



Bristol City Council

Knowle West Regeneration Framework Baseline Briefing (FINAL)

KNOWLE WEST REGENERATION
FRAMEWORK

THE TEAM:
URBAN INITIATIVES

PROJECT DIRECTOR:
ROISIN BARRETT

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1 Fitzroy Square
London W1T 5HE
t +44 (0)20 7380 4545
f +44 (0)20 7380 4546
www.urbaninitiatives.co.uk

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01 Introduction

01.1 Purpose of this document

The purpose of this document is to provide a summary of relevant baseline analyses carried out across a number of topic areas for the preparation of the Knowle West Regeneration Framework (KWRF) and the Outline Planning Application for Filwood Broadway Corridor.

A wide range of information has been reviewed during this initial phase of the project using desktop analysis, site walkovers, meetings with individuals and workshops with officers and stakeholders.

This report summarises key baseline outputs and marks the transition from project stage 1 to project stage 2. Our baseline findings prompted initial thoughts on issues and propositions which we present in this report at the end of each section. The following key issues have been identified for the Knowle West neighbourhood:

- Environmental constraints relating to ecology, land quality, utilities and flood risk ;
- Accessibility, connectivity and legibility;
- Provision, hierarchy and location of shopping and service centres;
- Housing choice and density;
- Population increases;
- Open space accessibility to afford better play and rest experiences;
- Quality and choice of housing;
- Employment opportunities;
- Education and skills; and the
- Most appropriate planning and delivery vehicle to achieve the overarching objectives of the KWRF.

The summaries that follow are based on comprehensive baseline reports, submitted as separate papers. Their greater detail is expected to inform and guide the masterplan process towards specific site options during Stage 3 and 4 of this project.

01.2 Structure of this document

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01.3 Limitations

Out of 14 Stage 1 tasks, we can report significant programme delays and scope changes for the following 4 work streams:

- Commencement of Community Involvement Activity
- Community Buildings Audit
- Public Art Strategy, and
- Filwood Broadway Corridor requirements

It has been agreed with the Client team that all interviews with representatives of community facilities should be carried out after a BCC on-line community buildings survey is completed. We expect to set up a number of in-depth interviews in June, prior to the preferred options stage (4).

The 'Public Art Strategy' task will be carried out by BCC, with support from Urban Initiatives at key stages, and is likely to run parallel to the preferred option stage 4.

Further, an early meeting with BCC Development Control Officers highlighted that a decision, as to whether an EIA would be required to accompany any application would be premature at this stage, prior to the definition of further detail such as quantum, siting, access and other key defining features.

01.4 Study area & administrative boundaries

The Regeneration Framework Area is located in South Bristol and covers around 325 hectares (ha). The boundary of the study area is shown by a red outline in the Figure 1 .

Numerous data sets were collected on ward and Super Output Area level (SOA). The outlines of respective ward and SOAs, as well as their names are shown opposite.

Filwood ward covers the vast majority of the study area (88%). However, the south-western corner of the Knowle ward and the southern corner of Windmill Hill ward are also situated within the study area.

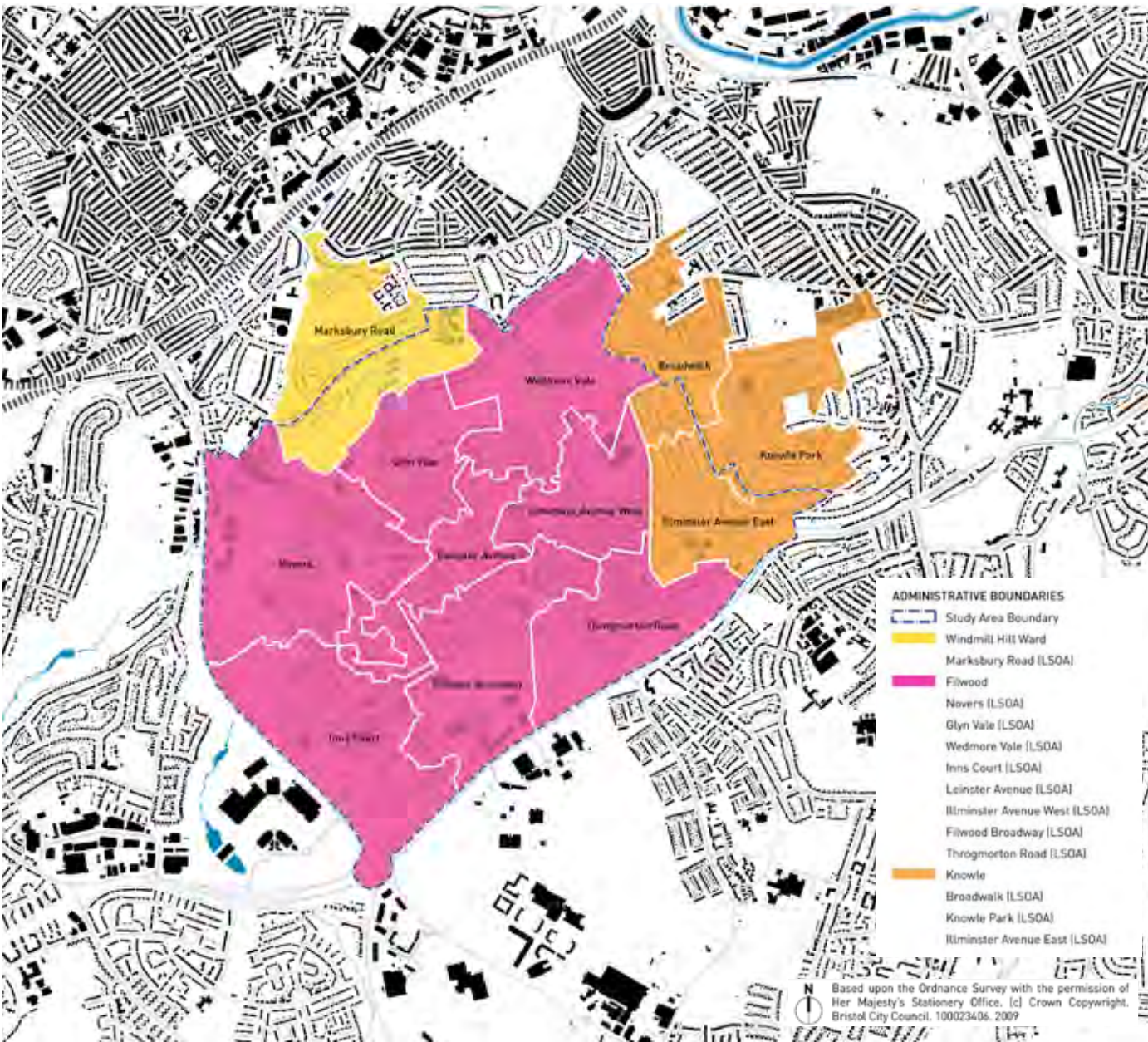
Filwood, Knowle and Windmill Hill wards form part of the Neighbourhood Partnership Area NP 11.

Filwood ward's SOAs are Wedmore Vale, Glyn Vale, Novers, Inns Court, Filwood Broadway, Leinster Avenue, Throgmorton Road.

Knowle ward has three SOAs within the study area. They are Ilminster Avenue East, the southern corner of Broadwalk and small part of Knowle Park.

The southeastern edge of Marksbury Road is one SOAs within Windmill Hill ward and forms part of the study area.

Figure 1: Study Area & Administrative Boundaries



02 Physical Site Conditions & Environment: Topography

02.1 Topography and Slope Gradient

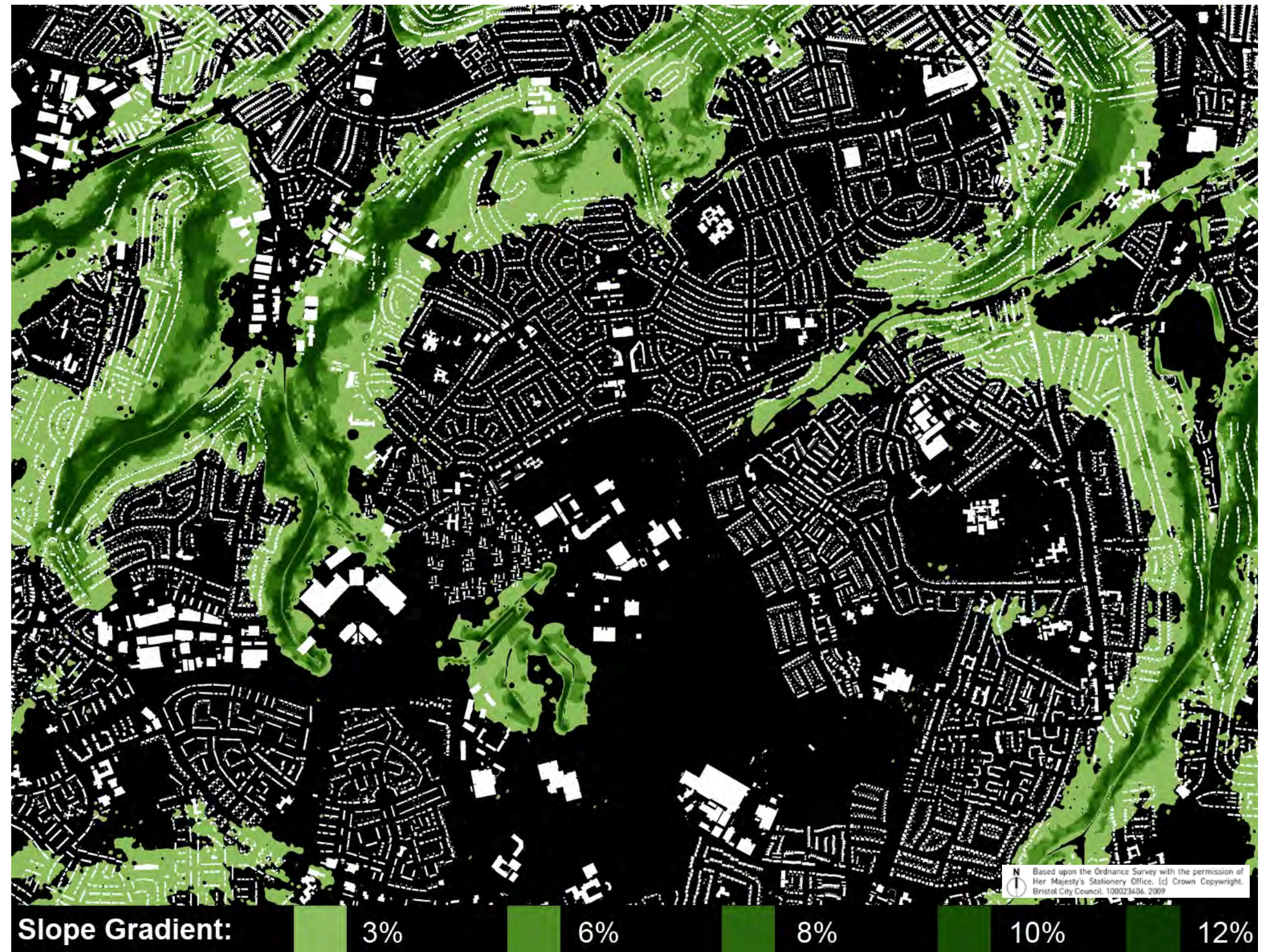
The study area is characterised by its topographic setting. Large parts of Knowle West are situated on a plateau south of Bristol City Centre. Relatively steep slopes to the north and the west make up the edges towards the River Avon and Pigeon House stream and form a natural barrier for movement between Knowle West and Lower Knowle, Wind Mill Hill, Bedminster, Headly Park and the City centre.

Figure 2 shows in green the parts of the site which are particularly steep. The dark green areas have gradient above 10% which indicated that the cost of developing these lands for housing or employment is relatively costly.

However, and as occurring in many other parts of Bristol, building terraces that follow the topography is possible and can create interesting and varied streetscapes and views across the city.

The land marked in light green is flatter and as shown in the plan at numerous locations, already built up (Novers, Glyn Vale, Torpoint Kingswear site). They represent however the fringes of the currently built up area.

Figure 2: Topography and slope gradient



02 Physical Site Conditions & Environment: Daylight Exposure

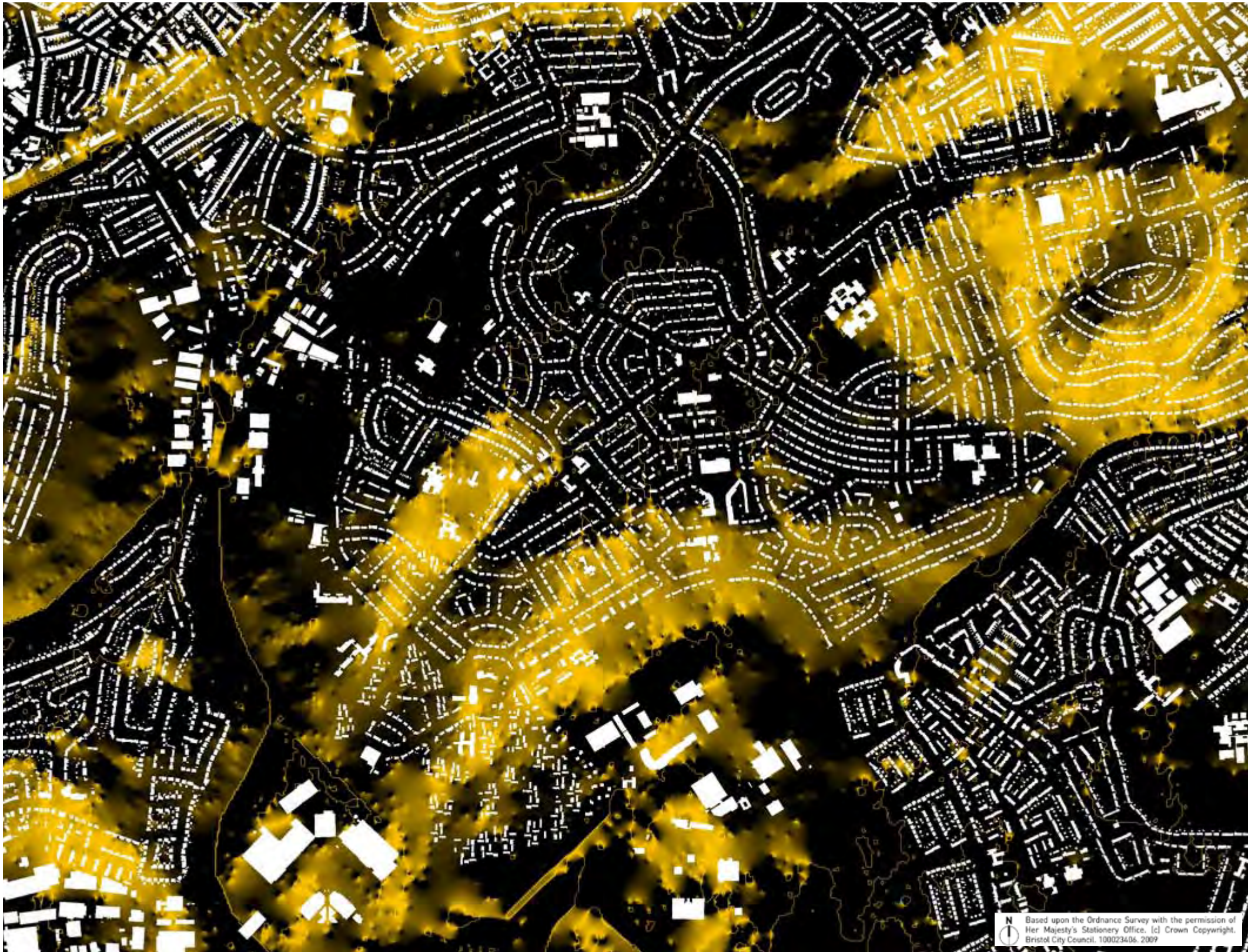
02.2 Daylight Exposure

Figure 3 provides a computer generated assessment of the study area in terms of day light exposure. In crude terms the parts showing an amber colouring have excellent daylight conditions and therefore offer very good conditions for passive solar gain.

The ability of a building to maximise day and sunlight exposure passively, thus reducing energy bills and carbon footprint, is connected to its orientation and location.

Daylight exposure and orientation are important consideration in determining the quality of internal living environments.

Figure 3: Daylight Exposure



02 Physical Site Conditions & Environment: Ground Conditions

02.1 Land quality - Geotechnical study

The results of the desk study indicate that contamination will be a consideration in planning for developments within the existing industrial areas, in the area alongside Pigeonhouse Stream, and in the vicinity of the former petrol station on Filwood Broadway. Elsewhere contamination is not expected to be a major consideration, but localised issues will occur at specific locations such as electricity substations.

The desk study has identified that the majority of the site has not been used for any significantly contaminative, uses with the exception of the areas of the existing industrial estates by the western and southern boundaries of the site.

The western industrial part of the site has had a large number of potentially contaminative uses on it and historical maps indicate that there is also a refuse tip adjacent to the western boundary of the site, but no further information is given about it in the Envirocheck Report (see main topic area report).

The southern industrial part of the site was occupied by part of the airport and hangar and later by engineering works and depots. It is likely that significant amounts of made ground will be present in these areas and that contamination will be present. There are also three other historical landfills immediately adjacent to the west and southern boundaries of the site.

For the majority of the site at the top of the hill which is largely a residential area, there is likely to be isolated areas of made ground and contamination present associated with fuel stations, electric substations, Filwood Broadway area or other areas where commercial uses have occurred.

There is no risk of contamination within the western part of the site impacting on the residential parts of the site at the top of the hill, as it is considerably elevated above the western area of the site and migration of contamination will be at a much greater depth.

Site specific ground investigations will be required within development areas, especially where residential gardens will be located, to determine whether contamination is present and to assess the risk it poses to development so that mitigation measures can be implemented.

No information has been found on the refuse tip apparently present, next to the western boundary of the site by Pigeonhouse Stream. It is advisable that if this area is to be considered further that the Pollution Control Department at Bristol City Council is commissioned to undertake a search of their records.

In areas where made ground is present or in areas adjacent to historical landfill sites or refuse tips there is the possibility that ground gas/landfill gas could occur. It is not currently known what is actually contained in the landfills or refuse tip and the potential for gas generation may be high. However

the landfills/refuse tips are historical and gas generation may well have ceased. Gas monitoring must be undertaken on a site specific basis to confirm the gas regime. No radon gas protection measures are needed for the majority of the site but basic protection measures are likely to be required in the south eastern part of the site. It is recommended that more detailed radon gas assessment is undertaken, as the current radon information is very general. More specific BR211 Radon gas reports should be obtained from the British Geological Survey to give specific guidance on the radon protection measures required.

Geotechnical Assessment

Although no ground investigation information is available an initial assessment has been made from the desk study, geology and local knowledge of geotechnical conditions. Most geotechnical issues can be overcome by engineering design and their effect on planning will be principally through the economics of the development.

Additional foundation costs (probably entailing piling or raft foundations) will be incurred over areas of compressible ground or deep Made Ground. Compressible ground is expected to be limited to the valleys of the Malago and Pigeonhouse Stream, and much of this area will also be affected by Made Ground. Deep Made Ground is also expected to be present in the area of old quarries along Novers Lane, south west of Inn's Court Avenue.

Geotechnical costs may also be high for developments on the steep slopes in the north and west, which would need a detailed investigation of the stability of the slope, possibly followed by slope stabilisation works. Groundwater may also be problematic on the slopes, with additional drainage needed at potential spring lines.

It is considered highly unlikely that the site would be affected by coal mining. The nearest seam to be mined is the Bedminster Great seam which lies more than 900m below the site. It is unlikely to have been worked beneath the site, and any workings will be too deep to affect the ground surface.

Conventional foundations will be feasible over most of the existing residential areas. Some additional costs may be necessary for foundations in the Lower Lias Clay areas in the central and southern parts where affected by trees.

Cavities (solution features) have been reported in areas of limestone. These are unlikely to be a significant issue, and can be dealt with by engineering methods as and when they are encountered during development.

Pyritic conditions may exist within the Lower Lias Clay. Chemical testing will be required on a site specific basis to determine the appropriate concrete classification.

Given the underlying geology and likely clay consistency of the soils beneath the site, soakaway drainage is unlikely to be suitable for the area.

Ground investigations

Given the large size of the site area, only a very general assessment has been undertaken to help identify potential geotechnical and contamination issues, which could pose a constraint for planning purposes. Further, more detailed assessment will be needed once development areas have been identified and a site specific walkover survey of these areas will be required at this stage, prior to any investigation.

Ground investigation may be required within development areas to:

- confirm the ground conditions for design of foundations and infrastructure;
- determine whether made ground/contamination is present on the site;
- assess the contamination risk;
- install gas monitoring wells and undertake gas monitoring to establish gas regime.

The ground investigation should provide general coverage of each development area and specifically target the locations of buildings and areas of potentially contaminative uses.

Other issues

The site lies within a high risk area where unexploded bombs may be present. Contractors carrying out any sort of ground investigation works or construction works should take precautions to mitigate against the risk. This may include undertaking bomb risk assessments, or using geophysical surveying techniques prior to or during the works.

The plan opposite provides an overview of past and current potentially contaminative uses, water and geological features.

More detail is set out in the Geotechnical Baseline Paper.

Figure 4: Summary of potential ground conditions constraints



02 Physical Site Conditions & Environment: Flood Risk

02.2 Flood risk

The flood hazards of the regeneration site, with respect to six standard sources as identified in PPS25, are considered below. They are flooding from:

Rivers – there are only two notable open watercourses within the KWRF area that pose a flood risk. These are the Malago near the north-west corner of the area, by Novers Hill Trading Estate and fire station, and at the south east corner at Brislington Brook. However, the vast majority of the KWRF area has surface water runoff flows in pipes which finally discharge into these watercourses. The risk to these watercourses could be increased from greater runoff coming from the KWRF, due to increased impermeable areas or changes in climate, or a combination of the two.

The sea – KWRF is at an elevation and distance from the Bristol Channel which means that flood risk from this source is nil. There are no impacts on the KWRF area from tide-locking of watercourses which drain it. Tide-locking is where river waters accumulate when unable to discharge into the sea at times of high tide.

The land - this is a risk to and within the regeneration area, but has been substantially transferred to a risk of flooding from sewers since Knowle West was developed. The more pervious geological outcrops tend to coincide with open spaces, except at Filwood, which lies over clays. Greenfield areas, especially those overlaying clays on the higher parts of the regeneration area, are potentially a flood risk to lower parts.

Groundwater – due to the elevated position of Knowle West, this source of flooding from this source is limited in extent and occurrence. There are very few natural depressions that would lead to groundwater ponding. However, where the limestone outcrops on the northern escarpment near clay interfaces, the springs pose a risk to downhill properties and lands. Alluvial soils along the Malago may be subject to flooding from raised groundwater levels, but no records to support this have been found.

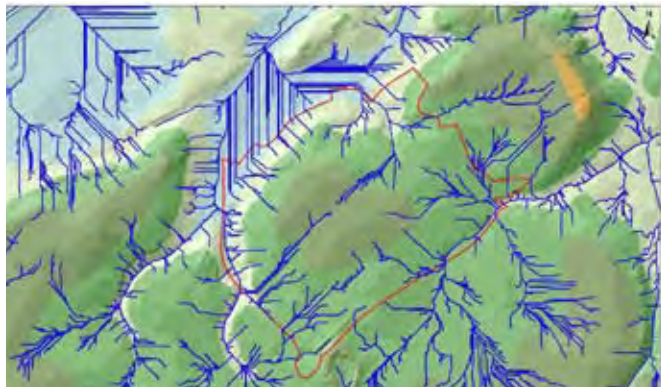
Sewers – throughout the built-up areas of Knowle West this source of flooding is potentially the most widespread risk. The sewer network has been extensively developed under most of the estate roads to replace the old ditches and minor brooks. There is a need to survey the sewers and their flow capacities so that future development run-off or changes in climate are accommodated. .

Reservoirs, canals and other artificial sources – there are no reservoirs, canals or artificial tanks that would give rise to flood risk in Knowle West.

The natural catchments are now substantially built over, but by using a ‘roller ball’ technique on a Digital Terrain Model (DTM) they can be reconstructed. The DTM used was an IfSAR grid that has been filtered to remove buildings, leaving a

quasi-natural ground surface. The flow paths generated are shown in Figure 5 which coincides well with drains, ditches and channels depicted on early 1900s Ordnance Survey maps.

Figure 5: Flow paths generated on DTM



A feature of the drainage paths throughout KWRF area is that they now tend to avoid open green spaces. The Figure below shows the generalised drainage paths that are now confined to pipes. There is little opportunity for surface waters to infiltrate into the few areas of more permeable strata, and virtually all of KWRF surface water is discharged into watercourses without infiltration. This is one of the least sustainable approaches to deal with surface water.

Figure 6: Drainage routes and existing green spaces



The majority of KWRF area is not coloured blue (see EA flood risk plan opposite) and is therefore designated as Flood Zone 1. This indicates that the risk of flooding from rivers and the sea has a ‘low probability’ of less than 0.1% in any year. The EA Flood Map shows parts of the regeneration area coloured blue. These indicate that the risk of flooding from rivers and the sea has a ‘medium probability’ of between 1% and 0.1% in any year. These risk areas are highlighted in red on the Flood risk plan shown opposite. One is in the east part of Knowle West at Brislington Brook, in an area of open space. The other is on the Barnack and Novers Hill Trading Estates on the Malago in the western part of KWRF.

As the majority of the KWRF area is in Flood Zone 1, with less than 0.1% probability of flooding from rivers or the sea, there is little historical information on flooding. However, the following points are worth noting that relate to reduction in the likelihood of flooding in KWRF area:

- There are several relief pipes in the sewer network that convey surface water flows away from potential areas of inundation. They were constructed to take sewer overflows within additional pipes along Wedmore Vale, Hartcliffe Road and Somerdale Avenue. Wedmore Vale relief was constructed in 2003-4 in response to increased development on the lower slopes of Knowle’s northern escarpment.
- Relief pipes and storm overflows on Somerdale Avenue take surface waters from Knowle, outside the KWRF area, and combine them with Lower Knowle drainage to then discharge into a remnant tributary of Brislington Brook. The probability of Knowle West drains being forced into a subsidiary role may be greater with time, unless Knowle flows are restricted or mitigated outside the regeneration area.

Climate change

The effects of climate change have been considered in this baseline using estimates of existing runoff, specifically resulting in:

- Run-off volumes in the 3 catchments are expected to increase by 30% over the next 100 years to nearly 94,000m3.
- Greenfield run-off rates are likely to increase by 30% over the next 100 years to around 18.4 l/s/ha
- The results of run-off estimates indicate that without modification of the KWRF impermeable areas, increases in discharge will occur due to climate change.

Detailed constraints

Within guidance available for this baseline, the KWRF area needs certain constraints on the proposals and designs for re-development, either large or small scale to reduce flood risk and improve water management. These constraints are:

- Bristol City Council highways should not contain surface water storage voids under the carriageway. This is for carriageway maintenance and utility service siting reasons.
- There is an ancient pipe running from a spring near St Barnabas church to St Mary’s Redcliffe, as shown in Figure 7. This is known as St Mary’s Pipe and every year since 1190AD the clergy walk the route to maintain the right to supply water to their parish.
- Flood relief pipes at Wedmore Vale, Airport Road Interceptor (Hengrove Way), Hartcliffe Road / Bideford Crescent, Somerdale Avenue need to be retained at their current capacities]
- Surface water pipe nodes at Hartcliffe Way / Wills Way, Hartcliffe Way / Novers Lane, Novers Hill / Novers Park Close, Lynton Road / Torpoint Road, Hengrove Way / Creswick Road (issues of Brislington Brook), Glyn Vale / Wedmore Vale, are main collection points to drain KWRF and the need to increase capacities should be avoided.
- Combined Sewer Overflows at Novers Hill / Lynton Road, St John’s Lane / Littleton Road, and Somerdale Avenue should avoid capacity increases.
- The existing cumulative area of open spaces, gardens and playing fields for each catchment should not be reduced over more permeable strata if other means of reducing run-off cannot be incorporated into building and development designs.

Flood Risk management measures

This baseline has assessed the area extents of various land surface types according to their permeability to water. Future designs can be appraised against these baseline quantities to determine the effects of any new proposals.

The Airport Road / Malago Interceptor was constructed between 1971 and 1974 to alleviate flooding in the Brislington Brook catchment. High surface water flows are now conducted along this interceptor to the Malago catchment, ultimately discharging through twin pipes into the New Cut of the River Avon, near the junction of St John’s Road and Coronation Road in Bedminster.

Relief pipes within the KWRF area have been constructed at various times since the estate was built, the latest being at Wedmore Vale in 2003-4 when additional housing was provided.

Aspirations for reducing flood risk and improving water quality include:

- Reduce the area of impermeable surfaces in public spaces and zones by introduction of more permeable paving or reintroduction of green spaces
- Increase cleansed infiltration into limestone strata
- Encourage householders to reduce areas of impermeable

02 Physical Site Conditions & Environment: Flood Risk

- paving on their land, and to comply with recent legislation to limit these surfaces in front gardens.
- All flood risk mitigation measures should follow sustainability guidelines, at least including those published by CIRIA in reports:
 - C635 Designing for exceedance in urban drainage, 2006;
 - C697 The SuDS Manual, 2007;
 - C698 Site handbook for the construction of SuDS

Off site impacts

The KWRF area will be designed to ensure that proposed development and the measures to protect the site from flooding will not increase flood risk elsewhere. This will be achieved by:

- Limiting surface water flow rates in piped sewer networks, by constraining pipe sizes or installing hydrobrakes
- Storing surface water run-off, and retard its flow nearer to its source by the use of rainwater harvesting, highway verge swales and intermittent shallow ponds in public open spaces (where slope angles and geology permit)

Contractors working in KWRF area should to be bound contractually to preventing and remedying the effects of any contamination caused during groundworks and construction.

Residual Risks

The residual risk of flooding over the regeneration area when all sustainable mitigation measures have been installed should be where flooding exceeds the 1% probability. In these circumstances, flows should be designed to follow routes where they cause minimal damage and risk to property and life. Flood-related risks that will remain after implementation of the measures to protect the Framework site from up to 1% probability flooding and their mitigation measures are:

- Overland exceedance flows are likely to follow DTM flow paths (Figure 5)
- These risks can be managed over the lifetime of the development through the use of flood resilient materials in lower floors of buildings and structures that lie along these flow paths
 - Exceedance flows that go down roads can have velocities retarded by highway features like speed humps across whole carriageway and block paving
 - Exceedance flows that may affect properties on and at the base of the northern escarpment can be redirected by landscape features onto larger areas of open ground.
 - Flooding at the Trading Estate (the old Lock Mills site) by the Malago is likely to remain in spite of flood alleviate measures taken over KWRF area due to other sources of flood flows into Pidgeonhouse Stream and Malago being

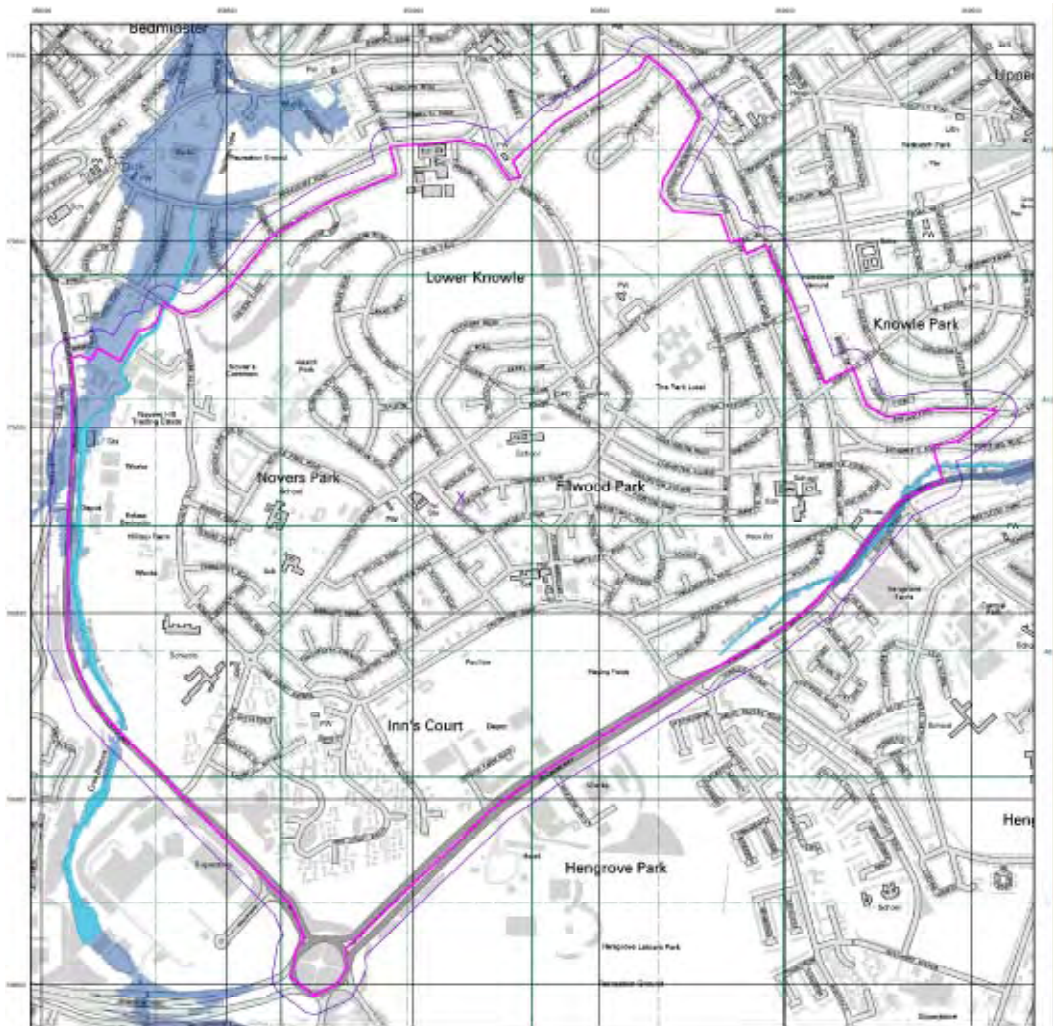
- unattenuated or increased.
- There is no specific requirement for flood warning and evacuation procedures over most of the KWRF area where it is in Flood Zone 1. However, above ground flow routes should be identified where sewers or other conveyance systems may become blocked or overloaded. This identification, combined with a degree of mitigation, could take the form of different highway surfaces, like block paving, along such routes.
 - Flood warnings and evacuation or response procedures should be developed for the trading estates and fire station at the Malago.

More detail is set out in the Flood Risk Baseline Paper.

Figure 7: Flood relief routes and flood risk hot-spots



Figure 8: Environment Agency Flood Map



02 Physical Site Conditions & Environment: Ecology

02.3 Ecology - Summary

The Ecology and Nature Conservation outlines the baseline situation, potential ecological impacts, mitigation and enhancement measures of the Knowle West regeneration project.

The Northern Slopes proposed Local Nature Reserve (LNR); Glyn Vale Site of Nature Conservation Interest (SNCI); Wedmore Vale SNCI; Novers Common SNCI; Airport Road SNCI; and Pigeonhouse Stream and adjacent meadows SNCI are within the ‘Site’ of the regeneration project. All SNCIs are ‘Citywide Sites of Nature Conservation Interest,’ areas of ‘Open Space’ and part of the ‘Wildlife Network.’

In total, 13 protected species have been recorded within a 1km radius of the Site: serotine bat, noctule bat, common pipistrelle bat, otter, badger, slow-worm, common toad, common frog, smooth newt, barn owl, kingfisher, quail and bluebell. 20 Biodiversity Action Plan (BAP) species have also been recorded within 1km of the Site. Badgers and slow-worms have been recorded within the Site itself.

Stands of the invasive species, Giant hogweed and Japanese knotweed, have been recorded in Pigeonhouse Stream and adjacent meadow SNCI and Airport Road SNCI.

The Phase 1 Habitat survey identified the potential for the Site to support breeding birds, reptiles, bats (roosting and foraging / commuting) and badgers.

The Phase 1 Habitat survey identified the following habitats within the Site in order of abundance): hard-standing, residential and commercial buildings, improved and semi-improved grassland, broad-leaved woodland, scrub, scattered broad-leaved and coniferous trees, amenity grassland, tall ruderal, species-poor hedgerows, ditches, introduced shrubs, bare ground and ephemeral, arable (including allotments), ponds and rubbish and debris habitats. Scrub, woodland and hedgerows are BAP habitats.

The Site is considered to be of low ecological value because the habitats are generally species-poor (albeit that the survey was undertaken at a sub-optimal time) and that there is a high level of disturbance and littering throughout the habitats present within the Site.

It is recommended that the following surveys are conducted at the Site: breeding bird survey; presence / absence reptile; badger survey; bat activity survey; tree and building bat inspections and potentially a summer roost emergence survey.

Enhancements measures on the Site could include: provision of bird / bat / invertebrate boxes; provision of log piles for invertebrates and reptiles and reptile hibernacula; native tree / shrub / hedgerow planting; creating wildlife ponds; seeding a wildflower meadow; marginal planting and bank planting; litter collections; removal of scrub and limiting horse grazing;

improving the management of the grassland swards; and eradicating invasive species.

Conclusions

Following the extended Phase 1 Habitat Survey and findings of the desk study the Site is considered to be of low ecological value because habitats are generally species-poor (albeit that the survey was undertaken at a sub-optimal time) and that there is a high level of disturbance and littering throughout the habitats present within the Site.

The Site does, however, have very good connectivity and linkage to more diverse areas beyond the Site including Hengrove Park SNCI, Malago Valley SNCI and Crox Bottom SNCI. These could provide excellent opportunities for enhancement in the future.

Reference should be made to policy NE12 which states:

“In determining planning applications, account will be taken of the retention and protection of existing natural features and habitats, and, where appropriate, the benefits of new landscape treatment which...Compensates for any unavoidable loss of existing features or habitats;...Incorporates the greatest possible proportion of appropriate native vegetation (unless special circumstances dictate otherwise);...Includes habitat features attractive to local wildlife species”

Recommendations

It is important that detrimental impacts to all species and their habitats are kept to a minimum and that legislation and planning policy is upheld with regard to protected and notable species as well as considering effective management and eradication of invasive and injurious species.

Species-specific Recommendations

The extended Phase 1 Habitat Survey identified the potential for breeding birds, reptiles, commuting / foraging bats, roosting bats and badgers to be supported within the Site.

It is recommended that certain species-specific additional ecological surveys be carried out at the optimum time of year to fully assess the ecological status of the survey area. Mitigation measures are to be implemented to avoid / negate, reduce or compensate the adverse effects of the proposed development on any protected species identified.

For protected species, it is recommended that the survey methodology and recommendations for mitigation are carried out in accordance with best practise and also discussed and agreed with Natural England to assist with any ensuing licence applications or mitigation requirements.

Reference must be made to policy NE8 which states:

“Development which would cause unacceptable harm to a species protected under national legislation, or its habitat, will not be permitted unless the adverse effect is capable of being

overcome by measures to be carried out prior to or during development, as identified in a thorough site survey.”

Breeding birds

A number of protected and notable bird species have been recorded within the study area and Site in the last decade, including barn owl, sparrowhawk, buzzard, kingfisher, house sparrow, skylark, spotted flycatcher, willow warbler and tawny owl.

The Phase 1 Habitat Survey also identified a high potential for a range of bird species (including ground nesting birds) to be supported within a mosaic of habitat types including trees, woodland, species-poor hedgerows, rough grassland and scrub on the Site. Two green woodpeckers and other common garden bird species were recorded within the Site during the survey.

A further breeding bird survey is recommended for the Site in order to provide information regarding species present and inform enhancement opportunities and mitigation measures appropriately.

The survey, which follows BTO Breeding Bird Survey (BBS) methodology, constitutes three surveys, with each survey covering all areas to be targeted, which may, for this Site, need to be achieved in multiple visits. The first survey sets a transect route; the first survey is carried out between April and mid-May and the third survey is carried out from mid-May to late June. The second and third surveys must be at least four weeks apart, as it is important to distribute surveys across the breeding season to gain a full understanding of resident and migratory species using the site.

It is recommended that vegetation removal including lopping, trimming or felling of trees and removal of hedgerows and scrub is conducted outside of the bird breeding season. The bird breeding season generally occurs between the end of February and the end of August inclusive (dependent on seasonal conditions).

If it is not possible to remove vegetation / fell trees outside of the bird breeding season, it is recommended that all vegetation / tree felling required to be removed is checked by an ecologist for active nests no more than two days prior to vegetation clearance. If active nests are identified, no works may be undertaken in the vicinity of the nest until the birds have fledged the nest.

Note that the above recommendations are provided as a generic mitigation method to avoid prosecution under the WCA. Further mitigation including timing constraints must be advised following the BBS and checks by an ecologist as part of the vegetation clearance works with particular regard to WCA Schedule 1 species, if required.

Reptiles

Slow-worms have been recorded in the study area and Site in the last decade, including in Nover’s Common SNCI.

The Phase 1 Habitat Survey identified habitat suitable for reptiles, including rank grassland and areas of tall ruderal vegetation.

It is recommended that surveys are required for reptiles and that these surveys are targeted within the identified suitable habitat and carried out during the optimal season, between April and September (inclusive). These surveys are required so that, where the presence of a population of reptiles is confirmed, suitable mitigation may be implemented in the appropriate season prior to development of the affected habitat. Surveys to estimate population sizes of reptiles potentially impacted by the proposed development will be required to determine appropriate mitigation requirements.

The presence / likely absence survey involves placing squares of roofing felt (tiles) approximately 50 cm x 50 cm in size at regular intervals of approximately 20 metres, throughout areas of the site that have previously been identified as having the potential to support reptiles. This follows best practice survey methodology (Froglife Advice Sheet 10).

Reptile survey methodology states that in order to determine presence / likely absence, all tiles should be surveyed for seven days, and then in those areas where reptiles are identified, surveys are to continue for a total of twenty days, in suitable temperature and weather conditions, in order to assess population sizes. During this time, each tile is lifted and the species, sex, maturity and number of reptiles seen are recorded, along with the time, date, weather conditions and tile number. Observations of any reptiles seen out in the open and snake sloughs, are also recorded.

No machinery is to be tracked across, and no materials are to be stored within, any areas identified by an ecologist as having potential to support reptiles.

Bats

Foraging / commuting bats

Serotine, noctule and common pipistrelle bats have been recorded within the study area and Site within the last decade.

The Phase 1 Habitat Survey identified a high potential for supporting foraging / commuting bats along the hedgerows, treelines and woodland within the Site.

It is recommended that a bat activity survey be carried out across the Site to establish what species of bats are commuting or foraging in the area. It is considered that a bat activity survey will assist in determining the wider use of the Site and adjacent connective features, including those areas defined as Wildlife Network Sites.

02 Physical Site Conditions & Environment : Ecology - key constraints plans

Figure 9: Bristol Wildlife Network Sites, 2009

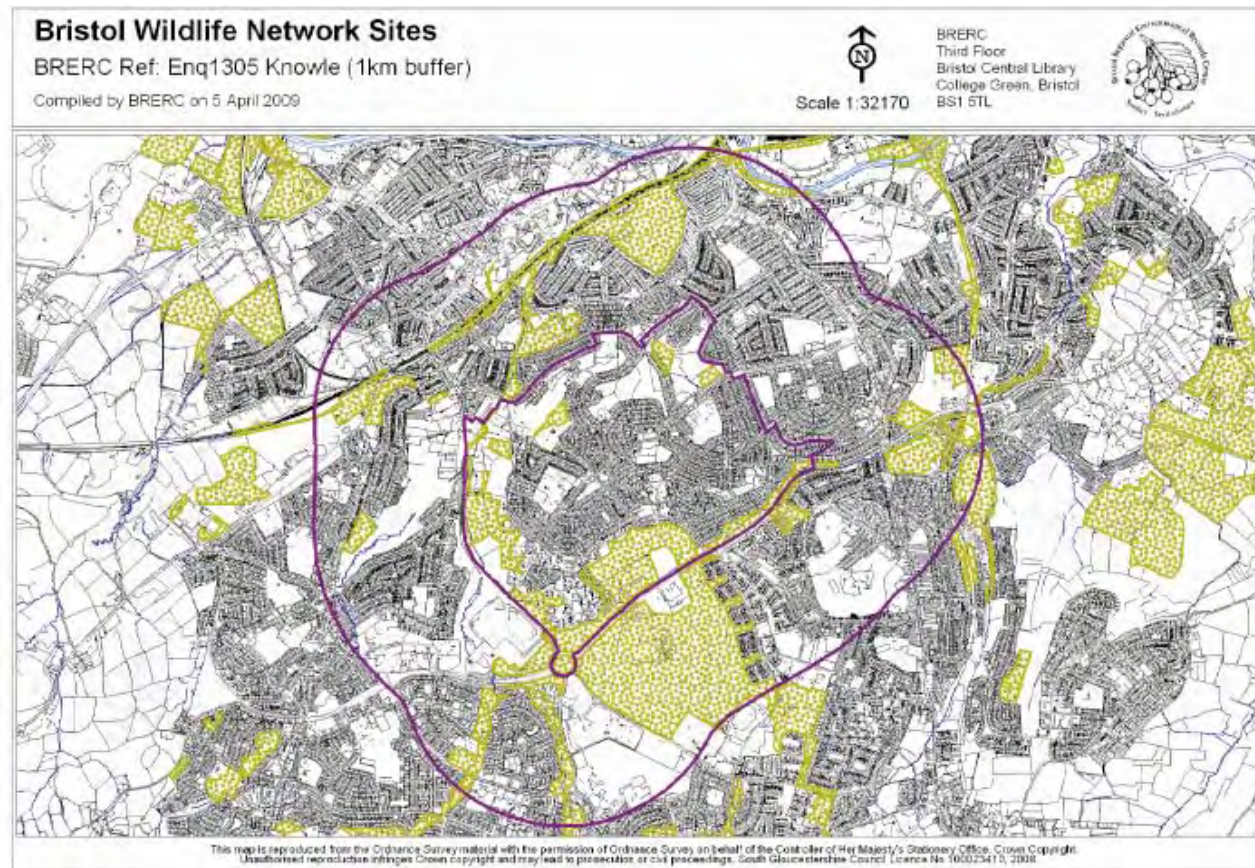


Figure 11: UK Priority Habitat, 2009

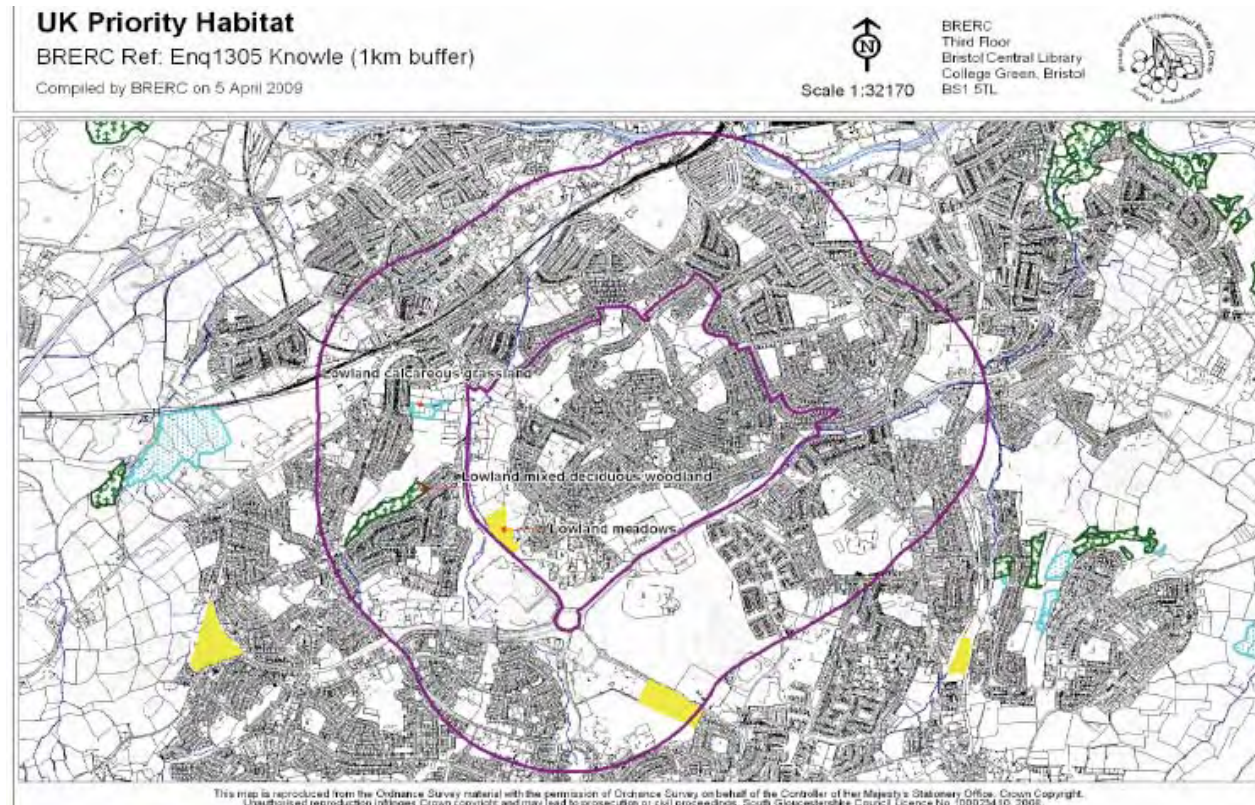


Figure 10: Sites of Nature Conservation Interests, 2009

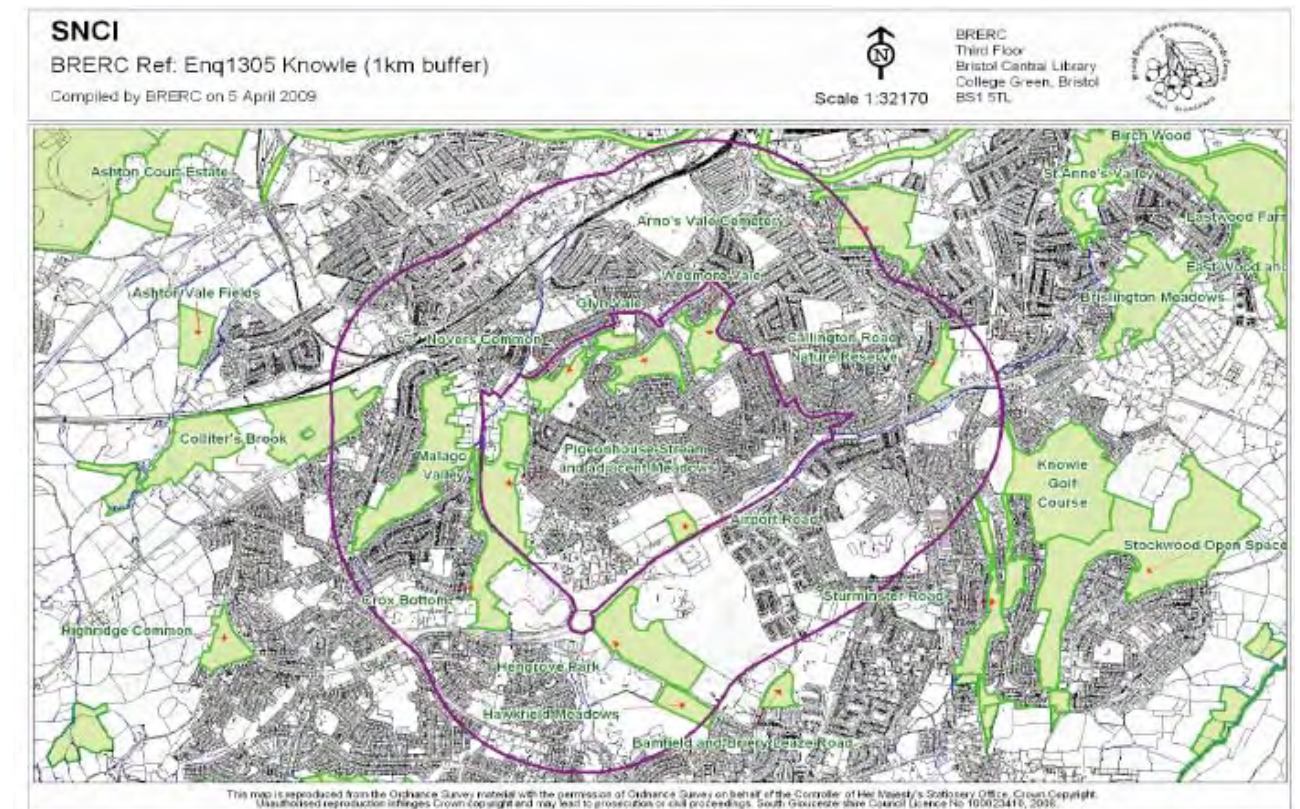
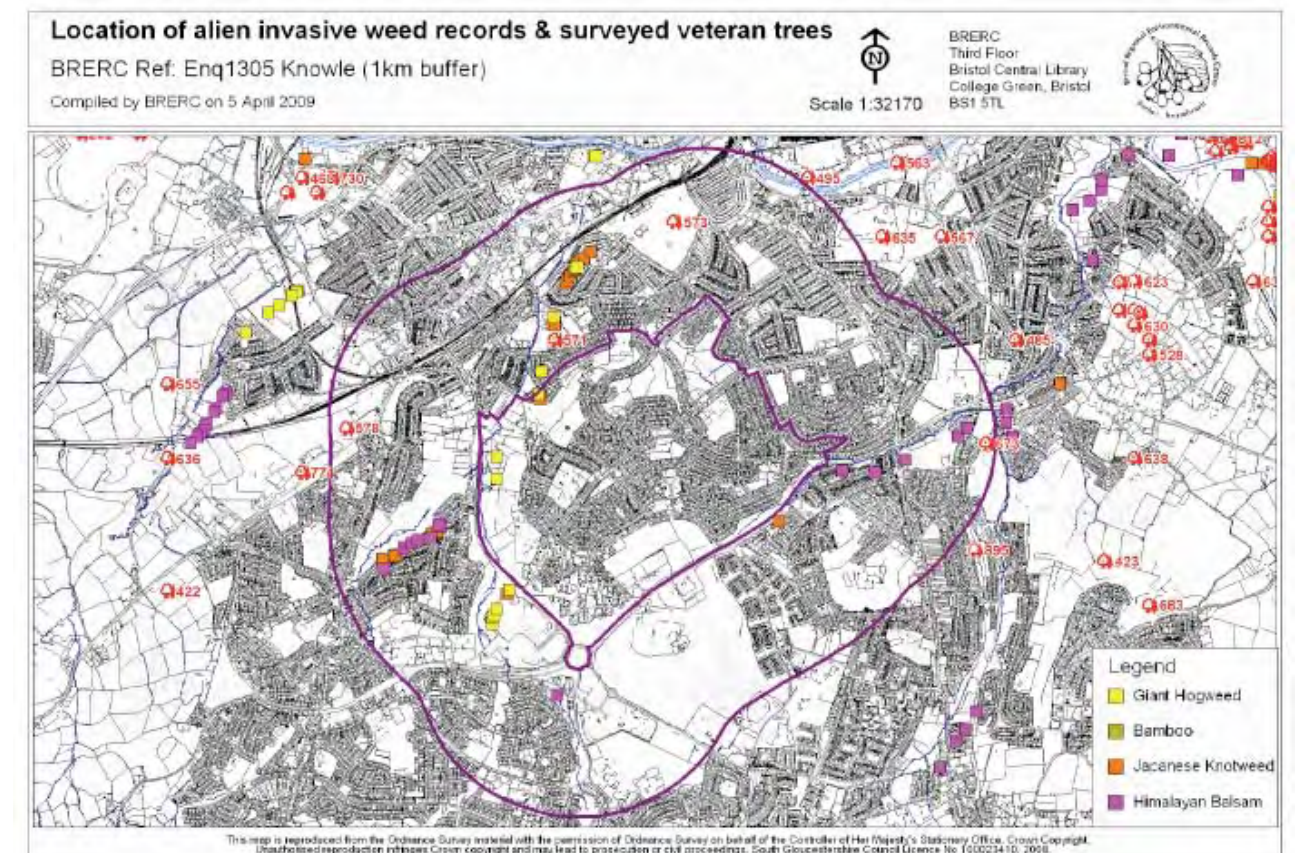


Figure 12: Location of alien invasive weed records and surveyed veteran trees, 2009



02 Physical Site Conditions & Environment: Ecology

In order to complete this bat activity survey in line with best practise guidelines , a series survey visits will be required. These visits would need to take place between March and September, with optimum times for these surveys being between June and August. The bat activity survey is undertaken by walking a transect which covers suitable habitat on and around the Site, along which 'listening station' stops are made to target specific, suitable locations.

It is recommended that linear features, such as tree lines, hedgerows and water courses, and woodland areas are retained intact or that their fragmentation is minimised in order to maintain functional commuting and foraging corridors.

It is recommended that lighting during the construction phase and in the proposed lighting scheme for the regeneration project is minimised and, where possible, directed at the ground and away from any hedgerows / trees or waterbodies. It is also recommended that lights have back-guards to prevent light-spill and incorporate low-level and low-illumination lighting.

The findings from this activity survey will then be used to inform where to target surveys for roosting bats.

Roosting bats

No bat roosts have been recorded in the study area in the last decade. It was not possible to identify all properties and trees with the potential for bats during the scope of this survey. Nevertheless, owing to the area covered within the survey, the quantity of trees present (some of which have been identified as having potential to support roosting bats) and the amount of buildings (such as private residences) which could not be fully accessed, it is recommended that further inspections of buildings and trees be undertaken to adequately assess their potential to support roosting bats. In order to effectively target survey effort, it is recommended that these inspections be undertaken once masterplan proposals are provided, so that only those buildings and trees affected are inspected. These inspections involve checking targeted trees and buildings for suitability for roosting bats (i.e., features that can be used such as cracks and crevices in trees or gaps in roof tiles or fascias in buildings). Evidence for use by bats (such as staining, claw marks, droppings) will also be sought. Where possible, internal inspections of the roof voids of buildings can also be carried out. Following these inspections, an activity survey and potentially a summer roost emergence survey may be required in order to confirm if bats are present, identify species and inform mitigation requirements. An activity survey is ideally undertaken between March and September, the optimal period being between June and August. An emergence survey will need to be undertaken between May and September ideally spread across the optimal season, the start of May to the end of August.

It is recommended that trees with roosting bat potential or where bats are known to roost are retained where practicable. If bats are roosting in trees, which unavoidably have to be

removed, then these trees are to be felled in spring or autumn when bats are active and do not have dependant young. A licence will be required from Natural England for disturbing bats for development purposes. It is recommended that bat boxes on suitable mature trees / bat houses are provided as compensation for roost loss, however, the extent of mitigation required depends on the scale of loss, species identified and population sizes. It is required that a replacement roost is provided prior to the removal of the existing roost.

Badgers

Badgers signs have been recorded in the study area and the Site in the last decade, including badger hairs along Pigeonhouse stream, badger setts in dense scrub in Wedmore Vale SNCI and badger setts in Hengrove Park, just off the southeast corner of the Site. The Phase 1 Habitat Survey identified areas of habitat suitable to support badgers and it is therefore recommended that a further badger survey be carried out at these areas. A badger survey constitutes a walkover of all suitable areas searching for signs of badgers including setts, latrines, snuffle holes, prints etc. If a badger sett is identified and it is not possible to alter the scheme to avoid disturbing or destroying the sett, then it will be necessary to obtain a licence from Natural England. In order to inform either of the licence applications, it will be necessary to undertake further surveys of the sett to assess its present state and occupation. If it is necessary to close the sett, and if the sett is identified as being a breeding sett, it will be necessary to create an artificial sett within 50 m of the old sett, to replace the sett that will be lost. Bait marking surveys will also be required prior to construction of the artificial sett in order to identify badger territories. It will take approximately 4 weeks to obtain the licence and works will only be possible under licence between July and November inclusive unless the sett has been closed. Works are constrained within the immediate vicinity of an active badger sett. No works are to be carried out within 10 m of a badger sett. As a guide, hand tools (e.g. strimmers and chain-saws) may be used outside of a 10 m radius around a badger sett. Light machinery may be used outside of a 20 m radius around a badger sett. Heavy machinery (e.g. larger plant, diggers, etc) may be used outside of a 30 m radius around a badger sett. Where works are required to take place within these zones or machinery that exceeds the limit for that zone is needed, and no alternative can be found, the appropriate licence advice should be sought from an ecologist. Additionally, it is recommended that a further walkover survey is conducted, in the vicinity of any identified setts immediately prior to the commencement of Site works, in order to check for the presence of any new setts that may have since been excavated within the Site.

Great crested newts, water voles and otters

No further surveys for GCNs, water voles and otters are recommended at this time, as none of the waterbodies within the Site were identified as having potential to support them.

Vascular plants

It is not considered necessary to carry out further surveys for vascular plants within the Site due to the lack of suitable semi-improved and unimproved grassland and the young age and limited structure of the woodland present.

Invertebrates

It is not considered necessary to carry out further surveys for invertebrates within the Site due to the lack of diverse woodland and grassland habitats present within the Site.

Trees

Reference should be made to policy NE3 which states:

“Development involving the loss of or damage to trees or woodlands which are of landscape, amenity or nature conservation value will not be permitted, unless unacceptable harmful effects of the development can be overcome and replacement or additional tree planting of appropriate scale and species, which is sufficient to compensate for the loss, can be achieved within the same site or on an equivalent site nearby.” The trees to be removed are to be cleared outside of the bird breeding season once planning permission has been received from the Local Authority. Trees are to be replaced on a like for like basis on completion of works. The community based group, “TreeBristol,” may wish to be involved with any replanting schemes. There is potential for works to affect trees within the Site. It is recommended that a tree survey be carried out in accordance with British Standard (BS) 5837:2005 in order to determine the characteristics of the tree resource within the Site and to inform avoidance and mitigating measures where appropriate. It is further recommended that works are undertaken outside of tree Root Protection Areas (RPAs) where practicable, or, where this is not possible that a Method Statement for working within the RPAs of retained trees is prepared prior to invasive ground works on site in the vicinity of these trees.

Giant hogweed and Japanese knotweed

There are three stands of giant hogweed and two stands of Japanese knotweed in Pigeonhouse stream and adjacent meadow SNCI, see Appendix F and H (Pigeonhouse Stream and adjacent meadow SNCI Assessment). There is also one stand of Japanese knotweed in Airport Road SNCI, see Appendix H. in the full Ecology paper. During the survey no stands of giant hogweed or Japanese knotweed were found, although the survey was conducted in a sub-optimal time of year.

If giant hogweed or Japanese knotweed is found during works, an Ecologist will need to be informed and an appropriate mitigation strategy devised.

Injurious weeds

No injurious weeds were identified during the survey; however, owing to the sub-optimal timing of the survey, any injurious species present may not have been visible on the day, but still

present within the Site. If injurious species are found during works, an Ecologist will need to be informed and an appropriate weed control strategy devised including controlling, environmental considerations and health and safety issues.

Enhancements

Ecological enhancements should, wherever possible, be incorporated into the regeneration project to contribute to the objectives of local (LBAP and Bristol Local Plan) and national planning legislation (PPS9, UKBAP and NERC). Policy NE12 of the Bristol Local Plan it states that: “...account will be taken of the benefits of creating new or enhancing existing open spaces, particularly in the urban fringe, outer housing estates and inner city areas lacking publicly accessible open space of high amenity, landscape or recreational value, or nature conservation interest. PPS9 states that: “Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests.” It is important to involve the community on the ecology of the Site throughout the entire regeneration project, but particularly during enhancement works. Children and adults can get involved with all aspects of this work and will give them ownership of their local wildlife. Hands-on conservation work also provides excellent educational and amenity benefits to the local community. Ecological education of the local community is extremely important, particularly with emphasis on fly-tipping, dumping of domestic waste and burning of trees and vegetation which is prevalent within the Site. Enhancements within the Site could include:

- Provision of bird / bat / invertebrate boxes
- Provision of reptile hibernacula
- Provision of log piles for invertebrates and reptiles
- Native tree / shrub / hedgerow planting
- Creating wildlife ponds
- Seeding a wildflower meadow
- Marginal aquatic planting and bank planting along the ditches and brooks
- Litter collections
- Removal of scrub encroachment on the SNCIs
- Limitation of horse grazing on the SNCIs
- Improved management of the grassland swards to increase the quantity of floral species
- Removal of the Japanese knotweed and Giant hogweed on the Site

The good connectivity of the existing habitats on the Site, where possible, should be strengthened.

More detail is set out in the Ecology Paper.

02 Physical Site Conditions & Environment: Utilities

02.4 Utilities

Existing infrastructure network information has been obtained from the public utility companies. It is apparent that all properties in the locality have access to the major public utility networks, namely: electricity; gas; water supply; sewers; and telecommunications. Surface water drains serve the majority of the area. Where surface water drains are not present, collected surface water run-off is carried away via the foul sewer network.

Underground services are present in the majority of streets within the study area, as shown on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005, Public Utilities PAPER).

Electricity

Western Power Distribution holds the responsibility for supply of electricity throughout the study area. Informal consultation with the company has established that there is adequate capacity in their network to satisfy current demand. The great majority of the properties in the area currently use gas for heating and although a significant switch to electric systems could stretch demand it is thought unlikely that it would occur in the immediate future.

Throughout the study area high voltage 11kV underground cables supply the local substations, as indicated on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005), where transformers convert the electricity to low voltage for distribution to the properties via underground cables. Underground electrical cables are generally routed beneath the footways.

Two high voltage 33kV underground cable routes pass through the western and north-western extremities of the study area. As they remain close to the boundary it is unlikely that they would be affected by any development proposals.

Gas

Wales and West Utilities is the licensed gas transporter for the region including the study area. The entire gas supply network within the study area is low pressure. There are no reported capacity problems within the area despite spikes in demand due to mass concurrent triggering of combination boilers at peak times.

The gas mains are generally routed beneath the footways, as indicated on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005).

Water

Water supply mains within the study area are the responsibility of Bristol Water.

A large diameter water main (400 mm diameter) enters the study area in the central reserve of Hengrove Way to the north-east of the roundabout at the junction with Hartcliffe

Way. Its route follows the central reserve for 330 metres as asbestos cement (AC) then crosses the northern carriageway as ductile iron (DI) towards Gerrard Close. After passing along Gerrard Close as AC the pipe changes direction to follow the carriageway of Creswicke Road as DI in a north-easterly direction to the junction with Broadbury Road. The north-westerly orientation of the route is subsequently shifted across to Bantry Road via a short length of Hartcliffe Road remaining as DI. After a bend at the junction with Leinster Avenue the 400 mm diameter DI main continues for a further 70 metres. From this location it feeds a 200mm diameter DI pipe. The remainder of the water mains within the study area have a diameter of 200mm/ 8 inches or smaller.

On the supplied mapping, cast iron (CI) pipes are shown ranging from 2” to 8” sizes. Certain 3” and 4” cast iron pipes are shown as having been lined with 63mm and 90mm medium density polyethylene (MDPE) pipes respectively.

There are a limited number of AC pipes within the study area as well as the sections of 400 mm diameter described above, at the following locations:

- Wedmore Vale – under carriageway between Wingfield Road and Daventry Road (150 mm diameter);
- Torpoint Road network (100mm and 150 mm diameter);
- North verge of Airport Road (100mm diameter);
- Barnack Trading Estate network, from connection to 7 inch cast iron main in the east verge of Novers Hill (100mm diameter); and
- Barnstaple Road, under southern footway, east of Bantry Road junction (3 inch diameter).

Other pipe materials and sizes include MDPE (63mm, 90mm, 125mm and 180mm), spun iron (SI) (3”, 4” and 5”) and ductile iron (4”). There are other pipes of various sizes whose material is not specified. Routes of the smaller size mains are generally beneath the footways, as indicated on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005).

Sewers

Wessex Water is the statutory undertaker for the foul and surface water sewer networks in the study area, as shown on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005). Main sewers generally run beneath the roadways.

It should be noted that on 25 April 1978 all sewers 150mm diameter and larger became publicly maintainable. Any sewers affected by proposals will need to be surveyed to confirm their size. Those smaller than 150mm diameter are not the responsibility of Wessex Water.

Foul Sewers

The public sewer record drawings obtained from Wessex Water show extensive coverage of foul sewer service for the

properties within the study area. Discharge pipes for the foul sewer networks that serve the study area do not exceed 300mm diameter. One larger bore (450mm), interceptor foul sewer passes through the area beneath the Inns Court vicinity inside a 1950mm surface water sewer.

As the study area is on higher ground than the surrounding areas the sewers flow under gravity towards the boundary. The networks to the south-east of the study area discharge to sewers which run along the valley of the Brislington Brook in an easterly direction. A network in the area of Knowle Park adjacent to the east side of the study area discharges to the same sewer run through the south-eastern extremity of the study area, carried on a bridge to cross the Brislington Brook.

On the south-west side of the study area the networks discharge to a foul sewer that runs along the valley of the Pigeonhouse Stream. At Crox Bottom there is a connection to the 750mm foul sewer which is carried inside the Malago Interceptor storm water tunnel, beyond the periphery of the study area, which then heads off in a north-westerly direction.

A minor foul sewer network in the north-west part of the study area discharges to the Lynton Road sewer in Malago Vale. Central, northern and north-eastern foul sewer networks converge on Wedmore Vale at its junction with Glyn Vale on the boundary of the regeneration framework study area.

All foul sewage from the study area is ultimately carried to the sewage treatment works at Avonmouth.

Surface water sewers

Surface water catchments are described in the Flood Risk Baseline chapter. Generally, the surface water networks are separate from the foul sewers but have similar catchment areas. One exception is the network in the north-west part of the study area where surface water is collected in a mixture of foul and storm drains. Inspection of the public sewer record drawings shows that this catchment discharges to the Lynton Road foul sewer in Malago Vale.

The networks to the south-east of the study area discharge to the Brislington Brook. Discharge locations and pipe sizes are as follows:

- Creswicke Road – 450mm
- Connection from Alard Road – 225mm
- Connection from Willinton Road – 225mm
- Salcombe Road – 225mm
- Ilminster Avenue – 450mm
- Connections from Broadfield Road – 375mm and 525mm with outfall to tributary of Brislington Brook.

Networks which serve the southern part of the Inns Court estate discharge via 525mm and 675mm pipes which converge at the Hengrove Way roundabout. The pipe which carries the outfall from the confluence appears to join the highway drainage network to connect to the lake to the south-west of

the former Wills factory site, which in turn outfalls into the Pigeonhouse Stream.

A minor network which serves a northern part of the Inns Court estate discharges via a 375mm pipe into the outfall pipe for the surface water network which covers the west part of the study area. This 900mm pipe in turn discharges into the Pigeonhouse Stream at Crox Bottom.

Central, northern and north-eastern surface water sewer networks converge on Wedmore Vale near its junction with Glyn Vale on the boundary of the regeneration framework study area. A 675mm pipe runs beneath the Wedmore Vale road carriageway, picking up a 675mm drain at Glyn Vale. A 600mm relief pipe collects a watercourse behind the properties on the east of Wedmore Vale approximately 350m south-east of Glyn Vale. Where this drain crosses Wingfield road it intercepts a 225mm pipe. This run increases in size to 900mm and subsequently returns to rejoin the Wedmore Vale surface water sewer approximately 130m north of the Glyn Vale junction.

Raw water main

Wessex Water public mains record drawings show a raw water main which collects spring water rising to the east of St Barnabas Church behind the properties on the north side of Daventry Road. It is labelled as St Mary’s Pipeline on the map. Notes on the map state that the St Mary’s conduit was originally lead but is now a Victorian 3” cast iron pipe with a general depth of 900mm and that it was restored to live condition in 1985. Further information about the pipeline is presented in the flood risk baseline chapter.

Telecommunications

Plant information for telecommunications has been obtained from Openreach for British Telecommunications plc and reproduced on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005). The mapping indicates that the cables are predominantly underground and located within the footway. Overhead cables generally enable the final connections to properties at a limited number of discrete locations in the study area.

The study area is served from 4 separate exchanges. The main area is covered from the Bedminster exchange which currently serves about 18,000 residential customers and 1,100 non residential customers. A small section of Inns Court and the commercial area off Hartcliffe Way are served from the Whichurch exchange which serves around 11,000 residential and 1,000 non residential customers. A small section in the south west of the study area is served by the Bishopsworth exchange which serves around 13,000 residential and 300 non residential customers. Finally the Bristol South Exchange serves a small area adjacent to Airport Road. This exchange serves around 19,000 residential and 1,000 non residential customers.

02 Physical Site Conditions & Environment: Utilities

All of the above exchanges are capable of supporting ADSL and SDSL as well as Local Loop unbundling.

The area also forms part of the Bristol Wireless project. More details can be found on their web-site at: <http://www.bristol-wireless.net/>. However in summary:

Bristol Wireless is a co-operative set up to develop a free-to-access broadband intranet using radio, with the emphasis on supplying ICT (Information and Communication Technologies) that are relevant, permanent and affordable to communities that find themselves on the wrong side of the digital divide.

It sets out first and foremost to provide a local, high speed wireless computer network to serve the immediate community and allow them access to a high speed internet connection for information and entertainment. Bristol Wireless seeks to create a digital environment built by local people for local people.

Bristol Wireless will introduce completely profit-free broadband internet access that can deliver distance learning, non-commercial internet radio, television and video communications via local, community-owned co-operatives, businesses or groups.

The Figure opposite illustrates the current coverage map, allowing suitably equipped houses (details of the necessary equipment are provided by Bristol Wireless) to link into the fixed Bristol Wireless network. Being in a mainly yellow zone fixed coverage should be good, although street level access will be poor. However, Bristol Wireless advise that street level access should be available at the Park Centre in Knowle West.

Bristol City Council - BNET

Mapping has been obtained from the BNET Network Client Services department of BCC showing the relevant trunking lines and manholes. The routes are shown on the Public Utilities drawings (Drg Nos CS/35791-CIV-001 to 005).

Cable Company Apparatus

Cable and Wireless have reported that they are not responsible for any apparatus within the study area.

Virgin Media has been approached but has not responded.

Further investigation will be required to confirm whether or not other cable companies have apparatus within the study area.

Identification of relevant Project Activities (construction and completion)

During construction, temporary diversions of utilities may be required to ensure that supplies to existing properties are not disrupted while permanent network alterations are established.

Any realignment of roads or kerb-lines may necessitate diversion or protection of services. Replacement of access

chambers and covers may be required to accommodate any change in traffic loading conditions.

| Activity No. | Detail |
|--------------|--|
| 1 | Construction of additional residential properties. |
| 2 | Realignment of road carriageways. |

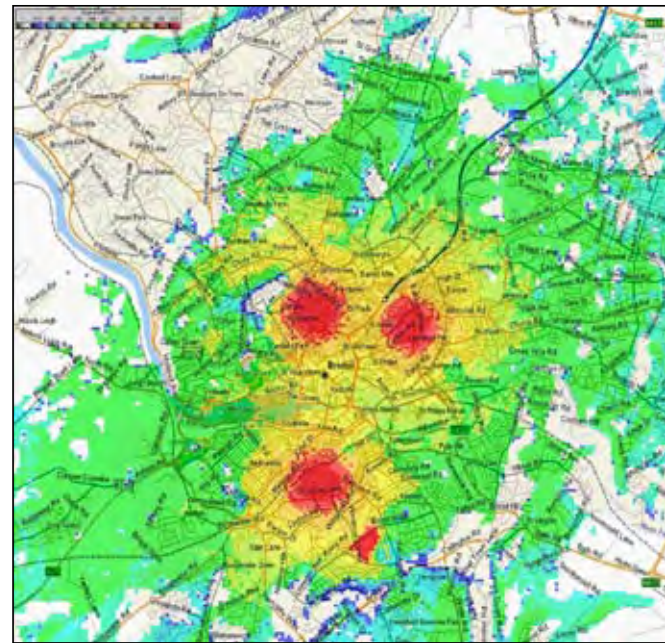
Key Issues

The scoping study identified that project activities 1 and 2 have the potential to affect the routing of public utilities networks.

Project activity 1 will involve provision of additional services commensurate with the scale of each development.

When specific proposals have been developed, further consultation will be required with all public utility companies that have apparatus within the identified sites.

Figure 13: Coverage map fixed Bristol Wireless network



Electricity

If proposals introduce significant percentages of electricity powered heating systems this may increase demand to levels where upgrades may be required to the electricity infrastructure but otherwise there should be adequate capacity in the existing network to accommodate small scale development. The great majority of the properties in the area currently use gas for heating and it is thought unlikely that any significant switch to electric systems would occur in the immediate future.

WPD reported that a type of 4kW water heater favoured by certain housing associations may cause ill-effects on the

power infrastructure due to harmonic disturbance related to the motors they use, if a significant number are served by the same sub-station.

Dependent on the scale of potential developments it may become necessary to install additional substations or relocate existing ones, subject to negotiation when plans develop. Modern transformers are significantly smaller than the older types and so it is relatively easy to relocate them to suit configurations of potential developments.

Further consultation will be required to identify provision appropriate for specific level of intervention. Practical vehicular access to the substations will be required for ease of installation, operational procedures and maintenance activities. If specific development proposals affect the routes of the existing underground services, further consultation will be required concerning diversion and protection works, to comply with the New Roads and Street Works Act.

Gas

Dependent on the scale of potential developments, a capacity check will be required to ascertain network implications. For this purpose, numbers of houses are required for residential developments and loads for commercial/ industrial developments. For major new developments economic testing would be undertaken by WWU to establish the feasibility of specific reinforcement of their infrastructure.

Tree planting would not be permissible in the proximity of gas mains.

If specific development proposals may affect the underground services, further consultation with WWU will be required concerning diversion and/ or protection works, to ensure compliance with the New Roads and Street Works Act.

Water

When specific proposals have been developed the appropriate information and documentation as outlined in the Bristol Water Developers' Charter will be submitted to Bristol Water.

Dependent on the scale of potential developments, network modelling and studies may be required by Bristol Water.

Tree planting would not be permissible in the proximity of Bristol Water mains.

If specific development proposals may affect the underground services, further consultation will be required with Bristol Water, to ensure compliance with the New Roads and Street Works Act. Contractors would need to be made aware of the presence of asbestos cement pipes to ensure that appropriate precautions may be taken.

Sewers

All foul sewage from the area is treated at the Avonmouth STW. Avonmouth STW takes sewage from much of the Bristol and South Gloucestershire districts. It could be inferred that

wherever any proposals to satisfy the requirements of the S Gloucs and Bristol councils' strategic development figures were to be located, the increased demand on the STW would be comparable.

When specific proposals have taken shape it will be possible to model affected networks to assess upgrade requirements. For foul sewers, these would be based on the 4000 litres/day flow rate per property as stipulated in the document Sewers for Adoption.

Surface water sewers would be designed in accordance with an agreed drainage strategy. As a matter of principle, no increase in discharge rate from a development site would be permissible. If development increases the impermeable area, attenuation facilities would need to be installed to maintain the discharge at greenfield runoff rate. If potential space is not readily available for attenuation in ponds, underground options may be considered such as Carlow precast concrete attenuation tanks.

If specific development proposals may affect the underground services, further consultation will be required with Wessex Water, to ensure compliance with the New Roads and Street Works Act.

Telecommunications

It is unlikely that telecommunications would constitute any significant constraint on developments proposals.

If specific development proposals may affect the services, further consultation will be required with British Telecommunications, to ensure compliance with the New Roads and Street Works Act.

Further investigation will be required to confirm whether or not other cable companies have apparatus within the study area.

More detail is set out in the Utility Paper.

Typical residential building with footpath used for parking



Pedestrian path in Filwood park



New housing along Wedmore Vale



Filwood Broadway seen from Filwood Social centre



Filwood Broadway: refurbished flats above shops



Inns Court: Back access to the Community Centre



Inns Court: Shopping parade



Filwood park: View toward rear of Creswicke road houses



03.1 Introduction

This section presents the planning context of the Knowle West Regeneration Framework (KWRF). It sets out a review of relevant national, regional and local planning documents and establishes the implications of the relevant policy for Knowle West. In addition significant recent and planned developments within South Bristol are reviewed to understand how the changes occurring relate to South Bristol as a whole.

03.2 Scope of the Assessment

The first part of this chapter presents an overview of the existing and emerging policy at a national, regional and local level, and sets out the implications for the KWRF. This is followed by a review of approved and pipeline schemes.

03.3National Policy

Planning policy at a national level, provided in Planning Policy Guidance and Planning Policy Statements (PPGs and PPSs), has been reviewed as part of this report. Particular consideration has been given to:

- PPS 1: Sustainable Development
- PPS 3: Housing
- PPS 9: Biodiversity and Geological Conservation
- PPG 13: Transport
- PPG 15 : Historic Environments
- PPG 16: Archaeology
- PPG 17: Planning for Open Space, Sport and Recreation

03.4 Regional Policy

The existing statutory regional planning framework for the South West is set out in RPG 10: Regional Planning Guidance for the South West (2001). This document provides guidance for development in the region up to 2016. Bristol is the largest urban area within the region, and is a focus for regional services. However, RPG 10 recognises there are substantial areas of deprivation within the urban area. In light of this it identifies the need for “economic and social restructuring of parts of Bristol and ... [improvements to] transport and economic links between the economically successful and less successful parts of the sub-region” (Policy SS 3). The document promotes “investment in programmes for economic, physical and social regeneration, with an emphasis on encouraging development in the more disadvantaged areas, including south Bristol” (Policy SS 8).

The Draft Regional Spatial Strategy for the South West 2006-2026 (RSS) will supersede the RPG when the final

document is published in June 2009. This document emphasises Bristol’s important national and regional roles. The RSS promotes positive planning for the city in order to fulfil its strong economic potential. It states that a “key strategic development issue for Bristol is to provide for growth while improving the attractiveness of the urban area as a place where people want to live, work, visit and invest.”

The revitalisation of South Bristol is identified as a major strategic objective by the RSS, as it is one of the most significant concentrations of multiple deprivation in the region. Policy HMA 1 states that in order to help realise the potential of Bristol as a major driver of the regional economy plans should include “a focused programme of regeneration initiatives at South Bristol to broaden the housing stock, improve the quality and diversity of retail, employment and service provision and improve accessibility.” The KWRF will have an important role in fulfilling part of the objectives of this policy.

The RSS also recognises regeneration of South Bristol may be complimented by the development of urban extensions to the southwest and southeast of Bristol. These will be sustainable communities that will be fully integrated into the existing urban area. This highlights the need for the KWRF to consider the role of the area among these wider initiatives being brought forward in South Bristol, and Bristol as a whole, to ensure that it includes a strategy to ensure the area fully contributes to and benefits from these wider initiatives.

The Secretary of State’s recent proposed changes to the RSS state that 33,500 new homes should be provided, over the plan period within Bristol’s urban area. The Knowle West Regeneration Framework has the potential to contribute positively to the housing targets for the city as a whole. In addition the document states Bristol should accommodate at least 92,000 new jobs between 2006-26. Increasing employment opportunities within the urban area has the potential to have a significantly positive impact on the future communities of Knowle West, and it will be important that the KWRF ensures that they are accessible to the Regeneration Area.

Currently the RSS recognises that South Bristol is poorly connected with other parts of Bristol, and in particular the employment areas in the North Fringe and suffers from high levels of congestion on the highway network. As a solution to this The Greater Bristol Transport Study (June 2006) concluded that accessibility would be enhanced by improving orbital movement around South Bristol, reducing delays, better connecting the area to the rest of the SSCT [Strategically Significant City] and supporting regeneration.” The KWRF will need to incorporate strategic changes to transport and the highway networks to improve movement and access from South Bristol to the wider Bristol area.

03.5 Local Policy

The current statutory planning document for Bristol is the saved policies from the 1997 Local Plan. The Plan’s vision for South Bristol is to provide a “brighter future” through building on the major public, private and community initiatives that are bringing improvements.

In compliance with the planning and Compulsory Purchase Act 2004 Bristol City Council is currently producing the Bristol Development Framework (BDF). The timetable for the production of the BDF is under review as a consequence of the recent changes to the RSS.

The Core Strategy is currently at the Preferred Options Stage. The recently published Preferred Options Review Paper (February 2009) sets out the emerging Spatial Policies. It identifies regeneration of South Bristol as a priority. Emerging Policy BCS 01 of this document establishes a vision for the future of South Bristol, which is in line with the strategic objectives of Policy HMA1 of the RSS. It recommends:

- Development, including major land use change or reshaping, focused on the area around the Hartcliffe roundabout, and broadly covered by Knowle West, Hengrove Park, Inns Court, Imperial Park, and the Hartcliffe Campus.
- The provision of 50,000sq m of new office space and a minimum of 10,000 new dwellings.
- The consideration of the provision of a new or enhanced centre, to provide shops, services, employment and community facilities.
- Developments are supported by a range of improvements to key public services and infrastructure, including the provision of a community hospital, a skills academy, health plex and leisure facilities, safe pedestrian and cycle routes and improvements to the quality of open space.
- Improvements to transport infrastructure, including public transport to enhance links between existing communities in South Bristol, and between South Bristol, the City Centre and the north of the city.

The KWRF represents an important opportunity in delivering part of this policy, through redeveloping Knowle West and contributing to the housing target. In addition, it is clear that the recommendations for the wider area have the potential to have a highly positive impact on Knowle West. The future development of Knowle West should compliment the wider regeneration initiatives and maximise access to the opportunities they will create in South Bristol.

The KWRF will need to encompass a high quality urban environment as expressed by Policy BCS07 of the emerging core strategy. It seeks to raise design standards, and using it to contribute towards increasing densities and improving

access to jobs. Policy BSC09 targets sustainable design and construction in reducing waste, referring to the use of the SW Sustainability Checklist for Developments, whilst BSC10, 11 and,12 seek also focus on environmental issues such as energy, climate change, emissions and waste. Collectively addressing these is fundamental to the KWRF and should lead better homes, quality places and a more sustainable neighbourhoods.

The KWRF should also integrate improvements to transport and access, as outlined in emerging Policy BCS13. The following include initiatives of particular relevance to Knowle West include:

- Rapid Transit Routes (Hengrove to the North Fringe);
- South Bristol Link; and
- Further development of a network of routes to support walking and cycling.

Further detail of these initiatives and the implications for the area are set out in the movement section of this report

The Council is currently producing the Core Strategy Draft Development Principles Report which will be published for the purposes of public consultation on 5th June. The emerging affordable housing requirements for South Bristol are set out in Policy DP7 as 30% of dwellings in developments of 15 units or more. It states “the precise number, tenure, size and type of affordable units will reflect identified needs, site suitability and economic viability.” In addition future housing proposals as part of the Regeneration Framework should have regard to emerging Policy DP9 which recommends development “maintain, provide or contribute to a mix of housing tenures, types and sizes to help support the creation of mixed, balanced and inclusive communities.” This should be determined by local housing need and demand, the existing housing profile in the area, local demographic context and site issues and design constraints.

The emerging minimum residential density target is 50 dwellings per hectare (Policy DP8). This represents a particular design challenge in Knowle West, which is currently characterised by low-density residential development of about 30 dwellings per hectare and will need to be addressed through the KWRF. High quality of new housing is expected with the Building for Life standards introduced into the development principles.

Green infrastructure policy issues: The KWRF Area includes a number of green spaces and several Sites of Nature Conservation Interest on the northern slopes. Emerging Policy DP13 promotes the protection of Bristol’s strategic green infrastructure network and states “opportunities for the enhancement of green infrastructure should be integrated into the design of development”. Development proposals will be expected to mitigate the loss of any green infrastructure or features of biodiversity and geological importance and incorporate the provision of an appropriate level and quality

of open space. Given the volume of greenspace in the area, policy BCS22 of the core strategy is highly relevant in Knowle West as it seeks to maintain and enhance Green Infrastructure and refers to minimum standards and deficiencies set out in the Parks and Green Space Strategy (2008). Whilst it is not adopted by Bristol City Council, the Town and Country Planning Association’s ‘Biodiversity by Design’ should be referred to for further guidance.

Bristol’s Parks and Green Spaces Strategy (adopted February 2008) promotes the provision of a diverse range of children’s play spaces, including an increase in the number of larger and better quality spaces across the city of a minimum size of 600m2. It states that wheels parks should be provided within 2km of homes, and multi-use games areas should be within 1km. The provision of teenage areas should also be considered to be located near playgrounds, with seats and a range of challenging equipment. The Regeneration Framework should apply these maximum distance standards into the design and layout of the masterplan (see Appendix A) and provide appropriate levels of access for all new residents in the area.

The council’s Playing Pitch Strategy for Bristol provides a strategic approach to meeting the future needs for Bristol. Overall the south planning area has an undersupply of football, hockey, and cricket pitches, however there are sufficient rugby facilities. Demand for sports pitches is anticipated to rise in the future. At a more local scale, Filwood ward has a deficit of football pitches for both juniors and seniors and Knowle, which makes up a small proportion of the Regeneration Area, has a deficit of cricket pitches. Within South Bristol the Strategy has identified a number of ‘hub’ sites which will provide facilities for a range of training, development and performance sport, including Hengrove School. Knowle West is located within the catchment of a number of hub sites, and the Regeneration Framework should seek to maximise access to these sites. In addition, consideration should be made on how the Framework can contribute to relieving the deficit of sports pitches within the area, taking account of predictions of future demand.

In addition the council is currently preparing Area Green Space Plans for all 14 of the Neighbourhood Partnership Areas across Bristol, the details of which will inform the KWRF.

Further detail on site specific proposals will be provided in the Proposals Map and the Site Allocations DPD. Britsol City Council is currently producing the Site Allocation Options Paper which is expected to be available for the purposes of consultation in September 2009.

After section 03.7 Conclusions, we set out a number of relevant general policies for the whole Bristol area which will need to be considered in developing the Outline Planning Application for Filwood Broadway.

03.6 Recent and Pipeline Schemes

There have been a number of significant planning schemes in South Bristol over the past five years. Perhaps the most important has been Hengrove Park, which will regenerate a 76ha site. The development will include new homes, employment sites, enhanced public transport and a large park. An outline planning application has been submitted for the first phase which will include a community hospital, a skills academy, a leisure centre, 19,000m2 of office and warehousing space for Computershare, a further 6,900m2 of office space for Constellation Europe and required infrastructure for the development. This represents a significant regeneration opportunity for South Bristol and will have highly positive impacts on Knowle West through relieving current community infrastructure deficits in the area and increasing access to health and education services as well as leisure, public transport and employment opportunities. The increase in the capacity of these services will inevitably increase the development potential of the Framework Area.

To the north site boundary, Bristol City Council, the Homes & Communities Agency and Knightstone Housing Association and the architects Fashion, Architecture and Taste (FAT) are drawing up proposals for the redevelopment of Torpoint Road, Kingswear Road and the College site of Marksbury Road. Currently a series of public consultation events and pre-application discussions are taking place on the proposals. The final proposals will be prepared for consultation in summer 2009, after which an outline planning application will be submitted.

This represents a significant development on a landmark site in South Bristol and aims to provide a mix of housing types and tenures. The proposals involve the demolition of the existing properties and redevelopment of the site with a residential development that includes a mix of housing types and tenures and promotes high quality urban design, as well as providing publicly accessible open space and improves accessibility. Due to its proximity to the Regeneration Area, it is important that the implications of these proposals are considered in the development of the masterplan.

Other significant applications, include:

- 07/03228/F - 2 David’s Road (BS14 9JJ): Demolition of 2 David’s Road. Residential redevelopment at no. 2-8 David’s Road, 626-632 and 636-644 Wells Road and 95-109 Woodleigh Gardens to provide 56 no. dwellings with associated parking and landscaping.
- 07/05426/F - Broadwalk Shopping Centre Broad Walk: Part demolition of existing multi-storey car park and erection of part two, part three storey residential development (45 units) and provision of access cores, refuse, cycle parking and car parking areas.

- 06/05015/F - Former Library, Petrol Filling Station And Garage Redcatch Road: Demolition of existing buildings and erection of three storey development to provide 38 flats, associated underground parking area and 124 square metres of B1 class office space.
- 07/00508/F - Land To The Rear Of 7 - 61 Connaught Road: Construction of 57 no. affordable (shared equity ownership) 2 and 3 bedroom houses and apartments with access roads, parking, cycle and bin storage.
- 05/03988/F/S and 05/03992/LA/S Former Imperial Tobacco Office Building Hengrove Way: Alterations to existing building and construction of a new building to comprise a mixed use development totalling 334 residential apartments, 24 live/work units, 1826m2 B1 floorspace, car parking and associated external works and landscaping.

The cumulative impacts of recent and proposed developments along with the Knowle West Regeneration Framework should be considered in terms of their contribution to the overall strategic vision for the area set out in regional and local policy.

03.7 Conclusion

The planning policy context clearly shows the production of a KWRF will be broadly in line with the central objectives of the RSS and the BDF. The regeneration of South Bristol is a strategic objective at both a regional and a local level. As part of this the Policy HMA 1 of the RSS recommends a focussed delivery of regeneration initiatives across the area. This is further developed in emerging Policy BCS01 of the Core Strategy, which sets out a strategy for the future of South Bristol, including the redevelopment of Knowle West. The policy objectives aim to regenerate the whole of South Bristol. It is important therefore that the regeneration of Knowle West is not be considered in isolation but in terms of its contribution to the objectives for the wider area.

The KWRF represents an important opportunity to contribute to the overall renaissance of South Bristol. Knowle West will be only one part of a number of initiatives being carried out in the wider South Bristol area. A review of major planning applications in the surrounding area over the past five years shows South Bristol is already changing, with a number of major schemes being delivered. It is important that the regeneration of Knowle West compliments these schemes and ensures the future community benefit from the opportunities they will create.

Local standards

Open Space Standards

The National Playing Fields Association (date and reference) (NPFA) standard provides guidance for minimum standards of outdoor playing space. This sets a standard of 2.4ha per 1000 population, of which 1.6ha should be available for outdoor sport and 0.8ha for children’s play space.

Policy L1 of the Local Plan states that development that will result in the loss of playing fields and recreation space will not be permitted unless: it forms part of a larger scheme that involves the improvement of provision of recreation space for the local community; compensatory space of at least an equivalent community benefit is to be provided in the local community; or the space is enhanced by the proposals.

Policy L2 sets out the standards for the provision of open space. New developments of more than 10 units or over 0.1ha in size should provide 0.8ha of informal and formally maintained play space. The form of open space to be provided will be decided in consideration of the type of housing provided, existing facilities and other community benefits provided as part of the proposal.

Where children’s play or amenity space is to be provided, the developer should ensure that no dwelling is more than 150 metres walking distance from a designated play area for pre-school children and no more than 400 metres for primary school children, and the play area is located safely.

Bristol’s Parks and Green Spaces Strategy (adopted February 2008) provides the following distance standards:

| Distance Standard | | |
|----------------------------------|----------------------------------|----|
| Distance ‘as the crow flies’ (m) | Estimated walking time (minutes) | |
| Nearest green space | 400 | 9 |
| Children’s play space | 450 | 10 |
| Formal green space | 600 | 15 |
| Informal green space | 550 | 13 |
| Natural green space | 700 | 18 |

Parking Standards

The parking standards set out in the Local Plan are as follows:

03 Planning context

developments of one or more dwellings, or from other types of development, where such development would add to the overall impact on infrastructure.

The infrastructure, facilities and services to which development may contribute include:

- Affordable housing
- Community facilities
- Education facilities
- Library facilities
- Managed workspace accommodation
- Transport infrastructure
- Commuted payments for maintenance of facilities provided
- Sustainable transport measures
- Parks and green spaces improvements (including children’s play facilities)
- Improvements to green infrastructure
- Flood risk management measures
- Waste facilities
- District heating and other sustainable energy infrastructure
- Health and social care facilities
- Public realm provision (including Legible City infrastructure)
- Public art
- Local employment and training initiatives

The Council’s Economic Contributions from New Development Supplementary Planning Document (October 2005) presents a guide for developers on the nature and scope of various types of economic contributions so that the Council can maximise the benefits of development through voluntary agreements, Local Labour Agreements and other economic contributions that can positively address social exclusion. Where financial contributions are required, they will be achieved through a Section 106 agreement.

Contributions may be sought to address issues concerning employment, business and enterprise and social problems or in the form of funds for the delivery of local projects.

The Planning Obligations SPD (2005) provides guidance on the Section 106 Framework. The following sections set out the contributions developers may be expected to provide.

Affordable housing

Affordable Housing Obligations will be required from all residential developments containing 15 or more dwellings and of housing sites of one hectare or more in size. The requirement will be for on-site provision, however, in exceptional circumstances, and at the Council’s discretion, sums for off-site provision may be acceptable.

Education

Education Obligations will apply to residential developments of 40 or more dwellings, if the development will increase the

population of pupils in excess of the capacity of local schools. Normally this will be provided in the form of a financial contribution for the provision of off-site facilities. Obligations may be required for both primary and secondary school facilities and in exceptional cases for nursery and special education facilities.

The standards used to assess education provision requirements are as follows:

- Nursery Education – 2.5 spaces per 100 eligible dwellings
- Primary Education (age 4 to 10) – 25 spaces per 100 eligible dwellings
- Secondary Education (age 11 to 16) - 20 spaces per 100 eligible dwellings

The cost per school place (as advised by DfES in February 2005) is as follows:

- Nursery and Primary School: £9,136
- Secondary School: £14,346

Recreational Facilities:

This Obligation will apply to residential developments on sites greater than 0.1ha or containing 10 or more dwellings. While this will usually be in the form of a financial contribution for off-site provision, however where there is a deficiency in provision identified in the Green Space Strategy on site provision may be required. Where this is the case, a maintenance payment covering a period of 15-years once adopted will be sought.

The following formula applies where on-site provision is not required:

| Recreational facility type | NPFA standard/ m2 | Bristol rate/ m2 | Contribution/ person |
|----------------------------|-------------------|------------------|----------------------|
| Parks and gardens | 4 | £70.60 | £282.40 |
| Active sports space | 12 | £37.79 | £453.48 |
| Equipped children’s play | 2 | £190.71 | £381.42 |
| Informal green space | 3 | £12.30 | £36.90 |
| Natural green space | 3 | £9.80 | £29.40 |
| Total | | | £1,183.60 |

The estimated number of people per dwelling is based on the ward average. For Knowle the average is 2.46 persons per dwelling.

Landscape schemes

In general, this type of obligation will be used where a Landscape Scheme is required to screen a development or to integrate it into the surrounding area, and where the Council wishes to have the Landscape Scheme transferred to its ownership once it is in an adoptable condition. The developer will be expected to pay the annual maintenance rate for the scheme for 15 years.

Travel plan initiatives:

In general, Travel Plan obligations will require occupiers of developments to undertake a staff travel survey and implement and monitor a staff travel plan. However, on occasion, direct financial contributions may be sought through obligations relating to Travel Plan Initiatives.

Highway infrastructure works

Highway Infrastructure works Obligations will be sought where it is required to improve the existing or construct new infrastructure to access the development. The developer will be expected to implement the agreed works, which will then be adopted by the Council once they are in an adoptable condition.

Economic contributions

Further detail on this Obligation is set out in Economic Contributions for New Development SPD. There is no threshold below which Economic Contributions Obligations will not be encouraged. All development will be encouraged to contribute; either financially, or in kind and this contribution can take a number of forms, as listed below:

- Use local labour (through the Council’s “On-Site” initiative.)
- Financial contributions toward the “On-Site” initiative.
- Set up training and employment fund.
- Provision of childcare
- Provision of affordable flexible business space.
- Public art

This Obligation will be encouraged in residential developments of more than 10 dwellings or greater than 0.1ha in size, commercial developments of over 1000m2 or significant public buildings and community facilities. Public art should be submitted as part of the planning application and the implementation will be secured through a planning obligation.

03 Planning context

Community forest initiative

Residential development over 10 dwellings and commercial development over 1000m2 will be expected to contribute to the community forest initiative. Contributions would be for specific schemes relating directly to the development site.

Library

Contributions will be required for developments of 40 or more dwellings. The calculation will be based on contributions of £105,000 per 1000 population.

The RSS sets out a number of renewable energy targets for the region. Policy RE5 states that large-scale developments “will be expected to provide as a minimum, sufficient on-site renewable energy to reduce CO2 emissions from users of the buildings constructed on site by 10%.”

04 Socio-Economic Profile & Benchmarking: Summary

04.1 Background

Knowle West’s history extends from the series of inter-war social housing. These were built in phases of development inspired by the principles of the Garden City movement and delivered through public housing acts¹. The first phases of development are located around Knowle Park East, and following phases of lower quality were built westwards into Knowle West. Many of the properties in Knowle West were developed for people to move into from inner-city clearances.

04.2 Population and household composition

A majority of the population are families, with higher than average levels of lone parent households ²[see Figure 15]. Filwood has the largest population of children and young people out of all Bristol wards (see Figure 14) . This demands particular attention in terms of services, particularly as combined with a low average household income could lead to a number of resultant issues.

04.3 Index of multiple deprivation

Deprivation of different categories are found in Knowle West with income, employment, education, health and crime³ representing major challenges. The intensity of these issues varies within the site (see Figure 16). Although the area has significant opportunities it suffers a poor image and reputation⁴. Access to housing and services and the living environment rate much better, indicating the strengths from which Knowle West can build, whilst efforts must be made to improve employment, health and educational opportunities.

04.4 Economic Activity

Unemployment levels are rising with Job Seeker Allowance claimant levels at 6.8%⁵, above the average levels for Bristol and South Bristol (see Figure 17). Of those in employment, the car is the predominant mode of transport to work (see Figure 18). This severely limits access to employment for the 40% of households without a car. A situation exacerbated when seen alongside evidence of the lowest average household income in South Bristol⁶. The current situation means many feel they do not have easy access

| | |
|---|--|
| 1 | 100 Years of Council Housing in Bristol, Malpass and Walmsley, 2005 |
| 2 | ONS Census Data 2001 |
| 3 | Deprivation In Bristol Report 2007Bristol City Council |
| 4 | Filwood Housing Investment Study 2004, Barry Wallen, Internal Summary Report |
| 5 | ONS Nomis April 2009 |
| 6 | ONS Model-Based Estimates |

to employment⁷. Emphasis should be placed on improving both the access to training and to employment⁸.

04.5 Education

Knowle West includes four primary schools (Connaught, Greenfield, Illminster Avenue and School of Christ the King) all of which have spare capacity⁹ . Additional primary schools outside of Knowle West are attended by a significant minority of children¹⁰. The majority of secondary pupils attend Oasis Academy, Brislington Enterprise College, Bedminster Down and Bridge Learning Campus¹¹.The achievement levels of these facilities are improving but remain a significant challenge, particularly when compared to nearby faith schools¹² (see Figure 19). Limited access to further education is a major challenge, which should be addressed whilst he opportunity to increase education attainment is a clear priority for the area.

04.6 Crime and Safety

Crime is a serious challenge, but one associated with the overall deprivation and isolation of Knowle West. There are variations within the study area mostly concentrated in pockets around Newquay Road, Filwood Broadway and Melvin Square (see Figure 20). However, the reported levels are lower than those perceived by interviewed residents¹³. This needs to be overcome to improve Knowle West, as people need to feel safe for the area to thrive.

04.7 Health and Well-being

There are some major health challenges, particularly when life expectancy, premature death rates as well as teenage and child health issues are taken into consideration¹⁴ . However, the local healthcare provisions mean most residents are within easy access of a GP¹⁵ . Hospital access is a much greater challenge and therefore efforts must be made to ensure the residents benefit from

| | |
|----|--|
| 7 | Quality of Life in Your Neighbourhood Survey 2007, Bristol City Council |
| 8 | Quality of Life in Your Neighbourhood Survey 2007, Bristol City Council |
| 9 | Department for Children, Schools and Families’ Edubase database (www.edubase.gov.uk) |
| 10 | Knowle West Education table (BCC Education, 2009) w |
| 11 | Knowle West Education table (BCC Education, 2009) |
| 12 | Department for Children, Schools and Families, 2009 |
| 13 | Joint Strategic Needs Assessment, NHS 2007 |
| 14 | State of the Neighbourhoods Health Tables, 2008 |
| 15 | Quality of Life in Your Neighbourhood survey, 2005-2007 |

the new hospital facility being developed as part of Hengrove Park¹⁶. Positive health influences affect the individual and community’s well-being. It is therefore important that the wider community are considered in terms of quality of life. It takes account of personal, social and place indicators which all point to fairly low quality of life considering income, employment, health, safety and quality of the environment ¹⁷. In other indicators it only falls slightly behind the Bristol benchmark¹⁸(see Figure 21). Social indicators show a positive as residents felt a strong sense of belonging, combined with strong social and family ties ¹⁹. Although Knowle West has an identifiable community cohesion, it has declined recently²⁰ threatening residents’ well being. Action should be taken to ensure the well-being of the residents and the community , providing appealing opportunities for a better lifestyle through improved living, work, social and recreational environments.

04.8 Conclusion

The Socio-Economic review has included benchmarking and absorbed a range of material (quantitative and qualitative). It clearly highlights major challenges for the Knowle West community, particularly in terms of income, employment, education, health and crime. The socio-economic review highlights the many disparities between the study area, Bristol and South Bristol, but also within Knowle West itself. Although improvements have been witnessed and the area offers opportunities, the community still face many challenges when compared to the average socio-economic conditions in Bristol. Limited access to employment, training and education opportunities as well as community, social and leisure facilities is apparent and exacerbated by the areas relative isolation in terms of transport.

Knowle West and surrounding areas already contain a number of opportunities that must be utilised to offer an improved choice and better quality of life, with efforts focused to ensure they are accessible.

But it also highlights some of the opportunities regarding the housing stock, open space, community, young people and location.

The KWRF is important for addressing the series of major challenges, targeting a range of issues related the current conditions and also utilising the opportunities. These require consideration of the wider area, but also need to be customised to specific neighbourhoods if it is to benefit of the local community.

| | |
|----|---|
| 18 | www.hengrovepark.co.uk |
| 17 | Quality of Life in Your Neighbourhood Survey 2007, Bristol City Council and Deprivation Report 2007 |
| 18 | State of the Neighbourhoods, Quality of Life, 2008 |
| 19 | “We wouldn’t live anywhere else” (Involving Residents in Solutions, 2004) |
| 20 | Quality of Life in Your Neighbourhood Survey 2005-07 |

The KWRF is an important mechanism for change that sets out the priorities for Knowle West in terms of social, economic and environmental advancements. Although Knowle West suffers from physical and social barriers that limit opportunities, the area exhibits a number of positive advantages. These include a good location, relatively close to Bedminster and the city, an identifiable community, a relatively good and affordable housing stock, and generous open space quantities on offer. The KWRF needs to exploit these latent qualities, using it as a platform for integrating new employment, education, social, leisure and retail options for the area and returning a positive focus to Knowle West and regaining support and investment from those who live in and around the area.

T The KWRF represents a key mechanism to set forward objectives for targeting these issues and creating appropriate opportunities for an inviting and attractive environment to live and do business,

More detail is provided in the Socio-Economic Paper.

04 Socio-Economics: Summary

Figure 14: Age Structure

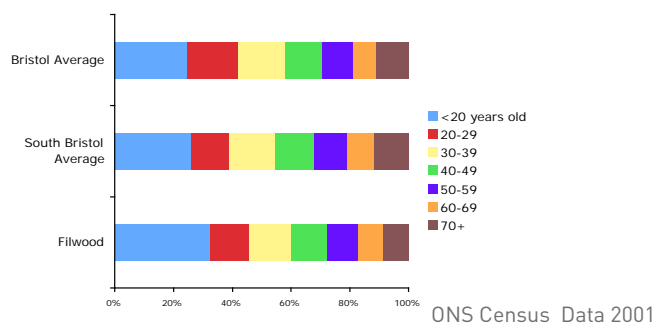


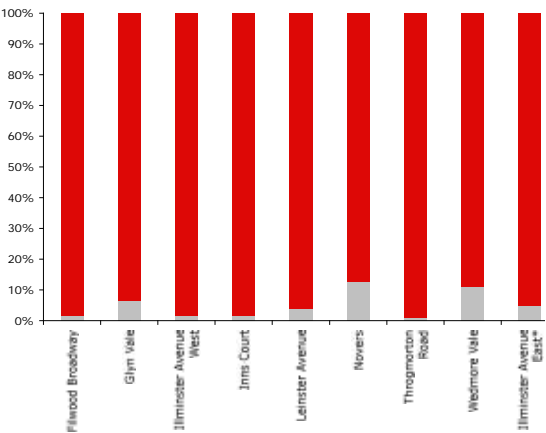
Figure 15: Household Structure
Percentage of all household

| | One Person | Married Family | Cohabit-ing | Lone Par-ent |
|------------------------|------------|----------------|-------------|--------------|
| Illminster Avenue East | 24 | 33 | 9 | 19 |
| Filwood | 26 | 31 | 9 | 20 |
| South Bristol | 29 | 34 | 9 | 12 |
| Bristol | 33 | 32 | 10 | 10 |

ONS Census Data 2001

Figure 16: Ranking of Index of Multiple Deprivation [LSOAs], 2007

percentile ranking where 100% = 100th percentile (lowest ranking in country for deprivation score)



ONS Data 2007

Figure 17: Benefit Claim Rates for South Bristol

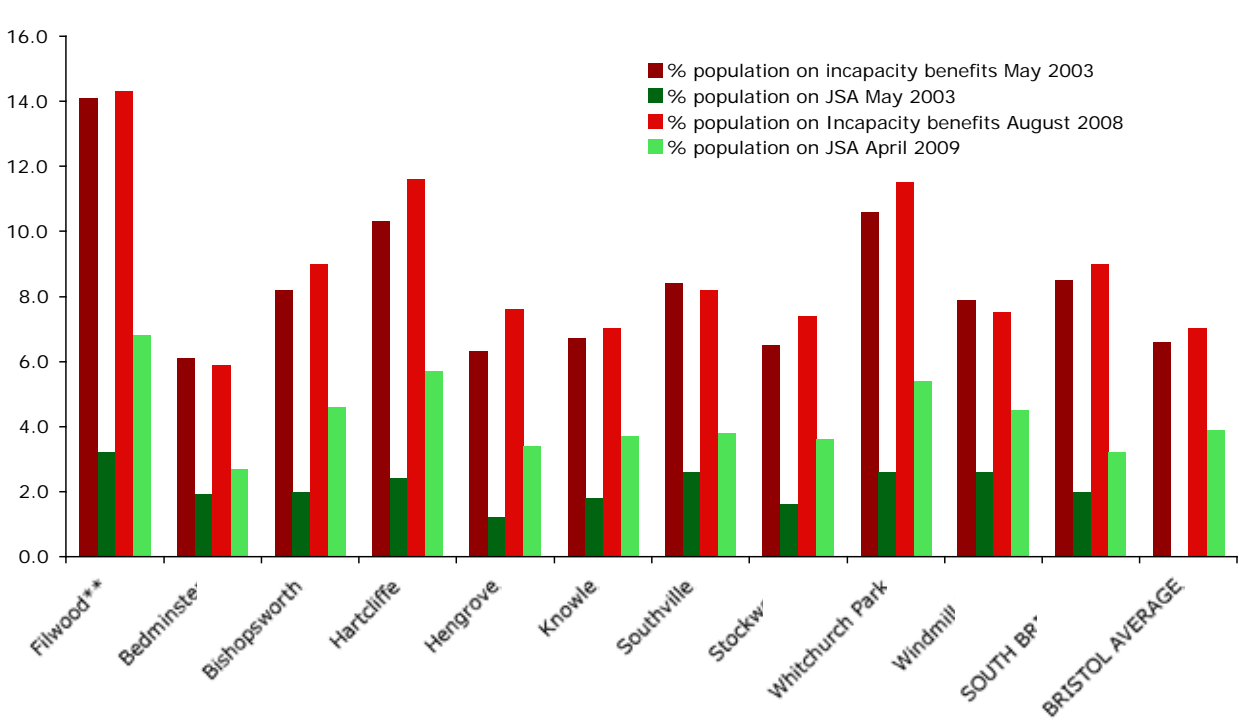


Figure 18: Mode of Travel to Work

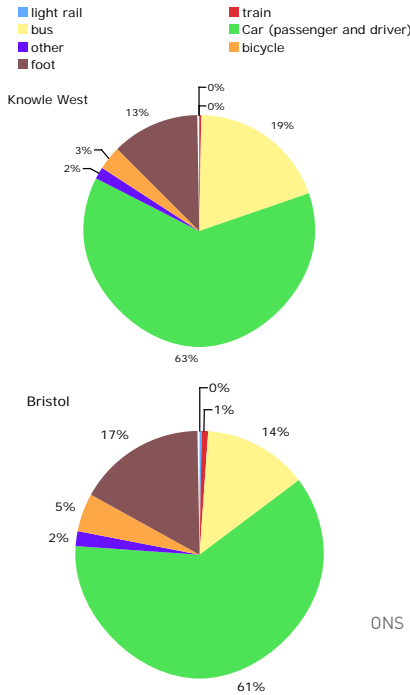
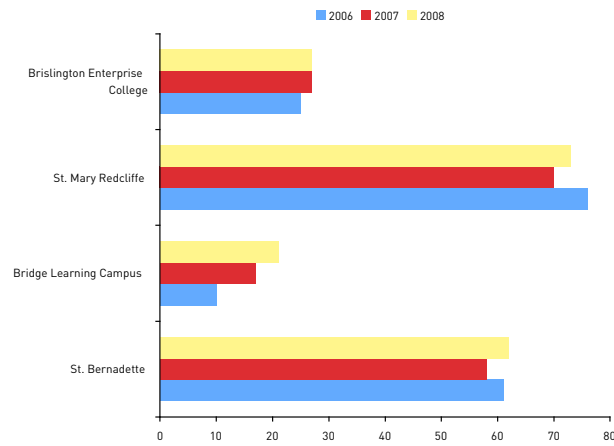


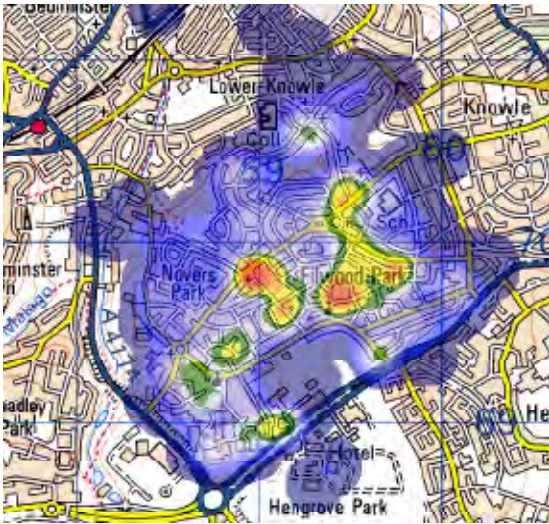
Figure 19: Local Secondary School Performance

percent achieving 5A*-C at GCSE



Department for Children, Schools and Families 2008

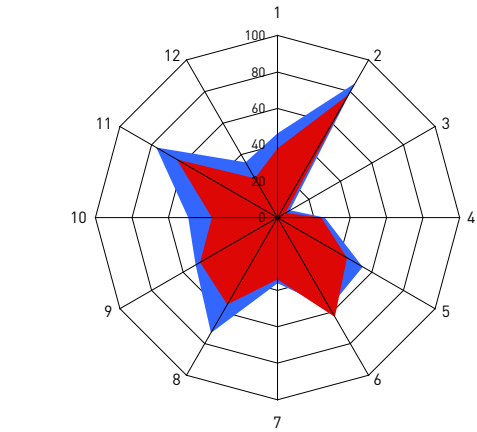
Figure 20: Filwood Beat Crime Map
All Crimes (21 April 2008 - 20 April 2009)



Avon and Somerset Police

Figure 21: Quality of Life, 2007

Blue represents Bristol and Red represents Filwood



- 1 % feel safe after dark
- 2 % feel safe in day
- 3 % 2+ hours volunteer a week
- 4 % feel they can influence decisions
- 5 % that think people from different backgrounds get a long
- 6 % resident who feel they belong to their neighbourhood
- 7 % resident who take exercise 5 times a week
- 8 % households without smokers
- 9 % residents who have 5 fruit and vegetables a day
- 10 % satisfied with local environment
- 11 % satisfied with local area
- 12 % visit parks and open space 1/week+

05 Site history and built heritage

05.1 Roman and Pre-Roman settlements

The area provides evidence of Roman, and potentially Pre-Roman settlements, notably in Filwood and the Inns Court areas. Filwood Park is the site of a small Roman settlement, possibly with a significant industrial element, recorded in the early 1980’s. Inns Court is the site of a significant Roman building complex. These settlements are possibly linked and there is potential for further archaeological evidence from not just the Roman Era, but also the late Iron Age.

05.2 Up to 1920

As shown in Figure 22 , referencing the OS map of 1921, the area called Knowle West today was predominately rural; the area consisted largely of agricultural and allotment land interrupted by a handful of small farmhouses (Filwood Farm, Inns Court Cottage, Hengrove House etc.), and the Nover’s Hill Isolation Hospital. The small settlements in the area existed at least from the medieval period and have undergone only gradual change.

The farm complexes of Inns Court and Filwood Farm are both thought to date from medieval times. The 15th century stair case tower of the Inns Court Farmhouse complex is today a Grade II* listed building, believed to be the remains of the above mentioned much larger medieval complex.

Two quarries are evident within the site boundary and a distinct agricultural landscape, structured by a number of footpaths, springs and brooks. The historic field boundaries are evident and by reference to later maps one can appreciate how these medieval and post medieval field boundaries have framed and influenced the urban structure.

05.3 The 1920s to 1940s

The OS map of 1938 (figure 23) illustrates that the area’s urban history stems from waves of inter-war housing, built between 1928 and the 1940s. Earlier development is located around Knowle Park East, later spreading westwards into Knowle West. Many of the properties in Knowle West were developed for people being relocated due to inner city clearance (Malpass, 2005). From the outset, Knowle West Estate was erected in order to provide healthier living conditions for large families on low incomes. The houses were relatively small but provided large gardens with an abundance of fresh air and daylight. The area was considered a desirable place to live (Jones, Knowle West Pages, 2007) although facilities such as shops, community centres and facilities were not available until the late 1930s.

The vast majority of the housing was built in the 1930s and set out on Garden City principles, using elements

from the work of Parker and Unwin, as typified in earlier developments such as Hampstead Garden Suburb in Barnet and Letchworth. Based on working with the landscape and building in the Arts and Crafts tradition, the informal, spacious and green layout was devised to create beauty and promote well being. Variation is introduced through detailing, alignment of buildings and setting blocks back one from another. The use of traditional natural materials such as red brick, clay tiles and painted timber windows is consistent with this theme.

However, there are failings of the urban structure, notably in terms of legibility, provision of public open space, amenity centres, and connectivity. These are explored in more detail in the Townscape chapters of this report. Whilst the area was considered a desirable place to live in its early genesis, it has, over recent times, suffered significant deprivation, concepts that are developed in more detail in the socio-economics section of this report.

Whilst it is accepted that there are finer examples of Garden City estates, the special character and local distinctiveness of Knowle West, in the Bristol context, should be celebrated through informed adaptation and to an extent strengthening Garden City principles that appear to have been lost through gradual infill and piece meal development. This will enable that solutions are derived from this special character

05.4 Post-war development

During WWII Bristol became one of the most heavily bombed cities outside London. By the end of the war, an unseen shortage of housing put the Council under enormous pressure to build and provide new housing.

Inns Court, built in the 1960s, departed from the Garden City layout. It was developed on Radburn principles, named after an American Town designed by Clarence Stein and Henry Wright in 1929. In principle, Radburn estates were built with the intention to create neighbourhoods that were economically viable communities, accommodating modern lifestyles whilst providing amenities of open space and community services. Common features were grouped houses arranged around a cul-de sac street layout thus the street layout broke away from the conventional street grid pattern. This was replaced by short cul-de-sacs accessed off a circuitous feeder road which in our context is Inns Court Drive. Pedestrians were widely segregated from vehicular traffic.

The lack of distinction between public and private spaces, as well as low housing densities, means that Inns Court

has, like many other neighbourhoods set out on Radburn principles, failed to provide a safe and well-overlooked environment. The layout has resulted in a physical environment that contributes to isolation rather than facilitating community interaction and linkages across adjacent neighbourhoods. The system of cul-de-sacs also causes poor legibility and permeability of the area.

05.5 Built Environment Policies and Guidance

Recent excavations uncovering Roman and possibly pre-Roman settlements, suggest that Inns Court and Filwood lie in an area that might have considerable potential for discovery of further evidence for early settlements.

The national planning framework for archaeology and conservation is set out in the planning context section 07 in this report.

PPG16: Archaeology and Planning. This states that archaeological remains should be viewed as a non-renewable resource (paragraph 6). Appropriate management is therefore essential to ensure that such remains survive in good condition and are not needlessly or thoughtlessly destroyed.

It is recognised, however, that with ever increasing modern pressures, the preservation of all archaeological remains may not be feasible or indeed desirable. An appropriate balance between preservation and development is therefore required. PPG16 states that “development plans should reconcile the need for development with the interest of conservation including archaeology.” The Knowle West Regeneration Framework must therefore include policies for the protection, enhancement and preservation of sites of archaeological interest and of their settings.

Although the study area does not consist a conservation area we provide in the following a brief summary covering National and Local Policy Guidance.

Guidance about conservation areas is provided at national level within PPG15: Planning and the Historic Environment (PPG15). This states that local planning authorities have a duty to prepare proposals for the preservation and enhancement of conservation areas (paragraph 4.9). In other words the special character of conservation areas must be actively identified and protected.

While PPG15 recognises that the historic environment is by its very nature irreplaceable, it is also noted that in

practice it cannot be preserved unchanged. The guidance calls for the identification of what is special in the historic environment, and the capacity for change, as well as an assessment of the impact of development on the historic environment. PPG15 emphasises that conservation of the historic environment and sustainable economic growth are complementary objectives.

The Bristol Local Plan states that Bristol’s rich heritage “is a non-renewable resource and the City Council wishes to ensure that buried and standing remains are protected and managed adequately and sympathetically within new developments” (4.4.63). The Council’s presumption is in favour of preserving any archaeological features, whether scheduled or not, and developments that could adversely affect the archaeological sites and their settings will require an assessment of the archaeological resource. In accordance with policy B22 of the Local Plan, the Knowle West Regeneration Framework will need to demonstrate that the archaeological features of the site will be satisfactorily preserved in situ or that the impacts of the redevelopment on the archaeological site will be mitigated satisfactorily.

Bristol’s Local Development Framework SPD 7 Archaeology and Development (adopted March 2006) refers to Policy B22 in the Local Plan and provides further guidance to the policy approach in order to assist in securing both local and national objectives. Appendix 4 of the SPD mentions archaeological excavations in the Filwood and Inns Court area.

Figure 22: South Bristol in 1921

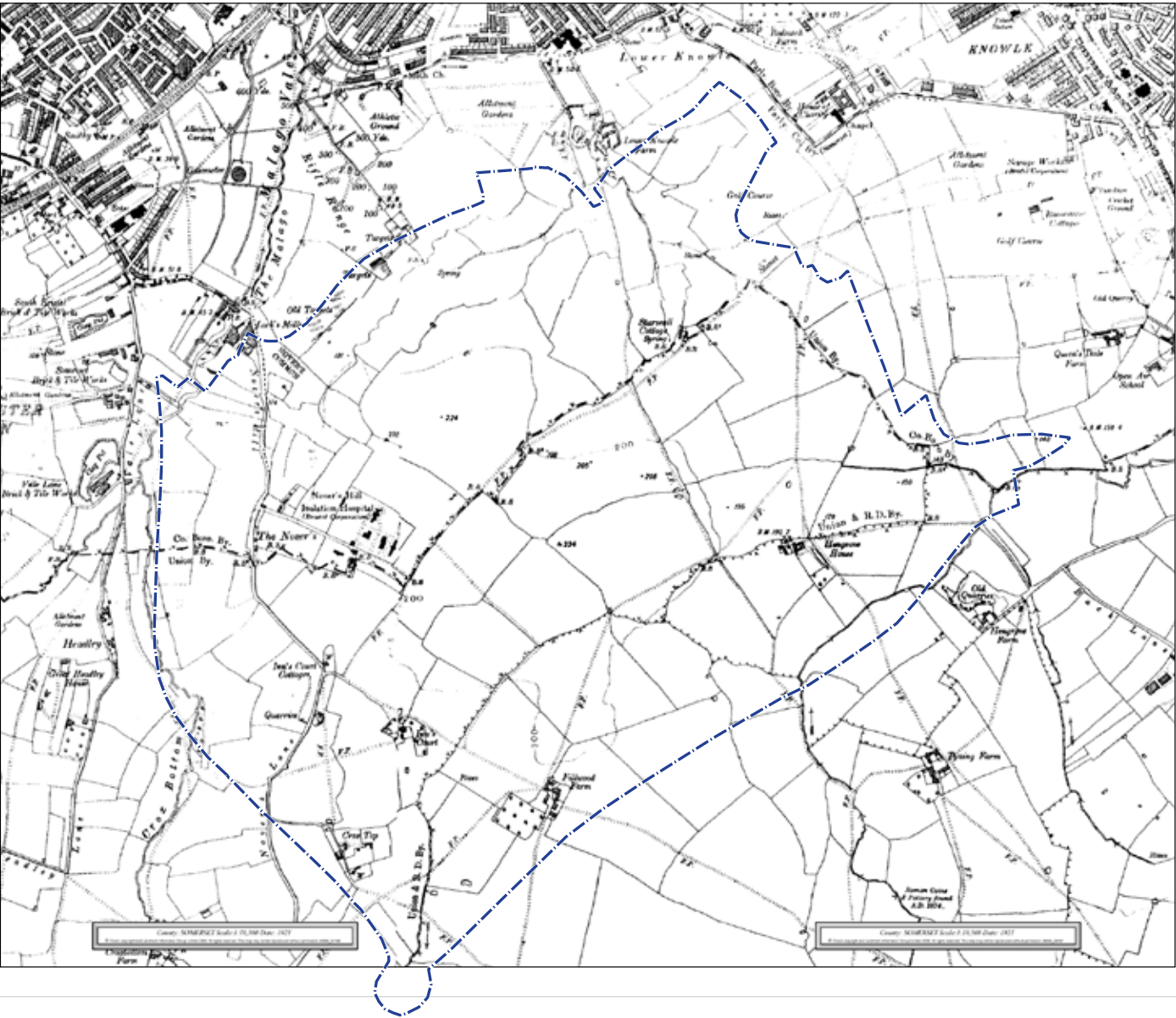
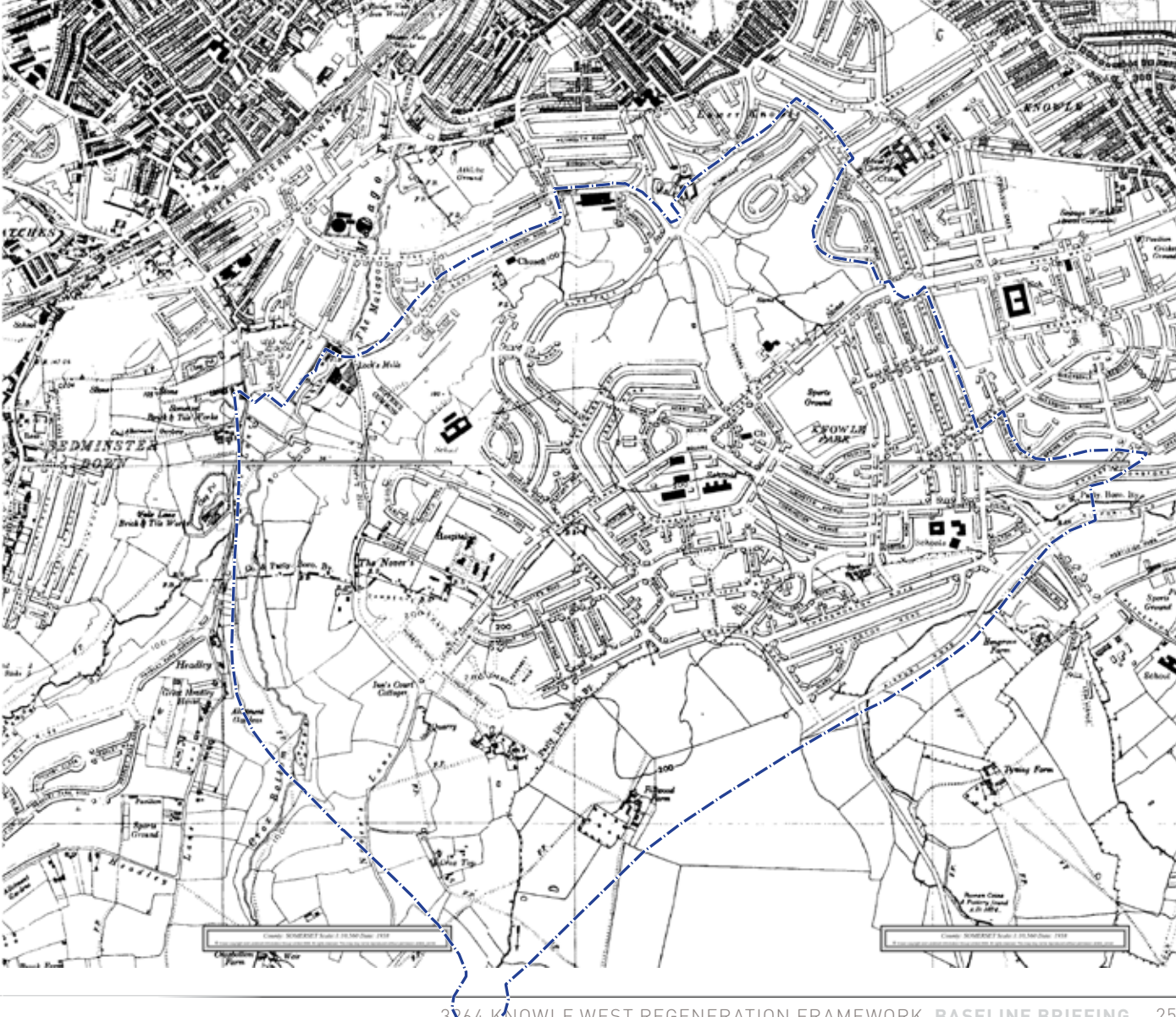


Figure 23: South Bristol/ Knowle West in 1938



06 Movement: Provision

This section will establish the provision of facilities in and around the Knowle West study area for all modes of travel, both existing and proposed. It will identify the key issues facing the area in terms of movement, and the opportunities which present themselves.

06.1 Pedestrian routes

Our analysis identifies primary pedestrian routes within the study area as being located along the main streets. There is little useful data regarding pedestrian numbers. The data that does exist suggests that pedestrian footfall within the study area is low.

Pedestrian attractors

Pedestrian attractors within the study area are currently limited, but would include the local schools, the employment sites, the retail clusters in Melvin Square, Filwood and the Broadwalk, and the Media Centre.

There are no major public transport attractors in the study area. Parson Street and Bedminster rail stations are located to the north-east of the site but too far for people to walk.

Areas of pedestrian priority

There are no areas where pedestrian priority is provided over and above the usual facilities provided at signalised junctions and standard pedestrian crossing facilities (e.g. zebra crossings).

Barriers to pedestrian movement

Within the study area, pedestrian movement is constrained by the street layout and the lack of permeability it provides.

Also, the scale, usage and layout of many of the surrounding distributor roads present barriers to pedestrian movement across them, effectively severing the study area from much of the surrounding area.

This, in conjunction with the size of the study area makes walking to other areas unattractive. Starting from Filwood Broadway, it is difficult to walk to almost anywhere outside the study area, which contributes to the isolation of the area from the surrounding urban fabric.

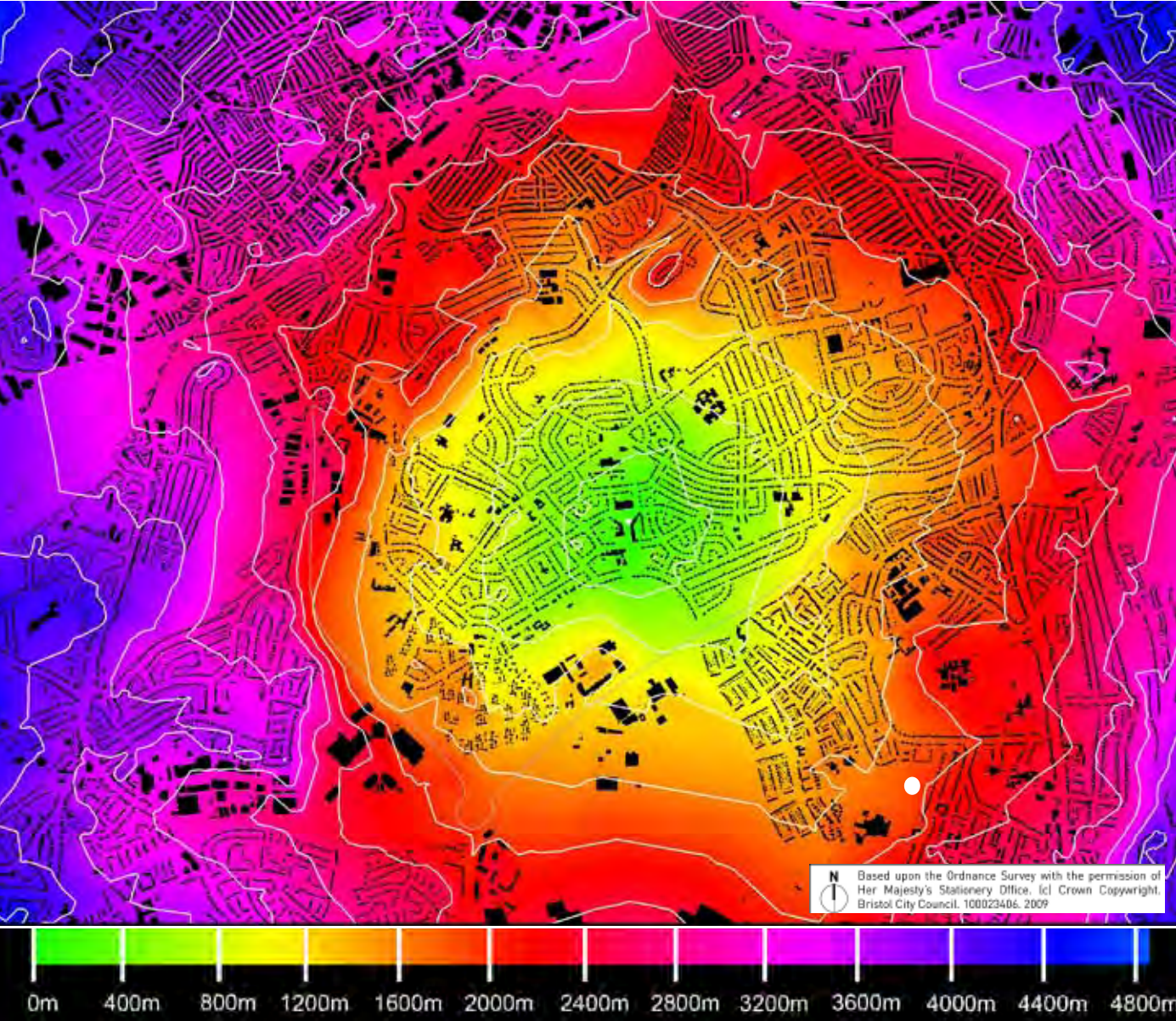
Some pedestrian-only routes are provided, most obviously between Kenmare Road and Totterdown. However, these are compromised by the steep slopes between those two places, which make walking along them (particularly uphill) strenuous at best. Many of these routes do not benefit from a great deal of natural surveillance, and so potentially present issues around crime and fear of crime.

In summary, Knowle West is not a very walkable area, either within the study area, due to the illegible street layout, or to and from the area, due to the impermeability of the area, the severing impact of the boundary distributor roads and the local topography.

Figure 24: Knowle West Street Network (Blue line = Study area)



Figure 25: Distance from Filwood Broadway measured in meters to walk/drive (green= up to 800m walking distance = comfortable walking distance)



06 Movement: Provision

06.2 Cycling

While Bristol has a higher than average level of cycling, there are no identified cycle routes through Knowle West, although a number of roads are identified as quiet streets suitable for cyclists.

There are facilities of differing standards on the border of the study area (A37 and A4174), and nearby, the National Cycle Network Route 3 passes to the east of the area and runs from Bristol to Padstow in Devon (105 miles/168kms).

To the north is found the Malago Greenway Route, which – although only partially completed – runs from Bedminster to Hartcliffe Way and through to Bishopsworth. This alignment has been identified as a potential corridor for the proposed Bus Rapid Transit service between Hengrove and the City Centre, although the intention is to retain the cycling facilities here.

There are relatively few cyclists within the study area. For example, Salcombe Road is used by just 73 cyclists per day (7am – 7pm) and Leinster Avenue by just 60. By comparison, cycle numbers on Hartcliffe Way (which benefits from cycle facilities along its length) over the same period total 255.

06.3 Vehicular movement

Primary routes

The study area is broadly enclosed by distributor or local distributor roads:

- the A4174 (Hengrove Way/Airport Road) borders the site to the south;
- the A37 (Wells Road) to the east; and
- the A4174 (Hartcliffe Way) to the west.

Traffic flows are high on each of these roads. Two-way peak hour flows are shown below, but it should be recognised that traffic flow remains high through the day.

Traffic Flows (Primary routes)

| Street | Two-way peak hour flows | |
|----------------|-------------------------|---------|
| | AM Peak | PM Peak |
| Hartcliffe Way | 1388 | 1912 |
| Hengrove Way | 1711 | 2043 |
| Wells Road | 1530 | 1359 |

The key junctions around the study area are:

- The Hartcliffe roundabout (on the A4174)
- The Wells Road (A37)/ Airport Road (A4174) junction, and
- The Wells Road (A37) junction with the A4 to the northeast of the study area.

According to the Joint Local Transport Plan 2006/7 – 2010/11 (JLTP), congestion (defined there as a link operating at 85% or more of capacity in the a.m. peak period) is experienced on the Hengrove Way (A4174), on both the east and west sides of the Hengrove Way roundabout, and on Wells Road (A37) towards the junction with the A4.

Secondary routes

The B3122 (Redcatch Road/St. John’s Lane/Bedminster Road) is located to the north of the study area and runs east-west between the A37 and the A4174/A38.

Local routes

Direct routes through the study area are limited to Leinster Avenue (between the A4174 and the A37), and Salcombe Road between the A4174 and the B3122). Traffic flows here, though less than half of the primary routes, are nonetheless significant.

Traffic Flows (Local routes)

| Street | Two-way peak hour flows | |
|-----------------|-------------------------|---------|
| | AM Peak | PM Peak |
| Salcombe Road | 745 | 685 |
| Leinster Avenue | 616 | 619 |
| Melvin Square | 921 | 910 |

No through roads

The study area is difficult to navigate, with a significant proportion of streets either ending in dead ends or operating as part of a ‘cell’. There are, for example, a very limited number of vehicular entry/exit points into or out of the entire study area. Further, there is only one entry/exit point along the whole of the eastern border of the area (at Novers Lane).

Controlled parking zones

The study area is not subject to any controlled parking zones. Parking is provided both on-street and off-street, and is largely uncontrolled.

06.4 Public Transport

Existing provision

Public transport within the study area is limited to bus provision, as the nearest rail service is at Parson Street station.

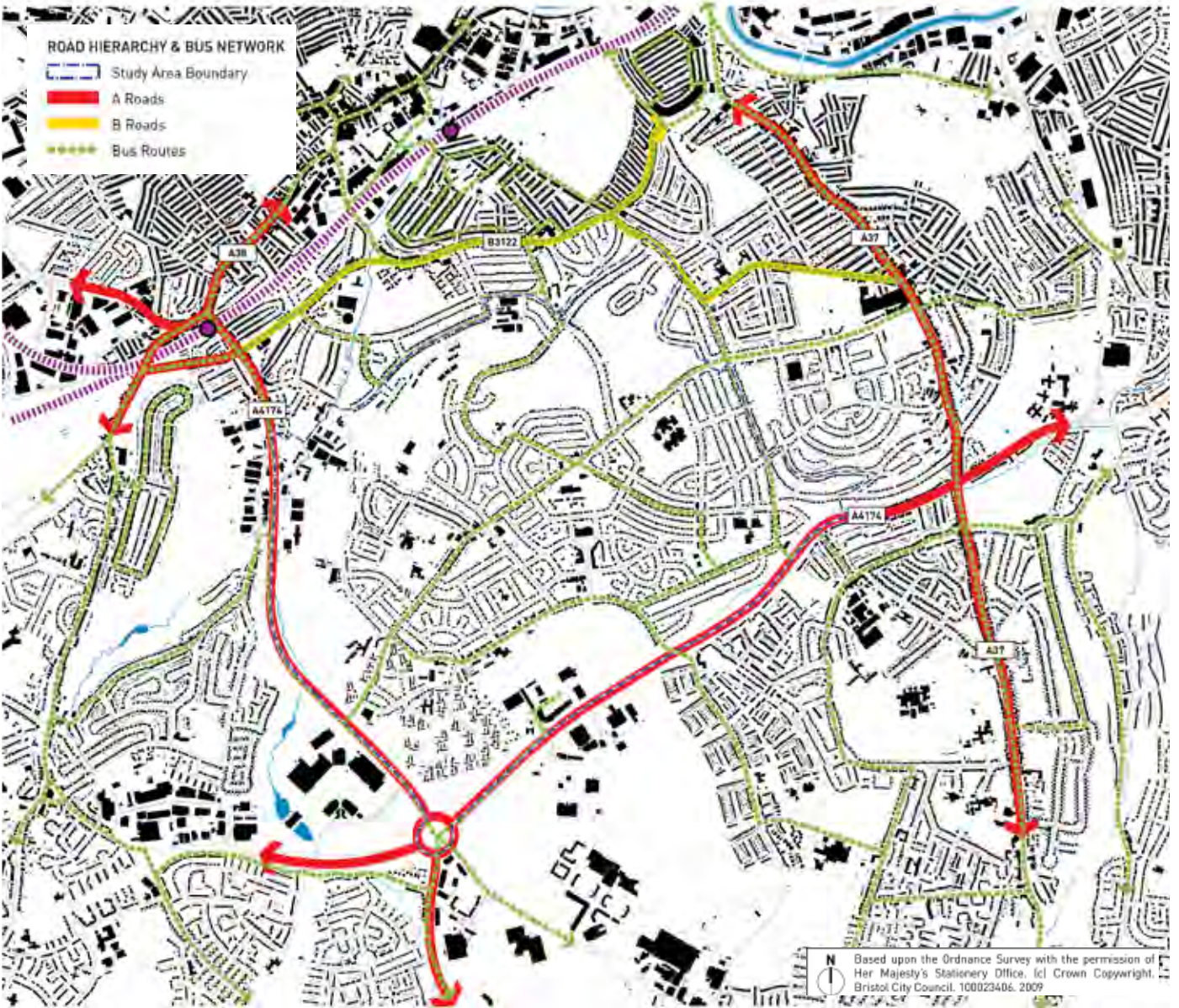
There are a number of bus services which pass in and around the study area, but although the coverage is widespread, the multiplicity of routes and their relative infrequency makes the bus network as a whole difficult to comprehend. In addition, many of the routes are indirect and therefore slow. These factors render the existing services unattractive to many potential passengers.

Currently, there are sixteen separate bus services in and around the study area. They are:

| Route | From – To |
|-------|-------------------------|
| 20 | Rookery Farm – Westbury |
| 21 | Rookery Farm – Westbury |

| | |
|-----|---|
| 36 | Withywood – City Centre |
| 50 | Rookery Farm – City Centre |
| 51 | Rookery Farm – City Centre |
| 52 | Inns Court – Hengrove Depot |
| 54 | Stockwood – Cribbs Causeway |
| 54a | Stockwood – Cribbs Causeway |
| 75a | Cribbs Causeway – Hartcliffe + Whitchurch |
| 76 | Southmead – Hartcliffe |
| 77 | Henbury – Hartcliffe |
| 90 | Hengrove – Broadmead |

Figure 26: A and B Roads and Bus routes



06 Movement: Provision

| | |
|-----|--|
| 503 | Windmill Hill + Totterdown – Broadmead |
| 510 | Bedminster Down – Hotwells |
| 511 | Hengrove – Bedminster |
| 559 | Knowle – Brislington |

In addition, ABUS Ltd run a service from Tesco Brislington into Melvin Square vis the Broadwalk shopping centre. This service operates twice a day on Monday to Friday.

As mentioned above, journey times to and from the City Centre are sometimes longer than might be expected given its proximity to the study area. For example, the 36 service takes 52 minutes to travel from Melvin Square to Wine Street in central Bristol. By comparison, the 20 service takes just 11 minutes from Broadwalk Square to Broad Quay.

Bus fares are considered high. For example, a Daily Pass for Zones 1 and 2 (which covers the Knowle West area) costs £4.20 per day.

Taken together, this means that access to jobs and services can be limited for residents of Knowle West. The Joint Local Transport Plan (JLTP) sets headline targets to improve accessibility to health, employment and education, using Accession software to map areas of good accessibility, and where it is poor.

As regards Health, the JLTP defines good access as “the ability of an individual to travel by public transport to a facility that provides treatment to outpatients for minor injuries and diagnostics” within 30 minutes.

Within Bristol as a whole, some 85% of all households are identified as having good access, including the majority of Knowle West. The south-western corner of the study area (close to the Hengrove Way roundabout) does not qualify as having good access to healthcare.

With regard to Employment, the JLTP sets three levels of accessibility; defined as access to the main employment centres (over 5,000 jobs) by public transport within 20 mins, within 40 mins or 40 mins and above.

Within Bristol as a whole, 50% of households are within 20 minutes of employment centres, and nearly all (99%) within 40 minutes. Almost the whole of the study area falls within the latter category, demonstrating a link between the public transport provision and the poor economic performance of the Knowle West area.

Access to Further Education paints a rosier picture for both Knowle West and the city as a whole, as the entire city (100%) is identified as having good access to education (defined here as being within 30 minutes by public transport of a Further Education College offering a ‘range’ of courses.

Road Safety

There are relatively few identified road safety problems within the study area. In the three years between October 2005 – 2008, there was one fatal accident at the junction of Creswicke Road and Filwood Broadway.

There were also sixteen serious accidents in the same three-year period across the study area, although very few of these occurred in any kind of identifiable cluster that might indicate a trend. Two serious accidents occurred at each of the following:

- Hartcliffe roundabout
- Chilton Road
- Wedmore Vale
- Hartcliffe Way (though very far apart)

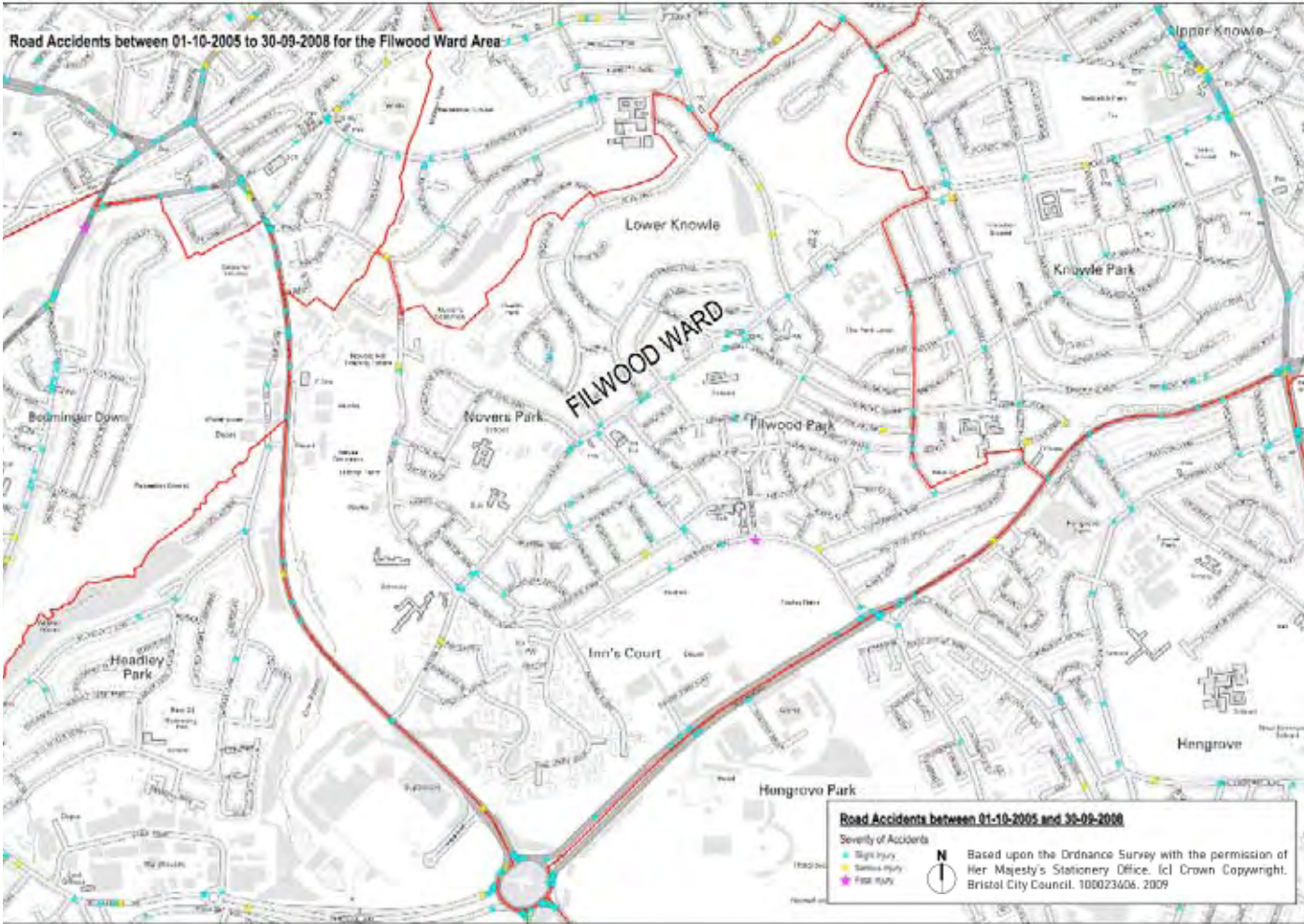
Individual serious accidents occurred at:

- Lynton Road
- Novers Lane
- Salcombe Road
- Novers Hill
- Wallingford Road
- Throgmorton Road, and
- Hengrove Way

Accidents resulting in only slight casualties are also recorded. When these are factored in, clusters start to emerge.

There is only one cluster site (defined as a 40m radius within which five or more personal injury accidents have occurred) within the main study area - at the junction of Leinster Avenue and Novers Park Road. There are eleven other cluster sites within the study area. Each of these is located on the boundary roads of the study area, and five of them are at junctions of Hartcliffe roundabout. There are also a number of additional cluster sites close to the study area, including one at the junction of Salcombe Road and Broad Walk.

Figure 27: Accident sites (2005 - 2008)



06 Movement: Proposals

06.5 Cycling Proposals

In June 2008, Greater Bristol was chosen to be England’s first Cycling City, and will receive substantial funding over three years to increase cycling in the city. Infrastructure improvements in the Knowle West area as part of the Cycling City award are:

Southern Route - Hartcliffe Way

The provision of a 4 metre wide segregated shared use path down the west side of Hartcliffe Way linking the crossing of Hartcliffe Way to the signal crossing of Novers Lane is proposed. This will be upgraded to incorporate a crossing facility linking to the existing shared provision on the east side of Hartcliffe Way. This Southern section will be improved as part of the Hengrove Park development.

Hengrove Park links

Shared provision with pedestrians is to be implemented on the northern side of Whitchurch Lane (which will be widened to a dual carriageway as part of the enabling works for the Hengrove Park development) to link into the Hengrove Way roundabout.

At-grade signal crossings are to be provided on the Hengrove Way roundabout to provide an alternative to the subway system for pedestrians and cyclists, and signals provided on the roundabout making it safer for those who use the carriageway to do so.

06.6 Public transport proposals

Greater Bristol Bus Network

There are proposals for a Greater Bristol Bus Network (GBBN), intended to ensure a first class bus service for all main routes.

This proposal focuses on bus priority measures on ten corridors serving 37 showcase bus routes in partnership with the major bus operator First. The package includes:

- More bus lanes and improvements to traffic junctions to give buses priority over other traffic;
- Ticketing improvements to speed up boarding and make buses easier to use;
- Real time information on major bus stops with information available on the internet and potentially via mobile phones;
- Modern new low-floor buses with enhanced bus stops to allow easy access and new shelters;
- Higher standards of driver training and customer services;
- Enforcement of bus priority measures including new powers to use cameras to enforce bus lanes;
- Bus information made available in new formats to public

- and businesses, including mailing to households;
- Improvements for walking, cycling and road safety linked to these improvements.

None of the proposals enter the study area. Corridor 6 (A37 Bristol to Norton- Radstock) runs closest, and serves residential areas in south east Bristol, as well as Broadwalk shopping centre and Hengrove Secondary School. It could also provide fast access to the Hengrove Park development site. It then continues to Norton - Radstock, serving intermediate villages. The corridor runs south to connect towns in Somerset and link with bus improvements in that county.

Park and Ride

There are proposals for a new Park and Ride facility at Whitchurch, to the south of the study area. This could be linked to an extension of the proposed BRT service, currently part of a Major Scheme bid to Government.

Bristol Rapid Transport

A network of rapid transit lines is proposed within the Joint Local Transport Plan (JLTP) area. Work is still at the early stages and the exact nature of the rapid transit, still has to be established and no routes have been agreed at this stage. However, four potential routes to and from the city centre are being investigated with a route from Ashton Vale in the south-west being prioritised. One of these routes would run from Hengrove, linking the Hengrove Park development proposals with Bedminster and the city centre. This offers the potential to provide speedy and direct access from Knowle West to the City Centre..The map below shows potential routes.

Figure 28: Potential BRT routes in and around Knowle West



06 Movement: Conclusions

06.7 Key issues

Perhaps the biggest single movement issue for the Knowle West study area is the lack of connectivity between it and the city centre, and even the surrounding urban fabric. The area is severed on almost all sides, either by topography or highway infrastructure. Even within the study area, it is difficult to get about given the illegible street layout. This situation is at the heart of most of the major movement problems of the area.

Given the lack of permeability into and across the study area, it is perhaps unsurprising that vehicular congestion occurs on the surrounding roads.

The street layout makes it very difficult to provide a bus service from the heart of the study area that connects to the city centre within a reasonable time. As a result, access to employment is poor within Knowle West, contributing to its social problems.

Addressing the severance experienced by residents of the area, as well as the lack of permeability and legibility within it, will be the key movement priorities for Knowle West.

06.8 Opportunities

There are a number of major transport projects that might have an impact on the study area, including:

- Greater Bristol Bus Network
- Park and Ride
- BRT
- Cycling City
- South Bristol Link

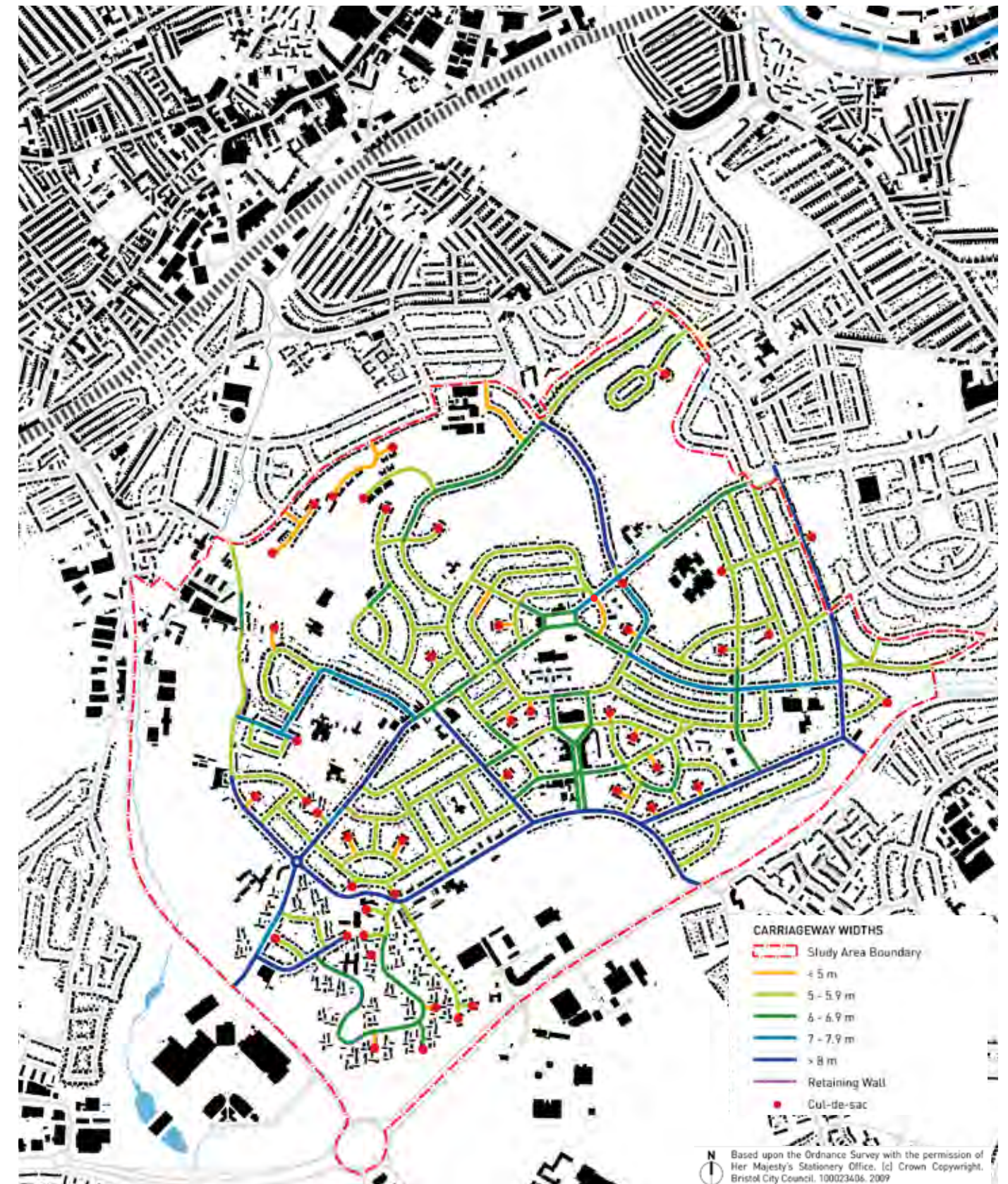
However, all of these initiatives, with the potential exception of the BRT, continue the current situation whereby facilities are provided on the borders of the site rather than within it.

It is essential to the regeneration of the area that the proposals for Bus Rapid Transit routes, and for the Greater Bristol Bus Network are amended to provide high quality, fast connections to the city centre from within Knowle West itself. However, accommodating the necessary BRT infrastructure through the area will likely prove challenging.

Further, bus provision within the area should generally be rationalised to make the system easier to understand, and therefore easier to use.

In addition, increased permeability for all modes should be provided, while protecting against rat-running by motorised traffic, and the surrounding streets should be re-profiled to reduce the severance impact that they currently cause.

Figure 29: Carriage way width and cul-de sacs



07 Land uses: Overview

07.1 Land uses

A high level analysis of land uses in the study area shows the following mix:

- 8% Buildings of which the majority are of residential uses
- 35% Private gardens
- 33% Public open spaces
- 13% Streets and parking
- 11% Paths and other

This pattern highlights the low ratio between built-up areas and open spaces. The plans shown opposite illustrate this abundance of open spaces on the fringes of the study area, coupled with housing types, consistently provided with gardens in the front and back of the houses.

In terms of land uses representing destinations for work, education and shopping, the study area contains:

- Two large industrial estates (production, trade, office)
- Filwood Broadway and three small retail parades
- A number of larger buildings and sites accommodating facilities for education, police, health and faith services etc.

A number of vacant sites at Filwood Broadway, as well as some of the larger sites within the built up area, provide opportunities to increase housing densities and strengthen the centrality of Filwood Broadway and Melvin Square, located within easy walking distance for the majority of the residents and people working in the area.

Crucially, improving access to, and quality of green infrastructure by providing new or enhanced parks, street greens, natural play areas, land art and water features will play an important role in creating an attractive and easy-to-read hierarchy of local and neighbourhood centres, and the links between them.

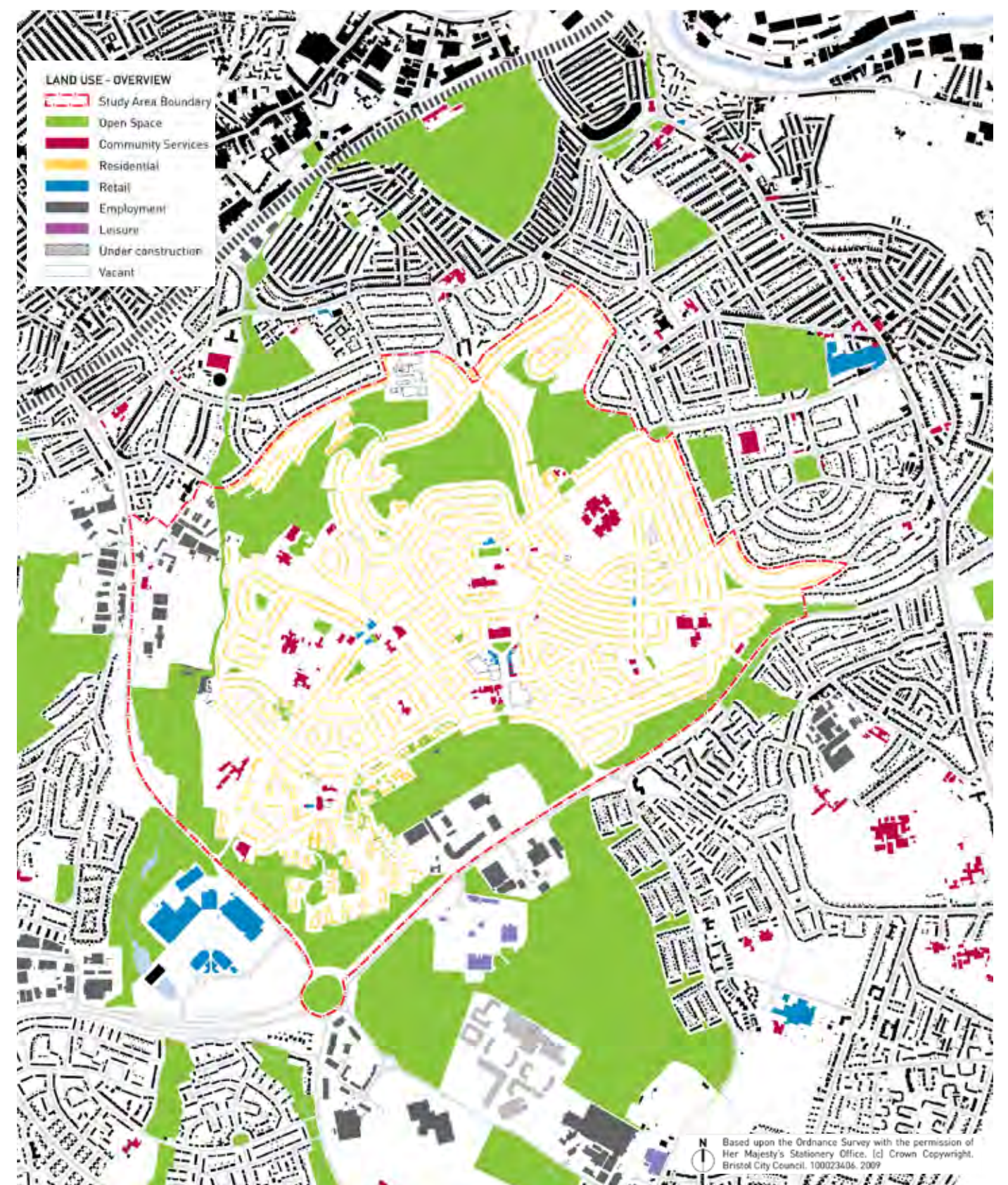
Figure 30: Retail and Employment clusters



Figure 31: Residential: houses and sheltered housing



Figure 32: Land uses - Overview



07 Land use: Public Open Spaces

07.2 Public Open Spaces - Amount and Type

The study area consists of around 57ha public open spaces. As shown in the plan, a variety of public open spaces are located within Knowle West and its vicinity. The 18 spaces within the study area are listed in the table opposite, providing information on name, size and reference code of the location of the space.

The analysis shows that there are a few very large spaces (>6ha) and numerous very small spaces (<1ha). Those that are publicly accessible include Filwood playing fields, Filwood Park, the natural spaces of the Northern Slopes, the informal spaces bounding the A4174 to the south, the site of Nature and Conservation Importance to the west, as well as small neighbourhood spaces throughout.

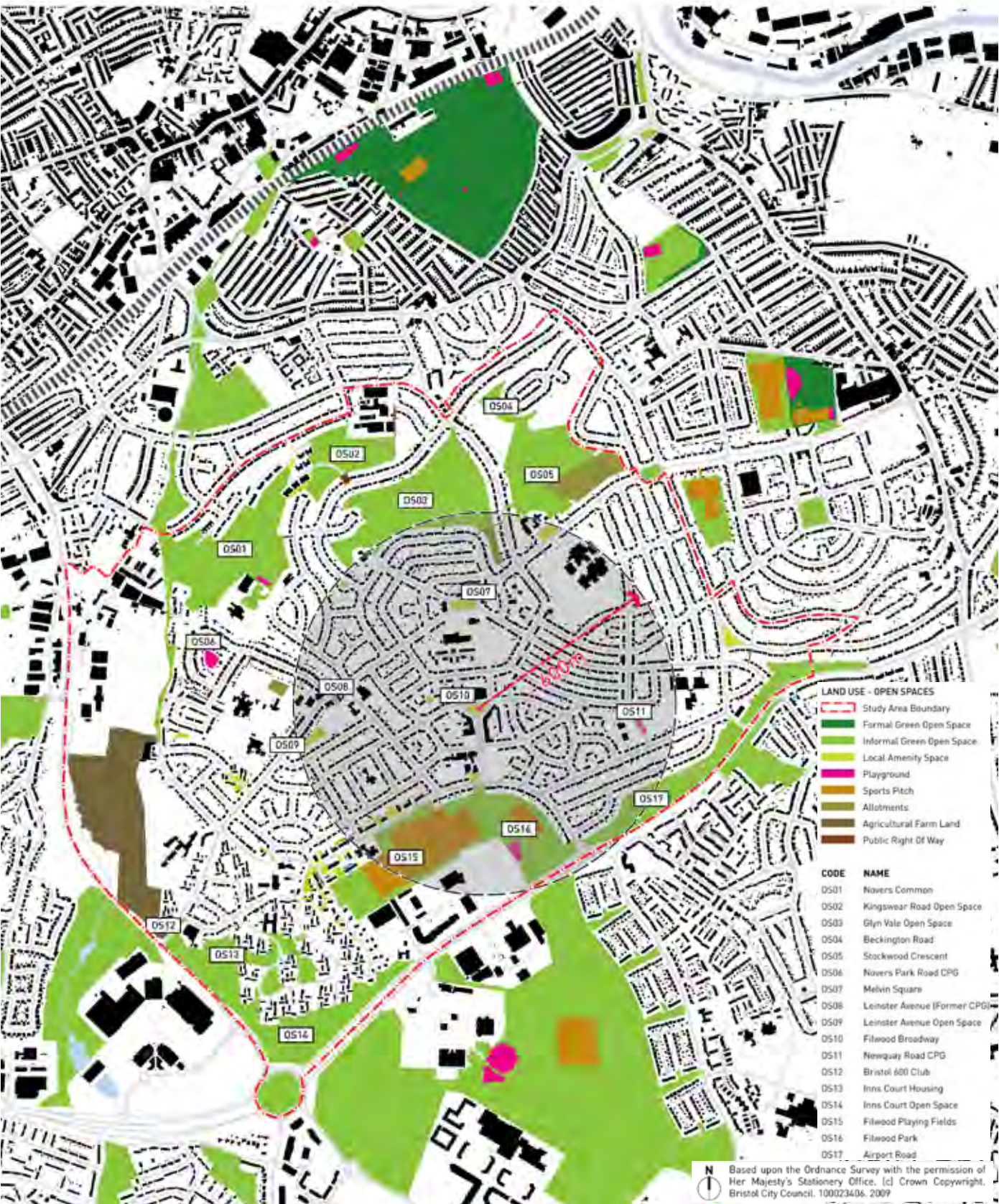
Notably, there is no formal open space situated within the 600m radius measured from Filwood Broadway, or indeed within the study area over all. A lack of medium sized public open spaces is also evident. This assumes that Filwood Park is a truly informal open space. There are a number of small children’s play spaces at Novers Park, Newquay Road and Filwood Broadway. Throughout the site, accessibility standards in terms of type of open space offer and distance (see planning paper) are not met.

Further significant open green spaces can be found to the south (Hengrove Park), north (Victoria Park) and east (Redcatch and Broadwalk Park). The east of the Northern Slopes contains some allotments sites, located around Kenmore Road and Andover Road.

These spaces provide a variety of uses and typologies, creating important areas for play, rest, planting and for movement, but this enjoyment is limited due to accessibility and anti social behaviour (Community Safety and Liveability Survey, 2008).

Figure 33: Land uses - Public Open Spaces (Parks and Green Space Strategy, 2008)

| CODE | NAME | m2 | ha |
|--------|------------------------------------|---------|-------|
| OS01 | Novers Common | 68,600 | 6.86 |
| OS02 | Kingswear Road Open Space | 34,300 | 3.43 |
| OS03 | Glyn Vale Open Space | 91,000 | 9.1 |
| OS04 | Beckington Road | 7,300 | 0.73 |
| OS05 | Stockwood Crescent | 54,700 | 5.47 |
| OS06 | Novers Park Children’s Play Ground | 1,700 | 0.17 |
| OS07 | Melvin Square | 2,200 | 0.22 |
| OS08 | Leinster Ave (Former CPG) | 450 | 0.045 |
| OS09 | Leinster Ave Open Space | 1,800 | 0.18 |
| OS10 | Filwood Broadway | 1,500 | 0.15 |
| OS11 | Newquay Rd Children’s Play Ground | 660 | 0.066 |
| OS12 | Bristol 600 Club (Novers Lane) | 1,400 | 0.14 |
| OS13 | Inns Court Housing | 22,600 | 2.26 |
| OS14 | Inns Court Open Space | 75,400 | 7.54 |
| OS15 | Filwood Playing Fields | 87,900 | 8.79 |
| OS16 | Filwood Park | 46,100 | 4.61 |
| OS17 | Airport Road | 56,800 | 5.68 |
| OS18 | Hartcliffe Way Roundabout | 13,300 | 1.33 |
| TOTALS | | 567,710 | 57 |



07 Land use - Open Spaces: Quality

07.3 Open Space Quality

The results from the Quality of Life in Your Neighbourhood Survey, 2005-07 provide some evidence that green open spaces are perceived as being of poor quality and show signs of neglect. An open space quality assessment, forming part of the Parks and Green Space Strategy (Bristol Parks, Culture and Leisure, 2005/06) confirms these perceived quality issues. None of the open spaces within the study area scored 'Good' or 'Excellent' under the citywide approach of assessing green space quality. According to the 'Quality of Life' survey, Knowle West residents visit open green spaces outside the study area more frequently than the spaces within. Many of the residents stated that the quality of the parks and green spaces is poor, with 52% considering that they have gotten worse over the years. Safety is also an issue with only 56% of people feeling safe in the local parks during day time. Many of the people interviewed believed local green space made them feel better about where they lived. In contradiction to the earlier described abundance of green space provided within the study area, the majority of respondents stated that a lack of green space was one of the worst things about the local area, and that an attractive park twenty minutes away was better than two unattractive parks close by. This review indicates that spacial distribution and quality of open spaces within the study area needs to be significantly improved. The figure opposite shows that within a 600m radius from Filwood Broadway no formal park is currently provided. This does not conform with the Council's aspiration for accessibility to formal green spaces. Hengrove park, located south of the Knowle West study area, is very popular with the residents of Knowle West. This is particularly related to the Wheel's Park play area within Hengrove park (highlighted in amber and located just south of the cinema complex). Wheel's Park is the only open space in this part of Bristol that scored a 'Good' in the Parks and Green Space Strategy Quality Assessment. Within the Knowle West study area Filwood Fields with its playing pitches is also very popular. This suggests that providing clear programmes for open spaces represents a successful way to attract users.

Figure 34: Land uses - Open Spaces: Quality (Parks and Green Space Strategy, 2005/06)



07 Land use: Local Amenities - Retail Offer and Community Facilities

07.4 Local Amenity

Knowle West is not well supplied with convenience shopping facilities. Limited retail offer is provided around Melvin Square and Newquay Road and there are a few smaller convenience stores located throughout Knowle West.

Filwood Broadway provides the central shopping centre within the framework area. It contains a range of facilities, including a bakery, butchers, a newsagent, a pharmacy, a betting shop and a convenience store.

In close vicinity to the study area there are two large retail centres which undoubtedly further weaken the ability of local traders to offer competitive prices.

In general, the amount of floorspace and actual offer in Knowle West is very limited, particularly in light of the number of people living in walking distance of Filwood Broadway. In March 2009 seven out of the 21 shop units at Filwood Broadway are vacant. This is one additional vacant unit in 2009 comparing it with 2006 data (DTZ, 2006). The value of the retail market has declined over time and a downwards spiral effect has generated a retail and service offer that cannot be considered adequate for a neighbourhood with over 13000 residents and an estimated number of 1200 local jobs.

Filwood Broadway Retail Composition

| Filwood Broadway | number of units | floorspace (m2) |
|-------------------|-----------------|-----------------|
| Comparison | 4 | 325 |
| Convenience | 4 | 279 |
| Retail Service | 2 | 492 |
| Leisure | 3 | 279 |
| Finance/ Business | 2 | 158 |
| Vacant | 6 | 1068 |

DTZ Retail Health Check 2006

A mapping exercise showed that the Knowle West area offers a significant number of community services (over 40). They form a vital part of the community infrastructure and are spread out across the study area. Some of those facilities such as the schools, the Knowle West Health Centre, Community Centre, The Parks, Churches, the Library, the Police and Knowle West Media Centre occupy large sites. Others community services like nurseries, social clubs and youth facilities are smaller in scale and can be found across the study area. There are five areas where community facilities are clustered. These are Filwood Broadway, Inns Court, around the Media Centre, Illminster Avenue Primary School and the area around The Parks.

07.5 Local Amenities: Qualitative Surveys

The Engaging Residents in Knowle West (Bristol Citywide Retail Study, Phase 2, DTZ, 2007) questioned residents on facilities and services. It found that only 26% liked the area for its shops. This is well below the benchmark of Easton where 66% use the local facilities, including the shops (52%). It highlighted the fact that most people in Knowle West shop at supermarkets outside the area, mostly at ASDA at Whitchurch (72%). Many did still use the local shops, half on a daily basis, with the most popular shops located on Newquay Road (60%) and Filwood Broadway (28%).

The survey also highlighted the lack of pubs, struggling retail and limited childcare provision. Although access is generally not considered high, Knowle West contains a number of important community facilities. The Engaging Residents workshop participants sought resident-led solutions to the area and found a strong desire (42%) for more youth activities and venues.

The Liveability Survey (Community Safety and Liveability Survey, Involving Residents in Solutions, 2008) highlighted that access to childcare and sports centres was only seen as “easy” by around half of the respondents.

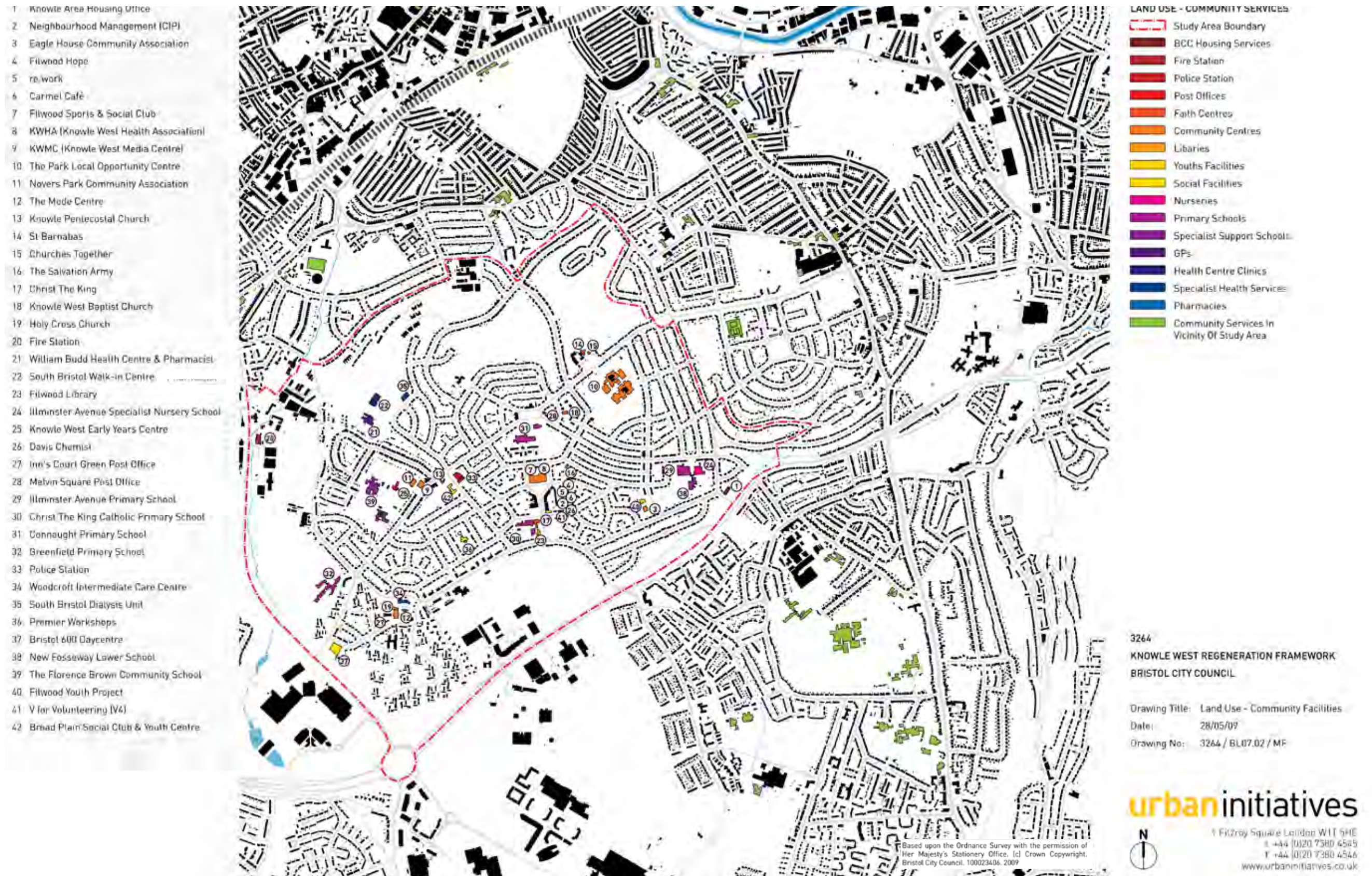
In essence, and based on the findings of the surveys carried out over the last couple of years, we can conclude, that there is a fairly high level of dissatisfaction with leisure services and facilities, for teenagers, adults, the elderly and disabled, with many perceiving that availability of activities for young people has declined.

This must be targeted in order to offer better facilities and greater opportunities for recreation, learning and leisure activities, likely to generate positive impacts on health, well-being, social skills and reduce anti-social behaviour.

The findings of the Community Buildings Audit (due in July 2009) will inform the agenda of the Regeneration Framework with regard to this.

07 Land use: Local Amenities - Retail Offer and Community Facilities

Figure 35: Land uses - Local Amenities



08 Density: Dwellings and Occupancy

The study area is approximately 325 ha in size and home to over 13,000 people, living in around 5,500 dwellings. The average gross density is measured as 17 dwellings per hectare, representing very low density, even within a suburban context.

Figure 36 and 37 show, however, significant variations within the area, both in terms of dwellings per hectare and occupancy per dwelling. A maximum of around 30 dwellings per hectare is achieved in the following areas:

- Leinster Avenue
- Illminster Avenue East and West and Broadwalk

Inns Court and Novers show 10 to 14 dwellings per hectare, the lowest densities. This is partly due to the large amounts of open spaces in these areas. However, a review of occupants per dwelling shows an average occupancy level of 2.2 and 2.3, confirming the very low density in these two areas.

The Glyn Vale area shows an average of 3 occupants per dwelling, the highest occupancy levels within the study area.

In line with emerging planning policy, it is expected that any new development at Knowle West will be at around double the current density (between 50 and 65 dwellings per hectare). Delivering this kind of medium density is likely to result in significant shifts in local density patterns.

Figure 36: Dwellings per ha by LSOA (2001)

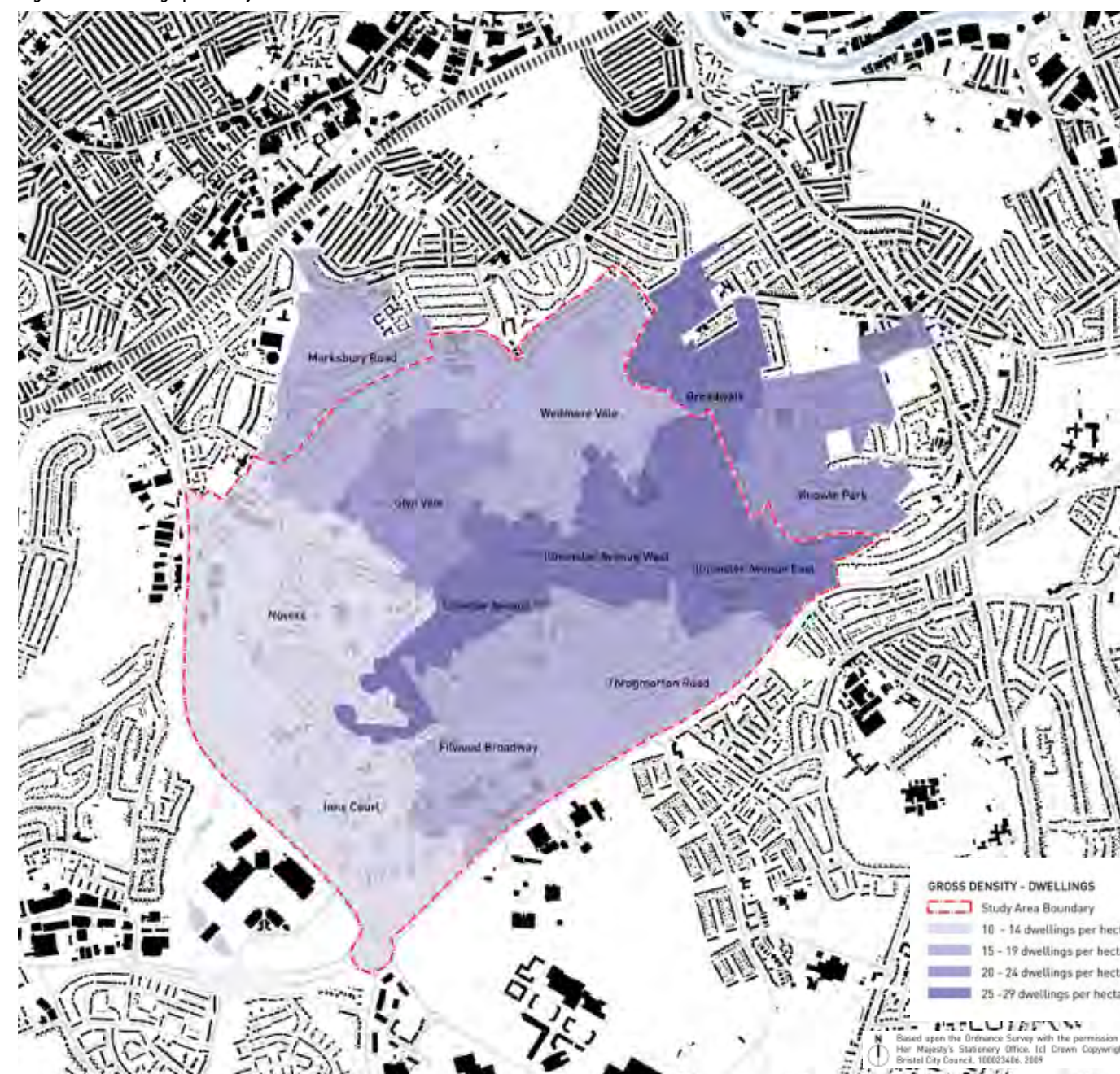
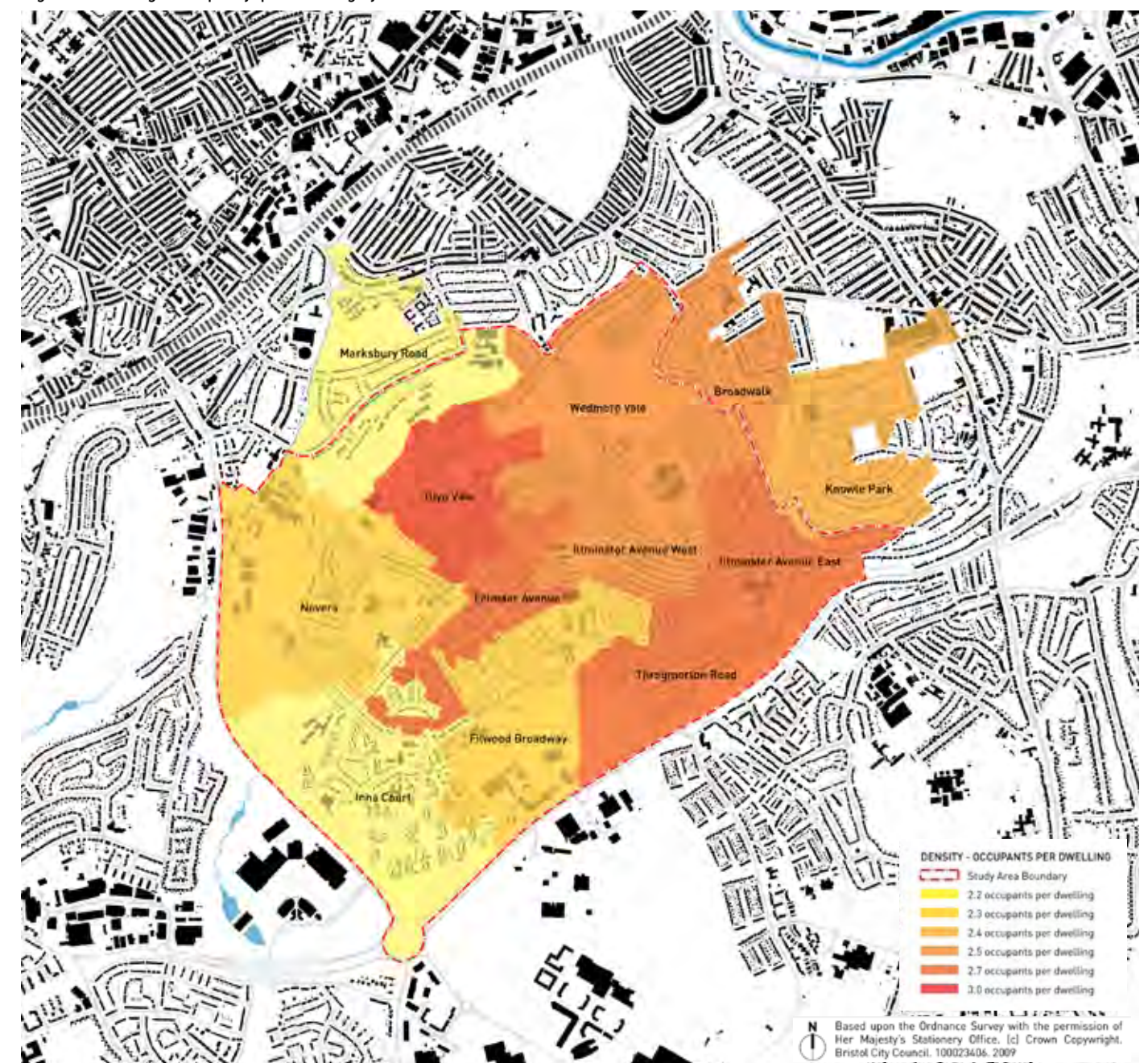


Figure 37: Average Occupancy per dwelling by LSOA (2001)



09 Townscape: Connectivity and Legibility

09.1 Connectivity and Legibility

The study area's townscape is strongly defined by its topography and hill-top setting. Large parts of Knowle West are situated on a plateau south of Bristol City Centre, providing vistas across Lower Knowle, Windmill Hill, Bedminster, Headley Park and the City centre.

As indicated in Figure 38, the study area is severely disconnected from its surrounding neighbourhoods to the north, west and south. Topography and bands of mature vegetation, reinforced by a dual carriage way (A4174) and impermeable industrial estates, represent layered barriers. The green buffer with relatively mature trees and hedges, combined with low building heights, prevents for instance visual connections from the A4174 into the study area. As indicated in the plan opposite a number of views reach in and out of the study area. The Church spire of Christ The King is the only aspect of Knowle West visible from Hengrove Way. From Knowle Park the spire as well as the silhouette of Filwood Broadway makes a good contribution to orientation. However, visual connections need to be strengthened by emerging design proposals.

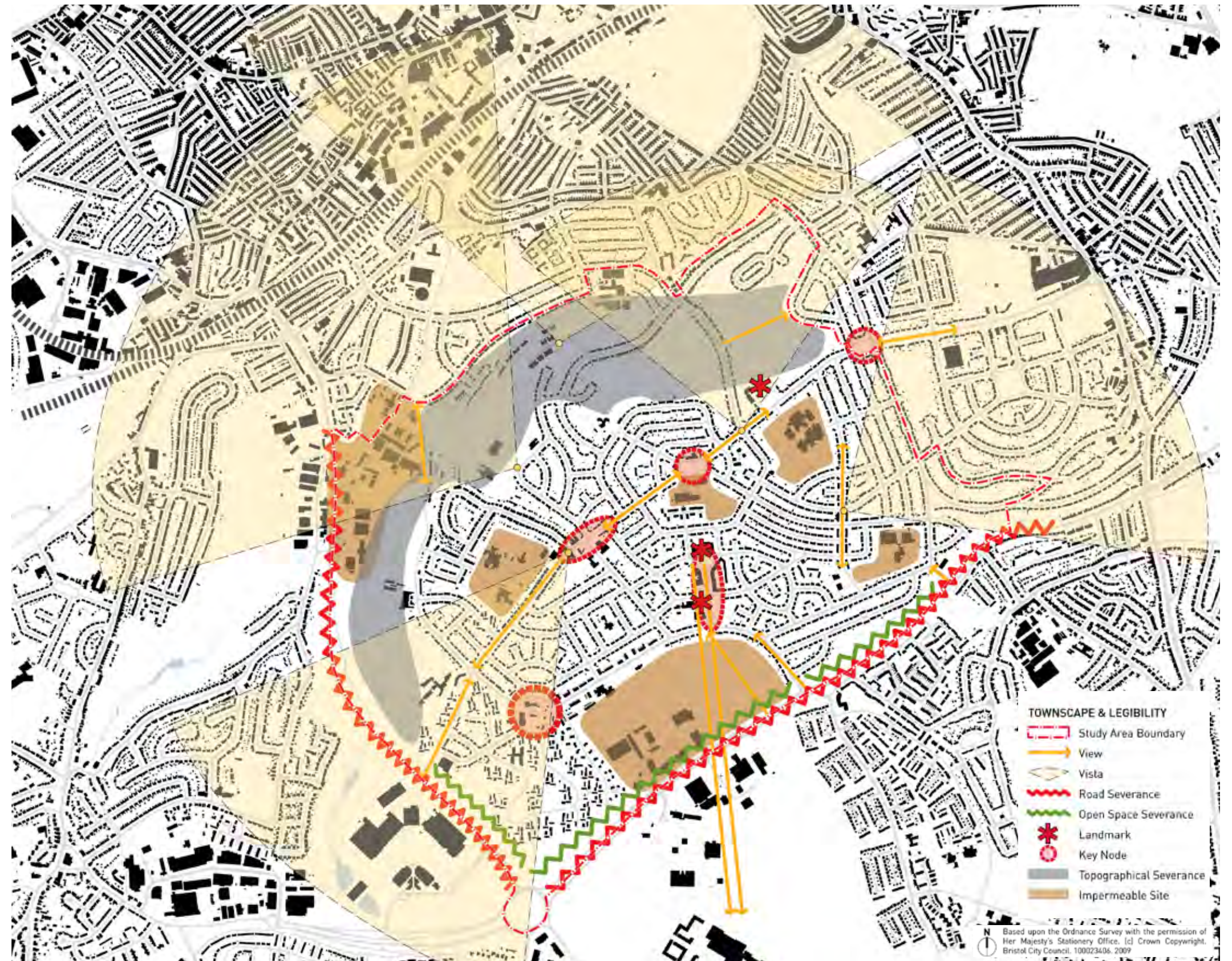
Significant long reaching views from Kingswear, Health park, Filwood Broadway, the junction Leinster Avenue/Broadbury Road and the junction Sommerdale Avenue/Newquay Road as well as from the junction Daventry Road/Wedmore Vale toward the surrounding ridges and across the city are particularly notable and their potential to create an improved sense of orientation will be explored further.

Orientation within the study area, particularly for visitors, is challenging. This is due to a number of townscape characteristics including a built form with uniform building heights and architectural style, lack of landmarks and little variation in street width, surface treatments and landscape features across the site. Within the built up area, public realm and streetscape attributes such as street trees, levels of enclosure, street furniture and distinctive open spaces facilitating a sense of arrival, public life and gatherings are sparse and in parts absent.

Nodes, mostly performing badly, are formed by the street junctions at Leinster Avenue and Broadbury Road, Melvin Square, Broadwalk Square, Filwood Broadway and Inns Court. Melvin Square, Inns Court and Filwood Broadway shopping parades are not supported by sufficient local footfall and passing trade. The church buildings of Christ the King and St Barnabas act as visual landmarks, while the Filwood Social Centre and its surrounding buildings act as an orientation point due to their location at the highest point within the site. Filwood Social Centre is however not visible from nor well connected to Melvin Square which severely dilutes the ability of the place to function as a local centre for Knowle West.

Six large sites providing facilities for over 1000 primary school pupils, health care and leisure and local employment are possibly the most active and alive parts of the estate during day time. However, they tend to have only one access/egress point, set back from the public street and are therefore hidden from the street, highly impermeable, acting as barriers to movement.

Figure 38: Townscape



09 Townscape: Character Areas

09.2 Character Areas

As shown in the Figure 39, the study area broadly consists of five broad character areas;

- The Green Fringe: the green open spaces at the edges
- The residential maze: urban fabric mainly built during the 1930s
- The Second Wave: Inns Court estate to the south west dating from the 1960s/1970s.
- The Fragmented Heart: the axis of Filwood Broadway to Melvin square
- The Industrial Employment Islands: two large scale industrial areas

The identified character areas are based on a distinct combination of the following six elements:

- Layout and grain of street, blocks and plots
- Landscape features
- Scale and massing (building heights, form and footprint)
- Use
- Material and detail
- Construction period

The following text provides thumbnail descriptions of each character area, supported by a series of diagrams and sections. Section 05 Site History and Built Heritage provides additional historic context.

The Green Fringe

The character of the green fringe is derived from prevailing natural site conditions, mainly topography, orientation and natural water courses. Built up areas are sparse and only found along a small number of streets, which connect the estate with the surrounding main road network. A limited footpaths network provides access to the green spaces and the surrounding neighbourhoods. The green fringe is punctuated by large scale buildings that are often used for community services. Overall, permeability and accessibility of the green fringe is poor. The possible benefits of Knowle West’s green fringe with its varied topography, dramatic views over the city, natural water courses, mature vegetation, meadows and allotments are not developed to their full potential. Proposals currently developed for Kingswear and Torpoint site, located toward the slopes in the north of the study area, are starting to address some of these issues which will provide a set of design solutions that can be further explored in the other parts of the Green Fringe.

The residential maze

The vast majority of the existing Estate was built in the 1930s, broadly set out on Garden City principles. During that time Knowle West expanded from Filwood Park towards the edges of the hill plateau, converting flat and slightly sloping fields into a network of residential streets.

The homes were based on a set of model design (‘The Ideal Home’), resulting in thousands of semi-detached hipped and

gable roofed houses, built of red brick and with often generous front and back gardens. Generally, the construction methods applied and materials used are reminisced of Arts and Crafts Movement. The Knowle West Estate has a striking coherent character.

The street layout and streetscape is of uniform character too with a distinct lack of the hierarchy that usually results from variation in street width, street furnishing and material, building heights and landscaping elements such as street trees and privacy strips. The network of well connected civic spaces and a central park where public life and community spirit could thrive, supporting the important social agenda of Garden Cities and suburbs, was never truly visible in the original layout of the estate. It was further diluted by adding more houses and semi-public facilities, meaning that open and public spaces were gradually filled up with private dwellings and larger buildings such as schools. Many of Knowle West’s streets frequently change direction and are of relatively short length. This, combined with a lack of a clear street hierarchy, distinctive corner buildings and landscape features, results in a poor sense of orientation. The lack of variation in built form in addition to the required street layout re-configurations, will be addressed in our design proposals. The under-provision of public spaces that could act as focal points for local amenities, public life and neighbourhood identity, contributes to the experience of walking or driving through a maze.

The fragmented heart

Filwood Broadway and Melvin Square form the heart of the Knowle West Estate, providing a range of services including shopping and community facilities. Building heights at this location are the highest in the estate emphasising the special character and overall significance of this centrally located axis. The parade at Filwood Broadway provides a distinct row of small shops in up to 4 storey high buildings. Filwood Social Centre, the vacated cinema building, and the shopping parades, date back to the late 1930s and form an ensemble worth retaining as they mark the history of the neighbourhood. They are good examples of the craftsmanship and ornamental detail typical of that time. The later addition of the church Christ The King (1952) with its distinctive spire is an important landmark, contributing to character, orientation and is visible for instance from neighbouring Knowle Park .

The old school, formerly located north of Melvin Square, and the swimming pool building, formerly located opposite Christ the King, have been demolished.

The visual and physical connection between Melvin Square and Filwood Broadway is fragmented.

Although possibly never intended by the original plan, we recognise the importance of this axis as a key structural intervention, creating a local centre and possibly a park in walking distance for many of the residents, and linked with the only local through-route (Nover’s Lane, Leinster Avenue, Daventry Road, Broad Walk). Connecting this main east-west route with the north-south axis will enable a clearly defined focus for public life, improved permeability, orientation and passing trade.

The second wave

Inns Court is a housing estate built in the 1960s on the principles of an American town called Radburn, characterised by features such as grouped houses set in landscaped spaces arranged around a cul-de-sac street layout separated from the main road network. This street layout broke away from-conventional street patterns where pedestrians and vehicles shared a street space framed by terraced or semi-detached

houses. Instead short cul-de-sacs are accessed off a circuitous feeder road, Inns Court Drive, and pedestrian paths are widely segregated from vehicular traffic. This layout resulted in a very inefficient ratio between land used and number of homes, poorly lit and unsupervised spaces, and difficulties with orientation, permeability and way finding. The houses at Inns Court are also of distinctive built form, mainly using a prefabricated panel system with mono-pitched roofs and a limited number of small windows.

Industrial employment islands

The two industrial areas are located toward the north western and southern edge of the study area and provide local job opportunities. Both sites are characterised by loosely clustered one to two storey industrial units used for storage, trading and depot purposes. The buildings have large footprints with yards and parking areas and are of no significant heritage value.

Figure 39: Character Areas



09 Townscape: Character Areas



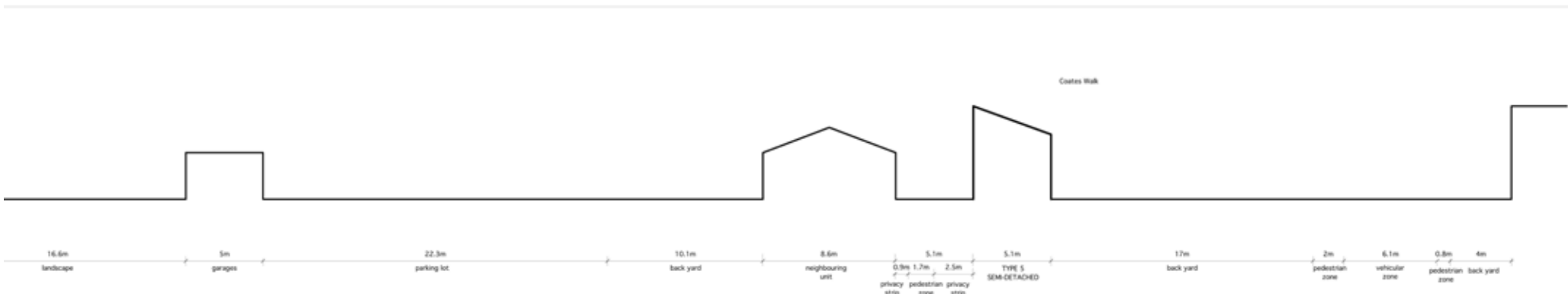
The green fringe: the green open spaces at the edges



The residential maze: urban fabric dating mainly from the 1930s



The second wave: Inns Court estate dating from the 1960s



The second wave: Inns Court estate (typical section)



The fragmented heart: View from Filwood Social Centre across Filwood Broadway



The fragmented heart: Christ The King church with its large and distinctive bell tower visible from afar

09 Townscape: Street dimensions and block typologies

09.3 Street dimensions

An obvious hierarchy of streets, measured here in carriageway width, is only one aspect of improving a sense of orientation, connectivity and accessibility to the local centres, however, it is an important one with impacts on walking, cycling, public transport and car movement patterns. The streets of Knowle West do not follow a legible street hierarchy. For instance, the carriageway width along the shortest east-west link (Nover's Lane, Leinster Avenue, Daventry Road, Broad Walk) varies significantly in carriageway width (5 to >8m). A longer route around the built-up area (Inns Court Avenue, Creswicke Road, Throgmorton Road, Salcombe Road, all in blue) provides one width which makes it easier to navigate and to be understood as perimeter road. The carriageway width

analysis also demonstrates how severely disconnected Filwood Broadway shopping centre is from passing trade and activity. It demonstrates that introducing a north-south link facilitating public transport access into the centre will only be achievable through a significant re-configuration of the street layout. Carriageway dimensions of below 6.9m are very challenging for the facilitation of parallel on-street parking arrangements. Increasing residential density and car ownership in the built up areas of Knowle West requires therefore very careful planning and management of parking arrangements from the outset.

As part of Chapter 10, we present a number of typical street sections providing more detailed illustrations on street dimensions including spaces used for front gardens and parking.

Figure 40 Carriageway width pattern



09.4 Block typologies

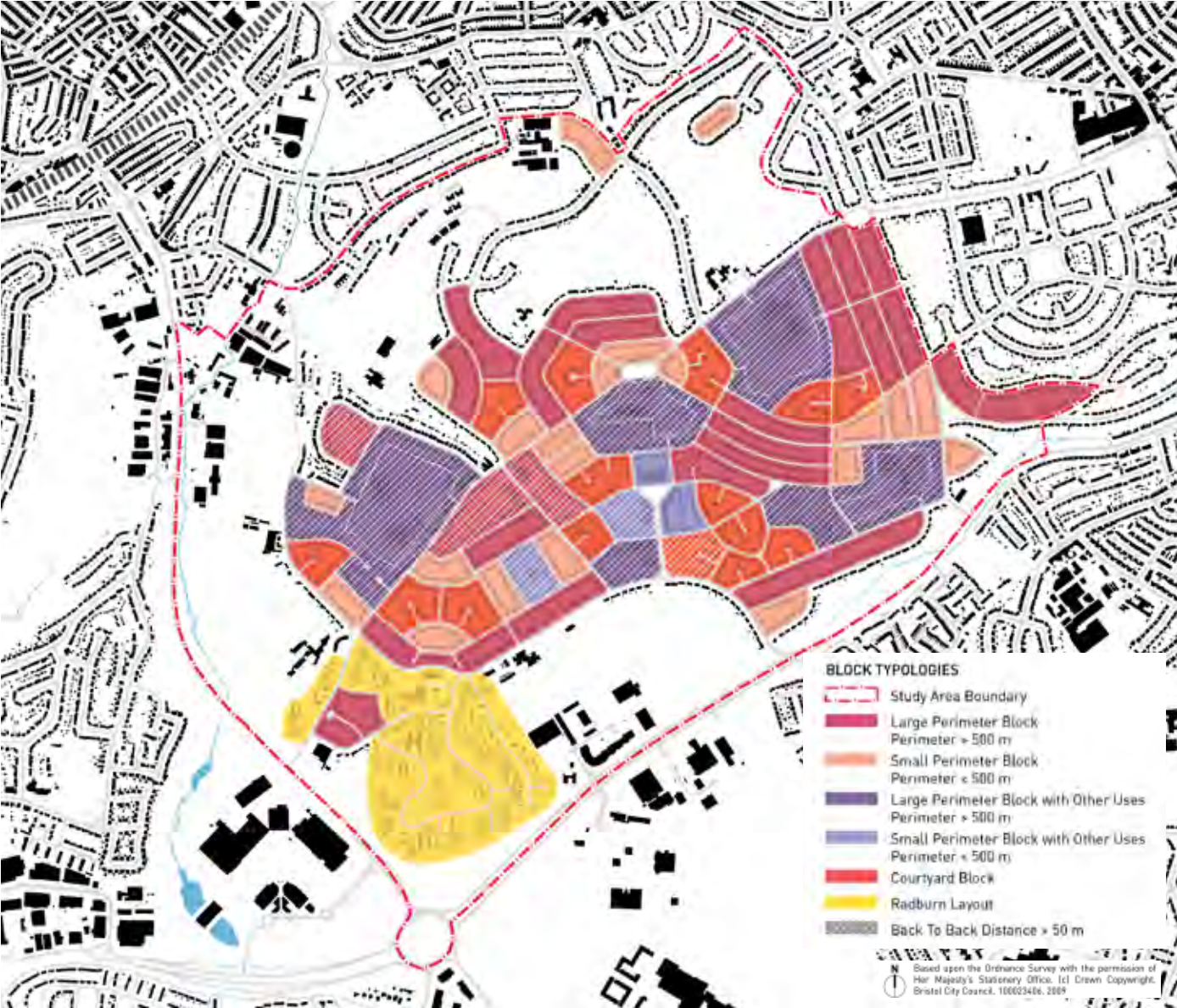
The analysis of block typologies, illustrated in detail in Figure 41 shows that Knowle West is made up of a patchwork of two main traditional block types:

- very large residential and mixed use blocks with perimeter streets of longer than 500m
- a smaller block type arranged around a cul-de-sac/court yard

Both block types facilitate a good distinction between public and private realm. The plan below also shows the blocks that are deeper than 50m (measured from the backs of buildings). These blocks have the greatest potential to improve permeability in the neighbourhood, provide space for increased densities, and provide land for public spaces.

The Inns Court Estate, built in the 1960s in a Radburn layout, breaks away from the perimeter block pattern. Instead, the houses are arranged in clusters, separated from a feeder street. They form form a third block type which does not facilitate a clear distinction between public and private spaces.

Figure 41: Block typologies



09 Townscape: Impressions



View from Knowle Park toward Knowle West with the spiral of Christ The King clearly visible



Houses built in the early 1930s



Houses built in the late 1930s



The spiral of Christ The King and Filwood Broadway's silhouette



View from the junction Daventry Road/Wedmore Vale toward the City

09 Townscape: Impressions



Large green spaces: Filwood Park



Medium sized open spaces: The Parks



Green corridors: Edge between the large spaces and private back gardens



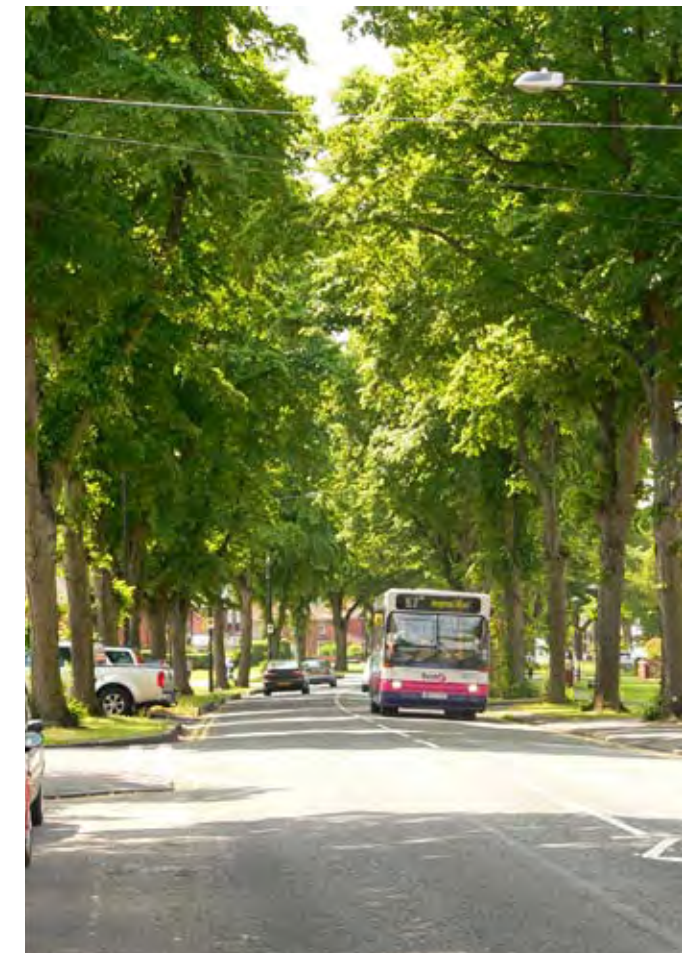
Large green spaces: Northern Slopes



Medium sized open spaces: St Barnabas



Medium sized green spaces: Private Gardens and allotments



Green corridors: Broad walk

10 Housing Typologies

10.1 Housing mix

Knowle West consists of 5,500 homes, most of which were constructed in the 1930s to cater for Bristol’s growth at that time. The majority of the houses are semi-detached (62%) or terraced (27%) homes. There very few flats in the area - around 7% - of which most are in purpose-built blocks. The table below highlights the limited variation in the building types. The mix of units is typical of a low density ‘Garden City’ style development.

| Filwood Ward - Housing mix | | |
|-------------------------------|--------|--------|
| | Number | % |
| Detached | 105 | 4.30% |
| Semi-detached | 2,835 | 61.80% |
| Terraced | 1,218 | 20.80% |
| Flats – purpose build block | 240 | 5.20% |
| Flats – conversion | 75 | 1.80% |
| Flats – commercial building | 21 | 0.50% |
| Mobile or temporary structure | 3 | 0.10% |
| In a shared dwelling | 0 | 0.00% |

Bristol City Council

10.2 House types

Figure 42 provides an overview of the spatial distribution of typical house types identified. The plan also shows where the examples used to describe reoccurring house types (1to 7) are located within the study area.

The following table provides an overview of identified house types:

| No | Type description | Primary external variation |
|----|--|----------------------------|
| 1 | Semi-detached, hipped roof (1930s) | roof design |
| 2 | Semi-detached, gable fronted (1930s) | roof design, projections |
| 3 | Semi-detached, mono pitch roof (1960s) | roof design |
| 4 | Semi-detached, pitched roof (1990s) | rear extensions |
| 5 | Terraced, gable fronted end houses (1930s) | roof design |
| 6 | Terraced, hipped roof (1930s) | projections |
| 7 | Terraced, pitched roof (1960s) | garage, extensions |

10.3 House sizes

The majority of homes have 4 to 6 rooms (85%) which equates to 2 to 4 bedroom properties. As indicated in the typology sheets in the appendix, the sizes of the properties vary, with some listed as 3 bedroom houses with only 70m2 living space. House sizes appear to be significantly below current new build English Partnership standards, and bedroom sizes are particularly poor.

| Filwood Ward - Number of rooms (housing) | | |
|--|--------|---------|
| Number of Rooms | Number | % |
| 1 room | 15 | 0.30% |
| 2 rooms | 70 | 1.80% |
| 3 rooms | 309 | 6.90% |
| 4 rooms | 591 | 13.10% |
| 5 rooms | 2,474 | 54.80% |
| 6 rooms | 812 | 18.0% |
| 7 rooms | 142 | 3.20% |
| 8 or more rooms | 97 | 2.20% |
| Total | 4,510 | 100.00% |

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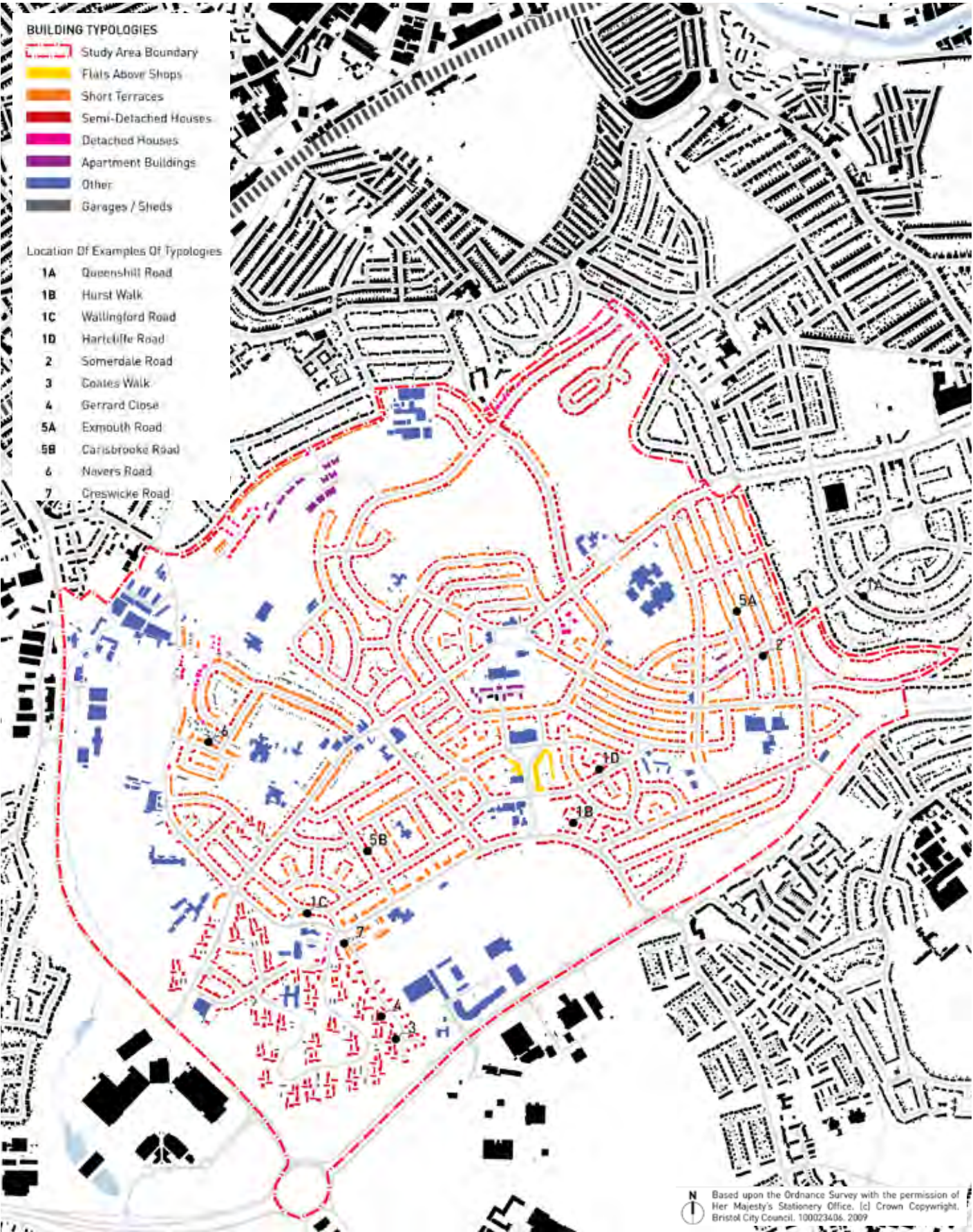
10.4 Construction and Energy Performance

Of the house types set out above, there are two broad forms of construction, both of which perform poorly against current energy performance specifications. The mid 20th century homes are built using single skin brick construction, often with some render and traditional tiled roofs. The 1960s homes are built using concrete panels. More local data on the issue of energy performance of homes will be made available at the Options Stage of the design process.




10.5 Key observations at this stage

- Many homes have been altered, but the size and arrangement of homes within the plot could allow for considerable improvements and variation in typologies.
- A very limited number of homes appear to have been extended within the loft space. Further investigation is required to establish the feasibility of loft extensions.
- On-street parking is limited and increased population through infill etc is likely to result in increased parking particular if public transport provision stays low.
- Energy efficiency ratings are scored as low to medium and are in many cases a result of poor insulation standards. Furthermore, Inns Court (type 3) shows very low current levels coupled with little or no potential for improvements in the future. More baseline information on housing quality / decent home standards will be used into the design process using data supplied by BCC on the 30/05/09.

Figure 42: Housing Typologies



10 Housing Typologies: Semi-detached homes

| TYPE | SEMI-DETACHED hipped roof (1930s) 1A | | SEMI-DETACHED hipped roof (1930s) 1B | SEMI-DETACHED hipped roof (1930s) 1C | SEMI-DETACHED hipped roof (1930s) 1D |
|------------------------------|---|----|---|---|---|
| AVERAGE PLOT SIZE (m²) | 280 | | 220 | 200 | 240 |
| AVERAGE PLOT WIDTH (m) | 9 | | 9.4 | 8.1 | 8.8 |
| AVERAGE PLOT DEPTH (m) | 30.8 | | 23.6 | 24.3 | 26.7 |
| PRIVACY STRIP (m²) | 36 | | 62 | 50 | 45 |
| | Distance to Street (m) | | 8.3 | 8 | 7.8 |
| BUILDING HEIGHT (m) | 2,5 | | 2 | 2.5 | 2.5 |
| NUMBER OF STOREYS | 50 | | 36 | 34.5 | 44 |
| AVERAGE FOOTPRINT (m²) | 91 | | 72 | 69 | 88 |
| DWELLING SIZE | 3 | | 3 | 3 | 3 |
| NUMBER OF BEDROOMS | ESTIMATED SIZES (m²) | | | | |
| | Bedroom 1 4.2 x 3.3 = 13.9 | | 3.94 x 2.84 = 11.2 | 3.94 x 2.84 = 11.2 | 3.81 x 3.33 =12.7 |
| | Bedroom 2 3.3 x 3.1 = 10.2 | | 3.23 x 3.15 =10.2 | 3.15 x 2.64 = 8.3 | 3.25 x 3.15 = 10.2 |
| | Bedroom 3 3.3 x 2.2 = 7.3 | | 3.35 x 2.24 = 7.5 | 2.97 x 2.41 = 7.2 | 3.33 x 2.26 = 7.5 |
| Number of Units | 1 | | 1 | 1 | 1 |
| ENERGY PERFORMANCE (%) | | | | | |
| Efficiency rating: | Current | 47 | 56 | 62 | |
| | Potential | 71 | 62 | 73 | |
| Environmental Impact rating: | Current | 41 | 54 | 60 | |
| | Potential | 66 | 60 | 72 | |
| OFF-STREET PARKING | 1/2 cars | | Up to 3 cars, attached garage & front parking | | Uncovered, 1/2 cars |
| PLANS |  | |  | |  |
| SECTION |  | |  | |  |
| ADDRESS | Queenshill Rd, BS4 2XL | | Hurst Walk, BS4 1HG | | Hartcliffe Rd |
| SOURCE | http://www.taylorsestateagents.co.uk/property-details-rpsTYW-BE1090105 | | http://www.findaproperty.com/displayprop.aspx?edid=00&salarent=0&pid=3637531 | | http://www.findaproperty.com/displayprop.aspx?edid=00&salarent=0&pid=3698896 |

10 Housing Typologies: Semi-detached

| TYPE | SEMI-DETACHED | SEMI-DETACHED | SEMI-DETACHED |
|-----------------------------|---|---|---|
| | gable frontage (1930s) 2 | mono pitch roof (1970s) 3 | pitched roof (1990s) 4 |
| AVERAGE PLOT SIZE (m²) | 250 | 160 | 190 |
| AVERAGE PLOT WIDTH (m) | 11 | 8 | 7 |
| AVERAGE PLOT DEPTH (m) | 23 | 18 | 27 |
| PRIVACY STRIP (m²) | | | |
| | Total Area (m²) 60 | 20.6 | 33 |
| | Distance to Street (m) 8.3 | Enclosed off cul-de-sac | 7.7 |
| BUILDING HEIGHT (m) | | 2.5 | 2.5 |
| NUMBER OF STOREYS | 2.5 | 37.4 | 36 |
| AVERAGE FOOTPRINT (m²) | 34.2 | 74.8 | 72 |
| DWELLING SIZE | 68.3 | | |
| NUMBER OF BEDROOMS | 3 | 2 | 3 |
| ESTIMATED SIZES (m²) | | | |
| | Bedroom 1 3.78 x 2.84 =10.7 | 4.88 X 2.74 = 13.4 | 4.19 x 2.49 = 10.4 |
| | Bedroom 2 3.15 x 2.31=7.3 | 4.72 x 3.04 = 14.3 | 3.25 x 2.49= 8 |
| | Bedroom 3 2.77 x 2.84 =7.9 | - | 2.74 x 2.08= 5.7 |
| Number of Units | 1 | 1 | 1 |
| ENERGY PERFORMANCE (%) | | | |
| Efficiency rating: | Current 61 | 58 | 78 |
| | Potential 74 | 60 | 81 |
| Environmental Impact rating | Current 54 | 52 | 75 |
| | Potential 70 | 53 | 79 |
| OFF-STREET PARKING | | Yes, Communal parking lot on Coates Walk Close | |
| PLANS |  |  |  |
| SECTION |  |  |  |
| ADDRESS | 5, Coates Walk, Coates, Doncaster, S12 4LQ | 10, Coates Walk, Coates, Doncaster, S12 4LQ | 10, Coates Walk, Coates, Doncaster, S12 4LQ |
| SOURCE | http://www.findapropterty.com/displayprop.aspx?edid=00&salarent=0&pid=3372494 Ocean Home Estate Agents | http://www.andrewsonline.co.uk/buying-selling/property-details.aspx?ID=52383 | |

10 Housing Typologies : Terraced homes

| TYPE | TERRACED | | TERRACED | | TERRACED | | TERRACED | |
|-----------------------------|--|--|---|--|---|--|---|--|
| | gable fronted end houses (1930s) 5A | | gable fronted end houses (1930s) 5B | | hipped roof (1930s) 6 | | pitched roof (1970s) 7 | |
| |  | |  | |  | |  | |
| AVERAGE PLOT SIZE (m²) | 250 | | 165 | | 215 | | 145 | |
| AVERAGE PLOT WIDTH (m) | 8 | | 5.5 | | 6.5 | | 6 | |
| AVERAGE PLOT DEPTH (m) | 30 | | 30 | | 33 | | 24 | |
| PRIVACY STRIP (m²) | | | | | | | | |
| | Total Area (m²) 62 | | 29 | | 47.52 | | 57.2 | |
| | Distance to Street (m) 10.5 | | 8.6 | | 8.9 | | 11.7 | |
| BUILDING HEIGHT (m) | | | | | | | | |
| NUMBER OF STOREYS | 2.5 | | 2.5 | | 2.5 | | 2 | |
| AVERAGE FOOTPRINT (m²) | 47 | | 35 | | 40 | | 49 (63.5 garage included) | |
| OVERALL DWELLING SIZE (m²) | 90 | | 71 | | 80 | | 80 | |
| NUMBER OF BEDROOMS | 3 | | 3 | | 3 | | 3 | |
| ESTIMATED SIZES (m²) | | | | | | | | |
| | Bedroom 1 3.84 x 3.43 = 13.2 | | 5.9 x 3.1 = 18.3 | | 4.01 x 3.02 = 12.1 | | 4.04 x 2.97 = 11.2 | |
| | Bedroom 2 3.43 x 2.72 = 9.3 | | 3.8 x 2.4 = 9.1 | | 4.01 x 3.38 = 13.6 | | 3.76 x 2.72 = 10.2 | |
| | Bedroom 3 2.95 x 2.44 = 7.2 | | 2.7 x 2.3 = 6.2 | | 2.21 x 2.92 = 6.5 | | No info. provided | |
| Number of Units | | | | | | | | |
| ENERGY PERFORMANCE (%) | | | | | | | | |
| Efficiency rating | Current | | 57 | | 54 | | 54 | |
| | Potential | | 71 | | 72 | | 70 | |
| Environmental Impact rating | Current | | 51 | | 48 | | 47 | |
| OFF-STREET PARKING |   | |   | |   | |   | |
| PLANS |  | |   | |   | |   | |
| SECTION |  | |  | |  | |  | |
| ADDRESS | Exmouth Rd, BS4 1BD | | Carisbrooke Rd, BS4 1SB | | Novers Rd, BS4 1QI | | Creswicke Rd, BS4 1UG | |
| SOURCE | http://www.besleyhill.co.uk/propertyDetails.php?pid=107750 | | http://www.taylorsestateagents.co.uk/property-details-rpsTYW-BEI090156 | | http://www.oceanhome.co.uk/Default.aspx?TabId=104&CompanyID=OCEAKNOW&AgencyID=OCEAKNOW&ID=OKP02024 | | http://www.besleyhill.co.uk/propertyDetails.php?pid=107750 | |

11 Property Market

11.1 Residential

Although the residential sector has been one of the worst affected sectors in the property market, there has been a reasonable level of activity in south Bristol and it is likely that this sector has one of the greatest roles to play in the regeneration of Knowle West. The existing stock has seen price deflation of around 30% from the peak in 2007, higher than most other areas in Bristol. A typical 3 bed house can be purchased for around £80,000, which represents value for money for the size of the accommodation. There is reasonable demand for housing still in the area, some from private investors attracted by the low values and internal demand created by the existing population who have a strong preference to remain in the area close to their roots and family. Despite the low values in Knowle, due to low average incomes in the area, affordability is still a real issue for those present to purchase their own homes.

Housing Need

A housing need assessment and affordability assessment for the West of England Sub-Region was completed in May 2005. The report provides high level detail regarding need and affordability for Bristol, which is then broken down further into regions (rather than wards) of the city. The tables below identifies affordability measures and components of need for Bristol.

| Affordability Measures for 2006 (%) | | | | | | | |
|--|--------------------|-----------------|----------------|------------|-------------|--------------|------|
| Can Buy Income | Can Buy wealth-adj | Can Buy working | Can Buy All<60 | Shared Own | Homebuy 75% | Private Rent | |
| Bristol Inner NW | 25.7 | 31.9 | 32.0 | 24.5 | 7.1 | 14.8 | 38.7 |
| Bristol Outer NW | 32.3 | 38.4 | 41.9 | 36.9 | 5.2 | 15.9 | 50.3 |
| Bristol Outer NE | 27.9 | 32.7 | 38.5 | 34.3 | 10.8 | 13.1 | 35.3 |
| Bristol Inner E | 31.0 | 36.5 | 40.9 | 32.4 | 13.8 | 13.6 | 37.7 |
| Bristol Outer E | 33.2 | 38.0 | 42.4 | 36.4 | 18.0 | 15.7 | 45.2 |
| Bristol South | 31.3 | 35.8 | 41.0 | 35.6 | 11.3 | 14.8 | 40.0 |
| Bristol | 30.6 | 35.9 | 39.7 | 33.7 | 11.2 | 14.9 | 41.9 |
| Source: West of England Sub Region -Housing Need & Affordability Assessment 2005 | | | | | | | |

Components of Need for 2006

| New hhd unafford | Net migrants unafford | Owners -> soc rent | Backlog @ 10% | Shared Own | Homebuy | |
|--|-----------------------|--------------------|---------------|------------|---------|-----|
| Bristol Inner NW | 439 | 75 | 38 | 110 | 53 | 112 |
| Bristol Outer NW | 277 | 9 | 44 | 98 | 8 | 24 |
| Bristol Outer NE | 201 | 15 | 20 | 56 | 17 | 20 |
| Bristol Inner E | 286 | 45 | 27 | 156 | 15 | 15 |
| Bristol Outer E | 374 | 25 | 59 | 164 | 116 | 101 |
| Bristol South | 567 | 33 | 75 | 188 | 35 | 46 |
| Bristol | 2145 | 202 | 263 | 772 | 244 | 317 |
| Source: West of England Sub Region -Housing Need & Affordability Assessment 2005 | | | | | | |

The assessment uses forecasting to predict demand for the future, which indicated that the level of need would fall for Bristol between 2006-2009, although the need would still be there, and that affordability to buy would worsen. The current economic downturn will have an effect on the supply if affordable housing, particularly through S106 agreements, where the supply will reduce as a result of scheme viability and slower rates for housing completions. Although, it is also worth noting that the affordable housing sector has rescued a number of schemes, with housing associations and Housing Corporation grant securing standing speculative developer stock.

The report highlights that housing need in Bristol is greatest for one bed accommodation, 50.5% (2 beds =23.5%, 3 beds=26.1%) and that the ability of the under 35's age group to buy was the most acute.

Net need for affordable housing was predicted to be in surplus in 2009 for South Bristol, which is a reflection of the amount of affordable accommodation in Knowle West and the surrounding areas.

Bristol City Council's Affordable Housing Delivery Plan for 2006-2010 is targeting 400 new affordable homes to be completed per year by 2010, with an extra 10% affordable housing for intermediate/First Time Buyers at Hengrove Park and Hartcliffe Campus.

There has been some new residential development in Knowle West, which has demonstrated good demand for new property of higher standards. One of these developments offered for sale, private apartments, but was not successful in selling any of these first time round, indicating that the values sought at £100,000+ struggle to compete with values for existing housing stock. Somer Housing Association have proven the need for affordable intermediate housing, allowing access to good quality new property. Values for new homes inside the Framework Area appear to be in the order of £170-£180 per square foot.

New developments on the periphery of Knowle West demonstrate a reasonable uplift in value achievable, although the recent downward trend in the property market has had an affect, particularly the apartment schemes. Evidence indicates that 3 bedroom properties are one of the most popular unit types. Values for private sale units are now in the order of £200 - £220 per square foot, although at the peak of the market in 2007, these were over £300 per square foot.

There is good private rental demand, with evidence indicating rents around £550 per month for a 3 bed house. Purchasers of residential accommodation in Knowle West at present are predominantly local investors with cash who are seeking to take advantage of the area's low values for investment, while constraints on the availability and cost of credit are limiting the ability of those buyers requiring mortgages. Local residential agents report that demand is supported by the area's links and proximity to the city centre (3 miles to the north). Furthermore, the Symes Avenue regeneration scheme has created jobs for local residents which has had the effect of supporting demand throughout the current economic downturn.

Having said that, reposessions have nevertheless become an issue for some residents, but offer an opportunity to others providing supply to the market.

11.2 Industrial/warehousing

There is currently a good supply of industrial/warehousing space of varying sizes in the area. There is potential demand for new good quality space as indicated by the Employment Land Survey. Existing rentals range between £5.00 - £9.00 per square foot, depending upon the age and type of space, with yields in the order of 8-9%.

11.3 Office

There is a reasonable amount of surplus space currently available in the immediate vicinity of the Framework Area offering differing sizes and specification. Rental values typically range between £10-£12 per square foot and yields of 9% for existing stock. There is a reasonable amount of land/development opportunity available in the area, such as Imperial Park and Hawkfield Business Park, as well as that proposed on Hengrove Park. On the basis of the amount of space currently available and potential for new build already in the area, we believe that there is limited opportunity for office accommodation in Framework Area.

11.4 Retail

Activity at Symes Avenue, Broadwalk Shopping Centre and Imperial Park have largely taken much of the capacity in the area and any loose requirements. The provision of retail in Knowle West is poor, with lettings at Filwood Broadway achieving just £4-£5 per square foot. The retail offer here is now lacking any critical mass or general attraction, so has, in effect, entered a downward spiral. Given the proximity to such a large area of housing, there is pent-up demand for convenience retail and prospects for some niche/specialist/ independent provision. Such demand is however likely to require more than just a revamp of the existing Filwood Broadway area.

Current transactional evidence is limited, but we consider yields have been in the order of 7.5% to 8.0% in areas adjoining Knowle West. There appears to be plenty of food retail on offer in the vicinity around Knowle West as well as additional space for A1, A3 uses at Imperial Park.

Discussions with agents have not revealed any outstanding demand for significant amounts of retail accommodation, either within, or in the immediate vicinity of the framework area. Panther Securities' regeneration of Symes Avenue (approximately 1 km south of the framework area's southern boundary at Hengrove Way)

provided a new c. 80,000 sq ft Morrisons superstore (which opened in November 2007), a petrol filling station and 8 other retail outlets as well as a community centre and play area. We are unaware of any plans to bring forward more retail accommodation anywhere in the framework area, or its immediate vicinity.

11.5 Leisure

There is limited leisure provision within Knowle West and no specific requirements from operators of which we are aware. There is some great leisure facilities available at Hengrove as well as more planned, from which Knowle West can benefit. There is a lack of public houses in the area, however the trend appears to be for decline in this sector across the country.

11.6 Opportunities

- There is potential for greater provision of accommodation for the elderly, which could also provide job opportunities in the area.
- The existing green spaces offer opportunity for improved landscaping and recreational areas, as well as offering development prospects.
- Public realm improvements and a strategy to deal with untidy front gardens, could have a real impact upon improving the visual quality and attractiveness of the area.
- The relocation of companies from constrained or more valuable city centre sites could improve the job offer in the area, although Hengrove Park is likely to capture the majority of this.
- Convenience retailing is required, however change of significant scale is required to facilitate this, together with an employment base to support such provision.
- Residential accommodation of all types, but through wide ranging tenures, particularly shared ownership models, is required. There is a need for critical mass to be created from any development within the Knowle West area in order to attract a more diverse population. The need for improved linkages to Hengrove Park will be important to ensure greater connectivity and access to the facilities and opportunities that will grow from there.
- Knowle West has some good and positive attributes and the need for both private and public investment to penetrate the area is very much required. Whilst there are limited requirements in the area, any regeneration proposals will need to seek to create its own demand and identity. The area needs to offer value for money in order to compete with its neighbours, but significantly standards need to improve across the area.

More detail is set out in the Property Market Paper.

12 Ownership & Tenure

As demonstrated in chapter 09 and 10, the mix of house types found in the area is limited. Knowle West is dominated by semi-detached properties representing approximately 62% of the total offer, with an additional 27% represented by terraced housing. The lack of choice, as well as the small size of the homes, are key issues within the existing stock.

In total, 45% of all households own their home outright or with a mortgage. This proportion is around 15% below the regional average. The majority of these units were purchased through right-to-buy and it is estimated that approximately 20-30 homes per year are purchased from the local authority via this mechanism.

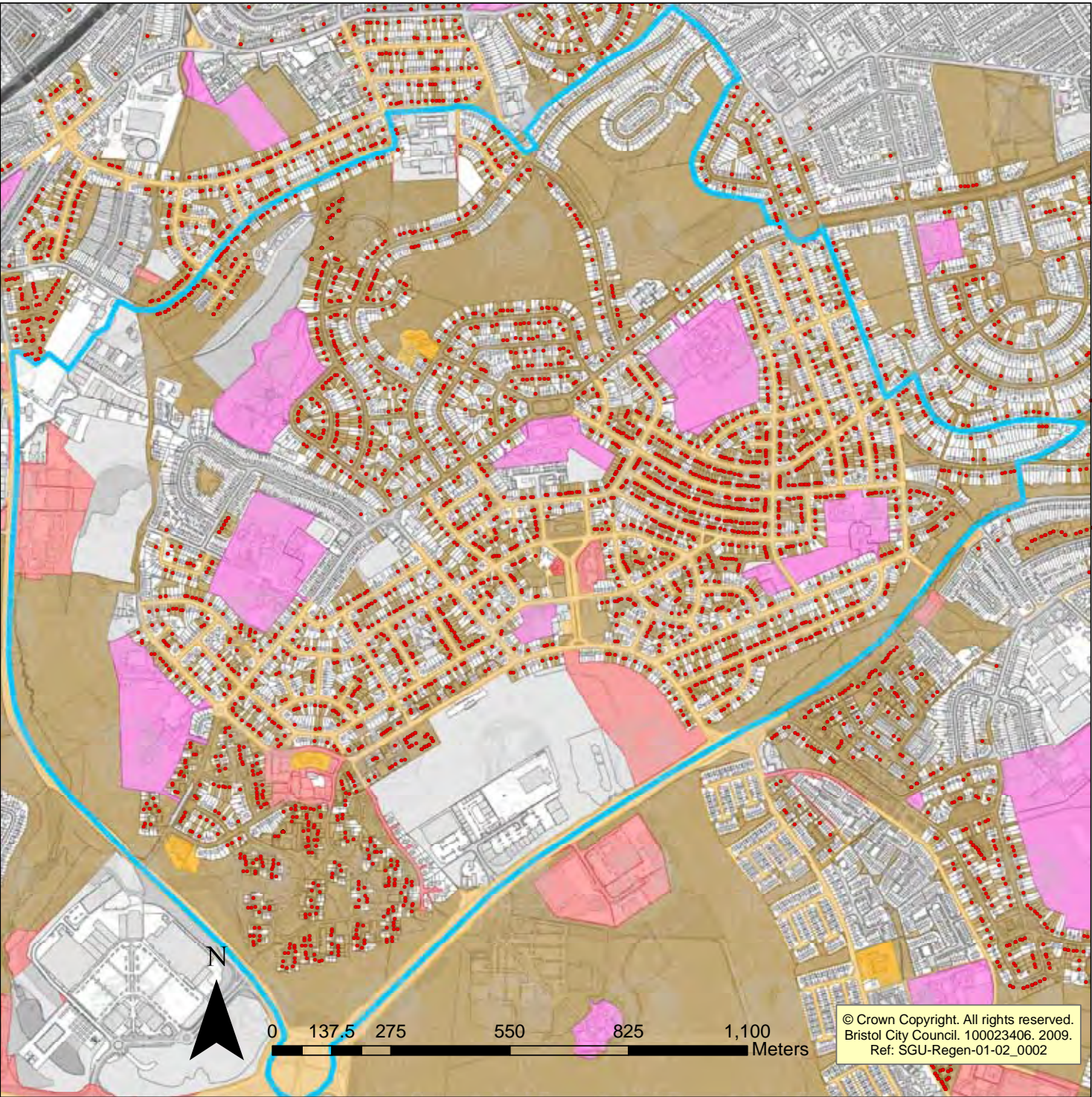
As shown in Figure 43 over 41% of dwellings within Filwood ward are rented from the local authority.

Figure 43: Filwood Housing tenure

| | Number | % |
|---|--------|--------|
| Owns outright | 720 | 16.00% |
| Owns with a mortgage or loan | 1,317 | 29.30% |
| Shared ownership | 13 | 0.30% |
| Private rented – landlord or letting agency | 136 | 3.00% |
| Private rented – employer | 8 | 0.20% |
| Private rented – friend or relative | 30 | 0.70% |
| Rented from Council (Local Authority) | 1,855 | 41.30% |
| Other social rented | 151 | 3.40% |
| Living rent free | 253 | 5.60% |

Figure 44 shows properties and land in public ownership. Homes in public ownership are scattered throughout the estate with Novers the only area showing very high levels of private home ownership through out. The pattern of ownership will have significant impact on the pace of implementation and delivery strategies. Large parts of Filwood Broadway is in public ownership which will facilitate a degree of certainty in terms of delivering the proposals to be developed as part of the Outline Planning Application for Filwood Broadway. However, individual plots and lands north of Melvin Square are not in public ownership and are likely to require discussion and negotiation with landowners and tenants. A similar approach is required for private lands located in particular suitable strategic locations to unlock significantly improved links, wayfinding, public space provision and improved housing choice.

Figure 44: Land ownership as provided by BCC, April 2009



Map of Knowle West Regeneration Area

Legend

Council Houses

Knowle West Management Area

Current Ownership

Department

CD - City Development

CYPS - Children And Young People's Services

HSC - Health And Social Care

NH - Neighbourhoods

RE - Resources

Non Bristol

13 Next Steps

This briefing document summarises key outputs to date and marks the transition from project stage 1 to project stage 2.

Stage 2 involves the identification of any significant data and knowledge gaps and a number of decisions/activities under the following headings:

- Planning status of the Regeneration Framework
- Final Community Involvement programme and publicity of activities
- Extent of Outline Planning Application for Filwood Broadway and subsequent decision on Environmental Impact Assessment
- Clarification on status/significance of Site Allocations Plan for Filwood with regard to options and 'soft' sites (see Figure 45)
- Starting the work on delivery aspects of the framework, based on market review baseline findings
- Best practice review and possible generation of early options with the Client and the Community
- Completion of Community Buildings Audit

In Stage 2 and Stage 3, we will carry out intensive consultation and engagement, working closely with the community and key stakeholders.

The Community Involvement Plan [draft status] provides details on stages, events/activities, objectives, audiences, key dates and key deliverables of the agreed consultation process. We have assumed that we will work closely with the Knowle West Team and other key stakeholders over a period of 12 months (Feb 2009 to Feb 2010). It is anticipated that we will assist BCC in carrying out study tours over the summer, prior to the activities outlined below.

Key activities by month:

September/October 2009

- Knowle West Futures Conference (1 day, Conference): Vision/Objectives/Options
- Knowle West Conversations (3 days, local presence and outreach activities as well as twitter profile to engage with younger residents)
- Knowle West Futures Exhibitions I

October 2009

- Knowle West Team Options Workshop 1
- Study tour (max 50 people)

November 2009

- Knowle West Team Options Workshop 2
- September 2009
- Knowle West Team meeting

November/December 2009

- Knowle West Team meeting
- Knowle West Futures II: Public Exhibition
- Leaflet (2xA3) informing on preferred options and questionnaire (household drop, possibly online)

December to February 2009

- Knowle West Team meeting
- Two power point presentations
- Two local newsletter and local press articles
- Publication Final reports on websites

Figure 45: Site Allocations - Call for sites, June 2008

