of the open spaces provided and of the safety and privacy of the back gardens.

Landscaping has a role to play in providing an edge to the street. Many parts of Fernwood use open-fronted plots, with no boundary treatments. This makes the streets feel less enclosed and gives the impression that some streets are overly wide. On Dale way, large parts of this main spine route have little or no buildings lining the street edge, and this makes the route feel poorly overlooked and enclosed.

Future development should adopt more robust perimeter blocks, and to help this, a connected grid of streets should be planned from the outset so that spaces do not need to be addressed by building backs and sides. Boundary treatments such as hedges and low walls can help create enclosure and screen parking from the street. Care should be taken not to place close-boarded fencing onto public routes and front of plot parking should be screened with planting where possible.

Right, clockwise from top left:

1. The main spine route with building fronts marked purple; note how little of it is addressed by the buildings that line it, especially to the south
2. Close-boarded fencing on to public routes
3. Front of plot parking with no landscaping
4. Rear-plot parking opens up the interior of the block
5. Boundary treatments help enclose the street

8 Easy to find your way around

Is the scheme designed to make it easy to find your way around?

Question 8 of Building for Life 12 looks at an urban design concept called ‘legibility’, or how readable is a place. In more lay terms, this can be understood as how easy a place is to find your way around. Places that are easy to navigate tend to have similar features that aid wayfinding, such as good sight lines, memorable buildings and spaces, a network of street types that help you understand where you are in a place and how one space relates to another.

Things that erode legibility include overly wiggly or indirect streets that take you on complicated routes, inconsistent building scales so that the size and scale of buildings do not relate to the importance of the street, and overly standard street types so that no hierarchy is evident. Disconnected streets also harm legibility, as they stop you from moving easily from one part of a place to another.

For Fernwood, legibility is a problem, due in part to the inconsistent use of buildings and spaces and the overly similar street types, but mainly because the route structure used means that many journeys require you to double back on yourself to get from one part of the estate to another. This is more pronounced in the southern part of the estate, where short dead-end streets mean that parts of the development are isolated and hidden, making them hard to find.

This is demonstrated by the diagram (overleaf, right) showing sight lines. The warm colours show good lines of sight that help you form an image of a coherent movement pattern, meaning that they contribute to moving around the estate. Cooler colours show visually isolated spaces that feel tucked away, often down several side streets.

A design feature working against the connected routes in Fernwood is that they are often indirect. Streets such as Goldstraw Lane and Dale Way are both sinuous and wiggly, which Building for Life 12 recognises as being harmful to wayfinding. Rubys Way and Apple Avenue both have public squares that could act as local landmarks that aid wayfinding, but they are in very isolated locations and cannot help people find their way around.

When looking at the footpath network, a more connected and direct network appears. The use of the water tower to help frame the main cross-route footpaths near the shops helps people to navigate. Other footpaths are less successful as they are often indirect and poorly overlooked.

Future development should seek to use a connected mesh of streets that are direct, to help make the place more legible. Footpaths should be similarly direct and legible, and should not pass along the backs of buildings. A hierarchy of streets should be used so that people can understand from the street they are in whether it is an important route or a more local access route. Similarly, the scale of buildings should be used to help define important routes. Planting and public spaces help break up streets, make spaces look and feel different from one another, and can add a great deal to wayfinding.

Right, clockwise from top left:
1. Views terminated with blank walls
2. Short sight lines (blue) that erode wayfinding
3. Footpaths that are not well overlooked
4. Poor natural surveillance on an important pedestrian route
5. Lots of blank walls to the street edge, terminating in a poor view

Summary

How design elements combine in **Creating a place** is critical for new developments to have a discernible character and identity, to respond to the conditions of the site and its surroundings, to create streets and spaces that work well, and to promote legibility and wayfinding. Building for Life 12 requires that designers think carefully about all these things and that this thinking embeds best practice into the fabric of a place.

Fernwood struggles to have a definable **Character**, and this is in spite of having some fairly handsome individual buildings and some good quality landscaping. Overly standardised streets, seemingly random variation in design detail and building types, and green spaces that do not form part of a coherent network all count again the design for this Building for Life 12 question. A more thoughtful use of detailing at all the scales, more variation in street treatments and a more joined up planting and green spaces strategy would help alleviate this issue for future development.

It does, however, do a good job of **Working with the site and its context**. Existing structures and green infrastructure is retained where possible and most of the mature trees are contained within parks or are placed in spaces that add visual interest. Larger areas of greenery help to support ecology and add amenity.

An inconstant approach to block structure means that Fernwood has issues with **Creating well defined streets and spaces**. Often, open space is placed to the rear of homes where overlooking is poor and the privacy of back gardens is compromised. Views are often terminated with blank elevations, and parking courtyards allow access to spaces that should be kept more private. More regular streets that connect at both ends helps to create perimeter blocks more easily, and moving parking away from the rear of properties keeps the integrity of the block in tact.

Because of the type of street network used in Fernwood, it is not a place that is **Easy to find your way around**. It is illegible in that many of the streets are dead ends and tucked away, making them difficult to find. It also uses short streets with poor sight lines which have been shown to erode wayfinding. Buildings and planting do not work together to help support the movement structure, and the footpath network is often indirect, not overlooked and not lit. New development can use design at all scales to improve legibility, including using street types and planting to generate a recognisable hierarchy.

Street and home

urban forward ltd

9 Streets for all

Are streets designed in a way that encourage low vehicle speeds and allow them to function as social spaces?

When meeting with the Steering Group, it was suggested that vehicle speeds along the main spine route were a problem, with high speeds being reported as a regular and unpleasant occurrence. Since Fernwood was designed, new guidance for street design has been launched. Manual for Streets replaces earlier guidance and has ushered in a new way of thinking about street design to help both combat antisocial driving behaviour but also to recognise the role that street design has in making quality places.

Building for Life 12 was written to reflect on the guidance in Manual for Streets, and recognises the importance of making streets that not only serve the needs of private cars, but that can also be good places in themselves that cater for everyone.

Design elements that combine to make streets for all include good levels of surveillance from neighbouring properties, low design speeds so that cars don't travel too quickly but without unsightly traffic calming, decent levels of space for pedestrians and cyclist, including safe and convenient crossing points, and using materials and landscaping to provide places to sit, shade, and good quality surfaces.

The research that underpins Manual for Streets found that long, sinuous curves has the effect of increasing vehicle speeds, which may explain the higher-than-desirable speeds noticed on the main spine route. Other factors that correlate with higher speeds include a lack of direct frontage access to driveways, and a lack of on-street parking. Again, the main spine route has neither, which may contribute to making it a street that encourages faster driving.

The side streets in Fernwood, whilst of reasonably standard design, have higher levels of interaction between the streets and the buildings that line them. This makes them feel more pedestrian-friendly. Streets such as Dale Crescent have hedgerow boundaries that make the street feel more welcoming to pedestrians, and the street trees on Pach Avenue help in this regard too. Less successful is the almost exclusive use of blacktop, concrete curb with high upstands, and overly wide junction radii that make crossing side streets more difficult.

Some of the side streets (such as Parsons Close) have surface treatments that make the street feel more like a social space and less a place only for cars. For quiet streets, this sort of treatment can help them double as spaces where children can play.

Overall, the streets in Fernwood are of their time, and do not have the sorts of design features that would help them score well under Building for Life 12. The main spine route in particular has a design that is causing problems with vehicle speeds. Given that this is the main route through the site and should be expected to carry high volumes of pedestrian and vehicle traffic, the role of vehicle speeds is important here as it reduces the usability of this route for anything other than cars. The side streets are similarly standard, but have better overlooking and are more likely to be pedestrian friendly and support occasional play.

Future development should look to use as many supports as possible to ensure that the streets offer something to all users and not just to private cars. Shared surfaces for very quiet streets make them able to be used as play spaces, and good seating, lighting and street trees make more major routes attractive to pedestrians without reducing their capacity for higher traffic volumes. Vehicle speeds should be controlled through design speed rather than simply signage, and traffic calming should be subtle and 'designed in' rather than being a retrofit to a standard solution.

Right, clockwise from top left:

1. Block paving slows traffic and helps streets feel more pedestrian friendly
2. Some traffic calming on the main spine route, but sinuous curves may actually increase speeds
3. High curbs and standard treatments typify Fernwoods streets
4. Subtle traffic calming of high quality improves the street
5. A standard range of materials combine to make the streets feel over-engineered

10 Car parking

Is resident and visitor parking sufficient and well integrated so that it does not dominate the street?

Car parking is an especially emotive subject and one that is very consequential in design terms. Prevailing practice until relatively recently was to restrict the number of parking spaces available in an attempt to make owning and using cars less attractive. Due to failings in practice, this approach has been largely reversed, with current best practice promoting designed-in parking solutions that can cope with the expected levels of car ownership.

Similarly, reviewing parking and interviewing residents has revealed that certain parking solutions are less well-liked and well-used than others. Rear-court parking in particular is not generally favoured, with rear-courts being under used and often presenting a safety concern.

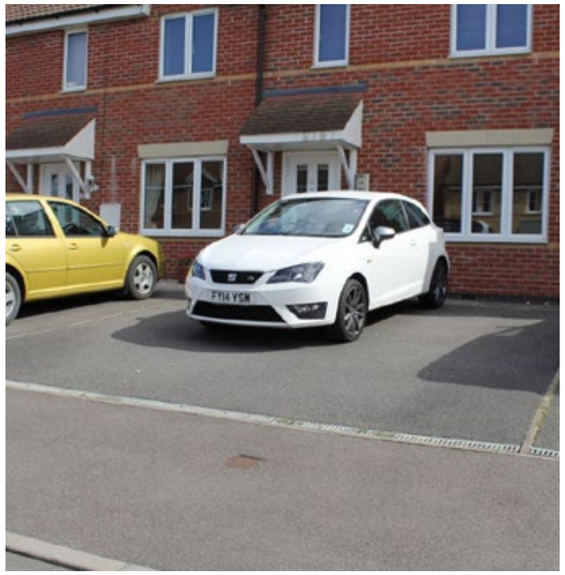
Building for Life 12 encourages parking that is both of sufficient quantity and that is designed in a way that is well integrated. On-street parking is encouraged, as this adds capacity, helps with traffic speeds, and is often convenient for residents. However, to be successful, on-street parking must be designed in at the outset so that it does not become problematic and dominate the street scene, impede crossing and affect pedestrian movement. Parking that is not convenient, cannot be seen from the home and that does not discourage anti-social behaviour is to be avoided.

Fernwood uses a range of parking solutions. The more successful parts of Fernwood use on-plot parking, often with garages. This keeps cars near to people's homes and allows them to be kept safe. Not all the on-plot parking is as successful, with some of the parking on Dale Crescent being on-plot but open fronted, meaning that when cars are parked they dominate the street.

For what is essentially a suburban location, Fernwood uses as surprisingly high number of rear parking courts. Rear parking courts offer a good parking solution for urban situations or for places where frontage access to plots is problematic such as from very busy through roads or where homes front onto water or some other natural edge. They are not necessary or desirable in more suburban locations, where low densities and quiet streets do not limit on-plot provision. The use of parking courts for the flatted development on the spine route is a example of using them appropriately, where as the many small courts that occur in the northern portion of the area do not have such a strong supporting rationale.

Overall, parking in Fernwood seems to be in sufficiently high quantities, but there is little formal provision for on-street parking, so that where it does occur, it can be disruptive to pedestrians and look unsightly. The overreliance on rear-courts in the northern part of the estate is also potentially problematic as it puts cars away from people's homes and into spaces that reduce rear garden sizes and that are not well overlooked.

For future development, a wider range of parking, including on-street parking and parking squares, should be considered. On-plot parking should be arranged so that frontages are not 'open', with cars screened by boundary treatments so they do not dominate the street scene. Where rear courts are needed, they should be small (no more than 6 spaces) and should be secure and well overlooked.



Right, clockwise from top left:

1. Open fronted parking means that car dominate your view down the street
2. Informal on street parking is encouraged, but should be designed in
3. No boundary treatments mean that parking here does not feel integrated
4. Rear courts are not well used, and create spaces that can be unpleasant
5. On plot parking screened with planting is a good solution for a suburban location

11 Public and private spaces

Will public and private spaces be clearly defined and designed to be attractive, well managed and safe?

Fernwood is a very open place, with the housing separated by green areas that have walkways and footpaths threaded through them. There is formal play provision and sports provision, plus a wooded area and meadows. Large trees are a feature in some of the spaces, plus the housing areas themselves are in places generously landscaped.

Building for Life 12 recognises the importance of open space in adding to the quality of the environment. It also emphasises that for open space to be successful, its use and who can access it must be clearly defined, how it is managed must be carefully planned, and the type and function of it must provide the rationale for its location and form. Building for Life 12 also talks about general landscaping and boundaries between what is public and what is private, suggesting appropriate species and not providing left-over space that will be a maintenance headache in the future.

A final imperative within Building for Life 12 is that open spaces should have high levels of overlooking to provide natural surveillance. This is to ensure that spaces do not become hot spots for antisocial behaviour.

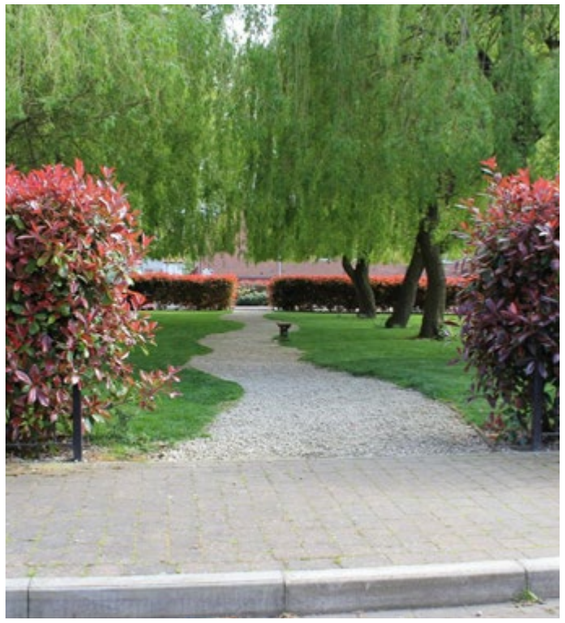
Many of the more formal open spaces in Fernwood are not well overlooked, and their use is ambiguous, with many being laid to grass but with signs saying no ball games etc. They appear to be mainly ornamental, but are not species-rich so do not necessarily contribute to biodiversity. The wooded area to the south east corner is much better in this regard, with a community-made trailing running through the small copse which provides habitat for wildlife as well as amenity for residents. It is, however, tucked away behind houses who present close-boarded back fences to the space, and this means it is not well policed by its neighbours.

The older area around Dale Crescent has a public square that is open at it's edges and doesn't have any support for formal play. The undulations might help with informal play, and the bench in this space lets people sit out. There are other two formal public squares (Rubys Way and Apple Avenue), and these are superficially similar but are quite different in detail. The main difference comes from the level and maturity of planting, plus the how the space is delineated from the street with a good quality hedgerow for Apple Avenue, where as Rubys Way has less well-established planting and the edge of the square is open to the street. This makes it feel of less high quality than it might otherwise be.

Other spaces are more ambiguous in nature, and do not appear to be designed for use. The open space on the edge of Pach Way contains a line of presumably preexisting mature trees, but you cannot access from the properties than line this space and it does little to support social activities. Similarly, the spaces like those on either side of the southern portion of the spine road (Dale Way) appear to ornamental, with no clear intended use.

The large spaces on the western edge of Fernwood are similarly ambiguous, and whilst they could offer some attractive spaces for walking dogs etc, they are backed onto by the properties around them, reducing their quality. Add in the small areas of landscaping that are expensive to maintain, and Fernwood's open space provision does not perform well under BfL12. This is in spite of it being perhaps the most character-forming element of the scheme. A more coherent range of spaces that work together, and less 'left over' pockets of landscaping would improve the situation and reduce management fees.

New development could seek to emulate Fernwood's open and green feel, but should do so in a more coherent manner, with spaces linking together to help structure pedestrian and cycle movement networks, and for spaces to provide more support for play and social activities. Left-over space should be kept to a minimum to help reduce management costs.



Right, clockwise from top left:

1. Mature trees retained, but the space in which they sit is not easily accessible
2. The public square at Rubys Way has no clear intended use
3. Pockets of landscaping are expensive to maintain, even though they soften the street scene
4. Many spaces appear to be ornamental, with no amenity value
5. Apple Avenue has perhaps the most sucessful public square, with seating and a boundary

12 External storage and amenity space

Is there adequate external storage space for bins and recycling as well as vehicles and cycles?

External storage is coming under increasing pressure as recycling initiative are requiring people to own more bins for sorting waste. The popularity of cycling means that more people are looking for dedicated, safe storage solutions for bikes. Badly designed or a lack of bin and cycle stores can lead to places looking untidy as bins are left on the street and cycles either chained to lampposts or placed in hallways.

Building for Life 12 encourages designers to integrate bin and cycle storage from the outset, and schemes that do well under Building for Life 12 usual feature either a dedicated bin and cycle store or a plot type and access arrangement that allows for easy storage of these items.

This question also relates to vehicle storage, with Building for Life requiring that garages are appropriately sized to store a family-sized car. It also seeks to encourage parking spaces that are appropriately sized to encourage people to use the parking spaces provided. Finally, the question asks designers to make sure that where provided, gardens are of a decent size and that they are a usable shape and easy to access.

Fernwood has parking spaces and garages that appear to be of a good size, and which should be adequate for car storage. Most of the plots are generous enough for easy parking to the front or side. Plots that have generous front gardens are able to provide space for bin storage, even if this isn't dedicated space. This works best when there is screening such as boundary hedgerows to hide bins away from view.

Less successful are areas where the plot is open fronted and where there is no access to the rear of the property.

For these properties, it is difficult to find places to store bins and recycling boxes as they do not have dedicated stores, and drag distances make putting bins to the rear difficult. Here, the bins can look unsightly as they start to dominate the street scene.

Garden sizes in Fernwood vary by a fair amount, although some corner plots to the northern part of the scheme do suffer from small, awkward shaped gardens. These gardens are smaller than they might otherwise be due to rear court parking, which steals space from the rear.

An issue that Fernwood has relating to bin and cycle storage is that parts of the estate were designed and built before the current trend for curb-side recycling and more cycling emerged. As such, designers were not dealing with those issues as they are today. The consequence of this is that bin and cycle storage is not designed in from the outset, and instead people must rely on the inherent robustness of the plot type to allow for good bin and cycle storage.

That said, bin storage doesn't appear to be a problem on Fernwood, although ideally it would be better integrated with dedicated storage.

Development on adjacent sites should look to identify the potential bin and recycling requirements and then ensure they design in the storage for it. If garages are planned, then these should be made large enough for a modern car, plus could double as bin and cycle storage. All properties should have easy access to the rear garden for storing bins off the street if a front of plot location is not available. If storing bins and cycles in the front garden, a low wall or hedge can act as screening from the street.

Right, clockwise from top left:

1. Bins left on the street quickly erode quality and look unsightly
2. Large front gardens allow for flexible bin and car storage
3. Access to the rear of terraced properties makes it more likely that people will store bins in their gardens and no on the street
4. Boundary treatments screen on-plot vehicle storage
5. Rear parking courts can become unintended bin stores, as people with small gardens look to find more space

Summary

Fine-grained detailing makes a big difference to the look and feel of a place, and failing to account for the small things can quickly undermine the quality of a development. Building for Life 12 encourages design teams to work on the sorts of details that matter to residents for their **Street & home**, such as parking, bin storage and how spaces work and are managed.

Fernwood does not have **Streets for all**, with many of the streets designed to a standard specification that neither supports social uses or helps add character to the development. High speeds on the spine route mean that this important street is less appealing to pedestrians that it might otherwise be. New development should place more emphasis on the role of streets in generating a quality place that caters for all users, not just cars.

Car parking on Fernwood is generally good, albeit some of the solutions used are not appropriate for what is a suburban location. Many plots feature good garages and on-plot parking, but some have open fronts which means car dominate the street scene. Rear courts feature in many locations, and these are not well used or well overlooked.

New development should better integrate a full range of parking, including on-street provision, so that parking adds to and not detracts from the quality of the place.

Fernwood is very open and green, but has trouble in how it deploys its **Public and private spaces**. Many of the public spaces provided do not have a clear intended use, and although they add character to the development, more could have been done to make them genuine amenity spaces and not just maintenance burdens. Some of the private spaces provided could have better delineation, and some of the small pockets of landscaping might prove difficult to manage.

How **External storage and amenity space** is designed can have a large impact on quality. For Fernwood, although there do not appear to be dedicated bin and cycle stores, most of the plot types are robust enough to allow for their storage in either garages or back gardens. Front gardens with boundaries can work well in this regard too, as the boundary treatment screens bins and cars from view along the street.

Appendices

Glossary of terms

This glossary has been assembled to expand upon some of the less familiar terms used in this document. It is not exhaustive, and is not intended to cover all the terminology associated with townscape character and built environment work. Readers looking for a more comprehensive resource are encouraged to visit:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7665/158490.pdf

Axial line (Space Syntax) - a line drawn on a plan representing the longest line of sight possible through a space. Axial lines form the basis of Space Syntax theory.

Block - the arrangement of, and the relationship formed between, a group of buildings and the streets or spaces that surround them.

Burgage - a type of plot derived from medieval property ownership, typically long and narrow in shape.

Deformed grid - a pattern of streets that interconnect with one another but in which the street alignments and junction spacing is not regular.

Depth (Space Syntax) - the relationship of one space relative to others in a system being analysed by Space Syntax. High system depth indicates that a space is further away from more spaces. See also steps.

Face (buildings) - the edge of the building that is presented to the street. These can be 'open' (shallow angle) or 'closed' (acute angle) when viewed along the street.

Integration (Space Syntax) - a global measure of a network that relates one space to all the other spaces. See also depth.

Intelligibility - the extent to which the way a place is structured can be understood by users of that place. See also legibility and navigability.

Legibility - the extent to which the configuration of an urban space is understandable from within its spaces. See also intelligibility and navigability.

Permeability - the extent to which the configuration of routes and spaces in an urban system permit or restrict movement through the system.

Navigability - how easy a place is to navigate for people within its movement system. See also legibility and intelligibility.

Orbital - a type of route that connects the radial routes of a settlement together.

Plot - an area of land, often associated with buildings, that is demarcated on a plan. Can be defined with vertical boundaries.

Radial - a type of route that leads from the centre of a settlement to its edge and beyond.

Radius (Space Syntax) - the number of turns required when moving through a network measured during Space Syntax analysis. See also steps.

Rectilinear - A long-sided rectangle, often narrow. Can be applied to building or plot forms.

Steps (Space Syntax) - the number of decisions or turns required for a journey modelled in Space Syntax. See also depth.

Typology - Recognisable spatial characteristics that can be seen across the study area.

Manual for Streets, TFL

Manual for Streets (MfS) replaces Design Bulletin 32, first published in 1977, and its companion guide Places, Streets and Movement. It puts well-designed residential streets at the heart of sustainable communities. For too long the focus has been on the movement function of residential streets. The result has often been places that are dominated by motor vehicles to the extent that they fail to make a positive contribution to the quality of life.

MfS demonstrates the benefits that flow from good design and assigns a higher priority to pedestrians and cyclists, setting out an approach to residential streets that recognises their role in creating places that work for all members of the community. MfS refocuses on the place function of residential streets, giving clear guidance on how to achieve well-designed streets and spaces that serve the community in a range of ways.

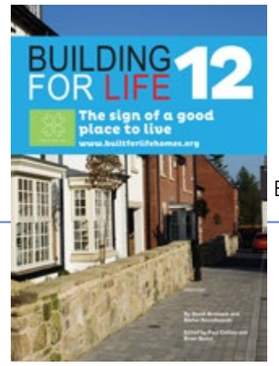
MfS updates the link between planning policy and residential street design. It challenges some established working practices and standards that are failing to produce good-quality outcomes, and asks professionals to think differently about their role in creating successful neighbourhoods.

It places particular emphasis on the importance of collaborative working and coordinated decision-making, as well as on the value of strong leadership and a clear vision of design quality at the local level.

Research carried out in the preparation of Manual for Streets indicated that many of the criteria routinely applied in street design are based on questionable or outdated practice.

For example, it showed that, when long forward visibility is provided and generous carriageway width is specified, driving speeds tend to increase. This demonstrates that driver behaviour is not fixed; rather, it can be influenced by the environment.

MfS addresses these points, recommending revised key geometric design criteria to allow streets to be designed as places in their own right while while still ensuring that road safety is maintained.



Building for Life 12

Building for Life 12 is the industry standard, endorsed by government for well-designed homes and neighbourhoods that local communities, local authorities and developers are encouraged to use to help stimulate conversations about creating good places to live.

The 12 questions reflect our vision of what new housing developments should be: attractive, functional and sustainable places. Redesigned in 2012, BfL12 is based on the National Planning Policy Framework and the government's commitment to not only build more homes, but better homes - whilst also encouraging local communities to participate in the place making process.

The questions are designed to help structure discussions between local communities, local planning authorities, developers and other stakeholders.

BfL12 is also designed to help local planning authorities assess the quality of proposed and completed developments; it can be used for site-specific briefs and can also help to structure design codes and local design policies.

BfL12 comprises of 12 easy to understand questions that are designed to be used as a way of structuring discussions about a proposed development. There are four questions in each of the three chapters:

- Integrating into the neighbourhood
- Creating a place
- Street and home

Based on a simple 'traffic light' system (red, amber and green) we recommend that proposed new developments aim to:

- Secure as many 'greens as possible,
- Minimise the number of 'ambers' and;
- Avoid 'reds'.

The more 'greens' that are achieved, the better a development will be. A red light gives warning that a particular aspect of a proposed development needs to be reconsidered.

About Space Syntax theory

Readers may be wondering how the coloured lines in the diagrams in questions 1 and 4 were generated. This study uses Space Syntax theory and its techniques of analysis to measure the properties of Fernwood's movement system. Analysis includes the level of integration, of connectivity, of route choice and of line length. The study area for the analysis was defined by the settlement boundary as it joins with open space beyond.

Research since the 1970s by Bill Hillier and his colleagues at The Space Syntax Laboratory, University College London has led to a fundamental understanding of the relationship between spatial configuration and the use of space, the emergence of land uses and longer-term social outcomes.

Typically, analysis of successful movement systems reveals a structure where a few long straight lines form the main settlement-wide movement routes. The remainder - the more numerous and shorter lines - represent the more local movement system. These are the quieter streets that carry less movement but are still connected to the wider movement network.

In the hierarchical movement systems introduced from the 1950s onwards, the pattern of development is very different, with pedestrians frequently segregated from vehicular movement at the local level. The very ends of the movement system are the culs-de-sac so familiar from the 1960s onwards in both public and private sector housing development. This has frequently resulted in pedestrian paths that pass along the backs of properties with little or no surveillance, that are less direct and legible and have a very low quality of walking experience.

Recent design guidance has recognized that we need streets that are designed for all modes of movement to be integrated within the same space; streets that are convenient for vehicular movement but that are also safe, convenient and attractive for walking and cycling at a local scale (Manual for Streets 1 and 2, Building for Life 12).

Hillier et al's Space Syntax approach uses a number of network measures to represent the relative properties of the 'segments' of public space, defined by drawing lines, called 'axial lines', through the system being analysed.

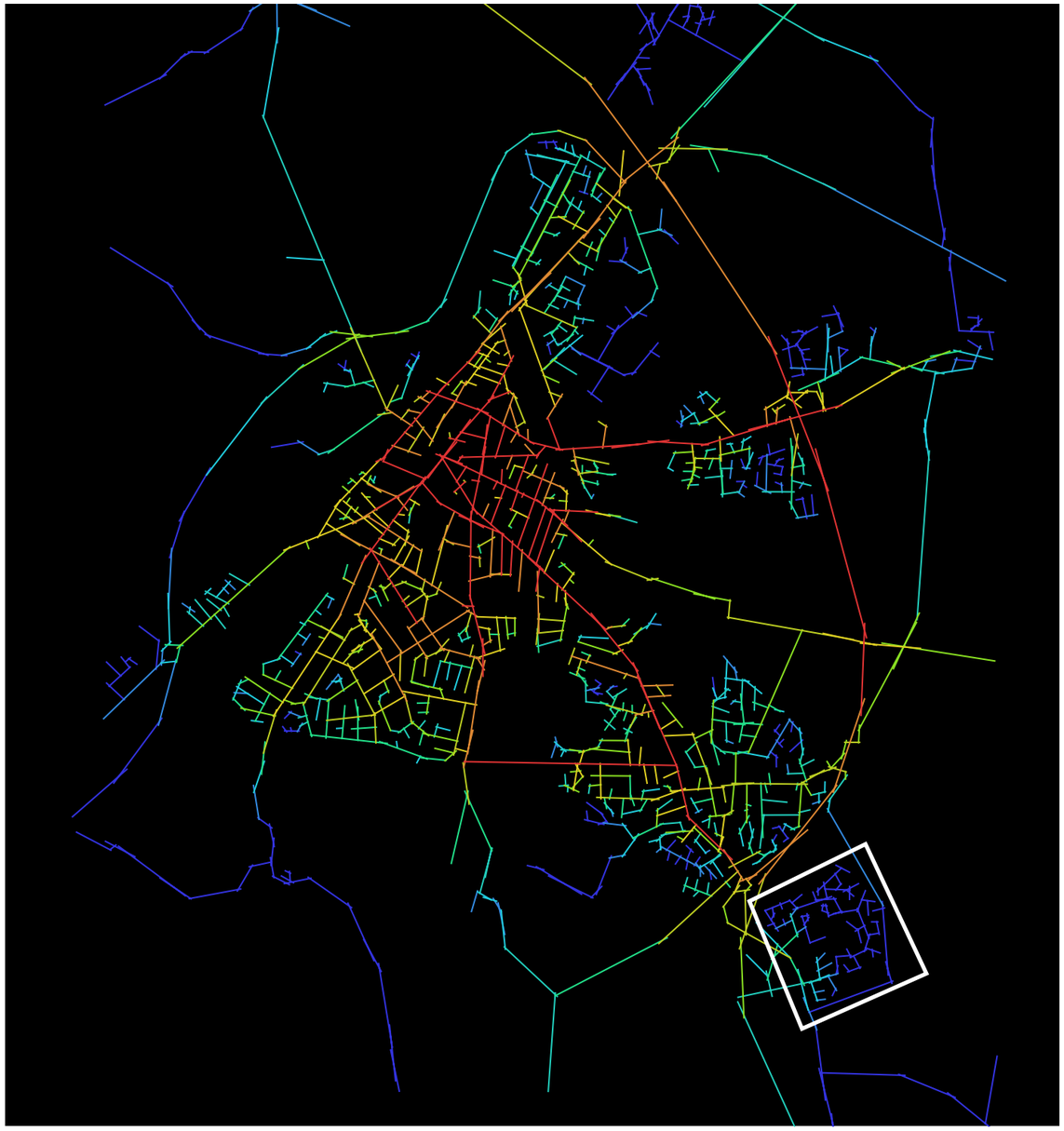
These studies show that the movement intensity along any axial line – that is, any length of line with an unobstructed view from one end to the other – depends on the line's pattern of connections to all the other segments in a given area around it.

Axial line length depends on the bendiness of the street, with the longest sight lines tending naturally to pick up the largest number of connections.

The most intensive movement will flow along these straightest, most-connected areas (in hotter colours in the diagram), while the shortest, least connected areas will be quietest (as shown by the cooler colours).

The geometry of a layout has a pronounced effect on actual and perceived permeability and legibility as well as actual and perceived levels of safety. The analysis can also help unpick how street geometry differs in areas of different townscape, adding an extra element to character analysis.

In undertaking our analysis, we modelled the whole of Newark and surrounding to see how Fernwood sits in relation to the bigger picture. This work could form the basis of a future project looking at how areas of growth in Newark and surrounding could work together to best integrate with the existing town, with local centres and with each other.



Right: Newark in 'axial line' format, coloured to represent integration, where warm colours represent street segments that are well-integrated and cool colours represent lower levels of integration.

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urban forward ltd
The Studio
122 Newland
Witney
Oxon
OX28 3JQ

w: www.urbanforward.co.uk
e: info@urbanforward.co.uk
t: +44 7980 743523
@urbanforward

urban forward ltd